



FLOWERS CHEMICAL LABORATORIES INC.

P.O. Box 150597, Altamonte Springs, FL 32715-0597
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812 SW Harvey Green Dr, Madison, FL 32340
3980 Overseas Hwy, Suite 103, Marathon, FL 33050

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Phone: 772-343-8006 E86562 (South Lab)
Phone: 850-973-6878 E82405 (North Lab)
Phone: 305-743-8598 E35834 (Keys Lab)

Florida Keys Aqueduct Authority-WWTP
3375 Overseas Hwy
Marathon, FL 33050

PO #: 15352
Client Project #: Cudjoe Key WWTP -M- SW's
Date Sampled: Sep 13, 2016
Sep 30, 2016; Invoice: 309570

Report Summary

Date Received: Sep 13, 2016

FCL Project Manager: Thomas D. Cross

| Laboratory # | Sample Description | Analysis | Chemist | Location | Sample Matrix |
|--------------|--------------------|-----------|---------|----------|---------------|
| 309570SW1 | C-24 | EPA350.1 | PCW | Main Lab | Surface Water |
| | | EPA351.2 | VLB | Main Lab | |
| | | EPA353.2 | PCW | Main Lab | |
| | | EPA365.1 | PCW | Main Lab | |
| | | OrgNit | | | |
| 309570SW2 | CK-3 | SM10200 H | TRB | Main Lab | Surface Water |
| | | TotNit | | | |
| | | EPA350.1 | PCW | Main Lab | |
| | | EPA351.2 | VLB | Main Lab | |
| | | EPA353.2 | PCW | Main Lab | |
| 309570SW3 | CK-2 | EPA365.1 | PCW | Main Lab | Surface Water |
| | | OrgNit | | | |
| | | SM10200 H | TRB | Main Lab | |
| | | TotNit | | | |
| | | EPA350.1 | PCW | Main Lab | |
| 309570SW4 | C-25 | EPA351.2 | VLB | Main Lab | Surface Water |
| | | EPA353.2 | PCW | Main Lab | |
| | | EPA365.1 | PCW | Main Lab | |
| | | OrgNit | | | |
| | | SM10200 H | TRB | Main Lab | |
| | | TotNit | | | |

Certificate of Results

Sample integrity was certified prior to analysis. Test results meet all requirements of the NELAC Standards except as noted in the Quality Control Report. Uncertainties for these data are available on request. This report may not be reproduced in part; results relate only to items tested.



Jefferson S. Flowers, Ph.D.
President/Technical Director



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Analysis Report

Lab #: 309570SW1 **Sampled:** 09/13/16 07:20 AM **Desc:** C-24

| Parameter | Result | Units | DF | MDL | PQL | QC Batch | Method | CAS # | Analyzed |
|------------------------|----------|-------|------|---------|---------|----------|-----------|------------|----------|
| Organic Nitrogen | 0.419 | | 0 | | | | OrgNit | | |
| Total Nitrogen(as N) | 0.419 | | 0 | | | | TotNit | 17778-88-0 | |
| NO3+NO2(as N) | 0.0200 U | mg/L | 1.00 | 0.0200 | 0.0400 | 10321671 | EPA353.2 | I-005 | 09/21/16 |
| Chlorophyll a | 0.280 | ug/L | 1.00 | 0.0200 | 0.150 | 10321825 | SM10200 H | 479-61-8 | 09/12/16 |
| TKN(as N) | 0.419 | mg/L | 1.00 | 0.200 | 0.400 | 10321933 | EPA351.2 | 7727-37-9 | 09/16/16 |
| Ammonia (as N) | 0.0100 U | mg/L | 1.00 | 0.0100 | 0.0200 | 10322056 | EPA350.1 | 7664-41-7 | 09/26/16 |
| Total Phosphorus(as P) | 0.0131 | mg/L | 1.00 | 0.00200 | 0.00400 | 10322372 | EPA365.1 | 7723-14-0 | 09/29/16 |

Lab #: 309570SW2 **Sampled:** 09/13/16 07:30 AM **Desc:** CK-3

| Parameter | Result | Units | DF | MDL | PQL | QC Batch | Method | CAS # | Analyzed |
|------------------------|----------|-------|------|---------|---------|----------|-----------|------------|----------|
| Organic Nitrogen | 0.471 | | 0 | | | | OrgNit | | |
| Total Nitrogen(as N) | 0.471 | | 0 | | | | TotNit | 17778-88-0 | |
| NO3+NO2(as N) | 0.0200 U | mg/L | 1.00 | 0.0200 | 0.0400 | 10321671 | EPA353.2 | I-005 | 09/21/16 |
| Chlorophyll a | 0.250 | ug/L | 1.00 | 0.0200 | 0.150 | 10321825 | SM10200 H | 479-61-8 | 09/12/16 |
| TKN(as N) | 0.471 | mg/L | 1.00 | 0.200 | 0.400 | 10321933 | EPA351.2 | 7727-37-9 | 09/16/16 |
| Ammonia (as N) | 0.0100 U | mg/L | 1.00 | 0.0100 | 0.0200 | 10322056 | EPA350.1 | 7664-41-7 | 09/26/16 |
| Total Phosphorus(as P) | 0.0116 | mg/L | 1.00 | 0.00200 | 0.00400 | 10322372 | EPA365.1 | 7723-14-0 | 09/29/16 |

Lab #: 309570SW3 **Sampled:** 09/13/16 07:35 AM **Desc:** CK-2

| Parameter | Result | Units | DF | MDL | PQL | QC Batch | Method | CAS # | Analyzed |
|------------------------|----------|-------|------|---------|---------|----------|-----------|------------|----------|
| Organic Nitrogen | 0.516 | | 0 | | | | OrgNit | | |
| Total Nitrogen(as N) | 0.516 | | 0 | | | | TotNit | 17778-88-0 | |
| NO3+NO2(as N) | 0.0200 U | mg/L | 1.00 | 0.0200 | 0.0400 | 10321671 | EPA353.2 | I-005 | 09/21/16 |
| Chlorophyll a | 0.190 | ug/L | 1.00 | 0.0200 | 0.150 | 10321825 | SM10200 H | 479-61-8 | 09/12/16 |
| TKN(as N) | 0.516 | mg/L | 1.00 | 0.200 | 0.400 | 10321933 | EPA351.2 | 7727-37-9 | 09/16/16 |
| Ammonia (as N) | 0.0100 U | mg/L | 1.00 | 0.0100 | 0.0200 | 10322056 | EPA350.1 | 7664-41-7 | 09/26/16 |
| Total Phosphorus(as P) | 0.0130 | mg/L | 1.00 | 0.00200 | 0.00400 | 10322372 | EPA365.1 | 7723-14-0 | 09/29/16 |



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Lab #: 309570SW4 Sampled: 09/13/16 08:05 AM Desc: C-25

| Parameter | Result | Units | DF | MDL | PQL | QC Batch | Method | CAS # | Analyzed |
|------------------------|----------|-------|------|---------|---------|----------|-----------|------------|----------|
| Organic Nitrogen | 0.245 | | 0 | | | | OrgNit | | |
| Total Nitrogen(as N) | 0.245 | | 0 | | | | TotNit | 17778-88-0 | |
| NO3+NO2(as N) | 0.0200 U | mg/L | 1.00 | 0.0200 | 0.0400 | 10321671 | EPA353.2 | I-005 | 09/21/16 |
| Chlorophyll a | 0.270 | ug/L | 1.00 | 0.0200 | 0.150 | 10321825 | SM10200 H | 479-61-8 | 09/12/16 |
| TKN(as N) | 0.245 I | mg/L | 1.00 | 0.200 | 0.400 | 10321933 | EPA351.2 | 7727-37-9 | 09/16/16 |
| Ammonia (as N) | 0.0100 U | mg/L | 1.00 | 0.0100 | 0.0200 | 10322056 | EPA350.1 | 7664-41-7 | 09/26/16 |
| Total Phosphorus(as P) | 0.0134 | mg/L | 1.00 | 0.00200 | 0.00400 | 10322372 | EPA365.1 | 7723-14-0 | 09/29/16 |



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Quality Report

| Quality Control Batch: 10321671 | | Analyst: PCW | | | | | | |
|----------------------------------|---------------|--------------|--------------|-------------|-----------------|---------------|------------|----------------|
| Blank | Result | Units | | | | | | |
| NO3+NO2(as N) | 0.0200U | mg/L | | | | | | |
| Laboratory Control Sample | Result | Units | Spike | %REC | %REC Lim | | | |
| NO3+NO2(as N) | 2.19 | mg/L | 2.00 | 109.50 | 85.00-115.00 | | | |
| Matrix Spike | Result | Units | Spike | %REC | %REC Lim | Sample | | |
| NO3+NO2(as N) | 8.49 | mg/L | 4.00 | 123.75 | 85.00-115.00 | 3.54 | | |
| Matrix Spike Duplicate | Result | Units | Spike | %REC | %REC Lim | Sample | RPD | RPD Lim |
| NO3+NO2(as N) | 8.41 | mg/L | 4.00 | 121.75 | 85.00-115.00 | 3.54 | 0.95 | 20.00 |
| Quality Control Batch: 10321825 | | Analyst: TRB | | | | | | |
| Blank | Result | Units | | | | | | |
| Chlorophyll a | 0.0200U | ug/L | | | | | | |
| Quality Control Batch: 10321933 | | Analyst: VLB | | | | | | |
| Blank | Result | Units | | | | | | |
| TKN(as N) | 0.200U | mg/L | | | | | | |
| Laboratory Control Sample | Result | Units | Spike | %REC | %REC Lim | | | |
| TKN(as N) | 3.02 | mg/L | 3.00 | 100.81 | 80.00-120.00 | | | |
| Matrix Spike | Result | Units | Spike | %REC | %REC Lim | Sample | | |
| TKN(as N) | 2.84 | mg/L | 3.00 | 80.75 | 80.00-120.00 | 0.419 | | |
| Matrix Spike Duplicate | Result | Units | Spike | %REC | %REC Lim | Sample | RPD | RPD Lim |



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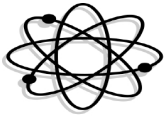
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| Quality Control Batch: 10321933 | | Analyst: VLB | | | | | | |
|---------------------------------|----------|--------------|-------|--------|--------------|---------|------|---------|
| Matrix Spike Duplicate | Result | Units | Spike | %REC | %REC Lim | Sample | RPD | RPD Lim |
| TKN(as N) | 2.89 | mg/L | 3.00 | 82.31 | 80.00-120.00 | 0.419 | 1.63 | 20.00 |
| Quality Control Batch: 10322056 | | Analyst: PCW | | | | | | |
| Blank | Result | Units | | | | | | |
| Ammonia (as N) | 0.0100U | mg/L | | | | | | |
| Laboratory Control Sample | Result | Units | Spike | %REC | %REC Lim | | | |
| Ammonia (as N) | 0.540 | mg/L | 0.500 | 108.00 | 85.00-115.00 | | | |
| Matrix Spike | Result | Units | Spike | %REC | %REC Lim | Sample | | |
| Ammonia (as N) | 1.01 | mg/L | 0.780 | 129.49 | 85.00-115.00 | 0.0100U | | |
| Matrix Spike Duplicate | Result | Units | Spike | %REC | %REC Lim | Sample | RPD | RPD Lim |
| Ammonia (as N) | 1.01 | mg/L | 0.780 | 129.49 | 85.00-115.00 | 0.0100U | 0.00 | 20.00 |
| Quality Control Batch: 10322372 | | Analyst: PCW | | | | | | |
| Blank | Result | Units | | | | | | |
| Total Phosphorus(as P) | 0.00200U | mg/L | | | | | | |
| Laboratory Control Sample | Result | Units | Spike | %REC | %REC Lim | | | |
| Total Phosphorus(as P) | 0.476 | mg/L | 0.500 | 95.21 | 85.00-115.00 | | | |
| Matrix Spike | Result | Units | Spike | %REC | %REC Lim | Sample | | |
| Total Phosphorus(as P) | 0.171 | mg/L | 0.200 | 79.87 | 85.00-115.00 | 0.0116 | | |
| Matrix Spike Duplicate | Result | Units | Spike | %REC | %REC Lim | Sample | RPD | RPD Lim |
| Total Phosphorus(as P) | 0.177 | mg/L | 0.200 | 82.50 | 85.00-115.00 | 0.0116 | 3.02 | 20.00 |



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Narrative Report

Sample Handling

Sample handling and holding time criteria were met for all samples. Samples collected by FCL. No unusual events occurred during analysis. Results are reported on a wet weight basis.

Quality Control

Enclosed analyses met method or FCL criteria, unless otherwise denoted on the sample results. Applied data qualifiers are defined below.

Additional Comments

The sample selected for NO₂+NO₃, phosphorus and ammonia MS/MSD was not from this sample delivery group. The LCS validates the QC batch.

Attachments

Chain of Custody
Field Data

| Qualifier | Meaning |
|-----------|--|
| U | Compound was analyzed for but not detected. |
| J | Estimated value; one or more QC components associated with this data value exceed current QC limits. |
| Q | Sample held beyond the accepted holding time. |
| L | Off-scale high; reported concentration exceeds the highest standard. |
| V | Analyte was detected in both the sample and the associated method blank. |
| W | The dissolved oxygen blank was above 0.2 mg/L but less than the MDL. |
| Z | Too numerous to count colonies on plate. |
| A | Absent |
| P | Present |
| T | Value reported is less than the statistical method detection limit. Reported for informational purposes only. |
| M | Value reported is greater than the statistical method detection limit, but less than the reported MDL. |
| G | The greatest of the dilutions performed did not yield sufficient oxygen depletion for valid data. |
| S | The least of the dilutions performed did not yield sufficient oxygen residual for valid data. |
| O | Result is greater than (over) the specified value. |
| I | Reported value is between the laboratory method detection limit and the laboratory practical quantitation limit. |
| B | Results based upon colony plate count outside ideal range. |
| Y | The laboratory analysis was from an improperly preserved sample. The data may not be accurate. |