

Chemical Analysis Report

SE-DIST-2017-11-29-01

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

Event Description: **SMP- G4 Dade Orange Run**
Request ID: **RQ-2017-11-27-21**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 18-DEC-2017 15:43

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

Case Narrative

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

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

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: ICWW@ SOUTH SHORE PELICAN PARK

Collection Date/Time: 11/28/2017 11:25

Field ID: G4SE0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949053	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P336079	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P336325	
	SM 2540 D-97	TSS	8	I	mg/L	P336371	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P336329	
1949055	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P336537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P336472	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.065		mg N/L	P336223	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P336311	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P336547	
1949057	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P336056	

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: ICWW 79TH ST. CAUSEWAY EAST

Collection Date/Time: 11/28/2017 12:00

Field ID: 2804332

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949054	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P336079	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P336325	
	SM 2540 D-97	TSS	4	I	mg/L	P336371	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P336329	
1949056	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P336537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P336472	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P336223	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P336311	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P336547	
1949058	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P336056	

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: C-8/BISCAYNE

Collection Date/Time: 11/28/2017 12:30

Field ID: G4SEBS04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949047	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P336079	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P336266	
		Sulfate	27		mg SO4/L	P336270	
	SM 2120 B	Color (true)	33		PCU	P336073	
	SM 2320 B-97	Total Alkalinity	212		mg CaCO3/L	P336464	
	SM 2540 C-97	TDS	485	A	mg/L	P336392	
	SM 2540 D-97	TSS	2	IA	mg/L	P336366	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P336468	
1949048	EPA 350.1 Rev. 2.0	Ammonia-N	0.090		mg N/L	P336540	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P336354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.43		mg N/L	P336166	

Field ID: G4SEBS04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949048	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P336312	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P336200	
1949049	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P336057	
1949083	EPA 8321B	Sucralose**	0.68		ug/L	P335952	
	USGS O-2060-01	2,4-D	0.0066	I	ug/L	P336034	
		Diuron	0.013		ug/L	P336034	
		Fenuron	0.0080	U	ug/L	P336034	
		Imidacloprid	0.0055		ug/L	P336034	MS
		Bentazon	0.024		ug/L	P336034	
		Linuron	0.0040	U	ug/L	P336034	
		Acetaminophen**	0.0080	U	ug/L	P336034	
		MCP	0.0020	U	ug/L	P336034	
		Carbamazepine**	0.012		ug/L	P336034	
		Triclopyr**	0.0040	U	ug/L	P336034	
		Primidone**	0.0040	U	ug/L	P336034	
		Fluridone**	0.0038		ug/L	P336034	
1949087	EPA 200.7 Rev. 4.4	Calcium	87.5		mg/L	P336084	
		Iron	110	I	ug/L	P336084	
		Magnesium	10.6		mg/L	P336084	
		Potassium	4.2		mg/L	P336084	
		Sodium	75.8		mg/L	P336084	
		Zinc	5.0	U	ug/L	P336084	
	EPA 200.8 Rev. 5.4	Arsenic	1.38		ug/L	P336084	
		Cadmium	0.020	U	ug/L	P336084	
		Chromium	0.40	U	ug/L	P336084	
		Copper	0.54	I	ug/L	P336084	
		Lead	0.14	I	ug/L	P336084	
		Nickel	0.58	I	ug/L	P336084	
		Selenium	0.20	U	ug/L	P336084	
		Silver	0.010	U	ug/L	P336084	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ARCH CREEK (UPPER SEGMENT)

Collection Date/Time: 11/28/2017 13:00

Field ID: 42009060

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949059	EPA 180.1 Rev. 2.0	Turbidity	3.2	A	NTU	P336080	
	SM 2320 B-97	Total Alkalinity	182		mg CaCO3/L	P336325	
	SM 2540 D-97	TSS	3	I	mg/L	P336371	
	SM 4500 F-C-97	Fluoride	0.59		mg F/L	P336329	
1949060	EPA 350.1 Rev. 2.0	Ammonia-N	0.56		mg N/L	P336537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P336472	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P336223	

Field ID: 42009060

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949060	EPA 365.1 Rev. 2.0	Total-P	0.064		mg P/L	P336313	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P336547	
1949061	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P336056	
1949084	EPA 8321B	Sucralose**	0.89		ug/L	P335952	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P336034	
		Diuron	0.0055		ug/L	P336034	
		Fenuron	0.0080	U	ug/L	P336034	
		Imidacloprid	9.1E-04	I	ug/L	P336034	MS
		Bentazon	0.0021	I	ug/L	P336034	
		Linuron	0.0040	U	ug/L	P336034	
		Acetaminophen**	0.0080	U	ug/L	P336034	
		MCP	0.0020	U	ug/L	P336034	
		Carbamazepine**	0.010		ug/L	P336034	
		Triclopyr**	0.0040	U	ug/L	P336034	
		Primidone**	0.0095	I	ug/L	P336034	
		Fluridone**	0.0013	I	ug/L	P336034	

Ref. Method and Comment:

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

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

Sample Location: ICWW (MIAMI-DADE COUNTY NORTHERN SEGMENT)

Collection Date/Time: 11/28/2017 13:30

Field ID: G4SE0063

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949050	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P336079	
	SM 2320 B-97	Total Alkalinity	172		mg CaCO3/L	P336325	
	SM 2540 D-97	TSS	3	I	mg/L	P336371	
	SM 4500 F-C-97	Fluoride	0.56		mg F/L	P336329	
1949051	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P336537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P336472	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P336223	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P336311	
	SM 5310 B-00	Organic Carbon	8.7		mg C/L	P336547	
1949052	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P336056	
1949088	EPA 200.7 Rev. 4.4	Iron	95	I	ug/L	P336396	
	EPA 200.8 Rev. 5.4	Arsenic	1.81		ug/L	P336396	
		Cadmium	0.060	U	ug/L	P336396	
		Chromium	1.2	U	ug/L	P336396	
		Copper	0.95	I	ug/L	P336396	
		Lead	0.15	U	ug/L	P336396	
		Nickel	0.60	U	ug/L	P336396	
		Silver	0.030	U	ug/L	P336396	
		Zinc	3.0	U	ug/L	P336396	

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: OLETA RIVER (UPPER SEGMENT)

Collection Date/Time: 11/28/2017 13:45

Field ID: 42009058

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949044	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P336079	
	SM 2320 B-97	Total Alkalinity	177		mg CaCO3/L	P336325	
	SM 2540 D-97	TSS	3	UA	mg/L	P336371	
	SM 4500 F-C-97	Fluoride	0.48		mg F/L	P336329	
1949045	EPA 350.1 Rev. 2.0	Ammonia-N	0.096		mg N/L	P336537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P336353	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P336223	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P336311	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P336262	
1949046	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.017		mg P/L	P336056	
	dissolved						
1949082	EPA 8321B	Sucralose**	0.53		ug/L	P335952	
	USGS O-2060-01	2,4-D	0.0030	I	ug/L	P336034	
		Diuron	0.0086		ug/L	P336034	
		Fenuron	0.0080	U	ug/L	P336034	
		Imidacloprid	0.0061		ug/L	P336034	MS
		Bentazon	0.020		ug/L	P336034	
		Linuron	0.0040	U	ug/L	P336034	
		Acetaminophen**	0.0080	U	ug/L	P336034	
		MCP	0.0020	U	ug/L	P336034	
		Carbamazepine**	0.0046		ug/L	P336034	
		Triclopyr**	0.0040	U	ug/L	P336034	
		Primidone**	0.0040	U	ug/L	P336034	
		Fluridone**	0.018		ug/L	P336034	

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: P336079

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P336080

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P336084

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336084

Component	Result	Code	Units
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336396

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336084

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336396

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336537

Component	Result	Code	Units
-----------	--------	------	-------

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336537

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336540

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336353

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336354

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336472

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336166

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336223

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336311

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336312

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: P336313

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336056

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336057

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

Reference Method: EPA 8321B
Batch ID: P335952

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P336073

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P336325

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

Reference Method: SM 2320 B-97
Batch ID: P336464

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

Reference Method: SM 2540 C-97
Batch ID: P336392

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P336366

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P336371

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P336329

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P336468

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P336200

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

Reference Method: SM 5310 B-00
Batch ID: P336262

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

Reference Method: SM 5310 B-00
Batch ID: P336547

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

Reference Method: USGS O-2060-01
Batch ID: P336034

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	106		P	85 - 115
Magnesium	109		P	85 - 115
Potassium	101		P	85 - 115
Sodium	105		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336396

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	96.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	99.0		P	85 - 115
Chromium	98.3		P	85 - 115
Copper	97.8		P	85 - 115
Lead	99.2		P	85 - 115
Nickel	101		P	85 - 115
Selenium	102		P	85 - 115
Silver	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336396

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	105		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	101		P	85 - 115
Copper	102		P	85 - 115
Lead	102		P	85 - 115
Nickel	103		P	85 - 115
Silver	103		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.5		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336537

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336540

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336353

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336354

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336472

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336166

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336223

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336311

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336312

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336313

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336056

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336057

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

Reference Method: EPA 8321B
Batch ID: P335952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	80.4		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P336325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P336464

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

Reference Method: SM 4500 F-C-97
Batch ID: P336329

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.9		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P336468

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P336200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P336262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.7		P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P336547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P336034

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	97.6		P	40 - 150
Acetaminophen	115		P	30 - 150
Bentazon	75.8		P	30 - 150
Carbamazepine	109		P	40 - 150
Diuron	106		P	40 - 150
Fenuron	109		P	40 - 150
Fluridone	105		P	40 - 150
Imidacloprid	98.3		P	40 - 160
Linuron	100		P	40 - 150
MCPP	92.1		P	40 - 150
Primidone	93.9		P	40 - 150
Triclopyr	89.1		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P336084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948995	Calcium	103		P	80 - 120
1948995	Iron	106		P	80 - 120
1948995	Magnesium	103		P	80 - 120
1948995	Potassium	101		P	80 - 120
1948995	Sodium	104		P	80 - 120
1948995	Zinc	99.3		P	80 - 120
1949018	Calcium	102		P	80 - 120
1949018	Iron	110	110	P/P	80 - 120
1949018	Magnesium	108	107	P/P	80 - 120
1949018	Potassium	102	101	P/P	80 - 120
1949018	Sodium	105	105	P/P	80 - 120
1949018	Zinc	98.5	96.5	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P336396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949088	Iron	93.3	92.4	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948995	Arsenic	101		P	80 - 120
1948995	Cadmium	103		P	80 - 120
1948995	Chromium	97.5		P	80 - 120
1948995	Copper	94.4		P	80 - 120
1948995	Lead	98.3		P	80 - 120
1948995	Nickel	97.4		P	80 - 120
1948995	Selenium	100		P	80 - 120
1948995	Silver	102		P	80 - 120
1949018	Arsenic	103	103	P/P	80 - 120
1949018	Cadmium	104	105	P/P	80 - 120
1949018	Chromium	98.7	101	P/P	80 - 120
1949018	Copper	94.9	95.8	P/P	80 - 120
1949018	Lead	99.5	101	P/P	80 - 120
1949018	Nickel	99.0	99.5	P/P	80 - 120
1949018	Selenium	101	102	P/P	80 - 120
1949018	Silver	103	104	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949088	Arsenic	117	117	P/P	70 - 130
1949088	Cadmium	99.6	96.5	P/P	70 - 130
1949088	Chromium	95.7	95.0	P/P	70 - 130
1949088	Copper	101	99.7	P/P	70 - 130
1949088	Lead	110	109	P/P	70 - 130
1949088	Nickel	107	106	P/P	70 - 130
1949088	Silver	96.7	96.8	P/P	70 - 130
1949088	Zinc	99.8	98.6	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949216	Chloride	95.0		P	90 - 110
1949218	Chloride	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949216	Sulfate	96.2		P	90 - 110
1949218	Sulfate	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948842	Ammonia-N	107	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336353

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948851	Kjeldahl Nitrogen	103	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949101	Kjeldahl Nitrogen	99.4	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949136	Kjeldahl Nitrogen	96.6	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949036	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948961	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949045	Total-P	101	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949060	Total-P	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949046	O-Phosphate-P	100	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949049	O-Phosphate-P	100	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P335952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948654	Sucralose	89.0	97.8	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P336329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949156	Fluoride	94.4	95.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P336468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948737	Fluoride	97.4	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P336200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948670	Organic Carbon	96.0	97.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P336262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948541	Organic Carbon	98.5	98.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P336547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949758	Organic Carbon	98.3	97.3	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P336034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948788	2,4-D	70.0	71.5	P/P	40 - 150
1948788	Acetaminophen	122	125	P/P	30 - 150
1948788	Bentazon	45.1	44.6	P/P	30 - 150
1948788	Carbamazepine	90.4	93.1	P/P	40 - 150
1948788	Diuron	85.6	88.0	P/P	40 - 150
1948788	Fenuron	66.5	74.1	P/P	40 - 150
1948788	Fluridone	89.7	94.3	P/P	40 - 150
1948788	Imidacloprid	164	174	F/F	40 - 160
1948788	Linuron	99.0	99.5	P/P	40 - 150
1948788	MCP	59.4	58.1	P/P	40 - 150
1948788	Primidone	82.9	82.9	P/P	40 - 150
1948788	Triclopyr	61.3	57.4	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949012	Turbidity	5.38	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949059	Turbidity	7.18	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949018	Calcium	0.813	Spike	P	0 - 20
1949018	Iron	0.107	Spike	P	0 - 20
1949018	Magnesium	0.730	Spike	P	0 - 20
1949018	Potassium	0.537	Spike	P	0 - 20
1949018	Sodium	0.00201	Spike	P	0 - 20
1949018	Zinc	1.12	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949088	Iron	0.970	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949018	Arsenic	0.662	Spike	P	0 - 20
1949018	Cadmium	0.641	Spike	P	0 - 20
1949018	Chromium	1.84	Spike	P	0 - 20
1949018	Copper	0.698	Spike	P	0 - 20
1949018	Lead	1.64	Spike	P	0 - 20
1949018	Nickel	0.566	Spike	P	0 - 20
1949018	Selenium	0.125	Spike	P	0 - 20
1949018	Silver	1.17	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949088	Arsenic	0.0269	Spike	P	0 - 20
1949088	Cadmium	3.16	Spike	P	0 - 20
1949088	Chromium	0.689	Spike	P	0 - 20
1949088	Copper	1.65	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949088	Lead	0.870	Spike	P	0 - 20
1949088	Nickel	0.549	Spike	P	0 - 20
1949088	Silver	0.126	Spike	P	0 - 20
1949088	Zinc	1.18	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949216	Chloride	0.664	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949216	Sulfate	0.750	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948842	Ammonia-N	2.58	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949036	Ammonia-N	5.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948851	Kjeldahl Nitrogen	2.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949101	Kjeldahl Nitrogen	5.02	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949136	Kjeldahl Nitrogen	2.57	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949036	NO2NO3-N	1.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948961	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949045	Total-P	2.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949197	Total-P	0.337	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949060	Total-P	1.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949046	O-Phosphate-P	2.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949049	O-Phosphate-P	0.189	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P335952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948654	Sucralose	8.15	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P336073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949012	Color (true)	0.759	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P336325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949156	Total Alkalinity	0.483	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P336464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948737	Total Alkalinity	0.381	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P336392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949047	TDS	5.36	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P336329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949156	Fluoride	0.953	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P336468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948737	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P336200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948670	Organic Carbon	0.572	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P336262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948541	Organic Carbon	0.379	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P336547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949758	Organic Carbon	0.774	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P336034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948788	2,4-D	2.26	Spike	P	0 - 30
1948788	Acetaminophen	2.70	Spike	P	0 - 30
1948788	Bentazon	1.00	Spike	P	0 - 30
1948788	Carbamazepine	2.94	Spike	P	0 - 30
1948788	Diuron	2.72	Spike	P	0 - 30
1948788	Fenuron	8.74	Spike	P	0 - 30
1948788	Fluridone	5.01	Spike	P	0 - 30
1948788	Imidacloprid	5.83	Spike	P	0 - 30
1948788	Linuron	0.427	Spike	P	0 - 30
1948788	MCP	2.11	Spike	P	0 - 30
1948788	Primidone	0.0415	Spike	P	0 - 30
1948788	Triclopyr	6.48	Spike	P	0 - 30

* 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 Surrogates

Lab Sample ID: 1949082
Field Sample ID: 42009058

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	77.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	105	P	30 - 160
EPA 8321B	Diuron-d6	97.3	P	30 - 160
EPA 8321B	Primidone-d5	99.8	P	30 - 160
EPA 8321B	Sucralose-d6	120	P	40 - 160
USGS O-2060-01	2,4-D-d3	78.1	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	77.5	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	105	P	30 - 160
USGS O-2060-01	Diuron-d6	97.3	P	30 - 160
USGS O-2060-01	Primidone-d5	99.8	P	30 - 160
USGS O-2060-01	Sucralose-d6	120	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1949083
Field Sample ID: G4SEBS04

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	93.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	123	P	30 - 160
EPA 8321B	Diuron-d6	117	P	30 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	113	P	40 - 160
USGS O-2060-01	2,4-D-d3	76.0	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	93.5	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	123	P	30 - 160
USGS O-2060-01	Diuron-d6	117	P	30 - 160
USGS O-2060-01	Primidone-d5	112	P	30 - 160
USGS O-2060-01	Sucralose-d6	113	P	40 - 160

Lab Sample ID: 1949084
Field Sample ID: 42009060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	79.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	106	P	30 - 160
EPA 8321B	Diuron-d6	96.0	P	30 - 160
EPA 8321B	Primidone-d5	94.3	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	40 - 160
USGS O-2060-01	2,4-D-d3	77.5	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	79.2	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	106	P	30 - 160
USGS O-2060-01	Diuron-d6	96.0	P	30 - 160
USGS O-2060-01	Primidone-d5	94.3	P	30 - 160
USGS O-2060-01	Sucralose-d6	108	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A80568
Included Lab Sample IDs: 1949082, 1949083, 1949084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	81.6	85.2	P/P	60 - 150
Sucralose	85.2	74.5	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80577
Included Lab Sample IDs: 1949046, 1949049, 1949052, 1949057, 1949058, 1949061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.8	100	P/P	90 - 110
O-Phosphate-P	99.9	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A80591
Included Lab Sample IDs: 1949047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80593
Included Lab Sample IDs: 1949044, 1949047, 1949050, 1949053, 1949054, 1949059

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A80619
Included Lab Sample IDs: 1949087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.6	100	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	97.5	99.0	P/P	90 - 110
Sodium	98.4	98.7	P/P	90 - 110
Zinc	102	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A80623
Included Lab Sample IDs: 1949048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A80632
Included Lab Sample IDs: 1949047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	99.6	P/P	90 - 110
Sulfate	99.9	99.3	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A80635
Included Lab Sample IDs: 1949048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A80638
Included Lab Sample IDs: 1949045, 1949051, 1949055, 1949056, 1949060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A80648

Included Lab Sample IDs: 1949087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	101	P/P	90 - 110
Cadmium	99.4	99.7	P/P	90 - 110
Chromium	97.1	98.1	P/P	90 - 110
Copper	101	99.4	P/P	90 - 110
Lead	97.7	98.4	P/P	90 - 110
Nickel	101	99.9	P/P	90 - 110
Selenium	102	99.7	P/P	90 - 110
Silver	99.0	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A80659

Included Lab Sample IDs: 1949045

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

Reference Method: SM 2320 B-97

Run ID: A80689

Included Lab Sample IDs: 1949044, 1949050, 1949053, 1949054, 1949059

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A80689

Included Lab Sample IDs: 1949044, 1949050, 1949053, 1949054, 1949059

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	97.1	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A80693

Included Lab Sample IDs: 1949082, 1949083, 1949084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.9	98.5	P/P	50 - 150
2,4-D	94.2	88.9	P/P	50 - 150
Acetaminophen	120	117	P/P	60 - 150
Bentazon	104	99.4	P/P	50 - 150
Bentazon	99.4	100	P/P	50 - 150
Carbamazepine	114	115	P/P	60 - 150
Diuron	109	111	P/P	60 - 150
Fenuron	111	114	P/P	60 - 150
Fluridone	120	117	P/P	60 - 160
Imidacloprid	97.2	108	P/P	60 - 150
Linuron	114	110	P/P	60 - 150
MCPP	100	94.3	P/P	50 - 150
MCPP	94.3	98.8	P/P	50 - 150
Primidone	117	119	P/P	60 - 150
Triclopyr	87.7	90.6	P/P	50 - 150
Triclopyr	93.0	87.7	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A80732
Included Lab Sample IDs: 1949047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A80732
Included Lab Sample IDs: 1949047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A80744
Included Lab Sample IDs: 1949045, 1949048

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A80745
Included Lab Sample IDs: 1949088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	103	105	P/P	90 - 110
Cadmium	97.7	99.3	P/P	90 - 110
Copper	102	104	P/P	90 - 110
Lead	98.7	100	P/P	90 - 110
Nickel	103	105	P/P	90 - 110
Silver	98.5	100	P/P	90 - 110
Zinc	101	103	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A80748
Included Lab Sample IDs: 1949088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	92.1	91.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A80749
Included Lab Sample IDs: 1949045, 1949048, 1949051, 1949055, 1949056, 1949060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.2	96.5	P/P	90 - 110
Ammonia-N	99.2	99.5	P/P	90 - 110
Ammonia-N	99.6	97.2	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A80752
Included Lab Sample IDs: 1949051, 1949055, 1949056, 1949060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A80752

Included Lab Sample IDs: 1949051, 1949055, 1949056, 1949060

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80764

Included Lab Sample IDs: 1949045, 1949048, 1949051, 1949055, 1949056, 1949060

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80765

Included Lab Sample IDs: 1949051, 1949055, 1949056, 1949060

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A80767

Included Lab Sample IDs: 1949088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	100	99.9	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					5.38	
	Turbidity					7.18	
EPA 200.7 Rev. 4.4	Calcium	103	103	102			0.813
	Iron	106	106	110	110		0.107
	Iron	96.0	93.3	92.4			0.970
	Magnesium	109	103	108	107		0.730
	Potassium	101	101	102	101		0.537
	Sodium	105	104	105	105		0.0020
	Zinc	101	99.3	98.5	96.5		1.12
EPA 200.8 Rev. 5.4	Arsenic	102	101	103	103		0.662
	Arsenic	105	117	117			0.0269
	Cadmium	99.0	103	104	105		0.641
	Cadmium	104	99.6	96.5			3.16
	Chromium	98.3	97.5	98.7	101		1.84
	Chromium	101	95.7	95.0			0.689
	Copper	97.8	94.4	94.9	95.8		0.698

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 200.8 Rev. 5.4	Copper	102	101	99.7			1.65
	Lead	99.2	98.3	99.5	101		1.64
	Lead	102	110	109			0.870
	Nickel	101	97.4	99.0	99.5		0.566
	Nickel	103	107	106			0.549
	Selenium	102	100	101	102		0.125
	Silver	102	102	103	104		1.17
	Silver	103	96.7	96.8			0.126
	Zinc	100	99.8	98.6			1.18
EPA 300.0 Rev. 2.1	Chloride	94.2	95.0	95.3		0.664	
	Sulfate	94.5	96.2	95.4		0.750	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	107	104			2.58
	Ammonia-N	101					5.27
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	103	99.5			2.44
	Kjeldahl Nitrogen	101	99.4	107			5.02
	Kjeldahl Nitrogen	104	96.6	99.5			2.57
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	103			1.10
	NO2NO3-N	106	106	106			0.0
EPA 365.1 Rev. 2.0	Total-P	103	101	98.2			2.31
	Total-P	102					0.337
	Total-P	103	102	100			1.61
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	100	104			2.61
	O-Phosphate-P	100	100	100			0.189
EPA 8321B	Sucralose	80.4	89.0	97.8			8.15
SM 2120 B	Color (true)					0.759	
SM 2320 B-97	Total Alkalinity	102				0.483	
	Total Alkalinity	103				0.381	
SM 2540 C-97	TDS					5.36	
SM 4500 F-C-97	Fluoride	93.9	94.4	95.7			0.953
	Fluoride	96.3	97.4	97.4			0.0
SM 5310 B-00	Organic Carbon	99.8	96.0	97.0			0.572
	Organic Carbon	98.7	98.5	98.1			0.379
	Organic Carbon	98.8	98.3	97.3			0.774
USGS O-2060-01	2,4-D	97.6	70.0	71.5			2.26
	Acetaminophen	115	125	122			2.70
	Bentazon	75.8	45.1	44.6			1.00
	Carbamazepine	109	93.1	90.4			2.94
	Diuron	106	88.0	85.6			2.72
	Fenuron	109	74.1	66.5			8.74
	Fluridone	105	94.3	89.7			5.01
	Imidacloprid	98.3	174	164			5.83
	Linuron	100	99.5	99.0			0.427
	MCPP	92.1	59.4	58.1			2.11
	Primidone	93.9	82.9	82.9			0.0415
	Triclopyr	89.1	61.3	57.4			6.48

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1949044, 1949047, 1949050, 1949053, 1949054, 1949059
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1949087, 1949088

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1949087, 1949088
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1949047
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1949047
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1949045, 1949048, 1949051, 1949055, 1949056, 1949060
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1949045, 1949048, 1949051, 1949055, 1949056, 1949060
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1949045, 1949048, 1949051, 1949055, 1949056, 1949060
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1949045, 1949048, 1949051, 1949055, 1949056, 1949060
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1949046, 1949049, 1949052, 1949057, 1949058, 1949061
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1949082, 1949083, 1949084
SM 2120 B / E31780	True Color measured at 450 nm	1949047
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1949044, 1949047, 1949050, 1949053, 1949054, 1949059
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1949047
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1949044, 1949047, 1949050, 1949053, 1949054, 1949059
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1949044, 1949047, 1949050, 1949053, 1949054, 1949059
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1949045, 1949048, 1949051, 1949055, 1949056, 1949060
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1949082, 1949083, 1949084
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1949082, 1949083, 1949084

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	11/29/2017			11/29/2017 16:26	DeAsia Armster	1949044, 1949047, 1949050, 1949053, 1949054, 1949059
EPA 200.7 Rev. 4.4	11/29/2017	11/29/2017	Elliott D. Healy	11/30/2017	Betina Topolski	1949087
	11/29/2017	12/05/2017	Elliott D. Healy	12/06/2017	Martin Acosta	1949088
EPA 200.8 Rev. 5.4	11/29/2017	11/29/2017	Elliott D. Healy	12/01/2017	Nadine Brooks	1949087
	11/29/2017	12/05/2017	Elliott D. Healy	12/06/2017	Nadine Brooks	1949088
	11/29/2017	12/05/2017	Elliott D. Healy	12/07/2017	Nadine Brooks	1949088
EPA 300.0 Rev. 2.1	11/29/2017			12/02/2017	Julia Storbeck	1949047
EPA 350.1 Rev. 2.0	11/29/2017			12/06/2017	Sofia Elnemr	1949045, 1949048, 1949051, 1949055, 1949056, 1949060
EPA 351.2 Rev. 2.0	11/29/2017	12/05/2017	Adrian Shelby	12/06/2017	Joseph Suarez	1949045, 1949048
	11/29/2017	12/06/2017	Adrian Shelby	12/07/2017	Joseph Suarez	1949051, 1949055, 1949056, 1949060
EPA 353.2 Rev. 2.0	11/29/2017			12/01/2017	Beverly Y. Sanders	1949048
	11/29/2017			12/01/2017	Lauren Bottorf	1949045, 1949051, 1949055, 1949056, 1949060
EPA 365.1 Rev. 2.0	11/29/2017	12/04/2017	Sima Feizi	12/07/2017	Lipi Saha	1949045, 1949048, 1949051, 1949055, 1949056, 1949060
EPA 365.1 Rev. 2.0 dissolved	11/29/2017			11/29/2017 12:10	Megan Treadwell	1949046
	11/29/2017			11/29/2017 12:13	Megan Treadwell	1949052
	11/29/2017			11/29/2017 12:14	Megan Treadwell	1949057, 1949058
	11/29/2017			11/29/2017 12:15	Megan Treadwell	1949061
	11/29/2017			11/29/2017 12:36	Megan Treadwell	1949049
EPA 8321B	11/29/2017	11/29/2017	Juyoung Kim	11/30/2017	Juyoung Kim	1949082, 1949083, 1949084
SM 2120 B	11/29/2017			11/29/2017 14:55	Tanya Welborn	1949047
SM 2320 B-97	11/29/2017			12/04/2017	Dale L. Simmons	1949044, 1949050, 1949053, 1949054, 1949059
	11/29/2017			12/06/2017	Dale L. Simmons	1949047
SM 2540 C-97	11/29/2017			12/01/2017	Yijie Li	1949047
SM 2540 D-97	11/29/2017			12/01/2017	Yijie Li	1949044, 1949047, 1949050, 1949053, 1949054, 1949059
SM 4500 F-C-97	11/29/2017			12/04/2017	Dale L. Simmons	1949044, 1949050, 1949053, 1949054, 1949059
	11/29/2017			12/06/2017	Dale L. Simmons	1949047
SM 5310 B-00	11/29/2017			12/01/2017	Ping Hua	1949048
	11/29/2017			12/02/2017	Ping Hua	1949045
	11/29/2017			12/07/2017	Ping Hua	1949051, 1949055, 1949056, 1949060
USGS O-2060-01	11/29/2017	12/04/2017	Hoor Shaik	12/05/2017	Julie Michelle Frank	1949082, 1949083, 1949084
	11/29/2017	12/04/2017	Hoor Shaik	12/06/2017	Julie Michelle Frank	1949082, 1949083, 1949084