

# FLOWERS CHEMICAL LABORATORIES INC.

P.O. Box 150597, Altamonte Springs, FL 32715-0597  
571 NW Mercantile Pl, Suite 111, Port St. Lucie, FL 34986  
812 SW Harvey Green Dr, Madison, FL 32340  
3980 Overseas Hwy, Suite 103, Marathon, FL 33050

Phone: 407-339-5984 E83018 (Main Lab)  
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

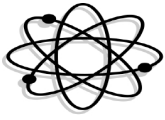
PO #: 15353  
Client Project #: Cudjoe Key WWTP -M- MW's  
Date Sampled: Sep 12, 2016  
Sep 29, 2016; Invoice: 309563

## Report Summary

Date Received: Sep 12, 2016

FCL Project Manager: Thomas D. Cross

Laboratory #	Sample Description	Analysis	Chemist	Location	SampleMatrix
309563GW1	OW-1	EPA350.1	PCW	Main Lab	Ground Water
		EPA351.2	VLB	Main Lab	
		EPA353.2	PCW	Main Lab	
		EPA365.1	VLB	Main Lab	
		OrgNit			
309563GW2	OW-3	SM10200 H	TRB	Main Lab	Ground Water
		TotNit			
		EPA350.1	PCW	Main Lab	
		EPA351.2	VLB	Main Lab	
		EPA353.2	PCW	Main Lab	
309563GW3	OW-5	EPA365.1	VLB	Main Lab	Ground Water
		OrgNit			
		SM10200 H	TRB	Main Lab	
		TotNit			
		EPA350.1	PCW	Main Lab	
309563GW4	OW-4	EPA351.2	VLB	Main Lab	Ground Water
		EPA353.2	PCW	Main Lab	
		EPA365.1	VLB	Main Lab	
		OrgNit			
		SM10200 H	TRB	Main Lab	
309563GW5	OW-2	TotNit			Ground Water
		EPA350.1	PCW	Main Lab	
		EPA351.2	VLB	Main Lab	
		EPA353.2	PCW	Main Lab	
		EPA365.1	VLB	Main Lab	
	OrgNit				
	SM10200 H	TRB	Main Lab		
	TotNit				



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## Certificate of Results

Sample integrity was certified prior to analysis. Test results meet all requirements of the NELAP 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 #:** 309563GW1 **Sampled:** 09/12/16 06:57 AM **Desc:** OW-1

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	0.858		0				OrgNit		
Total Nitrogen(as N)	0.889		0				TotNit	17778-88-0	
TKN(as N)	0.858	mg/L	1.00	0.200	0.400	10321616	EPA351.2	7727-37-9	09/16/16
NO3+NO2(as N)	0.0310 I	mg/L	1.00	0.0200	0.0400	10321625	EPA353.2	I-005	09/20/16
Total Phosphorus(as P)	0.0110	mg/L	1.00	0.00200	0.00400	10321808	EPA365.1	7723-14-0	09/22/16
Chlorophyll a	0.120 I	ug/L	1.00	0.0200	0.150	10321813	SM10200 H	479-61-8	09/12/16
Ammonia (as N)	0.0100 U	mg/L	1.00	0.0100	0.0200	10322056	EPA350.1	7664-41-7	09/26/16

**Lab #:** 309563GW2 **Sampled:** 09/12/16 07:40 AM **Desc:** OW-3

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	5.77		0				OrgNit		
Total Nitrogen(as N)	9.14		0				TotNit	17778-88-0	
TKN(as N)	9.14	mg/L	3.00	0.600	1.20	10321616	EPA351.2	7727-37-9	09/16/16
NO3+NO2(as N)	0.0200 U	mg/L	1.00	0.0200	0.0400	10321625	EPA353.2	I-005	09/20/16
Total Phosphorus(as P)	1.03	mg/L	1.00	0.00200	0.00400	10321808	EPA365.1	7723-14-0	09/22/16
Chlorophyll a	4.03	ug/L	1.00	0.0200	0.150	10321813	SM10200 H	479-61-8	09/12/16
Ammonia (as N)	3.37	mg/L	1.00	0.0100	0.0200	10322056	EPA350.1	7664-41-7	09/26/16

**Lab #:** 309563GW3 **Sampled:** 09/12/16 08:21 AM **Desc:** OW-5

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	1.61		0				OrgNit		
Total Nitrogen(as N)	2.80		0				TotNit	17778-88-0	
TKN(as N)	2.80	mg/L	1.00	0.200	0.400	10321616	EPA351.2	7727-37-9	09/16/16
NO3+NO2(as N)	0.0200 U	mg/L	1.00	0.0200	0.0400	10321625	EPA353.2	I-005	09/20/16
Total Phosphorus(as P)	0.0223	mg/L	1.00	0.00200	0.00400	10321808	EPA365.1	7723-14-0	09/22/16
Chlorophyll a	0.0200 U	ug/L	1.00	0.0200	0.150	10321813	SM10200 H	479-61-8	09/12/16
Ammonia (as N)	1.19	mg/L	1.00	0.0100	0.0200	10322056	EPA350.1	7664-41-7	09/26/16



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**Lab #: 309563GW4    Sampled: 09/12/16 09:00 AM    Desc: OW-4**

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	1.37		0				OrgNit		
Total Nitrogen(as N)	2.67		0				TotNit	17778-88-0	
TKN(as N)	1.37	mg/L	1.00	0.200	0.400	10321616	EPA351.2	7727-37-9	09/16/16
NO3+NO2(as N)	1.30	mg/L	1.00	0.0200	0.0400	10321625	EPA353.2	I-005	09/20/16
Total Phosphorus(as P)	0.00674	mg/L	1.00	0.00200	0.00400	10321808	EPA365.1	7723-14-0	09/22/16
Chlorophyll a	0.0200 U	ug/L	1.00	0.0200	0.150	10321813	SM10200 H	479-61-8	09/12/16
Ammonia (as N)	0.0100 U	mg/L	1.00	0.0100	0.0200	10322056	EPA350.1	7664-41-7	09/26/16

**Lab #: 309563GW5    Sampled: 09/12/16 09:28 AM    Desc: OW-2**

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	0.403		0				OrgNit		
Total Nitrogen(as N)	2.36		0				TotNit	17778-88-0	
TKN(as N)	0.403	mg/L	1.00	0.200	0.400	10321616	EPA351.2	7727-37-9	09/16/16
NO3+NO2(as N)	1.96	mg/L	1.00	0.0200	0.0400	10321625	EPA353.2	I-005	09/20/16
Total Phosphorus(as P)	0.00811	mg/L	1.00	0.00200	0.00400	10321808	EPA365.1	7723-14-0	09/22/16
Chlorophyll a	0.0200 U	ug/L	1.00	0.0200	0.150	10321813	SM10200 H	479-61-8	09/12/16
Ammonia (as N)	0.0100 U	mg/L	1.00	0.0100	0.0200	10322056	EPA350.1	7664-41-7	09/26/16



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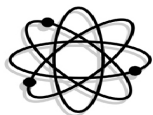
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## Quality Report

Quality Control Batch: 10321616		Analyst: VLB						
<b>Blank</b>	<b>Result</b>	<b>Units</b>						
TKN(as N)	0.200U	mg/L						
<b>Laboratory Control Sample</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>			
TKN(as N)	2.85	mg/L	3.00	94.86	80.00-120.00			
<b>Matrix Spike</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>	<b>Sample</b>		
TKN(as N)	2.82	mg/L	3.00	80.58	80.00-120.00	0.403		
<b>Matrix Spike Duplicate</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>	<b>Sample</b>	<b>RPD</b>	<b>RPD Lim</b>
TKN(as N)	2.95	mg/L	3.00	84.98	80.00-120.00	0.403	4.57	20.00
Quality Control Batch: 10321625		Analyst: PCW						
<b>Blank</b>	<b>Result</b>	<b>Units</b>						
NO3+NO2(as N)	0.0200U	mg/L						
<b>Laboratory Control Sample</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>			
NO3+NO2(as N)	2.12	mg/L	2.00	106.00	85.00-115.00			
<b>Matrix Spike</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>	<b>Sample</b>		
NO3+NO2(as N)	3.88	mg/L	4.00	96.23	85.00-115.00	0.0310		
<b>Matrix Spike Duplicate</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>	<b>Sample</b>	<b>RPD</b>	<b>RPD Lim</b>
NO3+NO2(as N)	3.93	mg/L	4.00	97.48	85.00-115.00	0.0310	1.28	20.00
Quality Control Batch: 10321808		Analyst: VLB						
<b>Blank</b>	<b>Result</b>	<b>Units</b>						
Total Phosphorus(as P)	0.00334	mg/L						



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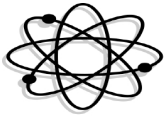
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Quality Control Batch: 10321808		Analyst: VLB						
<b>Laboratory Control Sample</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>			
Total Phosphorus(as P)	0.486	mg/L	0.500	97.10	85.00-115.00			
<b>Matrix Spike</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>	<b>Sample</b>		
Total Phosphorus(as P)	0.179	mg/L	0.200	78.53	85.00-115.00	0.0222		
<b>Matrix Spike Duplicate</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>	<b>Sample</b>	<b>RPD</b>	<b>RPD Lim</b>
Total Phosphorus(as P)	0.183	mg/L	0.200	80.38	85.00-115.00	0.0222	2.05	20.00
Quality Control Batch: 10321813		Analyst: TRB						
<b>Blank</b>	<b>Result</b>	<b>Units</b>						
Chlorophyll a	0.0200U	ug/L						
Quality Control Batch: 10322056		Analyst: PCW						
<b>Blank</b>	<b>Result</b>	<b>Units</b>						
Ammonia (as N)	0.0100U	mg/L						
<b>Laboratory Control Sample</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>			
Ammonia (as N)	0.540	mg/L	0.500	108.00	85.00-115.00			
<b>Matrix Spike</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>	<b>Sample</b>		
Ammonia (as N)	1.01	mg/L	0.780	129.49	85.00-115.00	0.0100U		
<b>Matrix Spike Duplicate</b>	<b>Result</b>	<b>Units</b>	<b>Spike</b>	<b>%REC</b>	<b>%REC Lim</b>	<b>Sample</b>	<b>RPD</b>	<b>RPD Lim</b>
Ammonia (as N)	1.01	mg/L	0.780	129.49	85.00-115.00	0.0100U	0.00	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 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.