

Chemical Analysis Report

CEN-DIST-2017-04-13-01

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

Event Description: **Ocklawaha River ab Daisy Crk**
Request ID: **RQ-2017-04-10-47**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 10-MAY-2017 12:20

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: Ocklawaha River @

Collection Date/Time: 04/12/2017 11:35

Field ID: G1CE0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1888499	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P323526	
	EPA 300.0 Rev. 2.1	Chloride	39		mg Cl/L	P323745	
		Sulfate	20		mg SO4/L	P323747	
	SM 2120 B	Color (true)	32		PCU	P323336	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P323889	
	SM 2540 C-97	TDS	270		mg/L	P324099	
	SM 2540 D-97	TSS	6	I	mg/L	P323932	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P324403	
1888500	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P323347	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.44		mg N/L	P323501	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P323700	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P323428	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P323470	
1888501	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323344	
1888517	EPA 8321B	Sucralose**	0.063		ug/L	P323304	
	USGS O-2060-01	2,4-D	0.0063	I	ug/L	P323371	
		Diuron	0.0040	U	ug/L	P323371	MS
		Fenuron	0.0080	U	ug/L	P323371	
		Imidacloprid	0.0040	U	ug/L	P323371	
		Bentazon	0.0040	U	ug/L	P323371	
		Linuron	0.0040	U	ug/L	P323371	
		Acetaminophen**	0.010	U	ug/L	P323371	
		MCP	0.0040	U	ug/L	P323371	
		Carbamazepine**	4.0E-04	U	ug/L	P323371	
		Triclopyr**	0.048		ug/L	P323371	
		Primidone**	0.0080	U	ug/L	P323371	
		Fluridone**	0.0017		ug/L	P323371	

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: Batch matrix spike recoveries are unavailable because of high 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: P323526

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P323745

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: P323747

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323347

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323501

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323700

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323428

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323344

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

Reference Method: EPA 8321B
Batch ID: P323304

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P323336

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P323889

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
 Batch ID: P324099

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P323932

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P324403

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P323470

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

Reference Method: USGS O-2060-01
 Batch ID: P323371

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
MCPD	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: P323745

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P323747

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323501

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323700

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323428

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323344

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

Reference Method: EPA 8321B
Batch ID: P323304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	132		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P323889

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

Reference Method: SM 4500 F-C-97
Batch ID: P324403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P323470

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P323371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	84.8		P	40 - 140
Acetaminophen	70.8		P	40 - 140
Bentazon	134		P	40 - 140
Carbamazepine	107		P	40 - 140
Diuron	62.4		P	40 - 140
Fenuron	86.4		P	40 - 140
Fluridone	83.2		P	40 - 140
Imidacloprid	70.8		P	40 - 160
Linuron	101		P	40 - 140
MCPP	109		P	40 - 140
Primidone	70.0		P	40 - 140
Triclopyr	104		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887928	Chloride	100		P	90 - 110
1888029	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887928	Sulfate	93.4		P	90 - 110
1888029	Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1888467	Ammonia-N	97.7	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323700

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1888663	NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1888520	Total-P	102	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P323344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1888825	O-Phosphate-P	94.1	95.0	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P323304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1888590	Sucralose	134	123	P/P	40 - 140

Reference Method: SM 4500 F-C-97
 Batch ID: P324403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1888726	Fluoride	104	103	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P323470

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1888031	Organic Carbon	104	104	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P323371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1888144	2,4-D	129	127	P/P	40 - 140
1888144	Acetaminophen	76.8	84.4	P/P	40 - 140
1888144	Carbamazepine	41.9	45.5	P/P	40 - 140
1888144	Diuron	31.1	33.4	F/F	40 - 140
1888144	Fenuron	40.4	41.2	P/P	40 - 140
1888144	Fluridone	46.0	48.4	P/P	40 - 140
1888144	Imidacloprid	82.9	78.9	P/P	40 - 160
1888144	Linuron	62.8	53.2	P/P	40 - 140
1888144	MCP	137	135	P/P	40 - 140
1888144	Primidone	52.8	57.2	P/P	40 - 140
1888144	Triclopyr	79.6	72.4	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P323526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888309	Turbidity	3.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P323745

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888029	Chloride	0.0975	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888029	Sulfate	0.113	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888467	Ammonia-N	2.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323501

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888500	Kjeldahl Nitrogen	1.96	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888663	NO2NO3-N	0.406	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888520	Total-P	0.396	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888825	O-Phosphate-P	0.952	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P323304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888590	Sucralose	6.38	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P323336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888542	Color (true)	1.04	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P323889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888726	Total Alkalinity	0.299	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P324099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888519	TDS	3.13	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P324403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888726	Fluoride	0.558	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P323470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888031	Organic Carbon	0.462	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P323371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888144	2,4-D	1.21	Spike	P	0 - 30
1888144	Acetaminophen	9.43	Spike	P	0 - 30
1888144	Bentazon	0.941	Spike	P	0 - 30
1888144	Carbamazepine	7.86	Spike	P	0 - 30
1888144	Diuron	7.19	Spike	P	0 - 30
1888144	Fenuron	1.96	Spike	P	0 - 30
1888144	Fluridone	4.14	Spike	P	0 - 30
1888144	Imidacloprid	3.65	Spike	P	0 - 30
1888144	Linuron	16.6	Spike	P	0 - 30
1888144	MCP	1.39	Spike	P	0 - 30
1888144	Primidone	8.00	Spike	P	0 - 30
1888144	Triclopyr	5.49	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: 1888517
 Field Sample ID: G1CE0062

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	106	P	40 - 150
USGS O-2060-01	2,4-D-d3	113	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	48.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	47.0	P	40 - 160
USGS O-2060-01	Diuron-d6	31.6	P	30 - 150
USGS O-2060-01	Primidone-d5	51.2	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
 Run ID: A75770
 Included Lab Sample IDs: 1888499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	99.5	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A75771
 Included Lab Sample IDs: 1888501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.2	96.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A75772
 Included Lab Sample IDs: 1888500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	102	P/P	90 - 110

Reference Method: SM 5310 B-00
 Run ID: A75802
 Included Lab Sample IDs: 1888500

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

Reference Method: EPA 8321B
 Run ID: A75811
 Included Lab Sample IDs: 1888517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	110	123	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A75826
 Included Lab Sample IDs: 1888500

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A75831

Included Lab Sample IDs: 1888499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75853

Included Lab Sample IDs: 1888500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75875

Included Lab Sample IDs: 1888500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.5	94.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75903

Included Lab Sample IDs: 1888499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	100	P/P	90 - 110
Sulfate	96.0	98.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75952

Included Lab Sample IDs: 1888499

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

Reference Method: USGS O-2060-01

Run ID: A75985

Included Lab Sample IDs: 1888517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	101	78.2	P/P	50 - 150
Bentazon	86.2	88.4	P/P	50 - 150
MCP	105	107	P/P	50 - 150
Triclopyr	84.6	83.0	P/P	50 - 150

Reference Method: USGS O-2060-01

Run ID: A76024

Included Lab Sample IDs: 1888517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	132	142	P/P	60 - 150
Carbamazepine	128	139	P/P	60 - 150
Diuron	113	131	P/P	60 - 150
Fenuron	121	130	P/P	60 - 150
Fluridone	141	140	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A76024

Included Lab Sample IDs: 1888517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imidacloprid	108	112	P/P	60 - 150
Linuron	62.8	64.4	P/P	60 - 150
Primidone	96.8	94.4	P/P	60 - 150

Reference Method: SM 4500 F-C-97

Run ID: A76126

Included Lab Sample IDs: 1888499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.0	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						3.83	
EPA 300.0 Rev. 2.1	Chloride	100		99.5	100		0.0975	
	Sulfate	97.5		97.3	93.4		0.113	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8		97.7	101			2.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103						1.96
EPA 353.2 Rev. 2.0	NO2NO3-N	96.0		97.5	97.0			0.406
EPA 365.1 Rev. 2.0	Total-P	102		102	102			0.396
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.9		94.1	95.0			0.952
EPA 8321B	Sucralose	132		134	123			6.38
SM 2120 B	Color (true)						1.04	
SM 2320 B-97	Total Alkalinity	105					0.299	
SM 2540 C-97	TDS						3.13	
SM 4500 F-C-97	Fluoride	94.7		104	103			0.558
SM 5310 B-00	Organic Carbon	105		104	104			0.462
USGS O-2060-01	2,4-D	84.8		129	127			1.21
	Acetaminophen	70.8		76.8	84.4			9.43
	Bentazon	134						0.941
	Carbamazepine	107		41.9	45.5			7.86
	Diuron	62.4		31.1	33.4			7.19
	Fenuron	86.4		40.4	41.2			1.96
	Fluridone	83.2		46.0	48.4			4.14
	Imidacloprid	70.8		82.9	78.9			3.65
	Linuron	101		62.8	53.2			16.6
	MCPP	109		137	135			1.39
	Primidone	70.0		52.8	57.2			8.00
	Triclopyr	104		79.6	72.4			5.49

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1888499
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1888499
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1888499
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1888500
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1888500
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1888500
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1888500
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1888501
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1888517
SM 2120 B / E31780	True Color measured at 450 nm	1888499
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1888499
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1888499
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1888499
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1888499
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1888500
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1888517
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1888517

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	04/13/2017			04/13/2017 16:21	Sima Feizi	1888499
EPA 300.0 Rev. 2.1	04/13/2017			04/20/2017	Ping Hua	1888499
EPA 350.1 Rev. 2.0	04/13/2017			04/13/2017	Julie Michelle Frank	1888500
EPA 351.2 Rev. 2.0	04/13/2017	04/17/2017	Adrian Shelby	04/18/2017	Joseph Suarez	1888500
EPA 353.2 Rev. 2.0	04/13/2017			04/19/2017	Beverly Y. Sanders	1888500
EPA 365.1 Rev. 2.0	04/13/2017	04/14/2017	Vijayalakshmi Reddy	04/17/2017	Lipi Saha	1888500
EPA 365.1 Rev. 2.0 dissolved	04/13/2017			04/13/2017 14:34	Anthony C. Onicha	1888501
EPA 8321B	04/13/2017	04/13/2017	Mohammad Ghaffari	04/16/2017	Mohammad Ghaffari	1888517
SM 2120 B	04/13/2017			04/13/2017 14:56	Julia Storbeck	1888499
SM 2320 B-97	04/13/2017			04/22/2017	Dale L. Simmons	1888499
SM 2540 C-97	04/13/2017			04/17/2017	Sima Feizi	1888499
SM 2540 D-97	04/13/2017			04/17/2017	Sima Feizi	1888499
SM 4500 F-C-97	04/13/2017			05/01/2017	Dale L. Simmons	1888499
SM 5310 B-00	04/13/2017			04/14/2017	Julie Michelle Frank	1888500
USGS O-2060-01	04/13/2017	04/16/2017	Hoor Shaik	04/23/2017	Juyoung Kim	1888517
	04/13/2017	04/16/2017	Hoor Shaik	04/26/2017	Juyoung Kim	1888517