



MSD

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

July 25, 2007

Mr. Mike Mudd
Kentucky Division of Water
9116 Leesgate, Rd.
Louisville, Ky. 40222-5084

RE: Cedar Creek Treatment Plant, KPDES No: KY0098540
Discharge Monitoring Report
June 2007

Dear Mr. Mudd:

Attached are the Discharge Monitoring Report (DMR) and the Monthly Operating Report (MOR) report for the Cedar Creek Wastewater Treatment Plant, for the month of June 2007. Also enclosed is the quarterly bio-monitoring report. There was one exception for the month regarding total phosphorus. While seeding other plants from Cedar Creek a miscommunication occurred causing the exception. This issue has since been resolved. 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/Cedar Creek 0607.doc

Enclosures

cc: K. Thurman (KDOW)
P. Burgin
E. Brady
T. Singleton
R. Shaw



Beneficial Use of Louisville's Biosolids
www.louisvillegreen.com

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

NAME MSD CEDAR CREEK STP
ADDRESS 8405 CEDAR CREEK RD
LOUISVILLE KY 40291

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

KY0098540
PERMIT NUMBER
001 2
DISCHARGE NUMBER

MAJOR
(SUBR LV)
F - FINAL
NEW EXPANSION
EFFLUENT

JEFF

FACILITY MSD CEDAR CREEK STP
LOCATION LOUISVILLE KY
ATTN: DEBBIE NEWTON

MONITORING PERIOD
FROM YEAR 07 MO 06 DAY 01 TO YEAR 07 MO 06 DAY 30

*** NO DISCHARGE ***

NOTE: Read Instructions before completing this form.

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
OXYGEN, DISSOLVED (DO)	SAMPLE MEASUREMENT	*****	*****		8.6	*****	*****	(17)	0	3/1	GRAB
00300 1 0 0	PERMIT REQUIREMENT	*****	*****	*****	7.0	*****	*****	MG/L		FREE/GRAB	
EFFLUENT GROSS VALUE					INST MIN					WEEK	
PH	SAMPLE MEASUREMENT	*****	*****		7.1	*****	7.6	(12)	0	3/1	GRAB
00400 1 0 0	PERMIT REQUIREMENT	*****	*****	*****	8.0	*****	9.0	SU		FREE/GRAB	
EFFLUENT GROSS VALUE					MINIMUM		MAXIMUM			WEEK	
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	10292	13289	(26)	*****	473	717	(17)	0	3/1	COMB
00530 0 0 0	PERMIT REQUIREMENT	REPORT	REPORT		*****	REPORT	REPORT			FREE/COMB	
RAW SEW/INFLUENT		MG AVG	MX WK AV	LBS/DY		MG AVG	MX WK AV	MG/L		WEEK	
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	27.36	43.37	(26)	*****	1	2	(17)	0	3/1	COMB
00530 1 0 0	PERMIT REQUIREMENT	1876	2815		*****	30	45			FREE/COMB	
EFFLUENT GROSS VALUE		MG AVG	MX WK AV	LBS/DY		MG AVG	MX WK AV	MG/L		WEEK	
NITROGEN, AMMONIA TOTAL (AS N)	SAMPLE MEASUREMENT	541.06	688.50	(26)	*****	23.3	27.6	(17)	0	3/1	COMB
00610 0 0 0	PERMIT REQUIREMENT	REPORT	REPORT		*****	REPORT	REPORT			FREE/COMB	
RAW SEW/INFLUENT		MG AVG	MX WK AV	LBS/DY		MG AVG	MX WK AV	MG/L		WEEK	
NITROGEN, AMMONIA TOTAL (AS N)	SAMPLE MEASUREMENT	3.68	6.12	(26)	*****	0.15	0.25	(17)	0	3/1	COMB
00610 1 1 0	PERMIT REQUIREMENT	250	375		*****	4	6			FREE/COMB	
EFFLUENT GROSS VALUE		MG AVG	MX WK AV	LBS/DY		MG AVG	MX WK AV	MG/L		WEEK	
PHOSPHORUS, TOTAL (AS P)	SAMPLE MEASUREMENT	25.73	57.75	(26)	*****	1.0	2.1	(17)	1	3/1	COMB
00665 1 1 0	PERMIT REQUIREMENT	83	94		*****	1.0	1.5			FREE/COMB	
EFFLUENT GROSS VALUE		MG AVG	MX WK AV	LBS/DY		MG AVG	MX WK AV	MG/L		WEEK	

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
H. J. SCHAUBER JR.
EXECUTIVE DIRECTOR
TYPED OR PRINTED

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

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
James E. Butler

TELEPHONE
502-546-6000
DATE
07 07 21
AREA CODE NUMBER YEAR MO DAY

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

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

NAME MSD CEDAR CREEK STP
ADDRESS 8405 CEDAR CREEK RD
LOUISVILLE KY 40291

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

KYC098540

PERMIT NUMBER

001 2

DISCHARGE NUMBER

MAJOR
(SUBR LV)

F - FINAL

NEW EXPANSION

EFFLUENT

*** NO DISCHARGE 1 ***

NOTE: Read Instructions before completing this form.

FACILITY MSD CEDAR CREEK STP
LOCATION LOUISVILLE
ATTN: DEBBIE NEWTON

KY

MONITORING PERIOD							
FROM	YEAR	MO	DAY	TO	YEAR	MO	DAY
	07	06	01		07	06	30

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	2.62	4.19	(03)	*****	*****	*****		0	1/10	1/10
50050 1 0 0	PERMIT REQUIREMENT	REPORT MD AVG	REPORT DAILY MX	MGD	*****	*****	*****	*****		CONTIN	CONTIN
EFFLUENT GROSS VALUE										UDUS	
COLIFORM, FECAL GENERAL	SAMPLE MEASUREMENT	*****	*****		*****	3	3	(13)	0	3/1	Comp
74055 1 0 0	PERMIT REQUIREMENT	*****	*****	*****	*****	200	400 #/			FREE/	COMPOS
EFFLUENT GROSS VALUE						30DA GED	7 DA GED	100ML		WEEK	
BOD, CARBONACEOUS 05 DAY, 20C	SAMPLE MEASUREMENT	6114	8711	(26)	*****	275	389	(19)	0	3/1	Comp
80082 0 0 0	PERMIT REQUIREMENT	REPORT MD AVG	REPORT MX WK AV	LBS/DY	*****	REPORT MD AVG	REPORT MX WK AV	MG/L		FREE/	COMPOS
RAW SEW/INFLUENT										WEEK	
BOD, CARBONACEOUS 05 DAY, 20C	SAMPLE MEASUREMENT	46.12	52.32	(26)	*****	2	2	(19)	0	3/1	Comp
80082 1 0 0	PERMIT REQUIREMENT	625	738		*****	10	15			FREE/	COMPOS
EFFLUENT GROSS VALUE		MD AVG	MX WK AV	LBS/DY		MD AVG	MX WK AV	MG/L		WEEK	
BOD, CARB-5 DAY, 20 DEG C, PERCENT REMVL	SAMPLE MEASUREMENT	*****	*****		96.2	*****	*****	(23)	0	1/30	Comp
80091 K 0 0	PERMIT REQUIREMENT	*****	*****	*****	05	*****	*****	PER-		ONCE/	CALCUL
PERCENT REMOVAL					MD MIN			CENT		MONTH	
SOLIDS, SUSPENDED PERCENT REMOVAL	SAMPLE MEASUREMENT	*****	*****		96.5	*****	*****	(23)	0	1/30	Comp
81011 K 0 0	PERMIT REQUIREMENT	*****	*****	*****	05	*****	*****	PER-		ONCE/	CALCUL
PERCENT REMOVAL					MD MIN			CENT		MONTH	
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

H. J. SCHMIDT JR
EXECUTIVE DIRECTOR
TYPED OR PRINTED

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.

James E. Portis
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE

502 540-6000
AREA CODE NUMBER

DATE

07 07 24
YEAR MO DAY

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

NAME OF TREATMENT PLANT CEDAR CREEK WTPCOUNTY JEFFERSONMONTH OF: June 2007KPDES PERMIT NUMBER KY0098540PLANT CAPACITY 7.5 MGDRECEIVING STREAM CEDAR CREEK

DATE	TOTAL FLOW (MILLION GALLONS)	RAW SEWAGE		pH		SETTLEABLE SOLIDS (mg/L)			DISSOLVED OXYGEN (mg/L)			SUSPENDED SOLIDS (mg/L)			5 DAY CBOD (mg/L)			ACTIVATED SLUDGE			AERATION BASIN						SLUDGE HANDLING						FINAL	
		GRIT REMOVED (CUBIC FEET)	SCREENINGS (CUBIC FEET)	RAW	FINAL	RAW	PRIMARY EFFLUENT	FINAL EFFLUENT	STREAM ABOVE	FINAL EFFLUENT	STREAM BELOW	RAW	PRIMARY EFFLUENT	FINAL EFFLUENT	RAW	PRIMARY EFFLUENT	FINAL EFFLUENT	RETURN			DISSOLVED OXYGEN (mg/L)	MLSS (mg/L) x 1000	MLVSS (mg/L) X 1000	SETTLED SLUDGE VOLUME		RAW			HAULED			NH3-N (mg/L)	FECAL COLIFORM (COLONIES/100ML)	
																		GAL/DAY X 1000	MLSS x1000	GAL/DAY X 1000				30 MIN.	60 MIN.	GALLONS X 1000	% DRY SOLIDS	% VOLATILE SOLIDS	% DRY SOLIDS	% VOLATILE SOLIDS	WITHDRAWN GALLONS X 1000			
1	1.61																	1700	4960	510	9.8	2505	2260	450	360									
2	2.21																	1658		440	9.4			430	350									
3	3.03											424		1	390		2	1713		490	9.6			440	350						0.56	3		
4	2.61	3	3	7.2	7.2					9.8		690		1	377		2	1786	4010	480	9.8	2950	2500	400	340						0.10	3		
5	2.42			7.4	7.3					10.0		620		1	400		2	1660	4800	450	10	2820	2365	450	350						0.10	3		
6	2.24			7.3	7.4					10.4								1484	5060	500	10.4	2725	2335	430	350									
7	2.16																	1611	3950	480	10	2505	2090	410	320									
8	2.66																	1666	4610	454	9.8	2495	2045	420	340									
9	2.17																	1629		450				420	330									
10	2.62	3	3									600		1	405		2	1668		450				410	320						0.10	3		
11	2.34			7.2	7.2					9.8		760		1	273		2	1692	4500	450	9.8	2705	2260	420	310						0.10	3		
12	1.81			7.1	7.4					10.0		790		1	388		2	1663	4200	450	10	2480	2090	400	330						0.10	3		
13	2.01			7.2	7.3					10.2								1672	4610	450	10.2	2505	2080	410	320									
14	2.19																	1682	4000	490	9.8	2890	2450	410	330									
15	2.02																	1676	4670	450	10.2	2675	2290	380	320									
16	2.22																	1732		454				390	310									
17	2.70	3	3	7.1	7.2					8.6		144		1	154		2	1762						400	330						0.10	3		
18	3.39			7.0	7.3					8.9		504		1	345		2	1801	4730	571	8.6	2810	2365	410	330						0.10	3		
19	2.85			7.0	7.3					9.4		896		1	381		2	1778	4170	551	8.9	3620	3075	400	300						0.10	3		
20	2.58																	1822	4600	450	9.4	2760	2380	410	310									
21	2.92																	1868	4960	490	9	2695	2295	410	300									
22	1.69																	1745	4040	490	9.8	2705	2285	400	340									
23	2.61																	1714		500	9.2			400	330									
24	3.54	3	3									61		2	52		2	1614		480	8.9			410	320						0.10	3		
25	2.65			7.1	7.4					9.2		57		2	61		2	1666	5490	572	9.2	4060	3380	380	320						0.10	3		
26	3.22			7.0	7.2					8.8		132		1	76		2	1315	5910	324	8.8	2615	2240	380	340						0.28	3		
27	2.62			7.2	7.2					8.8								1783	5710	530	8.8	2750	2335	440	320									
28	4.19																	1671	5280	500	9	2605	2290	420	320									
29	4.00																	1691	6320	453	9.2	2365	1545	300	270									
30	3.25																	1630		500	9			310	280									
31																																		
Tot.	78.53	12	12															50552																
Avg.	2.62	3	3	7.2	7.3					9.5		473		1	275		2	1685	4790	477.9	9.485	2773	2331	404.7	324.7						0.15	3		

RESIDENTIAL
COMMERCIAL
INDUSTRIAL

INDUSTRIAL WASTE POPULATION EQUIVALENT

24930

35337

49190

FLOW

CBOD

TSS

OPERATOR

CERT. NO.

TOTAL NUMBER OF SEWER CONNECTIONS

0

SEWER CONNECTIONS 0 X 4 = 0 SEWERED POPULATION

PLANT TELEPHONE



**Chronic Toxicity Evaluation
for the
MSD - Cedar Creek
Wastewater Treatment Plant**

June 2007

Prepared by:

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

Submitted to:

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

Released by: Amanda L. Spalding
Biomonitoring QA Officer 7-23-07



Summary

Ceriodaphnia dubia chronic, definitive, toxicity testing was performed on final effluent samples collected June 11 through 16, 2007 from the MSD – Cedar Creek Wastewater Treatment Plant. Testing was performed June 13 through 19, 2007 and upon termination, the following conclusions were reached:

For the 6 day *Ceriodaphnia dubia* survival and reproduction test, the IC₂₅ for reproduction was greater than 100%, yielding less than 1.0 chronic toxicity units (TUC=100/IC₂₅).

Introduction

At the request of Mr. Jim Porter, chronic, definitive, toxicity testing was performed on 24 hour composite effluent samples collected June 11 through 16, 2007 from the MSD - Cedar Creek Wastewater Treatment Plant in Louisville, KY. Metals analyses were also performed on effluent samples collected during the same time 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 "Daphnid, *Ceriodaphnia dubia*, Survival and Reproduction Test Method 1002.0". The chronic toxicity test was performed in order to ascertain the IC₂₅ values for *Ceriodaphnia dubia* reproduction.



Date of Issue: July 17, 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: Cedar Creek WWTP: Biomonitoring metals/hardness.

BECKMAR CERTIFICATE OF ANALYSIS # 185597

Sample Date: 6/12/2007

Sample Time: 7:20

Sampled by: Client

Parameter	Results	Units	Type	Method	Analyzed Date / Time	Analyst
Hardness (T)	237	mg/l	C	EPA 130.2	6/14/2007 11:15	PJB
Cadmium (TR)	< 0.001	mg/l	C	EPA 200.7	6/14/2007 16:00	ALS
Cadmium (D)	< 0.001	mg/l	C	EPA 200.7	6/14/2007 16:00	ALS
Copper (TR)	< 0.002	mg/l	C	EPA 200.7	6/14/2007 16:00	ALS
Copper (D)	< 0.002	mg/l	C	EPA 200.7	6/14/2007 16:00	ALS
Lead (TR)	0.020	mg/l	C	EPA 200.7	6/14/2007 16:00	ALS
Lead (D)	< 0.005	mg/l	C	EPA 200.7	6/14/2007 16:00	ALS
Zinc (TR)	0.0861	mg/l	C	EPA 200.7	6/14/2007 16:00	ALS
Zinc (D)	0.0653	mg/l	C	EPA 200.7	6/14/2007 16:00	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 Screen
Chronic X Definitive X

TOXICITY TEST REPORT SHEET

- 1) Facility/Discharger: Cedar Creek WWTP
Report Date: 7/17/2007
- 2) Address: 8405 Cedar Creek Rd. Louisville, KY.
- 3) NPDES Permit #: KY0098540 4) Receiving Stream: Cedar Creek - mile point 11.9
- 5) Facility contact: Mr. Jim Porter 6) Phone #: (502) 239-7695
- 7) Consultant/Testing Lab Name: Beckmar Environmental Laboratory
- 8) Lab Contact: Becky Barker Phone #: (502) 266-6533
- 9) Outfalls Tested: 1
- 10) Average Daily flow on day sampled (MGD) 1) 2.34 2) 1.81
3) 2.01 4) 5) 6) 7)
- 11) Test Species: 1) Ceriodaphnia dubia 2)
- 12) Species Age: 1) 15-22 hours old 2)
- 13) Organism Source: 1) brood board 061207 2)
- 14) Acclimation Procedures: 1) Reared at test conditions in synthetic water
2)
- 15) Test Conditions: Static: Static-Renewal: X
- 16) Dilution Water Type (Synthetic, Receiving Stream) synthetic - mhs
- 17) Aeration? (Before Test/During Test/None): no
- 18) Dechlorination? no Original Chlorine Level: <0.01 mg/l

Rhonda Baker

(Signature of person filling out form)

7/17/2007

Date

Rhonda Baker

Name (Typed or Printed)

Biologist

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_4 , 1.2 grams of MgSO_4 , 1.92 grams of NaHCO_3 , 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

C. dubia tests were performed in 1 ounce plastic cups obtained from Plastics Inc. (St. Paul, MN).

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® (Tidepool Scientific software, McKinleyville, CA) and ToxStat® (USEPA, Cincinnati, OH) on a Pentium IV®, computer using Windows 98® 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:	Cole-Palmer Conductivity Meter 1481-60
Alkalinity:	Standard Methods Titration
Hardness:	Standard Methods Titration
Total Chlorine Residual:	Fisher-Porter Titration
EPA Acute/Chronic Manual:	4 th 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

Outfall	Sample Type	Volume	Collection Period		Rainfall	Sample Temp
1	Composite	1 gallon	06/11/07 @ 7:20 a.m.	= 06/12/07 @ 7:20 a.m.	0.10"	4.0 degrees C
	Composite	1 gallon	06/13/07 @ 7:30 a.m.	= 06/14/07 @ 7:30 a.m.	0.00"	4.0 degrees C
	Composite	2 gallon	06/15/07 @ 6:00 a.m.	= 06/16/07 @ 6:00 a.m.	0.00"	4.0 degrees C

Dates/Times of Test Performance

Species #1: *Ceriodaphnia dubia*

Initiated: 06/13/07 @ 2:00 P.M.
Renewed daily @ 2:00 P.M.
Terminated 06/19/07 @ 2:00 P.M.



Results

Ceriodaphnia dubia exhibited 100% survival in the control, 90% survival in the 20% dilution, 100% survival in the 40% dilution, 100% survival in the 60% dilution, 90% survival in the 80% dilution, and 100% survival in the 100% dilution with reproduction occurring in all of the dilutions (Table II).

For the 6-day *Ceriodaphnia dubia* survival and reproduction test, the IC₂₅ for reproduction was greater than 100%, generating a chronic toxicity value of less than 1.0 TUc.

Table II: *Ceriodaphnia dubia* Reproduction Results

<u>C</u>	<u>20%</u>	<u>40%</u>	<u>60%</u>	<u>80%</u>	<u>100%</u>
20	26	18	26	26	31
19	18	23	24	27	31
22	23	25	25	33	33
18	21	23	24	30	34
18	13	21	25	26	29
16	19	23	27	31	33
26	26	23	26	34	34
19	27	24	28	17	33
23	26	27	29	33	33
22	21	20	21	29	31
<u>203</u>	<u>220</u>	<u>227</u>	<u>255</u>	<u>286</u>	<u>322</u>



Appendix I

Ceriodaphnia dubia
Data Sheets

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 6/13/2007 Test ID: cc0607 Sample ID: cc0607
 End Date: 6/19/2007 Lab ID: 0044:beckmar environmental Sample Type: EFF1-POTW
 Sample Date: 6/12/2007 Protocol: EPAF 94-EPA Freshwater Test Species: CD-Ceriodaphnia dubia
 Comments: cedar creek cerio chronic june 2007

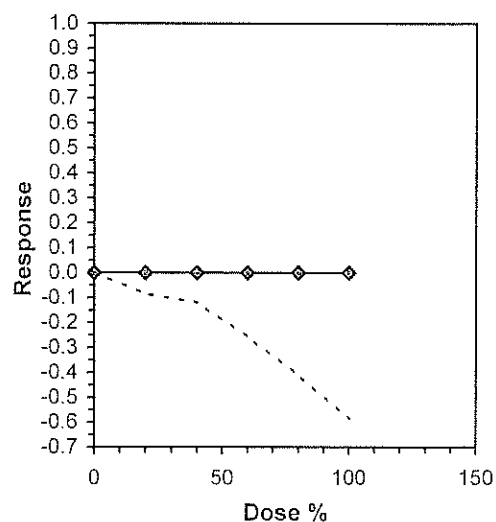
Conc-%	1	2	3	4	5	6	7	8	9	10
B-Control	20.000	19.000	22.000	18.000	18.000	16.000	26.000	19.000	23.000	22.000
20	26.000	18.000	23.000	21.000	13.000	19.000	26.000	27.000	26.000	21.000
40	18.000	23.000	25.000	23.000	21.000	23.000	23.000	24.000	27.000	20.000
60	26.000	24.000	25.000	24.000	25.000	27.000	26.000	28.000	29.000	21.000
80	26.000	27.000	33.000	30.000	26.000	31.000	34.000	17.000	33.000	29.000
100	31.000	31.000	33.000	34.000	29.000	33.000	34.000	33.000	33.000	31.000

Conc-%	Mean	N-Mean	Transform: Untransformed					Isotonic	
			Mean	Min	Max	CV%	N	Mean	N-Mean
B-Control	20.300	1.0000	20.300	16.000	26.000	14.511	10	25.217	1.0000
20	22.000	1.0837	22.000	13.000	27.000	20.441	10	25.217	1.0000
40	22.700	1.1182	22.700	18.000	27.000	11.193	10	25.217	1.0000
60	25.500	1.2562	25.500	21.000	29.000	8.914	10	25.217	1.0000
80	28.600	1.4089	28.600	17.000	34.000	17.537	10	25.217	1.0000
100	32.200	1.5862	32.200	29.000	34.000	5.029	10	25.217	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates normal distribution ($p > 0.01$)	0.68278	1.035	-0.9113	2.25786
Bartlett's Test indicates equal variances ($p = 0.01$)	14.9172	15.0863		

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			





Grab # _____

Toxicity Test Results

Results of *Ceriodaphnia*
(Genus)*dubia*
(Species)6day chronic definitive
(Type / Duration)

Toxicity Test

Conducted: 06/13/07 -- 06/19/07
(mm/dd/yy) (mm/dd/yy)Using Effluent from Outfall # 1

Test Solution	Percent Survival (time intervals used:- DAY)								# of Young		Dry Weight	
	1	2	3	4	5	6	7	8	Total	Mean	Total	Mean
Control	100	100	100	100	100	100			203	20.3		
20% Effluent	100	100	100	100	100	90			220	22		
40% Effluent	100	100	100	100	100	100			227	22.7		
60% Effluent	100	100	100	100	100	100			255	25.5		
80% Effluent	100	100	100	100	100	90			286	28.6		
100% Effluent	100	100	100	100	100	100			322	32.2		
LC ₅₀ / IC ₂₅ Value: <u>> 100%</u>					Calculated TU Estimate * <u>< 1.0 Tuc</u> (indicate Acute / Chronic)							
95% Confidence Limits					Permit Limits: <u>1.0 TUc</u> (Indicate TU _a / TU _c)							
UL: <u>NA</u>					If acute test, method used to determine LC50 and Confidence Limit Valued: _____							
LL: <u>NA</u>												
UL = Upper Limit												
LL = Lower Limit												

Note: TU_a = 100/LC₅₀; TU_c = 100/IC₂₅

Reference Toxicant Test Results

Species	Date	Time	Duration	Toxicant	Results (LC ₅₀ / IC ₂₅)
<i>Ceriodaphnia</i>	06/12/07	3:00 P.M.	<u>6 days</u>	<u>NaCl</u>	<u>IC25=1.0254g/l</u>
<i>dubia</i>					

Client: CEDAR CREEKAnalyst: B. BaehrTest Start -- Date/Time: 6-13-07 2pTest Stop -- Date/Time: 6-19-07 2pBrood Board Batch: 61207Neonate Age: 15-22 hrs oldData form for *Ceriodaphnia dubia* survival and reproduction test

Control	Replicate										No. Of Young	No. Of Adults	Analyst
	Day	1	2	3	4	5	6	7	8	9	10		
	1	0	0	0	0	0	0	0	0	0	0	0	BB
	2	0	0	0	0	0	0	0	0	0	0	0	BB
	3	0	0	0	0	0	0	0	0	0	0	0	BB
	4	2	2	6	3	6	6	4	6	5	4	44	BB
	5	5	7	8	6	6	2	10	5	8	9	66	BB
	6	13	10	8	9	6	8	12	8	10	9	93	BB
	7												
	8												
	Total	20	19	22	18	18	16	26	19	23	22	203	BB

Conc.	Replicate										No. Of Young	No. Of Adults	Analyst
	Day	1	2	3	4	5	6	7	8	9	10		
	1	0	0	0	0	0	0	0	0	0	0	0	BB
	2	0	0	0	0	0	0	0	0	0	0	0	BB
	3	0	0	0	0	0	0	0	0	0	0	0	BB
	4	6	6	6	5	4	5	6	7	6	2	53	BB
	5	8	5	9	8	9	6	8	7	9	10	79	BB
	6	12	7	8	8	10	8	12	13	11	9	88	BB
	7												
	8												
	Total	26	18	23	21	13	19	26	27	26	21	220	BB

Conc.	Replicate										No. Of Young	No. Of Adults	Analyst
	Day	1	2	3	4	5	6	7	8	9	10		
	1	0	0	0	0	0	0	0	0	0	0	0	BB
	2	0	0	0	0	0	0	0	0	0	0	0	BB
	3	0	0	0	0	0	0	0	0	0	0	0	BB
	4	5	6	6	7	5	6	6	6	6	6	59	BB
	5	5	7	9	6	10	7	8	7	9	10	78	BB
	6	8	10	10	10	6	10	9	11	12	4	90	BB
	7												
	8												
	Total	18	23	25	23	21	23	23	24	27	20	227	BB

Client: CEDAR CREEKAnalyst: B. BarkerTest Start -- Date/Time: 6-13-07 2PTest Stop -- Date/Time: 6-19-07 2PData form for *Ceriodaphnia dubia* survival and reproduction test

Conc.	Replicate											No. Of Young	No. Of Adults	Analyst
	Day	1	2	3	4	5	6	7	8	9	10			
60%	1	0	0	0	0	0	0	0	0	0	0	0		BB
	2	0	0	0	0	0	0	0	0	0	0	0		BB
	3	0	0	0	0	0	0	0	0	0	0	0		BB
	4	8	6	4	8	6	7	5	7	6	7	64		BB
	5	8	7	9	8	9	9	9	7	9	10	85		BB
	6	10	11	12	8	10	11	12	14	14	4	106		BB
	7													
	8													
	Total	26	24	25	24	25	27	26	28	29	21	255		BB

Conc.	Replicate											No. Of Young	No. Of Adults	Analyst
	Day	1	2	3	4	5	6	7	8	9	10			
80%	1	0	0	0	0	0	0	0	0	0	0	0		BB
	2	0	0	0	0	0	0	0	0	0	0	0		BB
	3	0	0	0	0	0	0	0	0	0	0	0		BB
	4	7	7	8	6	3	6	6	7	6	6	62		BB
	5	8	7	12	12	11	13	15	10	12	10	110		BB
	6	11	13	13	12	12	12	13	X0	15	13	114		BB
	7													
	8													
	Total	26	27	33	30	26	31	34	17	33	29	286		BB

Conc.	Replicate											No. Of Young	No. Of Adults	Analyst
	Day	1	2	3	4	5	6	7	8	9	10			
100%	1	0	0	0	0	0	0	0	0	0	0	0		BB
	2	0	0	0	0	0	0	0	0	0	0	0		BB
	3	0	0	0	0	0	0	0	0	0	0	0		BB
	4	6	5	6	6	6	6	5	8	5	5	58		BB
	5	11	14	15	14	13	15	17	11	16	15	141		BB
	6	14	12	12	14	10	12	12	14	12	11	123		BB
	7													
	8													
	Total	31	31	33	34	29	33	34	33	33	31	322		BB

O = daphnid Alive, no reproduction
= number of neonates released

X = Daphnid dead
X# = Daphnid dead but (#) of neonates released

ND = near death

Data form for the *Ceriodaphnia dubia* survival and reproduction test.
Routine chemical and physical determinations.

Page 1 of 2



Client: CEDAR CREEK
Test Start: 6-13-07 2P
Test Stop: 6-19-07 2P

Analyst: B. Back
Analyst: _____
Analyst: _____

Control:		Day							Remarks
		1	2	3	4	5	6	7	
Temp.	Initial	24.2	24.3	24.0	24.1	24.4	24.1		
	Final	24.1	24.0	24.2	24.0	24.1	24.0		
D. O.	Initial	8.0	8.1	7.9	8.0	8.2	8.0		
	Final	9.1	9.0	9.2	9.0	9.4	8.7		
pH	Initial	8.02	7.90	7.92	7.99	8.00	8.00		
	Final	8.32	8.30	8.82	8.50	8.30	8.34		
Alkalinity (mg/l)		101.6	92.8	110.8	90	118.4	101.6		
Hardness (mg/l)		98.3	120.4	104.6	114.0	123.0	101.6		
Conductivity (µmhos)		420	365	375	390	388	400		
Chlorine (mg/l)		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Analyst (init.)		BB	BB	BB	BB	BB	BB		

Conc. <u>20%</u>		Day							Remarks
		1	2	3	4	5	6	7	
Temp.	Initial	24.2	24.3	24.0	24.2	24.4	24.1		
	Final	24.1	24.0	24.2	24.0	24.1	24.0		
D. O.	Initial	8.2	8.5	8.4	8.5	8.6	8.5		
	Final	9.3	9.4	9.7	9.4	9.4	8.6		
pH	Initial	8.00	7.98	7.89	7.96	7.90	7.92		
	Final	8.37	8.33	8.83	8.53	8.28	8.25		
Analyst (init.)		BB	BB	BB	BB	BB	BB		

Conc. <u>40%</u>		Day							Remarks
		1	2	3	4	5	6	7	
Temp.	Initial	24.2	24.3	24.0	24.2	24.4	24.1		
	Final	24.1	24.0	24.2	24.0	24.1	24.0		
D. O.	Initial	8.6	8.8	9.0	9.0	8.9	9.1		
	Final	9.4	9.4	9.5	9.4	9.5	8.4		
pH	Initial	7.97	7.96	7.85	7.87	7.81	7.83		
	Final	8.42	8.33	8.81	8.50	8.26	8.30		
Analyst (init.)		BB	BB	BB	BB	BB	BB		

Data form for the *Ceriodaphnia dubia* survival and reproduction test.
Routine chemical and physical determinations.

Page 2 of 2



Client: CEDAR CREEK
Test Start: 6-13-07 2P
Test Stop: 6-19-07 2P

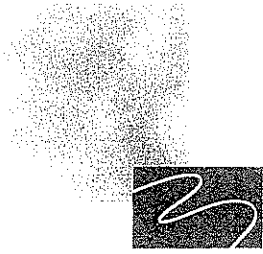
Analyst: B. Bouch
Analyst: _____
Analyst: _____

Conc. <u>66%</u>	Day							Remarks
	1	2	3	4	5	6	7	
Temp. Initial	24.2	24.4	24.0	24.2	24.4	24.1		
Degree C. Final	24.1	24.0	24.2	24.0	24.1	24.0		
D. O. Initial	8.9	9.1	9.7	9.4	9.3	9.5		
mg/l Final	9.6	9.6	9.5	9.4	9.3	8.2		
pH Initial	7.93	7.92	7.77	7.80	7.74	7.77		
S.U. Final	8.45	8.33	8.67	8.50	8.26	8.27		
Analyst (init.)	BB	BB	BB	BB	BB	BB		

Conc. <u>80%</u>	Day							Remarks
	1	2	3	4	5	6	7	
Temp. Initial	24.2	24.4	24.0	24.2	24.4	24.1		
Degree C. Final	24.1	24.0	24.2	24.0	24.1	24.0		
D. O. Initial	9.4	9.7	10.0	9.9	9.8	9.9		
mg/l Final	9.4	9.7	9.1	9.6	9.3	8.3		
pH Initial	7.89	7.89	7.69	7.74	7.65	7.69		
S.U. Final	8.46	8.30	8.49	8.47	8.22	8.26		
Analyst (init.)	BB	BB	BB	BB	BB	BB		

Conc. <u>100%</u>	Day							Remarks
	1	2	3	4	5	6	7	
Temp. Initial	24.2	24.4	24.0	24.2	24.4	24.1		
Degree C. Final	24.1	24.0	24.2	24.0	24.1	24.0		
D. O. Initial	10.0	10.1	10.4	10.5	10.3	10.4		
mg/l Final	9.3	9.7	8.7	9.5	9.0	8.4		
pH Initial	7.82	7.82	7.62	7.67	7.56	7.60		
S.U. Final	8.42	8.28	8.39	8.44	8.18	8.23		
Alkalinity (mg/l)	156.4	172.4	165.6	182	166.8	164		
Hardness (mg/l)	224.7	209.3	209.3	250.2	253.2	283.6		
Conductivity (µmhos)	738	720	725	727	738	736		
Chlorine (mg/l)	40.01	40.01	40.01	40.01	40.01	40.01		
Analyst (init.)	BB	BB	BB	BB	BB	BB		

0.1 5.0# 185596 185596 185789 185789 185878 185878



Appendix II

Chain of Custody Data Sheets

CHAIN OF CUSTODY

[illegible]

CHAIN OF CUSTODY

[illegible]