

Chemical Analysis Report

NW-DIST-2016-02-09-02

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

Event Description: **SMP Sampling**
Request ID: **RQ-2016-01-25-64**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 26-FEB-2016 10:01

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 group are included in this report: 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 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: WEST SANDY CREEK WEST SANDY CT AT CR 183 **Collection Date/Time: 02/08/2016 11:40**

Field ID: G3NW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769847	EPA 180.1 Rev. 2.0	Turbidity	2.7	A	NTU	P298353	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P298492	
		Sulfate	1.4		mg SO4/L	P298489	
	SM 2120 B	Color (true)	53	A	PCU	P298347	
	SM 2320 B-97	Total Alkalinity	3.6		mg CaCO3/L	P298778	
	SM 2540 C-97	TDS	19	I	mg/L	P298988	
	SM 2540 D-97	TSS	3	I	mg/L	P298982	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298774	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P298705	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P298581	
1769855	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P298526	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P298570	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P298465	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P298330	
	dissolved						

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: WEST SANDY CR AT OLD LANDFILL RD. SOUTH OF SPRADLIN RD. **Collection Date/Time: 02/08/2016 12:10**

Field ID: G3NW0054

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769848	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P298353	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P298492	
		Sulfate	2.0		mg SO4/L	P298489	
	SM 2120 B	Color (true)	39		PCU	P298347	
	SM 2320 B-97	Total Alkalinity	9.5		mg CaCO3/L	P298778	
	SM 2540 C-97	TDS	28		mg/L	P298988	
	SM 2540 D-97	TSS	2	U	mg/L	P298982	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298774	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P298705	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P298581	
1769856	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P298526	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P298572	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P298465	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P298330	
	dissolved						

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: GUM CREEK ABV CR-183B **Collection Date/Time: 02/08/2016 12:45**

Field ID: G4NW0324

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769849	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P298353	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P298492	
		Sulfate	0.22	I	mg SO4/L	P298489	
	SM 2120 B	Color (true)	200		PCU	P298347	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P298778	
	SM 2540 C-97	TDS	33		mg/L	P298988	
	SM 2540 D-97	TSS	2	I	mg/L	P298982	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298774	
1769857	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P298733	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P298581	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P298526	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P298572	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P298465	
1769865	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298330	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: GUM CREEK HWY 83

Collection Date/Time: 02/08/2016 13:10

Field ID: G4NW0322

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769850	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P298353	
	EPA 300.0 Rev. 2.1	Chloride	2.6		mg Cl/L	P298492	
		Sulfate	0.27	I	mg SO4/L	P298489	
	SM 2120 B	Color (true)	190		PCU	P298347	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P298778	
	SM 2540 C-97	TDS	27		mg/L	P298989	
	SM 2540 D-97	TSS	2	I	mg/L	P298983	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298774	
1769858	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P298733	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P298581	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.081		mg N/L	P298526	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P298572	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P298465	
1769866	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P298330	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: NATURAL BRIDGE CREEK CR 181

Collection Date/Time: 02/08/2016 13:40

Field ID: G3NW0082

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769851	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P298353	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P298492	

Field ID: G3NW0082

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769851	EPA 300.0 Rev. 2.1	Sulfate	1.0		mg SO4/L	P298489	
	SM 2120 B	Color (true)	39		PCU	P298347	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P298778	
	SM 2540 C-97	TDS	38		mg/L	P298989	
	SM 2540 D-97	TSS	4	I	mg/L	P298983	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298774	
1769859	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P298733	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P298581	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P298526	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P298572	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P298465	
1769867	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P298330	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: EAST BR PINE LOG CR BLW BEAR BAY FLATS Collection Date/Time: 02/08/2016 14:10 RD.

Field ID: G4NW0208

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769852	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P298353	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P298492	
		Sulfate	1.0		mg SO4/L	P298489	
	SM 2120 B	Color (true)	61		PCU	P298347	
	SM 2320 B-97	Total Alkalinity	4.2		mg CaCO3/L	P298778	
	SM 2540 C-97	TDS	25		mg/L	P298989	
	SM 2540 D-97	TSS	3	I	mg/L	P298983	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298774	
1769860	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P298733	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P298581	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P298526	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P298572	
	SM 5310 B-00	Organic Carbon	5.8		mg C/L	P298465	
1769868	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P298330	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: BEECH TREE CREEK UNNAMED RD. Collection Date/Time: 02/08/2016 14:55

Field ID: G4NW0330

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769853	EPA 180.1 Rev. 2.0	Turbidity	9.6		NTU	P298353	
	EPA 300.0 Rev. 2.1	Chloride	2.2		mg Cl/L	P298492	
		Sulfate	1.0		mg SO4/L	P298489	
	SM 2120 B	Color (true)	40		PCU	P298347	

Field ID: G4NW0330

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769853	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P298778	
	SM 2540 C-97	TDS	22	I	mg/L	P298989	
	SM 2540 D-97	TSS	11		mg/L	P298983	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298774	
1769861	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P298733	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.097	I	mg N/L	P298581	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.064		mg N/L	P298526	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P298572	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P298465	
1769869	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298330	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: POND CREEK @ CR 393

Collection Date/Time: 02/08/2016 15:35

Field ID: G4NW0195

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1769854	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P298353	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P298491	
		Sulfate	1.4		mg SO4/L	P298488	
	SM 2120 B	Color (true)	42		PCU	P298347	
1769862	SM 2320 B-97	Total Alkalinity	5.8		mg CaCO3/L	P298778	
	SM 2540 C-97	TDS	34		mg/L	P298989	
	SM 2540 D-97	TSS	3	I	mg/L	P298983	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P298774	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P298733	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P298581	
1769870	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P298526	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P298572	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P298465	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P298331	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P298353

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P298488

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298488

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298489

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298491

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298492

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298705

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298733

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298581

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298526

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298570

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298572

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298330

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298331

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

Reference Method: SM 2120 B
Batch ID: P298347

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P298778

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

Reference Method: SM 2540 C-97
Batch ID: P298988

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P298989

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P298982

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P298983

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P298774

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P298465

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298491

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298492

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298705

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298581

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: P298581

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298570

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298572

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298330

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298331

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

Reference Method: SM 2320 B-97
Batch ID: P298778

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

Reference Method: SM 4500 F-C-97
Batch ID: P298774

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P298465

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769895	Sulfate	96.9		P	90 - 110
1769897	Sulfate	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769765	Sulfate	96.8		P	90 - 110
1769766	Sulfate	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769895	Chloride	102		P	90 - 110
1769897	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769765	Chloride	99.6		P	90 - 110
1769766	Chloride	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769859	Ammonia-N	95.5	94.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769857	NO2NO3-N	95.0	93.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769768	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298572

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769856	Total-P	96.4	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298330

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769809	O-Phosphate-P	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769870	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P298774

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770192	Fluoride	97.8	97.8	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P298465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769805	Organic Carbon	99.6	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769847	Turbidity	5.20	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769895	Sulfate	0.187	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769765	Sulfate	0.159	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769895	Chloride	0.00637	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769765	Chloride	0.116	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769802	Ammonia-N	1.12	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769859	Ammonia-N	0.966	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298581

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769806	Kjeldahl Nitrogen	0.760	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769857	NO2NO3-N	1.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769768	Total-P	0.0589	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769856	Total-P	4.28	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769809	O-Phosphate-P	0.484	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769870	O-Phosphate-P	0.752	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P298347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769847	Color (true)	0.402	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P298778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770192	Total Alkalinity	0.132	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P298988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769800	TDS	6.90	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P298989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769897	TDS	1.08	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P298774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770192	Fluoride	0.0	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P298465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769805	Organic Carbon	0.224	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67519

Included Lab Sample IDs: 1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.1	99.1	P/P	90 - 110
Chloride	99.1	98.7	P/P	90 - 110
Sulfate	93.7	96.8	P/P	90 - 110
Sulfate	96.8	92.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67530

Included Lab Sample IDs: 1769863, 1769864, 1769865, 1769866, 1769867, 1769868, 1769869, 1769870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.5	99.5	P/P	90 - 110
O-Phosphate-P	99.4	97.5	P/P	90 - 110
O-Phosphate-P	99.5	98.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A67534

Included Lab Sample IDs: 1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.9	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67535

Included Lab Sample IDs: 1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854

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

Reference Method: SM 5310 B-00

Run ID: A67574

Included Lab Sample IDs: 1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67589

Included Lab Sample IDs: 1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A67626

Included Lab Sample IDs: 1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	99.3	P/P	90 - 110
Kjeldahl Nitrogen	99.3	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67628

Included Lab Sample IDs: 1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	97.8	P/P	90 - 110
Total-P	98.2	97.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A67633

Included Lab Sample IDs: 1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.5	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67634

Included Lab Sample IDs: 1769855, 1769856

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67650

Included Lab Sample IDs: 1769857, 1769858, 1769859, 1769860, 1769861, 1769862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	98.5	P/P	90 - 110
Ammonia-N	98.5	98.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A67657

Included Lab Sample IDs: 1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	98.8	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	
			LCS		SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				5.20	
EPA 300.0 Rev. 2.1	Chloride	102	102	102	0.0063	
	Chloride	101	99.6	99.8	0.116	
	Sulfate	99.3	96.9	98.4	0.187	
	Sulfate	98.5	96.8	95.3	0.159	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8				1.12
	Ammonia-N	95.0	95.5	94.4		0.966
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101				0.760

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	95.0	93.4		1.47
EPA 365.1 Rev. 2.0	Total-P	99.6	104	104		0.0589
	Total-P	98.8	96.4	101		4.28
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	103	104		0.484
	O-Phosphate-P	102	100	101		0.752
SM 2120 B	Color (true)				0.402	
SM 2320 B-97	Total Alkalinity	101			0.132	
SM 2540 C-97	TDS				6.90	
	TDS				1.08	
SM 4500 F-C-97	Fluoride	98.1	97.8	97.8		0.0
SM 5310 B-00	Organic Carbon	105	99.6	100		0.224

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1769863, 1769864, 1769865, 1769866, 1769867, 1769868, 1769869, 1769870
SM 2120 B / E31780	True Color measured at 450 nm	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862

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	02/09/2016			02/09/2016 14:17	Sima Feizi	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
EPA 300.0 Rev. 2.1	02/09/2016			02/11/2016	Ping Hua	1769847
	02/09/2016			02/12/2016	Ping Hua	1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
EPA 350.1 Rev. 2.0	02/09/2016			02/16/2016	Diana M. Turner	1769855, 1769856
	02/09/2016			02/17/2016	Diana M. Turner	1769857, 1769858, 1769859, 1769860, 1769861, 1769862
EPA 351.2 Rev. 2.0	02/09/2016	02/15/2016	Christopher Armour	02/16/2016	Bryan A. Werth	1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862
EPA 353.2 Rev. 2.0	02/09/2016			02/12/2016	Diana M. Turner	1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862
EPA 365.1 Rev. 2.0	02/09/2016	02/15/2016	Christopher Armour	02/16/2016	Lipi Saha	1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862
EPA 365.1 Rev. 2.0 dissolved	02/09/2016			02/09/2016 14:30	Bryan A. Werth	1769870
	02/09/2016			02/09/2016 14:46	Bryan A. Werth	1769863
	02/09/2016			02/09/2016 14:47	Bryan A. Werth	1769864
	02/09/2016			02/09/2016 14:48	Bryan A. Werth	1769865
	02/09/2016			02/09/2016 14:49	Bryan A. Werth	1769866
	02/09/2016			02/09/2016 14:54	Bryan A. Werth	1769867
	02/09/2016			02/09/2016 14:55	Bryan A. Werth	1769868
	02/09/2016			02/09/2016 14:56	Bryan A. Werth	1769869
SM 2120 B	02/09/2016			02/09/2016 14:53	Blanca Fach	1769847
	02/09/2016			02/09/2016 14:54	Blanca Fach	1769848
	02/09/2016			02/09/2016 14:55	Blanca Fach	1769849
	02/09/2016			02/09/2016 14:56	Blanca Fach	1769850
	02/09/2016			02/09/2016 14:57	Blanca Fach	1769851, 1769852
	02/09/2016			02/09/2016 14:58	Blanca Fach	1769853
	02/09/2016			02/09/2016 14:59	Blanca Fach	1769854
SM 2320 B-97	02/09/2016			02/12/2016	Dale L. Simmons	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
SM 2540 C-97	02/09/2016			02/12/2016	Yijie Li	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
SM 2540 D-97	02/09/2016			02/12/2016	Yijie Li	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
SM 4500 F-C-97	02/09/2016			02/12/2016	Dale L. Simmons	1769847, 1769848, 1769849, 1769850, 1769851, 1769852, 1769853, 1769854
SM 5310 B-00	02/09/2016			02/10/2016	Sofia Elnemr	1769855, 1769856, 1769857, 1769858, 1769859, 1769860, 1769861, 1769862