


Sanitary Sewer Overflow Monthly Report

Facility Name: Marion, City of Permit Number: AR0021971 Reporting Period(Month/Year): 4/APRIL 2015
 No Sanitary Sewer Overflows This Monitoring Period

Cause(s) of SSO		Summary Report Code Descriptions		
		SSO Impact	Action(s) Taken	Ultimate Discharge Location
CO-Construction	D-Debris	NEAH-No Evidence of Adverse Health or Environmental Impact		CR-Creek/Stream/River (please specify)
E-Equipment Failure	G-Grease			
HC-Hydro Clean	LF-Line Failure/Break	OEHC-Observed or Evidence of Human Contact	EC-Environmental Cleanup	DI-Ditch
R-Rainfall	RG-Roots & Grease	EFK-Evidence of Fish Kill	HC-Hydro Cleaned	DR-Drop Inlet
RO-Roots	V-Vandalism		HR-Hand Rodded	GR-Ground Surface
			EN-Referred to Engineering	PA-Paved Area
			PN-Public Notification	CB-Contained in Building

Location	Manhole #	Start Date of SSO	End Date of SSO	Estimated Volume (in gallons)	Cause of SSO	Environmental Impact	Action (s) Taken to Address SSO	Ultimate Discharge Location


 Signature of Cognizant or Ranking Official

5/14/2015
 Date

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."



www.etcmemphis.com

ENVIRONMENTAL TESTING & CONSULTING, INC.

2790 Whitten Road

Memphis, Tennessee 38133

(901) 213-2400

Fax (901) 213-2440

"A Laboratory Management Partner"

04/14/2015

City of Marion Water Department
Mr. Jim Shempert
PO Box 814
Marion, AR, 72364

Ref: Analytical Testing
ETC Report Number: 15-090-0192
Client Project Description: Bioassay

Dear Mr. Jim Shempert:

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/NOEL 88%
Permit Limit: 88%

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

Respectfully,

Connie Cook
Lab Supervisor

CETIS Test Evaluation Report

Report Date: 14 Apr-15 10:59 (1 of 2)
Test Code: CD 15-090-0192 | 20-4847-4015

Facility: Marion Water Department
Sample Site:
Sample Code: 15-090-0192
Sample Date: 31 Mar-15 07:00
Sample Age: 9h (1.6 °C)
Project: WET-Biannual Compliance Test (1st)

Test Name: Ceriodaphnia 7-d Survival and Reproduction Test
Organism: Ceriodaphnia dubia (Water Flea)
Protocol: EPA/821/R-02-013 (2002)
Start Date: 31 Mar-15 16:05
End Date: 06 Apr-15 15:00
Duration: 5d 23h **Organism Age:** < 24

Permitee: City of Marion Water Department
Address:
 PO Box 814
 Marion, AR 72364
Contact: Mr. Jim Shempert
Phone: 870-739-5413, 870-739-5415(fax)
Email: jshempert.waterdept@yahoo.com

Laboratory: Environmental Testing and Consulting, Inc.
Address: 2790 Whitten Road
 Memphis, TN 38133
Contact: Ms. Connie Cook, Lab Supervisor
Phone: 901-213-2454, 901-213-2440(fax)
Email: ccook@etcmemphis

Chronic Toxicity Evaluation

Endpoint	Parameter	C-%	IWC	Pass/Fail	Method
Reproduction	NOEL/LOEL	88/>88	88	Pass	Steel Many-One Rank Sum Test

Test Acceptability Criteria

Endpoint	Attribute	Test Stat	Limits	Pass/Fail
Reproduction	Control Resp	16.6	15 - N/A	Pass
Reproduction	PMSD	0.2666	0.13 - 0.47	Pass

CETIS Test Evaluation Report

Report Date: 14 Apr-15 10:59 (2 of 2)
 Test Code: CD 15-090-0192 | 20-4847-4015

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	0.9	0.7819	1	0	1	0.1	0.3162	35.14%	0.0%
28		10	0.9	0.7819	1	0	1	0.1	0.3162	35.14%	0.0%
37		10	0.9	0.7819	1	0	1	0.1	0.3162	35.14%	0.0%
50		10	1	1	1	1	1	0	0	0.0%	-11.11%
66		10	1	1	1	1	1	0	0	0.0%	-11.11%
88		10	0.9	0.7819	1	0	1	0.1	0.3162	35.14%	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	16.6	15.48	17.72	10	21	0.9452	2.989	18.01%	0.0%
28		10	18.1	15.82	20.38	3	25	1.929	6.1	33.7%	-9.04%
37		10	18.7	16.54	20.86	10	27	1.832	5.794	30.98%	-12.65%
50		10	18.3	17.55	19.05	14	21	0.6333	2.003	10.94%	-10.24%
66		10	17.4	16.87	17.93	15	19	0.4522	1.43	8.22%	-4.82%
88		10	19.1	17.18	21.02	9	26	1.622	5.131	26.86%	-15.06%

CETIS Summary Report

Report Date: 14 Apr-15 10:59 (p 1 of 2)
 Test Code: CD 15-090-0192 | 20-4847-4015

Ceriodaphnia 7-d Survival and Reproduction Test

Environmental Testing and Consulting, Inc.

Batch ID: 09-8111-9895	Test Type: Reproduction-Survival (7d)	Analyst: Ava Davis
Start Date: 31 Mar-15 16:05	Protocol: EPA/821/R-02-013 (2002)	Diluent: Perrier Water
Ending Date: 06 Apr-15 15:00	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 5d 23h	Source: In-House Culture	Age: < 24'
Sample ID: 11-9460-4543	Code: 15-090-0192	Client: City of Marion Water Department
Sample Date: 31 Mar-15 07:00	Material: POTW Effluent	Project: WET Biannual Compliance Test (1st)
Receive Date: 31 Mar-15 12:55	Source: Marion Water Department (AR0021971)	
Sample Age: 9h (1.6 °C)	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
02-7979-0547	6d Survival Rate	88	>88	NA	NA	1.136	Fisher Exact/Bonferroni-Holm Test
11-6896-4471	Reproduction	88	>88	NA	26.7%	1.136	Steel Many-One Rank Sum Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
11-6896-4471	Reproduction	Control Resp	16.6	15 - NL	Yes	Passes Acceptability Criteria
11-6896-4471	Reproduction	PMSD	0.2666	0.13 - 0.47	Yes	Passes 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	0.9	0.6738	1	0	1	0.1	0.3162	35.14%	0.0%
28		10	0.9	0.6738	1	0	1	0.1	0.3162	35.14%	0.0%
37		10	0.9	0.6738	1	0	1	0.1	0.3162	35.14%	0.0%
50		10	1	1	1	1	1	0	0	0.0%	-11.11%
66		10	1	1	1	1	1	0	0	0.0%	-11.11%
88		10	0.9	0.6738	1	0	1	0.1	0.3162	35.14%	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	16.6	14.46	18.74	10	21	0.9452	2.989	18.01%	0.0%
28		10	18.1	13.74	22.46	3	25	1.929	6.1	33.7%	-9.04%
37		10	18.7	14.56	22.84	10	27	1.832	5.794	30.98%	-12.65%
50		10	18.3	16.87	19.73	14	21	0.6333	2.003	10.94%	-10.24%
66		10	17.4	16.38	18.42	15	19	0.4522	1.43	8.22%	-4.82%
88		10	19.1	15.43	22.77	9	26	1.622	5.131	26.86%	-15.06%

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	0	1	1	1	1
28		1	0	1	1	1	1	1	1	1	1
37		0	1	1	1	1	1	1	1	1	1
50		1	1	1	1	1	1	1	1	1	1
66		1	1	1	1	1	1	1	1	1	1
88		1	1	1	0	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	18	14	21	18	15	10	17	18	18	17
28		16	3	19	24	17	25	17	18	21	21
37		10	23	27	19	18	16	11	15	23	25
50		14	21	20	19	20	18	17	17	18	19
66		18	19	19	17	19	18	17	16	16	15
88		26	19	22	9	21	25	18	16	14	21

CETIS Summary Report

Report Date: 14 Apr-15 10:59 (p 2 of 2)

Test Code: CD 15-090-0192 | 20-4847-4015

Ceriodaphnia 7-d Survival and Reproduction Test

Environmental Testing and Consulting, Inc.

6d Survival Rate Binomials

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	0/1	1/1	1/1	1/1	1/1
28		1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
37		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
66		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
88		1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1

CETIS Measurement Report

Report Date: 14 Apr-15 10:59 (p 1 of 3)
Test Code: CD 15-090-0192 | 20-4847-4015

Ceriodaphnia 7-d Survival and Reproduction Test

Environmental Testing and Consulting, Inc.

Batch ID: 09-8111-9895	Test Type: Reproduction-Survival (7d)	Analyst: Ava Davis
Start Date: 31 Mar-15 16:05	Protocol: EPA/821/R-02-013 (2002)	Diluent: Perrier Water
Ending Date: 06 Apr-15 15:00	Species: Ceriodaphnia dubia	Brine: Not Applicable
Duration: 5d 23h	Source: In-House Culture	Age: < 24
Sample ID: 11-9460-4543	Code: 15-090-0192	Client: City of Marion Water Department
Sample Date: 31 Mar-15 07:00	Material: POTW Effluent	Project: WET Biannual Compliance Test (1st)
Receive Date: 31 Mar-15 12:55	Source: Marion Water Department (AR0021971)	
Sample Age: 9h (1.6 °C)	Station:	

CETIS Measurement Report

Report Date: 14 Apr-15 10:59 (p 2 of 3)
 Test Code: CD 15-090-0192 | 20-4847-4015

Ceriodaphnia 7-d Survival and Reproduction Test

Environmental Testing and Consulting, Inc.

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	63	63	59	63	61	59	62
28								
37								
50								
66								
88								

Total Residual Chlorine-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	0	0	0	0	0	0	0
28								
37								
50								
66								
88		0	0	0	0	0	0	0

Conductivity-µS/cm

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	189	192	191	183	183	183	183
28								
37								
50								
66								
88		407	411	412	409	410	415	408

Final Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	8.2	9.3	9.1	8.8	7.9	8.2	
28		8.4	9.3	8.9	8.7	8.6	8.2	
37		8.5	9	8.6	8.8	8.7	8.1	
50		8.4	9.4	8.2	8.4	8.7	8.7	
66		8.5	9.3	8.4	8.3	8.6	8.1	
88		8.5	9.2	8.2	8.3	8.6	8.1	

Initial Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	9.5	9.2	9.4	9	9.2	8.8	8.3
28		9	9	8.9	8.9	8.8	9	8.1
37		9	9	8.9	8.9	8.8	9	9.1
50		8.9	8.5	9	8.8	8.7	9	8
66		8.4	8.9	8.9	8.9	8.5	9	7.9
88		8.3	8.8	8.7	8.7	8.4	8.8	7.7

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	91	91	94	91	89	92	87
28								
37								
50								
66								
88								

CETIS Measurement Report

Report Date: 14 Apr-15 10:59 (p 3 of 3)
 Test Code: CD 15-090-0192 | 20-4847-4015

Ceriodaphnia 7-d Survival and Reproduction Test

Environmental Testing and Consulting, Inc.

Final pH-Units

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	7.9	8.2	7.7	7.6	7.8	7.7	
28		7.8	8	7.6	7.6	7.7	7.7	
37		7.8	8	7.6	7.7	7.7	7.7	
50		7.9	8	7.6	7.7	7.7	7.7	
66		7.9	8	7.6	7.7	7.7	7.7	
88		7.9	8	7.9	7.8	7.7	7.7	

Initial pH-Units

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	7.5	8.1	7.6	7.7	8.2	8.2	7.8
28		7.3	7.9	7.4	7.5	7.9	7.8	7.4
37		7.3	7.9	7.3	7.5	7.8	7.7	7.2
50		7.2	7.8	7.2	7.4	7.9	7.6	7.1
66		7.2	7.7	7.2	7.4	7.7	7.6	7
88		7.2	7.7	7.1	7.3	7.6	7.5	7

Final Temperature-°C

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	23	23	23	23	23	23	
28		23	23	23	23	23	23	
37		23	23	23	23	23	23	
50		23	23	23	23	23	23	
66		23	23	23	23	23	23	
88		23	23	23	23	23	23	

Initial Temperature-°C

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	23	23	23	23	23	23	23
28		23	23	23	23	23	23	23
37		23	23	23	23	23	23	23
50		23	23	23	23	23	23	23
66		23	23	23	23	23	23	23
88		23	23	23	23	23	23	23

CETIS Test Evaluation Report

Report Date: 14 Apr-15 11:00 (1 of 2)

Test Code: FH 15-090-0192 | 09-2664-8810

Facility: Marion Water Department
Sample Site:
Sample Code: 15-090-0192
Sample Date: 31 Mar-15 07:00
Sample Age: 9h (1.6 °C)
Project: WET Biannual Compliance Test (1st)

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: 31 Mar-15 15:45
End Date: 06 Apr-15 16:40
Duration: 6d 1h **Organism Age:** < 24

Permittee: City of Marion Water Department
Address:
PO Box 814
Marion, AR 72364
Contact: Mr. Jim Shempert
Phone: 870-739-5413, 870-739-5415(fax)
Email: jshempert.waterdept@yahoo.com

Laboratory: Environmental Testing and Consulting, Inc.
Address: 2790 Whitten Road
Memphis, TN 38133
Contact: Ms. Connie Cook, Lab Supervisor
Phone: 901-213-2454, 901-213-2440(fax)
Email: ccook@etcmemphis

Chronic Toxicity Evaluation

Endpoint	Parameter	C-%	IWC	Pass/Fail	Method
Mean Dry Weight-mg	NOEL/LOEL	88/>88	88	Pass	Dunnett Multiple Comparison Test
	NOEL/LOEL	88/>88	88	Pass	Dunnett Multiple Comparison Test

Test Acceptability Criteria

Endpoint	Attribute	Test Stat	Limits	Pass/Fail
Mean Dry Weight-mg	Control Resp	0.4025	0.25 - N/A	Pass
Mean Dry Weight-mg	PMSD	0.2518	0.12 - 0.3	Pass

CETIS Test Evaluation Report

Report Date: 14 Apr-15 11:00 (2 of 2)
Test Code: FH 15-090-0192 | 09-2664-8810

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	0.4025	0.3843	0.4207	0.35	0.475	0.02179	0.04873	12.11%	0.0%
28		5	0.5225	0.5059	0.5391	0.475	0.575	0.01992	0.04455	8.53%	-29.81%
37		5	0.4875	0.4553	0.5197	0.3875	0.6125	0.03853	0.08615	17.67%	-21.12%
50		5	0.46	0.4424	0.4776	0.3875	0.5125	0.02106	0.0471	10.24%	-14.29%
66		5	0.415	0.385	0.445	0.3375	0.5375	0.03588	0.08023	19.33%	-3.11%
88		5	0.3625	0.3308	0.3942	0.275	0.45	0.03791	0.08478	23.39%	9.94%

CETIS Summary Report

Report Date: 14 Apr-15 11:01 (p 1 of 1)
 Test Code: FH 15-090-0192 | 09-2664-8810

Fathead Minnow 7-d Larval Survival and Growth Test

Environmental Testing and Consulting, Inc.

Batch ID: 01-7364-3411	Test Type: Growth-Survival (7d)	Analyst: Ava Davis
Start Date: 31 Mar-15 15:45	Protocol: EPA/821/R-02-013 (2002)	Diluent: Perrier Water
Ending Date: 06 Apr-15 16:40	Species: Pimephales promelas	Brine: Not Applicable
Duration: 6d 1h	Source: Aquatic Biosystems, CO	Age: < 24
Sample ID: 11-9460-4543	Code: 15-090-0192	Client: City of Marion Water Department
Sample Date: 31 Mar-15 07:00	Material: POTW Effluent	Project: WET Biannual Compliance Test (1st)
Receive Date: 31 Mar-15 12:55	Source: Marion Water Department (AR0021971)	
Sample Age: 9h (1.6 °C)	Station:	

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
07-0063-6288	Mean Dry Weight-mg	88	>88	NA	25.2%	1.136	Dunnett Multiple Comparison Test
17-2286-1349	Mean Dry Weight-mg	88	>88	NA	25.2%	1.136	Dunnett Multiple Comparison Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
07-0063-6288	Mean Dry Weight-mg	Control Resp	0.4025	0.25 - NL	Yes	Passes Acceptability Criteria
17-2286-1349	Mean Dry Weight-mg	Control Resp	0.4025	0.25 - NL	Yes	Passes Acceptability Criteria
07-0063-6288	Mean Dry Weight-mg	PMSD	0.2518	0.12 - 0.3	Yes	Passes Acceptability Criteria
17-2286-1349	Mean Dry Weight-mg	PMSD	0.2518	0.12 - 0.3	Yes	Passes Acceptability Criteria

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	0.4025	0.342	0.463	0.35	0.475	0.02179	0.04873	12.11%	0.0%
28		5	0.5225	0.4672	0.5778	0.475	0.575	0.01992	0.04455	8.53%	-29.81%
37		5	0.4875	0.3805	0.5945	0.3875	0.6125	0.03853	0.08615	17.67%	-21.12%
50		5	0.46	0.4015	0.5185	0.3875	0.5125	0.02106	0.0471	10.24%	-14.29%
66		5	0.415	0.3154	0.5146	0.3375	0.5375	0.03588	0.08023	19.33%	-3.11%
88		5	0.3625	0.2572	0.4678	0.275	0.45	0.03791	0.08478	23.39%	9.94%

Mean Dry Weight-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Lab Water	0.475	0.35	0.375	0.3875	0.425
28		0.5125	0.575	0.5625	0.4875	0.475
37		0.3875	0.6125	0.525	0.4375	0.475
50		0.4875	0.3875	0.5125	0.4625	0.45
66		0.3625	0.3375	0.3875	0.5375	0.45
88		0.275	0.275	0.4375	0.45	0.375

CETIS Measurement Report

Report Date: 14 Apr-15 11:00 (p 1 of 3)
Test Code: FH 15-090-0192 | 09-2664-8810

Fathead Minnow 7-d Larval Survival and Growth Test

Environmental Testing and Consulting, Inc.

Batch ID: 01-7364-3411
Start Date: 31 Mar-15 15:45
Ending Date: 06 Apr-15 16:40
Duration: 6d 1h

Test Type: Growth-Survival (7d)
Protocol: EPA/821/R-02-013 (2002)
Species: Pimephales promelas
Source: Aquatic Biosystems, CO

Analyst: Ava Davis
Diluent: Perrier Water
Brine: Not Applicable
Age: < 24

Sample ID: 11-9460-4543
Sample Date: 31 Mar-15 07:00
Receive Date: 31 Mar-15 12:55
Sample Age: 9h (1.6 °C)

Code: 15-090-0192
Material: POTW Effluent
Source: Marion Water Department (AR0021971)
Station:

Client: City of Marion Water Department
Project: WET Biannual Compliance Test (1st)

CETIS Measurement Report

Report Date: 14 Apr-15 11:00 (p 2 of 3)
 Test Code: FH 15-090-0192 | 09-2664-8810

Fathead Minnow 7-d Larval Survival and Growth Test

Environmental Testing and Consulting, Inc.

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	63	63	59	63	61	59	62
28								
37								
50								
66								
88								

Total Residual Chlorine-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	0	0	0	0	0	0	0
28								
37								
50								
66								
88		0	0	0	0	0	0	0

Conductivity-µS/cm

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	189	192	191	183	183	183	183
28								
37								
50								
66								
88		407	411	412	409	410	415	408

Final Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	7.4	8.2	7.9	8	8.1	7.9	7.3
28		7.2	8.3	8.1	8.3	8.1	8	7.9
37		8.4	8.1	8.3	8.5	8.4	7.6	7.6
50		8.6	8	8	8.3	8.2	7.6	7.4
66		8.5	7.7	8	8.3	8.1	7.3	7.3
88		8.1	7.9	7.8	8.2	8.1	7.4	7.5

Initial Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	9.5	9.2	9.4	9	9.2	8.8	8.3
28		9	9	8.9	8.9	8.8	9	8.1
37		9	9	8.9	8.9	8.8	9	9.1
50		8.9	8.5	9	8.8	8.7	9	8
66		8.4	8.9	8.9	8.9	8.5	9	7.9
88		8.3	8.8	8.7	8.7	8.4	8.8	7.7

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	91	91	94	91	89	92	87
28								
37								
50								
66								
88								

CETIS Measurement Report

Report Date: 14 Apr-15 11:00 (p 3 of 3)
 Test Code: FH 15-090-0192 | 09-2664-8810

Fathead Minnow 7-d Larval Survival and Growth Test

Environmental Testing and Consulting, Inc.

Final pH-Units

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	7.9	7.7	7.7	8	7.9	7.4	7.3
28		7.9	7.7	7.6	7.8	7.8	7.4	7.5
37		7.9	7.6	7.6	7.8	7.9	7.5	7.3
50		7.9	7.6	7.6	7.8	7.8	7.4	7.3
66		7.9	7.6	7.6	7.8	7.6	7.4	7.4
88		7.9	7.7	7.6	7.8	7.9	7.5	7.5

Initial pH-Units

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	7.5	8.1	7.6	7.7	8.2	8.2	7.8
28		7.3	7.9	7.4	7.5	7.9	7.8	7.4
37		7.3	7.9	7.3	7.5	7.8	7.7	7.2
50		7.2	7.8	7.2	7.4	7.9	7.6	7.1
66		7.2	7.7	7.2	7.4	7.7	7.6	7
88		7.2	7.7	7.1	7.3	7.6	7.5	7

Final Temperature-°C

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	23	23	23	23	23	23	23
28		23	23	23	23	23	23	23
37		23	23	23	23	23	23	23
50		23	23	23	23	23	23	23
66		23	23	23	23	23	23	23
88		23	23	23	23	23	23	23

Initial Temperature-°C

C-%	Control Type	1	2	3	4	5	6	7
0	Lab Water	23	23	23	23	23	23	23
28		23	23	23	23	23	23	23
37		23	23	23	23	23	23	23
50		23	23	23	23	23	23	23
66		23	23	23	23	23	23	23
88		23	23	23	23	23	23	23

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



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"A Laboratory Management Partner"

02608

City of Marion Water Department

Mr. Jim Shempert

PO Box 814

Marion, AR 72364

Project Bioassay
Information :

Report Date : 4/14/2015

Report Number : 15-090-0192

REPORT OF ANALYSIS

Received : 3/31/2015

Lab No : 93442

Sample ID : Bio

Matrix: Aqueous

Sampled: 3/31/2015 7:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	162	mg/L	1	1	04/08/15 10:24	CJR	2320B-2011
Total Calcium	21.0	mg/L	0.100	1	04/07/15 01:58	BKN	EPA-200.7
Hardness as CaCO3(SM-2340B)	77.8	mg/L	0.100	1	04/07/15 01:58		EPA-200.7
Total Magnesium	6.16	mg/L	0.100	1	04/07/15 01:58	BKN	EPA-200.7

Lab No : 93788

Sample ID : Bio

Matrix: Aqueous

Sampled: 4/1/2015 7:30

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	160	mg/L	1	1	04/08/15 10:24	CJR	2320B-2011
Total Calcium	19.7	mg/L	0.100	1	04/07/15 02:03	BKN	EPA-200.7
Hardness as CaCO3(SM-2340B)	73.4	mg/L	0.100	1	04/07/15 02:03		EPA-200.7
Total Magnesium	5.88	mg/L	0.100	1	04/07/15 02:03	BKN	EPA-200.7

Lab No : 94505

Sample ID : Bio

Matrix: Aqueous

Sampled: 4/3/2015 7:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	161	mg/L	1	1	04/08/15 10:24	CJR	2320B-2011
Total Calcium	20.1	mg/L	0.100	1	04/07/15 02:07	BKN	EPA-200.7
Hardness as CaCO3(SM-2340B)	74.9	mg/L	0.100	1	04/07/15 02:07		EPA-200.7
Total Magnesium	6.00	mg/L	0.100	1	04/07/15 02:07	BKN	EPA-200.7

Qualifiers/ Definitions

* MQL Outside QC limit
Method Quantitation Limit

DF Dilution Factor



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①

CHAIN OF CUSTODY



15-090-0192
02608
03-31-2015
14:01:50

City of Marion Water Department
Bioassay

Company Name City of Marion Water Department		Customer Number 02608		Telephone (870) 739-3413		RUSH	ICE
Site Name Kit SEMI 1 A - Bioassay - 03/29-30			Project Comment			FID Number	
Project Marion - Bioassay		Project Number		PO Number			
Project Manager / Contact Mr. Jim Shempert				E-mail jshempert.waterdept@yahoo.com			
Sample ID	Container Type	Collected Date / Time	# Cont	Preservative	Grab / Comp	Matrix	Analyses
Outfall 001 - Composite 1	Plastic - Gallon	3/31/15 7:00 AM	2	NONE	C	Aqueous	Chloride CO/FH
Outfall 001 - Composite 1	Plastic - Pint	3/31/15 7:00 AM	1	NONE	C	Aqueous	Alkalinity
Outfall 001 - Composite 1	Plastic - Pint	3/31/15 7:00 AM	1	HNO3 - Nitric Acid	C	Aqueous	Hardness

Sampled By JP	Method of Shipment	<input checked="" type="checkbox"/> Blank / Cooler	Remarks Temperature 16C #7419
Relinquished By (sign) [Signature]	Date / Time	Received By (sign) [Signature]	Date / Time 3/31/15 11:56
Relinquished By (sign)	Date / Time	Received By (sign)	Date / Time
Relinquished By (sign) W. Reed	Date / Time 3/31/15 12:55	Received by Lab (sign) [Signature]	Date / Time 3/31/15 12:55



Environmental Testing & Consulting, Inc.

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

15-090-0192
02608
City of Marion Water Department
Bioassay #3/31/15
03-31-2015
14:01:50

Company Name City of Marion Water Department		Customer Number 02608	Telephone (870) 739-5413	RUSH	ICE		
Site Name Kit SEMI 1 B - Bioassay - 03/31 - 04/01		Project Comment			FID Number		
Project Marion - Bioassay		Project Number	PO Number				
Project Manager / Contact Mr. Jim Shempert		E-mail jshempert.waterdept@yahoo.com					
Sample ID	Container Type	Collected Date / Time	# Cont	Preservative	Grab / Comp	Matrix	Analyses
Outfall 001 - Composite 2	Plastic - Gallon	4/1/15 7:30 AM	2	NONE	C	Aqueous	Chronic CD/FH
Outfall 001 - Composite 2	Plastic - Pint	4/1/15 7:30 AM	1	NONE	C	Aqueous	Alkalinity
Outfall 001 - Composite 2	Plastic - Pint	4/1/15 7:30 AM	1	HNO3 - Nitric Acid	C	Aqueous	Hardness

Sampled By <i>JP</i>	Method of Shipment: Blank Cooler	Temperature 1.5C	Remarks #T4 NR
Relinquished By (sign) <i>Jim Shempert</i>	Date / Time 4-1-15 12:45	Received By (sign) <i>W. R. Ruel</i>	Date / Time 4-1-15 12:45
Relinquished By (sign)	Date / Time	Received By (sign)	Date / Time
Relinquished By (sign) <i>W. R. Ruel</i>	Date / Time 4-1-15 12:42	Received by Lab (sign) <i>W. R. Ruel</i>	Date / Time 4-1-15 12:42



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ENVIRONMENTAL TESTING & CONSULTING, INC. (B)

2780 Whitten Road Memphis, Tennessee 38133 (901) 213-2400 Fax: (901) 213-2440

CHAIN OF CUSTODY



City of Marion Water Department
Bioassay / 3/31/15/AM/15

15-090-0192
02608
03-31-2015
14:01:50

Company Name City of Marion Water Department		Customer Number 02608	Telephone (870) 739-5413	RUSH	ICE		
Site Name Kit SEMI I. C - Bioassay - 04/02-03		Project Comment			FID Number		
Project Marion - Bioassay		Project Number	PO Number				
Project Manager / Contact Mr. Jim Shempert		E-mail jshempert.waterdept@yahoo.com					
Sample ID	Container Type	Collected Date / Time	# Cont	Preservative	Grab / Comp	Matrix	Analyses
Outfall 001 - Composite 3	Plastic - Gallon	4/3/15 7:00 AM	3	NONE	C	Aqueous	Chronic CD/FH
Outfall 001 - Composite 3	Plastic - Pint	4/3/15 7:00 AM	1	NONE	C	Aqueous	Alkalinity
Outfall 001 - Composite 3	Plastic - Pint	4/3/15 7:00 AM	1	HNO3 - Nitric Acid	C	Aqueous	Hardness

Sampled By <i>JP</i>	Method of Shipment	Blank / Cooler Temperature 44C	Remarks AT 5 ml
Relinquished By (sign) <i>D. Van P...</i>	Date / Time 4/3/15 1107	Received By (sign) <i>W. D. Cook</i>	Date / Time 4/3/15 1107
Relinquished By (sign)	Date / Time	Received By (sign)	Date / Time
Relinquished By (sign) <i>W. D. Cook</i>	Date / Time 4/3/15 1153	Received by Lab (sign) <i>W. D. Cook</i>	Date / Time 4/3/15 1153



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"A Laboratory Management Partner"

4/28/2015

City of Marion Water Department
Mr. Jim Shempert
PO Box 814
Marion, AR, 72364

Ref: Analytical Testing
ETC Report Number: 15-111-0251
Client Project Description: Analytical Testing

Dear Mr. Jim Shempert:

Environmental Testing and Consulting, Inc. received sample(s) on 4/21/2015 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters (NELAP and non-NELAP) were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2012) and NELAC unless otherwise indicated. Any parameter for which the laboratory is not officially NELAP accredited is indicated by a '~' symbol. These are not included in the scope because NELAP accreditation is either not available or has not been applied for. Additional certifications may be held/are available for parameters, where NELAP accreditation is not required or applicable. A full list of certifications is available upon request.

Per EPA Methods Update Rule (May 2012), all methods from Standard Methods for the Examination of Water and Wastewater are reported to include the year of approval.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Randy Thomas
Project Manager

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

Alabama #40750
Mississippi #90047

Louisiana #04015
California #2904
Tennessee #TN02027

VA NELAP #460181
NC #415
EPA #TN00012

Texas #T104704180-11-6
Oklahoma #9311
Kentucky UST #41

Arkansas #88-0650
Virginia #00106
Kansas #E-10396





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"A Laboratory Management Partner"

02608

City of Marion Water Department
Mr. Jim Shempert
PO Box 814
Marion, AR 72364

Project : Analytical Testing
Information :

Report Date : 4/28/2015

Report Number : 15-111-0251

REPORT OF ANALYSIS

Received : 4/21/2015

Lab No : 98529

Matrix: Aqueous

Sample ID : Annual Influent Grab

Sampled: 4/21/2015 9:30

Test	Results	Units	ML	DF	Date / Time Analyzed	By	Analytical Method
Biochemical Oxygen Demand (5-day)	60	mg/L	24	1	04/21/15 12:30	CJR	5210B-2011
Carbonaceous BOD - 5 day	51	mg/L	24	1	04/21/15 12:30	CJR	5210B-2011
Total Suspended Solids	28	mg/L	2	1	04/23/15 10:20	HBH	2540D-2011

Lab No : 98530

Matrix: Aqueous

Sample ID : Annual Effluent Grab

Sampled: 4/21/2015 9:30

Test	Results	Units	ML	DF	Date / Time Analyzed	By	Analytical Method
Biochemical Oxygen Demand (5-day)	31	mg/L	12	1	04/21/15 12:30	CJR	5210B-2011
Carbonaceous BOD - 5 day	9	mg/L	4	1	04/21/15 12:30	CJR	5210B-2011
Total Suspended Solids	18	mg/L	2	1	04/23/15 11:00	HBH	2540D-2011

Qualifiers/ Definitions

* Outside QC limit
MQL Method Quantitation Limit

DF Dilution Factor



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"A Laboratory Management Partner"

Cooler Receipt Form

Customer Number: **02608**

Customer Name: **City of Marion Water Department**

Report Number: **15-111-0251**

Shipping Method

Fed Ex US Postal Lab Other :
 UPS Client Courier Thermometer ID: #4

Shipping container/cooler uncompromised?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Number of coolers received	<input type="text"/> 1		
Custody seals intact on shipping container/cooler?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Not Required
Custody seals intact on sample bottles?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Not Required
Chain of Custody (COC) present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
COC agrees with sample label(s)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
COC properly completed	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Samples in proper containers?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Sample containers intact?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Sufficient sample volume for indicated test(s)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
All samples received within holding time?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Cooler temperature in compliance?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Water - Sample containers properly preserved	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Water - VOA vials free of headspace	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Trip Blanks received with VOAs	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Soil VOA method 5035 - compliance criteria met	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="checkbox"/> High concentration container (48 hr)		<input type="checkbox"/> Low concentration EnCore samplers (48 hr)	
<input type="checkbox"/> High concentration pre-weighed (methanol -14 d).		<input type="checkbox"/> Low conc pre-weighed vials (Sod Bis -14 d)	
Special precautions or instructions included?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	

Comments:

Any regulatory non-compliance issues will be recorded on non-compliance report.

Signature: Cody Gardner

Date & Time: 04/21/2015 13:14:40



MEMPHIS, TENNESSEE

ENVIRONMENTAL TESTING & CONSULTING, INC.

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

CHAIN OF CUSTODY



City of Marion Water Department
Analytical Testing

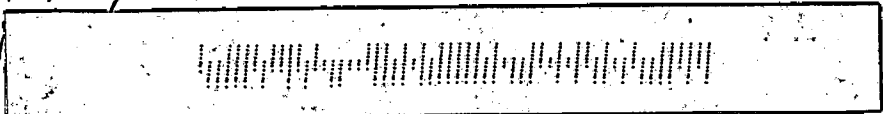
15-111-0251
02608
04-21-2015
13:14:24

Company Name City of Marion Water Department				Customer Number 02608		Telephone (870) 739-5413		RUSH	ICE
Site Name			Project Comment				FID Number		
Project			Project Number		PO Number				
Project Manager / Contact Mr. Jim Shempert				E-mail					
Sample ID	Container Type	Collected Date / Time	# Cont	Preservative	Grab / Comp	Matrix	Analyses		
Annual Influent Grab	Plastic - Quart	4/21/15 9:30 AM	1	NONE	G	Aqueous	BOD, CBOD, TSS		
Annual Effluent Grab	Plastic - Quart	4/21/15 9:30 AM	1	NONE	G	Aqueous	BOD, CBOD, TSS		

Sampled By <i>AP</i>		Method of Shipment		Blank / Cooler Temperature 1.1C		Remarks #T401	
Relinquished By (sign) <i>W. Zuehl</i>		Date / Time 4/21/15 1152		Received By (sign) <i>W. Zuehl</i>		Date / Time 4/21/15 1152	
Relinquished By (sign)		Date / Time		Received By (sign)		Date / Time	
Relinquished By (sign) <i>W. Zuehl</i>		Date / Time 4/21/15 1240		Received by Lab (sign) <i>W. Zuehl</i>		Date / Time 4/21/15 1240	

31 MILITARY RD.

1 MARION



72364



ADEQ
5301 NORTHSORE DRIVE
NORTH LITTLE ROCK, AR.

72118-5317