

Chemical Analysis Report

NE-DIST-2017-03-29-02

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

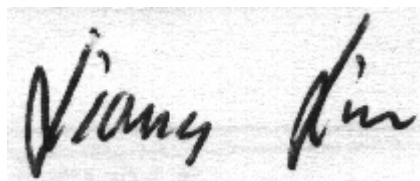
Event Description: **LSJR North**
Request ID: **RQ-2017-03-27-05**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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

Certified by: Liang Lin, Environmental Administrator

Date Certified: 24-APR-2017 12:46

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: TROUT RIVER ABOVE I-295

Collection Date/Time: 03/28/2017 09:55

Field ID: G2NE1138 03282017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884129	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P322463	
	SM 2320 B-97	Total Alkalinity	90		mg CaCO3/L	P322917	
	SM 2540 D-97	TSS	10		mg/L	P323022	
	SM 4500 F-C-97	Fluoride	0.52		mg F/L	P323077	
1884131	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P322498	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P322459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P322651	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P322639	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P322513	
1884133	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.067		mg P/L	P322446	

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: RIBAUT R ABOVE TROUT RIVER

Collection Date/Time: 03/28/2017 10:25

Field ID: G2NE0132 03282017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884123	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P322463	
	SM 2320 B-97	Total Alkalinity	111		mg CaCO3/L	P322917	
	SM 2540 D-97	TSS	4	I	mg/L	P323022	
	SM 4500 F-C-97	Fluoride	0.81		mg F/L	P323077	
1884125	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P322498	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P322459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P322651	
	EPA 365.1 Rev. 2.0	Total-P	0.083		mg P/L	P322639	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P322513	
1884127	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050		mg P/L	P322446	
1884149	EPA 8321B	Sucralose**	0.66		ug/L	P322307	
	USGS O-2060-01	2,4-D	0.012	I	ug/L	P322532	
		Diuron	0.0040	U	ug/L	P322532	MS
		Fenuron	0.0080	U	ug/L	P322532	
		Imidacloprid	0.0091	I	ug/L	P322532	
		Bentazon	0.060		ug/L	P322532	
		Linuron	0.0040	U	ug/L	P322532	
		Acetaminophen**	0.010	U	ug/L	P322532	
		MCP	0.0040	U	ug/L	P322532	
		Carbamazepine**	0.0014	I	ug/L	P322532	
		Triclopyr**	0.010	U	ug/L	P322532	
		Primidone**	0.0080	U	ug/L	P322532	
		Fluridone**	9.0E-04	I	ug/L	P322532	MS

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 bentazon could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: MONCRIEF CREEK NEAR MOUTH

Collection Date/Time: 03/28/2017 11:00

Field ID: G2NE0122 03282017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884120	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P322463	
	SM 2320 B-97	Total Alkalinity	104		mg CaCO3/L	P322917	
	SM 2540 D-97	TSS	3	U	mg/L	P323022	
	SM 4500 F-C-97	Fluoride	0.79		mg F/L	P323077	
1884121	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P322498	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P322459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P322650	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P322639	
	SM 5310 B-00	Organic Carbon	7.1		mg C/L	P322513	
1884122	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.058		mg P/L	P322446	
1884148	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P322769	
	EPA 200.8 Rev. 5.4	Arsenic	1.76		ug/L	P322769	
		Cadmium	0.060	U	ug/L	P322769	
		Chromium	1.2	U	ug/L	P322769	
		Copper	1.3	I	ug/L	P322769	
		Lead	0.15	I	ug/L	P322769	
		Nickel	0.60	U	ug/L	P322769	
		Silver	0.030	U	ug/L	P322769	
		Zinc	4.3	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.

Sample Location: TROUT R MOUTH- N OF SAND FLY PT

Collection Date/Time: 03/28/2017 11:25

Field ID: G2NE0131 03282017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884130	EPA 180.1 Rev. 2.0	Turbidity	1.5	A	NTU	P322464	
	SM 2320 B-97	Total Alkalinity	106		mg CaCO3/L	P322917	
	SM 2540 D-97	TSS	3	I	mg/L	P323022	
	SM 4500 F-C-97	Fluoride	0.81		mg F/L	P323077	
1884132	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P322498	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P322459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P322651	
	EPA 365.1 Rev. 2.0	Total-P	0.082		mg P/L	P322639	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P322513	
1884134	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.057		mg P/L	P322446	

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: DUNN CREEK @ HECKSCHER DR.

Collection Date/Time: 03/28/2017 11:55

Field ID: G2NE0154 03282017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884124	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P322463	
	SM 2320 B-97	Total Alkalinity	109		mg CaCO3/L	P322917	
	SM 2540 D-97	TSS	4	I	mg/L	P323022	

Field ID: G2NE0154 03282017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884124	SM 4500 F-C-97	Fluoride	0.90		mg F/L	P323077	
1884126	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P322498	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P322459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P322651	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P322639	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P322513	
1884128	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P322446	
1884150	EPA 8321B	Sucralose**	0.63		ug/L	P322307	
	USGS O-2060-01	2,4-D	0.011	I	ug/L	P322532	
		Diuron	0.0040	U	ug/L	P322532	MS
		Fenuron	0.0080	U	ug/L	P322532	
		Imidacloprid	0.0054	I	ug/L	P322532	
		Bentazon	0.058		ug/L	P322532	
		Linuron	0.0040	U	ug/L	P322532	
		Acetaminophen**	0.010	U	ug/L	P322532	
		MCPD	0.0040	U	ug/L	P322532	
		Carbamazepine**	0.0016	I	ug/L	P322532	
		Triclopyr**	0.010	U	ug/L	P322532	
		Primidone**	0.0080	U	ug/L	P322532	
		Fluridone**	9.7E-04	I	ug/L	P322532	MS

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 bentazon could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P322463

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P322464

Component	Result	Code	Units
Turbidity	0.10	U	NTU

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: P322769

Component	Result	Code	Units
Arsenic	0.050	U	ug/L

Quality Assurance Report Method Blank Results

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

Component	Result	Code	Units
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 350.1 Rev. 2.0
Batch ID: P322498

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322459

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322650

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322651

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322639

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322446

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

Reference Method: EPA 8321B
Batch ID: P322307

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P322917

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

Reference Method: SM 2540 D-97
Batch ID: P323022

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P323077

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322513

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

Reference Method: USGS O-2060-01
Batch ID: P322532

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	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
Triclopyr	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

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: P322769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P322769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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 350.1 Rev. 2.0

Batch ID: P322498

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P322459

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P322650

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P322651

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P322639

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P322446

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

Reference Method: EPA 8321B

Batch ID: P322307

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	88.9		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P322917

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

Reference Method: SM 4500 F-C-97
Batch ID: P323077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P322513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P322532

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	91.2		P	40 - 140
Acetaminophen	86.4		P	40 - 140
Bentazon	110		P	40 - 140
Carbamazepine	114		P	40 - 140
Diuron	76.8		P	40 - 140
Fenuron	97.6		P	40 - 140
Fluridone	85.6		P	40 - 140
Imidacloprid	88.4		P	40 - 160
Linuron	132		P	40 - 140
MCP	85.6		P	40 - 140
Primidone	97.2		P	40 - 140
Triclopyr	88.0		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

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: 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

Quality Assurance Report Matrix Spike Accuracy

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

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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 350.1 Rev. 2.0
Batch ID: P322498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883962	Ammonia-N	110	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883963	Kjeldahl Nitrogen	98.4	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883950	NO2NO3-N	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322651

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884125	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322639

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884125	Total-P	101	96.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884122	O-Phosphate-P	98.6	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P322307

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883895	Sucralose	113	115	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P323077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884088	Fluoride	92.1	92.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P322513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883947	Organic Carbon	91.7	92.1	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P322532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884218	2,4-D	134	127	P/P	40 - 140
1884218	Acetaminophen	59.6	58.8	P/P	40 - 140
1884218	Carbamazepine	59.6	60.8	P/P	40 - 140
1884218	Diuron	33.2	39.6	F/F	40 - 140
1884218	Fenuron	47.6	46.8	P/P	40 - 140
1884218	Fluridone	32.0	32.4	F/F	40 - 140
1884218	Imidacloprid	102	111	P/P	40 - 160
1884218	Linuron	62.4	78.8	P/P	40 - 140
1884218	MCP	131	120	P/P	40 - 140
1884218	Primidone	90.0	76.0	P/P	40 - 140
1884218	Triclopyr	137	120	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884088	Turbidity	4.10	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884130	Turbidity	2.70	Sample	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

Quality Assurance Report Precision

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883962	Ammonia-N	5.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883963	Kjeldahl Nitrogen	0.559	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883950	NO2NO3-N	1.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884125	NO2NO3-N	0.445	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322639

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884125	Total-P	4.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884122	O-Phosphate-P	2.34	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P322307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883895	Sucralose	1.55	Spike	P	0 - 30

Reference Method: SM 2320 B-97
 Batch ID: P322917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884088	Total Alkalinity	0.131	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
 Batch ID: P323077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884088	Fluoride	0.480	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P322513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883947	Organic Carbon	0.397	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P322532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884218	2,4-D	5.21	Spike	P	0 - 30
1884218	Acetaminophen	1.35	Spike	P	0 - 30
1884218	Bentazon	2.90	Spike	P	0 - 30
1884218	Carbamazepine	1.99	Spike	P	0 - 30
1884218	Diuron	17.6	Spike	P	0 - 30
1884218	Fenuron	1.69	Spike	P	0 - 30
1884218	Fluridone	0.897	Spike	P	0 - 30
1884218	Imidacloprid	8.27	Spike	P	0 - 30
1884218	Linuron	23.2	Spike	P	0 - 30
1884218	MCPP	8.92	Spike	P	0 - 30
1884218	Primidone	16.9	Spike	P	0 - 30
1884218	Triclopyr	13.4	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: 1884149
Field Sample ID: G2NE0132 03282017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	104	P	40 - 150
USGS O-2060-01	2,4-D-d3	89.2	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	54.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	89.2	P	40 - 160
USGS O-2060-01	Diuron-d6	69.0	P	40 - 150
USGS O-2060-01	Primidone-d5	63.4	P	40 - 150

Lab Sample ID: 1884150
Field Sample ID: G2NE0154 03282017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	102	P	40 - 150
USGS O-2060-01	2,4-D-d3	83.4	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	58.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	90.8	P	40 - 160
USGS O-2060-01	Diuron-d6	64.4	P	40 - 150
USGS O-2060-01	Primidone-d5	92.6	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A75452
Included Lab Sample IDs: 1884122, 1884127, 1884128, 1884133, 1884134

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	99.9	99.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75456
Included Lab Sample IDs: 1884120, 1884123, 1884124, 1884129, 1884130

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

Reference Method: EPA 8321B
Run ID: A75457
Included Lab Sample IDs: 1884149, 1884150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	107	P/P	60 - 150

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75470
Included Lab Sample IDs: 1884121, 1884125, 1884126, 1884131, 1884132

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A75475

Included Lab Sample IDs: 1884121, 1884125, 1884126, 1884131, 1884132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.5	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75499

Included Lab Sample IDs: 1884121, 1884125, 1884126, 1884131, 1884132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.4	P/P	90 - 110
Kjeldahl Nitrogen	104	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75520

Included Lab Sample IDs: 1884121, 1884125, 1884126, 1884131, 1884132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	97.5	P/P	90 - 110
NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75523

Included Lab Sample IDs: 1884131

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75528

Included Lab Sample IDs: 1884121, 1884125, 1884126, 1884132

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

Reference Method: SM 2320 B-97

Run ID: A75625

Included Lab Sample IDs: 1884120, 1884123, 1884124, 1884129, 1884130

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110
Total Alkalinity	105	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75631

Included Lab Sample IDs: 1884148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	98.9	P/P	90 - 110
Cadmium	98.6	99.4	P/P	90 - 110
Chromium	100	104	P/P	90 - 110
Copper	99.3	93.5	P/P	90 - 110
Lead	98.7	97.6	P/P	90 - 110
Nickel	100	94.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75631

Included Lab Sample IDs: 1884148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	97.6	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A75643

Included Lab Sample IDs: 1884148

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75667

Included Lab Sample IDs: 1884148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	100	97.6	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A75682

Included Lab Sample IDs: 1884149, 1884150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	115	103	P/P	60 - 150
Carbamazepine	132	112	P/P	60 - 150
Diuron	104	108	P/P	60 - 150
Fenuron	104	113	P/P	60 - 150
Fluridone	108	117	P/P	60 - 150
Imidacloprid	116	98.8	P/P	60 - 150
Linuron	86.4	107	P/P	60 - 150
Primidone	83.6	94.4	P/P	60 - 150

Reference Method: SM 4500 F-C-97

Run ID: A75710

Included Lab Sample IDs: 1884120, 1884123, 1884124, 1884129, 1884130

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	97.5	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A75741

Included Lab Sample IDs: 1884149, 1884150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	116	119	P/P	50 - 150
Bentazon	85.6	94.4	P/P	50 - 150
MCP	122	93.8	P/P	50 - 150
Triclopyr	115	111	P/P	50 - 150

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements. Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					4.10	
	Turbidity					2.70	
EPA 200.7 Rev. 4.4	Iron	103	104	106	109		2.22
EPA 200.8 Rev. 5.4	Arsenic	101	110	108	112		1.78
	Cadmium	102	100	102	105		1.82
	Chromium	101	97.4	94.6	99.2		2.90
	Copper	99.5	91.8	92.8	99.2		1.01
	Lead	101	108	107	105		0.403
	Nickel	101	99.8	98.2	101		1.66
	Silver	103	94.9	96.4	97.6		1.54
	Zinc	101	93.6	94.2	101		0.602
EPA 350.1 Rev. 2.0	Ammonia-N	103	110	104			5.27
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	98.4	97.8			0.559
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	104	102			1.46
	NO2NO3-N	100	101	101			0.445
EPA 365.1 Rev. 2.0	Total-P	104	101	96.1			4.26
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.6	102			2.34
EPA 8321B	Sucralose	88.9	113	115			1.55
SM 2320 B-97	Total Alkalinity	104				0.131	
SM 4500 F-C-97	Fluoride	99.4	92.1	92.8			0.480
SM 5310 B-00	Organic Carbon	98.0	91.7	92.1			0.397
USGS O-2060-01	2,4-D	91.2	134	127			5.21
	Acetaminophen	86.4	59.6	58.8			1.35
	Bentazon	110					2.90
	Carbamazepine	114	59.6	60.8			1.99
	Diuron	76.8	33.2	39.6			17.6
	Fenuron	97.6	47.6	46.8			1.69
	Fluridone	85.6	32.0	32.4			0.897
	Imidacloprid	88.4	102	111			8.27
	Linuron	132	62.4	78.8			23.2
	MCPP	85.6	131	120			8.92
	Primidone	97.2	90.0	76.0			16.9
	Triclopyr	88.0	137	120			13.4

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1884120, 1884123, 1884124, 1884129, 1884130
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1884148
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1884148
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1884121, 1884125, 1884126, 1884131, 1884132
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1884121, 1884125, 1884126, 1884131, 1884132
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1884121, 1884125, 1884126, 1884131, 1884132
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1884121, 1884125, 1884126, 1884131, 1884132
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1884122, 1884127, 1884128, 1884133, 1884134
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1884149, 1884150

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1884120, 1884123, 1884124, 1884129, 1884130
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1884120, 1884123, 1884124, 1884129, 1884130
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1884120, 1884123, 1884124, 1884129, 1884130
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1884121, 1884125, 1884126, 1884131, 1884132
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1884149, 1884150
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1884149, 1884150

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	03/29/2017			03/29/2017 17:01	Blanca Fach	1884120, 1884123, 1884124, 1884129, 1884130
EPA 200.7 Rev. 4.4	03/29/2017	04/04/2017	Elliott D. Healy	04/06/2017	Martin Acosta	1884148
EPA 200.8 Rev. 5.4	03/29/2017	04/04/2017	Elliott D. Healy	04/06/2017	Betina Topolski	1884148
	03/29/2017	04/04/2017	Elliott D. Healy	04/07/2017	Betina Topolski	1884148
EPA 350.1 Rev. 2.0	03/29/2017			03/30/2017	Julie Michelle Frank	1884121, 1884125, 1884126, 1884131, 1884132
EPA 351.2 Rev. 2.0	03/29/2017	03/30/2017	Adrian Shelby	03/31/2017	Joseph Suarez	1884121, 1884125, 1884126, 1884131, 1884132
EPA 353.2 Rev. 2.0	03/29/2017			04/03/2017	Beverly Y. Sanders	1884121, 1884125, 1884126, 1884131, 1884132
EPA 365.1 Rev. 2.0	03/29/2017	03/31/2017	Adrian Shelby	04/03/2017	Lipi Saha	1884121, 1884125, 1884126, 1884131, 1884132
EPA 365.1 Rev. 2.0 dissolved	03/29/2017			03/29/2017 14:12	Anthony C. Onicha	1884122
	03/29/2017			03/29/2017 14:41	Anthony C. Onicha	1884127
	03/29/2017			03/29/2017 14:42	Anthony C. Onicha	1884128, 1884133
	03/29/2017			03/29/2017 14:43	Anthony C. Onicha	1884134
EPA 8321B	03/29/2017	03/29/2017	Mohammad Ghaffari	03/29/2017	Mohammad Ghaffari	1884149, 1884150
SM 2320 B-97	03/29/2017			04/06/2017	Dale L. Simmons	1884120, 1884123, 1884124, 1884129, 1884130
SM 2540 D-97	03/29/2017			03/31/2017	Yijie Li	1884120, 1884123, 1884124, 1884129, 1884130
SM 4500 F-C-97	03/29/2017			04/10/2017	Dale L. Simmons	1884120, 1884123, 1884124, 1884129, 1884130
SM 5310 B-00	03/29/2017			03/30/2017	Julie Michelle Frank	1884121, 1884125, 1884126, 1884131, 1884132
USGS O-2060-01	03/29/2017	03/31/2017	Hoor Shaik	04/07/2017	Juyoung Kim	1884149, 1884150
	03/29/2017	03/31/2017	Hoor Shaik	04/12/2017	Juyoung Kim	1884149, 1884150