

Chemical Analysis Report

SW-DIST-2017-03-17-01

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

Event Description: **2 SCI REF SITES-TBD**

Request ID: **RQ-2017-03-13-21**

Customer: **SW-DIST**

Project ID: **SCIREF**

Send Reports to:

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 12-APR-2017 14:12



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: Manatee R. Below SR 64

Collection Date/Time: 03/16/2017 14:00

Field ID: MANAREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1881315	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P321763	
	EPA 300.0	Bromide**	0.12		mg Br/L	P322110	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P322111	
		Sulfate	98		mg SO4/L	P322113	
	SM 2120 B	Color (true)	56		PCU	P321753	
	SM 2320 B-97	Total Alkalinity	61		mg CaCO3/L	P322074	
	SM 2540 C-97	TDS	256	A	mg/L	P322324	
	SM 2540 D-97	TSS	3	I	mg/L	P322320	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P322080	
1881316	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P321911	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P321852	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.78		mg N/L	P321993	
	EPA 365.1 Rev. 2.0	Total-P	0.41		mg P/L	P322024	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P321796	
1881327	EPA 200.7 Rev. 4.4	Calcium	38.6		mg/L	P321905	
		Magnesium	14.7		mg/L	P321905	
		Potassium	10.5		mg/L	P321905	
		Sodium	9.9		mg/L	P321905	
1881328	EPA 8321B	Sucralose**	0.010	U	ug/L	P321878	
	USGS O-2060-01	2,4-D	0.015	I	ug/L	P321745	
		Diuron	0.0040	U	ug/L	P321745	
		Fenuron	0.0080	U	ug/L	P321745	
		Imidacloprid	0.42		ug/L	P321745	
		Bentazon	0.53		ug/L	P321745	
		Linuron	0.0040	U	ug/L	P321745	RPD
		Acetaminophen**	0.041		ug/L	P321745	
		MCP	0.0040	U	ug/L	P321745	MS
		Carbamazepine**	4.0E-04	U	ug/L	P321745	
		Triclopyr**	0.010	U	ug/L	P321745	
		Primidone**	0.0080	U	ug/L	P321745	
		Fluridone**	4.0E-04	U	ug/L	P321745	MS, RPD

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.

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

USGS O-2060-01: MS accuracy for bentazon and 2,4-D 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: P321763

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321905

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 300.0
Batch ID: P322110

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322111

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322113

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321911

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321852

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321993

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322024

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

Reference Method: EPA 8321B
Batch ID: P321878

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P321753

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P322074

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

Reference Method: SM 2540 C-97
Batch ID: P322324

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322320

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P322080

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P321796

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

Reference Method: USGS O-2060-01
Batch ID: P321745

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	0.0080	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: P321905

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	97.9		P	85 - 115
Sodium	99.9		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P322110

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322111

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322113

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321911

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321852

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321993

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322024

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

Reference Method: EPA 8321B
Batch ID: P321878

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	109		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P322074

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

Reference Method: SM 4500 F-C-97
 Batch ID: P322080

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

Reference Method: SM 5310 B-00
 Batch ID: P321796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P321745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	124		P	40 - 140
Acetaminophen	96.4		P	40 - 140
Bentazon	109		P	40 - 140
Carbamazepine	110		P	40 - 140
Diuron	97.6		P	40 - 140
Fenuron	106		P	40 - 140
Fluridone	97.2		P	40 - 140
Imidacloprid	88.8		P	40 - 160
Linuron	86.4		P	40 - 140
MCP	129		P	40 - 140
Primidone	93.2		P	40 - 140
Triclopyr	99.2		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P321905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881157	Calcium	101	101	P/P	80 - 120
1881157	Magnesium	98.8	101	P/P	80 - 120
1881157	Potassium	98.6	100	P/P	80 - 120
1881157	Sodium	101	99.8	P/P	80 - 120

Reference Method: EPA 300.0
 Batch ID: P322110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881037	Bromide	105		P	90 - 110
1881315	Bromide	108	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P322111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881037	Chloride	97.7		P	90 - 110
1881315	Chloride	100	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P322113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881037	Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881038	Ammonia-N	98.8	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P321852

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881316	Kjeldahl Nitrogen	98.6	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P321993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881293	NO2NO3-N	99.2	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P322024

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881817	Total-P	99.0	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P322080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881036	Fluoride	97.3	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P321796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881017	Organic Carbon	94.8	94.4	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P321745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881181	Acetaminophen	101	110	P/P	40 - 140
1881181	Carbamazepine	58.8	62.4	P/P	40 - 140
1881181	Diuron	42.8	46.4	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P321745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881181	Fenuron	51.6	54.4	P/P	40 - 140
1881181	Fluridone	24.8	37.4	F/F	40 - 140
1881181	Imidacloprid	84.3	94.3	P/P	40 - 160
1881181	Linuron	47.6	73.6	P/P	40 - 140
1881181	MCCP	149	150	F/F	40 - 140
1881181	Primidone	56.0	58.8	P/P	40 - 140
1881181	Triclopyr	94.0	102	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881142	Turbidity	1.53	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881157	Calcium	0.171	Spike	P	0 - 20
1881157	Magnesium	1.54	Spike	P	0 - 20
1881157	Potassium	1.53	Spike	P	0 - 20
1881157	Sodium	1.11	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P322110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881315	Bromide	1.67	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881315	Chloride	0.879	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881037	Sulfate	2.58	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881038	Ammonia-N	0.746	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881316	Kjeldahl Nitrogen	1.21	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881293	NO2NO3-N	2.83	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881817	Total-P	1.28	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P321878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881474	Sucralose	13.9	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P321753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881141	Color (true)	1.17	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P322074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881036	Total Alkalinity	2.03	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881315	TDS	5.85	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P322080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881036	Fluoride	0.500	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P321796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881017	Organic Carbon	0.318	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P321745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881181	2,4-D	11.9	Spike	P	0 - 30
1881181	Acetaminophen	8.20	Spike	P	0 - 30
1881181	Bentazon	3.20	Spike	P	0 - 30
1881181	Carbamazepine	5.94	Spike	P	0 - 30
1881181	Diuron	8.07	Spike	P	0 - 30
1881181	Fenuron	5.28	Spike	P	0 - 30
1881181	Fluridone	40.8	Spike	F	0 - 30
1881181	Imidacloprid	10.1	Spike	P	0 - 30
1881181	Linuron	42.9	Spike	F	0 - 30
1881181	MCP	0.268	Spike	P	0 - 30
1881181	Primidone	4.88	Spike	P	0 - 30
1881181	Triclopyr	4.02	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: 1881328
Field Sample ID: MANAREF

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	71.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	111	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	54.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	66.2	P	40 - 160
USGS O-2060-01	Diuron-d6	52.4	P	40 - 150
USGS O-2060-01	Primidone-d5	56.8	P	40 - 150

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A75173
Included Lab Sample IDs: 1881315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	107	104	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75180
Included Lab Sample IDs: 1881315

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

Reference Method: SM 5310 B-00
Run ID: A75192
Included Lab Sample IDs: 1881316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75245
Included Lab Sample IDs: 1881316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75268
Included Lab Sample IDs: 1881316

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

Reference Method: USGS O-2060-01
Run ID: A75269
Included Lab Sample IDs: 1881328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	122	118	P/P	50 - 150
Bentazon	100	97.2	P/P	50 - 150
MCP	124	123	P/P	50 - 150
Triclopyr	94.8	78.6	P/P	50 - 150

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A75287
Included Lab Sample IDs: 1881327

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	103	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	101	99.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75289

Included Lab Sample IDs: 1881316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A75292

Included Lab Sample IDs: 1881315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	93.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75292

Included Lab Sample IDs: 1881315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	102	P/P	90 - 110
Sulfate	99.6	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75310

Included Lab Sample IDs: 1881315

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

Reference Method: SM 4500 F-C-97

Run ID: A75310

Included Lab Sample IDs: 1881315

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75316

Included Lab Sample IDs: 1881316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A75318

Included Lab Sample IDs: 1881328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	102	99.5	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A75398

Included Lab Sample IDs: 1881328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	136	125	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A75398

Included Lab Sample IDs: 1881328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Carbamazepine	133	138	P/P	60 - 150
Diuron	142	146	P/P	60 - 150
Fenuron	127	128	P/P	60 - 150
Fluridone	114	117	P/P	60 - 150
Imidacloprid	106	104	P/P	60 - 150
Linuron	121	138	P/P	60 - 150
Primidone	102	124	P/P	60 - 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		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.53	
EPA 200.7 Rev. 4.4	Calcium	102	101	101			0.171
	Magnesium	101	98.8	101			1.54
	Potassium	97.9	98.6	100			1.53
	Sodium	99.9	101	99.8			1.11
EPA 300.0	Bromide	106	108	106	105		1.67
EPA 300.0 Rev. 2.1	Chloride	101	100	98.9	97.7		0.879
	Sulfate	97.2	99.6			2.58	
EPA 350.1 Rev. 2.0	Ammonia-N	99.3	98.8	99.5			0.746
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	98.6	96.8			1.21
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	99.2	103			2.83
EPA 365.1 Rev. 2.0	Total-P	99.6	99.0	100			1.28
EPA 8321B	Sucralose	109					13.9
SM 2120 B	Color (true)					1.17	
SM 2320 B-97	Total Alkalinity	104				2.03	
SM 2540 C-97	TDS					5.85	
SM 4500 F-C-97	Fluoride	96.4	97.3	97.8			0.500
SM 5310 B-00	Organic Carbon	96.9	94.8	94.4			0.318
USGS O-2060-01	2,4-D	124					11.9
	Acetaminophen	96.4	101	110			8.20
	Bentazon	109					3.20
	Carbamazepine	110	62.4	58.8			5.94
	Diuron	97.6	46.4	42.8			8.07
	Fenuron	106	51.6	54.4			5.28
	Fluridone	97.2	37.4	24.8			40.8
	Imidacloprid	88.8	94.3	84.3			10.1
	Linuron	86.4	73.6	47.6			42.9
	MCPP	129	149	150			0.268
	Primidone	93.2	56.0	58.8			4.88
	Triclopyr	99.2	94.0	102			4.02

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1881315
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1881327
EPA 300.0 / E31780	Bromide in aqueous matrices	1881315
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1881315
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1881315
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1881316
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1881316
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1881316
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1881316
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1881328
SM 2120 B / E31780	True Color measured at 450 nm	1881315
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1881315
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1881315
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1881315
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1881315
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1881316
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1881328
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1881328

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	03/17/2017			03/17/2017 15:10	Sima Feizi	1881315
EPA 200.7 Rev. 4.4	03/17/2017	03/21/2017	Elliott D. Healy	03/22/2017	Martin Acosta	1881327
EPA 300.0	03/17/2017			03/23/2017	Ping Hua	1881315
EPA 300.0 Rev. 2.1	03/17/2017			03/23/2017	Ping Hua	1881315
EPA 350.1 Rev. 2.0	03/17/2017			03/21/2017	Julie Michelle Frank	1881316
EPA 351.2 Rev. 2.0	03/17/2017	03/21/2017	Adrian Shelby	03/23/2017	Joseph Suarez	1881316
EPA 353.2 Rev. 2.0	03/17/2017			03/22/2017	Beverly Y. Sanders	1881316
EPA 365.1 Rev. 2.0	03/17/2017	03/23/2017	Adrian Shelby	03/23/2017	Lipi Saha	1881316
EPA 8321B	03/17/2017	03/23/2017	Mohammad Ghaffari	03/23/2017	Mohammad Ghaffari	1881328
SM 2120 B	03/17/2017			03/17/2017 14:51	Julie Michelle Frank	1881315
SM 2320 B-97	03/17/2017			03/23/2017	Dale L. Simmons	1881315
SM 2540 C-97	03/17/2017			03/21/2017	Yijie Li	1881315
SM 2540 D-97	03/17/2017			03/21/2017	Yijie Li	1881315
SM 4500 F-C-97	03/17/2017			03/23/2017	Dale L. Simmons	1881315
SM 5310 B-00	03/17/2017			03/18/2017	Julie Michelle Frank	1881316
USGS O-2060-01	03/17/2017	03/23/2017	Hoor Shaik	03/24/2017	Juyoung Kim	1881328
	03/17/2017	03/23/2017	Hoor Shaik	03/25/2017	Juyoung Kim	1881328