

Chemical Analysis Report

NW-DIST-2016-08-09-01

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

Event Description: **WBID 351 432 476 445 361 321**

Request ID: **RQ-2016-07-04-35**

Customer: **NW-DIST**

Project ID: **SMP**

Send Reports to:
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 25-AUG-2016 10:51



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: ALAQUA CREEK ABOVE BOB SIKES ROAD

Collection Date/Time: 08/08/2016 11:15

Field ID: G3NW0108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822525	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P309441	
	EPA 300.0 Rev. 2.1	Chloride	2.2		mg Cl/L	P309869	
		Sulfate	1.1		mg SO4/L	P309872	
	SM 2120 B	Color (true)	44	A	PCU	P309415	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P309562	
	SM 2540 C-97	TDS	16	I	mg/L	P309825	
	SM 2540 D-97	TSS	4	I	mg/L	P309766	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P309564	
1822531	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P309491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P309740	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.079		mg N/L	P309671	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P309721	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P310046	
1822537	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309426	

Ref. Method and Comment:

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

Sample Location: ALAQUA CREEK ABOVE NELSON ROAD

Collection Date/Time: 08/08/2016 12:00

Field ID: G3NW0106

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822526	EPA 180.1 Rev. 2.0	Turbidity	6.3		NTU	P309441	
	EPA 300.0 Rev. 2.1	Chloride	2.1		mg Cl/L	P309869	
		Sulfate	0.94		mg SO4/L	P309872	
	SM 2120 B	Color (true)	51		PCU	P309415	
	SM 2320 B-97	Total Alkalinity	1.8	I	mg CaCO3/L	P309562	
	SM 2540 C-97	TDS	21	I	mg/L	P309825	
	SM 2540 D-97	TSS	11		mg/L	P309766	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P309564	
1822532	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P309491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P309740	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P309671	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P309721	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P310046	
1822538	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309427	

Ref. Method and Comment:

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

Sample Location: LITTLE ALAQUA CREEK @ 200/201 ABOVE BRIDGE

Collection Date/Time: 08/08/2016 12:15

Field ID: G3NW0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822527	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P309441	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P309869	

Field ID: G3NW0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822527	EPA 300.0 Rev. 2.1	Sulfate	0.63		mg SO4/L	P309872	
	SM 2120 B	Color (true)	51		PCU	P309415	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P309562	
	SM 2540 C-97	TDS	15	U	mg/L	P309825	
	SM 2540 D-97	TSS	3	I	mg/L	P309766	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P309564	
1822533	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P309491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P309741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P309671	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P309721	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P310046	
1822539	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309427	

Ref. Method and Comment:

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

Sample Location: LITTLE ALAQUA CREEK @ EGLIN 205 AKA JAXGRD #11045003

Collection Date/Time: 08/08/2016 12:35

Field ID: G3NW0065

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822528	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P309441	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P309869	
		Sulfate	0.74		mg SO4/L	P309872	
		Color (true)	84		PCU	P309415	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P309562	
	SM 2540 C-97	TDS	16	I	mg/L	P309825	
	SM 2540 D-97	TSS	6	I	mg/L	P309766	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P309564	
1822534	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P309491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P309741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P309610	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P309721	
	SM 5310 B-00	Organic Carbon	8.6		mg C/L	P310046	
1822540	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309427	

Ref. Method and Comment:

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

Sample Location: ALAQUA CREEK @ EGLIN 205 AKA JAXGRD #11035003

Collection Date/Time: 08/08/2016 12:50

Field ID: G3NW0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822529	EPA 180.1 Rev. 2.0	Turbidity	14	A	NTU	P309442	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P309870	
		Sulfate	0.87		mg SO4/L	P309873	
	SM 2120 B	Color (true)	120		PCU	P309415	

Field ID: G3NW0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822529	SM 2320 B-97	Total Alkalinity	0.87	I	mg CaCO3/L	P309562	
	SM 2540 C-97	TDS	36		mg/L	P309825	
	SM 2540 D-97	TSS	21		mg/L	P309766	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P309564	
1822535	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P309491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P309741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P309610	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P309721	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P310046	
1822541	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309427	

Ref. Method and Comment:

SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 18 umhos/cm.

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

Sample Location: TITI CREEK ABOVE SR 285

Collection Date/Time: 08/08/2016 14:00

Field ID: G4NW0365

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822530	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P309442	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P309870	
		Sulfate	0.74		mg SO4/L	P309873	
	SM 2120 B	Color (true)	92		PCU	P309415	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P309562	
	SM 2540 C-97	TDS	18	I	mg/L	P309825	
	SM 2540 D-97	TSS	4	I	mg/L	P309766	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P309564	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P309491	
1822536	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P309741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P309610	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P309721	
	SM 5310 B-00	Organic Carbon	7.2		mg C/L	P310046	
1822542	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309427	

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: P309441

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P309442

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P309442

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309869

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309870

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309872

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309873

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309491

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309740

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309741

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309610

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309671

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309721

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309426

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309427

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

Reference Method: SM 2120 B
Batch ID: P309415

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P309562

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

Reference Method: SM 2540 C-97
Batch ID: P309825

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P309766

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P309564

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P310046

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: P309869

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309870

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309491

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309740

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309741

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309610

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309610

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309671

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: P309721

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309426

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309427

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

Reference Method: SM 2320 B-97
Batch ID: P309562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P309564

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P310046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309869

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822460	Chloride	97.5		P	90 - 110
1822461	Chloride	94.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822641	Chloride	99.0		P	90 - 110
1822780	Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822460	Sulfate	93.4		P	90 - 110
1822461	Sulfate	91.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822641	Sulfate	95.9		P	90 - 110
1822780	Sulfate	93.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822531	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822532	Kjeldahl Nitrogen	97.0	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822533	Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309610

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822534	NO2NO3-N	97.6	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309671

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P309671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822501	NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P309721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822505	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P309426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822537	O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P309427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822542	O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P309564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822579	Fluoride	98.4	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P310046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822244	Organic Carbon	99.5	104	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P309441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822495	Turbidity	2.82	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P309442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822529	Turbidity	4.41	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822460	Chloride	0.0560	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822780	Chloride	0.00100	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822460	Sulfate	0.232	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822780	Sulfate	0.389	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822531	Ammonia-N	1.69	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822532	Kjeldahl Nitrogen	1.26	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822533	Kjeldahl Nitrogen	1.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822534	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822501	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822505	Total-P	0.0378	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822537	O-Phosphate-P	0.400	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822542	O-Phosphate-P	0.600	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P309415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822525	Color (true)	0.484	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P309562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822579	Total Alkalinity	0.0425	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P309825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822499	TDS	3.18	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P309564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822579	Fluoride	0.979	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P310046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822244	Organic Carbon	2.27	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

Reference Method: SM 2120 B
Run ID: A71020
Included Lab Sample IDs: 1822525, 1822526, 1822527, 1822528, 1822529, 1822530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.0	96.5	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71024
Included Lab Sample IDs: 1822537, 1822538, 1822539, 1822540, 1822541, 1822542

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A71025
Included Lab Sample IDs: 1822525, 1822526, 1822527, 1822528, 1822529, 1822530

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A71041
Included Lab Sample IDs: 1822531, 1822532, 1822533, 1822534, 1822535, 1822536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	105	P/P	90 - 110
Ammonia-N	105	104	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A71072
Included Lab Sample IDs: 1822525, 1822526, 1822527, 1822528, 1822529, 1822530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A71072

Included Lab Sample IDs: 1822525, 1822526, 1822527, 1822528, 1822529, 1822530

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71077

Included Lab Sample IDs: 1822534, 1822535, 1822536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71097

Included Lab Sample IDs: 1822531, 1822532, 1822533

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71172

Included Lab Sample IDs: 1822531, 1822532, 1822533, 1822534, 1822535, 1822536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	95.4	P/P	90 - 110
Kjeldahl Nitrogen	95.4	96.3	P/P	90 - 110
Kjeldahl Nitrogen	96.3	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71177

Included Lab Sample IDs: 1822525, 1822526, 1822527, 1822528, 1822529, 1822530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Chloride	100	101	P/P	90 - 110
Sulfate	95.9	95.8	P/P	90 - 110
Sulfate	96.6	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71187

Included Lab Sample IDs: 1822531, 1822532, 1822533, 1822534, 1822535, 1822536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A71236

Included Lab Sample IDs: 1822531, 1822532, 1822533, 1822534, 1822535, 1822536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	96.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

* 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					2.82	
	Turbidity					4.41	
EPA 300.0 Rev. 2.1	Chloride	98.9	97.5	94.8		0.0560	
	Chloride	99.6	98.3	99.0		0.0010	
	Sulfate	94.1	93.4	91.2		0.232	
	Sulfate	94.3	93.5	95.9		0.389	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102	100			1.69
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	97.0	98.6			1.26
	Kjeldahl Nitrogen	109	106	104			1.12
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	97.6	97.6			0.0
	NO ₂ NO ₃ -N	104	97.5				1.03
EPA 365.1 Rev. 2.0	Total-P	107	104	104			0.0378
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	99.7	100			0.400
	O-Phosphate-P	100	99.7	100			0.600
SM 2120 B	Color (true)					0.484	
SM 2320 B-97	Total Alkalinity	103				0.0425	
SM 2540 C-97	TDS					3.18	
SM 4500 F-C-97	Fluoride	97.7	98.4	99.7			0.979
SM 5310 B-00	Organic Carbon	94.6	99.5	104			2.27

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1822531, 1822532, 1822533, 1822534, 1822535, 1822536
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1822531, 1822532, 1822533, 1822534, 1822535, 1822536
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1822531, 1822532, 1822533, 1822534, 1822535, 1822536
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1822531, 1822532, 1822533, 1822534, 1822535, 1822536
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1822537, 1822538, 1822539, 1822540, 1822541, 1822542
SM 2120 B / E31780	True Color measured at 450 nm	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1822525, 1822526, 1822527, 1822528, 1822529, 1822530

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1822531, 1822532, 1822533, 1822534, 1822535, 1822536

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	08/09/2016			08/09/2016 14:10	Sima Feizi	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
EPA 300.0 Rev. 2.1	08/09/2016			08/17/2016	Ping Hua	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
EPA 350.1 Rev. 2.0	08/09/2016			08/09/2016	Julie Michelle Frank	1822531, 1822532, 1822533, 1822534, 1822535, 1822536
EPA 351.2 Rev. 2.0	08/09/2016	08/15/2016	Sofia Elnemr	08/16/2016	Virginia P. Brown	1822531, 1822532, 1822533, 1822534, 1822535, 1822536
EPA 353.2 Rev. 2.0	08/09/2016			08/11/2016	Beverly Y. Sanders	1822534, 1822535, 1822536
	08/09/2016			08/11/2016	Peter D. Kaus	1822531, 1822532, 1822533
EPA 365.1 Rev. 2.0	08/09/2016	08/15/2016	Vijayalakshmi Reddy	08/17/2016	Lipi Saha	1822531, 1822532, 1822533, 1822534, 1822535, 1822536
EPA 365.1 Rev. 2.0 dissolved	08/09/2016			08/09/2016 14:07	Julia Storbeck	1822537
	08/09/2016			08/09/2016 14:12	Julia Storbeck	1822542
	08/09/2016			08/09/2016 14:39	Julia Storbeck	1822538
	08/09/2016			08/09/2016 14:45	Julia Storbeck	1822539
	08/09/2016			08/09/2016 14:46	Julia Storbeck	1822540
	08/09/2016			08/09/2016 14:47	Julia Storbeck	1822541
SM 2120 B	08/09/2016			08/09/2016 13:15	Rochelle Y Jackson	1822525
	08/09/2016			08/09/2016 13:16	Rochelle Y Jackson	1822526
	08/09/2016			08/09/2016 13:17	Rochelle Y Jackson	1822527
	08/09/2016			08/09/2016 13:18	Rochelle Y Jackson	1822528, 1822529
	08/09/2016			08/09/2016 13:19	Rochelle Y Jackson	1822530
SM 2320 B-97	08/09/2016			08/10/2016	Dale L. Simmons	1822525
	08/09/2016			08/11/2016	Dale L. Simmons	1822526, 1822527, 1822528, 1822529, 1822530
SM 2540 C-97	08/09/2016			08/10/2016	Yijie Li	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
SM 2540 D-97	08/09/2016			08/10/2016	Yijie Li	1822525, 1822526, 1822527, 1822528, 1822529, 1822530
SM 4500 F-C-97	08/09/2016			08/10/2016	Dale L. Simmons	1822525
	08/09/2016			08/11/2016	Dale L. Simmons	1822526, 1822527, 1822528, 1822529, 1822530
SM 5310 B-00	08/09/2016			08/18/2016	Sofia Elnemr	1822531, 1822532, 1822533, 1822534, 1822535, 1822536