

Bio-Analytical Laboratories' Executive Summary

Permittee: Magnolia Wastewater System
P.O. Box 666
Magnolia, AR 71753

Project #: X4747

Outfall: 001

Permit #: AR0043613/ AFIN #14-00059

Contact: Russell Thomas

Dates: May 14 - 21, 2012

Test Type: Chronic Static Renewal Survival and Growth Test using *Pimephales promelas*
(EPA Method 1000.0)

Results:

For *Pimephales promelas*:

1. If the NOEC for survival is less than the critical dilution (100%), enter a "1"; otherwise, enter a "0" for Parameter TLP6C - 0
2. If the NOEC for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter TGP6C - 0
3. Report the NOEC value for survival, Parameter TOP6C - 100%.
4. Report the NOEC value for reproduction, Parameter TPP6C - 100%.
5. Report the largest % coefficient of variation between the control and the critical dilution, Parameter TQP6C - 24.48%.

**SUMMARY REPORTING FORMS CHRONIC BIOMONITORING
FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL
(*Pimephales promelas*)**

Permittee: Magnolia Wastewater System

NPDES No.: AR0043613
AFIN: 14-00059

	Time	Date	Time	Date
Composite 1 Collected from:	0700	5/13/12 To	0700	5/14/12
Composite 2 Collected from:	0700	5/15/12 To	0700	5/16/12
Composite 3 Collected from:	0700	5/17/12 To	0700	5/18/12

Test initiated: 1510 am/pm 5/14/12 date
 Test terminated: 1015 am/pm 5/21/12 date
 Dilution water used: Receiving X Reconstituted

DATA TABLE FOR SURVIVAL

Effluent Conc. %	Percent Survival in Replicate Chambers					Mean Percent Survival			CV%*
	A	B	C	D	E	24h	48h	7 days	
0	87.5	87.5	100	100	75.0	100	100	90.0	11.68
32	100	100	100	100	100	100	100	100	0.00
42	100	100	100	100	75.0	87.5	87.5	95.0	11.68
56	87.5	100	100	100	100	100	97.5	97.5	6.06
80	100	87.5	100	100	87.5	100	100	95.0	7.62
100	100	100	100	87.5	100	100	100	97.5	24.48

DATA TABLE FOR GROWTH

Effluent Conc. %	Average Dry Weight in milligrams in replicate chambers					Mean Dry Weight mg	CV*
	A	B	C	D	E		
0	0.488	0.563	0.538	0.638	0.663	0.578	12.47
32	0.625	0.600	0.688	0.588	0.713	0.643	8.55
42	0.675	0.650	0.638	0.538	0.438	0.588	16.82
56	0.513	0.563	0.575	0.750	0.400	0.560	22.62
80	0.625	0.488	0.475	0.563	0.463	0.523	13.26
100	0.713	0.663	0.725	0.625	0.650	0.675	6.28
0-SN	0.557	0.643	0.538	0.638	0.883	0.652	21.14

*coefficient of variation = standard deviation x 100/mean.

PMSD = 25.2%

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL (cont)
(Pimephales promelas)

1. Dunnett's Procedure or Steels Many-One Rank Test as appropriate:

Is the mean survival at 7 days significantly different ($p=.05$) than the control survival for the % effluent corresponding to:

- | | | | |
|--|-----|---|----|
| a) LOW FLOW OR CRITICAL DILUTION (100 %) | YES | X | NO |
| b) ½ LOW FLOW DILUTION (N/A%) | YES | | NO |

2. Dunnett's Procedure (or appropriate test):

Is the mean dry weight (growth) at 7 days significantly different ($p=.05$) than the control's dry weight for the % effluent corresponding to (significant non-lethal effects):

- | | | | |
|---|-----|---|----|
| a) LOW FLOW OR CRITICAL DILUTION (100%) | YES | X | NO |
| b) ½ LOW FLOW DILUTION (N/A%) | YES | | NO |

3. If you answered NO to 1. a) and 2. a) enter (0) otherwise enter (1): 0
4. If you answered NO to 1. b) and 2. b) enter (0) otherwise enter (1): N/A
5. Enter response to item 3 on DMR Form, parameter #TEP6C.
6. Enter response to item 4 on DMR Form, parameter #TFP6C.
7. Enter percent effluent corresponding to each NOEC below and circle lowest number:

- | | |
|-------------------|----------------|
| a.) NOEC survival | 100% effluent. |
| b.) NOEC growth | 100% effluent. |
| c.) LOEC survival | N/A% effluent |
| d.) LOEC growth | N/A% effluent |

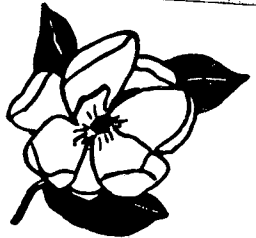
**Biomonitoring Form
Chronic Toxicity Summary Form
Pinephelus promelas
Chemical Parameters Chart**

Permittee: Magnolia Wastewater System
NPDES No.: AR0043613
Contact: Russell Thomas
Analyst: Briggs, Zeigler, Callahan

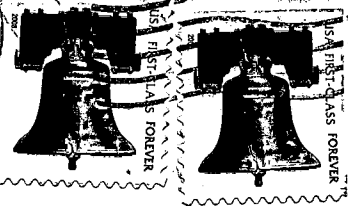
Sample No. 1 Collected: Date: 5/14/12 Time: 0700
Sample No. 2 Collected: Date: 5/16/12 Time: 0700
Sample No. 3 Collected: Date: 5/18/12 Time: 0700
Test Begin: Date: 5/14/12 Time: 1510
Test End: Date: 5/21/12 Time: 1015

Dilution: 0									Dilution: 56								
Day:									Day:								
	1	2	3	4	5	6	7	Comments		1	2	3	4	5	6	7	Comments
Temp (C)	24.3	24.5	24.6	24.5	24.4	24.3	24.6		Temp (C)	24.3	24.5	24.6	24.5	24.4	24.3	24.6	
DO Initial	7.3	6.8	6.6	6.3	6.3	5.2	5.3		DO Initial	6.9	6.7	6.8	6.5	6.3	4.9	5.3	
DO Final	8.3	8.3	8.4	8.2	8.4	8.3			DO Final	8.3	8.3	8.4	8.3	8.3	8.3		
pH Initial	7.3	7.4	7.2	7.2	7.3	7.2	7.1		pH Initial	7.3	7.3	7.3	7.2	7.2	7.2	7.2	
pH Final	7.6	7.7	7.7	7.7	7.4	7.6			pH Final	7.7	7.9	7.9	7.8	7.7	7.8		
Alkalinity	28.0								Alkalinity								
Hardness	40.0								Hardness								
Conductivity	171.4	171.5	173.1	172.4	171.7	170.6			Conductivity	301	308	318	322	336	325		
Chlorine	<.01								Chlorine								
Dilution: 32									Dilution: 80								
Day:									Day:								
	1	2	3	4	5	6	7	Comments		1	2	3	4	5	6	7	Comments
Temp (C)	24.3	24.5	24.6	24.5	24.4	24.3	24.6		Temp (C)	24.3	24.5	24.6	24.5	24.4	24.3	24.6	
DO Initial	7.0	6.8	6.7	6.3	6.3	5.2	5.3		DO Initial	6.9	6.7	6.9	6.5	6.3	5.2	5.2	
DO Final	8.4	8.4	8.4	8.3	8.3	8.3			DO Final	8.3	8.3	8.3	8.3	8.3	8.2		
pH Initial	7.3	7.4	7.2	7.2	7.3	7.2	7.1		pH Initial	7.4	7.3	7.4	7.3	7.3	7.1	7.2	
pH Final	7.8	7.9	7.8	7.8	7.5	7.7			pH Final	7.8	7.9	7.9	7.8	7.7	7.8		
Alkalinity									Alkalinity								
Hardness									Hardness								
Conductivity	248	253	259	260	265	262			Conductivity	352	366	379	382	408	395		
Chlorine									Chlorine								
Dilution: 42									Dilution: 100								
Day:									Day:								
	1	2	3	4	5	6	7	Comments		1	2	3	4	5	6	7	Comments
Temp (C)	24.3	24.5	24.6	24.5	24.4	24.3	24.6		Temp (C)	24.3	24.5	24.6	24.5	24.4	24.3	24.6	
DO Initial	6.8	6.6	6.7	6.5	6.3	5.3	5.4		DO Initial	7.0	6.6	6.9	6.5	6.4	5.0	5.2	
DO Final	8.4	8.3	8.4	8.3	8.3	8.3			DO Final	8.4	8.3	8.3	8.3	8.3	8.3		
pH Initial	7.3	7.3	7.3	7.3	7.2	7.1	7.1		pH Initial	7.5	7.4	7.5	7.3	7.3	7.2	7.2	
pH Final	7.8	7.9	7.8	7.8	7.7	7.7			pH Final	7.8	7.9	8.0	7.9	7.8	7.8		
Alkalinity									Alkalinity	68.0		52.0		68.0			
Hardness									Hardness	40.0		36.0		36.0			
Conductivity	273	274	288	284	293	287			Conductivity	418	417	419	429	470	460		
Chlorine									Chlorine	<.01		<.01		<.01			

City of Magnolia
Big Creek WWTP
P.O. Box 666
Magnolia, AR 71754
Permit # AR0043613 AFIN # 14-00059



NPDES Enforcement Section
Water Division
Arkansas Department of Environmental Quality
5301 N. Shore Dr.
North Little Rock, Arkansas 72118-5317



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