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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

WC Environmental, LLC
1085C Andrew Drive
West Chester PA 19830

December 01, 2015

Project: White Clay Creek

Submittal Date: 11/20/2015
Group Number: 1611340
PO Number: 11-19-15
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
WCC @ Little league field Grab Surface Water	8145140
WCC @ Rosehill Ave by bridge Grab Surface Water	8145141
WCC @ Lake Rd/Balt. Pike Grab Surface Water	8145142

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO WC Environmental, LLC Attn: Russ Phifer

Respectfully Submitted,

Angela M. Miller
Specialist

(717) 556-7260

Sample Description: WCC @ Little league field Grab Surface Water
White Clay Creek

LL Sample # WW 8145140
LL Group # 1611340
Account # 12242

Project Name: White Clay Creek

Collected: 11/19/2015 13:54 by SK

Submitted: 11/20/2015 18:43
Reported: 12/01/2015 14:10

WC Environmental, LLC
1085C Andrew Drive
West Chester PA 19830

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00368	Nitrate Nitrogen	14797-55-8	1.1	0.25	5
00228	Sulfate	14808-79-8	8.5	1.5	5
	EPA 365.1		**mg/l**	**mg/l**	
00227	Total Phosphorus as P (water)	7723-14-0	0.12	0.050	1
	SM 5310 C-2000		**mg/l**	**mg/l**	
07547	Dissolved Organic Carbon	n.a.	7.2	0.50	1
	SM 5210 B-2001		**mg/l**	**mg/l**	
00235	Biochemical Oxygen Demand	n.a.	11.1	6.0	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00368	Nitrate Nitrogen	EPA 300.0	1	15325667901A	11/21/2015 10:41	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	15325667901A	11/21/2015 10:41	Drew M Gerhart	5
00227	Total Phosphorus as P (water)	EPA 365.1	1	15328109101A	11/25/2015 14:51	Venia B McFadden	1
07547	Dissolved Organic Carbon	SM 5310 C-2000	1	15334237302B	11/30/2015 15:14	Joseph E McKenzie	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	15328109101A	11/24/2015 03:00	Sandra J Miller	1
00235	Biochemical Oxygen Demand	SM 5210 B-2001	1	15325023501A	11/21/2015 09:01	Hannah M Royer	1

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Analysis Report

Sample Description: WCC @ Rosehill Ave by bridge Grab Surface Water
White Clay Creek

LL Sample # WW 8145141
LL Group # 1611340
Account # 12242

Project Name: White Clay Creek

Collected: 11/19/2015 13:59 by SK

Submitted: 11/20/2015 18:43
Reported: 12/01/2015 14:10

WC Environmental, LLC
1085C Andrew Drive
West Chester PA 19830

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00368	Nitrate Nitrogen	14797-55-8	1.2	0.25	5
00228	Sulfate	14808-79-8	8.0	1.5	5
	EPA 365.1		**mg/l**	**mg/l**	
00227	Total Phosphorus as P (water)	7723-14-0	0.096 J	0.050	1
	SM 5310 C-2000		**mg/l**	**mg/l**	
07547	Dissolved Organic Carbon	n.a.	5.3	0.50	1
	SM 5210 B-2001		**mg/l**	**mg/l**	
00235	Biochemical Oxygen Demand	n.a.	8.7	6.0	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00368	Nitrate Nitrogen	EPA 300.0	1	15325667901A	11/21/2015 10:56	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	15325667901A	11/21/2015 10:56	Drew M Gerhart	5
00227	Total Phosphorus as P (water)	EPA 365.1	1	15328109101A	11/25/2015 14:52	Venia B McFadden	1
07547	Dissolved Organic Carbon	SM 5310 C-2000	1	15334237302B	11/30/2015 15:27	Joseph E McKenzie	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	15328109101A	11/24/2015 03:00	Sandra J Miller	1
00235	Biochemical Oxygen Demand	SM 5210 B-2001	1	15325023501A	11/21/2015 09:01	Hannah M Royer	1

Sample Description: WCC @ Lake Rd/Balt. Pike Grab Surface Water
White Clay Creek

LL Sample # WW 8145142
LL Group # 1611340
Account # 12242

Project Name: White Clay Creek

Collected: 11/19/2015 14:05 by SK

Submitted: 11/20/2015 18:43
Reported: 12/01/2015 14:10

WC Environmental, LLC
1085C Andrew Drive
West Chester PA 19830

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00368	Nitrate Nitrogen	14797-55-8	1.4	0.25	5
00228	Sulfate	14808-79-8	57.4	1.5	5
	EPA 365.1		**mg/l**	**mg/l**	
00227	Total Phosphorus as P (water)	7723-14-0	0.32	0.050	1
	SM 5310 C-2000		**mg/l**	**mg/l**	
07547	Dissolved Organic Carbon	n.a.	8.0	0.50	1
	SM 5210 B-2001		**mg/l**	**mg/l**	
00235	Biochemical Oxygen Demand	n.a.	6.8	6.0	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00368	Nitrate Nitrogen	EPA 300.0	1	15325667901A	11/21/2015 11:10	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	15325667901A	11/21/2015 11:10	Drew M Gerhart	5
00227	Total Phosphorus as P (water)	EPA 365.1	1	15328109101A	11/25/2015 14:54	Venia B McFadden	1
07547	Dissolved Organic Carbon	SM 5310 C-2000	1	15334237302B	11/30/2015 15:41	Joseph E McKenzie	1
08263	Total Phos as P Prep (water)	EPA 365.1	1	15328109101A	11/24/2015 03:00	Sandra J Miller	1
00235	Biochemical Oxygen Demand	SM 5210 B-2001	1	15325023501A	11/21/2015 09:01	Hannah M Royer	1

Quality Control Summary

Client Name: WC Environmental, LLC Group Number: 1611340
Reported: 12/01/2015 14:10

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 15325667901A	Sample number(s): 8145140-8145142							
Nitrate Nitrogen	N.D.	0.050	mg/l	96		90-110		
Sulfate	N.D.	0.30	mg/l	97		90-110		
Batch number: 15328109101A	Sample number(s): 8145140-8145142							
Total Phosphorus as P (water)	N.D.	0.050	mg/l	103		90-110		
Batch number: 15334237302B	Sample number(s): 8145140-8145142							
Dissolved Organic Carbon	N.D.	0.50	mg/l	101		86-114		
Batch number: 15325023501A	Sample number(s): 8145140-8145142							
Biochemical Oxygen Demand				95	93	85-115	2	8

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 15325667901A	Sample number(s): 8145140-8145142 UNSPK: P145189 BKG: P145189								
Nitrate Nitrogen	92		90-110			N.D.	N.D.	0 (1)	15
Sulfate	95		90-110			8.0	8.0	0	15
Batch number: 15328109101A	Sample number(s): 8145140-8145142 UNSPK: P141532 BKG: P141532								
Total Phosphorus as P (water)	101		90-110			N.D.	N.D.	0 (1)	4
Batch number: 15334237302B	Sample number(s): 8145140-8145142 UNSPK: P124581 BKG: P124581								
Dissolved Organic Carbon	109		86-114			1.4	1.2	21* (1)	2
Batch number: 15325023501A	Sample number(s): 8145140-8145142 UNSPK: P144609 BKG: P144608								
Biochemical Oxygen Demand	67*	76*	85-115	13*	8	25.3	25.0	1 (1)	15

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Acct. # 12242 Group # 1611340 Sample # 8145140-42

Client: WC Environmental, LLC	
Project Name/#: White Clay Creek	Site ID #:
Project Manager: Russ Phifer	P.O. #: 11 - 19 - 15
Sampler: Shane Kinsey	PWSID #:
Phone #: 610-322-0657	Quote #: 213707A
State where sample(s) were collected: PA	

Matrix: Sediment ☐ Soil ☐ | Water: Ground ☐ Surface ☑ Potable ☐ NPDES ☐ | Other:

Analyses Requested: Nitrates, sulfates, total K, BO; DOC

For Lab Use Only: SF #: ______ SCR #: ______

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, P = H_3PO_4, O = Other

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	Nitrates, sulfates, total K, BO	DOC	Remarks
White Clay Creek @ Little league field		1:54PM	x			x		1			not preserved, but
White Clay Creek @ Rosehill Ave by bridge		1:59PM	x			x		1			refrigerated.
White Clay Creek @ Lake Rd/Balt. Pike		2:05PM	x			x		1			No temp bottle availabl

Turnaround Time Requested (TAT) (please check): Standard ☐ Rush ☑
(Rush TAT is subject to laboratory approval and surcharges.)

Date results are needed: 11/25/15

Rush results requested by (please check): E-Mail ☑ Phone ☐

E-mail Address: rphifer@wcenvironmental.com

Phone: 610-322-0657

Data Package Options (please check if required)

Type I (Validation/non-CLP) ☐ MA MCP ☐
Type III (Reduced non-CLP) ☐ CT RCP ☐
Type IV (CLP SOW) ☐ TX TRRP-13 ☐
Type VI (Raw Data Only) ☐

EDD Required? Yes ☐ No ☐ If yes, format: ______

Relinquished by	Date	Time	Received by	Date	Time
[signature]	11-20-15	1117	[signature]	11-20-15	1117
[signature]	11-20-15	1843			
			[signature]	11/20/15	1843

Relinquished by Commercial Carrier: UPS ______ FedEx ______ Other ______

Temperature upon receipt 0.4 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 126442

Group Number(s): 161340

Client: WC Environmental

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	11/20/2015 18:43
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	PA		

Arrival Condition Summary

Shipping Container Sealed:	No	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Jordan Woods (6698) at 19:07 on 11/20/2015

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.4	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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