

Chemical Analysis Report

SE-DIST-2017-10-05-01

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-2017-09-11-15**
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: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 24-OCT-2017 11:33



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 Harbor Park

Collection Date/Time: 10/04/2017 11:00

Field ID: G4SE0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934453	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P332813	
	SM 2320 B-97	Total Alkalinity	139		mg CaCO3/L	P333074	
	SM 2540 D-97	TSS	5	I	mg/L	P333009	
	SM 4500 F-C-97	Fluoride	0.91		mg F/L	P333078	
1934455	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P333234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P332887	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P333039	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P333065	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P333408	
1934457	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P332851	

Sample Location: ICWW 79 ST Causeway East

Collection Date/Time: 10/04/2017 11:15

Field ID: 28040332

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934454	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P332813	
	SM 2320 B-97	Total Alkalinity	140	A	mg CaCO3/L	P333074	
	SM 2540 D-97	TSS	7	I	mg/L	P333009	
	SM 4500 F-C-97	Fluoride	0.99		mg F/L	P333078	
1934456	EPA 350.1 Rev. 2.0	Ammonia-N	0.086		mg N/L	P333234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P332887	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P333039	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P333065	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P333408	
1934458	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332851	

Sample Location: C-8 / Biscayne Canal

Collection Date/Time: 10/04/2017 11:30

Field ID: G4SEB504

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934447	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P332813	
	EPA 300.0 Rev. 2.1	Chloride	64		mg Cl/L	P332903	
		Sulfate	18		mg SO4/L	P332907	
	SM 2120 B	Color (true)	36		PCU	P332833	
	SM 2320 B-97	Total Alkalinity	195		mg CaCO3/L	P333346	
	SM 2540 C-97	TDS	342		mg/L	P333144	
	SM 2540 D-97	TSS	2	U	mg/L	P333004	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P333349	
1934448	EPA 350.1 Rev. 2.0	Ammonia-N	0.32		mg N/L	P333233	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P333127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P333167	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P333063	
	SM 5310 B-00	Organic Carbon	6.8		mg C/L	P333154	

Field ID: G4SEB504

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934449	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P332847	
1934510	EPA 8321B	Sucralose**	0.49		ug/L	P332778	RPD
	USGS O-2060-01	2,4-D	0.0028	I	ug/L	P332779	
		Diuron	0.030		ug/L	P332779	
		Fenuron	0.0080	U	ug/L	P332779	
		Imidacloprid	0.012		ug/L	P332779	
		Bentazon	0.0080		ug/L	P332779	MS
		Linuron	0.0040	U	ug/L	P332779	
		Acetaminophen**	0.0080	U	ug/L	P332779	
		MCPP	0.0020	U	ug/L	P332779	
		Carbamazepine**	0.015		ug/L	P332779	
		Triclopyr**	0.0040	U	ug/L	P332779	
		Primidone**	0.0048	I	ug/L	P332779	
		Fluridone**	0.0031		ug/L	P332779	
1934512	EPA 200.7 Rev. 4.4	Calcium	84.5		mg/L	P332965	
		Iron	270		ug/L	P332965	
		Magnesium	5.72		mg/L	P332965	
		Potassium	2.8		mg/L	P332965	
		Sodium	37.8		mg/L	P332965	
		Zinc	5.0	U	ug/L	P332965	
	EPA 200.8 Rev. 5.4	Arsenic	1.57		ug/L	P332965	
		Cadmium	0.020	U	ug/L	P332965	
		Chromium	0.40	U	ug/L	P332965	
		Copper	0.60	I	ug/L	P332965	
		Lead	0.33		ug/L	P332965	
		Nickel	0.53	I	ug/L	P332965	
		Selenium	0.20	U	ug/L	P332965	
		Silver	0.010	U	ug/L	P332965	

Ref. Method and Comment:

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

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

USGS O-2060-01: MS accuracy for imidacloprid and fluridone could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Arch Creek (upper segment)

Collection Date/Time: 10/04/2017 12:00

Field ID: 42009060

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934459	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P332813	
	SM 2320 B-97	Total Alkalinity	212		mg CaCO3/L	P333347	
	SM 2540 D-97	TSS	2	U	mg/L	P333005	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P333350	
1934460	EPA 350.1 Rev. 2.0	Ammonia-N	1.5		mg N/L	P333233	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P333308	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P333168	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P333056	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P333407	

Field ID: 42009060

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934461	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.068		mg P/L	P332847	
1934511	EPA 8321B	Sucralose**	1.7		ug/L	P332778	RPD
	USGS O-2060-01	2,4-D	0.0065	I	ug/L	P332779	
		Diuron	0.0051		ug/L	P332779	
		Fenuron	0.0080	U	ug/L	P332779	
		Imidacloprid	0.0035		ug/L	P332779	
		Bentazon	0.030		ug/L	P332779	MS
		Linuron	0.0040	U	ug/L	P332779	
		Acetaminophen**	0.0081	I	ug/L	P332779	
		MCP	0.0073	I	ug/L	P332779	
		Carbamazepine**	0.032		ug/L	P332779	
		Triclopyr**	0.0040	U	ug/L	P332779	
		Primidone**	0.021		ug/L	P332779	
		Fluridone**	5.8E-04	I	ug/L	P332779	

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: MS accuracy for imidacloprid and fluridone could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: ICWW (Miami-dade county northern segment) Collection Date/Time: 10/04/2017 12:25

Field ID: G4SE0063

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934450	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P332813	
	SM 2320 B-97	Total Alkalinity	185		mg CaCO3/L	P333347	
	SM 2540 D-97	TSS	2	I	mg/L	P333005	
	SM 4500 F-C-97	Fluoride	0.31		mg F/L	P333350	
1934451	EPA 350.1 Rev. 2.0	Ammonia-N	0.19		mg N/L	P333234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P332887	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P333420	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P332938	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P333154	
1934452	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P332851	
1934513	EPA 200.7 Rev. 4.4	Iron	170		ug/L	P332965	
		Zinc	5.0	U	ug/L	P332965	
	EPA 200.8 Rev. 5.4	Arsenic	1.85		ug/L	P332965	
		Cadmium	0.020	U	ug/L	P332965	
		Chromium	0.40	U	ug/L	P332965	
		Copper	1.16		ug/L	P332965	
		Lead	0.15	I	ug/L	P332965	
		Nickel	0.37	I	ug/L	P332965	
		Silver	0.010	U	ug/L	P332965	

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: 10/04/2017 12:45

Field ID: 42009058

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934444	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P332813	
	SM 2320 B-97	Total Alkalinity	178		mg CaCO3/L	P333346	
	SM 2540 D-97	TSS	3	U	mg/L	P333004	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P333349	
1934445	EPA 350.1 Rev. 2.0	Ammonia-N	0.16		mg N/L	P333234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P332887	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P333419	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P332938	
	SM 5310 B-00	Organic Carbon	9.1		mg C/L	P333154	
1934446	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P332851	
1934509	EPA 8321B	Sucralose**	0.15		ug/L	P332778	RPD
	USGS O-2060-01	2,4-D	0.018		ug/L	P332779	
		Diuron	0.016		ug/L	P332779	
		Fenuron	0.0080	U	ug/L	P332779	
		Imidacloprid	0.011		ug/L	P332779	
		Bentazon	0.0085		ug/L	P332779	MS
		Linuron	0.0040	U	ug/L	P332779	
		Acetaminophen**	0.0080	U	ug/L	P332779	
		MCPD	0.0020	U	ug/L	P332779	
		Carbamazepine**	0.0028		ug/L	P332779	
		Triclopyr**	0.0040	U	ug/L	P332779	
		Primidone**	0.0040	U	ug/L	P332779	
		Fluridone**	0.013		ug/L	P332779	

Ref. Method and Comment:

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

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

USGS O-2060-01: Results confirmed in re-extraction.

USGS O-2060-01: MS accuracy for imidacloprid and fluridone could not be assessed due to high concentration of parameter in the spiked sample.

Results confirmed in re-extraction.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P332813

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P332965

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P332965

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 300.0 Rev. 2.1
Batch ID: P332903

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332907

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333233

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332887

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333308

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333039

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333168

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333419

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333420

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332938

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333065

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: P332847

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332851

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

Reference Method: EPA 8321B
Batch ID: P332778

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P332833

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333074

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

Reference Method: SM 2320 B-97
Batch ID: P333346

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

Reference Method: SM 2320 B-97
Batch ID: P333347

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

Reference Method: SM 2540 C-97
Batch ID: P333144

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333004

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P333005

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333009

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P333349

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P333350

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P333154

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

Reference Method: SM 5310 B-00
Batch ID: P333407

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

Reference Method: SM 5310 B-00
Batch ID: P333408

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

Reference Method: USGS O-2060-01
Batch ID: P332779

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

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P332779

Component	Result	Code	Units
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: P332965

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	111		P	85 - 115
Iron	109		P	85 - 115
Magnesium	111		P	85 - 115
Potassium	101		P	85 - 115
Sodium	99.4		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P332965

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	98.9		P	85 - 115
Copper	96.5		P	85 - 115
Lead	98.4		P	85 - 115
Nickel	98.0		P	85 - 115
Selenium	102		P	85 - 115
Silver	96.6		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332903

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332907

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333233

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333234

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: P332887

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: P333127

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333308

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333039

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: P333167

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: P333168

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: P333419

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333420

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: P332938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333065

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332851

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

Reference Method: EPA 8321B
Batch ID: P332778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	101		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P333074

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P333346

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

Reference Method: SM 2320 B-97
Batch ID: P333347

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

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P333349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P333350

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P333154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P333407

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P333408

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

Reference Method: USGS O-2060-01
Batch ID: P332779

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	109		P	40 - 150
Acetaminophen	103		P	30 - 150
Bentazon	43.4		P	30 - 150
Carbamazepine	126		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P332779

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	116		P	40 - 150
Fenuron	96.1		P	40 - 150
Fluridone	107		P	40 - 150
Imidacloprid	98.5		P	40 - 160
Linuron	95.6		P	40 - 150
MCPP	121		P	40 - 150
Primidone	97.2		P	40 - 150
Triclopyr	125		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P332965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934357	Calcium	111		P	80 - 120
1934357	Iron	109		P	80 - 120
1934357	Magnesium	111		P	80 - 120
1934357	Potassium	101		P	80 - 120
1934357	Sodium	99.9		P	80 - 120
1934357	Zinc	104		P	80 - 120
1934494	Calcium	112	113	P/P	80 - 120
1934494	Iron	107	109	P/P	80 - 120
1934494	Magnesium	110	111	P/P	80 - 120
1934494	Potassium	104	105	P/P	80 - 120
1934494	Sodium	99.3		P	80 - 120
1934494	Zinc	105	106	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P332965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934357	Arsenic	101		P	80 - 120
1934357	Cadmium	102		P	80 - 120
1934357	Chromium	98.5		P	80 - 120
1934357	Copper	96.8		P	80 - 120
1934357	Lead	99.3		P	80 - 120
1934357	Nickel	98.1		P	80 - 120
1934357	Selenium	101		P	80 - 120
1934357	Silver	95.6		P	80 - 120
1934494	Arsenic	100	101	P/P	80 - 120
1934494	Cadmium	100	102	P/P	80 - 120
1934494	Chromium	97.7	98.3	P/P	80 - 120
1934494	Copper	97.3	97.9	P/P	80 - 120
1934494	Lead	99.2	99.6	P/P	80 - 120
1934494	Nickel	98.1	98.6	P/P	80 - 120
1934494	Selenium	100	103	P/P	80 - 120
1934494	Silver	95.5	95.8	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934339	Chloride	107		P	90 - 110
1934419	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934339	Sulfate	104		P	90 - 110
1934419	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934420	Ammonia-N	100	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934375	Ammonia-N	104	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934594	Kjeldahl Nitrogen	95.3	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934448	Kjeldahl Nitrogen	95.8	93.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934650	Kjeldahl Nitrogen	101	95.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932448	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934420	NO2NO3-N	106	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934469	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934375	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934451	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934445	Total-P	99.6	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934466	Total-P	97.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934421	Total-P	98.5	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934455	Total-P	91.6	91.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934403	O-Phosphate-P	96.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332851

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934379	O-Phosphate-P	95.3	96.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P332778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934706	Sucralose	69.3	114	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932285	Fluoride	95.5	95.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P333350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934698	Fluoride	101	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P333154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934345	Organic Carbon	97.7	96.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P333407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933861	Organic Carbon	97.4	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P333408

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933542	Organic Carbon	96.5	94.4	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P332779

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934706	2,4-D	66.3	58.8	P/P	40 - 150
1934706	Acetaminophen	84.5	80.9	P/P	30 - 150
1934706	Bentazon	25.7	21.7	F/F	30 - 150
1934706	Carbamazepine	90.7	94.5	P/P	40 - 150
1934706	Diuron	76.1	79.7	P/P	40 - 150
1934706	Fenuron	82.5	90.8	P/P	40 - 150
1934706	Linuron	91.9	98.1	P/P	40 - 150
1934706	MCP	50.3	53.1	P/P	40 - 150
1934706	Primidone	105	107	P/P	40 - 150
1934706	Triclopyr	47.5	50.6	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934419	Turbidity	1.23	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P332965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934494	Calcium	1.29	Spike	P	0 - 20
1934494	Iron	1.31	Spike	P	0 - 20
1934494	Magnesium	1.22	Spike	P	0 - 20
1934494	Potassium	0.847	Spike	P	0 - 20
1934494	Sodium	0.643	Spike	P	0 - 20
1934494	Zinc	0.226	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P332965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934494	Arsenic	0.896	Spike	P	0 - 20
1934494	Cadmium	1.92	Spike	P	0 - 20
1934494	Chromium	0.616	Spike	P	0 - 20
1934494	Copper	0.629	Spike	P	0 - 20
1934494	Lead	0.390	Spike	P	0 - 20
1934494	Nickel	0.443	Spike	P	0 - 20
1934494	Selenium	2.43	Spike	P	0 - 20
1934494	Silver	0.279	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934419	Chloride	0.566	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934419	Sulfate	0.416	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934420	Ammonia-N	3.97	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934375	Ammonia-N	2.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934594	Kjeldahl Nitrogen	4.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934448	Kjeldahl Nitrogen	1.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934650	Kjeldahl Nitrogen	3.21	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932448	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934420	NO2NO3-N	1.91	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934469	NO2NO3-N	0.917	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934375	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934451	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934445	Total-P	0.319	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934466	Total-P	2.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934421	Total-P	0.609	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934455	Total-P	0.373	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934403	O-Phosphate-P	4.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934379	O-Phosphate-P	0.636	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P332778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934706	Sucralose	30.9	Spike	F	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P332833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934419	Color (true)	1.94	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P333074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934454	Total Alkalinity	0.754	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P333346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934884	Total Alkalinity	0.124	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P333347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934698	Total Alkalinity	0.208	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P333144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934462	TDS	0.203	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P333009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934612	TSS	1.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932285	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P333349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934884	Fluoride	0.992	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P333350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934698	Fluoride	0.482	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P333154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934345	Organic Carbon	1.25	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P333407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933861	Organic Carbon	2.46	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P333408

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933542	Organic Carbon	1.78	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P332779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934706	2,4-D	4.57	Spike	P	0 - 30
1934706	Acetaminophen	4.40	Spike	P	0 - 30
1934706	Bentazon	4.62	Spike	P	0 - 30
1934706	Carbamazepine	3.92	Spike	P	0 - 30
1934706	Diuron	3.96	Spike	P	0 - 30
1934706	Fenuron	9.55	Spike	P	0 - 30
1934706	Fluridone	4.22	Spike	P	0 - 30
1934706	Imidacloprid	2.56	Spike	P	0 - 30
1934706	Linuron	6.61	Spike	P	0 - 30
1934706	MCPP	5.30	Spike	P	0 - 30
1934706	Primidone	1.90	Spike	P	0 - 30
1934706	Triclopyr	6.44	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

Quality Assurance Report Surrogates

Lab Sample ID: 1934509
Field Sample ID: 42009058

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	76.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	101	P	30 - 160
EPA 8321B	Diuron-d6	76.9	P	30 - 160
EPA 8321B	Primidone-d5	97.5	P	30 - 160
EPA 8321B	Sucralose-d6	61.1	P	40 - 160
USGS O-2060-01	2,4-D-d3	63.6	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	76.1	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	101	P	30 - 160
USGS O-2060-01	Diuron-d6	76.9	P	30 - 160
USGS O-2060-01	Primidone-d5	97.5	P	30 - 160
USGS O-2060-01	Sucralose-d6	61.1	P	40 - 160

Lab Sample ID: 1934510
Field Sample ID: G4SEB504

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	75.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	109	P	30 - 160
EPA 8321B	Diuron-d6	75.2	P	30 - 160
EPA 8321B	Primidone-d5	97.4	P	30 - 160
EPA 8321B	Sucralose-d6	75.1	P	40 - 160
USGS O-2060-01	2,4-D-d3	60.1	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	75.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	109	P	30 - 160
USGS O-2060-01	Diuron-d6	75.2	P	30 - 160
USGS O-2060-01	Primidone-d5	97.4	P	30 - 160
USGS O-2060-01	Sucralose-d6	75.1	P	40 - 160

Lab Sample ID: 1934511
Field Sample ID: 42009060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	74.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	117	P	30 - 160
EPA 8321B	Diuron-d6	85.3	P	30 - 160
EPA 8321B	Primidone-d5	106	P	30 - 160
EPA 8321B	Sucralose-d6	76.7	P	40 - 160
USGS O-2060-01	2,4-D-d3	61.0	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	74.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	117	P	30 - 160
USGS O-2060-01	Diuron-d6	85.3	P	30 - 160
USGS O-2060-01	Primidone-d5	106	P	30 - 160
USGS O-2060-01	Sucralose-d6	76.7	P	40 - 160

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A79366

Included Lab Sample IDs: 1934444, 1934447, 1934450, 1934453, 1934454, 1934459

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

Reference Method: SM 2120 B

Run ID: A79372

Included Lab Sample IDs: 1934447

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	99.2	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A79378

Included Lab Sample IDs: 1934446, 1934449, 1934452, 1934457, 1934458, 1934461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	100	P/P	90 - 110
O-Phosphate-P	98.9	97.4	P/P	90 - 110
O-Phosphate-P	99.3	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A79401

Included Lab Sample IDs: 1934447

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	108	107	P/P	90 - 110
Sulfate	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79435

Included Lab Sample IDs: 1934445, 1934451, 1934455, 1934456

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79448

Included Lab Sample IDs: 1934455, 1934456

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79460

Included Lab Sample IDs: 1934445, 1934451

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A79462

Included Lab Sample IDs: 1934453, 1934454

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A79462

Included Lab Sample IDs: 1934453, 1934454

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.1	P/P	90 - 110
Fluoride	99.1	97.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A79474

Included Lab Sample IDs: 1934512, 1934513

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	105	106	P/P	90 - 110
Cadmium	103	104	P/P	90 - 110
Chromium	102	102	P/P	90 - 110
Copper	103	105	P/P	90 - 110
Selenium	105	106	P/P	90 - 110
Silver	97.6	98.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A79476

Included Lab Sample IDs: 1934512, 1934513

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	104	106	P/P	90 - 110
Iron	103	103	P/P	90 - 110
Magnesium	104	104	P/P	90 - 110
Potassium	98.7	98.7	P/P	90 - 110
Sodium	96.0	96.9	P/P	90 - 110
Zinc	103	100	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A79478

Included Lab Sample IDs: 1934509, 1934510, 1934511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.8	93.4	P/P	50 - 150
Acetaminophen	83.8	87.9	P/P	60 - 150
Bentazon	88.2	89.7	P/P	50 - 150
Carbamazepine	94.6	96.4	P/P	60 - 150
Diuron	92.6	94.7	P/P	60 - 150
Fenuron	92.3	94.6	P/P	60 - 150
Fluridone	108	107	P/P	60 - 160
Imidacloprid	92.4	88.3	P/P	60 - 150
Linuron	96.6	99.8	P/P	60 - 150
MCPP	97.8	98.1	P/P	50 - 150
Primidone	99.8	100	P/P	60 - 150
Triclopyr	99.6	98.2	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79483

Included Lab Sample IDs: 1934448, 1934460

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

Reference Method: SM 5310 B-00

Run ID: A79484

Included Lab Sample IDs: 1934445, 1934448, 1934451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79486

Included Lab Sample IDs: 1934460

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79494

Included Lab Sample IDs: 1934448, 1934455, 1934456

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.8	P/P	90 - 110
Total-P	99.5	98.8	P/P	90 - 110
Total-P	99.8	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79510

Included Lab Sample IDs: 1934445, 1934448, 1934451, 1934455, 1934456, 1934460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.5	P/P	90 - 110
Ammonia-N	98.5	99.6	P/P	90 - 110
Ammonia-N	99.6	98.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A79511

Included Lab Sample IDs: 1934509, 1934510, 1934511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	82.7	96.1	P/P	60 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79520

Included Lab Sample IDs: 1934448

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A79522

Included Lab Sample IDs: 1934512, 1934513

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	100	100	P/P	90 - 110
Nickel	103	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A79535

Included Lab Sample IDs: 1934444, 1934447, 1934450, 1934459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A79535

Included Lab Sample IDs: 1934444, 1934447, 1934450, 1934459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	100	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A79563

Included Lab Sample IDs: 1934455, 1934456, 1934460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	100	P/P	90 - 110
Organic Carbon	99.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79564

Included Lab Sample IDs: 1934460

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79568

Included Lab Sample IDs: 1934445, 1934451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	100	101	P/P	90 - 110
NO ₂ NO ₃ -N	99.5	100	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.23	
EPA 200.7 Rev. 4.4	Calcium	111	111	112	113			1.29
	Iron	109	109	107	109			1.31
	Magnesium	111	111	110	111			1.22
	Potassium	101	101	104	105			0.847
	Sodium	99.4	99.9	99.3				0.643
	Zinc	103	104	105	106			0.226
EPA 200.8 Rev. 5.4	Arsenic	101	101	100	101			0.896
	Cadmium	102	102	100	102			1.92
	Chromium	98.9	98.5	97.7	98.3			0.616
	Copper	96.5	96.8	97.3	97.9			0.629
	Lead	98.4	99.3	99.2	99.6			0.390
	Nickel	98.0	98.1	98.1	98.6			0.443
	Selenium	102	101	100	103			2.43
	Silver	96.6	95.6	95.5	95.8			0.279
EPA 300.0 Rev. 2.1	Chloride	107	104	107			0.566	
	Sulfate	103	103	104			0.416	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	100	95.6				3.97
	Ammonia-N	101	104	107				2.57
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	95.3	101				4.44
	Kjeldahl Nitrogen	98.5	95.8	93.5				1.32
	Kjeldahl Nitrogen	105	101	95.2				3.21
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103				0.0
	NO2NO3-N	104	106	104				1.91
	NO2NO3-N	104	102	101				0.917
	NO2NO3-N	102	104	104				0.0
	NO2NO3-N	104	102					0.0
EPA 365.1 Rev. 2.0	Total-P	93.6	99.6	99.9				0.319
	Total-P	96.4	97.6	100				2.74
	Total-P	98.8	98.5	99.2				0.609
	Total-P	96.6	91.6	91.9				0.373
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	96.2	100				4.27
	O-Phosphate-P	104	95.3	96.0				0.636
EPA 8321B	Sucralose	101	69.3	114				30.9
SM 2120 B	Color (true)						1.94	
SM 2320 B-97	Total Alkalinity	103					0.754	
	Total Alkalinity	103					0.124	
	Total Alkalinity	103					0.208	
SM 2540 C-97	TDS						0.203	
SM 2540 D-97	TSS						1.90	
SM 4500 F-C-97	Fluoride	97.4	95.5	95.5				0.0
	Fluoride	96.4						0.992
	Fluoride	102	101	101				0.482
SM 5310 B-00	Organic Carbon	97.8	97.7	96.4				1.25
	Organic Carbon	102	97.4	100				2.46
	Organic Carbon	100	96.5	94.4				1.78
USGS O-2060-01	2,4-D	109	66.3	58.8				4.57
	Acetaminophen	103	84.5	80.9				4.40
	Bentazon	43.4	25.7	21.7				4.62
	Carbamazepine	126	90.7	94.5				3.92
	Diuron	116	76.1	79.7				3.96
	Fenuron	96.1	82.5	90.8				9.55
	Fluridone	107						4.22
	Imidacloprid	98.5						2.56

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	Linuron	95.6	91.9	98.1			6.61
	MCPD	121	50.3	53.1			5.30
	Primidone	97.2	105	107			1.90
	Triclopyr	125	47.5	50.6			6.44

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1934444, 1934447, 1934450, 1934453, 1934454, 1934459
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1934512, 1934513
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1934512, 1934513
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1934447
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1934447
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1934445, 1934448, 1934451, 1934455, 1934456, 1934460
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1934445, 1934448, 1934451, 1934455, 1934456, 1934460
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1934445, 1934448, 1934451, 1934455, 1934456, 1934460
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1934445, 1934448, 1934451, 1934455, 1934456, 1934460
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1934446, 1934449, 1934452, 1934457, 1934458, 1934461
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1934509, 1934510, 1934511
SM 2120 B / E31780	True Color measured at 450 nm	1934447
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1934444, 1934447, 1934450, 1934453, 1934454, 1934459
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1934447
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1934444, 1934447, 1934450, 1934453, 1934454, 1934459
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1934444, 1934447, 1934450, 1934453, 1934454, 1934459
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1934445, 1934448, 1934451, 1934455, 1934456, 1934460
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1934509, 1934510, 1934511
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1934509, 1934510, 1934511

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	10/05/2017			10/05/2017 15:12	DeAsia Armster	1934444, 1934447, 1934450, 1934453, 1934454, 1934459
EPA 200.7 Rev. 4.4	10/05/2017	10/09/2017	Elliott D. Healy	10/10/2017	Betina Topolski	1934512, 1934513
EPA 200.8 Rev. 5.4	10/05/2017	10/09/2017	Elliott D. Healy	10/10/2017	Nadine Brooks	1934512, 1934513
	10/05/2017	10/09/2017	Elliott D. Healy	10/13/2017	Nadine Brooks	1934512, 1934513
EPA 300.0 Rev. 2.1	10/05/2017			10/06/2017	Julia Storbeck	1934447
EPA 350.1 Rev. 2.0	10/05/2017			10/11/2017	Sofia Elnemr	1934445, 1934448, 1934451, 1934455, 1934456, 1934460
EPA 351.2 Rev. 2.0	10/05/2017	10/06/2017	Adrian Shelby	10/09/2017	Joseph Suarez	1934445, 1934451, 1934455, 1934456
	10/05/2017	10/11/2017	Adrian Shelby	10/12/2017	Joseph Suarez	1934448
	10/05/2017	10/12/2017	Adrian Shelby	10/13/2017	Virginia P. Brown	1934460
EPA 353.2 Rev. 2.0	10/05/2017			10/10/2017	Beverly Y. Sanders	1934455, 1934456
	10/05/2017			10/11/2017	Beverly Y. Sanders	1934448, 1934460
	10/05/2017			10/16/2017	Beverly Y. Sanders	1934445, 1934451
EPA 365.1 Rev. 2.0	10/05/2017	10/09/2017	Sima Feizi	10/10/2017	Lipi Saha	1934445, 1934451
	10/05/2017	10/10/2017	Sima Feizi	10/11/2017	Lipi Saha	1934448, 1934455, 1934456, 1934460
EPA 365.1 Rev. 2.0 dissolved	10/05/2017			10/05/2017 15:34	Megan Treadwell	1934457
	10/05/2017			10/05/2017 15:39	Megan Treadwell	1934458
	10/05/2017			10/05/2017 15:40	Megan Treadwell	1934461
	10/05/2017			10/05/2017 16:10	Megan Treadwell	1934449
	10/05/2017			10/05/2017 16:13	Megan Treadwell	1934446
	10/05/2017			10/05/2017 16:14	Megan Treadwell	1934452
EPA 8321B	10/05/2017	10/11/2017	Juyoung Kim	10/11/2017	Juyoung Kim	1934509, 1934510, 1934511
SM 2120 B	10/05/2017			10/05/2017 15:11	Tanya Welborn	1934447
SM 2320 B-97	10/05/2017			10/10/2017	Dale L. Simmons	1934453, 1934454
	10/05/2017			10/13/2017	Dale L. Simmons	1934444, 1934447, 1934450, 1934459
SM 2540 C-97	10/05/2017			10/06/2017	DeAsia Armster	1934447
SM 2540 D-97	10/05/2017			10/06/2017	DeAsia Armster	1934444, 1934447, 1934450, 1934453, 1934454, 1934459
SM 4500 F-C-97	10/05/2017			10/10/2017	Dale L. Simmons	1934453, 1934454
	10/05/2017			10/13/2017	Dale L. Simmons	1934444, 1934447, 1934450, 1934459
SM 5310 B-00	10/05/2017			10/11/2017	Ping Hua	1934445, 1934448, 1934451
	10/05/2017			10/13/2017	Ping Hua	1934455, 1934456, 1934460
USGS O-2060-01	10/05/2017	10/10/2017	Hoor Shaik	10/12/2017	Julie Michelle Frank	1934509, 1934510, 1934511