

Chemical Analysis Report

CEN-DIST-2017-03-16-01

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

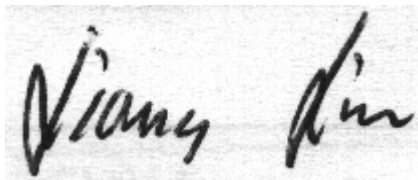
Event Description: **Unnamed Branch 2641 + HA**
Request ID: **RQ-2017-03-20-54**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 11-APR-2017 11:53

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: 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: Unnamed Branch upstream of Airport Rd

Collection Date/Time: 03/15/2017 12:15

Field ID: G5CE0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1880466	EPA 180.1 Rev. 2.0	Turbidity	1.8	A	NTU	P321691	
	EPA 300.0 Rev. 2.1	Chloride	63		mg Cl/L	P322219	
		Sulfate	8.0		mg SO4/L	P322410	
	SM 2120 B	Color (true)	71	A	PCU	P321693	
	SM 2320 B-97	Total Alkalinity	101		mg CaCO3/L	P321868	
	SM 2540 C-97	TDS	259	Q	mg/L	P322732	
	SM 2540 D-97	TSS	2	U	mg/L	P322156	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P321871	
1880467	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P321778	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P321800	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P321962	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P321826	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P321720	
1880468	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P322294	

Ref. Method and Comment:

SM 2540 C-97: Sample reanalyzed out of holding time due to analytical difficulties.

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

Sample Location: Unnamed Branch upstream of Airport Rd

Collection Date/Time: 03/15/2017 12:15

Field ID: G5CE0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1880472	EPA 8321B	Sucralose**	0.080		ug/L	P321668	
	USGS O-2060-01	2,4-D	0.012	I	ug/L	P321577	
		Diuron	0.0040	U	ug/L	P321577	
		Fenuron	0.0080	U	ug/L	P321577	
		Imidacloprid	0.0040	U	ug/L	P321577	
		Bentazon	1.2		ug/L	P321577	MS
		Linuron	0.0040	UJ	ug/L	P321577	CCV
		Acetaminophen**	0.0040	U	ug/L	P321577	
		MCP	0.0040	U	ug/L	P321577	
		Carbamazepine**	4.0E-04	U	ug/L	P321577	
		Triclopyr**	0.010	U	ug/L	P321577	
		Primidone**	0.0080	U	ug/L	P321577	
		Fluridone**	0.028		ug/L	P321577	

Ref. Method and Comment:

EPA 8321B: MS accuracy for sucralose could not be assessed due to high concentration of parameter in the spiked sample.

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P321691

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322219

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322410

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321778

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321800

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321962

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321826

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322294

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

Reference Method: EPA 8321B
Batch ID: P321668

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P321693

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
 Batch ID: P321868

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

Reference Method: SM 2540 C-97
 Batch ID: P322732

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P322156

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P321871

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P321720

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

Reference Method: USGS O-2060-01
 Batch ID: P321577

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	0.0040	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
MCP	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 300.0 Rev. 2.1
 Batch ID: P322219

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	93.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322410

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321778

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321800

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321962

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: P321826

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: P322294

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

Reference Method: EPA 8321B
Batch ID: P321668

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	102		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P321868

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

Reference Method: SM 4500 F-C-97
Batch ID: P321871

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P321720

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

Reference Method: USGS O-2060-01
 Batch ID: P321577

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	106		P	40 - 140
Acetaminophen	108		P	40 - 140
Bentazon	94.8		P	40 - 140
Carbamazepine	79.2		P	40 - 140
Diuron	59.6		P	40 - 140
Fenuron	77.6		P	40 - 140
Fluridone	76.0		P	40 - 140
Imidacloprid	67.6		P	40 - 160
Linuron	97.2		P	40 - 140
MCP	106		P	40 - 140
Primidone	108		P	40 - 140
Triclopyr	87.6		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P322219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880620	Chloride	94.3		P	90 - 110
1880621	Chloride	92.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P322410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880620	Sulfate	103		P	90 - 110
1880621	Sulfate	95.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880467	Ammonia-N	98.4	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P321800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880494	Kjeldahl Nitrogen	95.3	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P321962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880488	NO2NO3-N	94.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P321826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880443	Total-P	102	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P322294

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880489	O-Phosphate-P	96.9	92.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P321871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880388	Fluoride	96.6	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P321720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880079	Organic Carbon	95.5	97.3	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P321577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880315	2,4-D	134	137	P/P	40 - 140
1880315	Acetaminophen	66.4	62.4	P/P	40 - 140
1880315	Bentazon	206	199	F/F	40 - 140
1880315	Carbamazepine	80.0	86.0	P/P	40 - 140
1880315	Diuron	79.2	74.4	P/P	40 - 140
1880315	Fenuron	75.2	74.4	P/P	40 - 140
1880315	Fluridone	72.8	65.6	P/P	40 - 140
1880315	Imidacloprid	142	138	P/P	40 - 160
1880315	Linuron	135	128	P/P	40 - 140
1880315	MCP	128	129	P/P	40 - 140
1880315	Primidone	105	81.2	P/P	40 - 140
1880315	Triclopyr	106	102	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P321691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880466	Turbidity	10.9	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880620	Chloride	0.666	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880620	Sulfate	17.0	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880467	Ammonia-N	1.81	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880494	Kjeldahl Nitrogen	5.13	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880488	NO2NO3-N	0.740	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880443	Total-P	6.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322294

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880489	O-Phosphate-P	4.43	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P321668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880583	Sucralose	8.35	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P321693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880466	Color (true)	1.10	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P321868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880388	Total Alkalinity	0.0966	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882887	TDS	2.80	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P321871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880388	Fluoride	0.498	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P321720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880079	Organic Carbon	1.47	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P321577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880315	2,4-D	2.50	Spike	P	0 - 30
1880315	Acetaminophen	6.21	Spike	P	0 - 30
1880315	Bentazon	3.36	Spike	P	0 - 30
1880315	Carbamazepine	7.23	Spike	P	0 - 30
1880315	Diuron	6.25	Spike	P	0 - 30
1880315	Fenuron	1.07	Spike	P	0 - 30
1880315	Fluridone	10.2	Spike	P	0 - 30
1880315	Imidacloprid	2.58	Spike	P	0 - 30
1880315	Linuron	5.16	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P321577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880315	MCP	1.25	Spike	P	0 - 30
1880315	Primidone	25.8	Spike	P	0 - 30
1880315	Triclopyr	3.47	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: 1880472
Field Sample ID: G5CE0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	95.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	130	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	85.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	60.8	P	40 - 160
USGS O-2060-01	Diuron-d6	54.4	P	40 - 150
USGS O-2060-01	Primidone-d5	56.2	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75149
Included Lab Sample IDs: 1880466

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

Reference Method: SM 2120 B
Run ID: A75150
Included Lab Sample IDs: 1880466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.3	100	P/P	85 - 115

Reference Method: USGS O-2060-01
Run ID: A75159
Included Lab Sample IDs: 1880472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	100	104	P/P	60 - 150
Carbamazepine	149	146	P/P	60 - 150
Diuron	128	134	P/P	60 - 150
Fenuron	126	135	P/P	60 - 150
Fluridone	98.4	104	P/P	60 - 150
Imidacloprid	129	130	P/P	60 - 150
Linuron	192*	225*	F/F	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01
Run ID: A75159
Included Lab Sample IDs: 1880472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Primidone	122	102	P/P	60 - 150

Reference Method: SM 5310 B-00
Run ID: A75160
Included Lab Sample IDs: 1880467

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.9	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75184
Included Lab Sample IDs: 1880467

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

Reference Method: SM 2320 B-97
Run ID: A75223
Included Lab Sample IDs: 1880466

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

Reference Method: SM 4500 F-C-97
Run ID: A75223
Included Lab Sample IDs: 1880466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A75233
Included Lab Sample IDs: 1880472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	106	95.9	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75234
Included Lab Sample IDs: 1880467

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A75246
Included Lab Sample IDs: 1880467

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.9	93.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75257

Included Lab Sample IDs: 1880467

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	92.5	92.0	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A75269

Included Lab Sample IDs: 1880472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	119	117	P/P	50 - 150
Bentazon	111	97.4	P/P	50 - 150
MCP	133	122	P/P	50 - 150
Triclopyr	97.8	100	P/P	50 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75326

Included Lab Sample IDs: 1880466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	94.4	95.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75396

Included Lab Sample IDs: 1880466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	103	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A75403

Included Lab Sample IDs: 1880468

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

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				10.9	
EPA 300.0 Rev. 2.1	Chloride	93.2	94.3 92.7		0.666	
	Sulfate	96.8	103 95.1		17.0	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	98.4 96.2			1.81
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	95.3 101			5.13
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	94.8			0.740
EPA 365.1 Rev. 2.0	Total-P	104	102 95.9			6.27
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	96.9 92.7			4.43

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8321B	Sucralose	102					8.35
SM 2120 B	Color (true)					1.10	
SM 2320 B-97	Total Alkalinity	103				0.0966	
SM 2540 C-97	TDS					2.80	
SM 4500 F-C-97	Fluoride	95.6	96.6	96.1			0.498
SM 5310 B-00	Organic Carbon	97.3	95.5	97.3			1.47
USGS O-2060-01	2,4-D	106	134	137			2.50
	Acetaminophen	108	66.4	62.4			6.21
	Bentazon	94.8	206	199			3.36
	Carbamazepine	79.2	80.0	86.0			7.23
	Diuron	59.6	79.2	74.4			6.25
	Fenuron	77.6	75.2	74.4			1.07
	Fluridone	76.0	72.8	65.6			10.2
	Imidacloprid	67.6	142	138			2.58
	Linuron	97.2	135	128			5.16
	MCP	106	128	129			1.25
	Primidone	108	105	81.2			25.8
	Triclopyr	87.6	106	102			3.47

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1880466
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1880466
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1880466
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1880467
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1880467
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1880467
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1880467
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1880468
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1880472
SM 2120 B / E31780	True Color measured at 450 nm	1880466
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1880466
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1880466
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1880466
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1880466
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1880467
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1880472
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1880472

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	03/16/2017			03/16/2017 14:13	Sima Feizi	1880466
EPA 300.0 Rev. 2.1	03/16/2017			03/25/2017	Ping Hua	1880466
	03/16/2017			03/29/2017	Ping Hua	1880466
EPA 350.1 Rev. 2.0	03/16/2017			03/17/2017	Sofia Elnemr	1880467
EPA 351.2 Rev. 2.0	03/16/2017	03/20/2017	Adrian Shelby	03/21/2017	Joseph Suarez	1880467
EPA 353.2 Rev. 2.0	03/16/2017			03/21/2017	Beverly Y. Sanders	1880467
EPA 365.1 Rev. 2.0	03/16/2017	03/20/2017	Vijayalakshmi Reddy	03/21/2017	Lipi Saha	1880467
EPA 365.1 Rev. 2.0 dissolved	03/16/2017			03/16/2017 14:41	Ping Hua	1880468
EPA 8321B	03/16/2017	03/20/2017	Mohammad Ghaffari	03/20/2017	Mohammad Ghaffari	1880472
SM 2120 B	03/16/2017			03/16/2017 15:13	Julie Michelle Frank	1880466
SM 2320 B-97	03/16/2017			03/18/2017	Dale L. Simmons	1880466
SM 2540 C-97	03/16/2017			03/28/2017	Yijie Li	1880466
SM 2540 D-97	03/16/2017			03/20/2017	Sima Feizi	1880466
SM 4500 F-C-97	03/16/2017			03/18/2017	Dale L. Simmons	1880466
SM 5310 B-00	03/16/2017			03/16/2017	Julie Michelle Frank	1880467
USGS O-2060-01	03/16/2017	03/16/2017	Hoor Shaik	03/18/2017	Juyoung Kim	1880472
	03/16/2017	03/16/2017	Hoor Shaik	03/22/2017	Juyoung Kim	1880472