



# 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

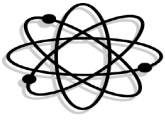
PO #: 15353  
Client Project #: Cudjoe Key -M- GW  
Date Sampled: Jun 14, 2016  
Jun 29, 2016; Invoice: 301223

## Report Summary

Date Received: Jun 14, 2016

FCL Project Manager: Thomas D. Cross

Laboratory #	Sample Description	Analysis	Chemist	Location	SampleMatrix
301223GW1	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			
301223GW2	OW-3	SM10200 H	ECG	Main Lab	Ground Water
		TotNit			
		EPA350.1	PCW	Main Lab	
		EPA351.2	VLB	Main Lab	
		EPA353.2	PCW	Main Lab	
301223GW3	OW-5	EPA365.1	VLB	Main Lab	Ground Water
		OrgNit			
		SM10200 H	ECG	Main Lab	
		TotNit			
		EPA350.1	PCW	Main Lab	
301223GW4	OW-4	EPA351.2	VLB	Main Lab	Ground Water
		EPA353.2	PCW	Main Lab	
		EPA365.1	VLB	Main Lab	
		OrgNit			
		SM10200 H	ECG	Main Lab	
301223GW5	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	ECG	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 #:** 301223GW1 **Sampled:** 06/14/16 08:00 AM **Desc:** OW-1

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	0.761		0				OrgNit		
Total Nitrogen(as N)	0.869		0				TotNit	17778-88-0	
TKN(as N)	0.761	mg/L	1.00	0.200	0.400	10314279	EPA351.2	7727-37-9	06/16/16
NO3+NO2(as N)	0.108	mg/L	1.00	0.0200	0.0400	10314558	EPA353.2	I-005	06/21/16
Ammonia (as N)	0.0100 U	mg/L	1.00	0.0100	0.0200	10314657	EPA350.1	7664-41-7	06/22/16
Chlorophyll a	0.0200 U	ug/L	1.00	0.0200	0.150	10314669	SM10200 H	479-61-8	06/16/16
Total Phosphorus(as P)	0.00400 U	mg/L	2.00	0.00400	0.00800	10314833	EPA365.1	7723-14-0	06/23/16

**Lab #:** 301223GW2 **Sampled:** 06/14/16 08:26 AM **Desc:** OW-3

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	1.17		0				OrgNit		
Total Nitrogen(as N)	3.61		0				TotNit	17778-88-0	
TKN(as N)	3.61	mg/L	1.00	0.200	0.400	10314279	EPA351.2	7727-37-9	06/16/16
NO3+NO2(as N)	0.0200 U	mg/L	1.00	0.0200	0.0400	10314558	EPA353.2	I-005	06/21/16
Ammonia (as N)	2.44	mg/L	1.00	0.0100	0.0200	10314657	EPA350.1	7664-41-7	06/22/16
Chlorophyll a	0.0300 I	ug/L	1.00	0.0200	0.150	10314669	SM10200 H	479-61-8	06/16/16
Total Phosphorus(as P)	0.332	mg/L	2.00	0.00400	0.00800	10314833	EPA365.1	7723-14-0	06/23/16

**Lab #:** 301223GW3 **Sampled:** 06/14/16 09:05 AM **Desc:** OW-5

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	1.90		0				OrgNit		
Total Nitrogen(as N)	4.57		0				TotNit	17778-88-0	
TKN(as N)	4.57	mg/L	1.00	0.200	0.400	10314279	EPA351.2	7727-37-9	06/16/16
NO3+NO2(as N)	0.0200 U	mg/L	1.00	0.0200	0.0400	10314558	EPA353.2	I-005	06/21/16
Ammonia (as N)	2.67	mg/L	1.00	0.0100	0.0200	10314657	EPA350.1	7664-41-7	06/22/16
Chlorophyll a	0.0200 U	ug/L	1.00	0.0200	0.150	10314669	SM10200 H	479-61-8	06/16/16
Total Phosphorus(as P)	0.0366	mg/L	2.00	0.00400	0.00800	10314833	EPA365.1	7723-14-0	06/23/16



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**Lab #:** 301223GW4 **Sampled:** 06/14/16 09:30 AM **Desc:** OW-4

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	1.02		0				OrgNit		
Total Nitrogen(as N)	1.02		0				TotNit	17778-88-0	
TKN(as N)	1.02	mg/L	1.00	0.200	0.400	10314279	EPA351.2	7727-37-9	06/16/16
NO3+NO2(as N)	0.0200 U	mg/L	1.00	0.0200	0.0400	10314558	EPA353.2	I-005	06/21/16
Ammonia (as N)	0.0100 U	mg/L	1.00	0.0100	0.0200	10314657	EPA350.1	7664-41-7	06/22/16
Chlorophyll a	0.0200 U	ug/L	1.00	0.0200	0.150	10314669	SM10200 H	479-61-8	06/16/16
Total Phosphorus(as P)	0.00400 U	mg/L	2.00	0.00400	0.00800	10314833	EPA365.1	7723-14-0	06/23/16

**Lab #:** 301223GW5 **Sampled:** 06/14/16 09:57 AM **Desc:** OW-2

Parameter	Result	Units	DF	MDL	PQL	QC Batch	Method	CAS #	Analyzed
Organic Nitrogen	1.69		0				OrgNit		
Total Nitrogen(as N)	4.25		0				TotNit	17778-88-0	
TKN(as N)	1.69	mg/L	1.00	0.200	0.400	10314279	EPA351.2	7727-37-9	06/16/16
NO3+NO2(as N)	2.56	mg/L	1.00	0.0200	0.0400	10314558	EPA353.2	I-005	06/21/16
Ammonia (as N)	0.0100 U	mg/L	1.00	0.0100	0.0200	10314657	EPA350.1	7664-41-7	06/22/16
Chlorophyll a	0.0200 U	ug/L	1.00	0.0200	0.150	10314669	SM10200 H	479-61-8	06/16/16
Total Phosphorus(as P)	0.00400 U	mg/L	2.00	0.00400	0.00800	10314833	EPA365.1	7723-14-0	06/23/16



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## Quality Report

<b>Quality Control Batch:</b> 10314279		<b>Analyst:</b> 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)	2.97	mg/L	3.00	99.09	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)	2.62	mg/L	3.00	76.20	80.00-120.00	0.337		
<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)	3.04	mg/L	3.00	90.04	80.00-120.00	0.337	14.66	20.00
<b>Quality Control Batch:</b> 10314558		<b>Analyst:</b> 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)	1.99	mg/L	2.00	99.50	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)	3.25	mg/L	4.00	81.70	85.00-115.00	-0.0180		
<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)	3.40	mg/L	4.00	85.45	85.00-115.00	-0.0180	4.51	20.00
<b>Quality Control Batch:</b> 10314657		<b>Analyst:</b> PCW						
<b>Blank</b>	<b>Result</b>	<b>Units</b>						
Ammonia (as N)	0.0100U	mg/L						



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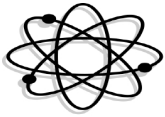
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Quality Control Batch: 10314657		Analyst: PCW							
Laboratory Control Sample		Result	Units	Spike	%REC	%REC Lim			
Ammonia (as N)		0.501	mg/L	0.500	100.20	85.00-115.00			
Matrix Spike		Result	Units	Spike	%REC	%REC Lim	Sample		
Ammonia (as N)		0.636	mg/L	0.780	144.49	85.00-115.00	-0.491		
Matrix Spike Duplicate		Result	Units	Spike	%REC	%REC Lim	Sample	RPD	RPD Lim
Ammonia (as N)		0.572	mg/L	0.780	136.28	85.00-115.00	-0.491	10.60	20.00
Quality Control Batch: 10314669		Analyst: ECG							
Blank		Result	Units						
Chlorophyll a		0.0200U	ug/L						
Quality Control Batch: 10314833		Analyst: VLB							
Blank		Result	Units						
Total Phosphorus(as P)		0.00200U	mg/L						
Laboratory Control Sample		Result	Units	Spike	%REC	%REC Lim			
Total Phosphorus(as P)		0.457	mg/L	0.500	91.34	85.00-115.00			
Matrix Spike		Result	Units	Spike	%REC	%REC Lim	Sample		
Total Phosphorus(as P)		0.217	mg/L	0.200	108.51	85.00-115.00	0.00400U		
Matrix Spike Duplicate		Result	Units	Spike	%REC	%REC Lim	Sample	RPD	RPD Lim
Total Phosphorus(as P)		0.219	mg/L	0.200	109.62	85.00-115.00	0.00400U	1.02	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 TKN, ammonia and nitrate Matrix Spike recoveries that are out of limits only affect the sample spiked, the Lab Control Sample validates the 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.