

## Chemical Analysis Report

**WTRSHD-MGT-2012-07-05-01**

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

Event Description: **Wakulla Storm-Event Sampling**

Request ID: **RQ-2012-07-02-22**

Customer: **WTRSHD-MGT**

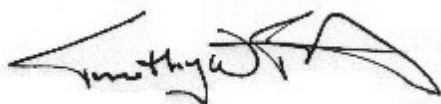
Project ID: **STORM-EVNT**

Send Reports to:  
FDEP Ground Water Management Section  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400  
Attn: Gary Maddox

For additional information please contact  
Timothy W. Fitzpatrick  
Liang-Tsair Lin, Ph.D.  
Colin Wright, Ph.D.  
Kathryn Brackett  
Thekkekalathil Chandrasekhar, PhD, QA Officer  
Phone (850) 245-8085

Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 20-JUL-2012 10:19



## Abbreviations and data remark codes

CERT # - NELAP (National Environmental Laboratory Accreditation Program) Certification Number of the laboratory that performed the analysis.

LCS - Laboratory Control Sample; in the QC Failures column, this notation indicates a batch recovery failure.

MS - Matrix Spike; in the QC Failures column, this notation indicates a batch recovery failure.

RPD - Relative Percent Difference; in the QC Failures column, this notation indicates a batch failure for precision.

CCV - Continuing Calibration Verification; in the QC Failures column, this notation indicates a failure of the calibration verification check sample.

SUR - Surrogate; in the QC Failures column, this notation indicates a recovery failure for the associated surrogate.

RSD - Relative Standard Deviation expressed as a percentage.

SMP - Sample.

\*\* - The laboratory is not NELAP certified for this analyte/method, or certification is not applicable.

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

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).

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  $1.3 \times 10^3$  or 1300.

Precision is reported as relative percent difference unless otherwise noted.

Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria.

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.

All sample collection performed by Bureau of Laboratories staff followed the field Standard Operating Procedures adopted by reference in Rule 62-160 FAC unless otherwise noted.

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.

Results for NELAP accredited tests contained in this report meet the requirements specified by the National Environmental Laboratory Accreditation Conference (NELAC). All samples received were in acceptable condition and met NELAC requirements unless otherwise noted. Results generated in this report pertain to the samples collected and submitted for analysis.

Job: TLH-2012-07-05-01

Job: TLH-2012-07-05-02

Job: TLH-2012-07-05-03

Group: Nutrients

Group: Metals

Group: Pesticides

Sample Location: 67

Collection Date/Time: 07/05/2012 09:45 AM

Field ID: WAKULLA SPRING 51PQ

Matrix: W-SURF-FRH

| Sample ID | Ref. Method                               | Component         | Result | Code | Units      | Batch ID | QC Failures |
|-----------|-------------------------------------------|-------------------|--------|------|------------|----------|-------------|
| 1439463   | EPA 180.1 Rev. 2.0                        | Turbidity         | 0.60   |      | NTU        | P241735  |             |
|           | EPA 300.0 Rev. 2.1                        | Chloride          | 16     |      | mg Cl/L    | P242039  |             |
|           |                                           | Sulfate           | 12     |      | mg SO4/L   | P242045  |             |
|           | SM 2120 B                                 | Color (true)      | 52     | A    | PCU        | P241731  |             |
|           | SM 2320 B-97                              | Alkalinity        | 130    | A    | mg CaCO3/L | P241754  |             |
|           | SM 2540 C-97                              | TDS               | 190    |      | mg/L       | P241783  |             |
| 1439464   | EPA 350.1 Rev. 2.0                        | Ammonia-N         | 0.010  | U    | mg N/L     | P241832  |             |
|           | EPA 351.2 Rev. 2.0                        | Kjeldahl Nitrogen | 0.13   | I    | mg N/L     | P241776  |             |
|           | EPA 353.2 Rev. 2.0                        | NO2NO3-N          | 0.40   |      | mg N/L     | P241873  |             |
|           | EPA 365.1 Rev. 2.0                        | Total-P           | 0.030  |      | mg P/L     | P241852  |             |
|           | SM 5310 B-00                              | Organic Carbon    | 5.0    | I    | mg C/L     | P241805  |             |
| 1439465   | EPA 365.1 Rev. 2.0<br>dissolved           | O-Phosphate-P     | 0.027  |      | mg P/L     | P241799  |             |
| 1439466   | EPA 200.7 Rev. 4.4                        | Calcium           | 46.2   |      | mg/L       | P241765  |             |
|           |                                           | Magnesium         | 9.02   |      | mg/L       | P241765  |             |
|           |                                           | Potassium         | 0.66   | I    | mg/L       | P241765  |             |
|           |                                           | Sodium            | 9.1    |      | mg/L       | P241765  |             |
|           | EPA 200.8 Rev. 5.4                        | Boron**           | 17.8   |      | ug/L       | P241781  |             |
| 1439467   | DEP SOP: LC-001-2 (based<br>on EPA 8321B) | Sucralose**       | 0.010  | U    | ug/L       | P241880  | MS          |

## Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Batch ID: P241880

| Component | Result | Code | Units |
|-----------|--------|------|-------|
| Sucralose | 0.010  | U    | ug/L  |

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P241735

| Component | Result | Code | Units |
|-----------|--------|------|-------|
| Turbidity | 0.10   | U    | NTU   |

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P241765

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

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P241781

| Component | Result | Code | Units |
|-----------|--------|------|-------|
| Boron     | 2.0    | U    | ug/L  |

## Quality Assurance Report

### Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P242039

| Component | Result | Code | Units   |
|-----------|--------|------|---------|
| Chloride  | 0.20   | U    | mg Cl/L |

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P242045

| Component | Result | Code | Units                 |
|-----------|--------|------|-----------------------|
| Sulfate   | 0.20   | U    | mg SO <sub>4</sub> /L |

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P241832

| Component | Result | Code | Units  |
|-----------|--------|------|--------|
| Ammonia-N | 0.010  | U    | mg N/L |

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P241776

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P241873

| Component                          | Result | Code | Units  |
|------------------------------------|--------|------|--------|
| NO <sub>2</sub> NO <sub>3</sub> -N | 0.004  | U    | mg N/L |

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P241852

| Component | Result | Code | Units  |
|-----------|--------|------|--------|
| Total-P   | 0.004  | U    | mg P/L |

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P241799

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

Reference Method: SM 2120 B

Batch ID: P241731

| Component    | Result | Code | Units |
|--------------|--------|------|-------|
| Color (true) | 2.5    | U    | PCU   |

Reference Method: SM 2320 B-97

Batch ID: P241754

| Component  | Result | Code | Units                   |
|------------|--------|------|-------------------------|
| Alkalinity | 0.65   | U    | mg CaCO <sub>3</sub> /L |

## Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97

Batch ID: P241783

| Component | Result | Code | Units |
|-----------|--------|------|-------|
| TDS       | 15     | U    | mg/L  |

Reference Method: SM 5310 B-00

Batch ID: P241805

| Component      | Result | Code | Units  |
|----------------|--------|------|--------|
| Organic Carbon | 1.0    | U    | mg C/L |

## Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Batch ID: P241880

| Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|-----------|---------|---------|-----------|----------------|
| Sucralose | 50.0    | 54.0    | P/P       | 40 - 130       |

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P241765

| Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|-----------|---------|---------|-----------|----------------|
| Calcium   | 105     |         | P         | 85 - 115       |
| Magnesium | 103     |         | P         | 85 - 115       |
| Potassium | 103     |         | P         | 85 - 115       |
| Sodium    | 102     |         | P         | 85 - 115       |

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P241781

| Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|-----------|---------|---------|-----------|----------------|
| Boron     | 98.0    |         | P         | 85 - 115       |

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P242039

| Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|-----------|---------|---------|-----------|----------------|
| Chloride  | 99.9    |         | P         | 90 - 110       |

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P242045

| Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|-----------|---------|---------|-----------|----------------|
| Sulfate   | 96.7    |         | P         | 90 - 110       |

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P241832

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

## Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P241776

| Component         | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|-------------------|---------|---------|-----------|----------------|
| Kjeldahl Nitrogen | 97.8    |         | P         | 90 - 110       |

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P241873

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P241852

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P241799

| Component     | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|---------|---------|-----------|----------------|
| O-Phosphate-P | 99.9    |         | P         | 90 - 110       |

Reference Method: SM 2320 B-97

Batch ID: P241754

| Component  | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|------------|---------|---------|-----------|----------------|
| Alkalinity | 97.5    |         | P         | 85 - 115       |

Reference Method: SM 5310 B-00

Batch ID: P241805

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

## Quality Assurance Report Matrix Spike Accuracy

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Batch ID: P241880

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
| 1439523       | Sucralose | 35.3    | 33.4    | F/F       | 40 - 130       |

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P241765

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
| 1439383       | Calcium   | 108     |         | P         | 80 - 120       |
| 1439383       | Magnesium | 105     |         | P         | 80 - 120       |
| 1439383       | Potassium | 111     | 111     | P/P       | 80 - 120       |
| 1439383       | Sodium    | 105     |         | P         | 80 - 120       |
| 1439466       | Calcium   | 106     |         | P         | 80 - 120       |
| 1439466       | Magnesium | 103     |         | P         | 80 - 120       |

## Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P241765

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
| 1439466       | Potassium | 103     |         | P         | 80 - 120       |
| 1439466       | Sodium    | 104     |         | P         | 80 - 120       |

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P241781

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
| 1439383       | Boron     | 100     | 101     | P/P       | 80 - 120       |
| 1439466       | Boron     | 96.0    |         | P         | 80 - 120       |

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P242039

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
| 1439291       | Chloride  | 100     | 101     | P/P       | 90 - 110       |
| 1439332       | Chloride  | 97.6    |         | P         | 90 - 110       |

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P242045

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
| 1439291       | Sulfate   | 96.8    | 97.1    | P/P       | 90 - 110       |
| 1439332       | Sulfate   | 93.0    |         | P         | 90 - 110       |

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P241832

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
| 1439519       | Ammonia-N | 92.0    | 94.7    | P/P       | 90 - 110       |

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P241776

| Spiked Sample | Component         | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-------------------|---------|---------|-----------|----------------|
| 1439464       | Kjeldahl Nitrogen | 95.9    | 94.7    | P/P       | 90 - 110       |

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P241873

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
| 1439531       | NO2NO3-N  | 99.5    | 100     | P/P       | 90 - 110       |

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P241852

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
| 1439368       | Total-P   | 104     | 107     | P/P       | 90 - 110       |

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P241799

| Spiked Sample | Component | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|-----------|---------|---------|-----------|----------------|
|---------------|-----------|---------|---------|-----------|----------------|

## Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P241799

| Spiked Sample | Component     | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|---------------|---------|---------|-----------|----------------|
| 1439532       | O-Phosphate-P | 95.1    | 101     | P/P       | 90 - 110       |

Reference Method: SM 5310 B-00

Batch ID: P241805

| Spiked Sample | Component      | % Rec.1 | % Rec.2 | Pass/Fail | Control Limits |
|---------------|----------------|---------|---------|-----------|----------------|
| 1439341       | Organic Carbon | 94.8    | 96.2    | P/P       | 85 - 115       |

## Quality Assurance Report Precision

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Batch ID: P241880

| Replicated<br>Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|--------------------------|-----------|-----------|-------------------|-----------|----------------|
| 1439523                  | Sucralose | 12.9      | Spike             | P         | 0 - 30         |
| LFB                      | Sucralose | 7.69      | LCS               | P         | 0 - 30         |

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P241735

| Replicated<br>Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|--------------------------|-----------|-----------|-------------------|-----------|----------------|
| 1439503                  | Turbidity | 3.25      | Sample            | P         | 0 - 20         |

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P241765

| Replicated<br>Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|--------------------------|-----------|-----------|-------------------|-----------|----------------|
| 1439383                  | Calcium   | 1.54      | Sample            | P         | 0 - 20         |
| 1439383                  | Magnesium | 1.83      | Sample            | P         | 0 - 20         |
| 1439383                  | Potassium | 0.677     | Sample            | P         | 0 - 20         |
| 1439383                  | Sodium    | 1.67      | Sample            | P         | 0 - 20         |

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P241781

| Replicated<br>Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|--------------------------|-----------|-----------|-------------------|-----------|----------------|
| 1439383                  | Boron     | 3.15      | Sample            | P         | 0 - 20         |

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P242039

| Replicated<br>Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|--------------------------|-----------|-----------|-------------------|-----------|----------------|
| 1439291                  | Chloride  | 0.639     | Spike             | P         | 0 - 20         |

## Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P242045

## Replicated

| Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|-----------|-----------|-------------------|-----------|----------------|
| 1439291    | Sulfate   | 0.329     | Spike             | P         | 0 - 20         |

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P241832

## Replicated

| Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|-----------|-----------|-------------------|-----------|----------------|
| 1439519    | Ammonia-N | 2.59      | Spike             | P         | 0 - 20         |

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P241776

## Replicated

| Lab Sample | Component         | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|-------------------|-----------|-------------------|-----------|----------------|
| 1439464    | Kjeldahl Nitrogen | 1.14      | Spike             | P         | 0 - 20         |

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P241873

## Replicated

| Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|-----------|-----------|-------------------|-----------|----------------|
| 1439531    | NO2NO3-N  | 0.501     | Spike             | P         | 0 - 20         |

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P241852

## Replicated

| Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|-----------|-----------|-------------------|-----------|----------------|
| 1439368    | Total-P   | 2.21      | Spike             | P         | 0 - 20         |

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P241799

## Replicated

| Lab Sample | Component     | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|---------------|-----------|-------------------|-----------|----------------|
| 1439532    | O-Phosphate-P | 6.02      | Spike             | P         | 0 - 20         |

Reference Method: SM 2120 B

Batch ID: P241731

## Replicated

| Lab Sample | Component    | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|--------------|-----------|-------------------|-----------|----------------|
| 1439463    | Color (true) | 0.637     | Sample            | P         | 0 - 20         |

Reference Method: SM 2320 B-97

Batch ID: P241754

## Replicated

| Lab Sample | Component  | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|------------|-----------|-------------------|-----------|----------------|
| 1439326    | Alkalinity | 1.74      | Sample            | P         | 0 - 20         |
| 1439463    | Alkalinity | 0.255     | Sample            | P         | 0 - 20         |

## Quality Assurance Report Precision

Reference Method: SM 2540 C-97

Batch ID: P241783

## Replicated

| Lab Sample | Component | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|-----------|-----------|-------------------|-----------|----------------|
| 1439329    | TDS       | 4.43      | Sample            | P         | 0 - 10         |

Reference Method: SM 5310 B-00

Batch ID: P241805

## Replicated

| Lab Sample | Component      | % RSD/RPD | Sample/Spike/LCS* | Pass/Fail | Control Limits |
|------------|----------------|-----------|-------------------|-----------|----------------|
| 1439341    | Organic Carbon | 0.886     | 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: 1439467

Field Sample ID: WAKULLA SPRING 51PQ

## Reference Method

DEP SOP: LC-001-2 (based on EPA 8321B)

## Surrogate

Sucralose-d6

## % Rec.

41.2

## Pass/Fail

P

## Control Limits

40 - 150

## Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A45958

Included Lab Sample IDs: 1439463

| Component    | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|--------------|---------|---------|------------|----------------|
| Color (true) | 103     | 103     | P/P        | 85 - 115       |

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A45959

Included Lab Sample IDs: 1439463

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

Reference Method: SM 2320 B-97

Run ID: A45964

Included Lab Sample IDs: 1439463

| Component  | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|------------|---------|---------|------------|----------------|
| Alkalinity | 100     | 97.1    | P/P        | 85 - 115       |

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A45974

Included Lab Sample IDs: 1439466

| Component | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|-----------|---------|---------|------------|----------------|
|-----------|---------|---------|------------|----------------|

## Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A45974

Included Lab Sample IDs: 1439466

| Component | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|-----------|---------|---------|------------|----------------|
| Calcium   | 102     | 102     | P/P        | 90 - 110       |
| Magnesium | 101     | 101     | P/P        | 90 - 110       |
| Potassium | 102     | 101     | P/P        | 90 - 110       |
| Sodium    | 99.1    | 99.6    | P/P        | 90 - 110       |

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A45980

Included Lab Sample IDs: 1439464

| Component         | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|-------------------|---------|---------|------------|----------------|
| Kjeldahl Nitrogen | 98.0    | 105     | P/P        | 90 - 110       |

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A45981

Included Lab Sample IDs: 1439466

| Component | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|-----------|---------|---------|------------|----------------|
| Boron     | 95.7    | 95.6    | P/P        | 90 - 110       |

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A45989

Included Lab Sample IDs: 1439465

| Component     | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|---------------|---------|---------|------------|----------------|
| O-Phosphate-P | 100     | 96.3    | P/P        | 90 - 110       |

Reference Method: SM 5310 B-00

Run ID: A45992

Included Lab Sample IDs: 1439464

| Component      | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|----------------|---------|---------|------------|----------------|
| Organic Carbon | 97.3    | 96.4    | P/P        | 85 - 115       |

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A46001

Included Lab Sample IDs: 1439464

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A46010

Included Lab Sample IDs: 1439464

| Component | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|-----------|---------|---------|------------|----------------|
| Total-P   | 97.2    | 97.6    | P/P        | 90 - 110       |

## Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A46015

Included Lab Sample IDs: 1439464

| Component | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|-----------|---------|---------|------------|----------------|
| NO2NO3-N  | 100     | 96.6    | P/P        | 90 - 110       |

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Run ID: A46016

Included Lab Sample IDs: 1439467

| Component | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|-----------|---------|---------|------------|----------------|
| Sucralose | 106     | 91.6    | P/P        | 70 - 140       |

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A46068

Included Lab Sample IDs: 1439463

| Component | % Rec.1 | % Rec.2 | Pass/Fail* | Control Limits |
|-----------|---------|---------|------------|----------------|
| Chloride  | 101     | 102     | P/P        | 90 - 110       |
| Sulfate   | 96.3    | 99.8    | 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<br>SMP | MS    |
|----------------------------------------|-------------------|----------------|------|---------------|------|------|------------------|-------|
| DEP SOP: LC-001-2 (based on EPA 8321B) | Sucralose         | 50.0           | 54.0 | 35.3          | 33.4 | 7.69 |                  | 12.9  |
| EPA 180.1 Rev. 2.0                     | Turbidity         |                |      |               |      |      | 3.25             |       |
| EPA 200.7 Rev. 4.4                     | Calcium           | 105            |      | 108           | 106  |      | 1.54             |       |
|                                        | Magnesium         | 103            |      | 105           | 103  |      | 1.83             |       |
|                                        | Potassium         | 103            |      | 111           | 111  | 103  | 0.677            |       |
|                                        | Sodium            | 102            |      | 105           | 104  |      | 1.67             |       |
| EPA 200.8 Rev. 5.4                     | Boron             | 98.0           |      | 100           | 101  | 96.0 | 3.15             |       |
| EPA 300.0 Rev. 2.1                     | Chloride          | 99.9           |      | 100           | 101  | 97.6 |                  | 0.639 |
|                                        | Sulfate           | 96.7           |      | 96.8          | 97.1 | 93.0 |                  | 0.329 |
| EPA 350.1 Rev. 2.0                     | Ammonia-N         | 97.0           |      | 92.0          | 94.7 |      |                  | 2.59  |
| EPA 351.2 Rev. 2.0                     | Kjeldahl Nitrogen | 97.8           |      | 95.9          | 94.7 |      |                  | 1.14  |
| EPA 353.2 Rev. 2.0                     | NO2NO3-N          | 99.0           |      | 99.5          | 100  |      |                  | 0.501 |
| EPA 365.1 Rev. 2.0                     | Total-P           | 104            |      | 104           | 107  |      |                  | 2.21  |
| EPA 365.1 Rev. 2.0 dissolved           | O-Phosphate-P     | 99.9           |      | 95.1          | 101  |      |                  | 6.02  |
| SM 2120 B                              | Color (true)      |                |      |               |      |      | 0.637            |       |
| SM 2320 B-97                           | Alkalinity        | 97.5           |      |               |      |      | 1.74             |       |
|                                        |                   |                |      |               |      |      | 0.255            |       |
| SM 2540 C-97                           | TDS               |                |      |               |      |      | 4.43             |       |
| SM 5310 B-00                           | Organic Carbon    | 96.9           |      | 94.8          | 96.2 |      |                  | 0.886 |

## Reference Method Descriptions

Method / NELAC Cert. # Description

Associated Samples

## Reference Method Descriptions

| <b>Method / NELAC Cert. #</b>                         | <b>Description</b>                                                                                                        | <b><u>Associated Samples</u></b> |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| DEP SOP: LC-001-2<br>(based on EPA 8321B) /<br>E31780 | Analysis of sucralose in water matrices by HPLC/MS/MS                                                                     | 1439467                          |
| EPA 180.1 Rev. 2.0 /<br>E31780                        | Turbidity in aqueous matrices                                                                                             | 1439463                          |
| EPA 200.7 Rev. 4.4 /<br>E31780                        | Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects | 1439466                          |
| EPA 200.8 Rev. 5.4 /<br>E31780                        | Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects                    | 1439466                          |
| EPA 300.0 Rev. 2.1 /<br>E31780                        | Chloride in aqueous matrices                                                                                              | 1439463                          |
| EPA 300.0 Rev. 2.1 /<br>E31780                        | Sulfate in aqueous matrices                                                                                               | 1439463                          |
| EPA 350.1 Rev. 2.0 /<br>E31780                        | Ammonia in aqueous matrices as mg N/L                                                                                     | 1439464                          |
| EPA 351.2 Rev. 2.0 /<br>E31780                        | Total Kjeldahl Nitrogen in aqueous matrices                                                                               | 1439464                          |
| EPA 353.2 Rev. 2.0 /<br>E31780                        | Nitrite/Nitrate in aqueous matrices as mg N/L                                                                             | 1439464                          |
| EPA 365.1 Rev. 2.0 /<br>E31780                        | Total Phosphorus in aqueous matrices as mg P/L                                                                            | 1439464                          |
| EPA 365.1 Rev. 2.0<br>dissolved / E31780              | Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L                                                       | 1439465                          |
| SM 2120 B / E31780                                    | True Color measured at 450 nm or Apparent Color                                                                           | 1439463                          |
| SM 2320 B-97 / E31780                                 | Alkalinity in aqueous matrices as mg CaCO <sub>3</sub> /L                                                                 | 1439463                          |
| SM 2540 C-97 / E31780                                 | Total Dissolved Solids in aqueous matrices                                                                                | 1439463                          |
| SM 5310 B-00 / E31780                                 | Nonpurgeable Organic Carbon in aqueous matrices                                                                           | 1439464                          |

## Preparation and Analysis Log

| Ref. Method                            | Received Date | Prep Date/Time | Prepared By        | Analysis Date/Time | Analyzed By         | Associated Samples |
|----------------------------------------|---------------|----------------|--------------------|--------------------|---------------------|--------------------|
| DEP SOP: LC-001-2 (based on EPA 8321B) | 07/05/2012    | 07/09/2012     | Hoor Shaik         | 07/10/2012         | S. M. Reddy         | 1439467            |
| EPA 180.1 Rev. 2.0                     | 07/05/2012    |                |                    | 07/06/2012 16:52   | Bryan A. Werth      | 1439463            |
| EPA 200.7 Rev. 4.4                     | 07/05/2012    | 07/05/2012     | Elliott D. Healy   | 07/09/2012         | Joshua Ayres        | 1439466            |
| EPA 200.8 Rev. 5.4                     | 07/05/2012    | 07/05/2012     | Elliott D. Healy   | 07/09/2012         | Charles J. Peterson | 1439466            |
| EPA 300.0 Rev. 2.1                     | 07/05/2012    |                |                    | 07/10/2012         | Ping Hua            | 1439463            |
| EPA 350.1 Rev. 2.0                     | 07/05/2012    |                |                    | 07/10/2012         | Peter D. Kaus       | 1439464            |
| EPA 351.2 Rev. 2.0                     | 07/05/2012    | 07/06/2012     | Bryan A. Werth     | 07/09/2012         | Christopher Armour  | 1439464            |
| EPA 353.2 Rev. 2.0                     | 07/05/2012    |                |                    | 07/11/2012         | Sima Feizi          | 1439464            |
| EPA 365.1 Rev. 2.0                     | 07/05/2012    | 07/09/2012     | Megan E. Faircloth | 07/10/2012         | Pallavi R. Gadwal   | 1439464            |
| EPA 365.1 Rev. 2.0 dissolved           | 07/05/2012    |                |                    | 07/06/2012 15:28   | Pallavi R. Gadwal   | 1439465            |
| SM 2120 B                              | 07/05/2012    |                |                    | 07/06/2012 14:23   | Blanca Fach         | 1439463            |
| SM 2320 B-97                           | 07/05/2012    |                |                    | 07/06/2012         | Dale L. Simmons     | 1439463            |
| SM 2540 C-97                           | 07/05/2012    |                |                    | 07/06/2012         | Yijie Li            | 1439463            |
| SM 5310 B-00                           | 07/05/2012    |                |                    | 07/10/2012         | Rochelle Y Jackson  | 1439464            |