

**Clinton, City of**

**BIO MONITORING REPORT**

**Sample Date:  
February 7-12, 2016**

03/01/2016

Environmental Services Co.Inc.  
Ms. Joyce Brown  
13715 W. Markham St.  
Little Rock, AR, 72211

Ref: Analytical Testing  
ETC Report Number: 16-040-0190  
Client Project Description: Clinton – Bioassay

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/NOEL = 100%  
Permit Limit: 100%

All statistical interpretations generated by CETIS - Comprehensive Environmental Toxicity Information System (v.1.9.1.4). CETIS created by Tidepool Scientific Software

Respectfully,



Connie Cook  
Lab Supervisor

# Environmental Services Company, Inc.

Corporate Office  
 13715 West Markham  
 Little Rock, AR 72211  
 Tel. (501) 221-2565 Fax (501) 221-1341

Northwest Arkansas Branch  
 1107 Century Avenue  
 Springdale, AR 72762  
 Tel. (479) 750-1170 Fax (479) 750-1172

Control Number: 1602010162  
 Customer Name : CLINTON, EAST 001  
 Customer/Permit No. : 495 / AR0048836 001  
 Report Date : 03/04/16  
 Composite Date: 02/07/16 -02/08/16  
 Sample Time : 0900-0900  
 Sample Type : COMP WWATER  
 Sample From : FINAL EFFLUENT/BIO 1  
 Collected By: PG/TCF  
 Delivery By : TCF  
 Work Order :  
 Purchase Order :

### Laboratory Analysis

Analysis		Result		Notes		Quantity		Method		Quality Assurance	
Date	Time By	Parameter	Result	Notes	Quantity	Method	Precision % RPD	Accuracy % Recovery			
02/08	1254 TCF	Dissolved Oxygen	10.70 mg/L		73.12 #/day	SM 2001 4500-O G	0.00	N/A *			
02/09	1430 REW	Ammonia Nitrogen	2.70 mg/L		18.45 #/day	SM 1997 4500-NH3 F	25.00	87.0 *			
02/08	1253 TCF	pH	6.3 S.U.			SM 2000 4500-H+B	0.00	N/A *			
02/09	1150 REW	Solids, Total Suspended	< 1.00 mg/L		6.83 #/day	SM 1997 2540 D	4.44	N/A *			
02/08	1645 TCF	Coliform, Fecal	< 5 /100ML			SM 1997 9222 D	0.00	N/A *			
02/08	1645 TCF	E. COLI	< 5.00 /100ML		34.17 /100ML	EPA 10029 MC-B					
02/10	0600 MSM	BOD, Carbonaceous	3.00 mg/L		20.50 #/day	SM 2001 5210 B					

Flow 0.820000 MGD

\* QA data shown is from a different sample or standard on the same date.

All equipment used is checked and/or calibrated daily. All NPDES testing is conducted in accordance with 40 CFR Part 136. A minimum of 10% spiked and duplicate samples is run on each parameter where applicable for Quality Assurance purposes. Quality Assurance Plan on file with Arkansas Department of Environmental Quality. Analysis time indicates the time of the start of the analytical batch in which the specific sample was included.

Signature

Environmental Services Co., Inc.



# CHAIN OF CUSTODY

Springdale, Arkansas  
479-750-1170  
Carlsbad, New Mexico  
575-887-1ESC

Environmental Services Company, Inc.  
Corporate Office  
13715 West Markham P.O. Box 55146  
Little Rock, AR 72211 Little Rock, AR 72215  
website: [www.esclabs.com](http://www.esclabs.com)

Phone: 501-221-2565 Fax: 501-221-1341

Client Information				Project Information				Requested Parameters			
Company Name: Clinton, East 001				Permit/Project #: AR0048836				Fecal Coliform (43), E. Coli(43.2)			
Address: P.O. Box 277 Clinton, AR 72031				Purchase Order #: AR0048836				NH3-N(15.A)			
Telephone: 501-745-4320				Work Order #				CBO(70), TSS(28)			
Contact: Mr. Isaac Keeling				Sampler Name(s): Phil Gibson Trevor Forthman Phil Gibson Trevor Forthman				X			
FAX: 501-745-2164				and Signature(s): <i>(Signatures)</i>				X			
ESC Client Number: 495 (3X per week)											
Sample Identification		Sample Collection		Sample Containers		Sample Containers		Sample Containers		Sample Containers	
Identification	ESC Control #	Date	Time	Type	Matrix	Type	Volume	Preservative	#		
Final Effluent	1602010162	2-7-16	9AM	24Hr. Comp	Wwater	Plastic	1/2 Gal	Cool ≤ 6° C	1		
			9:00	24Hr. Comp	Wwater	Plastic	1 Liter	HSO4 to pH <2	1		
		2-8-16	12:52	Grab	Wwater	Whiripak	150 mis	Cool <10° C, Na2S2O3	1		
Relinquished By: (Signature and Printed Name) Phil Gibson Date: 2-7-16 Time: 9AM Received By: (Signature and Printed Name) Trevor Forthman Date: 2-7-16 Time: 9AM Received for Lab By: (Signature and Printed Name) Phil Gibson Date: 2-7-16 Time: 1600 Received By: (Signature and Printed Name) Trevor Forthman Date: 2-7-16 Time: 1600											
Comments:											
Flow Data Analyst: TGF Time: 12:55 Reading: 0.920 Units: MGD											
Field Test Grab pH: 7.53 Grab DO: 10.7 E Coli Start Fecal Start: 1645 TCF-											
Custody Seals: Used? <input checked="" type="checkbox"/> Intact? <input checked="" type="checkbox"/> Turnaround: Regular <input checked="" type="checkbox"/> Special <input type="checkbox"/> Were samples properly preserved: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>											
Result Result Result Result Result Result Result Result Result Result Result Result 6.3 10.7 S.U. mg/L											
This Document is Page 1 of 1											



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 575-887-1ESC

Client Information		Project Information				Requested Parameters										
Company Name: Clinton East 001		Permit/Project #: AR0048836														
Address: P.O. Box 277		Purchase Order #:														
Telephone: Clinton, AR 72031		Work Order #:														
Contact: Mr. Isaac Keeling		Sampler Name(s): <i>TERRIE FORTMAN</i>														
FAX: 501-745-2164		and Signature(s): <i>[Signature]</i>														
ESC Client Number: 495 (Bio-monitoring)						Chronic Bio-Monitoring (83.1)										
Sample Identification		Sample Collection		Sample Containers												
Identification	ESC Control #	Date	Time	Type	Matrix	Type	Volume	Preservative	#							
Final Effluent	16020/0162	2-7-14	09:30 AM	Composite	Wwater	Plastic	1 Gal	Cool ≤ 6° C	1	X						
Received by: (Signature and Printed Name)		Date	Time	Received by: (Signature and Printed Name)				Date	Time		Custody Seals:					
Received by: (Signature and Printed Name)		Date	Time	Received by: (Signature and Printed Name)				Date	Time		Used? <input checked="" type="checkbox"/>	Infect? <input type="checkbox"/>				
Relinquished By: (Signature and Printed Name)		Date	Time	Relinquished for Lab By: (Signature and Printed Name)				Date	Time		Regular <input checked="" type="checkbox"/>	Special <input type="checkbox"/>	Were samples properly preserved:			
<i>Isaac Keeling TERRIE FORTMAN</i>		2-8-16	1600	<i>TERRIE FORTMAN</i>				2-8-16	1600		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>				
Comments:		Flow Data		Field Test				Date	Time	Analyst	Result	Result	Units			
		pH:						Date	Time				S.U.			
		Reading:						Date	Time							
		Units:						Date	Time							
		Fecal Start:						Date	Time							
						This Document is Page 1 of 1										

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 1107 Century Avenue  
 Springdale, AR 72762  
 Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1602010212  
 Customer Name : CLINTON, EAST 001  
 Customer/Permit No. : 495 / AR0048836 001  
 Report Date : 03/04/16

Composite Date: 02/09/16 -02/10/16  
 Sample Time : 1300-1300  
 Sample Type : COMP WWATER  
 Sample From : FINAL EFFLUENT/BIO 2

Collected By: REW  
 Delivery By : REW  
 Work Order :  
 Purchase Order :

### Laboratory Analysis

Analysis		Result		Notes	Quantity	Method	Quality Assurance	
Date	Time By	Parameter	Result	Notes	Quantity	Method	Precision % RPD	Accuracy % Recovery
02/10	1250 REW	Dissolved Oxygen	11.20 mg/L		80.27 #/day	SM 2001 4500-O G	1.80	N/A *
02/12	1300 CLB	Ammonia Nitrogen	0.43 mg/L		3.08 #/day	SM 1997 4500-NH3 F	12.17	97.0 *
02/10	1250 REW	pH	7.1 S.U.			SM 2000 4500-H+B	1.38	N/A *
02/11	1000 DWC	Solids, Total Suspended	1.00 mg/L		7.17 #/day	SM 1997 2540 D	20.00	N/A *
02/10	1525 DWC	Coliform, Fecal	< 5 /100ML			SM 1997 9222 D	0.00	N/A
02/10	1525 DWC	E. COLI	< 5.00 /100ML		35.83 /100ML	EPA 10029 MC-B		
02/11	0600 MSM	BOD, Carbonaceous	2.00 mg/L		14.33 #/day	SM 2001 5210 B	0.00	95.1 *

Flow 0.860000 MGD

\* QA data shown is from a different sample or standard on the same date.

All equipment used is checked and/or calibrated daily. All NPDES testing is conducted in accordance with 40 CFR Part 136. A minimum of 10% spiked and duplicate samples is run on each parameter where applicable for Quality Assurance purposes. Quality Assurance Plan on file with Arkansas Department of Environmental Quality. Analysis time indicates the time of the start of the analytical batch in which the specific sample was included.

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 website: www.esclabs.com

Springdale, Arkansas  
 479-750-1170  
 Carlsbad, New Mexico  
 575-887-1ESC

Phone: 501-221-2565 Fax: 501-221-1341

Client Information				Project Information				Requested Parameters				
Company Name:		Clinton, East 001		Permit/Project #:		AR0048836						
Address:		P.O. Box 277 Clinton, AR 72031		Purchase Order #:								
Telephone:		501-745-4320		Work Order #:								
Contact:		Mr. Isaac Keeling		Sampler Name(s):		Phil Graham						
FAX:		501-745-2164		and Signature(s):		Phil Graham						
ESC Client Number:		495 (3X per week)										
Sample Identification				Sample Collection				Sample Containers				
Identification	ESC Control #	Date	Time	Type	Matrix	Type	Volume	Preservative	#			
Final Effluent	1001010212	2-9-16	1:00 PM	24Hr. Comp	Wwater	Plastic	1/2 Gal	Cool ≤ 6° C	1			
			1:30 PM	24Hr. Comp	Wwater	Plastic	1 Liter	H2SO4 to pH < 2	1	X		
		2-10-16	1:10	Grab	Wwater	Whirpak	150 mls	Cool < 10° C Na2S2O3	1		X	
Relinquished By: (Signature and Printed Name) Phil Graham				Received By: (Signature and Printed Name) Phil Graham				Date		2-9-16	Time	1:00 PM
Relinquished By: (Signature and Printed Name) Phil Graham				Received By: (Signature and Printed Name) Phil Graham				Date		2-9-16	Time	1:30 PM
Relinquished By: (Signature and Printed Name) Phil Graham				Received By: (Signature and Printed Name) Phil Graham				Date		2-10-16	Time	1:10
Comments:				Flow Data				Field Test		Result		Units
				Analyst: KEW				Grab pH:		7.1	S.U.	
				Time: 1:10				Grab DO:		11.2	mg/L	
				Reading: 1.8U								
				Units: MGD				E Coll Start				
				Fecal Start:				1525		1525		

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Client Information				Project Information				Requested Parameters																																													
Company Name: Clinton East 001				Permit/Project #: AR0048836																																																	
Address: P.O. Box 277				Purchase Order #:																																																	
Clinton, AR 72031				Work Order #:																																																	
Telephone: 501-745-4320				Sampler Name(s): Ricky Williams																																																	
Contact: Mr. Isaac Keeling				and Signature(s): <i>[Signature]</i>																																																	
FAX: 501-745-2164																																																					
ESC Client Number: 495 (Bio-monitoring)								Chronic Bio-Monitoring (83.1)																																													
Sample Identification		Sample Collection		Sample Containers		Sample Collection		Sample Containers		Sample Collection																																											
Identification	ESC Control #	Date	Time	Type	Matrix	Type	Volume	Type	Preservative	#																																											
Final Effluent	1022010212	2-10-10	1306	Composite	Wwater	Plastic	1 Gal	Cool ≤ 6° C		1	X																																										
<table border="1"> <tr> <td>Relinquished By: (Signature and Printed Name)</td> <td>Date</td> <td>Time</td> <td>Received By: (Signature and Printed Name)</td> <td>Date</td> <td>Time</td> <td>Custody Seals:</td> </tr> <tr> <td><i>[Signature]</i></td> <td>2-10-10</td> <td>1510</td> <td></td> <td></td> <td></td> <td>Used? <input type="checkbox"/> Intact? <input type="checkbox"/></td> </tr> <tr> <td>Relinquished By: (Signature and Printed Name)</td> <td>Date</td> <td>Time</td> <td>Received By: (Signature and Printed Name)</td> <td>Date</td> <td>Time</td> <td>Turnaround</td> </tr> <tr> <td><i>[Signature]</i></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Regular <input type="checkbox"/> Special <input type="checkbox"/></td> </tr> <tr> <td>Relinquished By: (Signature and Printed Name)</td> <td>Date</td> <td>Time</td> <td>Received for Lab By: (Signature and Printed Name)</td> <td>Date</td> <td>Time</td> <td>Were samples properly preserved:</td> </tr> <tr> <td><i>[Signature]</i></td> <td></td> <td></td> <td><i>[Signature]</i></td> <td>2/10/10</td> <td>1510</td> <td>Yes <input type="checkbox"/> No <input type="checkbox"/></td> </tr> </table>												Relinquished By: (Signature and Printed Name)	Date	Time	Received By: (Signature and Printed Name)	Date	Time	Custody Seals:	<i>[Signature]</i>	2-10-10	1510				Used? <input type="checkbox"/> Intact? <input type="checkbox"/>	Relinquished By: (Signature and Printed Name)	Date	Time	Received By: (Signature and Printed Name)	Date	Time	Turnaround	<i>[Signature]</i>						Regular <input type="checkbox"/> Special <input type="checkbox"/>	Relinquished By: (Signature and Printed Name)	Date	Time	Received for Lab By: (Signature and Printed Name)	Date	Time	Were samples properly preserved:	<i>[Signature]</i>			<i>[Signature]</i>	2/10/10	1510	Yes <input type="checkbox"/> No <input type="checkbox"/>
Relinquished By: (Signature and Printed Name)	Date	Time	Received By: (Signature and Printed Name)	Date	Time	Custody Seals:																																															
<i>[Signature]</i>	2-10-10	1510				Used? <input type="checkbox"/> Intact? <input type="checkbox"/>																																															
Relinquished By: (Signature and Printed Name)	Date	Time	Received By: (Signature and Printed Name)	Date	Time	Turnaround																																															
<i>[Signature]</i>						Regular <input type="checkbox"/> Special <input type="checkbox"/>																																															
Relinquished By: (Signature and Printed Name)	Date	Time	Received for Lab By: (Signature and Printed Name)	Date	Time	Were samples properly preserved:																																															
<i>[Signature]</i>			<i>[Signature]</i>	2/10/10	1510	Yes <input type="checkbox"/> No <input type="checkbox"/>																																															
Comments:				Flow Data				Field Test																																													
				Analyst: KEW				Result																																													
				Time:				Result																																													
				Reading: 880				Units																																													
				Units: MGD				S.U.																																													
				Fecal Start:				This Document is Page ___ of ___																																													

ATU



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Northwest Arkansas Branch  
 1107 Century Avenue  
 Springdale, AR 72762  
 Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1602010233  
 Customer Name : CLINTON, EAST 001  
 Customer/Permit No. : 495 / AR0048836 001  
 Report Date : 03/04/16

Composite Date: 02/11/16 -02/12/16  
 Sample Time : 0800-0800/0910(2-12)  
 Sample Type : COMP/GRAB WWATER  
 Sample From : FINAL EFFLUENT/BIO 3

Collected By: PG/TMO  
 Delivery By : TMO  
 Work Order :  
 Purchase Order :

### Laboratory Analysis

Analysis		Result		Notes		Quantity		Method		Quality Assurance	
Date	Time By	Parameter	Result	Notes	Quantity	Quantity	Method	Precision % RPD	Accuracy % Recovery		
02/12	0914 TMO	Dissolved Oxygen	12.20 mg/L		85.40 #/day		SM 2001 4500-O G	0.82	N/A		
02/16	1300 RLW	Ammonia Nitrogen	< 0.10 mg/L		0.70 #/day		SM 1997 4500-NH3 F	0.28	99.7 *		
02/12	0914 TMO	pH	7.1 S.U.				SM 2000 4500-H+B	1.42	N/A		
02/15	0800 NTR	Solids, Total Suspended	11.00 mg/L		77.00 #/day		SM 1997 2540 D	0.00	N/A *		
02/12	1420 TMO	Coliform, Fecal	< 5 /100ML				SM 1997 9222 D	0.00	N/A *		
02/12	1420 TMO	E. COLI	< 5.00 /100ML		35.00 /100ML		EPA 10029 MC-B				
02/12	1730 NTR	BOD, Carbonaceous	2.00 mg/L		14.00 #/day		SM 2001 5210 B	0.00	95.1 *		

Flow 0.840000 MGD

\* QA data shown is from a different sample or standard on the same date.

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Signature



Environmental Services/Co., Inc.



# CHAIN OF CUSTODY

Phone: 501-221-2565 Fax: 501-221-1341

Client Information				Project Information				Requested Parameters				
Company Name: Clinton, East 001				Permit/Project #: AR0048836								
Address: P.O. Box 277 Clinton, AR 72031				Purchase Order #:								
Telephone: 501-745-4320				Work Order #:								
Contact: Mr. Isaac Keeling				Sampler Name(s): Phil Graham								
FAX: 501-745-2164				and Signature(s): Timothy O'Neal								
ESC Client Number: 495 (3X per week)				Signature: <i>Phil Graham</i>								
Signature: <i>Timothy O'Neal</i>				Signature: <i>Timothy O'Neal</i>								
Sample Identification				Sample Collection				Sample Containers				
Identification	ESC Control #	Date	Time	Type	Matrix	Type	Volume	Preservative	#			
Final Effluent	11022010233	2-11-16	8:12	24-Hr. Comp	Wwater	Plastic	1/2 Gal	Cool ≤ 6° C	1			
		2-12-16		24-Hr. Comp	Wwater	Plastic	1 Liter	Cool ≤ 6° C, H2SO4 to pH <2	1			
		2-12-16	09:10	Grab	Wwater	Whirlpak	150 mls	Cool ≤ 10° C, NA2S2O3	1			
Relinquished By: (Signature and Printed Name) <i>Phil Graham</i>				Received By: (Signature and Printed Name) <i>Timothy O'Neal</i>				Custody Seals: Used? <input checked="" type="checkbox"/> Intact? <input type="checkbox"/>				
Relinquished By: (Signature and Printed Name) <i>Timothy O'Neal</i>				Received By: (Signature and Printed Name) <i>Timothy O'Neal</i>				Turnaround: Regular <input checked="" type="checkbox"/> Special <input type="checkbox"/>				
Relinquished By: (Signature and Printed Name) <i>Timothy O'Neal</i>				Received By: (Signature and Printed Name) <i>Timothy O'Neal</i>				Were samples properly preserved: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Comments:				Flow Data				Result				
				Analyst: TMO				Result				
				Time: 0910				7.1				
				Reading: 0.54				7.0				
				Units: MGD				12.2				
				E Coll Start: 1420				S.U.				
				Fecal Start: 1420				mg/L				
				Time: TMO				This Document is Page 1 of 1				

ATC



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Company Name:		Clinton East 001		Permit/Project #:		AR0048836			
Address:		P.O. Box 277 Clinton, AR 72031		Purchase Order #:					
Telephone:		501-745-4320		Work Order #:					
Contact:		Mr. Isaac Keeling		Sampler Name(s):		Timothy O'Neil			
FAX:		501-745-2164		and Signature(s):		<i>Timothy O'Neil</i>			
ESC Client Number: 495 (Bio-monitoring)				Chronic Bio-Monitoring (83.1)					

  

Sample Identification			Sample Collection			Sample Containers			
Identification	ESC Control #	Date	Time	Type	Matrix	Type	Volume	Preservative	#
Final Effluent	1602010293	2-11-14	08:00	Composite	Wwater	Plastic	1 Gal	Cool ≤ 6° C	1

  

Relinquished By: (Signature and Printed Name)	Date	Time	Received By: (Signature and Printed Name)	Date	Time	Custody Seals	Requested Parameters
<i>Isaac Keeling</i> Isaac Keeling	2-12-14	14:00	<i>Timothy O'Neil</i> Timothy O'Neil	2-12-14	14:00	Used? <input checked="" type="checkbox"/> Intact? <input type="checkbox"/> Turnaround? <input checked="" type="checkbox"/> Regular? <input checked="" type="checkbox"/> Special? <input type="checkbox"/> Were samples properly preserved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	
Relinquished By: (Signature and Printed Name)	Date	Time	Received By: (Signature and Printed Name)	Date	Time	Used? <input type="checkbox"/> Intact? <input type="checkbox"/> Turnaround? <input type="checkbox"/> Regular? <input type="checkbox"/> Special? <input type="checkbox"/> Were samples properly preserved? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	

  

Comments:		
Flow Data	Field Test	Result
pH: 7.0		
Analyst: [Signature]	Analyst	Units
Time: [Signature]		
Reading: [Signature]		
Units: [Signature]		
Fecal Start:	This Document is Page <u>1</u> of <u>1</u>	

# CETIS Test Evaluation Report

Report Date: 01 Mar-16 15:06 ( 1 of 1)  
 Test Code: 195C7F3D | 04-2549-2285

Facility: City of Clinton AR - East Plant  
 Sample Site:  
 Sample Code: 16-040-0190  
 Sample Date: 08 Feb-16 09:00  
 Sample Age: 31h (0.9 °C)  
 Project: WET Quarterly Compliance Test (1Q)

Test Name: Ceriodaphnia 7-d Survival and Reproduction Test  
 Organism: Ceriodaphnia dubia (Water Flea)  
 Protocol: EPA/821/R-02-013 (2002)  
 Start Date: 09 Feb-16 16:15  
 End Date: 15 Feb-16 15:40  
 Duration: 5d 23h  
 Organism Age: < 24

Permittee: Environmental Services Company  
 Address: 131715 W. Markham Street  
 Little Rock, AR 72211

Laboratory: Waypoint Analytical, Inc.  
 Address: 2790 Whitten Road  
 Memphis, TN 38133

Contact: Ms. Joyce Brown  
 Phone: 501-221-2565  
 Email: joyceb@esclabs.com

Contact: Ms. Connie Cook, Lab Supervisor  
 Phone: 901-213-2454, 901-213-2440(fax)  
 Email: ccook@etcmemphis

**Comments:**

**Chronic Toxicity Evaluation**

Endpoint	Criteria	Conc-%	IWC	Decision	Method
Reproduction	NOEL/LOEL	100/>100	99.99	Passes IWC	Steel Many-One Rank Sum Test

**Test Acceptability Criteria**

Endpoint	Attribute	Test Stat	TAC Limits			Decision
			Lower	Upper	Overlap	
Reproduction	Control Resp	16.1	15	>>	Yes	Passes Acceptability Criteria
Reproduction	Control Resp	16.1	15	>>	Yes	Passes Acceptability Criteria

**6d Survival Rate Data Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	1	1	1	1	1	0	0	0.00%	0.0%
32		10	1	1	1	1	1	0	0	0.00%	0.0%
42		10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	10.0%
56		10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	10.0%
75		10	1	1	1	1	1	0	0	0.00%	0.0%
100		10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	10.0%

**Reproduction Data Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	16.1	14.92	17.28	12	21	1.016	3.213	19.96%	0.0%
32		10	16	15.01	16.99	12	20	0.8563	2.708	16.93%	0.62%
42		10	14.5	12.22	16.78	0	22	1.962	6.205	42.79%	9.94%
56		10	15.6	13.29	17.91	0	23	1.99	6.293	40.34%	3.11%
75		10	18.1	17.28	18.92	15	21	0.7063	2.234	12.34%	-12.42%
100		10	16.6	14.5	18.7	3	22	1.815	5.739	34.57%	-3.11%

**Reproduction Data Summary**

Conc-%	Code	Count	Mean	Min	Max	Calculated Variate				
						Std Err	Std Dev	CV%	%Effect	
0	L	10	16.1	12	21	1.016	3.213	19.96%	0.0%	
32		10	16	12	20	0.8563	2.708	16.93%	0.62%	
42		10	14.5	0	22	1.962	6.205	42.79%	9.94%	
56		10	15.6	0	23	1.99	6.293	40.34%	3.11%	
75		10	18.1	15	21	0.7063	2.234	12.34%	-12.42%	
100		10	16.6	3	22	1.815	5.739	34.57%	-3.11%	

**CETIS Summary Report**

Report Date: 01 Mar-16 15:05 (p 1 of 2)  
 Test Code: 195C7F3D | 04-2549-2285

**Ceriodaphnia 7-d Survival and Reproduction Test**

Waypoint Analytical, Inc.

<b>Batch ID:</b> 05-8103-4754	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Ava Davis
<b>Start Date:</b> 09 Feb-16 16:15	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Pernier Water
<b>Ending Date:</b> 15 Feb-16 15:40	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Duration:</b> 5d 23h	<b>Source:</b> In-House Culture	<b>Age:</b> < 24
<b>Sample ID:</b> 20-1461-4714	<b>Code:</b> 16-040-0190	<b>Client:</b> Environmental Services Company
<b>Sample Date:</b> 08 Feb-16 09:00	<b>Material:</b> POTW Effluent	<b>Project:</b> WET Quarterly Compliance Test (1Q)
<b>Receipt Date:</b> 09 Feb-16 08:15	<b>Source:</b> City of Clinton AR - East Plant (AR0048836)	
<b>Sample Age:</b> 31h (0.9 °C)	<b>Station:</b>	

**Multiple Comparison Summary**

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
03-0292-6139	6d Survival Rate	Fisher Exact/Bonferroni-Holm Test	100	> 100	n/a	1	n/a
15-1546-8905	Reproduction	Steel Many-One Rank Sum Test	100	> 100	n/a	1	30.0%

**Point Estimate Summary**

Analysis ID	Endpoint	Point Estimate Method	Level	%	95% LCL	95% UCL	TU	✓
00-0506-8319	Reproduction	Linear Interpolation (ICPIN)	IC25	>100	n/a	n/a	<1	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
00-0506-8319	Reproduction	Control Resp	16.1	15	>>	Yes	Passes Acceptability Criteria
15-1546-8905	Reproduction	Control Resp	16.1	15	>>	Yes	Passes Acceptability Criteria

**6d Survival Rate Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
32		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
42		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
56		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
75		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
100		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%

**Reproduction Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	16.1	13.8	18.4	12	21	1.016	3.213	19.96%	0.00%
32		10	16	14.06	17.94	12	20	0.8563	2.708	16.93%	0.62%
42		10	14.5	10.06	18.94	0	22	1.962	6.205	42.79%	9.94%
56		10	15.6	11.1	20.1	0	23	1.99	6.293	40.34%	3.11%
75		10	18.1	16.5	19.7	15	21	0.7063	2.234	12.34%	-12.42%
100		10	16.6	12.49	20.71	3	22	1.815	5.739	34.57%	-3.11%

**CETIS Summary Report**

Report Date: 01 Mar-16 15:05 (p 2 of 2)  
 Test Code: 195C7F3D | 04-2549-2285

**Ceriodaphnia 7-d Survival and Reproduction Test**

Waypoint Analytical, Inc.

**6d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
42		1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
56		1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
75		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Reproduction Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	15	13	14	12	21	16	13	19	18	20
32		16	15	20	13	15	19	12	17	19	14
42		13	0	11	17	19	18	19	12	14	22
56		17	19	19	0	23	20	13	16	13	16
75		18	16	20	16	21	15	20	21	17	17
100		3	21	20	13	14	22	17	22	16	18

**6d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
32		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
42		1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
56		1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1
75		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

# CETIS Measurement Report

Report Date: 01 Mar-16 15:05 (p 1 of 3)  
Test Code: 195C7F3D | 04-2549-2285

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## Ceriodaphnia 7-d Survival and Reproduction Test

Waypoint Analytical, Inc.

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<b>Batch ID:</b> 05-8103-4754	<b>Test Type:</b> Reproduction-Survival (7d)	<b>Analyst:</b> Ava Davis
<b>Start Date:</b> 09 Feb-16 16:15	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Perrier Water
<b>Ending Date:</b> 15 Feb-16 15:40	<b>Species:</b> Ceriodaphnia dubia	<b>Brine:</b> Not Applicable
<b>Duration:</b> 5d 23h	<b>Source:</b> In-House Culture	<b>Age:</b> < 24

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<b>Sample ID:</b> 20-1461-4714	<b>Code:</b> 16-040-0190	<b>Client:</b> Environmental Services Company
<b>Sample Date:</b> 08 Feb-16 09:00	<b>Material:</b> POTW Effluent	<b>Project:</b> WET Quarterly Compliance Test (1Q)
<b>Receipt Date:</b> 09 Feb-16 08:15	<b>Source:</b> City of Clinton AR - East Plant (AR0048836)	
<b>Sample Age:</b> 31h (0.9 °C)	<b>Station:</b>	

**CETIS Measurement Report**

Report Date: 01 Mar-16 15:05 (p 2 of 3)  
 Test Code: 195C7F3D | 04-2549-2285

**Ceriodaphnia 7-d Survival and Reproduction Test**

Waypoint Analytical, Inc.

**Alkalinity (CaCO<sub>3</sub>)-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	60	60	59	60	63	61	59
32								
42								
56								
75								
100								

**Total Residual Chlorine-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	0	0	0	0	0	0	0
32								
42								
56								
75								
100		0	0	0	0	0	0	0

**Conductivity-µS/cm**

Conc-%	Code	1	2	3	4	5	6	7
0	L	177	182	188	185	183	186	183
32								
42								
56								
75								
100		151	143	154	151	161	155	154

**Final Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.5	8.1	8.1	8.2	7.9	8.3	
32		8.7	7.5	8.2	8.3	7.9	8.4	
42		8.7	7.5	8.2	8.2	7.8	8.6	
56		8.7	7.5	8.2	8.2	7.8	8.6	
75		8.7	7.5	8.7	8	7.6	8.5	
100		8.7	7.5	7.6	7.8	7.6	8.6	

**Initial Dissolved Oxygen-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.8	8.5	8.6	7.9	8.2	8.5	8.7
32		8.7	8.8	8.6	8.7	8.6	8.7	8.7
42		8.9	8.8	8.4	8.9	8.6	8.7	8.8
56		8.6	8.7	8.4	9	8.9	8.6	8.7
75		8.5	8.8	8.7	8.9	8.7	8.7	8.5
100		8.4	8.7	8.7	9.1	8.8	8.6	8.6

**Hardness (CaCO<sub>3</sub>)-mg/L**

Conc-%	Code	1	2	3	4	5	6	7
0	L	90	90	89	91	90	91	92
32								
42								
56								
75								
100								



**CETIS Measurement Report**

Report Date: 01 Mar-16 15:05 (p 3 of 3)  
 Test Code: 195C7F3D | 04-2549-2285

**Ceriodaphnia 7-d Survival and Reproduction Test**

Waypoint Analytical, Inc.

**Final pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.9	7.5	7.7	7.6	7.5	7.9	
32		7.8	7.6	7.7	7.6	7.5	7.9	
42		7.8	7.6	7.5	7.6	7.4	7.9	
56		7.8	7.6	7.6	7.6	7.4	7.9	
75		7.8	7.6	7.6	7.6	7.3	7.9	
100		7.6	7.5	7.5	7.4	7.4	7.9	

**Initial pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.4	8	7.9	7.8	7.9	7.9	7.9
32		7.6	7.9	7.9	7.8	7.6	7.9	7.8
42		7.6	7.9	7.9	7.8	7.6	7.6	7.8
56		7.5	7.8	7.8	7.8	7.5	7.5	7.7
75		7.4	7.6	7.7	7.6	7.5	7.7	7.5
100		7.2	7.5	7.5	7.5	7.5	7.7	7.4

**Final Temperature-°C**

Conc-%	Code	1	2	3	4	5	6	7
0	L	23	23	23	23	23	23	
32		23	23	23	23	23	23	
42		23	23	23	23	23	23	
56		23	23	23	23	23	23	
75		23	23	23	23	23	23	
100		23	23	23	23	23	23	

**Initial Temperature-°C**

Conc-%	Code	1	2	3	4	5	6	7
0	L	23	23	23	23	23	23	23
32		23	23	23	23	23	23	23
42		23	23	23	23	23	23	23
56		23	23	23	23	23	23	23
75		23	23	23	23	23	23	23
100		23	23	23	23	23	23	23

**CETIS Test Evaluation Report**

**Report Date:** 01 Mar-16 15:10 ( 1 of 1)  
**Test Code:** 1B2A7EA0 | 04-5576-9760

**Facility:** City of Clinton AR - East Plant  
**Sample Site:**  
**Sample Code:** 16-040-0190  
**Sample Date:** 08 Feb-16 09:00  
**Sample Age:** 31h (0.9 °C)  
**Project:** WET Quarterly Compliance Test (1Q)

**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:** 09 Feb-16 16:00  
**End Date:** 16 Feb-16 13:30  
**Duration:** 6d 22h **Organism Age:** < 24

**Permittee:** Environmental Services Company  
**Address:** 131715 W. Markham Street  
 Little Rock, AR 72211

**Laboratory:** Waypoint Analytical , Inc.  
**Address:** 2790 Whitten Road  
 Memphis, TN 38133

**Contact:** Ms. Joyce Brown  
**Phone:** 501-221-2565  
**Email:** joyceb@esclabs.com

**Contact:** Ms. Connie Cook, Lab Supervisor  
**Phone:** 901-213-2454, 901-213-2440(fax)  
**Email:** ccook@etcmemphis

**Comments:**

**Chronic Toxicity Evaluation**

Endpoint	Criteria	Conc-%	IWC	Decision	Method
7d Survival Rate	NOEL/LOEL	100/>100	99.99	Passes IWC	Dunnett Multiple Comparison Test
Mean Dry Weight-mg	NOEL/LOEL	100/>100	99.99	Passes IWC	Dunnett Multiple Comparison Test

**Test Acceptability Criteria**

Endpoint	Attribute	Test Stat	TAC Limits			Decision
			Lower	Upper	Overlap	
7d Survival Rate	Control Resp	0.74	0.8	>>	Yes	Below Acceptability Criteria
Mean Dry Weight-mg	Control Resp	0.5375	0.25	>>	Yes	Passes Acceptability Criteria
Mean Dry Weight-mg	Control Resp	0.5375	0.25	>>	Yes	Passes Acceptability Criteria

**7d Survival Rate Data Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.74	0.7199	0.7601	0.7	0.8	0.02449	0.05477	7.40%	0.0%
32		5	0.8	0.7999	0.8001	0.8	0.8	0	0	0.00%	-8.11%
42		5	0.74	0.7072	0.7728	0.6	0.8	0.04	0.08944	12.09%	0.0%
56		5	0.78	0.7636	0.7964	0.7	0.8	0.02	0.04472	5.73%	-5.41%
75		5	0.7	0.6551	0.7449	0.5	0.8	0.05477	0.1225	17.50%	5.41%
100		5	0.7	0.6741	0.7259	0.6	0.8	0.03162	0.07071	10.10%	5.41%

**Mean Dry Weight-mg Data Summary**

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.5375	0.5067	0.5683	0.4375	0.65	0.0375	0.08385	15.60%	0.0%
32		5	0.495	0.4713	0.5187	0.4	0.575	0.02894	0.06471	13.07%	7.91%
42		5	0.4925	0.4593	0.5257	0.3625	0.6	0.04043	0.0904	18.35%	8.37%
56		5	0.5125	0.4733	0.5517	0.4	0.65	0.04776	0.1068	20.84%	4.65%
75		5	0.385	0.3565	0.4135	0.325	0.5125	0.03478	0.07776	20.20%	28.37%
100		5	0.49	0.4585	0.5215	0.3875	0.5875	0.03841	0.08588	17.53%	8.84%

**Mean Dry Weight-mg Data Summary**

Conc-%	Code	Count	Mean	Min	Max	Calculated Variate				
						Std Err	Std Dev	CV%	%Effect	
0	L	5	0.5375	0.4375	0.65	0.0375	0.08385	15.60%	0.0%	
32		5	0.495	0.4	0.575	0.02894	0.06471	13.07%	7.91%	
42		5	0.4925	0.3625	0.6	0.04043	0.0904	18.35%	8.37%	
56		5	0.5125	0.4	0.65	0.04776	0.1068	20.84%	4.65%	
75		5	0.385	0.325	0.5125	0.03478	0.07776	20.20%	28.37%	
100		5	0.49	0.3875	0.5875	0.03841	0.08588	17.53%	8.84%	

# CETIS Summary Report

Report Date: 01 Mar-16 15:10 (p 1 of 2)

Test Code: 1B2A7EA0 | 04-5576-9760

## Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical, Inc.

<b>Batch ID:</b> 17-4559-8553	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Ava Davis
<b>Start Date:</b> 09 Feb-16 16:00	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Perrier Water
<b>Ending Date:</b> 16 Feb-16 13:30	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Duration:</b> 6d 22h	<b>Source:</b> Aquatic Biosystems, CO	<b>Age:</b> < 24

<b>Sample ID:</b> 20-1461-4714	<b>Code:</b> 16-040-0190	<b>Client:</b> Environmental Services Company
<b>Sample Date:</b> 08 Feb-16 09:00	<b>Material:</b> POTW Effluent	<b>Project:</b> WET Quarterly Compliance Test (1Q)
<b>Receipt Date:</b> 09 Feb-16 08:15	<b>Source:</b> City of Clinton AR - East Plant (AR0048836)	
<b>Sample Age:</b> 31h (0.9 °C)	<b>Station:</b>	

### Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD	✓
04-8119-3393	7d Survival Rate	Dunnett Multiple Comparison Test	100	> 100	n/a	1	15.0%	
16-7713-9293	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	100	> 100	n/a	1	23.9%	

### Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	%	95% LCL	95% UCL	TU	✓
03-9745-7952	Mean Dry Weight-mg	Linear Interpolation (ICPIN)	IC20	>100	n/a	n/a	<1	

### Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
04-8119-3393	7d Survival Rate	Control Resp	0.74	0.8	>>	Yes	Below Acceptability Criteria
03-9745-7952	Mean Dry Weight-mg	Control Resp	0.5375	0.25	>>	Yes	Passes Acceptability Criteria
16-7713-9293	Mean Dry Weight-mg	Control Resp	0.5375	0.25	>>	Yes	Passes Acceptability Criteria

### 7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.7400	0.6720	0.8080	0.7000	0.8000	0.0245	0.0548	7.40%	0.00%
32		5	0.8000	0.8000	0.8000	0.8000	0.8000	0.0000	0.0000	0.00%	-8.11%
42		5	0.7400	0.6289	0.8511	0.6000	0.8000	0.0400	0.0894	12.09%	0.00%
56		5	0.7800	0.7245	0.8355	0.7000	0.8000	0.0200	0.0447	5.73%	-5.41%
75		5	0.7000	0.5479	0.8521	0.5000	0.8000	0.0548	0.1225	17.50%	5.41%
100		5	0.7000	0.6122	0.7878	0.6000	0.8000	0.0316	0.0707	10.10%	5.41%

### Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	5	0.5375	0.4334	0.6416	0.4375	0.65	0.0375	0.08385	15.60%	0.00%
32		5	0.495	0.4147	0.5753	0.4	0.575	0.02894	0.06471	13.07%	7.91%
42		5	0.4925	0.3803	0.6047	0.3625	0.6	0.04043	0.0904	18.35%	8.37%
56		5	0.5125	0.3799	0.6451	0.4	0.65	0.04776	0.1068	20.84%	4.65%
75		5	0.385	0.2884	0.4816	0.325	0.5125	0.03478	0.07776	20.20%	28.37%
100		5	0.49	0.3834	0.5966	0.3875	0.5875	0.03841	0.08588	17.53%	8.84%

**CETIS Summary Report**

**Report Date:** 01 Mar-16 15:10 (p 2 of 2)  
**Test Code:** 1B2A7EA0 | 04-5576-9760

**Fathead Minnow 7-d Larval Survival and Growth Test**

**Waypoint Analytical, Inc.**

**7d Survival Rate Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.7000	0.7000	0.7000	0.8000	0.8000
32		0.8000	0.8000	0.8000	0.8000	0.8000
42		0.8000	0.8000	0.7000	0.8000	0.6000
56		0.8000	0.8000	0.8000	0.8000	0.7000
75		0.7000	0.5000	0.7000	0.8000	0.8000
100		0.7000	0.6000	0.7000	0.7000	0.8000

**Mean Dry Weight-mg Detail**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	0.55	0.475	0.4375	0.65	0.575
32		0.575	0.525	0.5	0.4	0.475
42		0.4625	0.55	0.4875	0.6	0.3625
56		0.4	0.4125	0.525	0.65	0.575
75		0.325	0.3625	0.4	0.325	0.5125
100		0.425	0.5625	0.3875	0.4875	0.5875

**7d Survival Rate Binomials**

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	L	7/10	7/10	7/10	8/10	8/10
32		8/10	8/10	8/10	8/10	8/10
42		8/10	8/10	7/10	8/10	6/10
56		8/10	8/10	8/10	8/10	7/10
75		7/10	5/10	7/10	8/10	8/10
100		7/10	6/10	7/10	7/10	8/10

# CETIS Measurement Report

Report Date: 01 Mar-16 15:10 (p 1 of 3)  
Test Code: 1B2A7EA0 | 04-5576-9760

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## Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical, Inc.

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<b>Batch ID:</b> 17-4559-8553	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b> Ava Davis
<b>Start Date:</b> 09 Feb-16 16:00	<b>Protocol:</b> EPA/821/R-02-013 (2002)	<b>Diluent:</b> Perrier Water
<b>Ending Date:</b> 16 Feb-16 13:30	<b>Species:</b> Pimephales promelas	<b>Brine:</b> Not Applicable
<b>Duration:</b> 6d 22h	<b>Source:</b> Aquatic Biosystems, CO	<b>Age:</b> < 24

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<b>Sample ID:</b> 20-1461-4714	<b>Code:</b> 16-040-0190	<b>Client:</b> Environmental Services Company
<b>Sample Date:</b> 08 Feb-16 09:00	<b>Material:</b> POTW Effluent	<b>Project:</b> WET Quarterly Compliance Test (1Q)
<b>Receipt Date:</b> 09 Feb-16 08:15	<b>Source:</b> City of Clinton AR - East Plant (AR0048836)	
<b>Sample Age:</b> 31h (0.9 °C)	<b>Station:</b>	

# CETIS Measurement Report

Report Date: 01 Mar-16 15:10 (p 2 of 3)  
 Test Code: 1B2A7EA0 | 04-5576-9760

## Fathead Minnow 7-d Larval Survival and Growth Test

Waypoint Analytical, Inc.

### Alkalinity (CaCO3)-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	60	60	59	60	63	61	59
32								
42								
56								
75								
100								

### Total Residual Chlorine-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	0	0	0	0	0	0	0
32								
42								
56								
75								
100		0	0	0	0	0	0	0

### Conductivity-µS/cm

Conc-%	Code	1	2	3	4	5	6	7
0	L	177	182	188	185	183	186	183
32								
42								
56								
75								
100		151	143	154	151	161	155	154

### Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.6	6.8	5.5	6.8	6.5	6.1	6
32		8.3	7	5.8	7.8	7	6.4	6.4
42		7.6	7.1	5.1	7.3	7	6.9	6.7
56		7.2	7.1	5	7.3	7.5	6.6	6.8
75		7.6	7.1	5	7	7.4	6.4	7.2
100		8.2	6.8	5.1	7	7.3	7.2	6.5

### Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.8	8.5	8.6	7.9	8.2	8.5	8.7
32		8.7	8.8	8.6	8.7	8.6	8.7	8.7
42		8.9	8.8	8.4	8.9	8.6	8.7	8.8
56		8.6	8.7	8.4	9	8.9	8.6	8.7
75		8.5	8.8	8.7	8.9	8.7	8.7	8.5
100		8.4	8.7	8.7	9.1	8.8	8.6	8.6

### Hardness (CaCO3)-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	90	90	89	91	90	91	92
32								
42								
56								
75								
100								

**CETIS Measurement Report**

**Report Date:** 01 Mar-16 15:10 (p 3 of 3)  
**Test Code:** 1B2A7EA0 | 04-5576-9760

**Fathead Minnow 7-d Larval Survival and Growth Test**

**Waypoint Analytical, Inc.**

**Final pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.9	7.7	7.8	7.9	7.6	7.4	7.5
32		7.8	7.7	7.7	7.6	7.5	7.4	7.6
42		7.7	7.6	7.7	7.6	7.6	7.4	7.6
56		7.6	7.6	7.6	7.5	7.6	7.3	7.6
75		7.5	7.5	7.5	7.5	7.7	7.4	7.5
100		7.5	7.4	7.5	7.4	7.4	7.1	7.4

**Initial pH-Units**

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.4	8	7.9	7.8	7.9	7.9	7.9
32		7.6	7.9	7.9	7.8	7.6	7.9	7.8
42		7.6	7.9	7.9	7.8	7.6	7.6	7.8
56		7.5	7.8	7.8	7.8	7.5	7.5	7.7
75		7.4	7.6	7.7	7.6	7.5	7.7	7.5
100		7.2	7.5	7.5	7.5	7.5	7.7	7.4

**Final Temperature-°C**

Conc-%	Code	1	2	3	4	5	6	7
0	L	23	23	23	23	23	23	23
32		23	23	23	23	23	23	23
42		23	23	23	23	23	23	23
56		23	23	23	23	23	23	23
75		23	23	23	23	23	23	23
100		23	23	23	23	23	23	23

**Initial Temperature-°C**

Conc-%	Code	1	2	3	4	5	6	7
0	L	23	23	23	23	23	23	23
32		23	23	23	23	23	23	23
42		23	23	23	23	23	23	23
56		23	23	23	23	23	23	23
75		23	23	23	23	23	23	23
100		23	23	23	23	23	23	23

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



03341

Environmental Services Co.Inc.  
Ms. Joyce Brown  
13715 W. Markham St.  
Little Rock , AR 72211

Project Bioassay  
Information :

Report Date : 3/1/2016

Report Number : **16-040-0190**

**REPORT OF ANALYSIS**

Received : 2/9/2016

Lab No : **91118**

Sample ID : **Outfall 001 - Composite 1**

Matrix: **Aqueous**

Sampled: **2/8/2016 9:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	<b>18</b>	mg/L	1	1	02/22/16 07:58	CJR	2320B-2011
Total Calcium	<b>5.77</b>	mg/L	0.100	1	02/16/16 12:00	CCR	EPA-200.7
Hardness as CaCO3(SM-2340B)	<b>20.7</b>	mg/L	0.100	1	02/16/16 12:00		EPA-200.7
Total Magnesium	<b>1.54</b>	mg/L	0.100	1	02/16/16 12:00	CCR	EPA-200.7

Lab No : **91760**

Sample ID : **Outfall 001 - Composite 2**

Matrix: **Aqueous**

Sampled: **2/10/2016 13:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	<b>18</b>	mg/L	1	1	02/22/16 07:58	CJR	2320B-2011
Total Calcium	<b>5.83</b>	mg/L	0.100	1	02/16/16 12:05	CCR	EPA-200.7
Hardness as CaCO3(SM-2340B)	<b>21.1</b>	mg/L	0.100	1	02/16/16 12:05		EPA-200.7
Total Magnesium	<b>1.58</b>	mg/L	0.100	1	02/16/16 12:05	CCR	EPA-200.7

Lab No : **92307**

Sample ID : **Outfall 001 - Composite 3**

Matrix: **Aqueous**

Sampled: **2/12/2016 8:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	<b>16</b>	mg/L	1	1	02/22/16 07:58	CJR	2320B-2011
Total Calcium	<b>5.87</b>	mg/L	0.100	1	02/16/16 12:10	CCR	EPA-200.7
Hardness as CaCO3(SM-2340B)	<b>21.1</b>	mg/L	0.100	1	02/16/16 12:10		EPA-200.7
Total Magnesium	<b>1.57</b>	mg/L	0.100	1	02/16/16 12:10	CCR	EPA-200.7

**Qualifiers/  
Definitions**

DF

Dilution Factor

MQL

Method Quantitation Limit

Kit ID: 0000060350
Initiated By: Connie Cook
Project Comment Clinton East bioassay

CHAIN-OF-



16-040-0190  
03341  
02-09-2016  
09:59:03  
Environmental Services Co. Inc.  
Bioassay

①

Company Name Environmental Services Co. Inc.	Company Number 03341	Client Project Manager/Contact Ms. Tina Hall	Purchase Order Number
Site Name Kit QTR1 A - Bioassay Clinton East - 02/07-08/16	Project Number 1602010162	<input type="checkbox"/> RUSH - Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	Method of Shipment <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID Environmental Services - Bioassay	Project Manager Phone #	Project Manager Email tinah@esclabs.com	Site/Facility ID # Clinton

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
2/8 - 2/8/16	0900 - 0900	Outfall 001 - Composite 1	Aqueous	C	2	Plastic - Gallon	NONE	Chronic CD/FH
"	"	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
"	"	Outfall 001 - Composite 1	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	Hardness

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments			
Ice T/N	Custody Seals T/N	Lab Comments	Trevor Faithman				
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
			Relinquished by: (SIGNATURE)	2/8/16 1600			
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
Blank/Cooler Temp 0.9°C T9			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
					C. Gardner	2/9/16	0815



Kit ID: 0000060351
Initiated By: Connie Cook
Project Comment Clinton East bioassay

CHAIN-OF-CUSTODY

	18-040-0190 03341 02-09-2016 09:59:03
Environmental Services Co. Inc. Bioassay / 2/9/16	

Company Name Environmental Services Co. Inc.		Company Number 03341		Client Project Manager/Contact Ms. Tina Hall		Purchase Order Number 7948		
Site Name Kit QTR1 B - Bioassay Clinton East - 02/09-10/16		Project Number 1602010212		<input type="checkbox"/> RUSH - Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed		Method of Shipment <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other		
LIMS Project ID Environmental Services - Bioassay		Project Manager Phone #		Project Manager Email tinah@esclabs.com		Site/Facility ID # Clinton		
Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
2/9-2/10	1300-1300	Outfall 001 - Composite 2	Aqueous	C	2	Plastic - Gallon	NONE	Chronic CD/FH
"	"	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
"	"	Outfall 001 - Composite 2	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	Hardness

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments		
Ice Y/N	Custody Seals Y/N	Lab Comments	Ricky Williams			
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time
			Relinquished by: (SIGNATURE)	2-10-16 1530		
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time
Blank/Cooler Temp 0.8°C			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time
					2/11/16	0822

TASL



3

Kit ID: 000060352
Initiated By: Connie Cook
Project Comment Clinton East bioassay

CHAIN-OF-CUS

	16-040-0190 03341 02-09-2016 09:59:03
Environmental Services Co. Inc. Bioassay / 2/11/16/2/9/16	

Company Name Environmental Services Co. Inc.	Company Number 03341	Client Project Manager/Contact Ms. Tina Hall	Purchase Order Number <b>7948</b>
Site Name Kit QTR1 C - Clinton East Bioassay - 02/11-12	Project Number <b>1602010233</b>	<input type="checkbox"/> RUSH - Additional charges apply <input type="checkbox"/> Special Detection Limits(s) Date Results Needed	Method of Shipment <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Client Drop Off Other
LIMS Project ID Environmental Services - Bioassay	Project Manager Phone # <b>501-221-2565</b>	Project Manager Email tinah@esclabs.com	Site/Facility ID # <b>Clinton</b>

Date	Time	Sample ID	Matrix	Grab/Comp	# of Cont	Container Type	Preservation	Analyses
2/11-12	0800-0800	Outfall 001 - Composite 3	Aqueous	C	3	Plastic - Gallon	NONE	Chronic CD/FH
"	"	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	NONE	Alkalinity
"	"	Outfall 001 - Composite 3	Aqueous	C	1	Plastic - Pint	HNO3 - Nitric Acid	Hardness

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments			
Ice	Custody Seals	Lab Comments	Timothy O'Neil	0800-800 2-11-16 2-12-16			
Y/N	Y/N		Relinquished by: (SIGNATURE) Timothy O'Neil	Date Time 2-11-16/40	Received by: (SIGNATURE)	Date Time	
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE) Clide	Date Time 2/13/16	0810
Blank/Cooler Temp 1.0 TA oe							

NAME: Clinton East  
ADDRESS:

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

PERMIT NUMBER	DISCHARGE NUMBER

FACILITY:

LOCATION:  
ATTN:

MONITORING PERIOD

YEAR	MONTH	DAY	TO	YEAR	MONTH	DAY

PARAMETER	SAMPLE MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	MINIMUM	AVERAGE/MAXIMUM			
P/F STATRE 7DAY CHR CERIODAPHNIA TGP3B 1 0 0 EFFLUENT GROSS VALUE		*****	*****	*****	*****	0		
					(9A)			
					PASS=0 FAIL=1			

P/F STATRE 7DAY CHR PIMEPHALES PROMELAS TGP6C 1 0 0 EFFLUENT GROSS VALUE		*****	*****	*****	*****	0		
					(9A)			
					PASS=0 FAIL=1			

LF P/F LETH STATRE 7-DAY CHR CERIODAPHNIA TLP3B 1 0 0 EFFLUENT GROSS VALUE		*****	*****	*****	*****	0		
					(9A)			
					PASS=0 FAIL=1			

LF P/F LETH STATRE 7-DAY CHR PIMEPHALES TLP6C 1 0 0 EFFLUENT GROSS VALUE		*****	*****	*****	*****	0		
					(9A)			
					PASS=0 FAIL=1			

NOEL LETHAL STATRE 7-DAY CHR CERIODAPHNIA TOP3B 1 0 0 EFFLUENT GROSS VALUE		*****	*****	*****	*****	100		
					(23)			
					PER-CENT			

NOEL LETHAL STATRE 7-DAY CHR PIMEPHALES TOP6C 1 0 0 EFFLUENT GROSS VALUE		*****	*****	*****	*****	100		
					(23)			
					PER-CENT			

NAME: Clinton East  
 ADDRESS:

0  
0

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

PERMIT NUMBER: 0  
 DISCHARGE NUMBER: 0

FACILITY:

LOCATION:

ATTN:

MONITORING PERIOD

YEAR: 0 MONTH: 0 DAY: 0  
 TO YEAR: 0 MONTH: 0 DAY: 0

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	AVERAGE	MAXIMUM	MINIMUM	MAXIMUM			
NOEL SUB-LTH STATRE 7DAY CHR CERIODAPHNIA TPP3B 1 0 0 EFFLUENT GROSS VALUE	*****	*****	*****	*****	(23)		
	MEASUREMENT	PERMIT REQUIREMENT	100		PER-CENT		

NOEL SUB-LTH STATRE 7DAY CHR PIMEPHEALES TPP6C 1 0 0 EFFLUENT GROSS VALUE	*****	*****	*****	*****	(23)		
	MEASUREMENT	PERMIT REQUIREMENT	100		PER-CENT		

COEF OF VAR STATRE 7DAY CHR CERIODAPHNIA TQP3B 1 0 0 EFFLUENT GROSS VALUE	*****	*****	*****	*****	34.6	(23)	
	MEASUREMENT	PERMIT REQUIREMENT			PER-CENT		

COEF OF VAR STATRE 7DAY CHR PIMEPHEALES TQP6C 1 0 0 EFFLUENT GROSS VALUE	*****	*****	*****	*****	17.53	(23)	
	MEASUREMENT	PERMIT REQUIREMENT			PER-CENT		

WHOLE EFFLUENT TOXICITY 22414 S 0 0	*****	*****	*****	*****	100	(23)	
	MEASUREMENT	PERMIT REQUIREMENT			PER-CENT		

WHOLE EFFLUENT TOXICITY 22414 1 0 0 EFFLUENT GROSS VALUE	*****	*****	*****	*****	100	(23)	
	MEASUREMENT	PERMIT REQUIREMENT			PER-CENT		