

Chemical Analysis Report

SO-DIST-2016-01-13-01

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

Event Description: **SMP: Group 4 Streams**
Request ID: **RQ-2016-01-11-37**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 01-FEB-2016 15:17



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: LWO @ SR 66

Collection Date/Time: 01/12/2016 13:20

Field ID: SD011215-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762551	EPA 180.1 Rev. 2.0	Turbidity	11	A	NTU	P297034	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P297431	
		Sulfate	5.3		mg SO4/L	P297437	
	SM 2120 B	Color (true)	360		PCU	P297012	
	SM 2320 B-97	Total Alkalinity	4.0		mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	118		mg/L	P297496	
	SM 2540 D-97	TSS	4	I	mg/L	P297422	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P297123	
1762557	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P297285	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P297116	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.054		mg N/L	P297171	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P297137	
	SM 5310 B-00	Organic Carbon	33		mg C/L	P297555	
1762563	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P297018	

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: Placid June Canal @ end of Lake Groves Rd

Collection Date/Time: 01/12/2016 14:00

Field ID: SD011215-7

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762552	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P297034	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P297431	
		Sulfate	13		mg SO4/L	P297437	
	SM 2120 B	Color (true)	69		PCU	P297009	
	SM 2320 B-97	Total Alkalinity	8.9		mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	71		mg/L	P297496	
	SM 2540 D-97	TSS	3	I	mg/L	P297422	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P297123	
1762558	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P297285	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P297116	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P297171	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P297137	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P297555	
1762564	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P297018	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the low analyte concentration in the QC sample.

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: Fence Line Drain at Blue Head Ranch SE

Collection Date/Time: 01/12/2016 14:40

Field ID: SD011215-8

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762553	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P297034	

Field ID: SD011215-8

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762553	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P297431	
		Sulfate	2.3		mg SO4/L	P297437	
	SM 2120 B	Color (true)	270		PCU	P297009	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	112		mg/L	P297496	
	SM 2540 D-97	TSS	3	I	mg/L	P297422	
	SM 4500 F-C-97	Fluoride	0.082	I	mg F/L	P297123	
1762559	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P297285	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P297116	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P297171	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P297137	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P297555	
1762565	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P297018	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the low analyte concentration in the QC sample.

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: Platt Branch at CR 731

Collection Date/Time: 01/12/2016 10:40

Field ID: SD011215-9

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762554	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P297034	
	EPA 300.0 Rev. 2.1	Chloride	140		mg Cl/L	P297431	
		Sulfate	67		mg SO4/L	P297437	
	SM 2120 B	Color (true)	230		PCU	P297009	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	454	A	mg/L	P297497	
	SM 2540 D-97	TSS	9	I	mg/L	P297423	
1762560	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P297123	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.081		mg N/L	P297285	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P297116	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P297171	
	EPA 365.1 Rev. 2.0	Total-P	0.41		mg P/L	P297137	
1762566	SM 5310 B-00	Organic Carbon	27		mg C/L	P297555	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.31		mg P/L	P297018	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the low analyte concentration in the QC sample.

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: Bootheel Creek East Branch

Collection Date/Time: 01/12/2016 11:00

Field ID: SD011215-10

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762555	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P297034	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P297431	

Field ID: SD011215-10

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762555	EPA 300.0 Rev. 2.1	Sulfate	1.6		mg SO4/L	P297437	
	SM 2120 B	Color (true)	400		PCU	P297009	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	111		mg/L	P297497	
	SM 2540 D-97	TSS	2	I	mg/L	P297423	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P297123	
1762561	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P297286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P297116	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P297171	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P297137	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P297555	
1762567	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P297018	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the low analyte concentration in the QC sample.

SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 88 umhos/cm.

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: Joe Slough at Graham Dairy Road

Collection Date/Time: 01/12/2016 11:30

Field ID: SD011215-11

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1762556	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P297034	
	EPA 300.0 Rev. 2.1	Chloride	38		mg Cl/L	P297431	
		Sulfate	8.1		mg SO4/L	P297437	
	SM 2120 B	Color (true)	230		PCU	P297009	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P297130	
	SM 2540 C-97	TDS	140		mg/L	P297497	
	SM 2540 D-97	TSS	3	I	mg/L	P297423	
1762562	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P297123	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.054		mg N/L	P297286	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P297116	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P297290	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P297137	
1762568	SM 5310 B-00	Organic Carbon	28		mg C/L	P297555	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P297019	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the low analyte concentration in the QC sample.

SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 192 umhos/cm.

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: P297034

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297034

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297431

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297437

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297285

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297286

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297116

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297171

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297290

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297137

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 dissolved
Batch ID: P297018

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297019

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

Reference Method: SM 2120 B
Batch ID: P297009

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P297012

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P297130

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

Reference Method: SM 2540 C-97
Batch ID: P297496

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P297497

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P297422

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P297423

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P297123

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P297555

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: P297431

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297285

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297286

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: P297116

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297290

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: P297290

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297137

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297018

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297019

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

Reference Method: SM 2320 B-97
Batch ID: P297130

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P297123

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P297555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297431

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762461	Chloride	103		P	90 - 110
1762476	Chloride	103		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762476	Sulfate	97.6		P	90 - 110
1762507	Sulfate	95.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762558	Ammonia-N	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762590	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762558	NO2NO3-N	93.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762589	NO2NO3-N	97.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762531	Total-P	95.0	92.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297018

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762522	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762627	O-Phosphate-P	99.3	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P297123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762177	Fluoride	96.6	97.7	P/P	94 - 107

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P297555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762510	Organic Carbon	92.4	91.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P297034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762551	Turbidity	2.76	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762461	Chloride	0.0241	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762476	Sulfate	1.14	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762558	Ammonia-N	1.16	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762590	Ammonia-N	0.730	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762519	Kjeldahl Nitrogen	1.84	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762558	NO2NO3-N	1.13	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762589	NO2NO3-N	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762531	Total-P	2.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762522	O-Phosphate-P	0.534	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762627	O-Phosphate-P	0.502	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P297012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762686	Color (true)	0.753	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P297130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762177	Total Alkalinity	3.44	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P297496

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762177	TDS	4.44	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P297497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762554	TDS	3.31	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P297123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762177	Fluoride	0.979	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P297555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762510	Organic Carbon	1.53	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: A67069
Included Lab Sample IDs: 1762551, 1762552, 1762553, 1762554, 1762555, 1762556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.8	100	P/P	90 - 115
Color (true)	99.7	98.8	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A67074
Included Lab Sample IDs: 1762563, 1762564, 1762565, 1762566, 1762567, 1762568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	99.2	P/P	90 - 110
O-Phosphate-P	99.2	99.8	P/P	90 - 110
O-Phosphate-P	99.8	99.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67076
Included Lab Sample IDs: 1762551, 1762552, 1762553, 1762554, 1762555, 1762556

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A67106

Included Lab Sample IDs: 1762551, 1762552, 1762553, 1762554, 1762555, 1762556

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

Reference Method: SM 2320 B-97

Run ID: A67108

Included Lab Sample IDs: 1762551, 1762552, 1762553, 1762554, 1762555, 1762556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	103	P/P	90 - 110
Total Alkalinity	99.3	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67118

Included Lab Sample IDs: 1762557, 1762558, 1762559, 1762560, 1762561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	95.5	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67136

Included Lab Sample IDs: 1762557, 1762558, 1762559, 1762560, 1762561, 1762562

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	102	P/P	90 - 110
Total-P	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A67158

Included Lab Sample IDs: 1762557, 1762558, 1762559, 1762560, 1762561, 1762562

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67176

Included Lab Sample IDs: 1762557, 1762558, 1762559, 1762560, 1762561, 1762562

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67180

Included Lab Sample IDs: 1762562

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67217

Included Lab Sample IDs: 1762551, 1762552, 1762553, 1762554, 1762555, 1762556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	103	P/P	90 - 110
Sulfate	100	98.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A67265

Included Lab Sample IDs: 1762557, 1762558, 1762559, 1762560, 1762561, 1762562

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.8	94.2	P/P	90 - 110
Organic Carbon	94.2	93.6	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.76	
EPA 300.0 Rev. 2.1	Chloride	105	103	103		0.0241	
	Sulfate	98.6	97.6	95.2		1.14	
EPA 350.1 Rev. 2.0	Ammonia-N	102	102	104			1.16
	Ammonia-N	103	101	102			0.730
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.4					1.84
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	93.5				1.13
	NO2NO3-N	98.5	97.5	98.5			1.02
EPA 365.1 Rev. 2.0	Total-P	99.6	95.0	92.6			2.62
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	100	101			0.534
	O-Phosphate-P	102	99.3	99.8			0.502
SM 2120 B	Color (true)					0.753	
SM 2320 B-97	Total Alkalinity	102				3.44	
SM 2540 C-97	TDS					4.44	
	TDS					3.31	
SM 4500 F-C-97	Fluoride	96.5	96.6	97.7			0.979
SM 5310 B-00	Organic Carbon	95.2	92.4	91.0			1.53

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1762557, 1762558, 1762559, 1762560, 1762561, 1762562

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1762557, 1762558, 1762559, 1762560, 1762561, 1762562
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1762557, 1762558, 1762559, 1762560, 1762561, 1762562
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1762557, 1762558, 1762559, 1762560, 1762561, 1762562
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1762563, 1762564, 1762565, 1762566, 1762567, 1762568
SM 2120 B / E31780	True Color measured at 450 nm	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1762557, 1762558, 1762559, 1762560, 1762561, 1762562

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	01/13/2016			01/13/2016 13:36	Sima Feizi	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
EPA 300.0 Rev. 2.1	01/13/2016			01/21/2016	Ping Hua	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
EPA 350.1 Rev. 2.0	01/13/2016			01/20/2016	Diana M. Turner	1762557, 1762558, 1762559, 1762560, 1762561, 1762562
EPA 351.2 Rev. 2.0	01/13/2016	01/15/2016	Christopher Armour	01/19/2016	Bryan A. Werth	1762557, 1762558, 1762559, 1762560, 1762561, 1762562
EPA 353.2 Rev. 2.0	01/13/2016			01/15/2016	Diana M. Turner	1762557, 1762558, 1762559, 1762560, 1762561
	01/13/2016			01/20/2016	Peter D. Kaus	1762562
EPA 365.1 Rev. 2.0	01/13/2016	01/15/2016	Christopher Armour	01/15/2016	Lipi Saha	1762557, 1762558, 1762559, 1762560, 1762561, 1762562
EPA 365.1 Rev. 2.0 dissolved	01/13/2016			01/13/2016 13:54	Julia Storbeck	1762563
	01/13/2016			01/13/2016 14:00	Julia Storbeck	1762564
	01/13/2016			01/13/2016 14:01	Julia Storbeck	1762567
	01/13/2016			01/13/2016 14:02	Julia Storbeck	1762568
	01/13/2016			01/13/2016 14:14	Julia Storbeck	1762565
	01/13/2016			01/13/2016 14:17	Julia Storbeck	1762566
SM 2120 B	01/13/2016			01/13/2016 12:55	Rochelle Y Jackson	1762552
	01/13/2016			01/13/2016 13:20	Rochelle Y Jackson	1762553, 1762554
	01/13/2016			01/13/2016 13:21	Rochelle Y Jackson	1762555
	01/13/2016			01/13/2016 13:22	Rochelle Y Jackson	1762556
	01/13/2016			01/13/2016 13:25	Rochelle Y Jackson	1762551
SM 2320 B-97	01/13/2016			01/15/2016	Dale L. Simmons	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
SM 2540 C-97	01/13/2016			01/15/2016	Yijie Li	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
SM 2540 D-97	01/13/2016			01/15/2016	Yijie Li	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
SM 4500 F-C-97	01/13/2016			01/14/2016	Dale L. Simmons	1762551, 1762552, 1762553, 1762554, 1762555, 1762556
SM 5310 B-00	01/13/2016			01/26/2016	Sofia Elnemr	1762557, 1762558, 1762559, 1762560, 1762561, 1762562