



Pace Analytical Services, LLC
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Certificate of Analysis 3014965

Jo Anna McMahan
Bluegrass Water Utility Operating Company LLC
1630 DES Peres Rd, Ste 140
St. Louis, MO 63131

Customer ID: 44-102510
Report Printed: 03/29/2023 17:46

Project Name: Quarterly Darlington	Workorder: 3014965
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Dear Jo Anna McMahan

Enclosed are the analytical results for samples received by the laboratory 03/21/2023 15:00.

The results relate to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services LLC Kentucky - Lexington
- Pace Analytical Services LLC Kentucky - Madisonville

If you have any questions concerning this report, please feel free to contact me.



#460210 Madisonville, KY
#460291 Pikeville, KY

Joe Gray, Project Coordinator

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.



SAMPLE SUMMARY

Lab ID	Client Sample ID/Alias	Matrix	Date Collected	Date Received	Sampled By
3014965-01	Darlington Effluent/	Effluent	03/21/2023 09:20	03/21/2023 15:00	Mark Stafford
3014965-02	Darlington Effluent E.coli/	Effluent	03/21/2023 09:30	03/21/2023 15:00	Mark Stafford
<u>LabNumber</u>	<u>Measurement</u>	<u>Value</u>			
3014965-01	Field Temp (C)	11.1			

ANALYTICAL RESULTS

Lab Sample ID: **3014965-01**
Description: **Darlington Effluent**

Sample Collection Date Time: 03/21/2023 09:20
Sample Received Date Time: 03/21/2023 15:00

Conventional Chemistry Analyses Madisonville

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Ammonia as N	1.71		mg/L	0.25		EPA 350.1	03/23/2023 14:29	03/23/2023 14:29	SLM
CBOD 5 Day	8	D	mg/L	4	4	5210 B-2016	03/22/2023 18:26	03/27/2023 17:36	AKJ
Total Suspended Solids	7.2		mg/L	1.0		2540 D-2015	03/27/2023 09:33	03/27/2023 09:33	CLL

Field Analysis Lexington

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
Chlorine Residual (Field)	ND	u	ppm	0.020	0.015	4500Cl G (as HACH 8167)	03/21/2023 09:20	03/21/2023 09:35	MES
Dissolved Oxygen (Field)	9.6		mg/L	0.1	0.1	4500-O G-2001	03/21/2023 09:20	03/21/2023 09:35	MES
Flow (Field)	0.022		mgd			None	03/21/2023 09:20	03/21/2023 09:35	MES
pH (Field)	7.43		Std. Units	0.10	0.10	4500-H+ B-2000	03/21/2023 09:20	03/21/2023 09:35	MES

ANALYTICAL RESULTS

Lab Sample ID: **3014965-02**
Description: **Darlington Effluent E.coli**

Sample Collection Date Time: 03/21/2023 09:30
Sample Received Date Time: 03/21/2023 15:00

Microbiological Analyses Lexington

Analyte	Result	Flag	Units	MRL	MDL	Method	Prepared	Analyzed	Analyst
E. Coli	308		MPN/100m L	1		Colilert®-18 - MPN	03/21/2023 15:44	03/22/2023 10:00	TAT



Notes for work order 3014965

- Samples collected by PACE personnel are done so in accordance with procedures set forth in PACE field services SOPs .
- Results contained in this report are only representative of the samples received.
- PACE does not provide interpretation of these results unless otherwise stated .
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identification based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.

Qualifiers

- D Results reported from dilution.
- M6 Matrix spike recovery was high.
- U Target analyte was analyzed for, but was below detection limit (the value associated with the qualifier is the laboratory method detection limit in our LIMS system).

Standard Qualifiers/Acronyms

- MDL Method Detection Limit
- MRL Minimum Reporting Limit
- ND Not Detected
- LCS Laboratory Control Sample
- MS Matrix Spike
- MSD Matrix Spike Duplicate
- DUP Sample Duplicate
- % Rec Percent Recovery
- RPD Relative Percent Difference
- > Greater than
- < Less than



Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BCC2299 - CBOD Setup										
Blank (BCC2299-BLK1)										
Prepared: 3/22/2023 18:26, Analyzed: 3/27/2023 17:36										
CBOD 5 Day	ND	2	mg/L							U
LCS (BCC2299-BS1)										
Prepared: 3/22/2023 18:26, Analyzed: 3/27/2023 17:36										
CBOD 5 Day	191		mg/L	198		96.7	84.6-115.4			
Duplicate (BCC2299-DUP1) Source: 3033355-02										
Prepared: 3/22/2023 18:26, Analyzed: 3/27/2023 17:36										
CBOD 5 Day	ND	4	mg/L		ND			25		U, D
Batch BCC2302 - Default Prep Wet Chem										
Blank (BCC2302-BLK1)										
Prepared: 3/23/2023 14:26, Analyzed: 3/23/2023 14:26										
Ammonia as N	ND	0.25	mg/L							U
LCS (BCC2302-BS1)										
Prepared: 3/23/2023 14:27, Analyzed: 3/23/2023 14:27										
Ammonia as N	9.99	0.25	mg/L	10.0		99.9	90-110			
Matrix Spike (BCC2302-MS1) Source: 3012735-01										
Prepared: 3/23/2023 14:41, Analyzed: 3/23/2023 14:41										
Ammonia as N	9.97	0.25	mg/L	5.00	4.41	111	90-110			M6
Matrix Spike (BCC2302-MS2) Source: 3034040-01										
Prepared: 3/23/2023 14:55, Analyzed: 3/23/2023 14:55										
Ammonia as N	12.6	0.25	mg/L	5.00	6.37	125	90-110			M6
Matrix Spike Dup (BCC2302-MSD1) Source: 3012735-01										
Prepared: 3/23/2023 14:42, Analyzed: 3/23/2023 14:42										
Ammonia as N	10.1	0.25	mg/L	5.00	4.41	114	90-110	1.30	10	M6
Matrix Spike Dup (BCC2302-MSD2) Source: 3034040-01										
Prepared: 3/23/2023 14:56, Analyzed: 3/23/2023 14:56										
Ammonia as N	12.4	0.25	mg/L	5.00	6.37	121	90-110	1.60	10	M6



Conventional Chemistry Analyses Madisonville - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BCC2495 - Default Prep Wet Chem										
Blank (BCC2495-BLK1)										
Prepared: 3/27/2023 9:33, Analyzed: 3/27/2023 9:33										
Total Suspended Solids	ND	2.5	mg/L							U
LCS (BCC2495-BS1)										
Prepared: 3/27/2023 9:33, Analyzed: 3/27/2023 9:33										
Total Suspended Solids	96.0	10.0	mg/L	100		96.0	80-120			
Duplicate (BCC2495-DUP1) Source: 3033222-01										
Prepared: 3/27/2023 9:33, Analyzed: 3/27/2023 9:33										
Total Suspended Solids	149	25.0	mg/L		156			4.59	5	
Duplicate (BCC2495-DUP2) Source: 3034152-01										
Prepared: 3/27/2023 9:33, Analyzed: 3/27/2023 9:33										
Total Suspended Solids	270	50.0	mg/L		270			0.00	5	



Microbiological Analyses Lexington - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BCC2361 - Default Prep Micro 4

Blank (BCC2361-BLK1)

Prepared: 3/21/2023 14:00, Analyzed: 3/22/2023 10:00

E. Coli	ND	1	MPN/100mL							U
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Blank (BCC2361-BLK2)

Prepared: 3/21/2023 15:44, Analyzed: 3/22/2023 10:00

E. Coli	ND	1	MPN/100mL							U
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Certified Analyses included in this Report

Analyte	Certifications
2540 D-2015 in Water	
Total Suspended Solids	VA NELAC MDV (460210) KY Wastewater Mdv (00030) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
4500Cl G (as HACH 8167) in Water	
Chlorine Residual (Field)	KY Wastewater Lex (00066)
4500-H+ B-2000 in Water	
pH (Field)	KY Drinking Water Mdv (00030) KY Wastewater Lex (00066)
4500-O G-2001 in Water	
Dissolved Oxygen (Field)	KY Wastewater Lex (00066)
5210 B-2016 in Water	
CBOD 5 Day	VA NELAC MDV (460210) KY Wastewater Mdv (00030) WV Wastewater Madisonville (241), 825 Industrial Rd Madisonville, KY 42431
Colilert®-18 - MPN in Water	
E. Coli	KY Drinking Water Lex (00066) KY Wastewater Lex (00066)
EPA 350.1 in Water	
Ammonia as N	KY Wastewater Mdv (00030)

Sample Acceptance Checklist for Work Order 3014965	
Shipped By: Pace Analytical Services LL	Temperature: 2.60° Celcius
Condition	
Check if Custody Seals are Present/Intact	<input type="checkbox"/>
Check if Custody Signatures are Present	<input checked="" type="checkbox"/>
Check if Collector Signature Present	<input checked="" type="checkbox"/>
Check if bottles are intact	<input checked="" type="checkbox"/>
Check if bottles are correct	<input checked="" type="checkbox"/>
Check if bottles have sufficient volume	<input checked="" type="checkbox"/>
Check if samples received on ice	<input checked="" type="checkbox"/>
Check if VOA headspace is acceptable	<input type="checkbox"/>
Check if samples received in holding time.	<input checked="" type="checkbox"/>
Check if samples are preserved properly	<input checked="" type="checkbox"/>

Chain of Custody

Scheduled for: **01/23/2023**



Client: Bluegrass Water Utility Operating Company LLC

Report To:
Bluegrass Water Utility Operating Company LLC
Jo Anna McMahon
1630 DES Peres Rd, Ste 140
St. Louis, MO 63131

Invoice To:
Bluegrass Water Utility Operating Company LLC
AP
1630 DES Peres Rd, Ste 140
St. Louis, MO 63131

Project: Quarterly Darlington

Phone: 314-380-8571

PWS ID#: _____

State: _____

PO#: _____

Quote# _____

Please Print Legibly

Mark Spattol

Collected by (Signature): *Mark Spattol*

Compliance Monitoring? Yes ___ No ___

Samples Chlorinated? Yes ___ No ___

*For composite samples please indicate begin time, end time and temp(oC) at end time below:

Influent: Start Date _____ Start time 0850 End Date 3/21/23 End Time _____ Temp (oC) _____

Effluent: Start Date 3/20/23 Start time 0850 End Date 3/21/23 End Time 0920 Temp (oC) _____

1020

LAB USE ONLY Workorder # Sample ID#	*required information* Date (mm/dd/yy): Collection Time (24 hr):	Bottle and Preservative	Containers	Sample Description	Composite	Sample Analysis Requested
3014965-01 A		Plastic 500mL pH<2 w/H2SO4	1	Darlington Effluent	g / g	Ammonia by Lachat 350.1
Preservation Check: pH :			<input checked="" type="checkbox"/>			
3014965-01 B		Plastic 1L	1	Darlington Effluent	g / g	CBOD
3014965-01 C		Field Measurement	1	Darlington Effluent	g / c	pH (Field) Lex Flow MGD (Field) Lex DO (Field) Lex Chlorine Residual (Field) Lex DMR Reporting
3014965-01 D		*** DEFAULT CONTAINER ***	1	Darlington Effluent	g / c	DMR Reporting
3014965-01 E		Plastic 1L TSS Only	1	Darlington Effluent	g / g	TSS
3014965-02 A	<u>3/21/23</u> <u>0930</u>	Plastic 125mL (sterile) Na2S2O3	1	Darlington Effluent E.coli	g / c	Ecoli 24 Enumeration Lex

Thermometer Serial Number

210029556

Temp 7.6 °C

Preservation Check Performed by: *Mark Spattol*

Field data collected by: *Mark Spattol* Date (mm/dd/yy) 3/21/23 Time (24 hr) 0935

pH 7.43 Cond (umho) _____ Res Cl (mg/L) 0.00 Tot Cl (mg/L) _____ Free Cl (mg/L) _____

Temp (oC) 11.1 or (oF) _____ Static Water Level _____ DO (mg/L) 9.58 Turb. (NTU) _____

Flow (MGD): 0.216 or (CFS) _____ or (g/min) _____

Relinquished by: (Signature) <u><i>Mark Spattol</i></u>	Received by: (Signature) <u><i>[Signature]</i></u>	Date (mm/dd/yy) <u>3-21-23</u>	Time (24 hr) <u>1500</u>
_____	_____	_____	_____
_____	_____	_____	_____