

Louisville and Jefferson County Metropolitan Sewer District 700 West Liberty Street Louisville Kentucky 40203-1911 502-540-6000 www.msdlouky.org

October 24, 2007

Ms. Kathy Thurman Kentucky Division of Water 14 Reilly Road Frankfort, Kentucky 40601

RE:

Jeffersontown Treatment Plant, KPDES No: KY0025194

Discharge Monitoring Report

September2007

Dear Ms. Thurman:

Attached are the Discharge Monitoring Report (DMR) and the Monthly Operating Report (MOR) report for the Jeffersontown Wastewater Treatment Plant, for the month of September 2007. There were four exceptions for exceeding fecal limits due to a controls problem with the UV system. It has since been corrected by the maintenance staff. Also enclosed is the quarterly Biomonitoring DMR for Jeffersontown Treatment Plant.

If you have any questions concerning the attached DMR's, please contact me at (502) 239-7695.

Sincerely,

James E. Porter Jr.

Process Supervisor Central Region

JEP/Jeffersontown 0907.doc

Enclosures

cc:

M. Roth (DOW Louisville)

E. Brady

R. Shaw

P. Burgin

T. Singleton



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

MSD JEFFERSONTOWN STP

ADDRESS 8405 CEDAR CREEK RD ITOTRVILLE

LOCATION JEFFFEREINTOWN

FACILITY MED JEFFERSONTOWN STP

KY 40291

民义 马口包罗罗

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

MONITORING PERIOD

TO

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KYUUZSIYA PERMIT NUMBER

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OUL Y DISCHARGE NUMBER

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Form Approved. OMB No. 2040-0004

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LOCATION FETTER STONT DIAIN

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KY ANDRY

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

KY(M)25194 PERMIT NUMBER

DISCHARGE NUMBER

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Form Approved. OMB No. 2040-0004

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

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

NAME MSS JEFFERSONTOWN STP ADDRESS 8405 CEDAR CREEK RD

LOUISVILLE

MY 40271

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

PERMIT NUMBER

DISCHARGE NUMBER

MAJOR (SUBR LV) F - FINAL

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\*\*\* NO DISCHARGE

Form Approved.

OMB No. 2040-0004

FACILITY MSO JEFFERSONTOWN STP

LOCATION JEFFER SONTOWN

KY 40299

FROM MONITORING PERIOD

YEAR MO. DAY

TO YEAR MO. DAY

NOTE: Read Instructions before completing this form.

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

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

MED JEFFERSONTOWN STP

ADDRESS 8405 CEDAR CREEK RD

UNUSISVILLE

KY 40271

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

KYCO25194
PERMIT NUMBER

MASS Ed DISCHARGE NUMBER MAJOR (SUBR LV) F.- FINAL

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Form Approved.

OMB No. 2040-0004

FACILITY MED JEFFERSONTOWN STP

LOCATION DEFFERSONTOWN ATTN: DEBBIE NEWTON

KY 40299

FROM HONITORING PERIOD

YEAR MO DAY
TO YEAR MO DAY

\*\*\* NO DISCHARGE | 1 \*\*\*

NOTE: Read Instructions before completing this form.

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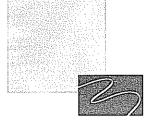
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NAME OF TREATMENT PLANT JEFFERSONTOWN WTP COUNTY JEFFERSON MONTH OF: September 2007 KPDES PERMIT NUMBER KY0025194 PLANT CAPACITY 4.0 MGD RECEIVING STREAM CHENOWETH RUN DISSOLVED PAM SETTLEABLE ACTIVATED SUSPENDED SOLIDS (mg/L) SOLIDS (mg/L) SEWAGE OXYGEN (ma/L) 5 DAY CBOD (mg/L) (SNO SHUDGE AFRATION BASIN SLUDGE HANDLING FINAL EFFLUENT FINAL EFFLUENT STREAM ABOVE EFFLUENT STREAM BELOW FINAL EFFLUENT DISSOLVED OXYGEN (mg/L) SHIDGE TOTAL FLOW (MILLION GALLC GRIT REMOVED (CUBIC FEET) SCREENINGS (CUBIC FEET) RETURN RAW HALLED NH3-N (mg/L) PRIMARY EFFLUENT PRIMARY EFFLUENT GAL/DAY X 1000 VOLATILE LIDS MLVSS ( ALVSS < 1000 ALLONS 1000 FINAL E FINAL E MLSS (r x 1000 DATE 30 MIN. rotal i FINAL MLSS 1000 RAW RAW RAW FECAL C ZRY. õ 1 2.42 1.52 34 200 190 19 2 2.25 34 1 47 200 190 19 3 2.76 254 ٩ĺ 174 1.3 26 190 19 1.40 0.39 40 4 2.24 6.8 77 12.0 7 A 268 182 10 1.33 3.49 34 2.64 2.01 180 160 19 0.90 0.39 1495 5 2.24 72 10.0 7.5 8.0 310 7 201 1.53 4 35 34 6.4 3.09 2.08 150 150 19 0.60 0.95 1120 6 2.37 70 7.6 14.0 7.8 1.32 3.86 36 6.4 2.8 2.07 150 140 19 7 2.34 1.29 4.85 38 6.2 3.03 2 07 160 150 19 8 2 30 1.33 34 170 140 19 9 3.08 210 9 125 1.63 38 160 130 19 1.20 1190 0.40 10 3.11 7.0 7.8 12.0 8.0 266 8 115 ૃા 1.53 34 6.4 5.37 2.7 1.81 180 170 19 0.56 1.10 107 11 2.49 7.1 7.6 9.0 8 2 90 163 1.46 6.72 36 6.2 2.48 1.88 160 160 25 0.67 1.30 12 12 2.28 5 7.2 8.0 12.0 8.4 1 27 4 68 36 6 2.63 2.18 180 19 160 13 2.59 1.35 4.03 45 6.2 3.12 2.4 150 140 19 14 2 4 1 13 5 29 38 2.9 1.92 160 150 19 15 2.50 1.36 38 170 150 19 16 2.69 210 11 150 1.53 6 38 150 150 0.85 0.10 17 2.37 7.6 6.8 13.0 8.6 414 8 649 2 1.47 5 15 34 2.89 1.91 170 160 44 0.40 0.28 18 2.43 7.7 6.7 20.0 8.0 590 9 362 2 14 5.17 32 6.2 2.92 2.55 160 150 19 0.50 0.84 19 2.41 5 6.8 7.7 19.0 8.2 1.58 4.99 43 5.8 3.24 2.43 150 140 19 20 2.35 1.58 44 34 5.8 1.82 1.62 150 150 19 21 2.24 1.33 4.05 32 5.8 2.79 1.92 160 19 160 22 2.34 1,34 34 150 150 19 23 2.67 312 238 1.45 36 160 150 19 3.60 0.30 24 2.48 7.2 7.2 20.0 8.0 260 290 1.49 36 5.49 5.8 3.12 2.13 160 150 19 0.40 1.10 25 2.57 7.1 7.0 12.0 7.8 184 257 47 1.4 4.35 5.6 2.95 1.94 150 150 19 0.40 2.20 123 26 2.58 5 7.3 7.8 13.0 8.2 1.37 5.57 34 5.8 3.13 2.11 170 160 25 27 3.64 248 180 1.36 8.28 38 6.2 3.2 2.09 170 170 19 28 2,57 1.62 6.82 38 5.8 2.66 2.39 180 170 19 29 2.58 1.31 42 150 150 30 2.77 138 130 1.36 42 150 150 38 31 Tot. 76.07 20 20 42.58 588 2.54 5 7.0 Avg. 7.6 13.8 8.1 268 1.419 5.101 36.5 6.032 2.848 2,079 164.7 155.7 8 230 0.62 1.12 30 RESIDENTIAL INDUSTRIAL WASTE POPULATION EQUIVALENT COMMERCIAL 24149 28571 27003 INDUSTRIAL FLOW CBOD TSS OPERATOR CERT, NO. TOTAL NUMBER OF SEWER CONNECTIONS 0

PLANT TELEPHONE

SEWER CONNECTIONS \_\_\_\_ 0 \_ X 4 =

0 SEWERED POPULATION



# Chronic Toxicity Evaluation for the MSD-Jeffersontown Wastewater Treatment Plant

### September 2007

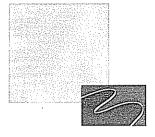
Prepared by:

Beckmar Environmental Laboratory
Biomonitoring Department
3251 Ruckriegel Parkway
Louisville, KY. 40299
(502) 266-6533

Submitted to:

Mr. Jim Porter
Jeffersontown Wastewater Treatment Plant
700 West Liberty St.
Louisville, KY 40203

Released by: <u>(manda / Spalding</u>
Biomonitoring QA Officer 10-23-07



### Summary

Chronic, definitive, toxicity testing was performed on final effluent samples collected September 17 through 22, 2007 from the MSD-Jeffersontown Wastewater Treatment Plant. Testing was performed September 19 through 26, 2007 and upon termination, the following conclusions were reached:

For the 7 day *Pimephales promelas* survival and growth test, the IC<sub>25</sub> for reproduction was greater than 100%, yielding less than 1.0 chronic toxicity units (TUc=100/IC<sub>25</sub>).

### Introduction

At the request of Mr. Jim Porter, chronic definitive toxicity testing was performed on 24 hour composite effluent samples collected September 17 through 22, 2007 from the MSD-Jeffersontown Wastewater Treatment Plant in Louisville, KY. Metals analyses were also performed on effluent samples collected during the same period. Information concerning plant and laboratory conditions can be found on the following pages.

The chronic toxicity testing was performed in accordance with the US EPA methodology as defined in the US EPA manual "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" fourth edition, 2002 (EPA-821-R-02-013). The actual methods used were "Fathead Minnow, *Pimephales promelas*, Larval Survival and Growth Test Method 1000.0". The chronic toxicity test was performed in order to ascertain the IC25 values for *Pimephales promelas* growth.



Date of Issue: October 05, 2007

Page 1 of 1

Metropolitan Sewer District c/o Mr. Jim Porter

700 West Liberty St.

Louisville, KY 40203-1913

RE: Analysis results for: J'town WWTP: Biomonitoring metals/hardness.

### BECKMAR CERTIFICATE OF ANALYSIS # 189821

Sample Date: 9/18/2007 Sample Time: 8:00 Sampled by: Client

Parameter	Results	Units	Type	Method	Analyze Date / Ti		Analyst
Hardness (T)	243	mg/l	С	EPA 130.2	10/2/2007	11:30	PJB
Cadmium (gfaa)	< 0.0001	mg/l	C	SM3113b	9/28/2007	14:00	ALS
Copper (TR)	0.011	mg/l	C	EPA 200.7	9/27/2007	15:45	ALS
Copper (D)	0.011	mg/l	C	EPA 200.7	9/27/2007	15:45	ALS
Lead (TR)	< 0.005	mg/l	C	EPA 200.7	9/27/2007	15:45	ALS
Lead (D)	< 0.005	mg/l	C	EPA 200.7	9/27/2007	15:45	ALS
Zinc (TR)	0.0536	mg/l	C	EPA 200.7	9/27/2007	15:45	ALS
Zinc (D)	0.0349	mg/I	C	EPA 200.7	9/27/2007	15:45	ALS

Remarks:

If you have any questions please call.

Thank you.

Joe P. Carney

Quality Control Officer

JPC:dwt

ENVIRONMENTAL

LABORATORY

Jeffersontown Business Park

3251 Ruckriegel Parkway

Jeffersontown, KY 40299

502,266.6533

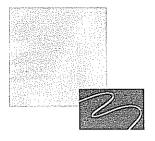
FAX 502.266.6446



Test Type: Acute Chronic  $\overline{X}$ 

### TOXICITY TEST REPORT SHEET

l)	Report Date: <u>Jeffersontown WWTP</u> 10/23/2007				
2)	Address: 10725 Old Taylorsville Rd., Jeffersonto	wn, KY	40299	<del></del>	
3)	NPDES Permit #: KY0025194 4) Recei	ving Str	eam: <u>C</u>	henoweth Ru	1 mile pt 5.3
5)	Faciltiy Contact: Mr. Jim Porter 6) Phone	e#: <u>(</u>	502) 267	-8278	
7)	Conultant/Testing Lab Name: Beckmar Environmen	ntal Lab	oratory		
3)	Lab Contact: Becky Barker P.	hone #:	(502)	266-6533	
<del>)</del> )	Outfall(s) Tested: 1				
10)	Average Daily flow on day sampled (MGD) 13	) 	2.37 27 7	2.4	<u> </u> 
1)	Test Species: 1) Pimephales promelas	2) _			
12)	Species Age: 1) less than 24 hours	2) _			_
(3)	Organism Source: 1) fish hatch 091907	2) _			<del></del>
14)	Acclimation Procedures: 1) Reared at test condition 2)	ns in syn	thetic wa	ter	- -
5)	Test Conditions: Static: Static-Ren	iewal: X	<u> </u>		
6)	Dilution Water Type (Synthetic, Receiving Stream sy	nthetic	- mhsw		
7)	Aeration? (Before Test/During Test/None): no		_		
8)	Dechlorination? no Original Chlor	ine Leve	el: <0.01	mg/L	
-	Rhende Baker			10/23/2007	7
(2	Signature of person filling out form)			Date	_
Cho	onda Baker		Biolog		
	Name (Typed or Printed)			Title	



#### Materials and Methods

### Sampling

Composite effluent samples were collected once every other 24 hours (Table I) and delivered to Beckmar Environmental Laboratory. Upon receipt, each sample went through standard log in procedures.

### Control/Dilution Water

All chemicals used are reagent grade, obtained from Aldrich. 1.20 grams of CaSO<sub>4</sub>, 1.2 grams of MgSO<sub>4</sub>, 1.92 grams of NaHCO<sub>3</sub>, and 0.080 grams of KCl were dissolved in distilled water provided by a Barnstead Thermolyne distillation system and aerated for a minimum of 24 hours.

### **Test Containers**

P. promelas tests were performed in 600 mL plastic cups obtained from Liquor Outlet (Louisville, KY).

### **Toxicity Testing**

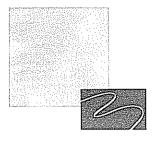
Samples were allowed to warm to room temperature (25°C) and were tested for residual chlorine immediately prior to dilution. Testing was then performed in accordance with US EPA methodology. Data was recorded on Beckmar generated lab sheets (Appendix I).

### Chemical Analysis

All test dilutions as well as control/dilution water were tested to determine initial dissolved oxygen, temperature, and pH. At the end of 24 hours, the control/dilution water and test dilutions were again tested to determine final dissolved oxygen, temperature and pH. Also, specific conductance, hardness, and alkalinity analyses were performed on the initial control/dilution water and 100% effluent samples. Data was recorded on Beckmar generated lab sheet (Appendix I).

### Statistical Analysis

Statistical data was generated using ToxCalc  $5.0^{\circ}$  (Tidepool Scientific software, McKinleyville, CA) and ToxStat $^{\circ}$  (USEPA, Cincinnati, OH) on a Pentium IV $^{\circ}$ , computer using Windows  $98^{\circ}$  Operating System.



### Additional Toxicity Test Information

1) Submit copies of all bench sheets and statistical calculations/printouts obtained during the test(s). Data must be presented in tabular form and must include all physical and/or chemical measurements recorded during the test (e.g. temperature, conductivity, total residual chlorine, dissolved oxygen, etc.).

2) Methods/Instrumentation used in chemical analysis:

Dissolved Oxygen:

YSI Model 52

PH:

Thermo-Orion 720

Conductivity: Alkalinity:

Cole-Palmer Conductivity Meter 1481-60

Hardness: Total Chlorine Residual:

Standard Methods Titration Standard Methods Titration Fisher-Porter Titration

EPA Acute/Chronic Manual: 4th Chronic Edition, 2002

- 3) Indicate below any other relevant information that may aid in the evaluation of this report. Include any deviations from EPA methodology that was necessary for these tests as well as any sample manipulations that were performed, such as aeration, dechlorination with sodium thiosulfate, etc., and the justification for such manipulations or deviations. Attach additional pages as needed.
- 4) Sample temperature upon receipt may be greater than 4°C. Samples are picked up immediately after the 24 hours composite is completed. The sampler is cooled and the samples are refrigerated, however it may be impossible to rapidly drop the effluent to 4°C.

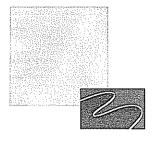
# TABLE I Sampling Summary

Juttall	Sample Type	Volume	Collection Period	tion F	eriod	Rainfall	Sample Temp
~	Composite	2 gallons	09/17/07 @ 8:00 a.m.	H	09/18/07 @ 8:00 a.m.	.000"	6.0 degrees C
	Composite	2 gallons	09/19/07 @ 7:30 a.m.	=	09/20/07 @ 7:30 a.m.	0.00"	4.0 degrees C
	Composite	3 gallons	09/21/07 @ 6:00 a.m.	11	09/22/07 @ 6:00 a.m.	0.00"	4.0 degrees C

# Dates/Times of Test Performance

Species #1: Pimephales promelas

Initiated: 09/19/07 @ 3:00 P.M. Renewed Daily @ 3:00 P.M. Terminated 09/26/07 @ 3:00 P.M.



### Results

*Pimephales promelas* exhibited 95% survival in the control, 82.5% survival in the 20% dilution, 75% survival in the 40% dilution, 85% survival in the 60% dilution, 87.5% survival in the 80% dilution, and 87.5% survival in the 100% dilution.

For the 7-day *Pimephales promelas* survival and growth test, the IC25 for growth was greater than 100%, generating a chronic toxicity value of less than 1.0 TUc.



## Appendix I

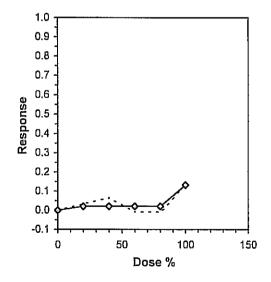
## Pimephales promelas Data Sheets

grafikastu dan grasika kerest							
			La	rval Fish Gr	owth and Surv	ival Test-7 Day G	rowth
Start Date:	9/19/2007			jtown0907		Sample ID:	jtown0907
End Date:	9/26/2007		Lab ID:	0044:beckm	ar environment	al Sample Type:	EFF1-POTW
Sample Date:	9/18/2007		Protocol:	EPAF 94-EF	A Freshwater	Test Species:	PP-Pimephales promelas
Comments:		wn fhm	chronic se	pt 2007		·	,
Conc-%		2	3	4			
B-Control		0.2700	0.3000	0.3500			
20	0.4100	0.3100	0.2000	0.2500			
40	0.3300	0.3000	0.2500	0.2500			
60	0.3900	0.3300	0.2700	0.2300			
80	0.3000	0.3300	0.2900	0.3000			
100	0.2500	0.2800	0.3000	0.2200	•		

		_		Transform	n: Untran	sformed		lsot	onic
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Mean	N-Mean
B-Control	0.3025	1.0000	0.3025	0.2700	0.3500	11.251	4	0.3025	1.0000
20	0.2925	0.9669	0.2925	0.2000	0.4100	30.880	4	0.2963	0.9793
40	0.2825	0.9339	0.2825	0.2500	0.3300	13.974	4	0.2963	0.9793
60	0.3050	1.0083	0.3050	0.2300	0.3900	22.951	4	0.2963	0.9793
80	0.3050	1.0083	0.3050	0.2900	0.3300	5.679	4	0.2963	0.9793
100	0.2625	0.8678	0.2625	0.2200	0.3000	13.333	4	0.2625	0.8678

Auxiliary Tests	Statistic	Critical	Skew	Kurt						
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.97172	0.884	0.45598	0.69411						
Bartlett's Test indicates equal variances (p = 0.15)	8.16862	15.0863								
Linear Interpola	Linear Interpolation (200 Resamples)									

 Point
 %
 SD
 95% CL(Exp)
 Skew

 IC05
 85.259
 IC10
 94.222
 IC15
 >100
 IC20
 >100
 IC20
 >100
 IC25
 >100
 IC40
 >100
 IC50
 

Reviewed by:



### **Toxicity Test Results**

Results of

Pimephales (Genus)

promelas (Species)

7 day chronic definitive ( Type / Duration) **Toxicity Test** 

Conducted:

09/19/07 (mm/dd/yy) 09/26/07 (mm/dd/yy)

Using Effluent from Outfall # \_\_1\_

			P	ercent	Surviv	al			# of Y	Young	Dry V	Veight
Test Solution			(time i			- DAY)	)		Total	Mean	Total	Mean
	1	2	3	4	5	6	7	8	Total	1410111	Total	ivican
Control	100	100	100	97.5	97.5	97.5	95				12.1	0.3
20% Effluent	100	100	97.5	97.5	92.5	85	82.5				11.7	0.29
40% Effluent	100	100	100	100	97.5	90	75				11.3	0.28
60% Effluent	100	100	100	100	100	95	85				12.2	0.31
80% Effluent	100	100	100	100	97.5	97.5	87.5				12.2	0.31
100% Effluent	100	100	100	100	97.5	92.5	87.5				10.5	0.26
												*******

LC<sub>50</sub> / IC<sub>25</sub> Value:

>100%

95% Confidence Limits

UL: NA

LL: NA

UL = Upper Limit

LL = Lower Limit

Calculated TU Estimate \* less than 1.0 TUc

(indicate Aute / Chromic)

Permit Limits: 1.0 TUc

(Indicate TU<sub>a</sub> / TU<sub>c</sub>)

If acute test, method used to determine

LC50 and Confidence Limit Valued:

Note:  $TU_a = 100/LC_{50}$ ;  $TU_c = 100/IC_{25}$ 

	R	Reference	Toxicant T	est Results	
Species	Date	Time	Duration	Toxicant	Results (LC <sub>50</sub> / IC <sub>25</sub> )
Pimephales	09/12/07	9:00 A.M.	_ 7 days	NaCl	IC25=1.8971g/l
promelas					

### Weight Data for FATHEAD MINNOW LARVAL

survival and growth test

Analyst: B. Backer

Test Date(s) 9-19-26-07 3Pm Weight Date: 9-27-7

60° 24 hr



			В	B-A	С	(B-A)/C Mean	
	Replicate	Α	Dry Wgt	Total Dry Wgt		Dry Wgt of	Remarks
	Number	Weight of Boat	foil & Larvea	of Larvae		Larvae que	9/un-
Control	1 A	1.5356	1.5385	2.9	9	.29	<i>H</i> =-
	2 C	1.5444	1.5441	2.4	9	רג	
	3 F	1,3142	1.3172	3.0	10	76	
	4 H	1.2997	1.3032	3.5 121	10	.35	,30
Conc:	1 NA	1.3162	1, 3203	4.1	10	.41	
20%	2   A	1.6186	1. 6217	3.1	9	.31	
701	3 1B	1.6139	1-6159	2.0	ما	.20	
	4 10	1.5117	1-5142	2.5 11.7		,25	.19
Conc:	1 l	1.3463	1. 3496	3.3	9	,33	
40%	2 2 blk	1.5544	1. 5574	3,0	8	. პი	
но.	3 2614	1.5826	1. 5851	2.5	6	15	
	4 361K	1.5382	1, 5407	2.5 1.3	구	,25-	<u> 28</u>
Conc:	1 3 blu	1.5338	1,5377	3,9	10	.39	
, 201_	2 4 blk	1.3408	1.3441	3,3	8	,33	
PQ10	3 4 blu	1.5343	1. 5370	2.7	9	27	<u>-</u>
	4 5	1.3298	1. 3321	a.3 p.2		25	. 3
. Conc:	1 8	1.3509	1. 3539	3.D	5	.3a	
96%	2 bly 9	1.5972	1. 6005	3.3	B	33	
Ф.	3 blk 9	1.3320	1. 3349	2.9	9	.29	
	4 10	1.5305	1. 5335	3.0 122	· · · · · · · · · · · · · · · · · · ·	,30	,31
Conc:	1 11 blk	1.3182	1. 3207	えら	ㅋ	.25	
27	2 11 bly	1.3035	1.3063	3.8	10	.28	
1081.	3 12	1.3190	1.3220	3.0	9	,36	
•	4 14	1.3050	1.3072	2,2 10.5	9	. 22	.46

1.6031

Blank 15 1.6031

Client: JEFFERSONTOWN

Location:

### Survival data for FATHEAD MINNOW LARVAL Survival and Growth Test

BECKMAR
Jeffersontown Business Park
3251 Ruckriegel Parkway
Louisville, Ky 40299
Phone: (502) 266-6533



### Number of Survivors

Discharge: Jetlerson town	Test Date(s):	9-19-26-07	3pn
Location:	_ Analyst:_	A Baker	· 

### SURVIVAL AT END OF THE DAY

	Replicate					<u> </u>	_	<del></del> .	<del></del>	Remarks
	Number:	1	2	3	4	5	6	7	% SURV	I fellial va
Control		10	10	10	9	9	٩	4		
	2.		1		lo	10	lo	٩		
	3				16	lu	10	10		
	Y			1.60	10775	16 975	10 975	10	95%	
Conc :	(				(6	lo	lo	10		
	2			Eu	16	10	10	9		
Joh	3			9	9	Ş	6	6		
	4			10 % T	10 975	9 925	8 35	8	82.5 %	
Conc:		<u> </u>		Į0	10	10	<u>8-1</u>	9		
	2			lυ	હ	( o	٩	8		
40%	3			10	10	9	7	6		
	Y			10	lo	10 97.5	(6. 90	7	75%	
Conc:	(					10	10	(0		
	2					10	9	8		
(0° E	3		_			lo	10			
	4					10 100	9 95	<u> </u>	85-7	
Conc:			<u> </u>	<u> </u>		10	10	į.		
~ .	2					٩	9	8		
go z	3			<del>         </del>		10	10	9		
	4					10 975	10 975	<u> </u>	87.5%	
Conc:	1					9	8		1	
1 1	2						16	<u> </u>	1	
100%	3		<del>\</del>	<del>                                     </del>		10	10 9 925	9 9	87.5 %	
	17 1	/δ	γο	10	40	10 97,5	7 46.	Ч	101.3 K	



Data form for the Fathead Minnow survival and growth test. Routine chemical and physical determinations.

Page 1 of 2

	~	Jona
Client:	JEFFERSO	Ν <del>νιιέ</del> , Κγ
Test Start:	9-19-07	3P
Test Stop:	a 710-07	30

Analyst: Barker
Analyst: MscL
Analyst:

Cor	ntrol:				Day				Domorko
		1	2	3	4	5	5	7	Remarks
Temp.	Initial	24.0	240	24.0	24.1	24.2	25,5	24a	
Degree C.	Final	24.0	24:2-	24.1	24.2	240	25.०	24.5	
D. O.	Initial	8.2	8.0	g.o	8.2	م. کل	8.1	8.3	
mg/l	Final	5.0	5.8	6.4	6.4	light of	5.8	5.0	
рΗ	Initial	7.91	7.92	7.80	7,77	7.46	7.49	7.70	
S.U.	Final	7.33	7.43	7.40	4.36	6.99	7.63	7.24	
	alinity (mg/l	1000	D.8	101.2	96.4	5,6	68.	114	
Hardı	ness (mg/l)	157.2	132.8	162	1324	110	111.2	118	
	ity (µmhos)		407	405	411	415	419	419	
Chlo	orine (mg/l)	20.01	40.00	دن. در	20.01	40.01	۵.۵۱	40.01	
Ar	nalyst (init.)	or fan	n/4	Boly	B/4	B3 /4	By	B/4	

Conc	20%				Day				Remarks
		1	2	3	4	5	6	7	Remarks
Temp.	Initial	24.0	24.0	24·0	24.1	24.2	26.0	240	
Degree C.	Final	740	24.2	24.1	24.2	240	25,0	24.5	
D. O.	Initial	8.5	8.3	<u>ფ</u>	8.4	8.)	8.2	8:3	
mg/l	Final	5-0	5,8	6.4	6.4	5.1	6.0	5.6	
рΗ	Initial	7.90	7.88	7.76	7.73	7.53	763	7.36	
S.U.	Final	7.31	7.50	4.45	7,39	7.18	7.57	7.44	
A	nalyst (init.)	m h	14	14	<i>I</i> Is	Ns	14	d <sub>3</sub>	

Conc	40%				Day				Domado
OUTIO.	1010	1	2	3	4	5	6	7	Remarks
Temp.	Initial	24.0	240	24.0	24:2	24.2	260	21/-91	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Degree C.	Final	24.0	24.2	24.2	<i>ል</i> ዛ·ን	240	25.6	24.5	
D. O.	Initial	8.7	8.8	8.5	8.6	8,3	F.5	8/3	
mg/l	Final	5-0	5.7	6.3	6.4	5:1	6.0	5.1	
рН	Initial	7.88	7.88	7.73	471	7.57	7.63	7.48	
S.U.	Final	7.34	7.54	7.47	7.48	7.19	7.55	7.55	
Ar	nalyst (init.)	no las	its	Rs	Ns.	lls	16	to	



Data form for the Fathead Minnow survival and growth test. Routine chemical and physical determinations. .

Page <u>2</u> of <u>2</u>

Client:	JEFFERSON	Town Hicker, KY
Test Start:	9-19-07	38
Tact Ston	9 11 27	00

Analyst: Barker
Analyst: Mal

Conc.	60%				Day				Remarks
COHC.		1	2	3	4	5	6	7	Nemarks
Temp.	Initial	24.0	24.0	ato	24.1	24.2	26.0	スダス	
Degree C.	Final	240	24.2	24.1	242	३५०	à5.0	24.5	
D. O.	Initial 66	8.90	9.0	<u>ه</u> . ه	8.7	8.5	8.7	¥ 3	
mg/l	Final	50	5.8	6.4	6.4	シナ	5.8	5.1	
pН	Initial	7.87	7.91	7.70	7.69	7.57	7.62	7.45	
S.U.	Final	7.40	7.60	7.51	7.59	7,33	7.51	753	
Ar	nalyst (init.)	63 \	BB	<i>(33</i> )	B	ff.	fg	B	
		(				ı	1	1	

Conc.	Ans.				Day				Remarks
CONG.	<i>Di</i> 6	1	2	3	4	5	6	7	Nemans
Temp.	Initial	24.0	244	24.0	124.1	242	ろぐつ	25.9	
Degree C.	Final	24.0	24.2	24:1	242	24.0	25.0	24.5	
D. O.	Initial	9.3	9.1	8,4	8.8	بو 60	8. (	8.4	
mg/l	Final	5.0	5.4	6,2	6.4	5	5,7	5,0	
рН	Initial	7.84	7.92	7.6k	7.68	7.55	7.60	144	
S.U.	Final	7.46	7.59	7.50	7.70	7.41	7.58	7.57	
Ar	ıalyst (init.)	g)>s	M	PB,	BB	B	18g	в	

Conc	100%				Day				Remarks
	10076	11	2	3	4	5、	6	7	Nemarks
Temp.	Initial	24.0	24.9	ato	241	24.2	260_	722	
Degree C.	Final	240	242	24.1	24.2	24.0	25.D	a4:5	·
D. O.	<u>In</u> itial	9.7	9.)	წ.გ	6.9	B.7	8.8	8.5	
mg/l	Final	55	5.7	6.0	6.0	5-2	5.8	5, d	
pН	Initial	7.82	7.90	7.62	7.65	7.52	7.57	743	
S.U.	Final	79	7.57	4.50	7.70	7.52	4.47	7.20	
Alka	alinity (mg/l	150.0	175.6	154.0	165.6	163.2	15.8	204.0	
Hard	ness (mg/l)	265.9	221.7	238.6	213,1	230.0	213.1	239.7	
Conductiv	ity (µmhos)	963	970	1018	1015	461	970	968	
Chle	orine (mg/l)	(0.01	LOIDL	۷۵.۵۱	۷۵.۵۱	ده.١٥	~o.01	20.01	
Ar	nalyst (jɲit.)	(brj	<i>ን</i> ስ	<u> </u>	ρß	<del>የ</del> ሃን	B	hs.	

Beckman Suplete 189820 189820 1899 92 1899 92 1900 84 190084



## Appendix II

### Chain of Custody Data Sheets

### Beckmar Environmental Laboratory 3251 Ruckriegel Parkway Louisville, KY 40299

### CHAIN OF CUSTODY

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