

Chemical Analysis Report

SW-DIST-2018-10-23-01

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

Event Description: **Snug Harbor, McKay, PP Basin, PP ditch**

Request ID: **RQ-2018-10-22-03**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

For additional information please contact

Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 09-NOV-2018 16:25



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: Snug Harbor-TP428

Collection Date/Time: 10/22/2018 10:07

Field ID: G1SW0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2034849	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P353562	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P354097	
	SM 2540 D-97	TSS	6	I	mg/L	P354024	
	SM 4500 F-C-97	Fluoride	0.92		mg F/L	P353818	
2034853	EPA 350.1 Rev. 2.0	Ammonia-N	0.068		mg N/L	P353952	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P343744	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P353598	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P353592	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P353944	
2034857	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.16		mg P/L	P353543	

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: Snug Harbor-TP428_dup

Collection Date/Time: 10/22/2018 10:10

Field ID: G1SW0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2034850	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P353562	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P354097	
	SM 2540 D-97	TSS	6	I	mg/L	P354023	
	SM 4500 F-C-97	Fluoride	0.91		mg F/L	P353818	
2034854	EPA 350.1 Rev. 2.0	Ammonia-N	0.072		mg N/L	P353952	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P343744	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P353598	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P353592	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P353795	
2034858	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.16		mg P/L	P353543	

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: FIELD BLANK_10/22/2018

Collection Date/Time: 10/22/2018 10:15

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2034851	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P353561	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P353897	
	SM 2540 D-97	TSS	2	U	mg/L	P354021	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353902	
2034855	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P353948	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P353746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P353772	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P353662	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P353790	
2034859	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P353542	

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: PP Ditch#1 @ 71st St

Collection Date/Time: 10/22/2018 11:00

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2034852	EPA 180.1 Rev. 2.0	Turbidity	4.9	A	NTU	P353561	
	SM 2320 B-97	Total Alkalinity	195		mg CaCO3/L	P353897	
	SM 2540 D-97	TSS	6	I	mg/L	P354021	
	SM 4500 F-C-97	Fluoride	0.37		mg F/L	P353902	
2034856	EPA 350.1 Rev. 2.0	Ammonia-N	0.086		mg N/L	P353952	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P343744	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.069		mg N/L	P353598	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P353592	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P353790	
2034860	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.060		mg P/L	P353543	

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: PP Ditch#1 @ 71st St

Collection Date/Time: 10/22/2018 11:00

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2034874	EPA 8321B	2,4-D	0.040		ug/L	P353357	
		Bentazon	0.033		ug/L	P353357	
		MCP	0.0072	I	ug/L	P353357	
		Triclopyr**	0.0040	U	ug/L	P353357	
		Imidacloprid	0.11		ug/L	P353357	MS
		Diuron	0.060		ug/L	P353357	
		Pyraclostrobin**	0.0020	U	ug/L	P353357	
		Primidone**	0.028		ug/L	P353357	
		Linuron	0.0040	U	ug/L	P353357	
		Acetaminophen**	0.0080	UJ	ug/L	P353357	CCV
		Fenuron	0.016	U	ug/L	P353357	
		Imazapyr**	0.18		ug/L	P353357	
		Carbamazepine**	0.0060		ug/L	P353357	
		Fluridone**	0.082		ug/L	P353357	
		Hydrocodone**	8.0E-04	U	ug/L	P353357	
		Naproxen**	0.0080	U	ug/L	P353357	
		Ibuprofen**	0.020	U	ug/L	P353357	MS
		Sucralose**	2.6		ug/L	P353544	
		Acesulfame K**	0.18	I	ug/L	P353544	

Ref. Method and Comment:

EPA 8321B: 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: P353561

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353562

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353948

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353952

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343744

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353746

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353598

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353772

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353592

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353662

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353542

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353543

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

Reference Method: EPA 8321B
Batch ID: P353357

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P353544

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P353897

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P354097

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

Reference Method: SM 2540 D-97
Batch ID: P354021

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P354023

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P354024

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P353818

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P353902

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P353790

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

Reference Method: SM 5310 B-00
Batch ID: P353795

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

Reference Method: SM 5310 B-00
Batch ID: P353944

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353948

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353952

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343744

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353746

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353598

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353772

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353592

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353662

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353542

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353543

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P353357

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	109		P	40 - 150
Acetaminophen	121		P	30 - 150
Bentazon	100		P	30 - 150
Carbamazepine	81.7		P	40 - 150
Diuron	86.2		P	40 - 150
Fenuron	117		P	40 - 150
Fluridone	102		P	40 - 150
Hydrocodone	116		P	40 - 150
Ibuprofen	44.1		P	40 - 150
Imazapyr	99.9		P	40 - 150
Imidacloprid	109		P	40 - 160
Linuron	80.4		P	40 - 150
MCPP	121		P	40 - 150
Naproxen	113		P	40 - 150
Primidone	131		P	40 - 150
Pyraclostrobin	76.4		P	40 - 150
Triclopyr	116		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P353544

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	84.0		P	40 - 150
Sucralose	83.5		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P353897

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P354097

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P353818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P353902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P353790

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P353795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P353944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034794	Ammonia-N	101	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034783	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034782	Kjeldahl Nitrogen	104	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034838	Kjeldahl Nitrogen	105	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353598

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034784	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034726	NO2NO3-N	99.4	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034784	Total-P	105	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353662

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034794	Total-P	99.0	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034798	O-Phosphate-P	97.9	98.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034860	O-Phosphate-P	98.5	98.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P353357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034644	2,4-D	124	127	P/P	40 - 150
2034644	Acetaminophen	127	134	P/P	30 - 150
2034644	Bentazon	38.5	37.6	P/P	30 - 150
2034644	Carbamazepine	69.7	68.6	P/P	40 - 150
2034644	Diuron	65.2	64.3	P/P	40 - 150
2034644	Fenuron	97.5	98.9	P/P	40 - 150
2034644	Fluridone	99.4	105	P/P	40 - 150
2034644	Hydrocodone	106	109	P/P	40 - 150
2034644	Ibuprofen	37.7	38.5	F/F	40 - 150
2034644	Imazapyr	102	123	P/P	40 - 150
2034644	Imidacloprid	178	174	F/F	40 - 160
2034644	Linuron	68.2	73.0	P/P	40 - 150
2034644	MCP	138	139	P/P	40 - 150
2034644	Naproxen	99.2	90.9	P/P	40 - 150
2034644	Primidone	106	112	P/P	40 - 150
2034644	Pyraclostrobin	84.5	88.0	P/P	40 - 150
2034644	Triclopyr	128	134	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P353544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034746	Acesulfame K	104	99.7	P/P	40 - 150
2034746	Sucralose	81.8	78.5	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P353818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034476	Fluoride	96.7	96.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P353902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034796	Fluoride	101	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P353790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034794	Organic Carbon	99.2	96.8	P/P	85 - 115

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P353795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034854	Organic Carbon	96.2	94.7	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P353944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2033515	Organic Carbon	93.6	94.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034852	Turbidity	2.05	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034921	Turbidity	1.69	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034794	Ammonia-N	1.11	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034783	Ammonia-N	1.17	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034782	Kjeldahl Nitrogen	3.60	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034838	Kjeldahl Nitrogen	2.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034784	NO2NO3-N	0.810	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034726	NO2NO3-N	1.38	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034784	Total-P	4.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034794	Total-P	0.338	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034798	O-Phosphate-P	0.712	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034860	O-Phosphate-P	0.126	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P353357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034644	2,4-D	1.86	Spike	P	0 - 30
2034644	Acetaminophen	5.94	Spike	P	0 - 30
2034644	Bentazon	2.20	Spike	P	0 - 30
2034644	Carbamazepine	1.61	Spike	P	0 - 30
2034644	Diuron	1.21	Spike	P	0 - 30
2034644	Fenuron	1.44	Spike	P	0 - 30
2034644	Fluridone	4.36	Spike	P	0 - 30
2034644	Hydrocodone	2.34	Spike	P	0 - 30
2034644	Ibuprofen	2.18	Spike	P	0 - 30
2034644	Imazapyr	4.09	Spike	P	0 - 30
2034644	Imidacloprid	2.08	Spike	P	0 - 30
2034644	Linuron	6.80	Spike	P	0 - 30
2034644	MCPP	1.16	Spike	P	0 - 30
2034644	Naproxen	8.77	Spike	P	0 - 30
2034644	Primidone	5.51	Spike	P	0 - 30
2034644	Pyraclostrobin	4.05	Spike	P	0 - 30
2034644	Triclopyr	4.57	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P353544

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

Reference Method: EPA 8321B
Batch ID: P353544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034746	Acesulfame K	3.97	Spike	P	0 - 30
2034746	Sucralose	3.21	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P353897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034796	Total Alkalinity	0.312	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P354097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035932	Total Alkalinity	0.133	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P353818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034476	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P353902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034796	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P353790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034794	Organic Carbon	1.61	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P353795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034854	Organic Carbon	1.39	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P353944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2033515	Organic Carbon	1.00	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: 2034874

Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	124	P	30 - 160
EPA 8321B	Acetaminophen-d4	129	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.7	P	30 - 160
EPA 8321B	Diuron-d6	67.7	P	30 - 160
EPA 8321B	Endothall-d6	85.0	P	40 - 160
EPA 8321B	Ibuprofen-d3	88.7	P	30 - 160
EPA 8321B	Primidone-d5	121	P	30 - 160
EPA 8321B	Sucralose-d6	115	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A87237

Included Lab Sample IDs: 2034857, 2034858, 2034859, 2034860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.8	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A87245

Included Lab Sample IDs: 2034849, 2034850, 2034851, 2034852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87255

Included Lab Sample IDs: 2034853, 2034854, 2034856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87276

Included Lab Sample IDs: 2034853, 2034854, 2034856

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87319

Included Lab Sample IDs: 2034855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87323

Included Lab Sample IDs: 2034855

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

Reference Method: EPA 8321B

Run ID: A87330

Included Lab Sample IDs: 2034874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	81.1	72.1	P/P	60 - 160

Reference Method: SM 5310 B-00

Run ID: A87335

Included Lab Sample IDs: 2034854, 2034855, 2034856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A87335

Included Lab Sample IDs: 2034854, 2034855, 2034856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	101	P/P	90 - 110
Organic Carbon	101	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A87344

Included Lab Sample IDs: 2034849, 2034850

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

Reference Method: EPA 8321B

Run ID: A87359

Included Lab Sample IDs: 2034874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	79.3	69.7	P/P	60 - 160

Reference Method: SM 2320 B-97

Run ID: A87382

Included Lab Sample IDs: 2034851, 2034852

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

Reference Method: SM 4500 F-C-97

Run ID: A87382

Included Lab Sample IDs: 2034851, 2034852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	101	P/P	90 - 110
Fluoride	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A87386

Included Lab Sample IDs: 2034853, 2034854, 2034856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	98.9	P/P	90 - 110
Kjeldahl Nitrogen	99.2	97.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A87403

Included Lab Sample IDs: 2034853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A87407

Included Lab Sample IDs: 2034853, 2034854, 2034855, 2034856

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

Reference Method: EPA 8321B

Run ID: A87443

Included Lab Sample IDs: 2034874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	134	136	P/P	50 - 150
Acetaminophen	118	189*	P/F	60 - 160
Bentazon	113	97.6	P/P	50 - 160
Carbamazepine	123	146	P/P	60 - 160
Diuron	146	145	P/P	60 - 150
Fenuron	115	141	P/P	60 - 150
Fluridone	126	119	P/P	60 - 160
Hydrocodone	132	142	P/P	60 - 150
Ibuprofen	77.7	75.2	P/P	50 - 160
Imazapyr	114	122	P/P	50 - 150
Imidacloprid	121	154	P/P	60 - 160
Linuron	130	138	P/P	60 - 150
MCPP	107	95.6	P/P	50 - 150
Naproxen	124	119	P/P	50 - 160
Primidone	142	148	P/P	60 - 160
Pyraclostrobin	125	125	P/P	60 - 150
Triclopyr	113	101	P/P	50 - 160

Reference Method: SM 2320 B-97

Run ID: A87470

Included Lab Sample IDs: 2034849, 2034850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	103	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.05	
	Turbidity					1.69	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	99.8			1.11
	Ammonia-N	104	105	106			1.17
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.3	104	99.3			3.60
	Kjeldahl Nitrogen	104	105	100			2.92
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	101	102			0.810
	NO ₂ NO ₃ -N	99.5	99.4	101			1.38
EPA 365.1 Rev. 2.0	Total-P	102	105	100			4.76
	Total-P	100	99.0	99.3			0.338
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	97.9	98.6			0.712
	O-Phosphate-P	98.9	98.5	98.3			0.126
EPA 8321B	2,4-D	109	124	127			1.86
	Acesulfame K	84.0	104	99.7			3.97
	Acetaminophen	121	127	134			5.94
	Bentazon	100	38.5	37.6			2.20
	Carbamazepine	81.7	69.7	68.6			1.61
	Diuron	86.2	65.2	64.3			1.21
	Fenuron	117	97.5	98.9			1.44
	Fluridone	102	99.4	105			4.36
	Hydrocodone	116	106	109			2.34
	Ibuprofen	44.1	37.7	38.5			2.18
	Imazapyr	99.9	102	123			4.09
	Imidacloprid	109	178	174			2.08
	Linuron	80.4	68.2	73.0			6.80
	MCPP	121	138	139			1.16
	Naproxen	113	99.2	90.9			8.77
	Primidone	131	106	112			5.51
	Pyraclostrobin	76.4	84.5	88.0			4.05
	Sucralose	83.5	81.8	78.5			3.21
	Triclopyr	116	128	134			4.57
SM 2320 B-97	Total Alkalinity	103				0.312	
	Total Alkalinity	102				0.133	
SM 4500 F-C-97	Fluoride	96.8	96.7	96.7			0.0
	Fluoride	99.1	101	100			0.470
SM 5310 B-00	Organic Carbon	97.2	99.2	96.8			1.61
	Organic Carbon	93.8	96.2	94.7			1.39
	Organic Carbon	93.2	93.6	94.6			1.00

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2034849, 2034850, 2034851, 2034852
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2034853, 2034854, 2034855, 2034856
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2034853, 2034854, 2034855, 2034856
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2034853, 2034854, 2034855, 2034856
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2034853, 2034854, 2034855, 2034856
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2034857, 2034858, 2034859, 2034860

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2034874
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2034849, 2034850, 2034851, 2034852
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2034849, 2034850, 2034851, 2034852
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2034849, 2034850, 2034851, 2034852
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2034853, 2034854, 2034855, 2034856

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	10/23/2018			10/23/2018 15:47	Megan Treadwell	2034849, 2034850, 2034851, 2034852
EPA 350.1 Rev. 2.0	10/23/2018			10/30/2018 12:41	Ping Hua	2034855
	10/23/2018			10/30/2018 14:25	Ping Hua	2034853
	10/23/2018			10/30/2018 14:26	Ping Hua	2034854
	10/23/2018			10/30/2018 14:28	Ping Hua	2034856
EPA 351.2 Rev. 2.0	10/23/2018	10/26/2018 12:00	Adrian Shelby	10/30/2018 11:06	Virginia P. Brown	2034853
	10/23/2018	10/26/2018 12:00	Adrian Shelby	10/30/2018 11:10	Virginia P. Brown	2034854
	10/23/2018	10/26/2018 12:00	Adrian Shelby	10/30/2018 11:12	Virginia P. Brown	2034856
	10/23/2018	10/26/2018 12:00	Adrian Shelby	10/30/2018 13:51	Virginia P. Brown	2034855
EPA 353.2 Rev. 2.0	10/23/2018			10/24/2018 14:02	Lauren Bottorf	2034853
	10/23/2018			10/24/2018 14:03	Lauren Bottorf	2034854
	10/23/2018			10/24/2018 14:06	Lauren Bottorf	2034856
	10/23/2018			10/26/2018 13:22	Lauren Bottorf	2034855
EPA 365.1 Rev. 2.0	10/23/2018	10/24/2018 13:05	Sima Feizi	10/25/2018 09:12	Beverly Y. Sanders	2034853
	10/23/2018	10/24/2018 13:05	Sima Feizi	10/25/2018 09:13	Beverly Y. Sanders	2034854
	10/23/2018	10/24/2018 13:05	Sima Feizi	10/25/2018 09:14	Beverly Y. Sanders	2034856
	10/23/2018	10/25/2018 12:50	Sima Feizi	10/26/2018 13:23	Beverly Y. Sanders	2034855
EPA 365.1 Rev. 2.0 dissolved	10/23/2018			10/23/2018 16:19	Julia Storbeck	2034860
	10/23/2018			10/23/2018 16:23	Julia Storbeck	2034857
	10/23/2018			10/23/2018 16:24	Julia Storbeck	2034858
	10/23/2018			10/23/2018 16:30	Julia Storbeck	2034859
EPA 8321B	10/23/2018	10/24/2018 10:00	Hoor Shaik	10/26/2018 08:55	Juyoung Kim	2034874
	10/23/2018	10/24/2018 10:00	Hoor Shaik	10/26/2018 22:14	Juyoung Kim	2034874
	10/23/2018	10/25/2018 13:00	Rebecca Ware	10/25/2018 15:23	Rebecca Ware	2034874
	10/23/2018	10/25/2018 13:00	Rebecca Ware	10/27/2018 14:20	Mohammad Ghaffari	2034874
SM 2320 B-97	10/23/2018			10/28/2018 23:53	Dale L. Simmons	2034851
	10/23/2018			10/29/2018 02:38	Dale L. Simmons	2034852
	10/23/2018			10/31/2018 00:53	Dale L. Simmons	2034849
	10/23/2018			10/31/2018 01:04	Dale L. Simmons	2034850
SM 2540 D-97	10/23/2018			10/25/2018 15:41	Yijie Li	2034849, 2034850, 2034851, 2034852
SM 4500 F-C-97	10/23/2018			10/26/2018 11:11	Dale L. Simmons	2034849
	10/23/2018			10/26/2018 11:14	Dale L. Simmons	2034850
	10/23/2018			10/28/2018 23:53	Dale L. Simmons	2034851
	10/23/2018			10/29/2018 02:38	Dale L. Simmons	2034852
SM 5310 B-00	10/23/2018			10/26/2018 04:51	Megan Treadwell	2034855
	10/23/2018			10/26/2018 05:03	Megan Treadwell	2034856
	10/23/2018			10/27/2018 03:32	Megan Treadwell	2034854
	10/23/2018			10/30/2018 19:34	Megan Treadwell	2034853