

Chemical Analysis Report

CEN-DIST-2018-07-03-01

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

Event Description: **Crane Strand x2 / CS Drain X2 + D&B**
Request ID: **RQ-2018-07-02-28**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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3319 Maguire Blvd., Suite 232
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Date Certified: 27-JUL-2018 11:49



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Crane Strand Drain @ 100m US of University Blvd

Collection Date/Time: 07/02/2018 10:52

Field ID: G2CE0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004590	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P347944	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P348630	
		Sulfate	10		mg SO4/L	P348633	
	SM 2120 B	Color (true)	46	A	PCU	P347936	
	SM 2320 B-97	Total Alkalinity	71		mg CaCO3/L	P348125	
	SM 2540 C-97	TDS	131		mg/L	P348461	
	SM 2540 D-97	TSS	4	I	mg/L	P348440	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P348126	
2004592	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P348356	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P348141	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P348200	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P348078	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P348374	
2004594	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.058		mg P/L	P347989	
2004617	EPA 8321B	2,4-D	0.029		ug/L	P347840	
		Bentazon	0.032		ug/L	P347840	
		MCP	0.0049	I	ug/L	P347840	
		Triclopyr**	0.0040	U	ug/L	P347840	
		Imidacloprid	0.045		ug/L	P347840	
		Diuron	0.0087		ug/L	P347840	
		Pyraclostrobin**	0.0020	U	ug/L	P347840	
		Primidone**	0.0040	U	ug/L	P347840	
		Linuron	0.0040	U	ug/L	P347840	
		Acetaminophen**	0.0080	U	ug/L	P347840	
		Fenuron	0.016	U	ug/L	P347840	
		Imazapyr**	0.17		ug/L	P347840	
		Carbamazepine**	4.0E-04	U	ug/L	P347840	
		Fluridone**	0.078		ug/L	P347840	
		Hydrocodone**	8.0E-04	U	ug/L	P347840	
		Sucralose**	0.30		ug/L	P347901	
2004621	EPA 200.7 Rev. 4.4	Calcium	33.1		mg/L	P347983	
		Iron	370		ug/L	P347983	
		Magnesium	2.95		mg/L	P347983	
		Potassium	2.0		mg/L	P347983	
		Sodium	10.6		mg/L	P347983	
		Zinc	5.4	I	ug/L	P347983	
		Arsenic	0.76		ug/L	P347983	
	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P347983	
		Chromium	0.67	I	ug/L	P347983	
		Copper	2.61		ug/L	P347983	
		Lead	0.43		ug/L	P347983	
		Nickel	0.48	I	ug/L	P347983	

Field ID: G2CE0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004621	EPA 200.8 Rev. 5.4	Silver	0.010	U	ug/L	P347983	

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: Crane Strand Drain @ 100m US of University Blvd

Collection Date/Time: 07/02/2018 11:00

Field ID: G2CE0077_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004596	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P347944	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P348630	
		Sulfate	10		mg SO4/L	P348633	
	SM 2120 B	Color (true)	45		PCU	P347936	
	SM 2320 B-97	Total Alkalinity	71		mg CaCO3/L	P348125	
	SM 2540 C-97	TDS	125		mg/L	P348461	
	SM 2540 D-97	TSS	4	I	mg/L	P348440	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P348126	
2004597	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P348356	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P348141	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P348200	
	EPA 365.1 Rev. 2.0	Total-P	0.092		mg P/L	P348079	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P348374	
2004598	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.060		mg P/L	P347989	
2004619	EPA 8321B	2,4-D	0.031		ug/L	P347840	
		Bentazon	0.035		ug/L	P347840	
		MCP	0.0057	I	ug/L	P347840	
		Triclopyr**	0.0040	U	ug/L	P347840	
		Imidacloprid	0.048		ug/L	P347840	
		Diuron	0.0094		ug/L	P347840	
		Pyraclostrobin**	0.0020	U	ug/L	P347840	
		Primidone**	0.0040	U	ug/L	P347840	
		Linuron	0.0040	U	ug/L	P347840	
		Acetaminophen**	0.0080	U	ug/L	P347840	
		Fenuron	0.016	U	ug/L	P347840	
		Imazapyr**	0.18		ug/L	P347840	
		Carbamazepine**	4.0E-04	U	ug/L	P347840	
		Fluridone**	0.081		ug/L	P347840	
		Hydrocodone**	8.0E-04	U	ug/L	P347840	
		Sucralose**	0.32		ug/L	P347901	
2004623	EPA 200.7 Rev. 4.4	Calcium	32.3		mg/L	P347983	
		Iron	360		ug/L	P347983	
		Magnesium	2.85		mg/L	P347983	
		Potassium	1.9		mg/L	P347983	
		Sodium	10.3		mg/L	P347983	
		Zinc	5.3	I	ug/L	P347983	
		Arsenic	0.73		ug/L	P347983	
	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P347983	
		Chromium	0.66	I	ug/L	P347983	
		Copper	2.59		ug/L	P347983	
		Lead	0.43		ug/L	P347983	
		Nickel	0.33	I	ug/L	P347983	

Field ID: G2CE0077_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004623	EPA 200.8 Rev. 5.4	Silver	0.010	U	ug/L	P347983	

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: Washroom

Collection Date/Time: 07/02/2018 11:08

Field ID: Blank_07022018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004599	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P347945	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P348630	
		Sulfate	0.20	U	mg SO4/L	P348633	
	SM 2120 B	Color (true)	2.5	U	PCU	P347937	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P348125	
	SM 2540 C-97	TDS	15	U	mg/L	P348461	
	SM 2540 D-97	TSS	2	U	mg/L	P348440	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P348126	
2004600	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P348356	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P348141	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P348201	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P348079	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P348374	
2004601	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P347990	
2004620	EPA 8321B	2,4-D	0.0020	U	ug/L	P347840	
		Bentazon	8.0E-04	U	ug/L	P347840	
		MCP	0.0020	U	ug/L	P347840	
		Triclopyr**	0.0040	U	ug/L	P347840	
		Imidacloprid	0.0020	U	ug/L	P347840	
		Diuron	0.0020	U	ug/L	P347840	
		Pyraclostrobin**	0.0020	U	ug/L	P347840	
		Primidone**	0.0040	U	ug/L	P347840	
		Linuron	0.0040	U	ug/L	P347840	
		Acetaminophen**	0.0080	U	ug/L	P347840	
		Fenuron	0.016	U	ug/L	P347840	
		Imazapyr**	0.0040	U	ug/L	P347840	
		Carbamazepine**	4.0E-04	U	ug/L	P347840	
		Fluridone**	4.0E-04	U	ug/L	P347840	
		Hydrocodone**	8.0E-04	U	ug/L	P347840	
		Sucralose**	0.010	U	ug/L	P347901	
2004624	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P347983	
		Iron	30	U	ug/L	P347983	
		Magnesium	0.040	U	mg/L	P347983	
		Potassium	0.30	U	mg/L	P347983	
		Sodium	0.50	U	mg/L	P347983	
		Zinc	5.0	U	ug/L	P347983	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P347983	
		Cadmium	0.020	U	ug/L	P347983	
		Chromium	0.40	U	ug/L	P347983	
		Copper	0.20	U	ug/L	P347983	
		Lead	0.050	U	ug/L	P347983	
		Nickel	0.20	U	ug/L	P347983	
		Silver	0.010	U	ug/L	P347983	

Matrix: W-FIELD-BK

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample was reanalyzed out of holding time due to analytical difficulties.

Sample Location: Crane Strand Drain @ 250m N of University Blvd

Collection Date/Time: 07/02/2018 11:20

Field ID: G2CE0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004591	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P347944	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P348630	
		Sulfate	10		mg SO4/L	P348633	
	SM 2120 B	Color (true)	46		PCU	P347936	
	SM 2320 B-97	Total Alkalinity	71		mg CaCO3/L	P348125	
	SM 2540 C-97	TDS	132	A	mg/L	P348461	
	SM 2540 D-97	TSS	4	IA	mg/L	P348440	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P348126	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P348356	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P348141	
2004593	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P348201	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P348079	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P348374	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P347989	
	EPA 8321B	2,4-D	0.029		ug/L	P347840	
2004618		Bentazon	0.031		ug/L	P347840	
		MCP	0.0053	I	ug/L	P347840	
		Triclopyr**	0.0040	U	ug/L	P347840	
		Imidacloprid	0.049		ug/L	P347840	
		Diuron	0.0096		ug/L	P347840	
		Pyraclostrobin**	0.0020	U	ug/L	P347840	
		Primidone**	0.0040	U	ug/L	P347840	
		Linuron	0.0040	U	ug/L	P347840	
		Acetaminophen**	0.0080	U	ug/L	P347840	
		Fenuron	0.016	U	ug/L	P347840	
		Imazapyr**	0.18		ug/L	P347840	
		Carbamazepine**	4.0E-04	U	ug/L	P347840	
		Fluridone**	0.084		ug/L	P347840	
		Hydrocodone**	8.0E-04	U	ug/L	P347840	
		Sucralose**	0.37		ug/L	P347901	
	EPA 200.7 Rev. 4.4	Calcium	32.8		mg/L	P347983	
		Iron	370		ug/L	P347983	
		Magnesium	2.96		mg/L	P347983	
		Potassium	2.0		mg/L	P347983	
2004622		Sodium	10.7		mg/L	P347983	
		Zinc	5.4	I	ug/L	P347983	
	EPA 200.8 Rev. 5.4	Arsenic	0.78		ug/L	P347983	
		Cadmium	0.020	U	ug/L	P347983	
		Chromium	0.66	I	ug/L	P347983	
		Copper	2.69		ug/L	P347983	
		Lead	0.44		ug/L	P347983	
		Nickel	0.34	I	ug/L	P347983	

Field ID: G2CE0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004622	EPA 200.8 Rev. 5.4	Silver	0.010	U	ug/L	P347983	

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: P347944

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347945

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P347983

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P347983

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348630

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348633

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348356

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348141

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348200

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348201

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348079

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347989

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347990

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

Reference Method: EPA 8321B
Batch ID: P347840

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
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
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0042	I	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P347840

Component	Result	Code	Units
Linuron	0.0040	U	ug/L
MCPP	0.0020	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: P347901

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P347936

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P347937

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P348125

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

Reference Method: SM 2540 C-97
Batch ID: P348461

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P348440

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P348126

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P348374

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P348374

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P347983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	104		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	99.1		P	85 - 115
Sodium	97.7		P	85 - 115
Zinc	95.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P347983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	95.4		P	85 - 115
Cadmium	96.9		P	85 - 115
Chromium	93.9		P	85 - 115
Copper	93.7		P	85 - 115
Lead	93.0		P	85 - 115
Nickel	96.1		P	85 - 115
Silver	111		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P348630

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P348633

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P348356

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P348141

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: P348200

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348201

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348079

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347990

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

Reference Method: EPA 8321B
Batch ID: P347840

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	59.9		P	40 - 150
Acetaminophen	66.2		P	30 - 150
Bentazon	78.6		P	30 - 150
Carbamazepine	78.3		P	40 - 150
Diuron	74.9		P	40 - 150
Fenuron	91.0		P	40 - 150
Fluridone	90.2		P	40 - 150
Hydrocodone	79.6		P	40 - 150
Imazapyr	65.1		P	40 - 150
Imidacloprid	74.8		P	40 - 160
Linuron	53.2		P	40 - 150
MCP	110		P	40 - 150
Primidone	68.0		P	40 - 150
Pyraclostrobin	81.7		P	40 - 150
Triclopyr	95.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P347901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	96.2		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P347936

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

Reference Method: SM 2120 B
Batch ID: P347937

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P348125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P348126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P348374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P347983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004659	Calcium	109		P	80 - 120
2004659	Iron	104	106	P/P	80 - 120
2004659	Magnesium	107	109	P/P	80 - 120
2004659	Potassium	99.2	102	P/P	80 - 120
2004659	Sodium	95.8	98.1	P/P	80 - 120
2004659	Zinc	101	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P347983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004659	Arsenic	95.4	94.5	P/P	80 - 120
2004659	Cadmium	99.2	98.0	P/P	80 - 120
2004659	Chromium	94.9	95.4	P/P	80 - 120
2004659	Copper	92.9	93.1	P/P	80 - 120
2004659	Lead	94.1	92.6	P/P	80 - 120
2004659	Nickel	94.5	95.0	P/P	80 - 120
2004659	Silver	110	110	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004430	Chloride	105	97.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004430	Sulfate	98.4	96.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348356

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004651	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004593	Kjeldahl Nitrogen	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004505	NO2NO3-N	98.8	98.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P348201

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004593	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P348078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004435	Total-P	94.8	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P348079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004593	Total-P	100	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P347989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004507	O-Phosphate-P	97.3	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P347990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004638	O-Phosphate-P	91.6	93.1	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P347840

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004656	2,4-D	95.6	78.7	P/P	40 - 150
2004656	Acetaminophen	75.6	78.1	P/P	30 - 150
2004656	Bentazon	65.4	59.8	P/P	30 - 150
2004656	Carbamazepine	76.3	74.5	P/P	40 - 150
2004656	Diuron	71.8	64.3	P/P	40 - 150
2004656	Fenuron	83.1	82.3	P/P	40 - 150
2004656	Fluridone	89.7	78.2	P/P	40 - 150
2004656	Hydrocodone	88.7	89.2	P/P	40 - 150
2004656	Imazapyr	95.8	96.7	P/P	40 - 150
2004656	Imidacloprid	129	137	P/P	40 - 160
2004656	Linuron	54.1	41.2	P/P	40 - 150
2004656	MCCP	150	130	P/P	40 - 150
2004656	Primidone	76.5	79.5	P/P	40 - 150
2004656	Pyraclostrobin	83.4	79.1	P/P	40 - 150
2004656	Triclopyr	143	129	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P347901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004656	Sucralose	71.0	76.1	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P348126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004538	Fluoride	98.0	98.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P348374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004267	Organic Carbon	97.3	98.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004503	Turbidity	2.59	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004634	Turbidity	3.32	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P347983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004659	Calcium	1.31	Spike	P	0 - 20
2004659	Iron	1.62	Spike	P	0 - 20
2004659	Magnesium	1.42	Spike	P	0 - 20
2004659	Potassium	2.39	Spike	P	0 - 20
2004659	Sodium	1.19	Spike	P	0 - 20
2004659	Zinc	0.258	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P347983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004659	Arsenic	0.905	Spike	P	0 - 20
2004659	Cadmium	1.21	Spike	P	0 - 20
2004659	Chromium	0.554	Spike	P	0 - 20
2004659	Copper	0.219	Spike	P	0 - 20
2004659	Lead	1.63	Spike	P	0 - 20
2004659	Nickel	0.523	Spike	P	0 - 20
2004659	Silver	0.220	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004430	Chloride	5.62	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004430	Sulfate	1.70	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348356

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004651	Ammonia-N	1.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004593	Kjeldahl Nitrogen	0.735	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004505	NO2NO3-N	0.464	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004593	NO2NO3-N	0.240	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004435	Total-P	2.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004593	Total-P	4.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004507	O-Phosphate-P	0.879	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004638	O-Phosphate-P	1.45	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P347840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004656	2,4-D	16.9	Spike	P	0 - 30
2004656	Acetaminophen	3.18	Spike	P	0 - 30
2004656	Bentazon	8.09	Spike	P	0 - 30
2004656	Carbamazepine	2.27	Spike	P	0 - 30
2004656	Diuron	11.0	Spike	P	0 - 30
2004656	Fenuron	0.956	Spike	P	0 - 30
2004656	Fluridone	13.6	Spike	P	0 - 30
2004656	Hydrocodone	0.644	Spike	P	0 - 30
2004656	Imazapyr	0.858	Spike	P	0 - 30
2004656	Imidacloprid	4.51	Spike	P	0 - 30
2004656	Linuron	27.3	Spike	P	0 - 30
2004656	MCP	13.7	Spike	P	0 - 30
2004656	Primidone	3.96	Spike	P	0 - 30
2004656	Pyraclostrobin	5.25	Spike	P	0 - 30
2004656	Triclopyr	10.7	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P347901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004656	Sucralose	6.92	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P347936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004590	Color (true)	0.305	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P347937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004650	Color (true)	1.87	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P348125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004538	Total Alkalinity	0.252	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P348461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004591	TDS	7.58	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P348126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004538	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P348374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004267	Organic Carbon	0.804	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

Lab Sample ID: 2004617
Field Sample ID: G2CE0077

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	120	P	30 - 160
EPA 8321B	Acetaminophen-d4	63.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	64.9	P	30 - 160
EPA 8321B	Diuron-d6	54.9	P	30 - 160
EPA 8321B	Primidone-d5	69.1	P	30 - 160
EPA 8321B	Sucralose-d6	65.9	P	40 - 160

Lab Sample ID: 2004618
Field Sample ID: G2CE0157

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	110	P	30 - 160
EPA 8321B	Acetaminophen-d4	70.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.4	P	30 - 160
EPA 8321B	Diuron-d6	61.2	P	30 - 160
EPA 8321B	Primidone-d5	69.4	P	30 - 160
EPA 8321B	Sucralose-d6	63.7	P	40 - 160

Lab Sample ID: 2004619
Field Sample ID: G2CE0077_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	117	P	30 - 160
EPA 8321B	Acetaminophen-d4	68.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	66.1	P	30 - 160
EPA 8321B	Diuron-d6	56.4	P	30 - 160
EPA 8321B	Primidone-d5	65.6	P	30 - 160
EPA 8321B	Sucralose-d6	63.1	P	40 - 160

Lab Sample ID: 2004620
Field Sample ID: Blank_07022018

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	80.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	57.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	72.8	P	30 - 160
EPA 8321B	Diuron-d6	65.3	P	30 - 160
EPA 8321B	Primidone-d5	57.3	P	30 - 160
EPA 8321B	Sucralose-d6	69.0	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A85012

Included Lab Sample IDs: 2004590, 2004591, 2004596, 2004599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	101	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85014

Included Lab Sample IDs: 2004590, 2004591, 2004596, 2004599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105
Turbidity	99.5	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85036

Included Lab Sample IDs: 2004594, 2004595, 2004598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.5	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85039

Included Lab Sample IDs: 2004601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	94.3	91.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A85064

Included Lab Sample IDs: 2004617, 2004618, 2004619, 2004620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	80.7	81.2	P/P	60 - 150

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A85067

Included Lab Sample IDs: 2004621, 2004622, 2004623, 2004624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	97.3	96.3	P/P	90 - 110
Cadmium	95.8	95.5	P/P	90 - 110
Chromium	95.0	96.2	P/P	90 - 110
Copper	97.3	96.6	P/P	90 - 110
Lead	96.2	95.8	P/P	90 - 110
Nickel	96.5	96.9	P/P	90 - 110
Silver	97.2	96.7	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A85082

Included Lab Sample IDs: 2004621, 2004622, 2004623, 2004624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	104	105	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A85082

Included Lab Sample IDs: 2004621, 2004622, 2004623, 2004624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	105	106	P/P	90 - 110
Iron	104	105	P/P	90 - 110
Iron	105	104	P/P	95 - 105
Magnesium	104	105	P/P	90 - 110
Magnesium	105	104	P/P	95 - 105
Potassium	101	101	P/P	95 - 105
Potassium	101	100	P/P	90 - 110
Sodium	101	99.6	P/P	95 - 105
Sodium	99.6	98.5	P/P	90 - 110
Zinc	102	104	P/P	95 - 105
Zinc	104	103	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A85102

Included Lab Sample IDs: 2004617, 2004618, 2004619, 2004620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.1	84.1	P/P	50 - 150
Acetaminophen	73.2	71.3	P/P	60 - 160
Bentazon	119	117	P/P	50 - 150
Carbamazepine	85.5	87.6	P/P	60 - 160
Diuron	91.7	86.3	P/P	60 - 150
Fenuron	88.1	87.6	P/P	60 - 150
Fluridone	105	109	P/P	60 - 160
Hydrocodone	81.3	80.5	P/P	60 - 150
Imazapyr	63.5	66.0	P/P	50 - 150
Imidacloprid	70.6	74.8	P/P	60 - 150
Linuron	80.2	78.2	P/P	60 - 150
MCP	87.6	95.8	P/P	50 - 150
Primidone	62.9	73.8	P/P	60 - 150
Pyraclostrobin	96.9	94.9	P/P	60 - 150
Triclopyr	86.5	76.4	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85103

Included Lab Sample IDs: 2004592, 2004593, 2004597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.8	98.4	P/P	90 - 110
Total-P	98.4	97.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A85107

Included Lab Sample IDs: 2004590, 2004591, 2004596, 2004599

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A85107

Included Lab Sample IDs: 2004590, 2004591, 2004596, 2004599

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85110

Included Lab Sample IDs: 2004600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A85130

Included Lab Sample IDs: 2004592, 2004593, 2004597, 2004600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A85187

Included Lab Sample IDs: 2004590, 2004591, 2004596, 2004599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	99.7	P/P	90 - 110
Sulfate	98.1	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85188

Included Lab Sample IDs: 2004592, 2004593, 2004597, 2004600

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85189

Included Lab Sample IDs: 2004592, 2004593, 2004597, 2004600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A85195

Included Lab Sample IDs: 2004592, 2004593, 2004597, 2004600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	98.6	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				2.59	
	Turbidity				3.32	
EPA 200.7 Rev. 4.4	Calcium	107	109			1.31
	Iron	104	104 106			1.62
	Magnesium	106	107 109			1.42
	Potassium	99.1	99.2 102			2.39
	Sodium	97.7	95.8 98.1			1.19
	Zinc	95.8	101 101			0.258
EPA 200.8 Rev. 5.4	Arsenic	95.4	95.4 94.5			0.905
	Cadmium	96.9	99.2 98.0			1.21
	Chromium	93.9	94.9 95.4			0.554
	Copper	93.7	92.9 93.1			0.219
	Lead	93.0	94.1 92.6			1.63
	Nickel	96.1	94.5 95.0			0.523
	Silver	111	110 110			0.220
EPA 300.0 Rev. 2.1	Chloride	107	105 97.1			5.62
	Sulfate	104	98.4 96.6			1.70
EPA 350.1 Rev. 2.0	Ammonia-N	101	102 100			1.05
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	102 103			0.735
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.8 98.3			0.464
	NO2NO3-N	100	101 102			0.240
EPA 365.1 Rev. 2.0	Total-P	98.1	94.8 97.4			2.63
	Total-P	98.8	100 95.4			4.11
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.3	97.3 98.6			0.879
	O-Phosphate-P	100	91.6 93.1			1.45
EPA 8321B	2,4-D	59.9	95.6 78.7			16.9
	Acetaminophen	66.2	75.6 78.1			3.18
	Bentazon	78.6	65.4 59.8			8.09
	Carbamazepine	78.3	76.3 74.5			2.27
	Diuron	74.9	71.8 64.3			11.0
	Fenuron	91.0	83.1 82.3			0.956
	Fluridone	90.2	89.7 78.2			13.6
	Hydrocodone	79.6	88.7 89.2			0.644
	Imazapyr	65.1	95.8 96.7			0.858
	Imidacloprid	74.8	129 137			4.51
	Linuron	53.2	54.1 41.2			27.3
	MCPP	110	150 130			13.7
	Primidone	68.0	76.5 79.5			3.96
	Pyraclostrobin	81.7	83.4 79.1			5.25
	Sucralose	96.2	71.0 76.1			6.92
	Triclopyr	95.4	143 129			10.7
SM 2120 B	Color (true)	99.5			0.305	
	Color (true)	99.2			1.87	
SM 2320 B-97	Total Alkalinity	104			0.252	
SM 2540 C-97	TDS				7.58	
SM 4500 F-C-97	Fluoride	99.3	98.0 98.0			0.0
SM 5310 B-00	Organic Carbon	97.0	97.3 98.8			0.804

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2004590, 2004591, 2004596, 2004599

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2004621, 2004622, 2004623, 2004624
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2004621, 2004622, 2004623, 2004624
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2004590, 2004591, 2004596, 2004599
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2004590, 2004591, 2004596, 2004599
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2004592, 2004593, 2004597, 2004600
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2004592, 2004593, 2004597, 2004600
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2004592, 2004593, 2004597, 2004600
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2004592, 2004593, 2004597, 2004600
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2004594, 2004595, 2004598, 2004601
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2004617, 2004618, 2004619, 2004620
SM 2120 B / E31780	True Color measured at 450 nm	2004590, 2004591, 2004596, 2004599
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2004590, 2004591, 2004596, 2004599
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2004590, 2004591, 2004596, 2004599
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2004590, 2004591, 2004596, 2004599
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2004590, 2004591, 2004596, 2004599
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2004592, 2004593, 2004597, 2004600

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	07/03/2018			07/03/2018 14:00	William L. Brown IV	2004590, 2004591, 2004596, 2004599
EPA 200.7 Rev. 4.4	07/03/2018	07/05/2018 14:50	Elliott D. Healy	07/09/2018 10:57	Betina Topolski	2004624
	07/03/2018	07/05/2018 14:50	Elliott D. Healy	07/09/2018 12:03	Betina Topolski	2004621
	07/03/2018	07/05/2018 14:50	Elliott D. Healy	07/09/2018 12:11	Betina Topolski	2004622
	07/03/2018	07/05/2018 14:50	Elliott D. Healy	07/09/2018 12:17	Betina Topolski	2004623
EPA 200.8 Rev. 5.4	07/03/2018	07/05/2018 14:50	Elliott D. Healy	07/06/2018 18:00	Robert K Palmer	2004624
	07/03/2018	07/05/2018 14:50	Elliott D. Healy	07/06/2018 18:37	Robert K Palmer	2004621
	07/03/2018	07/05/2018 14:50	Elliott D. Healy	07/06/2018 18:47	Robert K Palmer	2004622
	07/03/2018	07/05/2018 14:50	Elliott D. Healy	07/06/2018 18:56	Robert K Palmer	2004623
EPA 300.0 Rev. 2.1	07/03/2018			07/13/2018 22:48	Lipi Saha	2004590
	07/03/2018			07/13/2018 23:01	Lipi Saha	2004591
	07/03/2018			07/13/2018 23:13	Lipi Saha	2004596
	07/03/2018			07/13/2018 23:25	Lipi Saha	2004599
EPA 350.1 Rev. 2.0	07/03/2018			07/12/2018 12:17	Ping Hua	2004592
	07/03/2018			07/12/2018 12:28	Ping Hua	2004593
	07/03/2018			07/12/2018 12:29	Ping Hua	2004597
	07/03/2018			07/12/2018 12:40	Ping Hua	2004600
EPA 351.2 Rev. 2.0	07/03/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:40	Joseph Suarez	2004592
	07/03/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:42	Joseph Suarez	2004593
	07/03/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:46	Joseph Suarez	2004597
	07/03/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:48	Joseph Suarez	2004600
EPA 353.2 Rev. 2.0	07/03/2018			07/09/2018 13:11	Lauren Bottorf	2004592
	07/03/2018			07/09/2018 13:12	Lauren Bottorf	2004597
	07/03/2018			07/09/2018 13:23	Lauren Bottorf	2004593
	07/03/2018			07/09/2018 13:29	Lauren Bottorf	2004600
EPA 365.1 Rev. 2.0	07/03/2018	07/09/2018 12:30	Lipi Saha	07/10/2018 08:33	Beverly Y. Sanders	2004592
	07/03/2018	07/09/2018 12:30	Lipi Saha	07/10/2018 08:37	Beverly Y. Sanders	2004593
	07/03/2018	07/09/2018 12:30	Lipi Saha	07/10/2018 08:43	Beverly Y. Sanders	2004597
	07/03/2018	07/09/2018 12:30	Lipi Saha	07/10/2018 12:05	Beverly Y. Sanders	2004600
EPA 365.1 Rev. 2.0 dissolved	07/03/2018			07/03/2018 17:19	Megan Treadwell	2004594
	07/03/2018			07/03/2018 17:20	Megan Treadwell	2004595
	07/03/2018			07/03/2018 17:21	Megan Treadwell	2004598
	07/03/2018			07/05/2018 16:52	Megan Treadwell	2004601
EPA 8321B	07/03/2018	07/07/2018 17:15	Mohammad Ghaffari	07/07/2018 21:43	Mohammad Ghaffari	2004617
	07/03/2018	07/07/2018 17:15	Mohammad Ghaffari	07/07/2018 21:57	Mohammad Ghaffari	2004618
	07/03/2018	07/07/2018 17:15	Mohammad Ghaffari	07/07/2018 22:12	Mohammad Ghaffari	2004619
	07/03/2018	07/07/2018 17:15	Mohammad Ghaffari	07/07/2018 22:27	Mohammad Ghaffari	2004620
	07/03/2018	07/09/2018 10:00	Hoor Shaik	07/09/2018 20:25	Juyoung Kim	2004617
	07/03/2018	07/09/2018 10:00	Hoor Shaik	07/09/2018 21:00	Juyoung Kim	2004618
	07/03/2018	07/09/2018 10:00	Hoor Shaik	07/09/2018 21:34	Juyoung Kim	2004619

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	07/03/2018	07/09/2018 10:00	Hoor Shaik	07/09/2018 22:09	Juyoung Kim	2004620
	07/03/2018	07/09/2018 10:00	Hoor Shaik	07/10/2018 07:22	Juyoung Kim	2004617
	07/03/2018	07/09/2018 10:00	Hoor Shaik	07/10/2018 07:57	Juyoung Kim	2004618
	07/03/2018	07/09/2018 10:00	Hoor Shaik	07/10/2018 08:32	Juyoung Kim	2004619
	07/03/2018	07/09/2018 10:00	Hoor Shaik	07/10/2018 09:06	Juyoung Kim	2004620
SM 2120 B	07/03/2018			07/03/2018 16:12	Tanya Welborn	2004590
	07/03/2018			07/03/2018 16:13	Tanya Welborn	2004591
	07/03/2018			07/03/2018 16:14	Tanya Welborn	2004596
	07/03/2018			07/03/2018 16:18	Tanya Welborn	2004599
SM 2320 B-97	07/03/2018			07/10/2018 00:38	Dale L. Simmons	2004590
	07/03/2018			07/10/2018 00:48	Dale L. Simmons	2004591
	07/03/2018			07/10/2018 00:58	Dale L. Simmons	2004596
	07/03/2018			07/10/2018 01:11	Dale L. Simmons	2004599
SM 2540 C-97	07/03/2018			07/05/2018 16:21	Yijie Li	2004590, 2004591, 2004596, 2004599
SM 2540 D-97	07/03/2018			07/05/2018 16:21	Yijie Li	2004590, 2004591, 2004596, 2004599
SM 4500 F-C-97	07/03/2018			07/10/2018 00:38	Dale L. Simmons	2004590
	07/03/2018			07/10/2018 00:48	Dale L. Simmons	2004591
	07/03/2018			07/10/2018 00:58	Dale L. Simmons	2004596
	07/03/2018			07/10/2018 01:11	Dale L. Simmons	2004599
SM 5310 B-00	07/03/2018			07/12/2018 07:23	Megan Treadwell	2004592
	07/03/2018			07/12/2018 07:53	Megan Treadwell	2004597
	07/03/2018			07/12/2018 08:07	Megan Treadwell	2004600
	07/03/2018			07/12/2018 08:37	Megan Treadwell	2004593