

Chemical Analysis Report

SW-DIST-2017-02-15-01

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

Event Description: **SMP RUN 10**
Request ID: **RQ-2017-02-13-23**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 01-MAR-2017 10:57



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: Clam Bayou

Collection Date/Time: 02/14/2017 10:10

Field ID: G5SW0135

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873057	EPA 180.1 Rev. 2.0	Turbidity	25	A	NTU	P319922	
	SM 2320 B-97	Total Alkalinity	179		mg CaCO3/L	P320219	
	SM 2540 D-97	TSS	57	A	mg/L	P320389	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P320420	
1873060	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P320245	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.3		mg N/L	P320037	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P320461	
	EPA 365.1 Rev. 2.0	Total-P	0.36		mg P/L	P320069	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P320006	
1873063	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P319913	

Sample Location: Pinellas Park Ditch # 1

Collection Date/Time: 02/14/2017 11:00

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873058	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P319922	
	SM 2320 B-97	Total Alkalinity	184		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	5	I	mg/L	P320390	
	SM 4500 F-C-97	Fluoride	0.52		mg F/L	P320240	
1873061	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P320517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P320036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P320534	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P320073	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P320008	
1873064	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.040		mg P/L	P319914	

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: Mullet Creek Tidal

Collection Date/Time: 02/14/2017 12:35

Field ID: G1SW0055

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873059	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P319922	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	8	I	mg/L	P320390	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P320420	
1873062	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P320517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P320036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P320534	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P320073	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P320008	
1873065	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.092		mg P/L	P319914	

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: Clam Bayou

Collection Date/Time: 02/14/2017 10:10

Field ID: G5SW0135

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873077	EPA 8321B	Sucralose**	0.33		ug/L	P319885	
	USGS O-2060-01	Diuron	0.0052	I	ug/L	P319949	MS
		Fenuron	0.0080	U	ug/L	P319949	
		Imidacloprid	0.0043	I	ug/L	P319949	
		Linuron	0.0040	U	ug/L	P319949	MS
		Acetaminophen**	0.0040	U	ug/L	P319949	
		Carbamazepine**	6.4E-04	I	ug/L	P319949	
		Primidone**	0.0080	U	ug/L	P319949	
		Fluridone**	0.013		ug/L	P319949	MS

Sample Location: Pinellas Park Ditch # 1

Collection Date/Time: 02/14/2017 11:00

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873078	EPA 8321B	Sucralose**	3.7		ug/L	P319885	
	USGS O-2060-01	Diuron	0.019	I	ug/L	P319949	MS
		Fenuron	0.016	U	ug/L	P319949	
		Imidacloprid	0.020	I	ug/L	P319949	
		Linuron	0.0080	U	ug/L	P319949	MS
		Acetaminophen**	0.0040	U	ug/L	P319949	
		Carbamazepine**	0.0088		ug/L	P319949	
		Primidone**	0.0080	U	ug/L	P319949	
		Fluridone**	0.075		ug/L	P319949	MS

Ref. Method and Comment:
 USGS O-2060-01: MDL's for some parameters elevated due to matrix interference.

Sample Location: McKay Tidal

Collection Date/Time: 02/14/2017 11:45

Field ID: G5SW0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873079	EPA 8321B	Sucralose**	1.5		ug/L	P319885	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P319949	MS
		Fenuron	0.0080	U	ug/L	P319949	
		Imidacloprid	0.0058	I	ug/L	P319949	
		Linuron	0.0040	U	ug/L	P319949	MS
		Acetaminophen**	0.0040	U	ug/L	P319949	
		Carbamazepine**	0.0026		ug/L	P319949	
		Primidone**	0.0080	U	ug/L	P319949	
		Fluridone**	0.020		ug/L	P319949	MS

Sample Location: Mullet Creek Tidal

Collection Date/Time: 02/14/2017 12:35

Field ID: G1SW0055

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873080	EPA 8321B	Sucralose**	2.7		ug/L	P319885	

Field ID: G1SW0055

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873080	USGS O-2060-01	Diuron	0.0050	I	ug/L	P319949	MS
		Fenuron	0.0080	U	ug/L	P319949	
		Imidacloprid	0.018		ug/L	P319949	
		Linuron	0.0040	U	ug/L	P319949	MS
		Acetaminophen**	0.0040	U	ug/L	P319949	
		Carbamazepine**	0.0021		ug/L	P319949	
		Primidone**	0.0080	U	ug/L	P319949	
		Fluridone**	0.0082		ug/L	P319949	MS

Ref. Method and Comment:
 USGS O-2060-01: Results confirmed in re-extraction.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P319922

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P320245

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P320517

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P320036

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P320037

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P320461

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P320534

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320534

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320069

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320073

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319913

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319914

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

Reference Method: EPA 8321B
Batch ID: P319885

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P320219

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

Reference Method: SM 2320 B-97
Batch ID: P320239

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

Reference Method: SM 2540 D-97
Batch ID: P320389

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P320390

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P320240

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P320420

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320006

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

Reference Method: SM 5310 B-00
Batch ID: P320008

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

Reference Method: USGS O-2060-01
Batch ID: P319949

Component	Result	Code	Units
Acetaminophen	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
Primidone	0.0080	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320245

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320036

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320037

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: P320461

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320534

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: P320069

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319913

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319914

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P319885

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	83.2		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P320219

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

Reference Method: SM 2320 B-97
Batch ID: P320239

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

Reference Method: SM 4500 F-C-97
Batch ID: P320240

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P320420

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P320006

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

Reference Method: SM 5310 B-00
Batch ID: P320008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P319949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	73.2		P	40 - 140
Carbamazepine	125		P	40 - 140
Diuron	78.8		P	40 - 140
Fenuron	98.8		P	40 - 140
Fluridone	53.2		P	40 - 140
Imidacloprid	85.2		P	40 - 160
Linuron	65.6		P	40 - 140
Primidone	89.2		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873091	Ammonia-N	99.1	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874816	Ammonia-N	99.4	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873022	Kjeldahl Nitrogen	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873290	Kjeldahl Nitrogen	98.2	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873004	NO2NO3-N	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873061	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1872972	Total-P	92.6	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873022	Total-P	92.9	90.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873007	O-Phosphate-P	98.6	97.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P319914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873064	O-Phosphate-P	96.1	98.6	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P319885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1872975	Sucralose	92.7	119	P/P	40 - 140

Reference Method: SM 4500 F-C-97
 Batch ID: P320240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870137	Fluoride	97.4	98.1	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P320420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873001	Fluoride	95.8	96.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P320006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1872606	Organic Carbon	94.0	95.8	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P320008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873016	Organic Carbon	91.9	91.4	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P319949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873043	Acetaminophen	71.2	64.8	P/P	40 - 140
1873043	Carbamazepine	63.5	50.3	P/P	40 - 140
1873043	Diuron	34.8	34.4	F/F	40 - 140
1873043	Fenuron	45.6	47.6	P/P	40 - 140
1873043	Fluridone	27.6	30.3	F/F	40 - 140
1873043	Imidacloprid	94.0	89.2	P/P	40 - 160
1873043	Linuron	36.1	29.1	F/F	40 - 140
1873043	Primidone	53.6	53.6	P/P	40 - 140

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873057	Turbidity	0.810	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873091	Ammonia-N	2.73	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874816	Ammonia-N	1.33	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873022	Kjeldahl Nitrogen	0.172	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873290	Kjeldahl Nitrogen	0.634	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873004	NO2NO3-N	1.89	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873061	NO2NO3-N	0.900	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320069

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1872972	Total-P	2.31	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873022	Total-P	2.12	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873007	O-Phosphate-P	0.587	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873064	O-Phosphate-P	1.81	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P319885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1872975	Sucralose	19.3	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P320219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873001	Total Alkalinity	0.0674	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P320239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873348	Total Alkalinity	0.0568	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P320389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873057	TSS	5.63	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P320240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870137	Fluoride	0.473	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P320420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873001	Fluoride	0.996	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1872606	Organic Carbon	1.95	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P320008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873016	Organic Carbon	0.505	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P319949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873043	Acetaminophen	9.41	Spike	P	0 - 30
1873043	Carbamazepine	17.5	Spike	P	0 - 30
1873043	Diuron	1.04	Spike	P	0 - 30
1873043	Fenuron	4.29	Spike	P	0 - 30
1873043	Fluridone	9.54	Spike	P	0 - 30
1873043	Imidacloprid	5.24	Spike	P	0 - 30
1873043	Linuron	21.6	Spike	P	0 - 30
1873043	Primidone	0.0	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: 1873077
Field Sample ID: G5SW0135

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	94.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	66.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	50.4	P	40 - 160
USGS O-2060-01	Diuron-d6	46.2	P	40 - 150
USGS O-2060-01	Primidone-d5	65.8	P	40 - 150

Lab Sample ID: 1873078
Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
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Quality Assurance Report Surrogates

Lab Sample ID: 1873078
Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	86.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	59.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	56.0	P	40 - 160
USGS O-2060-01	Diuron-d6	57.6	P	40 - 150
USGS O-2060-01	Primidone-d5	59.0	P	40 - 150

Lab Sample ID: 1873079
Field Sample ID: G5SW0130

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	100	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	68.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	58.8	P	40 - 160
USGS O-2060-01	Diuron-d6	59.4	P	40 - 150
USGS O-2060-01	Primidone-d5	90.6	P	40 - 150

Lab Sample ID: 1873080
Field Sample ID: G1SW0055

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	110	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	62.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	54.4	P	40 - 160
USGS O-2060-01	Diuron-d6	42.8	P	40 - 150
USGS O-2060-01	Primidone-d5	71.8	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74500
Included Lab Sample IDs: 1873063, 1873064, 1873065

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

Reference Method: EPA 8321B
Run ID: A74502
Included Lab Sample IDs: 1873077, 1873078, 1873079, 1873080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	78.7	133	P/P	60 - 150

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74505
Included Lab Sample IDs: 1873057, 1873058, 1873059

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A74535

Included Lab Sample IDs: 1873060, 1873061, 1873062

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.3	P/P	90 - 110
Organic Carbon	96.4	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74581

Included Lab Sample IDs: 1873061, 1873062

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74583

Included Lab Sample IDs: 1873060, 1873062

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	99.0	P/P	90 - 110
Total-P	99.0	98.8	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A74598

Included Lab Sample IDs: 1873077, 1873078, 1873079, 1873080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	89.2	87.6	P/P	60 - 150
Carbamazepine	122		P	60 - 150
Carbamazepine	135	140	P/P	60 - 150
Diuron	112		P	60 - 150
Diuron	95.6	98.0	P/P	60 - 150
Fenuron	109	110	P/P	60 - 150
Fenuron	98.0		P	60 - 150
Fluridone	76.0	81.6	P/P	60 - 150
Fluridone	83.2		P	60 - 150
Imidacloprid	79.6		P	60 - 150
Imidacloprid	82.0	86.8	P/P	60 - 150
Linuron	83.6	86.4	P/P	60 - 150
Primidone	115	113	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74613

Included Lab Sample IDs: 1873061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74614

Included Lab Sample IDs: 1873060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	96.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A74621
Included Lab Sample IDs: 1873057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	107	103	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A74626
Included Lab Sample IDs: 1873058, 1873059

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

Reference Method: SM 4500 F-C-97
Run ID: A74626
Included Lab Sample IDs: 1873058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74627
Included Lab Sample IDs: 1873060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A74690
Included Lab Sample IDs: 1873057, 1873059

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74706
Included Lab Sample IDs: 1873060

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74728
Included Lab Sample IDs: 1873061, 1873062

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74736
Included Lab Sample IDs: 1873061, 1873062

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

* 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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.810	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	99.1	95.6			2.73
	Ammonia-N	95.6	99.4	97.6			1.33
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	103	103			0.172
	Kjeldahl Nitrogen	103	98.2	99.0			0.634
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	107	105			1.89
	NO ₂ NO ₃ -N	104	104	103			0.900
EPA 365.1 Rev. 2.0	Total-P	99.0	92.6	95.0			2.31
	Total-P	96.2	92.9	90.9			2.12
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	98.6	97.9			0.587
	O-Phosphate-P	99.8	96.1	98.6			1.81
EPA 8321B	Sucralose	83.2	92.7	119			19.3
SM 2320 B-97	Total Alkalinity	104				0.0674	
	Total Alkalinity	103				0.0568	
SM 2540 D-97	TSS					5.63	
SM 4500 F-C-97	Fluoride	99.2	97.4	98.1			0.473
	Fluoride	96.6	95.8	96.9			0.996
SM 5310 B-00	Organic Carbon	94.8	94.0	95.8			1.95
	Organic Carbon	97.4	91.9	91.4			0.505
USGS O-2060-01	Acetaminophen	73.2	71.2	64.8			9.41
	Carbamazepine	125	63.5	50.3			17.5
	Diuron	78.8	34.8	34.4			1.04
	Fenuron	98.8	45.6	47.6			4.29
	Fluridone	53.2	27.6	30.3			9.54
	Imidacloprid	85.2	94.0	89.2			5.24
	Linuron	65.6	36.1	29.1			21.6
	Primidone	89.2	53.6	53.6			0.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1873057, 1873058, 1873059
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1873060, 1873061, 1873062
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1873060, 1873061, 1873062
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1873060, 1873061, 1873062
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1873060, 1873061, 1873062
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1873063, 1873064, 1873065
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1873077, 1873078, 1873079, 1873080
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1873057, 1873058, 1873059
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1873057, 1873058, 1873059
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1873057, 1873058, 1873059

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1873060, 1873061, 1873062
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1873077, 1873078, 1873079, 1873080

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	02/15/2017			02/15/2017 16:53	Julie Michelle Frank	1873057, 1873058, 1873059
EPA 350.1 Rev. 2.0	02/15/2017			02/21/2017	Sofia Elnemr	1873060
	02/15/2017			02/24/2017	Sofia Elnemr	1873061, 1873062
EPA 351.2 Rev. 2.0	02/15/2017	02/17/2017	Adrian Shelby	02/20/2017	Virginia P. Brown	1873061, 1873062
	02/15/2017	02/17/2017	Adrian Shelby	02/21/2017	Joseph Suarez	1873060
EPA 353.2 Rev. 2.0	02/15/2017			02/24/2017	Beverly Y. Sanders	1873060
	02/15/2017			02/27/2017	Beverly Y. Sanders	1873061, 1873062
EPA 365.1 Rev. 2.0	02/15/2017	02/17/2017	Vijayalakshmi Reddy	02/20/2017	Lipi Saha	1873060, 1873062
	02/15/2017	02/17/2017	Vijayalakshmi Reddy	02/21/2017	Lipi Saha	1873061
EPA 365.1 Rev. 2.0 dissolved	02/15/2017			02/15/2017 15:06	Julia Storbeck	1873064
	02/15/2017			02/15/2017 15:09	Julia Storbeck	1873065
	02/15/2017			02/15/2017 15:10	Julia Storbeck	1873063
EPA 8321B	02/15/2017	02/15/2017	Mohammad Ghaffari	02/16/2017	Mohammad Ghaffari	1873077, 1873078, 1873079, 1873080
SM 2320 B-97	02/15/2017			02/21/2017	Dale L. Simmons	1873057, 1873058
	02/15/2017			02/22/2017	Dale L. Simmons	1873059
SM 2540 D-97	02/15/2017			02/17/2017	Yijie Li	1873057, 1873058, 1873059
SM 4500 F-C-97	02/15/2017			02/21/2017	Dale L. Simmons	1873058
	02/15/2017			02/23/2017	Dale L. Simmons	1873057, 1873059
SM 5310 B-00	02/15/2017			02/16/2017	Julie Michelle Frank	1873060, 1873061, 1873062
USGS O-2060-01	02/15/2017	02/20/2017	Hoor Shaik	02/21/2017	Juyoung Kim	1873077, 1873078, 1873079, 1873080
	02/15/2017	02/20/2017	Hoor Shaik	02/22/2017	Juyoung Kim	1873078