

Chemical Analysis Report

SW-DIST-2019-11-21-01

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

Event Description: **Wire Beluah Hunter #5**

Request ID: **RQ-2019-11-18-05**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Date Certified: 11-DEC-2019 13:29



Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Lake Beulah SW

Collection Date/Time: 11/20/2019 11:30

Field ID: G2SW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138020	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P374651	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P375346	
	SM 2120 B	Color (true)	9.0	A	PCU	P374629	
	SM 2320 B-97	Total Alkalinity	60		mg CaCO3/L	P374988	
	SM 2540 C-97	TDS	80		mg/L	P375143	
	SM 2540 D-97	TSS	6	I	mg/L	P375127	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P374993	
2138024	EPA 350.1 Rev. 2.0	Ammonia-N	0.63		mg N/L	P374932	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P375082	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P374702	
	EPA 365.1 Rev. 2.0	Total-P	0.064		mg P/L	P375112	
	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P374888	
2138028	EPA 300.0 Rev. 2.1 dissolved	Sulfate	2.6		mg SO4/L	P375352	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374596	
2138036	EPA 200.7 Rev. 4.4	Barium	10.2		ug/L	P374877	
		Calcium	22.8		mg/L	P374877	
		Iron	110	I	ug/L	P374877	
		Magnesium	1.65		mg/L	P374877	
		Sodium	2.8		mg/L	P374877	
		Zinc	5.0	U	ug/L	P374877	
		Aluminum	22		ug/L	P374877	
	EPA 200.8 Rev. 5.4	Antimony	0.14	I	ug/L	P374877	
		Arsenic	0.40		ug/L	P374877	
		Boron**	137		ug/L	P374877	
		Cadmium	0.020	U	ug/L	P374877	
		Chromium	0.40	U	ug/L	P374877	
		Copper	0.40	U	ug/L	P374877	
		Lead	0.20	U	ug/L	P374877	
		Nickel	0.50	U	ug/L	P374877	
		Selenium	0.20	U	ug/L	P374877	
		Silver	0.010	U	ug/L	P374877	
		Thallium	0.10	U	ug/L	P374877	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Lake Wire West

Collection Date/Time: 11/20/2019 09:15

Field ID: G2SW0056

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138021	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P374652	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P375346	
	SM 2120 B	Color (true)	12		PCU	P374635	
	SM 2320 B-97	Total Alkalinity	51		mg CaCO3/L	P374989	
	SM 2540 C-97	TDS	53		mg/L	P375143	
	SM 2540 D-97	TSS	2	I	mg/L	P375127	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P374994	
2138025	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P374932	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P375082	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P374702	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P375112	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P374888	
2138029	EPA 300.0 Rev. 2.1 dissolved	Sulfate	0.37	I	mg SO4/L	P375352	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374596	
2138037	EPA 200.7 Rev. 4.4	Barium	13.3		ug/L	P374877	
		Calcium	20.8		mg/L	P374877	
		Iron	30	U	ug/L	P374877	
		Magnesium	1.27		mg/L	P374877	
		Sodium	2.5		mg/L	P374877	
		Zinc	5.8	I	ug/L	P374877	
		Aluminum	16	I	ug/L	P374877	
		Antimony	0.28		ug/L	P374877	
		Arsenic	1.30		ug/L	P374877	
		Boron**	22.8		ug/L	P374877	
	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P374877	
		Chromium	0.40	U	ug/L	P374877	
		Copper	0.43	I	ug/L	P374877	
		Lead	2.65		ug/L	P374877	
		Nickel	0.50	U	ug/L	P374877	
		Selenium	0.20	U	ug/L	P374877	
		Silver	0.010	U	ug/L	P374877	
		Thallium	0.10	U	ug/L	P374877	

Ref. Method and Comment:

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

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

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 12/09/2019.

Sample Location: Lake Hunter @ Center

Collection Date/Time: 11/20/2019 10:10

Field ID: G2SW0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138022	EPA 180.1 Rev. 2.0	Turbidity	20		NTU	P374652	
	EPA 300.0 Rev. 2.1	Chloride	9.9		mg Cl/L	P375346	
	SM 2120 B	Color (true)	15	A	PCU	P374638	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P374989	
	SM 2540 C-97	TDS	68		mg/L	P375143	
	SM 2540 D-97	TSS	21	I	mg/L	P375127	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P374994	
2138026	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P374932	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P375082	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P374702	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P375112	
	SM 5310 B-00	Organic Carbon	7.9		mg C/L	P374888	
2138030	EPA 300.0 Rev. 2.1 dissolved	Sulfate	2.5		mg SO4/L	P375352	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P374596	
2138038	EPA 200.7 Rev. 4.4	Barium	8.1		ug/L	P374877	
		Calcium	21.4		mg/L	P374877	
		Iron	190		ug/L	P374877	
		Magnesium	2.04		mg/L	P374877	
		Sodium	6.3		mg/L	P374877	
		Zinc	6.6	I	ug/L	P374877	
	EPA 200.8 Rev. 5.4	Aluminum	218		ug/L	P374877	
		Antimony	0.44		ug/L	P374877	
		Arsenic	0.59		ug/L	P374877	
		Boron**	180		ug/L	P374877	
		Cadmium	0.020	U	ug/L	P374877	
		Chromium	0.60	I	ug/L	P374877	
		Copper	0.69	I	ug/L	P374877	
		Lead	1.08		ug/L	P374877	
		Nickel	0.50	U	ug/L	P374877	
		Selenium	0.20	U	ug/L	P374877	
		Silver	0.010	U	ug/L	P374877	
		Thallium	0.10	U	ug/L	P374877	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

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

Sample Location: Lake Hunter North

Collection Date/Time: 11/20/2019 10:40

Field ID: G2SW0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2138023	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P374651	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P375346	
	SM 2120 B	Color (true)	15		PCU	P374638	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P374989	
	SM 2540 C-97	TDS	72		mg/L	P375144	
	SM 2540 D-97	TSS	6	I	mg/L	P375128	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P374994	
2138027	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P374932	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P374850	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P374702	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P375123	
	SM 5310 B-00	Organic Carbon	7.2		mg C/L	P374888	
2138031	EPA 300.0 Rev. 2.1 dissolved	Sulfate	2.4		mg SO4/L	P375352	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P374598	
2138039	EPA 200.7 Rev. 4.4	Barium	7.5		ug/L	P374877	
		Calcium	22.0		mg/L	P374877	
		Iron	150		ug/L	P374877	
		Magnesium	2.10		mg/L	P374877	
		Sodium	6.6		mg/L	P374877	
		Zinc	5.0	U	ug/L	P374877	
	EPA 200.8 Rev. 5.4	Aluminum	183		ug/L	P374877	
		Antimony	0.37		ug/L	P374877	
		Arsenic	0.56		ug/L	P374877	
		Boron**	189		ug/L	P374877	
		Cadmium	0.020	U	ug/L	P374877	
		Chromium	0.86	I	ug/L	P374877	
		Copper	0.47	I	ug/L	P374877	
		Lead	0.77		ug/L	P374877	
		Nickel	0.50	U	ug/L	P374877	
		Selenium	0.20	U	ug/L	P374877	
		Silver	0.010	U	ug/L	P374877	
		Thallium	0.10	U	ug/L	P374877	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374651

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374652

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374877

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374877

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375346

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P375352

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374932

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374932

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374850

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375082

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374702

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375112

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375123

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374596

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374598

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

Reference Method: SM 2120 B
Batch ID: P374629

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P374635

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P374638

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P374988

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

Reference Method: SM 2320 B-97
Batch ID: P374989

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

Reference Method: SM 2540 C-97
Batch ID: P375143

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P375144

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375127

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375128

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P374993

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P374994

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P374888

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	99.0		P	85 - 115
Calcium	107		P	85 - 115
Iron	111		P	85 - 115
Magnesium	107		P	85 - 115
Sodium	106		P	85 - 115
Zinc	99.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.8		P	85 - 115
Antimony	98.6		P	85 - 115
Arsenic	96.5		P	85 - 115
Boron	104		P	85 - 115
Cadmium	93.7		P	85 - 115
Chromium	96.7		P	85 - 115
Copper	96.1		P	85 - 115
Lead	99.1		P	85 - 115
Nickel	96.7		P	85 - 115
Selenium	93.4		P	85 - 115
Silver	102		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375346

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

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P375352

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374932

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374850

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375082

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

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375082

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374702

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375112

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375123

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374598

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.1		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P374629

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

Reference Method: SM 2120 B
Batch ID: P374635

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P374638

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P374988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P374989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P374993

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P374994

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P374888

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	106		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138268	Barium	95.4		P	80 - 120
2138268	Calcium	104		P	80 - 120
2138268	Iron	106		P	80 - 120
2138268	Magnesium	104		P	80 - 120
2138268	Sodium	104		P	80 - 120
2138268	Zinc	94.9		P	80 - 120
2138420	Barium	98.3	99.6	P/P	80 - 120
2138420	Calcium	103		P	80 - 120
2138420	Iron	106	108	P/P	80 - 120
2138420	Magnesium	101		P	80 - 120
2138420	Sodium	102		P	80 - 120
2138420	Zinc	98.4	99.2	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138268	Aluminum	95.3		P	80 - 120
2138268	Antimony	100		P	80 - 120
2138268	Arsenic	96.7		P	80 - 120
2138268	Boron	100		P	80 - 120
2138268	Cadmium	95.9		P	80 - 120
2138268	Chromium	98.6		P	80 - 120
2138268	Copper	92.7		P	80 - 120
2138268	Lead	99.0		P	80 - 120
2138268	Nickel	93.5		P	80 - 120
2138268	Selenium	92.2		P	80 - 120
2138268	Silver	102		P	80 - 120
2138268	Thallium	104		P	80 - 120
2138420	Aluminum	99.3	95.2	P/P	80 - 120
2138420	Antimony	99.7	97.1	P/P	80 - 120
2138420	Arsenic	98.7	97.9	P/P	80 - 120
2138420	Boron	105	99.9	P/P	80 - 120
2138420	Cadmium	95.2	93.0	P/P	80 - 120
2138420	Chromium	100	97.5	P/P	80 - 120
2138420	Copper	96.6	94.9	P/P	80 - 120
2138420	Lead	101	98.4	P/P	80 - 120
2138420	Nickel	98.6	97.5	P/P	80 - 120
2138420	Selenium	91.9	90.3	P/P	80 - 120
2138420	Silver	103	100	P/P	80 - 120
2138420	Thallium	106	103	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137936	Chloride	98.1		P	90 - 110
2138050	Chloride	98.2		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P375352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138562	Sulfate	102		P	90 - 110
2138799	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137970	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374850

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138058	Kjeldahl Nitrogen	94.5	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137988	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375112

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137969	Total-P	106	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138185	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137929	O-Phosphate-P	94.9	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374598

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138031	O-Phosphate-P	101	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P374994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138154	Fluoride	97.9	96.6	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P374888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2137969	Organic Carbon	106	105	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138050	Turbidity	1.76	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P374652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138091	Turbidity	0.930	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138420	Barium	1.37	Spike	P	0 - 20
2138420	Calcium	1.92	Spike	P	0 - 20
2138420	Iron	1.93	Spike	P	0 - 20
2138420	Magnesium	3.20	Spike	P	0 - 20
2138420	Sodium	2.27	Spike	P	0 - 20
2138420	Zinc	0.823	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138420	Aluminum	3.58	Spike	P	0 - 20
2138420	Antimony	2.67	Spike	P	0 - 20
2138420	Arsenic	0.877	Spike	P	0 - 20
2138420	Boron	4.11	Spike	P	0 - 20
2138420	Cadmium	2.25	Spike	P	0 - 20
2138420	Chromium	2.82	Spike	P	0 - 20
2138420	Copper	1.79	Spike	P	0 - 20
2138420	Lead	2.99	Spike	P	0 - 20
2138420	Nickel	1.10	Spike	P	0 - 20
2138420	Selenium	1.79	Spike	P	0 - 20
2138420	Silver	2.95	Spike	P	0 - 20
2138420	Thallium	2.34	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138050	Chloride	0.869	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P375352

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

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P375352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138799	Sulfate	0.678	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137970	Ammonia-N	0.0217	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138058	Kjeldahl Nitrogen	7.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138024	Kjeldahl Nitrogen	6.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137988	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137969	Total-P	5.09	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138185	Total-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137929	O-Phosphate-P	0.421	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138031	O-Phosphate-P	4.45	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P374629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138020	Color (true)	1.21	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P374635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138154	Color (true)	1.21	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P374638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138022	Color (true)	1.97	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P374988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138257	Total Alkalinity	0.185	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P374989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138154	Total Alkalinity	0.125	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P375143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137938	TDS	6.64	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P375144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138053	TDS	3.88	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P374993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138257	Fluoride	0.520	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P374994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138154	Fluoride	0.960	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P374888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2137969	Organic Carbon	0.632	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95880

Included Lab Sample IDs: 2138028, 2138029, 2138030, 2138031

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	98.7	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A95892

Included Lab Sample IDs: 2138020

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

Reference Method: SM 2120 B

Run ID: A95896

Included Lab Sample IDs: 2138021, 2138022, 2138023

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	102	103	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95900

Included Lab Sample IDs: 2138020, 2138021, 2138022, 2138023

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95909

Included Lab Sample IDs: 2138024, 2138025, 2138026, 2138027

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

Reference Method: SM 5310 B-00

Run ID: A95973

Included Lab Sample IDs: 2138024, 2138025, 2138026, 2138027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	102	P/P	90 - 110
Organic Carbon	105	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95997

Included Lab Sample IDs: 2138024, 2138025, 2138026, 2138027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	100	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96013

Included Lab Sample IDs: 2138027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	97.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A96024

Included Lab Sample IDs: 2138036, 2138037, 2138038, 2138039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	99.1	P/P	90 - 110
Barium	97.1	101	P/P	95 - 105
Calcium	101	103	P/P	95 - 105
Calcium	103	102	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Iron	103	102	P/P	95 - 105
Magnesium	102	102	P/P	90 - 110
Magnesium	102	102	P/P	95 - 105
Sodium	102	102	P/P	95 - 105
Sodium	102	102	P/P	90 - 110
Zinc	103	100	P/P	90 - 110
Zinc	97.6	103	P/P	95 - 105

Reference Method: SM 2320 B-97

Run ID: A96025

Included Lab Sample IDs: 2138020, 2138021, 2138022, 2138023

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

Reference Method: SM 4500 F-C-97

Run ID: A96025

Included Lab Sample IDs: 2138020, 2138021, 2138022, 2138023

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.5	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96087

Included Lab Sample IDs: 2138020, 2138021, 2138022, 2138023

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1 dissolved

Run ID: A96087

Included Lab Sample IDs: 2138028, 2138029, 2138030, 2138031

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96108

Included Lab Sample IDs: 2138024, 2138026, 2138027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.4	98.4	P/P	90 - 110
Total-P	98.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96110

Included Lab Sample IDs: 2138025

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96111

Included Lab Sample IDs: 2138024, 2138025, 2138026

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A96141

Included Lab Sample IDs: 2138036, 2138037, 2138038, 2138039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	94.8	94.3	P/P	90 - 110
Aluminum	96.1	94.8	P/P	90 - 110
Antimony	95.9	96.2	P/P	90 - 110
Antimony	96.2	95.1	P/P	90 - 110
Arsenic	95.9	96.8	P/P	90 - 110
Arsenic	96.8	98.4	P/P	90 - 110
Boron	101	103	P/P	90 - 110
Boron	103	103	P/P	90 - 110
Cadmium	95.3	95.4	P/P	90 - 110
Cadmium	95.4	94.9	P/P	90 - 110
Chromium	101	99.7	P/P	90 - 110
Chromium	98.8	101	P/P	90 - 110
Copper	96.8	98.0	P/P	90 - 110
Copper	98.0	99.9	P/P	90 - 110
Lead	97.1	97.6	P/P	90 - 110
Lead	97.3	97.1	P/P	90 - 110
Nickel	96.9	98.0	P/P	90 - 110
Nickel	98.0	99.6	P/P	90 - 110
Selenium	96.2	97.4	P/P	90 - 110
Selenium	97.4	96.1	P/P	90 - 110
Silver	102	103	P/P	90 - 110
Silver	103	102	P/P	90 - 110
Thallium	93.8	94.4	P/P	90 - 110
Thallium	94.4	95.1	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					1.76	
	Turbidity					0.930	
EPA 200.7 Rev. 4.4	Barium	99.0	95.4	98.3	99.6		1.37
	Calcium	107	104	103			1.92
	Iron	111	106	106	108		1.93
	Magnesium	107	104	101			3.20
	Sodium	106	104	102			2.27
	Zinc	99.1	94.9	98.4	99.2		0.823
EPA 200.8 Rev. 5.4	Aluminum	97.8	95.3	99.3	95.2		3.58
	Antimony	98.6	100	99.7	97.1		2.67
	Arsenic	96.5	96.7	98.7	97.9		0.877
	Boron	104	100	105	99.9		4.11
	Cadmium	93.7	95.9	95.2	93.0		2.25
	Chromium	96.7	98.6	100	97.5		2.82
	Copper	96.1	92.7	96.6	94.9		1.79
	Lead	99.1	99.0	101	98.4		2.99
	Nickel	96.7	93.5	98.6	97.5		1.10
	Selenium	93.4	92.2	91.9	90.3		1.79
	Silver	102	102	103	100		2.95
	Thallium	101	104	106	103		2.34
EPA 300.0 Rev. 2.1	Chloride	99.8	98.2	98.1		0.869	
EPA 300.0 Rev. 2.1 dissolved	Sulfate	101	99.1	102		0.678	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	101			0.0217
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	94.5	102			7.00
	Kjeldahl Nitrogen	102					6.48
EPA 353.2 Rev. 2.0	NO2NO3-N	101	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	104	106	101			5.09
	Total-P	106	103	102			1.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.4	94.9	95.3			0.421
	O-Phosphate-P	96.1	101	96.7			4.45
SM 2120 B	Color (true)	101				1.21	
	Color (true)	100				1.21	
	Color (true)	102				1.97	
SM 2320 B-97	Total Alkalinity	103				0.185	
	Total Alkalinity	103				0.125	
SM 2540 C-97	TDS					6.64	
	TDS					3.88	
SM 4500 F-C-97	Fluoride	98.2					0.520
	Fluoride	97.2	97.9	96.6			0.960
SM 5310 B-00	Organic Carbon	106	106	105			0.632

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2138020, 2138021, 2138022, 2138023
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2138036, 2138037, 2138038, 2138039
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2138036, 2138037, 2138038, 2138039
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2138020, 2138021, 2138022, 2138023
EPA 300.0 Rev. 2.1 dissolved / E31780	Sulfate, dissolved, in filtered, aqueous matrices	2138028, 2138029, 2138030, 2138031

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2138024, 2138025, 2138026, 2138027
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2138024, 2138025, 2138026, 2138027
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2138024, 2138025, 2138026, 2138027
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2138024, 2138025, 2138026, 2138027
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2138028, 2138029, 2138030, 2138031
SM 2120 B / E31780	True Color measured at 450 nm	2138020, 2138021, 2138022, 2138023
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2138020, 2138021, 2138022, 2138023
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2138020, 2138021, 2138022, 2138023
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2138020, 2138021, 2138022, 2138023
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2138020, 2138021, 2138022, 2138023
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2138024, 2138025, 2138026, 2138027

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	11/21/2019			11/21/2019 17:41	Samantha Davila	2138020, 2138021, 2138022, 2138023
EPA 200.7 Rev. 4.4	11/21/2019	11/26/2019 15:05	Elliott D. Healy	11/27/2019 12:44	Betina Topolski	2138036
	11/21/2019	11/26/2019 15:05	Elliott D. Healy	11/27/2019 12:52	Betina Topolski	2138037
	11/21/2019	11/26/2019 15:05	Elliott D. Healy	11/27/2019 12:59	Betina Topolski	2138038
	11/21/2019	11/26/2019 15:05	Elliott D. Healy	11/27/2019 13:27	Betina Topolski	2138039
EPA 200.8 Rev. 5.4	11/21/2019	11/26/2019 15:05	Elliott D. Healy	12/05/2019 21:22	Alexander Thompson	2138036
	11/21/2019	11/26/2019 15:05	Elliott D. Healy	12/05/2019 21:32	Alexander Thompson	2138037
	11/21/2019	11/26/2019 15:05	Elliott D. Healy	12/05/2019 22:30	Alexander Thompson	2138038
	11/21/2019	11/26/2019 15:05	Elliott D. Healy	12/05/2019 22:40	Alexander Thompson	2138039
EPA 300.0 Rev. 2.1	11/21/2019			12/04/2019 16:36	Lipi Saha	2138020
	11/21/2019			12/04/2019 16:48	Lipi Saha	2138021
	11/21/2019			12/04/2019 17:00	Lipi Saha	2138022
	11/21/2019			12/04/2019 17:12	Lipi Saha	2138023
EPA 300.0 Rev. 2.1 dissolved	11/21/2019			12/05/2019 07:18	Lipi Saha	2138028
	11/21/2019			12/05/2019 07:30	Lipi Saha	2138029
	11/21/2019			12/05/2019 07:42	Lipi Saha	2138030
	11/21/2019			12/05/2019 07:54	Lipi Saha	2138031
EPA 350.1 Rev. 2.0	11/21/2019			11/26/2019 10:28	Ping Hua	2138026
	11/21/2019			11/26/2019 10:29	Ping Hua	2138027
	11/21/2019			11/26/2019 12:35	Ping Hua	2138025
	11/21/2019			11/26/2019 13:28	Ping Hua	2138024
EPA 351.2 Rev. 2.0	11/21/2019	11/26/2019 12:44	Sima Feizi	11/27/2019 14:55	Jhamieka S. Greenwood	2138027
	11/21/2019	12/03/2019 12:50	Sima Feizi	12/04/2019 13:20	Jhamieka S. Greenwood	2138024
	11/21/2019	12/03/2019 12:50	Sima Feizi	12/04/2019 13:39	Jhamieka S. Greenwood	2138025
	11/21/2019	12/03/2019 12:50	Sima Feizi	12/04/2019 13:40	Jhamieka S. Greenwood	2138026
EPA 353.2 Rev. 2.0	11/21/2019			11/22/2019 13:24	Beverly Y. Sanders	2138024
	11/21/2019			11/22/2019 13:25	Beverly Y. Sanders	2138025
	11/21/2019			11/22/2019 13:26	Beverly Y. Sanders	2138026
	11/21/2019			11/22/2019 13:27	Beverly Y. Sanders	2138027
EPA 365.1 Rev. 2.0	11/21/2019	12/03/2019 13:30	Lipi Saha	12/04/2019 12:06	Benjamin T. Nordmann	2138024
	11/21/2019	12/03/2019 13:30	Lipi Saha	12/04/2019 12:08	Benjamin T. Nordmann	2138026
	11/21/2019	12/03/2019 13:30	Lipi Saha	12/04/2019 12:50	Benjamin T. Nordmann	2138027
	11/21/2019	12/03/2019 13:30	Lipi Saha	12/04/2019 14:11	Benjamin T. Nordmann	2138025
EPA 365.1 Rev. 2.0 dissolved	11/21/2019			11/21/2019 13:03	Lipi Saha	2138031
	11/21/2019			11/21/2019 13:17	Lipi Saha	2138028
	11/21/2019			11/21/2019 13:18	Lipi Saha	2138029
	11/21/2019			11/21/2019 13:19	Lipi Saha	2138030
SM 2120 B	11/21/2019			11/21/2019 12:54	Blanca Fach	2138020
	11/21/2019			11/21/2019 16:31	Blanca Fach	2138021
	11/21/2019			11/21/2019 17:05	Blanca Fach	2138022

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	11/21/2019			11/21/2019 17:06	Blanca Fach	2138023
SM 2320 B-97	11/21/2019			11/27/2019 08:20	Dale L. Simmons	2138020
	11/21/2019			11/27/2019 11:29	Dale L. Simmons	2138021
	11/21/2019			11/27/2019 11:42	Dale L. Simmons	2138022
	11/21/2019			11/27/2019 11:55	Dale L. Simmons	2138023
	11/21/2019			11/25/2019 15:56	Yijie Li	2138020, 2138021, 2138022, 2138023
SM 2540 C-97	11/21/2019			11/25/2019 15:56	Yijie Li	2138020, 2138021, 2138022, 2138023
SM 2540 D-97	11/21/2019			11/27/2019 08:20	Dale L. Simmons	2138020
SM 4500 F-C-97	11/21/2019			11/27/2019 11:29	Dale L. Simmons	2138021
	11/21/2019			11/27/2019 11:42	Dale L. Simmons	2138022
	11/21/2019			11/27/2019 11:55	Dale L. Simmons	2138023
	11/21/2019			11/26/2019 04:50	Lauren Lees	2138024
	11/21/2019			11/26/2019 05:04	Lauren Lees	2138025
SM 5310 B-00	11/21/2019			11/26/2019 05:21	Lauren Lees	2138026
	11/21/2019			11/26/2019 06:02	Lauren Lees	2138027