

Chemical Analysis Report

SW-DIST-2018-02-15-02

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

Event Description: **Snug, PP#1, BasinV, Mckay tidal**

Request ID: **RQ-2018-02-12-43**

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: Judy Ashton

For additional information please contact

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 12-MAR-2018 13:00



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: PINELLAS PARK DITCH #1

Collection Date/Time: 02/14/2018 11:48

Field ID: G5SW0134

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968110	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P340037	
	SM 2320 B-97	Total Alkalinity	217		mg CaCO3/L	P340528	
	SM 2540 D-97	TSS	3	I	mg/L	P340248	
	SM 4500 F-C-97	Fluoride	0.34		mg F/L	P340532	
1968111	EPA 350.1 Rev. 2.0	Ammonia-N	0.081		mg N/L	P340675	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P340264	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P340495	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P340413	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P340500	
1968112	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P340065	
1968127	EPA 8321B	2,4-D	4.8		ug/L	P340164	
		Sucralose**	3.5		ug/L	P340023	
		Bentazon	0.080		ug/L	P340164	MS
		MCP	0.0041	I	ug/L	P340164	MS
		Triclopyr**	0.0040	U	ug/L	P340164	
		Imidacloprid	0.050		ug/L	P340164	
		Diuron	0.029		ug/L	P340164	
		Primidone**	0.026		ug/L	P340164	
		Linuron	0.0040	U	ug/L	P340164	
		Acetaminophen**	0.0080	U	ug/L	P340164	
		Fenuron	0.0080	U	ug/L	P340164	
		Carbamazepine**	0.0055		ug/L	P340164	
		Fluridone**	0.14		ug/L	P340164	

Ref. Method and Comment:

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

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

Sample Location: SNUG HARBOR- TP428

Collection Date/Time: 02/14/2018 10:10

Field ID: G1SW0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968113	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P340037	
	SM 2320 B-97	Total Alkalinity	132		mg CaCO3/L	P340382	
	SM 2540 D-97	TSS	8	I	mg/L	P341048	
	SM 4500 F-C-97	Fluoride	0.98		mg F/L	P340384	
1968114	EPA 350.1 Rev. 2.0	Ammonia-N	0.099		mg N/L	P340676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P340263	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P430438	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P340399	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P340502	
1968115	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.089		mg P/L	P340067	

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: PINELLAS PT. BASIN TP455

Collection Date/Time: 02/14/2018 10:50

Field ID: G1SW0100 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968116	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P340037	
	SM 2320 B-97	Total Alkalinity	193		mg CaCO3/L	P340528	
	SM 2540 D-97	TSS	2	U	mg/L	P340248	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P340532	
1968117	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P340677	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P340264	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P340421	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P340413	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P340500	
1968118	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.19		mg P/L	P340065	
	dissolved						

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P340037

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P340675

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P340676

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P340677

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P340263

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P340264

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340421

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340495

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430438

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340399

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340413

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340065

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340067

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

Reference Method: EPA 8321B
Batch ID: P340023

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P340164

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	4.0E-04	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P340164

Component	Result	Code	Units
Diuron	0.0020	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	8.0E-04	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P340382

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

Reference Method: SM 2320 B-97
Batch ID: P340528

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

Reference Method: SM 2540 D-97
Batch ID: P340248

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P341048

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P340384

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P340532

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P340500

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
 Batch ID: P340502

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: P340675

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P340676

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P340677

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P340263

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P340264

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P340421

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: P340495

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: P430438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430438

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: P340399

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: P340413

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340065

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340067

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

Reference Method: EPA 8321B
Batch ID: P340023

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	97.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	89.1		P	40 - 150
Acetaminophen	113		P	30 - 150
Bentazon	128		P	30 - 150
Carbamazepine	104		P	40 - 150
Diuron	93.0		P	40 - 150
Fenuron	120		P	40 - 150
Fluridone	89.6		P	40 - 150
Imidacloprid	105		P	40 - 160
Linuron	100		P	40 - 150
MCPP	75.6		P	40 - 150
Primidone	120		P	40 - 150
Triclopyr	77.8		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P340382

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.3		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P340528

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P340384

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.9		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P340532

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P340500

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P340502

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968069	Ammonia-N	98.9	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967993	Ammonia-N	94.6	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968136	Ammonia-N	98.2	94.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968039	Kjeldahl Nitrogen	114	108	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968139	Kjeldahl Nitrogen	95.7	96.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967616	NO2NO3-N	98.9	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967814	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968042	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340399

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967991	Total-P	95.0	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968023	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967809	O-Phosphate-P	96.9	97.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968045	O-Phosphate-P	98.5	98.2	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P340023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967901	Sucralose	100	96.9	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968092	2,4-D	58.9	69.4	P/P	40 - 150
1968092	Acetaminophen	119	114	P/P	30 - 150
1968092	Bentazon	22.8	25.4	F/F	30 - 150
1968092	Carbamazepine	90.3	88.6	P/P	40 - 150
1968092	Diuron	72.4	66.6	P/P	40 - 150
1968092	Fenuron	95.9	92.7	P/P	40 - 150
1968092	Imidacloprid	106	102	P/P	40 - 160
1968092	Linuron	81.2	76.1	P/P	40 - 150
1968092	MCCP	31.4	29.8	F/F	40 - 150
1968092	Primidone	110	103	P/P	40 - 150
1968092	Triclopyr	51.1	54.0	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P340384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966819	Fluoride	92.4	93.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P340532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968135	Fluoride	95.1	95.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P340500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968030	Organic Carbon	102	102	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P340502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967992	Organic Carbon	101	100	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P340037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968096	Turbidity	0.643	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968069	Ammonia-N	0.175	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967993	Ammonia-N	6.24	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968136	Ammonia-N	3.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968039	Kjeldahl Nitrogen	4.03	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968139	Kjeldahl Nitrogen	0.660	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967616	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967814	NO2NO3-N	0.351	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968042	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967991	Total-P	0.844	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968023	Total-P	0.172	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967809	O-Phosphate-P	0.720	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968045	O-Phosphate-P	0.211	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P340023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967901	Sucralose	2.06	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P340164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968092	2,4-D	6.77	Spike	P	0 - 30
1968092	Acetaminophen	4.36	Spike	P	0 - 30
1968092	Bentazon	4.77	Spike	P	0 - 30
1968092	Carbamazepine	1.87	Spike	P	0 - 30
1968092	Diuron	8.36	Spike	P	0 - 30
1968092	Fenuron	3.33	Spike	P	0 - 30
1968092	Imidacloprid	1.30	Spike	P	0 - 30
1968092	Linuron	6.55	Spike	P	0 - 30
1968092	MCP	2.56	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P340164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968092	Primidone	6.48	Spike	P	0 - 30
1968092	Triclopyr	5.52	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P340382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966819	Total Alkalinity	0.167	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P340528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968135	Total Alkalinity	0.719	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P340384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966819	Fluoride	0.946	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P340532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968135	Fluoride	0.514	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P340500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968030	Organic Carbon	0.236	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P340502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967992	Organic Carbon	0.670	Spike	P	0 - 20

* 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

Quality Assurance Report Surrogates

Lab Sample ID: 1968127
Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	97.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	124	P	30 - 160
EPA 8321B	Carbamazepine-d10	90.8	P	30 - 160
EPA 8321B	Diuron-d6	79.4	P	30 - 160
EPA 8321B	Primidone-d5	109	P	30 - 160
EPA 8321B	Sucralose-d6	111	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82096
Included Lab Sample IDs: 1968110, 1968113, 1968116

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82105
Included Lab Sample IDs: 1968112, 1968115, 1968118

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

Reference Method: EPA 8321B
Run ID: A82169
Included Lab Sample IDs: 1968127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	99.4	96.9	P/P	60 - 150

Reference Method: SM 2320 B-97
Run ID: A82220
Included Lab Sample IDs: 1968113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A82220
Included Lab Sample IDs: 1968113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A82229
Included Lab Sample IDs: 1968117

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82229

Included Lab Sample IDs: 1968117

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82230

Included Lab Sample IDs: 1968111, 1968117

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82232

Included Lab Sample IDs: 1968114

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82237

Included Lab Sample IDs: 1968114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82255

Included Lab Sample IDs: 1968111, 1968114, 1968117

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.6	P/P	90 - 110
Total-P	99.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82256

Included Lab Sample IDs: 1968111

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

Reference Method: SM 5310 B-00

Run ID: A82257

Included Lab Sample IDs: 1968111, 1968114, 1968117

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.7	102	P/P	90 - 110
Organic Carbon	99.8	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82266

Included Lab Sample IDs: 1968110, 1968116

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

Reference Method: SM 2320 B-97

Run ID: A82266

Included Lab Sample IDs: 1968110, 1968116

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82266

Included Lab Sample IDs: 1968110, 1968116

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82285

Included Lab Sample IDs: 1968127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	86.8	90.0	P/P	50 - 150
Acetaminophen	109	105	P/P	60 - 150
Bentazon	121	98.9	P/P	50 - 150
Carbamazepine	105	101	P/P	60 - 150
Diuron	128	129	P/P	60 - 150
Fenuron	119	119	P/P	60 - 150
Fluridone	108	112	P/P	60 - 160
Imidacloprid	114	109	P/P	60 - 150
Linuron	121	133	P/P	60 - 150
MCPP	92.9	94.0	P/P	50 - 150
Primidone	118	111	P/P	60 - 150
Triclopyr	105	117	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82317

Included Lab Sample IDs: 1968111, 1968114, 1968117

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	95.5	99.9	P/P	90 - 110
Ammonia-N	98.4	95.5	P/P	90 - 110
Ammonia-N	99.9	102	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements. Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.643	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7	98.9 99.1			0.175
	Ammonia-N	97.0	94.6 102			6.24
	Ammonia-N	99.7	98.2 94.8			3.15
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	114 108			4.03

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	95.7	96.9			0.660
EPA 353.2 Rev. 2.0	NO2NO3-N	104	98.9	98.9			0.0
	NO2NO3-N	104	105	105			0.351
	NO2NO3-N	104	101				0.0
EPA 365.1 Rev. 2.0	Total-P	102	95.0	94.2			0.844
	Total-P	103	104	104			0.172
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	96.9	97.6			0.720
	O-Phosphate-P	102	98.5	98.2			0.211
EPA 8321B	2,4-D	89.1	58.9	69.4			6.77
	Acetaminophen	113	119	114			4.36
	Bentazon	128	22.8	25.4			4.77
	Carbamazepine	104	90.3	88.6			1.87
	Diuron	93.0	72.4	66.6			8.36
	Fenuron	120	95.9	92.7			3.33
	Fluridone	89.6					
	Imidacloprid	105	106	102			1.30
	Linuron	100	81.2	76.1			6.55
	MCPP	75.6	31.4	29.8			2.56
	Primidone	120	110	103			6.48
	Sucralose	97.4	100	96.9			2.06
	Triclopyr	77.8	51.1	54.0			5.52
SM 2320 B-97	Total Alkalinity	99.3				0.167	
	Total Alkalinity	99.4				0.719	
SM 4500 F-C-97	Fluoride	93.9	92.4	93.7			0.946
	Fluoride	96.3	95.1	95.7			0.514
SM 5310 B-00	Organic Carbon	99.3	102	102			0.236
	Organic Carbon	99.6	101	100			0.670

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1968110, 1968113, 1968116
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1968111, 1968114, 1968117
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1968111, 1968114, 1968117
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1968111, 1968114, 1968117
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1968111, 1968114, 1968117
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1968112, 1968115, 1968118
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1968127
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1968127
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1968110, 1968113, 1968116
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1968110, 1968113, 1968116
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1968110, 1968113, 1968116
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1968111, 1968114, 1968117

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	02/15/2018			02/15/2018 16:53	Julia Storbeck	1968110, 1968113, 1968116
EPA 350.1 Rev. 2.0	02/15/2018			02/27/2018	Ping Hua	1968111, 1968114, 1968117
EPA 351.2 Rev. 2.0	02/15/2018	02/20/2018	Adrian Shelby	02/22/2018	Joseph Suarez	1968111, 1968114, 1968117
EPA 353.2 Rev. 2.0	02/15/2018			02/22/2018	Beverly Y. Sanders	1968114
	02/15/2018			02/22/2018	Lauren Bottorf	1968117
	02/15/2018			02/23/2018	Lauren Bottorf	1968111
EPA 365.1 Rev. 2.0	02/15/2018	02/22/2018	Sima Feizi	02/23/2018	Lipi Saha	1968111, 1968114, 1968117
EPA 365.1 Rev. 2.0 dissolved	02/15/2018			02/15/2018 16:47	Megan Treadwell	1968112
	02/15/2018			02/15/2018 17:00	Megan Treadwell	1968115
	02/15/2018			02/15/2018 17:01	Megan Treadwell	1968118
EPA 8321B	02/15/2018	02/16/2018	Julie Michelle Frank	02/17/2018	Juyoung Kim	1968127
	02/15/2018	02/20/2018	Hoor Shaik	02/21/2018	Julie Michelle Frank	1968127
	02/15/2018	02/20/2018	Hoor Shaik	02/22/2018	Julie Michelle Frank	1968127
SM 2320 B-97	02/15/2018			02/22/2018	Dale L. Simmons	1968113
	02/15/2018			02/24/2018	Dale L. Simmons	1968110, 1968116
SM 2540 D-97	02/15/2018			02/16/2018	DeAsia Armster	1968110, 1968116
	02/15/2018			02/21/2018	DeAsia Armster	1968113
SM 4500 F-C-97	02/15/2018			02/21/2018	Dale L. Simmons	1968113
	02/15/2018			02/24/2018	Dale L. Simmons	1968110, 1968116
SM 5310 B-00	02/15/2018			02/22/2018	Megan Treadwell	1968111
	02/15/2018			02/23/2018	Megan Treadwell	1968114, 1968117