

City of Berryville

Public Works Department

P.O. Box 227
305 East Madison
Berryville, Arkansas 72616

Office of the Director, Kirby Murray

Phone: 870-423-4074
Fax: 870-423-4501
E-mail: kirbymurray@gmail.com

January 17, 2013

Arkansas Department of Environmental Quality
Enforcement Section
5301 Northshore Dr.
N. Little Rock, AR
72118-5317

RE: Permit No.: AR0021792. AFIN No.: 08-00034, 4th Quarter Biomonitoring Results

To Whom It May Concern:

Please find the enclosed biomonitoring results, lab reports and chain of custodies.

Everything is in order and Berryville's plant has passed all tests for the 4th quarter of 2012.

Sincerely,



Kirby Murray

c. Mr. Darrell Backs, Chief Operator

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: BERRYVILLE, CITY OF-VVWTP
 ADDRESS: P.O. BOX 227
 BERRYVILLE, AR 72616

FACILITY: BERRYVILLE WW TREATMENT PLANT

LOCATION: 1000 WEST CEDARVALE ROAD
 BERRYVILLE, AR 72616

ATTN: KIRBY MURRAY/TIM MCKINNEY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
 DISCHARGE MONITORING REPORT (DMR)

AR0021792	TX1-Q
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
10/1/2012	12/31/2012

PREPARED BY ETC
 2790 WHITTEN RD
 MEMPHIS, TN.
 38133

Form Approved
 OMB No. 2040-0004

DMR Mailing ZIP CODE: 72616
 MAJOR

001-QUARTERLY-W.E.T. REPORTS
 External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Whole effluent toxicity 22414 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	100	*****	*****			Quarterly	COMP24
	PERMIT REQUIREMENT	*****	*****	*****	100 DLYAVMIN	*****	*****	%		Quarterly	COMP24
Whole effluent toxicity 22414 P 0 See Comments	SAMPLE MEASUREMENT	*****	*****	*****	100	*****	*****			Quarterly	COMP24
	PERMIT REQUIREMENT	*****	*****	*****	100 7 DA MIN	*****	*****	%		Quarterly	COMP24
Pass/Fail Static Renewal 7 Day Chronic Ceriodaphnia TGP3B 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****						Quarterly	COMP24
	PERMIT REQUIREMENT	*****	*****	*****		Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
Pass/Fail Statre 7Day Chronic Pimephales Promelas TGP6C 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****						Quarterly	COMP24
	PERMIT REQUIREMENT	*****	*****	*****		Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Ceriodaphnia dubia TLP3B 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****						Quarterly	COMP24
	PERMIT REQUIREMENT	*****	*****	*****		Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
Low Flow Pass/Fail Survival Test Static Renewal 7 Day Chronic Pimephales promelas TLP6C 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****						Quarterly	COMP24
	PERMIT REQUIREMENT	*****	*****	*****		Req. Mon. 7 DA AVG	*****	pass=0/fail=1		Quarterly	COMP24
NOEC Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia TOP3B 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	100	*****	*****			Quarterly	COMP24
	PERMIT REQUIREMENT	*****	*****	*****		Req. Mon. 7 DA AVG	*****	%		Quarterly	COMP24

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	TELEPHONE	DATE
Kirby Murray P.W. Director TYPED OR PRINTED			

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

(PASS=0/FAIL=1) IF THE NOEC VALUE IS LESS THAN THE CRITICAL DILUTION, REPORT "1"; OTHERWISE, REPORT "0". SEE PART III, CONDITION #9. _____ 08-00034

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: BERRYVILLE, CITY OF-VVWTP
 ADDRESS: P.O. BOX 227
 BERRYVILLE, AR 72616

FACILITY: BERRYVILLE WW TREATMENT PLANT

LOCATION: 1000 WEST CEDARVALE ROAD
 BERRYVILLE, AR 72616

ATTN: KIRBY MURRAY/TIM MCKINNEY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
 DISCHARGE MONITORING REPORT (DMR)

AR0021792	TX1-Q
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
10/1/2012	12/31/2012

PREPARED BY ETC
 2790 WHITTEN RD.
 MEMPHIS, TN.
 38133

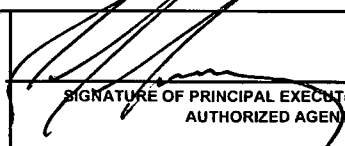
Form Approved
 OMB No. 2040-0004

DMR Mailing ZIP CODE: 72616
 MAJOR

001-QUARTERLY-W.E.T. REPORTS
 External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE	
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS				
NOEC Lethal Static Renewal 7 Day Chronic Pimephales promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	100	*****			0	Quarterly	COMP 24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%			Quarterly	COMP 24
NOEC Sub-Lethal Static Renewal 7 Day Chronic Ceriodaphnia dubia	SAMPLE MEASUREMENT	*****	*****	*****	*****	100	*****			0	Quarterly	COMP 24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%			Quarterly	COMP 24
NOEC Sub-Lethal Static Renewal 7 Day Chronic Pimephales promelas	SAMPLE MEASUREMENT	*****	*****	*****	*****	100	*****			0	Quarterly	COMP 24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%			Quarterly	COMP 24
Coef Of Var Statre 7Day Chronic Ceriodaphnia	SAMPLE MEASUREMENT	*****	*****	*****	*****	11.92	*****			0	Quarterly	COMP 24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%			Quarterly	COMP 24
Coef Of Var Statre 7Day Chronic Pimephales	SAMPLE MEASUREMENT	*****	*****	*****	*****	12.85	*****			0	Quarterly	COMP 24
	PERMIT REQUIREMENT	*****	*****	*****	*****	Req. Mon. 7 DA AVG	*****	%			Quarterly	COMP 24

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE	
Kirby Murray P.W. Director TYPED OR PRINTED			870-423-4074	01/17/2013	
			AREA Code	NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

(PASS=0/FAIL=1) IF THE NOEC VALUE IS LESS THAN THE CRITICAL DILUTION, REPORT "1"; OTHERWISE, REPORT "0". SEE PART III, CONDITION #9. _____ 08-00034



ENVIRONMENTAL TESTING & CONSULTING, INC.

2790 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax (901) 213-2440

January 08, 2013

Mr. Darrell Backs,
City of Berryville WWTP
P.O. Box 227
Berryville, AR 72616

Dear Permittee,

The results of this WET (Whole Effluent Toxicity) test are acceptable according to test review criteria. There were no significant deficiencies found in sample handling, test performance, or reporting. The test results are within the limits established by your NPDES permit and were entered into the permittee's records in the database.

Results: CV > 100% Permit Limit: 100%

Report #: 12-346-0190 BERRYVILLE AR0021792

All statistical interpretations generated by CETIS - Comprehensive Environmental Toxicity Information System (v.1.8.6.1). CETIS created by Tidepool Scientific Software

Respectfully,

A handwritten signature in cursive script that reads "Cook".

Connie Cook, Lab Supervisor

Enclosure(s)

CETIS Test Evaluation Report

Report Date: 08 Jan-13 15:32 (1 of 2)
Test Code: CD 12-346-0190 | 05-7801-2624

Facility: BERRYVILLE Sample Site: Sample Code: 12-346-0190 Sample Date: 10 Dec-12 12:05 Sample Age: 24h (1 °C) Project: WET Quarterly Compliance Test (4Q)	Test Name: Ceriodaphnia 7-d Survival and Reproduction Test Organism: Ceriodaphnia dubia (Water Flea) Protocol: EPA/821/R-02-013 (2002) Start Date: 11 Dec-12 11:45 End Date: 17 Dec-12 15:15 Duration: 6d 3h Organism Age: < 24
Permitee: City of Berryville WWTP Address: P.O. Box 227 1000 W. Cedarvale Road Berryville, AR 72616 Contact: Mr. Darrell Backs Phone: 870-423-3749, 870-423-4501(fax) Email:	Laboratory: Environmental Testing and Consulting, Inc. Address: 2790 Whitten Road Memphis, TN 38133 Contact: Connie Cook, Lab Supervisor Phone: 901-213-2454 Email: ccook@etcmemphis.com

Chronic Toxicity Evaluation					
Endpoint	Parameter	C-%	IWC	Pass/Fail	Method
Reproduction	NOEL/LOEL	100/>100	99.99	Pass	Dunnett Multiple Comparison Test

Test Acceptability Criteria				
Endpoint	Attribute	Test Stat	Limits	Pass/Fail
Reproduction	Control Resp	16.4	15 - N/A	Pass
Reproduction	PMSD	0.1181	0.13 - 0.47	Fail

CETIS Test Evaluation Report

Report Date: 08 Jan-13 15:32 (2 of 2)
 Test Code: CD 12-346-0190 | 05-7801-2624

6d Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	10	1	1	1	1	1	0	0	0.0%	0.0%
32		10	1	1	1	1	1	0	0	0.0%	0.0%
42		10	1	1	1	1	1	0	0	0.0%	0.0%
56		10	1	1	1	1	1	0	0	0.0%	0.0%
75		10	1	1	1	1	1	0	0	0.0%	0.0%
100		10	1	1	1	1	1	0	0	0.0%	0.0%

Reproduction Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	10	16.4	15.67	17.13	12	18	0.6182	1.955	11.92%	0.0%
32		10	18	17.09	18.91	13	22	0.7746	2.449	13.61%	-9.76%
42		10	16.5	15.79	17.21	14	20	0.6009	1.9	11.52%	-0.61%
56		10	16.3	15.71	16.89	15	19	0.4955	1.567	9.61%	0.61%
75		10	18	17.32	18.68	15	21	0.5774	1.826	10.14%	-9.76%
100		10	16.4	15.84	16.96	14	18	0.4761	1.506	9.18%	0.0%

CETIS Summary Report

Report Date: 08 Jan-13 15:32 (p 1 of 2)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test Environmental Testing and Consulting, Inc.

Batch ID: 06-2053-9233	Test Type: Reproduction-Survival (7d)	Analyst: Ava Davis
Start Date: 11 Dec-12 11:45	Protocol: EPA/821/R-02-013 (2002)	Diluent: Perrier Water
Ending Date: 17 Dec-12 15:15	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 6d 3h	Source: In-House Culture	Age: < 24

Sample ID: 18-0542-7617	Code: 12-346-0190	Client: City of Berryville WWTP
Sample Date: 10 Dec-12 12:05	Material: POTW Effluent	Project: WET Quarterly Compliance Test (4Q)
Receive Date: 11 Dec-12 09:03	Source: BERRYVILLE (AR0021792)	
Sample Age: 24h (1 °C)	Station:	

Sample Renewals					
Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	12-346-0190	12 Dec-12 12:56	13 Dec-12 08:26	13 Dec-12 00:00	1
2	12-346-0190	13 Dec-12 12:05	14 Dec-12 09:26	15 Dec-12 00:00	1

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-0618-0768	6d Survival Rate	100	>100	NA	NA	1	Fisher Exact/Bonferroni-Holm Test
00-8170-8743	Reproduction	100	>100	NA	11.8%	1	Dunnett Multiple Comparison Test

Test Acceptability						
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
00-8170-8743	Reproduction	Control Resp	16.4	15 - NL	Yes	Passes Acceptability Criteria
00-8170-8743	Reproduction	PMSD	0.1181	0.13 - 0.47	Yes	Below Acceptability Criteria

6d Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	10	1	1	1	1	1	0	0	0.0%	0.0%
32		10	1	1	1	1	1	0	0	0.0%	0.0%
42		10	1	1	1	1	1	0	0	0.0%	0.0%
56		10	1	1	1	1	1	0	0	0.0%	0.0%
75		10	1	1	1	1	1	0	0	0.0%	0.0%
100		10	1	1	1	1	1	0	0	0.0%	0.0%

Reproduction Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	10	16.4	15	17.8	12	18	0.6182	1.955	11.92%	0.0%
32		10	18	16.25	19.75	13	22	0.7746	2.449	13.61%	-9.76%
42		10	16.5	15.14	17.86	14	20	0.6009	1.9	11.52%	-0.61%
56		10	16.3	15.18	17.42	15	19	0.4955	1.567	9.61%	0.61%
75		10	18	16.69	19.31	15	21	0.5774	1.826	10.14%	-9.76%
100		10	16.4	15.32	17.48	14	18	0.4761	1.506	9.18%	0.0%

CETIS Summary Report

Report Date: 08 Jan-13 15:32 (p 2 of 2)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test											Environmental Testing and Consulting, Inc.
6d Survival Rate Detail											
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Lab Water	1	1	1	1	1	1	1	1	1	1
32		1	1	1	1	1	1	1	1	1	1
42		1	1	1	1	1	1	1	1	1	1
56		1	1	1	1	1	1	1	1	1	1
75		1	1	1	1	1	1	1	1	1	1
100		1	1	1	1	1	1	1	1	1	1
Reproduction Detail											
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	Lab Water	17	18	17	14	18	17	12	16	18	17
32		16	19	18	13	19	22	16	19	19	19
42		15	17	16	14	17	20	18	14	18	16
56		15	16	16	19	19	15	17	16	15	15
75		18	17	21	15	18	16	19	17	19	20
100		14	17	18	15	15	15	17	17	18	18

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 1 of 8)
Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test		Environmental Testing and Consulting, Inc.	
Sample ID: 18-0542-7617	Code: 12-346-0190	Client: City of Berryville WWTP	
Sample Date: 10 Dec-12 12:05	Material: POTW Effluent	Project: WET Quarterly Compliance Test (4Q)	
Receive Date: 11 Dec-12 09:03	Source: BERRYVILLE (AR0021792)		
Sample Age: 24h (1 °C)	Station:		

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 2 of 8)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test **Environmental Testing and Consulting, Inc.**

Alkalinity (CaCO3)-mg/L							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	59				
0	Lab Water	2	61				
0	Lab Water	3	59				
0	Lab Water	4	61				
0	Lab Water	5	59				
0	Lab Water	6	60				
0	Lab Water	7	59				

Total Residual Chlorine-mg/L							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	0				
100			0.05				
0	Lab Water	2	0				
100			0.05				
0	Lab Water	3	0				
100			0.09				
0	Lab Water	4	0				
100			0.09				
0	Lab Water	5	0				
100			0.12				
0	Lab Water	6	0				
100			0.12				
0	Lab Water	7	0				
100			0.12				

Conductivity-µS/cm							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	181				
100			1542				
0	Lab Water	2	181				
100			1517				
0	Lab Water	3	175				
100			1484				
0	Lab Water	4	176				
100			1508				
0	Lab Water	5	176				
100			1508				
0	Lab Water	6	180				
100			1489				
0	Lab Water	7	176				
100			1567				

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 2 of 8)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test							Environmental Testing and Consulting, Inc.	
Alkalinity (CaCO₃)-mg/L								
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	Lab Water	1	59					
0	Lab Water	2	61					
0	Lab Water	3	59					
0	Lab Water	4	61					
0	Lab Water	5	59					
0	Lab Water	6	60					
0	Lab Water	7	59					
Total Residual Chlorine-mg/L								
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	Lab Water	1	0					
100			0.05					
0	Lab Water	2	0					
100			0.05					
0	Lab Water	3	0					
100			0.09					
0	Lab Water	4	0					
100			0.09					
0	Lab Water	5	0					
100			0.12					
0	Lab Water	6	0					
100			0.12					
0	Lab Water	7	0					
100			0.12					
Conductivity-μS/cm								
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	Lab Water	1	181					
100			1542					
0	Lab Water	2	181					
100			1517					
0	Lab Water	3	175					
100			1484					
0	Lab Water	4	176					
100			1508					
0	Lab Water	5	176					
100			1508					
0	Lab Water	6	180					
100			1489					
0	Lab Water	7	176					
100			1567					

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 3 of 8)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test				Environmental Testing and Consulting, Inc.			
Final Dissolved Oxygen-mg/L							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	8.4				
32			8.3				
42			8.3				
56			8.3				
75			8.2				
100			8.2				
0	Lab Water	2	9				
32			9.1				
42			9.1				
56			9.2				
75			9.1				
100			9.1				
0	Lab Water	3	8.8				
32			8.7				
42			8.7				
56			8.7				
75			8.8				
100			8.7				
0	Lab Water	4	8.3				
32			8.4				
42			8.4				
56			8.3				
75			8.2				
100			8.1				
0	Lab Water	5	8.1				
32			8.1				
42			8.1				
56			8				
75			8				
100			8				
0	Lab Water	6	8.2				
32			8.2				
42			8				
56			8.1				
75			8.1				
100			8.1				

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 4 of 8)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test						Environmental Testing and Consulting, Inc.	
Initial Dissolved Oxygen-mg/L							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	8.8				
32		8.9					
42		8.9					
56		8.9					
75		8.9					
100		8.7					
0	Lab Water	2	9				
32		9					
42		9.1					
56		9.2					
75		9.2					
100		9.2					
0	Lab Water	3	8.7				
32		8.9					
42		8.9					
56		8.9					
75		9.1					
100		9.3					
0	Lab Water	4	9.2				
32		9.1					
42		9.1					
56		9.1					
75		9.2					
100		9.2					
0	Lab Water	5	9.6				
32		9.6					
42		9.6					
56		9.6					
75		9.6					
100		9.6					
0	Lab Water	6	8.9				
32		9					
42		9					
56		9.3					
75		9.3					
100		9.2					
0	Lab Water	7	9.5				
32		9.6					
42		9.6					
56		9.7					
75		9.6					
100		9.4					
Hardness (CaCO3)-mg/L							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	94				
0	Lab Water	2	92				
0	Lab Water	3	91				
0	Lab Water	4	93				
0	Lab Water	5	92				
0	Lab Water	6	95				
0	Lab Water	7	92				

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 5 of 8)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test				Environmental Testing and Consulting, Inc.			
Final pH-Units							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	8				
32			8				
42			8				
56			8				
75			8				
100			8				
0	Lab Water	2	7.8				
32			8				
42			8.2				
56			8.4				
75			8.4				
100			8.4				
0	Lab Water	3	8				
32			7.9				
42			8.1				
56			8.2				
75			8.3				
100			8.5				
0	Lab Water	4	8				
32			8				
42			8				
56			8				
75			8.1				
100			8.1				
0	Lab Water	5	8				
32			8				
42			8				
56			8				
75			8				
100			8				
0	Lab Water	6	8.1				
32			8.1				
42			8.1				
56			8				
75			8				
100			8				

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 6 of 8)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test						Environmental Testing and Consulting, Inc.	
Initial pH-Units							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	8.3				
32			8.3				
42			8.3				
56			8.3				
75			8.3				
100			8.3				
0	Lab Water	2	8				
32			8				
42			8				
56			8.1				
75			8.1				
100			8.1				
0	Lab Water	3	8.2				
32			8.3				
42			8.3				
56			8.4				
75			8.5				
100			8.6				
0	Lab Water	4	8.1				
32			8				
42			8				
56			8				
75			8				
100			7.9				
0	Lab Water	5	8.1				
32			8.1				
42			8.1				
56			8.1				
75			8				
100			8				
0	Lab Water	6	7.9				
32			8.1				
42			8.3				
56			8.3				
75			8.4				
100			8.5				
0	Lab Water	7	8				
32			8				
42			8				
56			7.9				
75			7.9				
100			7.9				

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 7 of 8)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test Environmental Testing and Consulting, Inc.

Final Temperature-°C								
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	Lab Water	1	23					
32			23					
42			23					
56			23					
75			23					
100			23					
0			Lab Water	2	23			
32	23							
42	23							
56	23							
75	23							
100	23							
0	Lab Water	3			23			
32			23					
42			23					
56			23					
75			23					
100			23					
0			Lab Water	4	23			
32	23							
42	23							
56	23							
75	23							
100	23							
0	Lab Water	5			23			
32			23					
42			23					
56			23					
75			23					
100			23					
0			Lab Water	6	23			
32	23							
42	23							
56	23							
75	23							
100	23							

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 8 of 8)
 Test Code: CD 12-346-0190 | 05-7801-2624

Ceriodaphnia 7-d Survival and Reproduction Test				Environmental Testing and Consulting, Inc.			
Initial Temperature-°C							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	23				
32			23				
42			23				
56			23				
75			23				
100			23				
0			Lab Water	2	23		
32	23						
42	23						
56	23						
75	23						
100	23						
0	Lab Water	3			23		
32			23				
42			23				
56			23				
75			23				
100			23				
0			Lab Water	4	23		
32	23						
42	23						
56	23						
75	23						
100	23						
0	Lab Water	5			23		
32			23				
42			23				
56			23				
75			23				
100			23				
0			Lab Water	6	23		
32	23						
42	23						
56	23						
75	23						
100	23						
0	Lab Water	7			23		
32			23				
42			23				
56			23				
75			23				
100			23				

CETIS Test Evaluation Report

Report Date: 08 Jan-13 15:32 (1 of 2)
 Test Code: FH 12-346-0190 | 13-8006-4482

Facility: BERRYVILLE Sample Site: Sample Code: 12-346-0190 Sample Date: 10 Dec-12 12:05 Sample Age: 24h (1 °C) Project: WET Quarterly Compliance Test (4Q)	Test Name: Fathead Minnow 7-d Larval Survival and Growth Test Organism: Pimephales promelas (Fathead Minnow) Protocol: EPA/821/R-02-013 (2002) Start Date: 11 Dec-12 12:00 End Date: 18 Dec-12 14:14 Duration: 7d 2h Organism Age: < 24
Permitee: City of Berryville WWTP Address: P.O. Box 227 1000 W. Cedarvale Road Berryville, AR 72616 Contact: Mr. Darrell Backs Phone: 870-423-3749, 870-423-4501(fax) Email:	Laboratory: Environmental Testing and Consulting, Inc. Address: 2790 Whitten Road Memphis, TN 38133 Contact: Connie Cook, Lab Supervisor Phone: 901-213-2454 Email: ccook@etcmemphis.com

Chronic Toxicity Evaluation					
Endpoint	Parameter	C-%	IWC	Pass/Fail	Method
7d Survival Rate	NOEL/LOEL	100/>100	99.99	Pass	Steel Many-One Rank Sum Test
Mean Dry Weight-mg	NOEL/LOEL	100/>100	99.99	Pass	Dunnett Multiple Comparison Test

Test Acceptability Criteria				
Endpoint	Attribute	Test Stat	Limits	Pass/Fail
7d Survival Rate	Control Resp	0.95	0.8 - N/A	Pass

CETIS Test Evaluation Report

Report Date: 08 Jan-13 15:32 (2 of 2)
 Test Code: FH 12-346-0190 | 13-8006-4482

7d Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	5	0.95	0.9244	0.9756	0.875	1	0.03062	0.06847	7.21%	0.0%
32		5	0.975	0.9541	0.9959	0.875	1	0.025	0.0559	5.73%	-2.63%
42		5	0.975	0.9541	0.9959	0.875	1	0.025	0.0559	5.73%	-2.63%
56		5	0.975	0.9541	0.9959	0.875	1	0.025	0.0559	5.73%	-2.63%
75		5	1	1	1	1	1	0	0	0.0%	-5.26%
100		5	0.975	0.9541	0.9959	0.875	1	0.025	0.0559	5.73%	-2.63%

Mean Dry Weight-mg Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	5	0.36	0.3427	0.3773	0.3	0.425	0.02069	0.04627	12.85%	0.0%
32		5	0.3875	0.3674	0.4076	0.3375	0.475	0.02405	0.05377	13.88%	-7.64%
42		5	0.3775	0.3602	0.3948	0.3125	0.425	0.02069	0.04627	12.26%	-4.86%
56		5	0.365	0.3418	0.3882	0.325	0.475	0.02778	0.06213	17.02%	-1.39%
75		5	0.3725	0.358	0.387	0.325	0.4125	0.01741	0.03893	10.45%	-3.47%
100		5	0.3525	0.3383	0.3667	0.325	0.4	0.01696	0.03791	10.76%	2.08%

CETIS Summary Report

Report Date: 08 Jan-13 15:32 (p 1 of 2)
 Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test Environmental Testing and Consulting, Inc.

Batch ID: 14-0872-9516	Test Type: Growth-Survival (7d)	Analyst: Ava Davis
Start Date: 11 Dec-12 12:00	Protocol: EPA/821/R-02-013 (2002)	Diluent: Perrier Water
Ending Date: 18 Dec-12 14:14	Species: Pimephales promelas	Brine: Not Applicable
Duration: 7d 2h	Source: Aquatox, AR	Age: < 24

Sample ID: 18-0542-7617	Code: 12-346-0190	Client: City of Berryville WWTP
Sample Date: 10 Dec-12 12:05	Material: POTW Effluent	Project: WET Quarterly Compliance Test (4Q)
Receive Date: 11 Dec-12 09:03	Source: BERRYVILLE (AR0021792)	
Sample Age: 24h (1 °C)	Station:	

Sample Renewals					
Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	12-346-0190	12 Dec-12 12:56	13 Dec-12 08:26	13 Dec-12 00:00	1
2	12-346-190	13 Dec-12 12:05	14 Dec-12 09:26	15 Dec-12 00:00	1

Comparison Summary							
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
12-2699-4701	7d Survival Rate	100	>100	NA	8.4%	1	Steel Many-One Rank Sum Test
04-6214-7489	Mean Dry Weight-mg	100	>100	NA	20.0%	1	Dunnett Multiple Comparison Test

Test Acceptability						
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
12-2699-4701	7d Survival Rate	Control Resp	0.95	0.8 - NL	Yes	Passes Acceptability Criteria

7d Survival Rate Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	5	0.95	0.865	1	0.875	1	0.03062	0.06847	7.21%	0.0%
32		5	0.975	0.9056	1	0.875	1	0.025	0.0559	5.73%	-2.63%
42		5	0.975	0.9056	1	0.875	1	0.025	0.0559	5.73%	-2.63%
56		5	0.975	0.9056	1	0.875	1	0.025	0.0559	5.73%	-2.63%
75		5	1	1	1	1	1	0	0	0.0%	-5.26%
100		5	0.975	0.9056	1	0.875	1	0.025	0.0559	5.73%	-2.63%

Mean Dry Weight-mg Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water	5	0.36	0.3026	0.4174	0.3	0.425	0.02069	0.04627	12.85%	0.0%
32		5	0.3875	0.3207	0.4543	0.3375	0.475	0.02405	0.05377	13.88%	-7.64%
42		5	0.3775	0.3201	0.4349	0.3125	0.425	0.02069	0.04627	12.26%	-4.86%
56		5	0.365	0.2879	0.4421	0.325	0.475	0.02778	0.06213	17.02%	-1.39%
75		5	0.3725	0.3242	0.4208	0.325	0.4125	0.01741	0.03893	10.45%	-3.47%
100		5	0.3525	0.3054	0.3996	0.325	0.4	0.01696	0.03791	10.76%	2.08%

CETIS Summary Report

Report Date: 08 Jan-13 15:32 (p 2 of 2)
 Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test						Environmental Testing and Consulting, Inc.
7d Survival Rate Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	1	0.875	1	1	0.875
32		1	1	1	0.875	1
42		1	1	0.875	1	1
56		1	1	1	1	0.875
75		1	1	1	1	1
100		0.875	1	1	1	1
Mean Dry Weight-mg Detail						
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	0.3625	0.425	0.3	0.375	0.3375
32		0.3625	0.3375	0.3625	0.4	0.475
42		0.35	0.3125	0.4125	0.3875	0.425
56		0.3375	0.35	0.325	0.3375	0.475
75		0.325	0.3375	0.4	0.3875	0.4125
100		0.325	0.3875	0.325	0.4	0.325

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 1 of 8)
Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test		Environmental Testing and Consulting, Inc.	
Sample ID: 18-0542-7617	Code: 12-346-0190	Client: City of Berryville WWTP	
Sample Date: 10 Dec-12 12:05	Material: POTW Effluent	Project: WET Quarterly Compliance Test (4Q)	
Receive Date: 11 Dec-12 09:03	Source: BERRYVILLE (AR0021792)		
Sample Age: 24h (1 °C)	Station:		

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 2 of 8)
 Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test							Environmental Testing and Consulting, Inc.	
Alkalinity (CaCO3)-mg/L								
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	Lab Water	1	59					
0	Lab Water	2	61					
0	Lab Water	3	59					
0	Lab Water	4	61					
0	Lab Water	5	59					
0	Lab Water	6	60					
0	Lab Water	7	59					
Total Residual Chlorine-mg/L								
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	Lab Water	1	0					
100			0.05					
0	Lab Water	2	0					
100			0.05					
0	Lab Water	3	0					
100			0.09					
0	Lab Water	4	0					
100			0.09					
0	Lab Water	5	0					
100			0.12					
0	Lab Water	6	0					
100			0.12					
0	Lab Water	7	0					
100			0.12					
Conductivity-µS/cm								
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	Lab Water	1	181					
100			1542					
0	Lab Water	2	181					
100			1517					
0	Lab Water	3	175					
100			1484					
0	Lab Water	4	176					
100			1508					
0	Lab Water	5	176					
100			1508					
0	Lab Water	6	180					
100			1489					
0	Lab Water	7	176					
100			1567					

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 3 of 8)
 Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test				Environmental Testing and Consulting, Inc.			
Final Dissolved Oxygen-mg/L							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	9				
32			9.1				
42			9.1				
56			9.1				
75			9				
100			9.1				
0	Lab Water	2	9.3				
32			9.2				
42			9.1				
56			9.2				
75			9.2				
100			9.2				
0	Lab Water	3	9.1				
32			9.1				
42			9.1				
56			9.1				
75			9.1				
100			9.2				
0	Lab Water	4	8.5				
32			8.5				
42			8.5				
56			8.5				
75			9.5				
100			9.5				
0	Lab Water	5	8.4				
32			8.4				
42			8.3				
56			8.4				
75			8.6				
100			8.6				
0	Lab Water	6	9.4				
32			9.4				
42			9.1				
56			9.3				
75			9.2				
100			9.1				
0	Lab Water	7	8.5				
32			8.9				
42			8.9				
56			8.6				
75			8.6				
100			8.8				

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 4 of 8)
 Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test						Environmental Testing and Consulting, Inc.	
Initial Dissolved Oxygen-mg/L							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	8.8				
32			8.9				
42			8.9				
56			8.9				
75			8.9				
100			8.7				
0	Lab Water	2	9				
32			9				
42			9.1				
56			9.2				
75			9.2				
100			9.2				
0	Lab Water	3	8.7				
32			8.9				
42			8.9				
56			8.9				
75			9.1				
100			9.3				
0	Lab Water	4	9.2				
32			9.1				
42			9.1				
56			9.1				
75			9.2				
100			9.2				
0	Lab Water	5	9.6				
32			9.6				
42			9.6				
56			9.6				
75			9.6				
100			9.6				
0	Lab Water	6	8.9				
32			9				
42			9				
56			9.3				
75			9.3				
100			9.2				
0	Lab Water	7	9.5				
32			9.6				
42			9.6				
56			9.7				
75			9.6				
100			9.4				
Hardness (CaCO3)-mg/L							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	94				
0	Lab Water	2	92				
0	Lab Water	3	91				
0	Lab Water	4	93				
0	Lab Water	5	92				
0	Lab Water	6	95				
0	Lab Water	7	92				

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 5 of 8)
 Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test							Environmental Testing and Consulting, Inc.	
Final pH-Units								
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	Lab Water	1	8					
32			8.1					
42			8.2					
56			8.2					
75			8.4					
100			8.4					
0	Lab Water	2	7.9					
32			7.9					
42			8					
56			8.1					
75			8.2					
100			8.4					
0	Lab Water	3	8					
32			8					
42			8					
56			8.3					
75			8.4					
100			8.4					
0	Lab Water	4	8					
32			8					
42			8					
56			8.3					
75			8.4					
100			8.4					
0	Lab Water	5	8					
32			8					
42			8					
56			8.1					
75			8.1					
100			8.1					
0	Lab Water	6	8					
32			8.1					
42			8.2					
56			8.3					
75			8.3					
100			8.4					
0	Lab Water	7	8.1					
32			8.1					
42			8.1					
56			8					
75			8					
100			8					

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 6 of 8)
 Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test							Environmental Testing and Consulting, Inc.	
Initial pH-Units								
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst	Notes
0	Lab Water	1	8.3					
32			8.3					
42			8.3					
56			8.3					
75			8.3					
100			8.3					
0	Lab Water	2	8					
32			8					
42			8					
56			8.1					
75			8.1					
100			8.1					
0	Lab Water	3	8.2					
32			8.3					
42			8.3					
56			8.4					
75			8.5					
100			8.6					
0	Lab Water	4	8.1					
32			8					
42			8					
56			8					
75			8					
100			7.9					
0	Lab Water	5	8.1					
32			8.1					
42			8.1					
56			8.1					
75			8					
100			8					
0	Lab Water	6	7.9					
32			8.1					
42			8.3					
56			8.3					
75			8.4					
100			8.5					
0	Lab Water	7	8					
32			8					
42			8					
56			7.9					
75			7.9					
100			7.9					

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 7 of 8)
 Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test Environmental Testing and Consulting, Inc.

Final Temperature-°C							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	23				
32			23				
42			23				
56			23				
75			23				
100			23				
0			Lab Water	2	23		
32	23						
42	23						
56	23						
75	23						
100	23						
0	Lab Water	3			23		
32			23				
42			23				
56			23				
75			23				
100			23				
0			Lab Water	4	23		
32	23						
42	23						
56	23						
75	23						
100	23						
0	Lab Water	5			23		
32			23				
42			23				
56			23				
75			23				
100			23				
0			Lab Water	6	23		
32	23						
42	23						
56	23						
75	23						
100	23						
0	Lab Water	7			23		
32			23				
42			23				
56			23				
75			23				
100			23				

CETIS Measurement Report

Report Date: 08 Jan-13 15:32 (p 8 of 8)
 Test Code: FH 12-346-0190 | 13-8006-4482

Fathead Minnow 7-d Larval Survival and Growth Test				Environmental Testing and Consulting, Inc.			
Initial Temperature-°C							
C-%	Control Type	Reading Time	Measure	QA	Diff-%	Inst ID	Analyst Notes
0	Lab Water	1	23				
32			23				
42			23				
56			23				
75			23				
100			23				
0	Lab Water	2	23				
32			23				
42			23				
56			23				
75			23				
100			23				
0	Lab Water	3	23				
32			23				
42			23				
56			23				
75			23				
100			23				
0	Lab Water	4	23				
32			23				
42			23				
56			23				
75			23				
100			23				
0	Lab Water	5	23				
32			23				
42			23				
56			23				
75			23				
100			23				
0	Lab Water	6	23				
32			23				
42			23				
56			23				
75			23				
100			23				
0	Lab Water	7	23				
32			23				
42			23				
56			23				
75			23				
100			23				



ENVIRONMENTAL TESTING & CONSULTING, INC.

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"A Laboratory Management Partner"

03308

City of Berryville

Mr. Darrell Backs

P.O. Box 227

Berryville, AR 72616

Project WWTP Bioassay
Information :

Report Date : 1/8/2013

Report Number : 12-346-0190

REPORT OF ANALYSIS

Received : 12/11/2012

Lab No : 89659

Sample ID : Outfall 001

Matrix: Aqueous

Sampled: 12/10/2012 12:05

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	333	mg/L	1	1	12/18/12 09:10	EWB	2320B
Total Calcium	23.3	mg/L	0.100	1	12/28/12 02:24	JTR	EPA-200.7
Hardness as CaCO3(SM-2340B)	84.9	mg/L	0.100	1	12/28/12 02:24		EPA-200.7
Total Magnesium	6.48	mg/L	0.100	1	12/28/12 02:24	BKN	EPA-200.7

Lab No : 90232

Sample ID : Outfall 001

Matrix: Aqueous

Sampled: 12/12/2012 0:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	281	mg/L	1	1	12/18/12 09:10	EWB	2320B
Total Calcium	25.6	mg/L	0.100	1	12/28/12 02:30	JTR	EPA-200.7
Hardness as CaCO3(SM-2340B)	94.2	mg/L	0.100	1	12/28/12 02:30		EPA-200.7
Total Magnesium	7.35	mg/L	0.100	1	12/28/12 02:30	BKN	EPA-200.7

Lab No : 90520

Sample ID : Outfall 001

Matrix: Aqueous

Sampled: 12/13/2012 12:05

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	283	mg/L	1	1	12/18/12 09:10	EWB	2320B
Total Calcium	25.3	mg/L	0.100	1	12/28/12 02:37	JTR	EPA-200.7
Hardness as CaCO3(SM-2340B)	92.8	mg/L	0.100	1	12/28/12 02:37		EPA-200.7
Total Magnesium	7.20	mg/L	0.100	1	12/28/12 02:37	BKN	EPA-200.7

Qualifiers/ Definitions

* Outside QC limit
MQL Method Quantitation Limit

DF Dilution Factor

Environmental Testing and Consulting, Inc.
2790 Whitten Road
Memphis, TN 38133

Additional Toxicity Test Information

1. Methods/Instrumentation used in chemical analysis:
 - Dissolved oxygen: 4500-O G YSI MODEL - 58
 - pH: 4500-H + B JENCO METER 6072
 - Temperature: 2550 B JENCO METER 6072
 - Conductivity: 2510 B CORNING METER 441
 - Alkalinity: 2320 B
 - Hardness: 200.7
 - Total Residual Chlorine: 4500-Cl G - REPORTED VALUE OF "0" INDICATES RESULT BELOW DETECTION LIMIT OF 0.02 mg/L
 - EPA Acute/Chronic Manual Edition and Date: EPA-821-R-02-012
 - OCT 2002 (Fifth edition)

2. Laboratory
 - Temperature: Average - 25 C Range - 23 - 26
 - Light Cycle: 16 hours light/ 8 hours dark
 - Light intensity: 100 foot-candles, average
 - Control Water: Dilute mineral water made with 20 % Perrier in Nanopure
 - Dilution Water: Laboratory control water
 - Pretreatment: none

3. Method 1002.0
 - Test chambers: 30 mL disposable plastic beakers
 - Volume per chamber: 15 mL
 - Number of organisms per chamber: 1
 - Number of replicates: 10
 - Food: Laboratory culture of Selenastrum algae and YCT solution

4. Method 1000.0
 - Test chambers: 20 oz. Disposable plastic cups
 - Volume per chamber: 200 mL
 - Average number of organisms per chamber: 8
 - Number of replicates per concentration: 5
 - Food: Artemia brine shrimp hatched in laboratory
 - Acclimation of organisms: Organisms are allowed to reach test temperature. Dilution water is added at half-hour intervals until organisms are contained in a culture media that consists of 80% dilution water.

5. Indicate below any other relevant information that may aid in the evaluation of this report. Include any deviations from EPA methodology that were necessary for these tests as well as any sample manipulations which were performed, such as aeration, dechlorination with sodium thiosulfate, etc. and the justification for such manipulations or deviations. Attach additional pages as needed.
 - None



12-346-0190
G3303
2012-12-11
10:24:02
City of Berryville
WWTP Bioassay

$CL_2 = 0.05$



Remarks

Company Name City of Berryville		Cust No 03308	Kit ID 0000019895	Telephone (870) 423-3749	RUSH	ICE
Site Name Quarterly Biosassay		Project Comment 4th qtr bioassay 2012			FID Number	
Project Berryville - Bioassay - WWTP Bioassay		Project Number	PO Number			
Project Manager / Contact Mr. Darrell Backs			E-mail chiefop@hbeark.com			

Sample ID	Container Type	Collected Date / Time	# Cont	Preservative	Grab / Comp	Matrix	Analyses
C1- Outfall 001	Plastic - Pint	12-10-12 12:05	1	NONE	24 HR	Aqueous	Alkalinity
C1- Outfall 001	Plastic - Gallon	11	2	NONE	24 HR	Aqueous	Bioassay
C1- Outfall 001	Plastic - Pint	11	1	HNO3 - Nitric Acid	24 HR	Aqueous	Hardness
C2- Outfall 001	Plastic - Pint		1	NONE		Aqueous	Alkalinity
C2- Outfall 001	Plastic - Gallon		2	NONE		Aqueous	Bioassay
C2- Outfall 001	Plastic - Pint		1	HNO3 - Nitric Acid		Aqueous	Hardness

Sampled By DB	Method of Shipment Fed Ex	Blank / Cooler Temperature 1°C	
Relinquished By (sign) Darrell Backs	Date / Time 12-10-12	Received By (sign) Deanna Sharp	Date / Time 12-10-12
Relinquished By (sign)	Date / Time	Received By (sign)	Date / Time
Relinquished By (sign)	Date / Time	Received by Lab (sign) B. Sharp	Date / Time 12-11-17/09:03



City of Berryville
WWTP Bioassay / 12/11/12/12/13/12

12-346-0190
03308
2012-12-11
10:24:02

CL₂ = 0.09

2

Remarks

Company Name City of Berryville		Cust No 03308	Kit ID 0000019895	Telephone (870) 423-3749	RUSH	ICE
Site Name Quarterly Biosassay		Project Comment 4th qtr bioassay 2012			FID Number	
Project Berryville - Bioassay - WWTP Bioassay		Project Number	PO Number			
Project Manager / Contact Mr. Darrell Backs			E-mail chiefop@hbark.com			

Sample ID	Container Type	Collected Date / Time	# Cont	Preservative	Grab / Comp	Matrix	Analyses
C1- Outfall 001	Plastic - Pint		1	NONE		Aqueous	Alkalinity
C1- Outfall 001	Plastic - Gallon		2	NONE		Aqueous	Bioassay
C1- Outfall 001	Plastic - Pint		1	HNO ₃ - Nitric Acid		Aqueous	Hardness
C2- Outfall 001	Plastic - Pint		1	NONE	24 HR	Aqueous	Alkalinity
C2- Outfall 001	Plastic - Gallon		2	NONE	24 HR	Aqueous	Bioassay
C2- Outfall 001	Plastic - Pint		1	HNO ₃ - Nitric Acid	24 HR	Aqueous	Hardness

Sampled By D.B.	Method of Shipment Fed Ex	Blank / Cooler Temperature 1°C	
Relinquished By (sign) Darrell Backs	Date / Time 12-12-12 12:56	Received By (sign) D. Sharp	Date / Time 12-12-12 12:56
Relinquished By (sign)	Date / Time	Received By (sign)	Date / Time
Relinquished By (sign)	Date / Time	Received by Lab (sign) [Signature]	Date / Time 12/13/12-0826



City of Berryville
WWTP Bioassay / 12/11/12/12/13/12

12-346-0190
03308
2012-12-11
10:24:02

$CH_2 = 0.12$

3

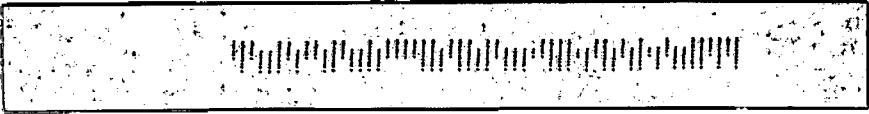
Remarks

Company Name City of Berryville		Cust No 03308	Kit ID 0000019895	Telephone (870) 423-3749	RUSH	ICE
Site Name Quarterly Biosassay		Project Comment 4th qtr bioassay 2012			FID Number	
Project Berryville - Bioassay - WWTP Bioassay		Project Number		PO Number		
Project Manager / Contact Mr. Darrell Backs			E-mail chiefop@hbeark.com			

Sample ID	Container Type	Collected Date / Time	# Cont	Preservative	Grab / Comp	Matrix	Analyses
C3- Outfall 001	Plastic - Pint	12.13.12 12:05	1	NONE	24 HR	Aqueous	Alkalinity
C3- Outfall 001	Plastic - Gallon	12.13.12 12:05	3	NONE	24 HR	Aqueous	Bioassay
C3- Outfall 001	Plastic - Pint	12.13.12 12:05	1	HNO3 - Nitric Acid	24 HR	Aqueous	Hardness

Sampled By D.B.	Method of Shipment Fed Ex	Blank / Cooler Temperature 100	
Relinquished By (sign) Darrell Backs	Date / Time 12-13-12 12:45	Received By (sign) D. Sharp	Date / Time 12-13-12 12:45
Relinquished By (sign)	Date / Time	Received By (sign)	Date / Time
Relinquished By (sign)	Date / Time	Received by Lab (sign) Blowp	Date / Time 12-14-12 09:26

Kirby Murray, PE
City of Berryville
Berryville, AR



1000

72118

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Arkansas Department of Environmental Quality
Enforcement Section
5301 Northshore Dr.
N. Little Rock, AR
72118-5317

*ATTN:
BIOMONITORING*