

Chemical Analysis Report

SE-DIST-2017-03-31-01

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

Event Description: **SMP-Dade Orange Run**
Request ID: **RQ-2017-03-27-22**
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
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 24-APR-2017 13:44

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 Harbor Park

Collection Date/Time: 03/30/2017 10:20

Field ID: G4SE0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884993	EPA 180.1 Rev. 2.0	Turbidity	7.8		NTU	P322687	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P323075	
	SM 2540 D-97	TSS	14		mg/L	P323028	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P323539	
1884995	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P322606	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P322630	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P322652	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P322703	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P322614	
1884997	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322610	

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 7951 Causeway East

Collection Date/Time: 03/30/2017 10:45

Field ID: 28040332

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884994	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P322687	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P323075	
	SM 2540 D-97	TSS	5	IA	mg/L	P323028	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P323539	
1884996	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P322606	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	IJ	mg N/L	P322695	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P322652	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P322703	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P322614	
1884998	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322610	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Sample Location: C-81 Biscayne Canal

Collection Date/Time: 03/30/2017 11:00

Field ID: G4SEBS04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884999	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P322687	
	EPA 300.0 Rev. 2.1	Chloride	190		mg Cl/L	P323118	
		Sulfate	28		mg SO4/L	P323121	
	SM 2120 B	Color (true)	29		PCU	P322589	
	SM 2320 B-97	Total Alkalinity	206		mg CaCO3/L	P323004	
	SM 2540 C-97	TDS	553		mg/L	P322986	
	SM 2540 D-97	TSS	3	I	mg/L	P323023	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P323007	
1885000	EPA 350.1 Rev. 2.0	Ammonia-N	0.075		mg N/L	P322607	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P322778	

Field ID: G4SEBS04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885000	EPA 353.2 Rev. 2.0	NO2NO3-N	0.073		mg N/L	P322721	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P322798	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P322613	
1885001	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P322610	
1885023	EPA 8321B	Sucralose**	0.19		ug/L	P322530	
	USGS O-2060-01	2,4-D	0.056		ug/L	P322600	
		Diuron	0.012	I	ug/L	P322600	
		Fenuron	0.0080	U	ug/L	P322600	
		2,4,5-T	0.0040	U	ug/L	P322600	
		Acifluorfen	0.010	U	ug/L	P322600	
		Imidacloprid	0.0040	U	ug/L	P322600	
		Bentazon	0.064		ug/L	P322600	MS
		Linuron	0.0040	U	ug/L	P322600	
		Acetaminophen**	0.010	U	ug/L	P322600	
		MCP	0.0040	U	ug/L	P322600	
		Carbamazepine**	0.0018		ug/L	P322600	
		Silvex	0.0040	U	ug/L	P322600	
		Triclopyr**	0.31		ug/L	P322600	
		Primidone**	0.0080	U	ug/L	P322600	RPD
		Fluridone**	0.0017		ug/L	P322600	
1885026	EPA 200.7 Rev. 4.4	Calcium	77.8		mg/L	P322761	
		Iron	60	I	ug/L	P322761	
		Magnesium	17.6		mg/L	P322761	
		Potassium	5.6		mg/L	P322761	
		Sodium	114		mg/L	P322761	
		Zinc	5.0	U	ug/L	P322761	
	EPA 200.8 Rev. 5.4	Arsenic	1.36		ug/L	P322761	
		Cadmium	0.020	U	ug/L	P322761	
		Chromium	0.40	U	ug/L	P322761	
		Copper	1.38		ug/L	P322761	
		Lead	0.49		ug/L	P322761	
		Nickel	0.35	I	ug/L	P322761	
		Selenium	0.20	U	ug/L	P322761	
		Silver	0.010	U	ug/L	P322761	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Arch Creek (upper Legment)

Collection Date/Time: 03/30/2017 11:40

Field ID: 42009060

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885005	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P322687	
	SM 2320 B-97	Total Alkalinity	150		mg CaCO3/L	P323075	
	SM 2540 D-97	TSS	4	I	mg/L	P323028	

Field ID: 42009060

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885005	SM 4500 F-C-97	Fluoride	0.94		mg F/L	P323539	
1885007	EPA 350.1 Rev. 2.0	Ammonia-N	0.22		mg N/L	P322606	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P322695	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P322652	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P322708	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P322614	
1885009	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P322610	
1885024	EPA 8321B	Sucralose**	0.21		ug/L	P322530	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P322600	
		Diuron	0.0040	U	ug/L	P322600	
		Fenuron	0.0080	U	ug/L	P322600	
		2,4,5-T	0.0040	U	ug/L	P322600	
		Acifluorfen	0.010	U	ug/L	P322600	
		Imidacloprid	0.0040	U	ug/L	P322600	
		Bentazon	0.0040	U	ug/L	P322600	MS
		Linuron	0.0040	U	ug/L	P322600	
		Acetaminophen**	0.010	U	ug/L	P322600	
		MCP	0.0040	U	ug/L	P322600	
		Carbamazepine**	0.0034		ug/L	P322600	
		Silvex	0.0040	U	ug/L	P322600	
		Triclopyr**	0.010	U	ug/L	P322600	
		Primidone**	0.0080	U	ug/L	P322600	RPD
		Fluridone**	4.0E-04	U	ug/L	P322600	

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 Legment)

Collection Date/Time: 03/30/2017 12:30

Field ID: 42009058

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885006	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P322687	
	SM 2320 B-97	Total Alkalinity	142	A	mg CaCO3/L	P323075	
	SM 2540 D-97	TSS	3	U	mg/L	P323028	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P323539	
1885008	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P322606	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P322695	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P322652	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P322708	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P322614	
1885010	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322610	
1885025	EPA 8321B	Sucralose**	0.076		ug/L	P322530	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P322600	
		Diuron	0.0054	I	ug/L	P322600	
		Fenuron	0.0080	U	ug/L	P322600	
		2,4,5-T	0.0040	U	ug/L	P322600	

Field ID: 42009058

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885025	USGS O-2060-01	Acifluorfen	0.010	U	ug/L	P322600	
		Imidacloprid	0.0040	U	ug/L	P322600	
		Bentazon	0.017		ug/L	P322600	MS
		Linuron	0.0040	U	ug/L	P322600	
		Acetaminophen**	0.010	U	ug/L	P322600	
		MCP	0.0040	U	ug/L	P322600	
		Carbamazepine**	0.0010	I	ug/L	P322600	
		Silvex	0.0040	U	ug/L	P322600	
		Triclopyr**	0.010	U	ug/L	P322600	
		Primidone**	0.0080	U	ug/L	P322600	RPD
		Fluridone**	7.2E-04	I	ug/L	P322600	

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 (Miami-Dade County Northern Segment) Collection Date/Time: 03/30/2017 12:15

Field ID: G4SE0063

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885002	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P322687	
	SM 2320 B-97	Total Alkalinity	140		mg CaCO3/L	P323075	
	SM 2540 D-97	TSS	4	I	mg/L	P323028	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P323539	
1885003	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P322606	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P322695	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P322652	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P322708	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P322614	
1885004	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322610	
1885027	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P322769	
	EPA 200.8 Rev. 5.4	Arsenic	1.70		ug/L	P322769	
		Cadmium	0.080	U	ug/L	P322769	
		Chromium	1.6	U	ug/L	P322769	
		Copper	1.5	I	ug/L	P322769	
		Lead	0.27	I	ug/L	P322769	
		Nickel	0.80	U	ug/L	P322769	
		Silver	0.040	U	ug/L	P322769	
		Zinc	12	I	ug/L	P322769	

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: P322687

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322687

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322761

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322769

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322761

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: P322769

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: P323118

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323121

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322606

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322607

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322630

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322695

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322778

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322652

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322721

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322703

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: P322708

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322798

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322610

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

Reference Method: EPA 8321B
Batch ID: P322530

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P322589

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P323004

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

Reference Method: SM 2320 B-97
Batch ID: P323075

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

Reference Method: SM 2540 C-97
Batch ID: P322986

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P323023

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P323028

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322613

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

Reference Method: SM 5310 B-00
Batch ID: P322614

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

Reference Method: USGS O-2060-01
Batch ID: P322600

Component	Result	Code	Units
2,4,5-T	0.0040	U	ug/L
2,4-D	0.0040	U	ug/L
Acetaminophen	0.010	U	ug/L
Acifluorfen	0.010	U	ug/L
Bentazon	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0040	U	ug/L
Primidone	0.0080	U	ug/L
Silvex	0.0040	U	ug/L
Triclopyr	0.010	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	108		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	102		P	85 - 115
Sodium	102		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.8		P	85 - 115
Cadmium	97.5		P	85 - 115
Chromium	99.6		P	85 - 115
Copper	95.4		P	85 - 115
Lead	99.3		P	85 - 115
Nickel	97.1		P	85 - 115
Selenium	99.9		P	85 - 115
Silver	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	101		P	85 - 115
Copper	99.5		P	85 - 115
Lead	101		P	85 - 115
Nickel	101		P	85 - 115
Silver	103		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323118

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322606

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322607

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: P322630

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322695

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322778

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: P322652

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322721

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322703

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: P322708

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322798

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322610

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

Reference Method: EPA 8321B
Batch ID: P322530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	99.6		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P323004

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P323075

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P323007

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

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P322613

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

Reference Method: SM 5310 B-00
Batch ID: P322614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P322600

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4,5-T	81.6		P	40 - 140
2,4-D	104		P	40 - 140
Acetaminophen	53.2		P	40 - 140
Acifluorfen	68.8		P	40 - 140
Bentazon	83.6		P	40 - 140
Carbamazepine	121		P	40 - 140
Diuron	87.6		P	40 - 140
Fenuron	98.0		P	40 - 140
Fluridone	75.6		P	40 - 140
Imidacloprid	85.6		P	40 - 160
Linuron	92.4		P	40 - 140
MCPP	105		P	40 - 140
Primidone	86.8		P	40 - 140
Silvex	80.8		P	40 - 140
Triclopyr	94.8		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884641	Calcium	99.3		P	80 - 120
1884641	Iron	107		P	80 - 120
1884641	Magnesium	102		P	80 - 120
1884641	Potassium	108		P	80 - 120
1884641	Sodium	101		P	80 - 120
1884641	Zinc	99.9		P	80 - 120
1885166	Calcium	106		P	80 - 120
1885166	Iron	106	107	P/P	80 - 120
1885166	Magnesium	105		P	80 - 120
1885166	Potassium	99.7	99.6	P/P	80 - 120
1885166	Sodium	103		P	80 - 120
1885166	Zinc	99.8	101	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884148	Iron	104	106	P/P	70 - 130
1885599	Iron	109		P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884641	Arsenic	103		P	80 - 120
1884641	Cadmium	104		P	80 - 120
1884641	Chromium	102		P	80 - 120
1884641	Copper	96.7		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884641	Lead	103		P	80 - 120
1884641	Nickel	98.4		P	80 - 120
1884641	Selenium	102		P	80 - 120
1884641	Silver	104		P	80 - 120
1885166	Arsenic	102	103	P/P	80 - 120
1885166	Cadmium	101	103	P/P	80 - 120
1885166	Chromium	99.7	100	P/P	80 - 120
1885166	Copper	92.8	92.7	P/P	80 - 120
1885166	Lead	104	100	P/P	80 - 120
1885166	Nickel	94.7	95.9	P/P	80 - 120
1885166	Selenium	102	104	P/P	80 - 120
1885166	Silver	101	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884148	Arsenic	110	108	P/P	80 - 120
1884148	Cadmium	100	102	P/P	80 - 120
1884148	Chromium	97.4	94.6	P/P	80 - 120
1884148	Copper	91.8	92.8	P/P	80 - 120
1884148	Lead	108	107	P/P	80 - 120
1884148	Nickel	99.8	98.2	P/P	80 - 120
1884148	Silver	94.9	96.4	P/P	80 - 120
1884148	Zinc	93.6	94.2	P/P	80 - 120
1885599	Arsenic	112		P	80 - 120
1885599	Cadmium	105		P	80 - 120
1885599	Chromium	99.2		P	80 - 120
1885599	Copper	99.2		P	80 - 120
1885599	Lead	105		P	80 - 120
1885599	Nickel	101		P	80 - 120
1885599	Silver	97.6		P	80 - 120
1885599	Zinc	101		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885051	Chloride	98.7		P	90 - 110
1885069	Chloride	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885051	Sulfate	95.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322606

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884667	Ammonia-N	105	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322607

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884977	Ammonia-N	106	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884197	Kjeldahl Nitrogen	93.1	94.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884996	Kjeldahl Nitrogen	111	115	F/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885270	Kjeldahl Nitrogen	95.4	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884668	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884980	NO2NO3-N	99.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884666	Total-P	93.0	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885007	Total-P	98.3	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885258	Total-P	103	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322610

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885001	O-Phosphate-P	95.0	96.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P322530

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884563	Sucralose	76.5	76.6	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885134	Fluoride	98.9	98.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885557	Fluoride	95.5	94.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P322613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884977	Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P322614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884995	Organic Carbon	95.2	91.2	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P322600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884497	2,4,5-T	86.8	89.6	P/P	40 - 140
1884497	2,4-D	109	103	P/P	40 - 140
1884497	Acetaminophen	70.8	55.6	P/P	40 - 140
1884497	Acifluorfen	126	116	P/P	40 - 140
1884497	Bentazon	160	160	F/F	40 - 140
1884497	Carbamazepine	83.2	102	P/P	40 - 140
1884497	Diuron	81.6	73.2	P/P	40 - 140
1884497	Fenuron	89.2	82.0	P/P	40 - 140
1884497	Fluridone	85.2	71.6	P/P	40 - 140
1884497	Imidacloprid	102	85.6	P/P	40 - 160
1884497	Linuron	74.0	87.6	P/P	40 - 140
1884497	MCPP	122	104	P/P	40 - 140
1884497	Primidone	92.4	65.6	P/P	40 - 140
1884497	Silvex	102	93.6	P/P	40 - 140
1884497	Triclopyr	96.0	87.6	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884976	Turbidity	1.92	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885166	Calcium	0.917	Spike	P	0 - 20
1885166	Iron	0.956	Spike	P	0 - 20
1885166	Magnesium	1.36	Spike	P	0 - 20
1885166	Potassium	0.0469	Spike	P	0 - 20
1885166	Sodium	1.73	Spike	P	0 - 20
1885166	Zinc	0.932	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884148	Iron	2.22	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885166	Arsenic	1.14	Spike	P	0 - 20
1885166	Cadmium	1.06	Spike	P	0 - 20
1885166	Chromium	0.729	Spike	P	0 - 20
1885166	Copper	0.118	Spike	P	0 - 20
1885166	Lead	3.59	Spike	P	0 - 20
1885166	Nickel	1.17	Spike	P	0 - 20
1885166	Selenium	1.75	Spike	P	0 - 20
1885166	Silver	0.514	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884148	Arsenic	1.78	Spike	P	0 - 20
1884148	Cadmium	1.82	Spike	P	0 - 20
1884148	Chromium	2.90	Spike	P	0 - 20
1884148	Copper	1.01	Spike	P	0 - 20
1884148	Lead	0.403	Spike	P	0 - 20
1884148	Nickel	1.66	Spike	P	0 - 20
1884148	Silver	1.54	Spike	P	0 - 20
1884148	Zinc	0.602	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885069	Chloride	0.223	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885069	Sulfate	0.119	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884667	Ammonia-N	0.270	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884977	Ammonia-N	5.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884197	Kjeldahl Nitrogen	1.40	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884996	Kjeldahl Nitrogen	3.78	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885270	Kjeldahl Nitrogen	3.35	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884668	NO2NO3-N	0.948	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884980	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884666	Total-P	1.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885007	Total-P	1.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885258	Total-P	0.462	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885001	O-Phosphate-P	1.56	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P322530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884563	Sucralose	0.131	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P322589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884979	Color (true)	1.08	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P323004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885134	Total Alkalinity	0.0234	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P323075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885006	Total Alkalinity	4.37	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884976	TDS	2.72	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885134	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885557	Fluoride	0.934	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884977	Organic Carbon	0.290	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P322614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884995	Organic Carbon	3.90	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P322600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884497	2,4,5-T	3.17	Spike	P	0 - 30
1884497	2,4-D	5.28	Spike	P	0 - 30
1884497	Acetaminophen	24.1	Spike	P	0 - 30
1884497	Acifluorfen	8.24	Spike	P	0 - 30
1884497	Bentazon	0.250	Spike	P	0 - 30
1884497	Carbamazepine	20.3	Spike	P	0 - 30
1884497	Diuron	10.9	Spike	P	0 - 30
1884497	Fenuron	8.41	Spike	P	0 - 30
1884497	Fluridone	17.3	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
 Batch ID: P322600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884497	Imidacloprid	17.9	Spike	P	0 - 30
1884497	Linuron	16.8	Spike	P	0 - 30
1884497	MCP	15.2	Spike	P	0 - 30
1884497	Primidone	33.9	Spike	F	0 - 30
1884497	Silvex	8.20	Spike	P	0 - 30
1884497	Triclopyr	9.15	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: 1885023
 Field Sample ID: G4SEBS04

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	89.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	102	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	63.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	71.6	P	40 - 160
USGS O-2060-01	Diuron-d6	61.8	P	40 - 150
USGS O-2060-01	Primidone-d5	82.8	P	40 - 150

Lab Sample ID: 1885024
 Field Sample ID: 42009060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	94.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	100	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	75.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	107	P	40 - 160
USGS O-2060-01	Diuron-d6	89.6	P	40 - 150
USGS O-2060-01	Primidone-d5	103	P	40 - 150

Lab Sample ID: 1885025
 Field Sample ID: 42009058

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	92.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	96.8	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	64.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	114	P	40 - 160
USGS O-2060-01	Diuron-d6	83.0	P	40 - 150
USGS O-2060-01	Primidone-d5	102	P	40 - 150

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A75503
Included Lab Sample IDs: 1884999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75505
Included Lab Sample IDs: 1884995, 1884996, 1885000, 1885003, 1885007, 1885008

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A75506
Included Lab Sample IDs: 1884997, 1884998, 1885001, 1885004, 1885009, 1885010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.8	P/P	90 - 110
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A75508
Included Lab Sample IDs: 1884995, 1884996, 1885000, 1885003, 1885007, 1885008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	95.2	P/P	90 - 110
Organic Carbon	96.3	96.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75520
Included Lab Sample IDs: 1884995, 1884996, 1885003, 1885007, 1885008

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75544
Included Lab Sample IDs: 1884993, 1884994, 1884999, 1885002, 1885005, 1885006

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75553
Included Lab Sample IDs: 1885000

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	95.0	94.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75555

Included Lab Sample IDs: 1884995

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75585

Included Lab Sample IDs: 1884995, 1884996, 1885003, 1885007, 1885008

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75591

Included Lab Sample IDs: 1885026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.8	98.6	P/P	90 - 110
Cadmium	101	99.5	P/P	90 - 110
Chromium	103	99.8	P/P	90 - 110
Copper	98.2	96.7	P/P	90 - 110
Lead	98.9	97.6	P/P	90 - 110
Nickel	99.6	97.6	P/P	90 - 110
Selenium	101	101	P/P	90 - 110
Silver	99.5	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75612

Included Lab Sample IDs: 1885000

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75631

Included Lab Sample IDs: 1885027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	98.9	99.0	P/P	90 - 110
Cadmium	99.4	97.3	P/P	90 - 110
Chromium	104	98.5	P/P	90 - 110
Copper	93.5	95.8	P/P	90 - 110
Lead	97.6	96.5	P/P	90 - 110
Nickel	94.7	96.9	P/P	90 - 110
Silver	98.5	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75635

Included Lab Sample IDs: 1885000

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.8	91.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A75643

Included Lab Sample IDs: 1885026, 1885027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	102	P/P	90 - 110
Iron	102	100	P/P	90 - 110
Iron	102	104	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Potassium	101	99.6	P/P	90 - 110
Sodium	99.8	101	P/P	90 - 110
Zinc	101	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75665

Included Lab Sample IDs: 1884999

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

Reference Method: SM 4500 F-C-97

Run ID: A75665

Included Lab Sample IDs: 1884999

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75667

Included Lab Sample IDs: 1885027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	97.6	94.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A75673

Included Lab Sample IDs: 1885023, 1885024, 1885025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	109	124	P/P	60 - 150
Sucralose	124	129	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A75682

Included Lab Sample IDs: 1885023, 1885024, 1885025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	130	123	P/P	60 - 150
Carbamazepine	117	118	P/P	60 - 150
Diuron	114	110	P/P	60 - 150
Fenuron	110	112	P/P	60 - 150
Fluridone	106	107	P/P	60 - 150
Imidacloprid	94.0	96.8	P/P	60 - 150
Linuron	145	150	P/P	60 - 150
Primidone	122	80.0	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A75705

Included Lab Sample IDs: 1885023, 1885024, 1885025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4,5-T	100	102	P/P	50 - 150
2,4-D	137	120	P/P	50 - 150
Acifluorfen	133	127	P/P	50 - 150
Bentazon	94.2	91.4	P/P	50 - 150
MCP	123	133	P/P	50 - 150
Silvex	91.4	85.6	P/P	50 - 150
Triclopyr	113	103	P/P	50 - 150

Reference Method: SM 2320 B-97

Run ID: A75710

Included Lab Sample IDs: 1884993, 1884994, 1885002, 1885005, 1885006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75723

Included Lab Sample IDs: 1884999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	103	P/P	90 - 110
Sulfate	97.1	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75833

Included Lab Sample IDs: 1884993, 1884994, 1885002, 1885005, 1885006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.2	95.0	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				1.92	
EPA 200.7 Rev. 4.4	Calcium	103	99.3	106		0.917
	Iron	108	107	106	107	0.956
	Iron	103	104	106	109	2.22
	Magnesium	103	102	105		1.36
	Potassium	102	108	99.7	99.6	0.0469
	Sodium	102	101	103		1.73
	Zinc	101	99.9	99.8	101	0.932
EPA 200.8 Rev. 5.4	Arsenic	98.8	103	102	103	1.14
	Arsenic	101	110	108	112	1.78

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.8 Rev. 5.4	Cadmium	97.5	104	101	103		1.06
	Cadmium	102	100	102	105		1.82
	Chromium	99.6	102	99.7	100		0.729
	Chromium	101	97.4	94.6	99.2		2.90
	Copper	95.4	96.7	92.8	92.7		0.118
	Copper	99.5	91.8	92.8	99.2		1.01
	Lead	99.3	103	104	100		3.59
	Lead	101	108	107	105		0.403
	Nickel	97.1	98.4	94.7	95.9		1.17
	Nickel	101	99.8	98.2	101		1.66
	Selenium	99.9	102	102	104		1.75
	Silver	102	104	101	101		0.514
	Silver	103	94.9	96.4	97.6		1.54
	Zinc	101	93.6	94.2	101		0.602
EPA 300.0 Rev. 2.1	Chloride	101	99.0	98.7		0.223	
	Sulfate	97.3	95.6			0.119	
EPA 350.1 Rev. 2.0	Ammonia-N	102	105	105			0.270
	Ammonia-N	101	106	100			5.51
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	93.1	94.9			1.40
	Kjeldahl Nitrogen	103	111	115			3.78
	Kjeldahl Nitrogen	105	95.4	100			3.35
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	102	101			0.948
	NO2NO3-N	98.5	99.5	98.5			1.01
EPA 365.1 Rev. 2.0	Total-P	103	93.0	94.3			1.41
	Total-P	101	98.3	100			1.79
	Total-P	101	103	102			0.462
	O-Phosphate-P	100	95.0	96.6			1.56
EPA 8321B	Sucralose	99.6	76.5	76.6			0.131
SM 2120 B	Color (true)					1.08	
SM 2320 B-97	Total Alkalinity	105				0.0234	
	Total Alkalinity	104				4.37	
SM 2540 C-97	TDS					2.72	
SM 4500 F-C-97	Fluoride	97.4	98.9	98.9			0.0
	Fluoride	96.0	95.5	94.3			0.934
SM 5310 B-00	Organic Carbon	97.8	102				0.290
	Organic Carbon	98.2	95.2	91.2			3.90
USGS O-2060-01	2,4,5-T	81.6	86.8	89.6			3.17
	2,4-D	104	109	103			5.28
	Acetaminophen	53.2	70.8	55.6			24.1
	Acifluorfen	68.8	126	116			8.24
	Bentazon	83.6	160	160			0.250
	Carbamazepine	121	83.2	102			20.3
	Diuron	87.6	81.6	73.2			10.9
	Fenuron	98.0	89.2	82.0			8.41
	Fluridone	75.6	85.2	71.6			17.3
	Imidacloprid	85.6	102	85.6			17.9
	Linuron	92.4	74.0	87.6			16.8
	MCP	105	122	104			15.2
	Primidone	86.8	92.4	65.6			33.9
	Silvex	80.8	102	93.6			8.20
	Triclopyr	94.8	96.0	87.6			9.15

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1884993, 1884994, 1884999, 1885002, 1885005, 1885006
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1885026, 1885027
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1885026, 1885027
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1884999
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1884999
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1884995, 1884996, 1885000, 1885003, 1885007, 1885008
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1884995, 1884996, 1885000, 1885003, 1885007, 1885008
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1884995, 1884996, 1885000, 1885003, 1885007, 1885008
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1884995, 1884996, 1885000, 1885003, 1885007, 1885008
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1884997, 1884998, 1885001, 1885004, 1885009, 1885010
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1885023, 1885024, 1885025
SM 2120 B / E31780	True Color measured at 450 nm	1884999
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1884993, 1884994, 1884999, 1885002, 1885005, 1885006
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1884999
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1884993, 1884994, 1884999, 1885002, 1885005, 1885006
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1884993, 1884994, 1884999, 1885002, 1885005, 1885006
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1884995, 1884996, 1885000, 1885003, 1885007, 1885008
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1885023, 1885024, 1885025
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1885023, 1885024, 1885025

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	03/31/2017			03/31/2017 15:55	Blanca Fach	1884993, 1884994, 1884999, 1885002, 1885005, 1885006
EPA 200.7 Rev. 4.4	03/31/2017	04/04/2017	Elliott D. Healy	04/06/2017	Martin Acosta	1885026, 1885027
EPA 200.8 Rev. 5.4	03/31/2017	04/04/2017	Elliott D. Healy	04/05/2017	Betina Topolski	1885026
	03/31/2017	04/04/2017	Elliott D. Healy	04/06/2017	Betina Topolski	1885027
	03/31/2017	04/04/2017	Elliott D. Healy	04/07/2017	Betina Topolski	1885027
EPA 300.0 Rev. 2.1	03/31/2017			04/11/2017	Ping Hua	1884999
EPA 350.1 Rev. 2.0	03/31/2017			03/31/2017	Julie Michelle Frank	1884995, 1884996, 1885000, 1885003, 1885007, 1885008
EPA 351.2 Rev. 2.0	03/31/2017	04/03/2017	Adrian Shelby	04/04/2017	Joseph Suarez	1884995
	03/31/2017	04/04/2017	Adrian Shelby	04/04/2017	Joseph Suarez	1884996, 1885003, 1885007, 1885008
	03/31/2017	04/05/2017	Adrian Shelby	04/06/2017	Christopher Armour	1885000
EPA 353.2 Rev. 2.0	03/31/2017			04/03/2017	Beverly Y. Sanders	1884995, 1884996, 1885003, 1885007, 1885008
	03/31/2017			04/04/2017	Beverly Y. Sanders	1885000
EPA 365.1 Rev. 2.0	03/31/2017	04/04/2017	Adrian Shelby	04/05/2017	Lipi Saha	1884995, 1884996, 1885003, 1885007, 1885008
	03/31/2017	04/05/2017	Vijayalakshmi Reddy	04/06/2017	Lipi Saha	1885000
EPA 365.1 Rev. 2.0 dissolved	03/31/2017			03/31/2017 15:09	Anthony C. Onicha	1885001
	03/31/2017			03/31/2017 15:30	Anthony C. Onicha	1884997
	03/31/2017			03/31/2017 15:31	Anthony C. Onicha	1884998
	03/31/2017			03/31/2017 15:32	Anthony C. Onicha	1885004
	03/31/2017			03/31/2017 15:33	Anthony C. Onicha	1885009
	03/31/2017			03/31/2017 15:34	Anthony C. Onicha	1885010
EPA 8321B	03/31/2017	04/07/2017	Mohammad Ghaffari	04/07/2017	Mohammad Ghaffari	1885023, 1885024, 1885025
SM 2120 B	03/31/2017			03/31/2017 14:25	Julia Storbeck	1884999
SM 2320 B-97	03/31/2017			04/07/2017	Dale L. Simmons	1884999
	03/31/2017			04/10/2017	Dale L. Simmons	1884993, 1884994, 1885002, 1885005, 1885006
SM 2540 C-97	03/31/2017			04/05/2017	Yijie Li	1884999
SM 2540 D-97	03/31/2017			04/05/2017	Yijie Li	1884993, 1884994, 1884999, 1885002, 1885005, 1885006
SM 4500 F-C-97	03/31/2017			04/07/2017	Dale L. Simmons	1884999
	03/31/2017			04/17/2017	Dale L. Simmons	1884993, 1884994, 1885002, 1885005, 1885006
SM 5310 B-00	03/31/2017			03/31/2017	Christopher Armour	1885000
	03/31/2017			04/01/2017	Christopher Armour	1884995, 1884996, 1885003, 1885007, 1885008
USGS O-2060-01	03/31/2017	04/03/2017	Hoor Shaik	04/08/2017	Juyoung Kim	1885023, 1885024, 1885025
	03/31/2017	04/03/2017	Hoor Shaik	04/10/2017	Juyoung Kim	1885023, 1885024, 1885025