7302 Kanis Road P.O. Box 34087 Little Rock, AR 72204/72203 501-371-0272 • FAX 501-371-9932 www.mce.us.com

February 6, 2020

Gavin Gray, Enforcement Analyst Arkansas Department of Environmental Quality Office of Water Quality, Enforcement Branch 5301 Northshore Drive North Little Rock, AR 72118

RE: City of Dumas

NPDES AR0033987 / AFIN 21-00045

Permit Compliance Section B

Dear Mr. Gray:

The City of Dumas has complied with the final limits for C. dubia toxicity limits per the permit, please see attached biomonitoring reports. If you have any questions do not hesitate to contact me.

Sincerely,

McClelland Consulting Engineers, Inc.

Adam Triche, PE

Principal/ Asst. Water & Wastewater Dept. Manager

cc: Patrick Fitzgerald

Arkansas Analytical, Inc.

Toxicity Test Results

CITY OF DUMAS NPDES PERMIT NUMBER: AR0033987 First Quarter 2019 AFIN # 21-00045

Fathead Minnow, Pimephales promelas, Larval Survival and Growth Test Test 1000.0

Ceriodaphnia dubia, Survival and Reproduction Test Test 1002.0

Prepared for: Pat Fitzgerald

City of Dumas

155 E. Waterman

Dumas, Arkansas, 71639

Prepared by: Arkansas Analytical,

8100 National Drive

Little Rock, Arkansas 72209

Lab Number K1903002

Plant Location

City of Dumas. The plant is located in Dumas, Arkansas, Highway 165 North in Section 25, Township 9 South, Range 4 West in Desha County, Arkansas.

Test Methods

EPA Method 1000.0 Pimephales promelas, Larval survival and growth test

- Test chambers: 500 mL plastic cups
- Test solution volume: 250 mL
- Number of test organisms per chamber: 10
- Number of replicates per concentration: 5
- Test temperature $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Test concentrations: 0%, 16%, 22%, 29%, 39%, 52%
- Dilution water: Moderately hard synthetic
- No deviation from method

EPA Method 1002.0 Ceriodaphnia dubia, Survival and reproduction test

- Test chambers: 30 mL plastic cups
- Test solution volume: 15 mL
- Number of test organisms per chamber: 1
- Number of replicates per concentration: 10
- Test temperature $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Test concentrations: 0%, 16%, 22%, 29%, 39%, 52%
- Dilution water: Moderately hard synthetic
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

Ceriodaphnia dubi	ia 2/20/19-2/27/19	Pimephales promelo	as 2/20/19-2/27/19
NOEC Survival:	250 ppm KCl	NOEC Survival:	250 ppm KCl
LOEC Survival:	500 ppm KCl	LOEC Survival:	500ppm KCl
NOEC Reproduction:	250 ppm KCl	NOEC Growth:	250ppm KCl
LOEC Reproduction:	500 ppm KCl	LOEC Growth:	500 ppm KCl

City of Dumas

Ceriodaphnia dub	pia	Pimephales pro	melas
NOEC Survival Parameter: TOP3B	52%	NOEC Survival Parameter: TOP6C	39%
Pass/Fail Survival Parameter: TLP3B	Pass	Pass/Fail Survival Parameter: TLP6C	Pass
NOEC Reproduction Parameter: TPP3B	52%	NOEC Growth Parameter: TPP6C	39%
Pass/Fail Reproduction Parameter: TGP3B	Pass	Pass/Fail Growth Parameter: TGP6C	Pass
%CV Reproduction Parameter: TQP3B	25.4%	%CV Growth Parameter: TQP6C	9.20%
PMSD Reproduction	38.6%	PMSD Growth	20.5%

Conclusion

Pimephales promelas, (Method 1000.0): The permit issued to the City of Dumas, specifies that the **critical dilution is 39% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Ceriodaphnia dubia, (Method 1002.0): The permit issued to the City of Dumas, specifies that the **critical dilution is 39% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Biomonitoring Analysts: Melissa Bird, Emily Nichols, Clint Wood

Reviewed by:

Melissa Bird

Appendices

Appendix A	
Appendix B	Fathead minnow data & statistics
Appendix C	
Appendix D	
Appendix E	Reference toxicant control charts



CLIENT INFORMATION	BILLING INFORMATION	Project Description	Turnaround Time	Pres	Preservation Codes:	
		Observe Township.				
sulting Engineers	McClelland Consulting Engineers	Chronic Loxicity	_	1. Cool, 6 Degrees Centigrade	4. Thiosulfate for Dechlorination	lorination
1311 W 2nd St.	P.O. Box 34087	City of Dumas	2 Day (50%)	2. Sulfuric Acid (H2SO4), pH < 2	5. Hydrochloric Acid(HCl)	ICI)
Little Rock, AR 72201	Little Rock, AR 72203-4087	Reporting Information	3 Day (25%)	3. Nitric Acid (HNO ₃), pH < 2	6. Sodium Hydroxide (NaOH), pH > 12	VaOH), pH > 12
		Telephone: 501-378-7808	Routine	TEST PARA	AMETERS	Bottle Type Code
Attn: Matt Bienvenu		Fax: 501-376-4677	Preservative Code:	1		G = Glass; P = Plastic
		Email: mbienvenu@mcclelland-engrs.com	Bottle Type:	Ь		V = Septum; A = Amber
Sampler(s)Signature	Sampler(s) Printed	JAM-S		(Vicity		Arkansas Analytical Work Order Number:
Field SAMPLE COLLECTION Number Pate/s Time/s	Number of Grab Comp Bottles	Sample Sample IDENTIFICATION/ DESCRIPTION	RIPTION	Chronic 7		KIGOSOOZ
S1E-118/->	X 4	Water Final Discharge		×		<
1. Relinquished by: (Signature)	, o	2. Received by: (Signature)	SAMPLE CONDITION UPON RECEIPT IN LAB		REMARKS / SAMPLE COMMENTS	WENTS
J. Bar J. S.	5/5/17	1. CUSTODY SEALS: 2. CONTAINERS CORRECT: 3. COC/LABELS AGREE:	ALS: CORRECT: AGREE:	Yes No Yes No Yes No		
3. Relinquished by: (Signature)	Date/Time 4. Received b	A. Received by lab: (Signature) A. RECEIVED ON ICE: 5. TEMPERATURE GUN ID: 6. TEMPERATURE GUN ID: FOR COMPLETION B	EIPT:	— YesNo		



CLIENT INFORMATION	BILLING INFORMATION	Project Description	Turnaround Time	Preser	Preservation Codes:	
McClelland Consulting Engineers	McClelland Consulting Engineers	Chronic Toxicity	1 Day (100%)	1. Cool, 6 Degrees Centigrade	4. Thiosulfate for Dechlorination	orination
1311 W 2nd St.	P.O. Box 34087	City of Dumas	2 Day (50%)	2. Sulfuric Acid (H,SO ₄), pH < 2	5. Hydrochloric Acid(HCl)	5
Little Rock, AR 72201	Little Rock, AR 72203-4087	Reporting Information		3. Nitric Acid (HNO ₃), pH < 2	6. Sodium Hydroxide (NaOH), pH > 12	aOH), pH > 12
		Telephone: 501-378-7808	Routine	TEST PARAM	Е	Bottle Type Code
Attn: Matt Bienvenu		Fax: 501-376-4677	Preservative Code:			G = Glass; P = Plastic
		Email: mbienvenu@mcclelland-engrs.com	Bottle Type:	Д		V = Septum; A = Amber
SKER	Tesse	tores		V)		Arkansas
Sampler(s) Signature	Sampler(s) Printed	pe		oxic		Analytical Work Order Number:
Field SAMPLE C	SAMPLE COLLECTION Number	SAMPLE		T oinc		
Number Date/s	Grab Comp	Sample IDENTIFICATION/ DESCRIPTION	RIPTION	СЪго		K1903002
3/2-3/6	98-917 X 4	Water Final Discharge		×		80
1. Relinquished by: (Signature)	Date/Time 2. Received k	2. Received by: (Signature) SAMPLE CO	SAMPLE CONDITION UPON RECEIPT IN LAB		REMARKS / SAMPLE COMMENTS	ENTS
1 Wash	3/6/15	1. CUSTODY SEALS:	S.	Yes No		
	sas!	2. CONTAINERS CORRECT:	ORRECT:			
3. Relinquished by: (Signature)	Date/Time 4. Received to	Received by Jab: (Stronature) 4 RECEIVED ON ICE:	SKEE:	Yes No		
		C	ON RECEIPT: 2			
	X	6. TEMPERATURE GUN ID: FOR COMPLET	ION BY I	HHT# ———————————————————————————————————		



CLIENT INFORMATION	BILLING INFO	BILLING INFORMATION	Project Description		Turnaround Time		Preservation Codes:	n Codes:	
McClelland Consulting Engineers McClelland Consulting Engineers	gineers McClelland Co	onsulting Engineers	Chronic Toxicity	oxicity	1 Day (100%)	1. Cool, 6 Degrees Centigrade		4. Thiosulfate for Dechlorination	Drination
1311 W 2nd St.	P.O. Box 34087	187	City of Dumas	umas		2. Sulfuric Acid (H,SO,), pH < 2	pH < 2	5. Hydrochloric Acid(HCl)	6
Little Rock, AR 72201	Little Rock, AR	.R 72203-4087	Reporting Information	formation		3. Nitric Acid (HNO3), pH < 2	I < 2	6. Sodium Hydroxide (NaOH), pH > 12	OH), pH > 12
			Telephone: 501-378-7808	1-378-7808	Routine	TEST	r Parameter	ERS	Bottle Type Code
Attn: Matt Bienvenu			Fax: 501-376-4677	76-4677	Preservative Code:	_			G = Glass; P = Plastic
			Email: mbienvenu@mcclelland-engrs.com	clelland-engrs.com	Bottle Type:	۵			V = Scotum; A = Amber
Spale	Q 200	725%	Janes			Vtic			Arkansas
Sampler(s) Signature//		Sampler(s) Printed	ed			oxio			Order Number:
Field	SAMPLE COLLECTION	Number		SAMPLE		T oinc			
Number Date/s	e/s Time/s	Grab Comp Bottles Matrix		IDENTIFICATION/ DESCRIPTION	NOLLION	СЪг			K1903002
3/2-3/7	17 10A-10A	X 4	Water Final Discharge	ď		×			6
1. Relinquished by: (Signature) 3. Relinquished by: (Signature)	Date/Time S 7 1 0 1 1 1 1 1 1 1 1		2. Received by: (Signature) 4. Received by lab: (Signature)	SAMPLE CONDITION UPOI 1. CUSTODY SEALS: 2. CONTAINERS CORRECT: 3. COC/LABELS AGREE: 4. RECEIVED ON ICE: 5. TEMPERATURE ON RECEIPT:	TION UPON REECT:	RECEIPT IN LAB Yes No Yes No Yes No Yes No	REMARKS	REMARKS / SAMPLE COMMENTS	STNTS
		¥ (C)	le le		ION BY	B ONLY			

Report Date:

25 Mar-19 16:29 (p 1 of 2)

Test Code:

K1903002FH | 03-8686-5678

Fathead Mir	now 7-d Larval Su	ırvival and	Growth	Test						Ark	ansas Ana	alytical, Inc.
Batch ID: Start Date: Ending Date Duration:	06-9576-9958 06 Mar-19 14:05 2: 13 Mar-19 13:28 6d 23h	Test Proto Spec Sour	ocol: I	Growth-Surviva EPA/821/R-02-0 Pimephales pro Aquatox, AR	013 (2002)			Analyst: Diluent: Brine: Age:	Mod	issa Bird d-Hard Synt Applicable	hetic Wate	r
Receipt Date	20-6432-0781 e: 05 Mar-19 08:00 e: 05 Mar-19 14:56 e: 30h (1 °C)	Code Mate Sour Statio	rial: l	K1903002FH POTW Effluent City of Dumas (Final Discharge		()		Client: Project:		of Dumas T Quarterly	Complianc	e Test (1Q)
Sample Ren	ewals											
Renewal	Sample Code	Sample D	ate	Receive Dat	te Re	newal Date	е	Temp °C	:			
1	K1903002B	06 Mar-19	09:00	06 Mar-19 1	5:05 08	Mar-19 00	:00	2				
2	K1903002C	07 Mar-19	10:00	07 Mar-19 1	5:00 10	Mar-19 00	:00	2				
Multiple Co	mparison Summar	У										
Analysis ID	Endpoint		Compa	arison Method			NO	EL LO	DEL	TOEL	TU	PMSD ✓
00-9061-763	7 7d Survival Rate		Dunnet	t Multiple Comp	arison Test		39	52	2	45.03	2.564	11.0%
13-9776-249	3 Mean Dry Bioma	ss-mg	Dunnet	t Multiple Comp	arison Test		52	> 52	2	n/a	1.923	20.5%
Test Accept	ability					TACI	imits					
Analysis ID	Endpoint		Attribu	ite	Test Stat	Lower	Upp		verlap	Decision		
00-9061-763	7 7d Survival Rate		Control	Resp	0.98	0.8	>>	Ye	es	Passes C	riteria	
13-9776-249	3 Mean Dry Bioma	ss-mg	Control	Resp	0.5436	0.25	>>		es	Passes C	riteria	
7d Survival	Rate Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	c St	d Err	Std Dev	CV%	%Effect
0	D	5	0.9800	0.9245	1.0000	0.9000	1.00	000 0.	0200	0.0447	4.56%	0.00%
16		5	0.9200	0.8645	0.9755	0.9000	1.00	000 0.	0200	0.0447	4.86%	6.12%
22		5	0.9400	0.8720	1.0000	0.9000	1.00	000 0.	0245	0.0548	5.83%	4.08%
29		5	0.9000		1.0000	0.7000	1.00		0633	0.1414	15.71%	8.16%
39		5	0.8800		0.9839	0.8000	1.00		0374	0.0837	9.51%	10.20%
52		5	0.8600	0.7920	0.9280	0.8000	0.90	000 0.	0245	0.0548	6.37%	12.24%
-	iomass-mg Summ	ary										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max		d Err	Std Dev	CV%	%Effect
0	D	5	0.5436		0.595	0.494	0.60		01851	0.04139	7.61%	0.00%
16		5	0.4684		0.5246	0.426	0.53		02024	0.04525	9.66%	13.83%
22		5	0.5318		0.6348	0.402	0.59		03711	0.08297	15.60%	2.17%
29		5	0.5432		0.5862	0.502	0.59		0155	0.03465	6.38%	0.07%
		_	0 5466	0 45 40								
39 52		5 5	0.5136 0.4906		0.5723 0.5592	0.471 0.415	0.59		02113 02471	0.04724 0.05525	9.20% 11.26%	5.52% 9.75%

Analyst:_____ QA:___

25 Mar-19 16:29 (p 2 of 2)

Report Date: Test Code: K1903002FH | 03-8686-5678

******							rest code.	K1903002FH 03-0000-3070
Fathead Minn	ow 7-d Larval	Survival an	d Growth T	est				Arkansas Analytical, Inc.
7d Survival R	ate Detail							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5		
0	D	1.0000	1.0000	1.0000	1.0000	0.9000		
16		1.0000	0.9000	0.9000	0.9000	0.9000		
22		1.0000	0.9000	0.9000	1.0000	0.9000		
29		1.0000	1.0000	0.8000	1.0000	0.7000		
39		1.0000	0.9000	0.8000	0.9000	0.8000		
52		0.9000	0.9000	0.8000	0.9000	0.8000		
Mean Dry Bio	mass-mg Deta	ail					The state of the s	
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5		
0	D	0.603	0.518	0.545	0.558	0.494		
16		0.43	0.533	0.459	0.426	0.494		
22		0.497	0.402	0.599	0.57	0.591		
29		0.502	0.594	0.554	0.543	0.523		
39		0.471	0.59	0.522	0.505	0.48		
52		0.535	0.511	0.415	0.451	0.541		
7d Survival R	ate Binomials							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5		•
0	D	10/10	10/10	10/10	10/10	9/10		
16		10/10	9/10	9/10	9/10	9/10		
22		10/10	9/10	9/10	10/10	9/10		
29		10/10	10/10	8/10	10/10	7/10		
39		10/10	9/10	8/10	9/10	8/10		
52		9/10	9/10	8/10	9/10	8/10		

003-589-908-1

CETIS™ v1.9.2.6

Analyst:_____ QA:___

Report Date:

25 Mar-19 16:34 (p 1 of 2)

Test Code:

K1903002CD | 06-5528-5316

							rest oode.	1(150)	000200 0	0-3320-3310
Cladoceran 7	7-d Survival and R	Reproduction Tes	st					Ark	ansas Ana	lytical, Inc.
Batch ID: Start Date: Ending Date: Duration:	18-1932-9210 06 Mar-19 11:20 : 12 Mar-19 10:44 5d 23h	Protocol:	Reproduction-S EPA/600/4-91/0 Ceriodaphnia d In-House Cultur	002 (1994) ubia			Analyst: Diluent: Brine: Age:	Melissa Bird Mod-Hard Synt Not Applicable <24	hetic Wateı	,
•	21-1938-3630 : 05 Mar-19 08:00 : 05 Mar-19 14:56 27h (1 °C)		K1903002CD POTW Effluent City of Dumas (Final Discharge	(AR0033987	7)		Client: Project:	City of Dumas WET Quarterly	Complianc	e Test (1Q)
Sample Rene	ewals									
Renewal S	Sample Code	Sample Date	Receive Da	te Re	enewal Date		Temp °C			
	(1903002B	06 Mar-19 09:00	06 Mar-19 1		Mar-19 00:0		2			
2 k	K1903002C	07 Mar-19 10:00	07 Mar-19 1	5:00 10	Mar-19 00:0	00	2			
Multiple Con	nparison Summar	у								
Analysis ID	Endpoint	Com	parison Method			NOE	L LOEI	_ TOEL	TU	PMSD ✓
17-1901-9558	7d Survival Rate	Fishe	er Exact/Bonferro	ni-Holm Tes	st	52	> 52	n/a	1.923	n/a
15-1084-8484	Reproduction	Steel	Many-One Rank	Sum Test		52	> 52	n/a	1.923	38.6%
Test Accepta	ability				TACL	imits		9		
Analysis ID	Endpoint	Attri	bute	Test Stat		Uppe	er Over	lap Decision		
17-1901-9558	3 7d Survival Rate	Cont	rol Resp	0.9	0.8	>>	Yes	Passes C	riteria	
15-1084-8484	Reproduction	Cont	rol Resp	19.9	15	>>	Yes	Passes C	riteria	
7d Survival F	Rate Summary									
Conc-%	Code	Count Mean	95% LCL	95% UCL	Min	Max	Std E	rr Std Dev	CV%	%Effect
0	D	10 0.900	0.6738	1.0000	0.0000	1.000	0.100	0.3162	35.14%	0.00%
16		10 1.000		1.0000	1.0000	1.000	0.000	0.0000	0.00%	-11.11%
22		10 0.900		1.0000	0.0000	1.000			35.14%	0.00%
29		10 0.900		1.0000	0.0000	1.000			35.14%	0.00%
39		10 0.900		1.0000	0.0000	1.000			35.14%	0.00%
52		10 0.900	0.6738	1.0000	0.0000	1.000	0.100	0.3162	35.14%	0.00%
Reproductio	n Summary									
Conc-%	Code	Count Mean	Name of the last o			Max	Std E	The state of the s	CV%	%Effect
0	D	10 19.9	15.02	24.78	7	26	2.157		34.28%	0.00%
16		10 27.6	24.43	30.77	22	36	1.4	4.427	16.04%	-38.69%
22		10 23.9	16.99	30.81	5	33	3.057		40.44%	-20.10%
29		10 22.3	16.97	27.63	9	32	2.357		33.43%	-12.06%
39		10 25.2		30.83	11	33	2.489		31.23%	-26.63%
52		10 23.7	18.1	29.3	5	33	2.477	7.832	33.05%	-19.10%

5000.CV + X reproduction of surviving females:

@ 0% %CV=25.4% $\bar{X} = 21.3$

X=26.8

003-589-908-1

CETIS™ v1.9.2.6

Analyst:____ QA:_

Report Date:

25 Mar-19 16:34 (p 2 of 2)

Test Code: K1903002CD | 06-5528-5316

Arkansas Analytical, Inc.

7d Survival Ra	ate Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22		1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000
39		1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
52		1.0000	1.0000	0.0000	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	D	24	11	25	23	26	13	7	23	24	23
16		34	28	36	26	24	29	27	26	24	22
22		31	5	22	33	12	17	30	32	31	26
ZZ					00	26	22	25	9	31	21
22 29		14	27	16	32	20	~~	20	9	31	21
		14 32	27 29	16 11	32 28	23	12	33	26	32	26

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1	1/1
16		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
22		1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
29		1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1
39		1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
52		1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

003-589-908-1

CETIS™ v1.9.2.6

Analyst:_____ QA:____

	CHEMICAL I	DATA SHEE	T FOR CHR	ONIC TOXI	CITY TESTII	NG	Fa	athead Minno)W
			1419030			(Date/Time)			
		Duna				Date/Time)		111100	
	Ollotte	Think	2			of Test	2-10 10	111328	
		1	2	3	4	5	6	7	notes
Control	masoic		317	318	3/9	3/10	3/11	3/12	
D.O. (mg/L		9.1	8.7	8.6	9.2	2.6	8.7	8.7	MHS011
D.O. (mg/L	FINAL	8.1	7.4	7.4	7.9	7.3	7.4	8.1	USE a spor
pH (s.u.)	INITIAL	8:0	8.0	8.1.	7.4	8.0	8.8	8.0	
p (c.u.)	FINAL	7.4	7-7	7.6	7.7	7.9	7.8	8.0	
temp (C)	INITIAL	20	2-1	22	26	22	22	22	
	FINAL	25	21 25	23	25	25	25	25	
ALKALINIT		56	designation of the second	30	74				
HARDNES		110			112		A MATERIAL PROPERTY OF THE PARTY OF THE PART	-	
	IVITY (umh		etitutivat Sirkin rinunum ratuupu suo		352		TO THE RESIDENCE OF THE PROPERTY OF THE PROPER		
CHLORINE	E (mg/L)	20.05			40.05	MARKET CONTRACTOR			
CONC:	10%		A CONTRACTOR OF THE PARTY OF TH					1	
D.O. (mg/L	NITIAL	9.0	8.7	8.6	8,6	8.7	8.6	8.6	
	FINAL	6.9	7.3	7.4	8,5	7.1	6.7	7.2	
pH (s.u)	INITIAL	8.0	7.8	8.1	7.4	8.	8-1	8.2	
	FINAL	7.5	7.7	7.6	8,2	7.9'	7.8	7.9	
temp (C)	INITIAL	20	22	21	23	23	25 25	22	
	FINAL	25	25	23	22	25	25	25	
	221.								
D.O. (mg/L		9.0	8.6	8.7	8,6	8,7	8.10	8.6	
	FINAL	8.2	8.2	7.4	8.0	7.1	6.6	7.7	
pH (mg/L)	INITIAL	7.9	7.8	8.0	7.7	7.9	7.9	8.1	
(0)	FINAL	7.6	7.7	71.6	7.9	7:7	7:7	7.9	
temp (C)	INITIAL	20	22	22	23	23		22	
00110	FINAL	25	25	23	22	25	25	25	
	29 %		917	2.5	0 57	2 2	Dr	01.1	
D.O. (mg/L		9.0	8.6	8.7	8.7	8.9	8.5	8.6	
pH (s.u.)	FINAL	6.8	7.1	6.7	7.2	10.	6.7	7.5	
рп (s.u.)	FINAL	7.9	7.7	7.9	7,4	7,7	7.9	8.1	
temp (C)	INITIAL	20	7.60	7.6	7.5	7.8	7.4	7.9	
terrip (O)	FINAL	25	23	23	32	23	23 25	22	
CONC:	39%	20	295	20	dd	20	23	25	
D.O. (mg/L	NINITIAI	9.0	8.5	8.7	8,7	9.0	8,0	8/2	
	FINAL	6.4	7.1	7.1	7.	108	6.8	8.60	
pH (s.u.)	INITIAL	7.9	7.7	7.8	7.6	716	7.8	8.0	
. ()	FINAL .	7.60	7.60	7,5	7.5	7.6	7.6	7.9	
temp (C)	INITIAL	20	23	22	54	24	24	22	
	FINAL	25	25	23	22	25 .	25	25	
CONC:	27.	-							
D.O. (mg/L)		8.9	8.4	8.7	8,7	8.8	8.4	8.5	
	FINAL	7.9	6.8	710	17,5	6.8	6.8 -	7.6	
pH (s.u.)	INITIAL	7.8	7.60		7.6	7.6	7.9	8.0	
	FINAL	7.6	7.6	7,7	7.6	7.7	7.6	7.8	
temp (C)	INITIAL	20	23	22		24	24	22 25	
	FINAL	255	25	23	22	25	25	25	
	DD 7.	:A	4	B	B	<u></u>	C	C	
ALKALINIT		54		40		58		1	
HARDNES		24	-	28	-	260	ANTENDERSON SALANDESON SALANDESON SALANDES		1
	IVITY (umho			231	-	227	to a financia de la constanta		
CHLORINE	(mg/L)	40.05	-	20.05	A CONTRACTOR OF THE PARTY OF TH	40.05	\$100000 Parkey No Tall to Challength of Nation		

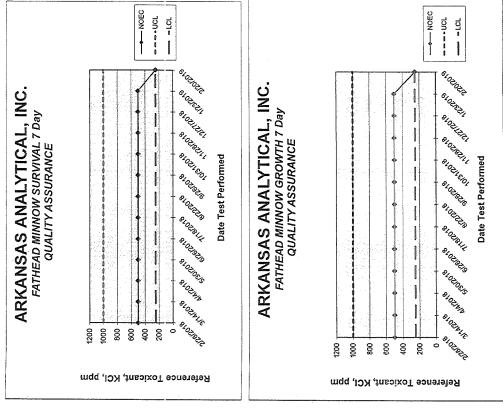
CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING

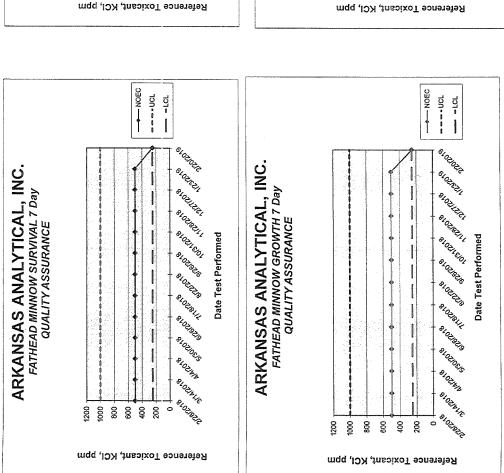
Ceriodaphnia Dubia

Lab # / Sample ID K1903002

Test Start (Date/Time) 3-6-19/11/20

Client: Durvas Test End (Date/Time) 3-12-19/1044 Day of Test 3 7 notes/remarks 2 4 5 6 318 Control MHS 010 316 311 3/9 3/10 3/11 3/12 MHS OIL D.O. (mg/L) INITIAL 9.1 8.6 9.2 used 3/9 8.7 27 8.7 **FINAL** 8.5 8.60 8,5 8.6 8.60 8.2 8.8 8.0 pH (s.u.) INITIAL 8.0 8.1 7.4 8 0 8.0 8.2 **FINAL** 8.3 8.0 8.3 22 temp (C) INITIAL 22 22 20 22 21 210 25 253 25 25 FINAL 25 25 ALKALINITY (mg/L) 56 74 HARDNESS (mg/L) 112 110 CONDUCTIVITY (umhos/cm) 362 352 CHLORINE (mg/L) 20.05 20.05 CONC: 10% D.O. (mg/L) INITIAL 9.0 8.6 8.7 8. 8.6 8.5 FINAL 8,5 201 8.5 8. 8 8 INITIAL 8.0 7.4 pH (s.u) 8.1 8.1 8,2 7.8 F. **FINAL** 8.3 8.2 8.3 8.1 8 8.1 temp (C) INITIAL 20 22 21 23 23 23 22 FINAL 25 25 25 25 2= 25 CONC: 221. D.O. (mg/L) INITIAL 9.0 8.6 8.7 8.60 8.7 810 8:60 8.5 **FINAL** 8.8 9,0 8.5 8.4 pH (mg/L) INITIAL 7.8 8.0 7.9 8. 7.9 7.0 FINAL 8.3 8.1 84 8.3 8-1 8.2 22 temp (C) INITIAL 20 22 2.3 22 22 **FINAL** 25 25 25 25 25 CONC: 29% 9.0 8.7 D.O. (mg/L) INITIAL 8.6 8.8 8.60 FINAL 8.5 8.5 85 8.2 8.8 9.0 pH (s.u.) INITIAL 8. 7.9 7.9 7.7 7.4 FINAL 8.2 8.2 8.2 8.3 8.3 temp (C) INITIAL 23 22 20 24 22 23 FINAL 25 25 25 25 25 25 CONC: 39% D.O. (mg/L) INITIAL 9.0 8.5 9.0 8.10 8.7 15 8.7 **FINAL** 8.5 8.5 8.4 8.2 8.9 8.9 INITIAL pH (s.u.) 7.9 7.7 7.8 7.10 8.0 FINAL 8.3 8.3 8.3 2 8.1 8.1 24 temp (C) INITIAL 20 23 2 4 24 22 22 25 25 25 25 FINAL 25 25 CONC: 527 D.O. (mg/L) INITIAL 8.9 8.4 8.7 X.4 8.5 FINAL 8. 8.7 8.5 8.4 8.2 7.6 pH (s.u.) INITIAL 7.60 7.7 7.6 7.01 8.0 7.8 FINAL 8, 8.2 8.2 8.3 8.1 8.1 temp (C) INITIAL 70 24 22 23 22 25 24 FINAL 25 25 25 25 25 25 CONC: 4 100%. C A B P ALKALINITY (mg/L) 54 58 40 HARDNESS (mg/L) 24 18 260 CONDUCTIVITY (umhos/cm) 230 231 227 4 CHLORINE (mg/L) 40.05 CO.05 1 40.05





NOEC NOEC

ARKANSAS ANALYTICAL, INC.

CERIODAPHNIA DUBIA SURVIVAL QUALITY ASSURANCE

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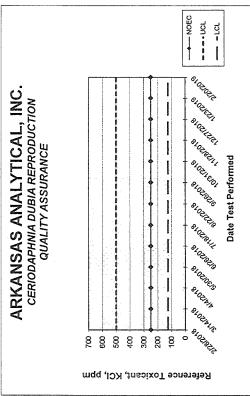
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1200 1000 800 600 400

Date Test Performed



Arkansas Analytical, Inc.

Toxicity Test Results

CITY OF DUMAS NPDES PERMIT NUMBER: AR0033987 Second Quarter 2019 AFIN # 21-00045

Fathead Minnow, Pimephales promelas, Larval Survival and Growth Test Test 1000.0

Ceriodaphnia dubia, Survival and Reproduction Test Test 1002.0

Prepared for: Pat Fitzgerald

City of Dumas 155 E. Waterman

Dumas, Arkansas, 71639

Prepared by: Arkansas Analytical,

8100 National Drive

Little Rock, Arkansas 72209 Lab Number K1905006

Thursday, June 06, 2019

Plant Location

City of Dumas. The plant is located in Dumas, Arkansas, Highway 165 North in Section 25, Township 9 South, Range 4 West in Desha County, Arkansas.

Test Methods

EPA Method 1000.0 Pimephales promelas, Larval survival and growth test

- Test chambers: 500 mL plastic cups
- Test solution volume: 250 mL
- Number of test organisms per chamber: 10
- Number of replicates per concentration: 5
- Test temperature $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Test concentrations: 0%, 16%, 22%, 29%, 39%, 52%
- Dilution water: Moderately hard synthetic
- No deviation from method

EPA Method 1002.0 Ceriodaphnia dubia, Survival and reproduction test

- Test chambers: 30 mL plastic cups
- Test solution volume: 15 mL
- Number of test organisms per chamber: 1
- Number of replicates per concentration: 10
- Test temperature $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Test concentrations: 0%, 16%, 22%, 29%, 39%, 52%
- Dilution water: Moderately hard synthetic
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

Ceriodaphnia dub	ia 4/3/19-4/10/19	Pimephales pro	melas 4/3/19-4/10/19
NOEC Survival:	500 ppm KCl	NOEC Survival:	500 ppm KCl
LOEC Survival:	1000 ppm KCl	LOEC Survival:	1000ppm KCl
NOEC Reproduction:	500 ppm KCl	NOEC Growth:	500ppm KCl
LOEC Reproduction:	1000 ppm KCl	LOEC Growth:	1000 ppm KCl

City of Dumas

Ceriodaphnia dui	bia	Pimephales pro	melas
NOEC Survival Parameter: TOP3B	52%	NOEC Survival Parameter: TOP6C	52%
Pass/Fail Survival Parameter: TLP3B	Pass	Pass/Fail Survival Parameter: TLP6C	Pass
NOEC Reproduction Parameter: TPP3B	52%	NOEC Growth Parameter: TPP6C	52%
Pass/Fail Reproduction Parameter: TGP3B	Pass	Pass/Fail Growth Parameter: TGP6C	Pass
%CV Reproduction Parameter: TQP3B	27.5%	%CV Growth Parameter: TQP6C	11.7%
PMSD Reproduction	21.2%	PMSD Growth	20.9%

Conclusion

Pimephales promelas, (Method 1000.0): The permit issued to the City of Dumas, specifies that the **critical dilution is 39% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Ceriodaphnia dubia, (Method 1002.0): The permit issued to the City of Dumas, specifies that the **critical dilution is 39% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Biomonitoring Analysts: Melissa Bird, Emily Nichols, Emma Elnabarawy, Hallie Freyaldenhoven

Reviewed by:

Melissa Bird

Appendices

Appendix A	
Appendix B	Fathead minnow data & statistics
Appendix C	
Appendix D	Water chemistry data
Appendix E	Reference toxicant control charts



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CLIENT INFORMATION	NC	BILLING INFORMATION	NO	Project Description	ption	Turnaround Time		Preservation Codes:	n Codes:	
McClelland Consulting Engineers	Engineers	McClelland Consulting Engineers	Engineers	Chronic Toxicity	city	1 Day (100%)	1. Cool, 6 Degrees Centigrade		4. Thiosulfate for Dechlorination	orination
1311 W 2nd St.		P.O. Box 34087		City of Dumas	as		2. Sulfuric Acid (H ₂ SO ₄), pH < 2	4), pH < 2	5. Hydrochloric Acid(HCI)	CI)
Little Rock, AR 72201	2	Little Rock, AR 72203-4087	1-4087	Reporting Information	mation	3 Day (25%)	3. Nitric Acid (HNO ₃), pH < 2	pH < 2	6. Sodium Hydroxide (NaOH), pH > 12	aOH), pH > 12
				Telephone: 501-378-7808	\$ 8082-8.	Routine	TEST	PARAME	TERS	Bottle Type Code
Attn: Matt Bienvenu				Fax: 501-376-4677	2.29	Preservative Code:	1			G = Glass; P = Plastic
				Email: mbienvenu@mcclelland-engrs.com	land-engrs.com	Bottle Type:	Ь			V = Septum; A = Amber
Sampletts) Signature	()	Sample	Sampler(s) Printed	Sc James	,		Vioixo			Arkansas Analytical Work Order Number:
Field S	SAMPLE C Date/s	SAMIPLE COLLECTION Date/s Time/s Grab	Number of Sample Comp Bottles Matrix	mple atrix	SAMPLE IDENTIFICATION/ DESCRIPTION	SIPTION	Chronic T			X191951006
12/13	12/19-5/14/9	94-94	X X	Water Final Discharge			×			V
1. Relinguished by: (Signature)	nature)	Date/Time /	2. Received by	Received by: (Signature)	SAMPLE CO	SAMPLE CONDITION UPON RECEIPT IN LAB	ECEIPT IN LAB	REMARK	REMARKS / SAMPLE COMMENTS	ENTS
John S	A Marie Contraction of the Contr	5/14/19			3 8 8	S: ORRECT:	Yes No Yes No Yes No			
3. Relinquished by. (Signature)	nature)	Date/Time	4. Received by	Received by lab: (Stgnature) 4.	4. RECEIVED ON ICE: 5. TEMPERATURE ON RECEIPT: 6. TEMPERATURE GUN ID: 6. TEMPERATURE GUN I	EIPT:	7es No Loc No HHT# 2			



CLIENT INFORMATION	BILLING INFORMATION	Project Description	Turnaround Time	Preserv	Preservation Codes:	
gineers	McClelland Consulting Engineers	Chronic Toxicity	1 Day (100%)	1. Cool, 6 Degrees Centigrade	4. Thiosulfate for Dechlorination	ination
1311 W 2nd St.	P.O. Box 34087	City of Dumas	2 Day (50%)	2. Sulfuric Acid (H ₂ SO ₄), pH < 2	5. Hydrochloric Acid(HCI)	
Little Rock, AR 72201	Little Rock, AR 72203-4087	Reporting Information	3 Day (25%)	3. Nitric Acid (HNO ₃), pH < 2	6. Sodium Hydroxide (NaOH), pH > 12	OH), pH > 12
		Telephone: 501-378-7808	Routine	TEST PARAM	ETERS	Bottle Type Code
Attn: Matt Bienvenu		Fax: 501-376-4677	Preservative Code:	_		G = Glass; P = Plastic
		Email: mbienvenu@mcclelland-engrs.com	Bottle Type:	а.		V = Septum; A = Amber
Sampler(s) Signature	JCSK Sampler(s) Printed	JAMES		Toxicity		Arkansas Analytical Work Order Number:
Field SAMPLE CC	SAMPLE COLLECTION Number of S Of S Of S	Sample Sample IDENTIFICATION/ DESCRIPTION	CRIPTION	Chronic		KIGOSOO
K		Water Final Discharge		×		B
4 Bolinanishad hy. Kirnstura)	Date/Time 2 Received	Received hy (Signature)	SAMPLE CONDITION UPON RECEIPT IN LAB		REMARKS / SAMPLE COMMENTS	ENTS
1. Kelindulshed by: Cognature	454	1. CU	ALS: S CORRECT:	0 0 0		
3. Relinquished by: (Signature)	Date/Time 4. Received	Received by lab: (Signature) 4. RECEIVED ON ICE:	N ICE:	Yes No		
	OWY.	5. TEMPERATURE ON REC 6. TEMPERATURE GUN ID:	5. TEMPERATURE ON RECEIPT: 6. TEMPERATURE GUN ID:	% с ннт# %		
		FOR	FOR COMPLETION BY LAB ONLY	LAB ONLY		
)					



CLIENT INFORMATION	BILLING INFORMATION	Project Description	Turnaround Time		Preservation Codes:	Codes:	
McClelland Consulting Engineers		Chronic Toxicity	1 Day (100%)	1. Cool, 6 Degrees Centigrade	4	4. Thiosulfate for Dechlorination	rination
1311 W 2nd St.	P.O. Box 34087	City of Dumas	2 Day (50%)	2. Sulfuric Acid (H2SO4), pH < 2		5. Hydrochloric Acid(HCI)	(E
Little Rock, AR 72201	Little Rock, AR 72203-4087	Reporting Information	3 Day (25%)	3. Nitric Acid (HNO ₃), pH < 2	þ	6. Sodium Hydroxide (NaOH), pH > 12	OH), pH > 12
		Telephone: 501-378-7808	Routine	TEST P	ARAMETE	TERS	Bottle Type Code
Attn: Matt Bienvenu		Fax: 501-376-4677	Preservative Code:	_			G = Glass; P = Plastic
		Email: mbienvenu@mcclelland-engrs.com	Bottle Type:	А			V = Septum; A = Amber
Sampler(s) Signature	Sampler(s) Printed	JAM25		Toxicity			Arkansas Analytical Work Order Number:
Field SAMPLE C Number Date/s	SAMPLE COLLECTION Date/s Time/s Grab Comp Bottles Matrix	SAMPLE Sample Sample IDENTIFICATION/ DESCRIPTION	CRIPTION	- Ohronic			KIAUSOUP
5/15-5/16	KA-VIP X 4	Water Final Discharge		×			0
1. Relinquished by: (Signature)	DaterTime 2. Received	2. Received by: (Signature) SAMPLE CONE	SAMPLE CONDITION UPON RECEIPT IN LAB	RECEIPT IN LAB	REMARKS	REMARKS / SAMPLE COMMENTS	ENTS
March	S/16/1/2 FDF	2. CONTAINERS CORRECT: 3. COC/LABELS AGREE:	S CORRECT: AGREE:				
3. Relinquished by: (Signature)	Date/Time 4. Received by lab:	(Signature) 4. RECEIVE 5. TEMPER 6. TEMPER	EIPT:	+ Yes No c HHT# Z LAB ONLY			

Report Date:
Test Code:

06 Jun-19 14:09 (p 1 of 2)

K1905006FH | 09-8539-9121

							.00.0000	•			0000 012
Fathead Mir	nnow 7-d Larval Su	rvival and Grow	th Test						Arka	nsas Anal	ytical, Inc.
Batch ID:	09-7360-6332	Test Type:	Growth-Surviva	al (7d)			Analyst:	Meli	ssa Bird		
Start Date:	15 May-19 13:45	Protocol:	EPA/821/R-02-	-013 (2002)			Diluent:	Mod	-Hard Synth	etic Water	
Ending Date	e: 22 May-19 13:12	Species:	Pimephales pro	omelas			Brine:	Not.	Applicable		
Duration:	6d 23h	Source:	Aquatox, AR				Age:	<24			
Sample ID:	16-6809-6823	Code:	K1905006FH				Client:	City	of Dumas		
Sample Dat	e: 14 May-19 09:00	Material:	POTW Effluent	t			Project:	WE	Γ Quarterly (Compliance	Test (2Q)
Receipt Dat	e: 14 May-19 15:02	Source:	City of Dumas	(AR0033987	7)						
Sample Age	e: 29h (2 °C)	Station:	Final Discharge	e							
Sample Rer	newals					,	· · · · · · · · · · · · · · · · · · ·				
Renewal	Sample Code	Sample Date	Receive Da	ate Re	enewal Date)	Temp °C				
1	K1905006B	15 May-19 10:0	0 15 May-19	14:54 17	May-19 00:	00	2				
2	K1905006C	16 May-19 11:0	0 16 May-19	15:27 19	May-19 00:	00	1				
Multiple Co	mparison Summar	у									
Analysis ID	Endpoint	Com	parison Method	i		NOE	L LOE		TOEL	TU	PMSD -
11-6615-208	32 7d Survival Rate	Stee	l Many-One Ran	k Sum Test		52	> 52		n/a	1.923	7.7%
09-5520-710	06 Mean Dry Bioma	ss-mg Duni	nett Multiple Com	nparison Tes	t	52	> 52		n/a	1.923	20.9%
Test Accept	tability				TACL	imits.					
Analysis ID	Endpoint	Attri	bute	Test Stat		Upp	er Ove	rlap	Decision		
11-6615-208	32 7d Survival Rate	Cont	rol Resp	0.98	0.8	>>	Yes		Passes C	riteria	
09-5520-710	06 Mean Dry Bioma	ss-mg Cont	rol Resp	0.4726	0.25	>>	Yes		Passes C	riteria	
7d Survival	Rate Summary										
Conc-%	Code	Count Mea	n 95% LCL	. 95% UCL	Min	Max	Std	Err	Std Dev	CV%	%Effect
0	D	5 0.98	00 0.9245	1.0000	0.9000	1.00	00 0.02	200	0.0447	4.56%	0.00%
16		5 0.92	00 0.8161	1.0000	0.8000	1.00	00 0.03	374	0.0837	9.09%	6.12%
22		5 1.00	00 1.0000	1.0000	1.0000	1.00	00.00	000	0.0000	0.00%	-2.04%
29		5 0.96	00 0.8920	1.0000	0.9000	1.00	00 0.02	245	0.0548	5.71%	2.04%
39		5 0.98	00 0.9245	1.0000	0.9000	1.00	00 0.02	200	0.0447	4.56%	0.00%
52		5 0.98	00 0.9245	1.0000	0.9000	1.00	00 0.02	200	0.0447	4.56%	0.00%
Mean Dry E	Biomass-mg Summ	ary									
Conc-%	Code	Count Mea	····			Max			Std Dev	CV%	%Effect
0	D	5 0.47		0.541	0.406	0.55		2465	0.05512	11.66%	0.00%
16		5 0.42		0.4966	0.334	0.49		2643	0.0591	13.97%	10.45%
22		5 0.49		0.6197	0.401	0.65		1658	0.1042	21.24%	-3.77%
29		5 0.52		0.6004	0.432	0.58		2685	0.06005	11.42%	-11.26%
39		5 0.48		0.5388	0.425	0.52		2116	0.04732	9.86%	-1.57%
52		5 0.50	74 0.4399	0.5749	0.458	0.59	0.02	243	0.05434	10.71%	-7.36%

Analyst:_____ QA:___

06 Jun-19 14:09 (p 2 of 2)

Report Date: Test Code: K1905006FH | 09-8539-9121

Fathead Minn	ow 7-d Larval	Survival an	d Growth T	est			Arkansas Analytical, Inc.
7d Survival R	ate Detail			·			
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	D	0.9000	1.0000	1.0000	1.0000	1.0000	
16		1.0000	0.9000	0.8000	1.0000	0.9000	
22		1.0000	1.0000	1.0000	1.0000	1.0000	
29		0.9000	1.0000	1.0000	1.0000	0.9000	
39		0.9000	1.0000	1.0000	1.0000	1.0000	
52		1.0000	1.0000	0.9000	1.0000	1.0000	
Mean Dry Bio	mass-mg Deta	ail		***************************************			
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	D	0.448	0.406	0.5	0.458	0.551	
16		0.498	0.423	0.334	0.418	0.443	
22		0.653	0.531	0.401	0.413	0.454	
29		0.556	0.506	0.547	0.588	0.432	
39		0.491	0.436	0.525	0.425	0.523	
52		0.533	0.458	0.469	0.487	0.59	
7d Survival R	ate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	D	9/10	10/10	10/10	10/10	10/10	
16		10/10	9/10	8/10	10/10	9/10	
22		10/10	10/10	10/10	10/10	10/10	
29		9/10	10/10	10/10	10/10	9/10	
39		9/10	10/10	10/10	10/10	10/10	
52		10/10	10/10	9/10	10/10	10/10	

Report Date: Test Code:

06 Jun-19 14:15 (p 1 of 2)

K1905006CD | 08-9097-2711

Cladoceran 7	7-d Survival and R	eproduction Te	est									Arka	ansas Ana	lytical, Inc.
Batch ID: Start Date: Ending Date: Duration:	08-0426-2272 15 May-19 11:19 21 May-19 10:09 5d 23h	Test Type Protocol: Species: Source:	EPA/60 Cerioda	luction-Su 00/4-91/00 aphnia du se Culture	02 (1994 ıbia				Anal Dilue Brin Age:	ent: N e: N	∕lod-⊦	a Bird Hard Synth oplicable	netic Water	
-	16-0156-4467 :: 14 May-19 09:00 :: 14 May-19 15:02 :: 26h (2 °C)		City of	006CD Effluent Dumas (A	AR00339	987)			Clier Proj			f Dumas Quarterly	Compliance	e Test (2Q)
Sample Rene	ewals													
Renewal S	Sample Code	Sample Date	Red	ceive Dat	e i	Rer	newal Date		Tem	p °C				
	K1905006B	15 May-19 10:	00 151	May-19 1	4:54	17 I	May-19 00:0	00	2					
2 H	<1905006C	16 May-19 11:	00 17 1	May-19 1	5:27	19 I	May-19 00:0	00	1					
Multiple Con	nparison Summar	y						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
Analysis ID	Endpoint	Cor	nparison	Method				NOE	EL	LOEL		TOEL	TU	PMSD ✓
	2 7d Survival Rate		ner Exact/l		i-Holm T	est		52		> 52		n/a	1.923	n/a
11-5471-2341	1 Reproduction	Ste	el Many-O	ne Rank	Sum Tes	st		52		> 52		n/a	1.923	21.2%
Test Accepta	ability						TAC Li	mits						
Analysis ID	Endpoint	Attı	ibute		Test St	at	Lower	Upp	er	Overla	ар	Decision		
05-9265-6162	2 7d Survival Rate	Cor	trol Resp		1		0.8	>>		Yes		Passes C	riteria	
11-5471-234	1 Reproduction	Cor	trol Resp		30.2		15	>>		Yes		Passes C	riteria	
7d Survival I	Rate Summary													
Conc-%	Code	Count Mea	an 9	5% LCL	95% UC	CL	Min	Max		Std Er	r	Std Dev	CV%	%Effect
0	D	10 1.00	000 1.	.0000	1.0000		1.0000	1.00	000	0.0000)	0.0000	0.00%	0.00%
16		10 1.00	000 1.	.0000	1.0000		1.0000	1.00	000	0.0000)	0.0000	0.00%	0.00%
22		10 1.00	000 1.	.0000	1.0000		1.0000	1.00	000	0.0000)	0.0000	0.00%	0.00%
29		10 1.00	000 1.	.0000	1.0000		1.0000	1.00	000	0.0000)	0.0000	0.00%	0.00%
39		10 1.00		.0000	1.0000		1.0000	1.00		0.0000		0.0000	0.00%	0.00%
52		10 0.9	000 0.	.6738	1.0000		0.0000	1.00	000	0.1000)	0.3162	35.14%	10.00%
Reproductio	on Summary													
Conc-%	Code	Count Me		5% LCL	95% UC	CL	Min	Max		Std Er		Std Dev	CV%	%Effect
0	D	10 30.:		6.06	34.34		17	39		1.831		5.789	19.17%	0.00%
16		10 28.		4.36	32.04		17	36		1.698		5.371	19.05%	6.62%
22		10 33.		0.4	36.4		25	38		1.327		4.195	12.56%	-10.60%
29		10 32.		8.29	36.91		18	39		1.904		6.022	18.47%	-7.95%
39		10 29.		3.86	35.54		13	39		2.582		8.166	27.49%	1.66%
52		10 28.	9 2	3.8	34		16	36		2.253		7.125	24.65%	4.30%

1/1

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52

Report Date: Test Code: 06 Jun-19 14:15 (p 2 of 2)

K1905006CD | 08-9097-2711

Rep 9 1.0000 1.0000 1.0000 1.0000 1.0000	Rep 10 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000	1.0000 1.0000 1.0000
1.0000	1.0000 1.0000
1.0000	1.0000
D 0	D 40
D 0	D 40
Rep 9	Rep 10
33	33
31	34
36	38
35	32
31	20
30	16
Rep 9	Rep 10
1/1	1/1
1/1	1/1
	1/1
1/1	
	1/1
	30 Rep 9 1/1 1/1

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003-589-908-1 CETISTM v1.9.2.6 Analyst:_____ QA:_____

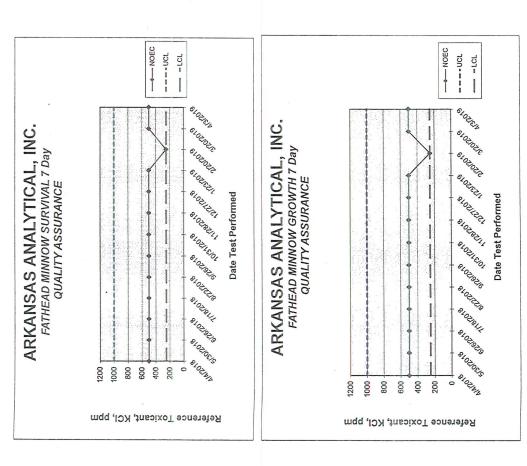
(CHEMICAL D	ATA SHEE	T FOR CHR	ONIC TOXIO	CITY TESTII	NG	Fa	thead Minno	w
	Lab # /	/ Sample ID	K1905	200	Test Start	(Date/Time)	15-15-19	9 /1345	
		Dumas					5-22-10		
		0000000				of Test	1	1 / 1 / 1	
		1	2	3	4	5	6	7	notes
Control	WH502D	5/15	5/16	5/17	5/18	5-19	5/20	5/21	110103
D.O. (mg/L		35	8,2	7.9	8.1	8.75	8.2	8.2	
\	FINAL	7.2	1 30	7.2	X 8 77.9		135	7.5	·
pH (s.u.)	INITIAL	75	7.6	7.8	7.6	81	8.3	8.1	
	FINAL	7.9	100	7.7	1.8 Half	7.1	73	2.3	
temp (C)	INITIAL	22	24	24	24	24	24	24	
	FINAL	25	25	25	25	25	25	25	
ALKALINI		68							
HARDNES		11.2						i	
	IVITY (umho		***************************************			7040-7-10-30-0-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2-2			
CHLORINI		20.05						1	
CONC:	16:1.								
D.O. (mg/L		<u> 8.5</u>	8.2	7.9	7.5	8.3	8.4	8.2	
nH (c ::)	FINAL	72	39	7.6	7.7	7.8	7.8	7, 2	
pH (s.u)	INITIAL FINAL	8.1	18	8.0	7.8	8,0	8.1	8.1	
temp (C)	INITIAL	7.9	75 23	7.9	8.0	7.5	7.4	24	
temp (C)	FINAL		25	24 25	24	25	23 25		
CONC:	22%	25	727			27	- 43	28	
D.O. (mg/L		7.5	8.3	8.1	8.0	813	8.4	8.2	
D.O. (mg/L	FINAL	7.2	7.4	7.4	7.6	7.5	75	6,9	
pH (mg/L)	INITIAL	8,1	7.8	8,0	7.8	8.0	8.1	8.	
p11 (11g/2)	FINAL	7.9	79	7.9	8.0	7.5	75	20	
temp (C)	INITIAL	22	23	24	24	24	23	7.9 25	
	FINAL	25	25	25	26	25	25	25	
CONC:	291.								
D.O. (mg/L		85	8.4	8.2	8.2	83	8.4	8.2	
	FINAL	7.2	78	7.4	7.6	7.5	7.5	6.8	
pH (s.u.)	INITIAL	8.0	79	8.0	7.7	8.0	8.1	8.1	
	FINAL	7,9	712	8.0	8.0	7.6	フラ	7.0	
temp (C)	INITIAL	23	23	24	24	24	23	25	
	FINAL	25	25	25	25	25	25	29	
CONC:	391.								
D.O. (mg/L	7	8.4	8.4	8.2	8.3	813	8.4	8,2	
n11/2	FINAL	45	72	7. lp	7.5	75	7.2	6.8	
pH (s.u.)	INITIAL	8.0	79	7.9	7.7	80	8.1	8.0	
temp (C)	FINAL INITIAL	7.9	72	8.0	8.0	24	7.60	27	
remp (O)	FINAL	23 25	23	24 25	24 25	25	25	25 25	· · · · · · · · · · · · · · · · · · ·
CONC:	52%	ω	247	رت ا	1207	<u> </u>	- 23	63	
D.O. (mg/L		84	8:5	8.2	8.4	8,4	8.5	8.1	
- · · · · · · · · · · · · · · · · · ·	FINAL	6.5	42	7.7	7.3	7.4	7.0	6-8	
pH (s.u.)	INITIAL	8.0	7.8	7.9	7.7	80	8.0	8.0	
	FINAL	7.9	70	8.0	8.0	7.7	7.6	7.6	
temp (C)	INITIAL	23	23	24	25	24	24	26	
	FINAL	25	25	25	25	25	25	25	
CONC:	1001	A	.A	8	В	C	TO T	Ĉ.	
ALKALINIT		66		54		64			
HARDNES	S (mg/L)	98		44		52		· · · · · · · · · · · · · · · · · · ·	
	IVITY (umhq	214		217		219	***************************************	(
CHLORINE	(mg/L)	40.55	CONTRACTOR AND	<0.05	+	40.05			

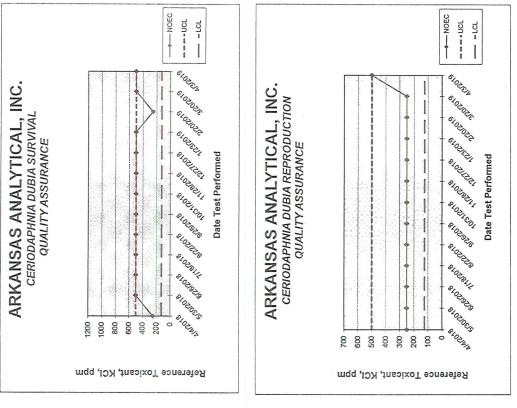
ptp-

CHEMICAL DATA SHEET FOR CHRONIC TOXI	CITY TESTING	Ceriodaphnia Dubia
Lab#/Sample ID 円905006	Test Start (Date/Time)	T-15-19/1119
O 11		

Test End (Date/Time) 5-21-19/1009 Client: Dinna Day of Test 1 2 3 4 5 6 7 notes/remarks Control MHS 020 5/110 5/17 5/20 5/15 15-19 5/18 5/21 D.O. (mg/L) INITIAL 8.5 8.2 7.9 8.1 8,7 8.2 8.2 FINAL 8.4 8.5 8.8 8.6 7.9 20 7.6 pH (s.u.) INITIAL 7.5 7.5 7.6 8. 8.3 8.1 FINAL 8.2 8.2 8.4 8,4 BIL temp (C) INITIAL 22 24 24 24 24 24 FINAL 25 25 25 25 25 75 ALKALINITY (mg/L) '88' HARDNESS (mg/L) 118 CONDUCTIVITY (umhos/cm) 379 CHLORINE (ma/L) 40.CG CONC: 16% D.O. (mg/L)|INITIAL 7.9 7.5 8.5 8:4 8.2 8.5 FINAL 8.6 8.6 7.7 8 81 7.8 8.0 pH (s.u) INITIAL 8.1 7.8 8.0 R.1 8. FINAL 8.3 8.4 8.5 8.0 8.2 B.(INITIAL temp (C) 22 23 24 23 24 24 24 FINAL 25 25 75 25 CONC: 221. D.O. (mg/L) INITIAL 83 8.5 8.1 8.0 83 8.4 8.2 85 8.7 FINAL 88 8:5 ササ pH (mg/L) INITIAL 8,0 7.8 7.8 8.0 8.1 8.1 FINAL 8.3 8.2 85 8.4 8,3 80 23 23 temp (C) INITIAL 24 24 25 25 FINAL 25 25 25 25 CONC: 29% 8.5 8.2 D.O. (mg/L) INITIAL 8.4 8.2 817 8.4 8.2 FINAL R 5 8.8 8.6 8.5 81 7.6 INITIAL pH (s.u.) 79 8,0 8.0 8.0 8. 8.1 7:7 **FINAL** 8.4 8.4 8.3 8:3 8,5 temp (C) INITIAL 23 23 24 25 24 24 23 FINAL 25 25 255 25 75 CONC: 391/ D.O. (mg/L) INITIAL 8.4 8.4 8:4 8.2 8.3 87 8.2 **FINAL** 8.5 8.8 8.4 7.4 8. (8.1 pH (s.u.) INITIAL R.D 7.0 7.9 7.7 800 8.0 8.1 8.3 FINAL 8.3 8.5 8.4 30 8.3 23 25 24 temp (C) INITIAL Z24 24 24 24 25 **FINAL** 25 25 25 25 29 CONC: 52% D.O. (mg/L) INITIAL 8.5 8.9 8.2 8.4 8.4 8.1 FINAL 8.3 85 8.6 7.5 8.1 pH (s.u.) INITIAL 7.7 80 7.8 7.9 8-0 8:0 8. D 8.3 FINAL 83 8.4 8.4 8.3 7.9 INITIAL temp (C) 23 24 23 24 24 26 FINAL 25 2= 25 25 CONC: 100% a 4 C 0 ALKALINITY (mg/L) 1010 52 104 HARDNESS (mg/L) 38 44 52 CONDUCTIVITY (umhos/cm) 214 CHLORINE (mg/L) 40.05 40.05 40.05

5-16-19





Arkansas Analytical, Inc.

Toxicity Test Results

CITY OF DUMAS NPDES PERMIT NUMBER: AR0033987 Third Quarter 2019 AFIN # 21-00045

Fathead Minnow, *Pimephales promelas*, Larval Survival and Growth Test Test 1000.0

Ceriodaphnia dubia, Survival and Reproduction Test Test 1002.0

Prepared for: Pat Fitzgerald
City of Dumas
155 E. Waterman

Dumas, Arkansas, 71639

Prepared by: Arkansas Analytical, Inc.

8100 National Drive

Little Rock, Arkansas 72209 Lab Number K1909008

Plant Location

City of Dumas. The plant is located in Dumas, Arkansas, Highway 165 North in Section 25, Township 9 South, Range 4 West in Desha County, Arkansas.

Test Methods

EPA Method 1000.0 Pimephales promelas, Larval survival and growth test

- Test chambers: 500 mL plastic cups
- Test solution volume: 250 mL
- Number of test organisms per chamber: 10
- Number of replicates per concentration: 5
- Test temperature $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Test concentrations: 0%, 16%, 22%, 29%, 39%, 52%
- Dilution water: Moderately hard synthetic
- No deviation from method

EPA Method 1002.0 Ceriodaphnia dubia, Survival and reproduction test

- Test chambers: 30 mL plastic cups
- Test solution volume: 15 mL
- Number of test organisms per chamber: 1
- Number of replicates per concentration: 10
- Test temperature $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Test concentrations: 0%, 16%, 22%, 29%, 39%, 52%
- Dilution water: Moderately hard synthetic
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

Ceriodaphnia dub	ia 8/7/19-8/13/19	Pimephales pro	melas 8/7/19-8/14/19
NOEC Survival:	500 ppm KCl	NOEC Survival:	500 ppm KCl
LOEC Survival:	1000 ppm KCl	LOEC Survival:	1000ppm KCl
NOEC Reproduction:	250 ppm KCl	NOEC Growth:	500ppm KCl
LOEC Reproduction:	500 ppm KCl	LOEC Growth:	1000 ppm KCl

City of Dumas

Ceriodaphnia dub	ia	Pimephales pro	melas
NOEC Survival Parameter: TOP3B	52%	NOEC Survival Parameter: TOP6C	52%
Pass/Fail Survival Parameter: TLP3B	Pass	Pass/Fail Survival Parameter: TLP6C	Pass
NOEC Reproduction Parameter: TPP3B	52%	NOEC Growth Parameter: TPP6C	52%
Pass/Fail Reproduction Parameter: TGP3B	Pass	Pass/Fail Growth Parameter: TGP6C	Pass
%CV Reproduction Parameter: TQP3B	12.0%	%CV Growth Parameter: TQP6C	11.9%
PMSD Reproduction	15.1%	PMSD Growth	17.8%

Conclusion

Pimephales promelas, (Method 1000.0): The permit issued to the City of Dumas, specifies that the **critical dilution is 39% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Ceriodaphnia dubia, (Method 1002.0): The permit issued to the City of Dumas, specifies that the **critical dilution is 39% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Biomonitoring Analysts: Melissa Bird, Emily Nichols, Jettie Parnell, Hallie Freyaldenhoven

Reviewed by:

Melissa Bird

Appendices

Appendix A	
Appendix B	Fathead minnow data & statistics
Appendix C	
Appendix D	Water chemistry data
Appendix E	



		EOB COMPLETION BY LABOURY	JU MOS FOR CO		
	ннт# 2		6. TEMPERATURE GUN ID:		
	°C	_	5. TEMPERATURE ON RECEIPT:		
	YesNo	. +	4. Received by lab: (Signature) 4. RECEIVED ON ICE:	Date/Time 4. Received b	3. Relinguished by: (Signature)
	YesNo	+	3. COC/LABELS AGREE:	ACT-	0
	_YesNo	ORRECT:	2. CONTAINERS CORRECT:		10000
	YesNo	·k	1. CUSTODY SEALS:	9/17/19	2000 J
REMARKS / SAMPLE COMMENTS		SAMPLE CONDITION UPON RECEIPT IN LAB	2. Received by: (Signature) SAMPLE CO		. Relinguished by: (Signature)
A		×	Water Final Discharge	70-117 X 4	L116-912
700000			Matrix IDENTIFICATION/ DESCRIPTION	Grab Comp	Number Date/s
[A AINA MYO	hronic			OLLECTION Number of Sample	
Order Number:	Toxi		ed	Sampler(s) Printed	Sampler(s) Signature
Arkansas Analytical Work	city		Jesse James	Jesse	Jest (
V = Septum; A = Amber		Bottle Type: P	Email: mbienvenu@mcclelland-engrs.com		
G = Glass; P = Plastic		Preservative Code: 1	Fax: 501-376-4677		Attn: Matt Bienvenu
TERS Bottle Type Code	TEST PARAMET	Routine	Telephone: 501-378-7808		
6. Sodium Hydroxide (NaOH), pH > 12	Nitric Acid (HNO ₃), pH < 2	3 Day (25%) 3. N	Reporting Information	Little Rock, AR 72203-4087	Little Rock, AR 72201
5. Hydrochloric Acid(HCl)	2. Sulfuric Acid (H ₂ SO ₄), pH < 2	2 Day (50%) 2. S	City of Dumas	P.O. Box 34087	1311 W 2nd St.
4. Thiosulfate for Dechlorination	Cool, 6 Degrees Centigrade	1 Day (100%) 1. (Chronic Toxicity	McClelland Consulting Engineers	McClelland Consulting Engineers McClelland Consulting Engineers
on Codes:	Preservation Codes:	Turnaround Time	Project Description	BILLING INFORMATION	CEIENT INFORMATION



CLIENT INFORMATION	BILLING INFORMATION	Project Description	Turnaround Time		Preservation Codes:	
McClelland Consulting Engineers	McClelland Consulting Engineers	Chronic Toxicity		1. Cool, 6 Degrees Centigrade	ade 4. Thiosulfate for Dechlorination	echlorination
1311 W 2nd St.	P.O. Box 34087	City of Dumas		2. Sulfuric Acid (H ₂ SO ₄), pH < 2	<u>51</u>	id(HCI)
Little Rock, AR 72201	Little Rock, AR 72203-4087	Reporting Information		3. Nitric Acid (HNO ₃), pH < 2		e (NaOH), pH > 12
		Telephone: 501-378-7808	Routine	TEST	PARAMETERS	Bottle Type Code
Attn: Matt Bienvenu		Fax: 501-376-4677	Preservative Code:			G = Glass; P = Plastic
		Email: mbienvenu@mcclelland-engrs.com	Bottle Type:	Р		V = Septum; A = Amber
Much	D JUST	Just James		ity		Arkansas
Sampler(s) Signature	Sampler(s) Printed	ted		Гохіс		Analytical Work Order Number:
Field SAMPLE COLLECTION		SAMPLE		ronic		VVINIA
Number Date/s	Time/s Grab Comp Bottles	Matrix IDENTIFICATION/ DESCRIPTION	RIPTION	Ch		* LOUND
1/17-4/18	8R-8R × 4	Water Final Discharge		×	0	7
1. Relinguished by: (Signature)		2. Received by: (Signature) SAMPLE CO	SAMPLE CONDITION UPON R	RECEIPT IN LAB	REMARKS / SAMPLE COMMENTS	MMENTS
JAK S	9/18/19	1. CUSTODY SEALS:	YLS:	YesNo		
	(em)	2. CONTAINERS CORRECT:	CORRECT: _	YesNo		×
		3. COC/LABELS AGREE:	GREE:	YesNo		
3. Relinguished by: (Signature)	Date/Time 4. Received	Received by lab: \Signature\ 4. RECEIVED ON ICE:	ICE:	YesNo		
		<u>5</u>	TEMPERATURE ON RECEIPT:	c		
	MAN A	6. TEMPERATURE GUN ID:		ннт# 2		
	<	_	FOR COMPLETION BY LAB ONLY	AB ONLY		



CLIENT INFORMATION	BILLING INFORMATION	Project Description	Turnaround Timo	Duccount:	
Modelland Consulting Engineers			- 4	T reservation codes:	on codes:
1311 W 2nd St.	P.O. Box 34087	City of Dumas	2 Day (50%)	2 Sulfurio Acid (H SO) NH / 2	4. Infosulate for Dechlorination
Little Rock, AR 72201	Little Rock, AR 72203-4087	Reporting Information		3. Nitric Acid (HNO ₃), pH < 2	6. Sodium Hydroxide (NaOH), pH > 12
		Telephone: 501-378-7808	Routine	TEST PARAMETERS	TERS Bottle Type Code
Attn: Matt Bienvenu		Fax: 501-376-4677	Preservative Code:		0
		Email: mbienvenu@mcclelland-engrs.com	Bottle Type:	P	V = Septum; A = Amber
Charl.	Jes	Jesse James		ity	Arkansas
Sampler(s) Signature	Sampler(s) Printed	led		Гохіс	Order Number:
Field SAMPLE C	SAMPLE COLLECTION Number	SAMPLE		onic 1	
Number Date/s	Time/S Grab Comp Bottles	of Sample IDENTIFICATION/ DESCRIPTION	CRIPTION	Chro	K190908
51/5-81/5	92-90 X 4	Water Final Discharge		×	C
	Date/Time , <u>2. Received</u>	Received by: (Signature) SAMPLE C	SAMPLE CONDITION UPON R	RECEIPT IN LAB REWARK	REMARKS / SAMPLE COMMENTS
1 20 5	9/19/19	1. CUSTODY SEALS:	ALS:	YesNo	
MALIAN		2. CONTAINERS CORRECT:	CORRECT: _	YesNo	
	1 0841	3. COC/LABELS AGREE:	AGREE:	YesNo	
3. Relinguished by: (Signature)	<u>A. Received</u>	Received by lab: (Signature) 4. RECEIVED ON ICE:	ICE:	YesNo	
		5. TEMPERATUR	TEMPERATURE ON RECEIPT:	c	
		6. TEMPERATURE GUN ID:		ннт# 2	
		OUNDER FOR C	FOR COMPLETION BY LAB ONLY	AB ONLY	

Report Date:

07 Oct-19 15:12 (p 1 of 2)

Test Code: K1909008FH | 08-1782-3995

Fathead Minn	now 7-d Larval Su	rvival and Grow	th Test						Arka	ınsas Anal	ytical, Inc.
Batch ID: Start Date: Ending Date: Duration:	16-5076-1681 18 Sep-19 12:40 25 Sep-19 12:05 6d 23h	Test Type Protocol: Species: Source:	: Growth-Survival EPA/821/R-02-0 Pimephales pro Aquatox, AR	013 (200	2)		Analy Dilue Brine Age:	nt: Mod	ssa Bird -Hard Synth Applicable	etic Water	
ACCORDING TO THE COLUMN TO THE	16-2751-8652 : 17 Sep-19 07:00 : 17 Sep-19 14:36 30h (1 °C)	Code: Material: Source: Station:	K1909008FH POTW Effluent City of Dumas (Final Discharge	AR0033	987)		Clien Proje		of Dumas Γ Quarterly (Compliance	Test (3Q)
Sample Rene	ewals										
Renewal S	Sample Code	Sample Date	Receive Da	te	Renewa	Date	Temp	°C			
1 K	(1909008B	18 Sep-19 08:0	0 18 Sep-19 1	4:23	20 Sep-1	9 00:00	1				
2 K	(1909008C	19 Sep-19 09:0	0 19 Sep-19 1	4:20	21 Sep-1	9 00:00	1				
Multiple Com	nparison Summar	y									
Analysis ID	Endpoint	Con	nparison Method			N	NOEL	LOEL	TOEL	TU	PMSD ✓
13-2956-8641	7d Survival Rate	Stee	l Many-One Rank	Sum Te	est	5	52 >	> 52	n/a	1.923	6.01%
19-4672-9475	Mean Dry Weight	t-mg Dun	nett Multiple Com	parison T	Гest	5	52	> 52	n/a	1.923	17.8%
Test Accepta	bility					AC Lim	iits				
Analysis ID	Endpoint	Attr	ibute	Test S	tat Low	er l	Jpper	Overlap	Decision		
13-2956-8641	7d Survival Rate	Con	trol Resp	1	0.8	>	>>	Yes	Passes C	riteria	
7d Survival F	Rate Summary	*									
Conc-%	Code	Count Mea	n 95% LCL	95% U	CL Min	r	Max	Std Err	Std Dev	CV%	%Effect
0	D	5 1.00	1.0000	1.0000	1.00	00 1	1.0000	0.0000	0.0000	0.00%	0.00%
16		5 1.00	1.0000	1.0000	1.00	10 <mark>0</mark> 1	1.0000	0.0000	0.0000	0.00%	0.00%
22		5 0.96		1.0000			1.0000	0.0245	0.0548	5.71%	4.00%
29		5 1.00	1.0000	1.0000			1.0000	0.0000	0.0000	0.00%	0.00%
39		5 0.96		1.0000			1.0000	0.0245	0.0548	5.71%	4.00%
52		5 0.98	300 0.9245 	1.0000	0.90	000	1.0000	0.0200	0.0447	4.56%	2.00%
Mean Dry W	eight-mg Summar	ry .									
Conc-%	Code	Count Mea					Max	Std Err	Std Dev	CV%	%Effect
0	D	5 0.43		0.5001			0.494	0.02315	0.05176	11.88%	0.00%
16		5 0.49		0.591	0.4		0.582	0.03574	0.07991	16.25%	-12.85%
22		5 0.45		0.5052			0.504	0.01929	0.04314	9.55%	-3.63%
29		5 0.42		0.467	0.38		0.474	0.01571	0.03513	8.30%	2.85%
39		5 0.39		0.436	0.34		0.433	0.01571	0.03514	8.96%	9.96% 14.46%
52		5 0.3	728 0.3063	0.4393	3 0.30	la (0.445	0.02396	0.05357	14.37%	14.4070

Report Date: Test Code:

07 Oct-19 15:12 (p 2 of 2)

K1909008FH | 08-1782-3995

Fathead Minno	ow 7-d Larval	Survival and	d Growth T	est			,	Arkansas Analytical, Inc.
7d Survival Ra	ate Detail							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5		
0	D	1.0000	1.0000	1.0000	1.0000	1.0000		
16		1.0000	1.0000	1.0000	1.0000	1.0000		
22		0.9000	0.9000	1.0000	1.0000	1.0000		
29		1.0000	1.0000	1.0000	1.0000	1.0000		
39		0.9000	1.0000	0.9000	1.0000	1.0000		
52		1.0000	1.0000	1.0000	0.9000	1.0000		
Mean Dry Wei	ght-mg Detail							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5		
0	D	0.381	0.47	0.494	0.382	0.452		
16		0.533	0.415	0.582	0.4	0.529		
22		0.389	0.434	0.504	0.459	0.472		
29		0.404	0.38	0.425	0.434	0.474		
39		0.433	0.345	0.369	0.403	0.412		
52		0.309	0.349	0.353	0.408	0.445		
7d Survival R	ate Binomials							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5		
0	D	10/10	10/10	10/10	10/10	10/10		
16		10/10	10/10	10/10	10/10	10/10		
22		9/10	9/10	10/10	10/10	10/10		
29		10/10	10/10	10/10	10/10	10/10		
39		9/10	10/10	9/10	10/10	10/10		
52		10/10	10/10	10/10	9/10	10/10		

CETIS™ v1.9.2.6

Report Date:

07 Oct-19 13:21 (p 1 of 2)

Test Code:

K1909008CD | 09-5108-0655

Cladoceran 7	7-d Survival and R	eproduction Tes	t						Arka	ansas Anal	ytical, Inc.
Batch ID: Start Date: Ending Date: Duration:	14-7308-6681 18 Sep-19 10:06 24 Sep-19 10:00 6d	Test Type: Protocol: Species: Source:	Reproduction-Si EPA/600/4-91/0 Ceriodaphnia du In-House Cultur	002 (1994) ubia			Ana Dilu Brin Age	ent: Mo	elissa Bird od-Hard Synth ot Applicable 4	etic Water	
1.5	13-2178-5787 : 17 Sep-19 07:00 : 17 Sep-19 14:36 27h (1 °C)	Code: Material: Source: Station:	K1909008CD POTW Effluent City of Dumas (, Final Discharge		7)		Clie Proj		ty of Dumas ET Quarterly (Compliance	Test (3Q)
Sample Rene	ewals										
Renewal S	Sample Code	Sample Date	Receive Dat	te Re	enewal	Date	Tem	ıp °C			
	K1909008B	18 Sep-19 08:00	18 Sep-19 1	4:23 20	Sep-1	9 00:00	1				
2 k	<1909008C	19 Sep-19 09:00	19 Sep-19 1	4:20 21	Sep-1	9 00:00	1				
Multiple Con	nparison Summar	у									
Analysis ID	Endpoint	Com	parison Method			N	OEL	LOEL	TOEL	TU	PMSD ✓
	7d Survival Rate		r Exact/Bonferror	ni-Holm Tes	st	52	2	> 52	n/a	1.923	n/a
01-1060-5666	6 Reproduction	Dunn	ett Multiple Comp	oarison Tes	st	52	2	> 52	n/a	1.923	15.1%
Test Accepta	ability				т	AC Limi	ts				
Analysis ID	Endpoint	Attril	oute	Test Stat			pper	Overlap	Decision		
11-5328-6055	5 7d Survival Rate	Cont	ol Resp	1	0.8	>:	>	Yes	Passes C	riteria	
01-1060-5666	6 Reproduction	Cont	rol Resp	29.4	15	>:	>	Yes	Passes C	riteria	
7d Survival I	Rate Summary										
Conc-%	Code	Count Mear	95% LCL	95% UCL	Min	IV	ax	Std Err	Std Dev	CV%	%Effect
0	D	10 1.000	00 1.0000	1.0000	1.000	00 1	.0000	0.0000	0.0000	0.00%	0.00%
16		10 1.000	1.0000	1.0000	1.000	00 1	.0000	0.0000	0.0000	0.00%	0.00%
22		10 1.000	1.0000	1.0000	1.000	00 1	.0000	0.0000	0.0000	0.00%	0.00%
29		10 1.000	1.0000	1.0000	1.000	00 1	.0000	0.0000	0.0000	0.00%	0.00%
39		10 1.000	1.0000	1.0000	1.000	00 1	.0000	0.0000	0.0000	0.00%	0.00%
52		10 1.000	1.0000	1.0000	1.000	00 1	.0000	0.0000	0.0000	0.00%	0.00%
Reproductio	on Summary										
Conc-%	Code	Count Mea	n 95% LCL	95% UCL	. Min	IV	lax	Std Err	Std Dev	CV%	%Effect
0	D	10 29.4	26.89	31.91	24	3	5	1.108	3.502	11.91%	0.00%
16		10 25.7	22.21	29.19	18	3		1.542	4.877	18.98%	12.59%
22		10 25.8	21.67	29.93	13	3		1.825	5.77	22.36%	12.24%
29		10 24.4	20.8	28	17	3		1.593	5.038	20.65%	17.01%
39		10 24.2	22.13	26.27	20	2		0.9165	2.898	11.98%	17.69%
52		10 25.9	23.65	28.15	22	3	1	0.9939	3.143	12.13%	11.90%

1/1

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1/1

1/1

Report Date: Test Code:

07 Oct-19 13:21 (p 2 of 2)

K1909008CD | 09-5108-0655

Cladoceran 7-d Survival and Reproduction Test	Arkansas Analytical, Inc.
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Cladoceran 7-	d Survival and	d Reproduct	tion Test						Arl	kansas Ana	lytical, Inc
7d Survival R	ate Detail			, , , , , , , , , , , , , , , , , , , ,							W 5 VE V.
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
52		1.0000	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	D	28	29	27	34	27	31	27	24	32	35
16		26	27	30	20	24	18	33	30	28	21
22		31	26	20	24	25	13	29	32	30	28
29		26	28	19	21	33	17	25	26	29	20
39		21	22	26	22	28	26	20	27	27	23
52		28	22	23	27	30	26	23	31	26	23
7d Survival R	ate Binomials							· · · · · · · · · · · · · · · · · · ·			
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
16		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
22		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
29		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

003-589-908-1

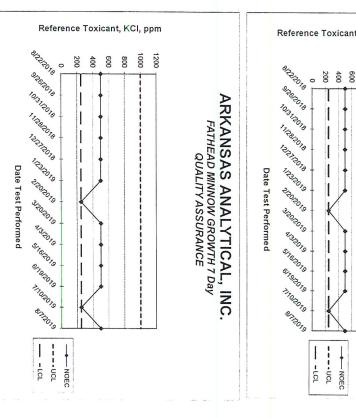
39

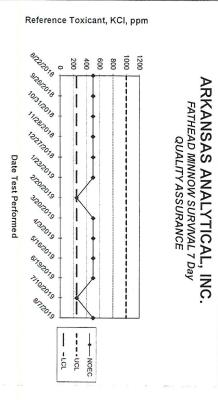
52

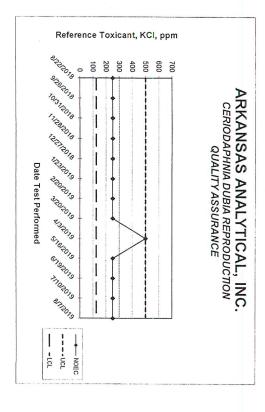
CETIS™ v1.9.2.6

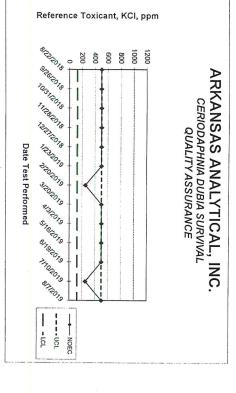
	CHEMICAL D	ATA SHEE	T FOR CHR	ONIC TOXÍO	CITY TESTI	NG	Fa	thead Minno	ow
			K19091			t (Date/Time)			
	Client:			108					
	Cilett.	Dung	<u> </u>			(Date/Time)	1-25-19	11800	
					Day	of Test		r	
		1	2	3	4	, 5	, 6	.7	notes
Control .	M45038	9118	9/19	9/20	9/21	7/22	9/23	9/24	MH5039
D.O. (mg/L		8.5	8.0	41.3	872	62	8-3	8.5	usedals
	FINAL	76	7.6	814	7.9	7.6	7.8	7.7	
pH (s.u.)	INITIAL	0.01	8.5	8.1	8,2	813	7.7	7.6	
-	FINAL	10.8	6.6	80	8,2	7.1	7.1	7.5	2
temp (C)	INITIAL	521	22	20	22 -	22	2623	21	AP 423
(0)	FINAL	25	25	25	29	25	25	25	,,,,
ALKALINIT		64	0	68		000	~ 3	~ 5	
HARDNES		88		84					
	IVITY (umho		7	317					
									-
CHLORINE	THE RESERVE AND ADDRESS OF THE PARTY OF THE	20.05		10.05					
CONC:	16%						***		
D.O. (mg/L		8.6	8.3	8.5	814	85	8.5	8.5	
	FINAL	7.6	7.5	8.4	77	76	7.8	7.7	
pH (s.u)	INITIAL	8.7	8,2	8.1	8,3	8,5	7.8	7.7	
	FINAL	6.9		83	8.2	7.3	7.6	7.4	
temp (C)	INITIAL	22	21	20	23	22	21	01	
	FINAL	25	25	20	25	25	25	25	
CONC:	22%			,				,	
D.O. (mg/L		8.6	8.4	84	8.5	816	8.4	8.4	
3.0. (mg/2	FINAL	7.6	7.4	84		7.17	7.8	7.7	
oH (mg/L)	INITIAL	8.6	87	8.4	6,3	8.4	7,9	7.8	-
orr (mg/L)	FINAL	8.0	8.2	814	8,2	7.4	-2	7.5	
temp (C)	INITIAL	22	200		23	22	22	3.7	<u> </u>
terrib (C)	FINAL	25	22	20		25		2	-
CONO		23	25	25	25	23	25	25	
CONC:	291/-	-2 /	0.11	0.5	95.c	161-	711	67 4 4	
D.O. (mg/L	/	8.6	8.4	8.5	815	8.6	8.4	8.4	
	FINAL	7.6	7.6	814	74	7.8	3.0	7.8	
oH (s.u.)	INITIAL	8.6	8.2	82	8.3	824	7.9	7,9	
	FINAL	8,0	7.4	83	8.3	11,5	7.8	7.6	
temp (C)	INITIAL	22	22	20	23	22	22	20	
	FINAL	25	25	25	25	25	25	25	
CONC:	39 %					1			
D.O. (mg/L	INITIAL	8.6	8.4	8.5	8.4	8.0	8.5	8.4	
	FINAL	7.6	7.5	83	7:4	7.8	7.8	7.8	
oH (s.u.)	INITIAL	8.5	8,2	8.2	812	84	8.0	8.0	
(-,)	FINAL	8.2	7.5	803	84	7.6	8.0	7.6	
emp (C)	INITIAL	22	22	20	23	23	22	120	
	FINAL	25	25	25	25	25	25	25	1
CONC:	52%	703			0-1	~ 3 .	100	121	+
D.O. (mg/L		8.5	8.3	8.9	8.4	412	8.9	7.4	1
D.O. (Hig/L			7.5			86	0.7		+
-11/	FINAL	7,5		83	76	7.8	7.9	7.9	
oH (s.u.)	INITIAL	8.5	8.4	8.2	8.2	84	8.1	8.1	
	FINAL	8.3	7,6	8.4	84	717	8.1	7.7	
emp (C)	INITIAL	22	22	30	23'	23	22	20	
	FINAL	25	25	25	25	25	25	25	
CONC:	100%	A	A	B	C	C	B	C	
ALKALIMIT	Y (mg/L)	120		132	134	4	132	134	
ALIVALIINII		32		30	50	4	30	50	
	S (mg/L)	Ja							
HARDNES	S (mg/L) TVITY (umho			343	346	0-41	343	346	

CHE	MICAL DATA SHE	ET FOR	CHRON	IC TOXIC	ITY TES	TING			eriodaphnia Dubia
- Offic	Lab # / Sampl	le ID KI	TOPOL	58	Test	Start (Da	te/Time)		9/1006
	Client: Dun	nas							19/1000
						Day of	Test		
		1	2	.3	4	5	,6	7	notes/remarks
Control	MH 5 0 38	9/18	9/19		9/21	9/22	9/23	9/24	MHS 039
D.O. (mg/L)	INITIAL	8.5		7.3		812	8.3	8.5	used 9/20
D.O. (1119/2)	FINAL	8:3	8.9	11,9	8.2	8.3	7.9		
pH (s.u.)	INITIAL	8.7	8.5		8,2	8.3	7.5	7,6	
pri (3.d.)	FINAL	8.4	87	8.4	8.5	8.3	8.3		
temp (C)		刘	22	20	22	22	23	21	
temp (o)	FINAL	25	25	25	25	25	25		
ALKALINIT`		64		68					
HARDNESS		88		84	green members and a				
	'ITY (umhos/cm)	294		317	-				
CHLORINE		4D.05		20.05					
	NAME AND ADDRESS OF THE OWNER, WHEN PERSON NAMED IN	20.03		20.03					
CONC:	INITIAL	9.6	8.3	8.5	84	8,5	8.5	8.5	
D.O. (mg/L)	FINAL			8.0	8.1	8.2	7.9	0,7	
117		8.3	8.8	8.1	83	85	1.8	7.7	
pH (s.u)	INITIAL		0.4	8.4	7.5	8.3	8.3	16 1	
, , , , ,	FINAL	8.5	8.7		23		21	21	
temp (C)	INITIAL	22	21	20		25	25	2	
	FINAL	25	25	25	25	des	25		
CONC:	22.1.		0.1	51.26	-	@ la	211	8 11	
D.O. (mg/L)		8.6	8.4	8.4	85	8.60	8.4	8,4	
	FINAL	8.3	8.8	7.8	8.1	8.2	8.0	100	
pH (mg/L)	INITIAL	8.6	8.2	8.1	812	6.2	719	7.8	
	FINAL	8,5	8.7	8,4	8:4	23	8.4		
temp (C)	INITIAL	72	22	20	23		10	21	
	FINAL	25	25	25	25	25	25		
CONC:	29%						i i	1	
D.O. (mg/L)	INITIAL	8.6	8.4	7.5	8.5	8.6	8.4	8.4	
	FINAL	8.3	8.8	7.7	7.1	8.2	8.0		
pH (s.u.)	INITIAL	₹.6	8.2	8.2	8.3	8,4	7.9	.7,9	
	FINAL	8.5	8.7	8.4	8.5	8.3	8.4		
temp (C)	INITIAL	23 25	22	20	23	22	ラス	20	
(a)	FINAL	25	25	25	25	25	25		4
CONC:	39 %								ž.
D.O. (mg/L)		8.6	8.4	8.5	8,4	8.6	8.5	7,4	
2.0. (mg/2)	FINAL	8.4	8.8	7.6	8.1	8.2	8.0		
pH (s.u.)	INITIAL	8.5	8.2	8.2	8.2	84	8.0	8,6	
pri (0.d.)	FINAL	8.6	8.7	8.4	8.5	8.3	8,4		
temp (C)	INITIAL	22	22	20	23	25	22	20	×
terrip (e)	FINAL	25	25	25	25	25	25		
CONC:	52%	,00			1				
D.O. (mg/L	VINITIAI	2.5	8.3	8.5	8.4	86	8.5	7.4	
D.O. (mg/L	FINAL	8.4	8.7	7,6	8,1	8.2		1 "	
р Ц (с. и.)	INITIAL	8.5	8.4	8.7	8,2	84	8.1	8,1	
pH (s.u.)	FINAL	85	8.7	8.4	8.5	8.3	8.4	100	
toma (C)	INITIAL	8.5	22	30	20	23	22	20	
temp (C)	FINAL	25	25	25	25	25	25	100	
CONC				NO B		0	B	C	
CONC:	100%	A	A		NAME OF STREET OFFICE ADDRESS OF TAXABLE PARTY.		NAME AND ADDRESS OF THE OWNER, WHEN	134	
ALKALINIT		120		132	134		1 132	50	
HARDNES		32	-	30	50			34(
	IVITY (umhos/cm)			1 343			343	1000	2
CHLORINE	(mg/L)	10.05		1 40.05	40.05		1 40.05	40.0	2









Arkansas Analytical, Inc.

Toxicity Test Results

CITY OF DUMAS NPDES PERMIT NUMBER: AR0033987 Fourth Quarter 2019 AFIN # 21-00045

Fathead Minnow, Pimephales promelas, Larval Survival and Growth Test Test 1000.0

Ceriodaphnia dubia, Survival and Reproduction Test Test 1002.0

Prepared for: Pat Fitzgerald City of Dumas 155 E. Waterman

Dumas, Arkansas, 71639

Prepared by: Arkansas Analytical, Inc.

8100 National Drive

Little Rock, Arkansas 72209

Lab Number K1912004

Monday, December 30, 2019

Plant Location

City of Dumas. The plant is located in Dumas, Arkansas, Highway 165 North in Section 25, Township 9 South, Range 4 West in Desha County, Arkansas.

Test Methods

EPA Method 1000.0 Pimephales promelas, Larval survival and growth test

- Test chambers: 500 mL plastic cups
- Test solution volume: 250 mL
- Number of test organisms per chamber: 10
- Number of replicates per concentration: 5
- Test temperature 25°C ± 1°C
- Test concentrations: 0%, 16%, 22%, 29%, 39%, 52%
- Dilution water: Moderately hard synthetic
- No deviation from method

EPA Method 1002.0 Ceriodaphnia dubia, Survival and reproduction test

- Test chambers: 30 mL plastic cups
- Test solution volume: 15 mL
- Number of test organisms per chamber: 1
- Number of replicates per concentration: 10
- Test temperature 25°C ±: 1°C
- Test concentrations: 0%, 16%, 22%, 29%, 39%, 52%
- Dilution water: Moderately hard synthetic
- No deviation from method

Reference Toxicant Data

REFERENCE TOXICANT (Potassium Chloride)

Ceriodaphnia dubia	11/20/19-11/27/19	Pimephales prom	elas 11/20/19-11/27/19
NOEC Survival:	250 ppm KCl	NOEC Survival:	500 ppm KCl
LOEC Survival:	500 ppm KCl	LOEC Survival:	1000ppm KCl
NOEC Reproduction:	250 ppm KCl	NOEC Growth:	500ppm KCl
LOEC Reproduction:	500 ppm KCl	LOEC Growth:	1000 ppm KCl

City of Dumas

Ceriodaphnia dub	ia	Pimephales pro	melas
NOEC Survival Parameter: TOP3B	52%	NOEC Survival Parameter: TOP6C	52%
Pass/Fail Survival Parameter: TLP3B	Pass	Pass/Fail Survival Parameter: TLP6C	Pass
NOEC Reproduction Parameter: TPP3B	52%	NOEC Growth Parameter: TPP6C	52%
Pass/Fail Reproduction Parameter: TGP3B	Pass	Pass/Fail Growth Parameter: TGP6C	Pass
%CV Reproduction Parameter: TQP3B	35.4%	%CV Growth Parameter: TQP6C	15.4%
PMSD Reproduction	32.0%	PMSD Growth	15.2%

Conclusion

Pimephales promelas, (Method 1000.0): The permit issued to the City of Dumas, specifies that the **critical dilution is 39% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Ceriodaphnia dubia, (Method 1002.0): The permit issued to the City of Dumas, specifies that the **critical dilution is 39% effluent**. The effluent samples **did not** exhibit lethal or sublethal effects at the critical dilution, and, as such, **passed** both portions of the test.

Biomonitoring Analysts: Melissa Bird, Emily Nichols, Jettie Parnell, Sean Stokes, Sam Petty

Reviewed by:

Melissa Bird

Appendices

Appendix A	Chains of custody
Appendix B	Fathead minnow data & statistics
Appendix C	
Appendix D	
Appendix E	



8100 National Dr. Little Rock, AR 72209 PHONE: 501-455-3233 FAX: 501-455-6118

CHAIN OF CUSTODY RECORD

CLIENT INFORMATION		Project Description		Turnaround Time			Preservation Codes:	n Codes:	
McClelland Consulting Engineers		Chronic Toxicity	icity	1 Day (100%)	1. Cool, 6 Degrees Centigrade	s Centigrade		4. Thiosulfate for Dechlorination	echlorination
7302 Kanis Rd.		City of Dumas	las	2 Day (50%)	2. Sulfuric Acid (H ₂ SO ₄), pH < 2	H,SO,), pH <	2	5. Hydrochloric Acid(HCl)	J(HCI)
Little Rock, AR 72204		Reporting Information	rmation	3 Day (25%)	3. Nitric Acid (HNO ₃), pH < 2	VO ₃), pH < 2		6. Sodium Hydroxide (NaOH), pH > 12	: (NaOH), pH > 12
		Telephone: 501-378-7808	78-7808	Routine		TEST P	ARAMETE	ERS	Bottle Type Code
Attn: Matt Bienvenu		Fax: 501-376-4677	4677	Preservative Code:	-				G = Glass; P = Plastic
		Email: mbienvenu@mcclelland-engrs.com	lland-engrs.com	Bottle Type:	Ь				V = Septum; A = Amber
Sampler(s) Signature	Sampler(s) Printed	JAral S		,	Coxicity			-	Arkansas Analytical Work Order Number:
Field SAMPLE COLLECTION Number Date/s Time/s	Number of Sample Grab Comp Bottles Matrix		SAMPLE IDENTIFICATION/ DESCRIPTION	NOILON	_ sinondO	-		-	KIGIZDOCT
12/0-12/2 0,	×	ledi			×				₹ A
1. Relinquished by: (Signature) Date/Time	2. Received b	2. Received by: (Signature)	SAMPLE CONDITION I 1. CUSTODY SEALS: 2. CONTAINERS CORRECT:	SAMPLE CONDITION UPON RECEIPT IN LAB STODY SEALS: Ves NTAINERS CORRECT: Yes N	Yes No		REMARK	REMARKS / SAMPLE COMMENTS	MMENTS
3. Relinquished by: (Signature) Date/Time	4. Received t	Received by lab: (Signature) 4	3. COC/LABELS AGREE: 4. RECEIVED ON ICE:	SREE:	Yes No	0 0			
	J. J	dele s.	TEMPER.	⊢	labonly				
	1	1							



8100 National Dr. Little Rock, AR 72209 PHONE: 501-455-3233 FAX: 501-455-6118

CHAIN OF CUSTODY RECORD

CLIENT INFORMATION	NO		Project Description		Turnaround Time			Preservation Codes.	Codos.		
		T	idunosa socio:	Ī	=;=			Tresci varion	Concs.		
McClelland Consulting Engineers	ig Engineers		Chronic Toxicity	A	1 Day (100%)	1. Cool, 6 Degrees Centigrade	Centigrade		4. Thiosulfate for Dechlorination	or Dechlor	nation
7302 Kanis Rd.			City of Dumas		2 Day (50%)	2. Sulfuric Acid (H2SO4), pH < 2	SO ₄), pH < 2		5. Hydrochloric Acid(HCI)	c Acid(HCl	
Little Rock, AR 72204	104		Reporting Information	ation	3 Day (25%)	3. Nitric Acid (HNO ₃), pH < 2	J ₃), pH < 2		6. Sodium Hydroxide (NaOH), pH > 12	oxide (NaC	H), pH > 12
			Telephone: 501-378-7808	2808	Routine	Τ (TEST PA	ARAMETI	TERS		Bottle Type Code
Attn: Matt Bienvenu	п		Fax: 501-376-4677		Preservative Code:	_					G = Glass; P = Plastic
		Ema	Email: mbienvenu@mcclelland-engrs.com	d-engrs.com	Bottle Type:	Ь					V = Septum; A = Amber
Sampler(s) Signature	Sar	JESSL JAM	7ml5			ytioixo			,	- A O	Arkansas Analytical Work Order Number:
Field	E COLLE	Number of Sample		SAMPLE		L oinon					0.01
Number	┢	Bottles Matrix	IDENTIFICATION/ DESCRIPTION	TION/ DESCE	IPTION	Ch					-1617
77	x 201-401 (1/6)-0/K1	4 Water	Water Final Discharge			×					604 B
1. Bolinguished by: (Signature)	Date/Time /	2. Received by: (Signature)	ignature)	SAMPLE CO	SAMPLE CONDITION UPON RECEIPT IN LAB	CEIPT IN LAB		REMARKS	REMARKS / SAMPLE COMMENTS	COMME	NTS
Jan 1	12/11/01		 O	CUSTODY SEALS:	Š	V Yes No					
	1227		.; O	CONTAINERS CORRECT:	ORRECT:	Yes No					
	1001		3. 0	3. COC/LABELS AGREE:	REE:	Yes No					
3. Relinguished by: (Signature)	Date/Time	4. Received by lab: (Signature)		4. RECEIVED ON ICE:	ij.	Yes No					
		N CV	5. TE	5. TEMPERATURE ON RECEIPT:		2 °c					
		5	E	TEMPERATURE GUN ID:		HHT# 2					
		\bigcirc	7	FOR CC	FOR COMPLETION BY LAB ONLY	AB ONLY					



8100 National Dr. Little Rock, AR *7*2209 PHONE: 501-455-3233 FAX: 501-455-6118

CHAIN OF CUSTODY RECORD

CLIENT INFORMATION	TION		Project Description		Turnaround Time		Preserva	Preservation Codes:		
McClelland Consulting Engineers	ing Engineers		Chronic Toxicity	oxicity	1 Day (100%)	1. Cool, 6 Degrees Centigrade	entigrade	4. Thiosulfate for Dechlorination	for Dechlor	ination
7302 Kanis Rd.			City of Dumas	ımas	2 Day (50%)	2. Sulfuric Acid (H2SO4), pH < 2	O ₄), pH < 2	5. Hydrochloric Acid(HCI)	ric Acid(HC	
Little Rock, AR 72204	204		Reporting Information	ormation	3 Day (25%)	3. Nitric Acid (HNO ₃), pH < 2), pH < 2	6. Sodium Hydroxide (NaOH), pH > 12	Iroxide (NaC	H), pH > 12
			Telephone: 501-378-7808	378-7808	Routine	TE	TEST PARAME	ETERS		Bottle Type Code
Attn: Matt Bienvenu	nπ		Fax: 501-376-4677		Preservative Code:	1				G = Glass; P = Plastic
			Email: mbienvenu@mcclelland-engrs.com	stelland-engrs.com	Bottle Type:	Ь				V = Septum; A = Amber
Sampler(s) Signature		JCSK J	ESSE THINES			oxicity				Arkansas Analytical Work Order Number:
Field	SAMPLE COLLECTION Date/s Time/s Grab	Number Sample of Sample Comp Bottles Matrix		SAMPLE IDENTIFICATION/ DESCRIPTION	NOILLI	Chronic 7		-		KIGIEDON
7/	14/1-17/12 11/0-11/0	X 4	Water Final Discharge			×				<u>ن</u>
]. Relinguished by: (Signature)	Signature) Date/Time ,	 <u>2. Received by: (Signature)</u>	/: (Signature)	SAMPLE COI	SAMPLE CONDITION UPON RECEIPT IN LAB	ECEIPT IN LAB	REMA	REMARKS / SAMPLE COMMENTS	COMME	NTS
	14/19 (1420)			1. CUSTODY SEALS: 2. CONTAINERS CORRECT: 3. COC/LABELS AGREE:	S: ORRECT:	Yes No Yes No Yes No				
3. Relinquished by: (Signature)	Signature) Date/Time	4. Received by	Received by lab: (Signature)	4. RECEIVED ON ICE: 5. TEMPERATURE ON RECEIPT: 6. TEMPERATURE GUN ID: FOR COMPLETION B	≻	Yes No HHT# Z				

Report Date:

30 Dec-19 11:23 (p 1 of 2)

Test Code/ID:

K1912004FH / 19-4237-4547

Fathead M	innow 7-d Larval Su	ırvival and Grov	vth Test							Arkansas	Analytic	al
-	02-8642-1075 : 11 Dec-19 13:11 te: 18 Dec-19 12:40 th: 6d 23h	Test Type Protocol: Species: Taxon:	e: Growth-Surviva EPA/821/R-02- Pimephales pro Actinopterygii	-013 (2002	?)		Analy Dilue Brine Sour	nt: Mo	ily Nichols d-Hard Synth Applicable uatox, AR	netic Water	Age: <2	24
Sample ID:		Code:	K1912004FH				Proje	ct: WE	T Quarterly	Compliance	Test (4Q	!)
Sample Da	ate: 10 Dec-19 09:00	Material:	Industrial Efflue	ent			Sour	ce: Dui	mas (AR003	3987)		
Receipt Da	ate: 10 Dec-19 14:24	CAS (PC)	:				Stati	on:				
Sample Ag	ge: 28h (1 °C)	Client:	Dumas									
Sample Re	enewals											
Renewal	Sample Code	Sample Date	Receive Da	ate I	Renewal [Date	Tem	o °C				
1	K1912004B	11 Dec-19 10:0	00 11 Dec-19	15:34	13 Dec-19	00:00	2					
2	K1912004C	12 Dec-19 11:0	00 12 Dec-19	14:30	15 Dec-19	00:00	1					
Multiple C	omparison Summar	у										
Analysis II	D Endpoint	Con	nparison Method	I		√ NC	DEL	LOEL	TOEL	TU	PMSD	S
06-9763-62	217 7d Survival Rate	Stee	el Many-One Rank	Sum Tes	st	52		>52	n/a	1.923	4.07%	1
17-3123-36	647 Mean Dry Bioma	ss-mg Dun	nett Multiple Com	parison T	est	52		>52	n/a	1.923	15.2%	1
Test Acce	ptability				TΑ	C Limit	s					_
Analysis II	D Endpoint	Attr	ibute	Test Sta	at Lowe		per	Overlap	Decision			
06-9763-62	217 7d Survival Rate	Con	trol Resp	1	0.8	>>		Yes	Passes C	riteria		
17-3123-36	647 Mean Dry Bioma	ss-mg Con	trol Resp	0.5744	0.25	>>		Yes	Passes C	riteria		
17-3123-36	647 Mean Dry Bioma	ss-mg PMS	SD	0.1524	0.12	0.3	3	Yes	Passes C	riteria		
7d Surviva	al Rate Summary											
Conc-%	Code	Count Mea	n 95% LCL	95% UC	L Min	Ma	ax	Std Err	Std Dev	CV%	%Effec	:t
0	L	5 1.00	1.0000	1.0000	1.000	1.0	0000	0.0000	0.0000	0.00%	0.00%	
16		5 1.00		1.0000	1.000		0000	0.0000	0.0000	0.00%	0.00%	
22		5 1.00		1.0000	1.000		0000	0.0000	0.0000	0.00%	0.00%	
29		5 1.00		1.0000	1.000		0000	0.0000	0.0000	0.00%	0.00%	
39		5 0.98		1.0000	0.900		0000	0.0200	0.0447	4.56%	2.00%	
52		5 1.00	1.0000	1.0000	1.000	0 1.0	0000	0.0000	0.0000	0.00%	0.00%	
Mean Dry	Biomass-mg Summ	ary										
Conc-%	Code	Count Mea				Ma		Std Err	Std Dev	CV%	%Effe	
0	L	5 0.57		0.6841	0.518		725	0.03951	0.08835	15.38%	0.00%	
16		5 0.52		0.5673	0.483		576	0.01546	0.03456	6.59%	8.70%	
22		5 0.55		0.5993	0.511		808	0.01561	0.03491	6.28%	3.20%	
29		5 0.52		0.5993	0.444		599	0.02699	0.06036	11.51%	8.71%	
39		5 0.52		0.5943	0.442		596	0.02591	0.05793	11.09%	9.05%	
52		5 0.5	11 0.4386	0.5834	0.444	0.	579	0.02607	0.0583	11.41%	11.04%	6

Report Date: Test Code/ID: 30 Dec-19 11:23 (p 2 of 2) K1912004FH / 19-4237-4547

athead Minno	ow 7-d Larval	Survival and	d Growth Te	est .			Arkansas Analytica
d Survival Ra	te Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	L	1.0000	1.0000	1.0000	1.0000	1.0000	
16		1.0000	1.0000	1.0000	1.0000	1.0000	
22		1.0000	1.0000	1.0000	1.0000	1.0000	
29		1.0000	1.0000	1.0000	1.0000	1.0000	
39		0.9000	1.0000	1.0000	1.0000	1.0000	
52		1.0000	1.0000	1.0000	1.0000	1.0000	
Mean Dry Bio	mass-mg Deta	ıil					
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	L	0.524	0.725	0.583	0.522	0.518	
16		0.483	0.576	0.522	0.534	0.507	
22		0.511	0.555	0.608	0.545	0.561	
29		0.519	0.599	0.565	0.444	0.495	
39		0.493	0.596	0.537	0.442	0.544	
52		0.521	0.444	0.459	0.552	0.579	
7d Survival R	Rate Binomials						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	
0	L	10/10	10/10	10/10	10/10	10/10	
16		10/10	10/10	10/10	10/10	10/10	
22		10/10	10/10	10/10	10/10	10/10	
29		10/10	10/10	10/10	10/10	10/10	
39		9/10	10/10	10/10	10/10	10/10	
52		10/10	10/10	10/10	10/10	10/10	

Report Date:

30 Dec-19 11:36 (p 1 of 2)

Test Code/ID:

K1912004CD / 10-4432-1364

	a 7-u Survivai and	l Reproduction	lest							Arkansas	Analytic	al
Batch ID: Start Date: Ending Date Test Length:	17-0591-9368 11 Dec-19 09:30 : 18 Dec-19 09:45 7d 0h	Protocol:	e: Reproduction EPA/821/R- Ceriodaphn Branchiopo	-02-013 (2002 ia dubia	,		Analyst: Diluent: Brine: Source:	Mod-H Not Ap	Nichols lard Synth pplicable se Cultur	netic Water e	Age: <	:24
-	15-3478-2678 :: 10 Dec-19 09:00 :: 10 Dec-19 14:24 : 25h (1 °C)	Code: Material: CAS (PC) Client:	K1912004C Industrial Et : Dumas				Project: Source: Station:		Quarterly (s (AR0033	Compliance 3987)	e Test (40	2)
Sample Rene	ewals											_
Renewal S	Sample Code	Sample Date	Receive	Date I	Renewal D	ate	Temp °C					
	(1912004B (1912004C	11 Dec-19 10:0 12 Dec-19 11:0			13 Dec-19 15 Dec-19		2					
Multiple Con	nparison Summar	y										_
Analysis ID	Endpoint	Cor	nparison Meth	nod		√ NO	EL LOE	EL T	TOEL	TU	PMSD) ;
03-1382-6846	7d Survival Rate		er Exact/Bonfe	A-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	est	52	>52		n/a	1.923	n/a	
20-9234-3614	Reproduction	Dur	nett Multiple C	omparison Te	est	52	>52		n/a	1.923	32.0%	
Test Accepta	ability				TA	C Limits						
Analysis ID	Endpoint	Attr	ibute	Test Sta	at Lower	Upj		rlap D	Decision			
03-1382-6846	7d Survival Rate	Cor	trol Resp	1	0.8	>>	Yes	-	Passes Ci	riteria		_
20-9234-3614	1 Reproduction	Cor	trol Resp	23.3	15	>>	Yes		Passes Ci			
20-9234-3614	Reproduction	PM:	SD	0.3204	0.13	0.4	7 Yes	F	Passes Ci	riteria		
7d Survival F	Rate Summary	30										
Conc-%	Code	Count Mea	ın 95% L	CL 95% UC	L Min	Max	c Std	Err S	Std Dev	CV%	%Effe	ct
0	L	10 1.00	1.0000	1.0000	1.0000	1.00	0.00	00 0	0.0000	0.00%	0.00%	
16		10 0.80	0.4984	1.0000	0.0000	1.00	000 0.13	33 0	0.4216	52.70%	20.00%	%
22		10 0.70	0.3544	1.0000	0.0000	1.00	000 0.15	28 0	0.4830	69.01%	30.00%	
29		10 0.90	0.6738	1.0000	0.0000	1.00	000 0.10	00 0	0.3162	35.14%	10.00%	
39		10 0.80	0.4984	1.0000	0.0000	1.0	000 0.13	33 0	0.4216	52.70%	20.00%	%
52		10 0.70	0.3544	1.0000	0.0000	1.0	000 0.15	28 0	0.4830	69.01%	30.00%	%
Reproductio	n Summary											_
Conc-%	Code	Count Mea	n 95% L	CL 95% UC	L Min	Max	c Std	Err S	Std Dev	CV%	%Effe	ct
0	L	10 23.3	18.35	28.25	13	34	2.18	6 6	5.913	29.67%	0.00%	_
16		10 16.2		21.76	0	27	2.45	8 7	7.772	47.97%	30.47%	%
22		10 19.8		24.38	9	29	2.02	:6 6	6.408	32.37%	15.02%	%
29		10 20.7		23.7	14	26	1.32	.5 4	1.191	20.25%	11.16%	
39		10 21.2	14.43	27.97	6	36	2.99		9.461	44.63%		
52		10 18	12.34	23.66	2	33	2.50		7.916	43.98%	22.75%	

Ovg. reonates per surviving female in the 39%. x=23.8 cv=35.4%.

en 12-30-19

006-795-284-7

CETIS™ v1.9.6.7

Report Date:

30 Dec-19 11:36 (p 2 of 2)

Test Code/ID: K1912004CD / 10-4432-1364

Ceriodaphnia	7-d Survival a	and Reprodu	uction Test							Arkansa	s Analytica
7d Survival R	ate 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
16		1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000
22		0.0000	0.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29		0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39		1.0000	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
52		0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000
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	13	30	30	24	20	28	19	17	18	34
16		26	27	14	21	16	0	14	12	19	13
22		16	9	14	15	21	29	22	21	29	22
29		16	26	26	24	19	24	21	14	19	18
39		32	17	21	6	16	36	15	32	15	22
52		2	16	33	24	17	22	20	15	15	16
7d Survival Ra	ate Binomials		10. 5400								
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
16		1/1	1/1	1/1	1/1	0/1	0/1	1/1	1/1	1/1	1/1
22		0/1	0/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1
29		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
39		1/1	1/1	1/1	0/1	0/1	1/1	1/1	1/1	1/1	1/1
52		0/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1

006-795-284-7

CETIS™ v1.9.6.7

	CHEMICAL D	ATA SHEE	FOR CHR	ONIC TOXIC	CITY TESTIN	JG	Fat	thead Minno	ow
		/ Sample ID					12-11-19		
	Client:			79		<u>` </u>	12-18-19	1 2 1	
	Cheri.	1 000 (CA	/				12-18-14	1240	
						f Test			
	MHS	1	2	3	4	5	6	7	notes
Control	047	12/11	15-15	12/13	12-14	12-15	12-16	12/17	WHS 048
D.O. (mg/L		8.9	9-0	8.3	4.8	8.2	8.9	8:7	used 12/12
<u></u>	FINAL	8.7	7,4	7.6	7.7	7.8	7.72	8.2	> 10
pH (s.u.)	INITIAL	8.8	8.5	9.0	820	Q10	8,8	8.4	m45049
(0)	FINAL	7-8	8.8	7-8	8.1	23	9.23	9.5	used 12/13
temp (C)	INITIAL	2)	50	22	23	25	55	22	10016 -50
ALICAL INIT	FINAL	25	25		25	6	25	25	MHS 050
ALKALINIT		64	68	70				102	used 2/17
HARDNES		100	80	82		State of Sta	1	307	
	TIVITY (umho		311	286				10.05	
CHLORINE		20.05	20.05	40.05	***************************************	- CANADA MARTINI DE CONTRA LA MARTINI DE CONTRA DE CONTR	The second secon	CO.US	-
	16 %	CAR	Ç.]	0.0.	5. 0	2]	8.5	0.7	
D.O. (mg/L		9.0	8.6	8.2	9.9	7.9		8.1	-
pH (a.v.)	FINAL		7.4		7.8		7:75		-
pH (s.u)	INITIAL	3.8	7.9	7.1	8.1	8.0	3.70 9.06	9.4	-
tomp (C)	FINAL	21	\$-8.	22	55	9,0	9.06		1
temp (C)	FINAL	25	25	25	25	23	25	72 25	
CONC		65	25	~>	25	21	13	25	
	227.	8.9	٠, ٣	St .7	8.8	8,7	8,6	047	
D.O. (mg/L			8.7	8.3			7.62	8.7	-
-11 ((1)	FINAL	8.8	7.4		3.7	7.8	8.8	0.0	
pH (mg/L)	INITIAL FINAL	7,4	7.9	9.0	0 -(9.0	9.01	8.8	-
t (C)	INITIAL	21	8.8 20	22	8.0	55	21	700	+
temp (C)	FINAL	25	25	25	25	25		22 25	-
CONC:		25	6	25	25	-	25	25	
	297.	20	6.5	0-11	8-8	8-8	8.7	O C	
D.O. (mg/L		8.1	8.8	8-4		7.6		8.8	-
-11 (a.v.)	FINAL	8.8	7,4		7.5		7:66	00	
pH (s.u.)		8-09		9.0	8-1	8.0	8:46	9.3	
tomp (C)	FINAL		8.9		8.6	9.0			
temp (C)	FINAL	25	20	22	22	25	21	25	
CONC		ڪي	25	25	25	2	25	20)	
	39%	7.9	0.0	80 /	n 0	9.6	7.9	90	
D.O. (mg/L		L	8,9	8.6	9.9	7.6	7:59	8.8	+
nH (c !!)	FINAL	8.8	7.3	7.3	8-0	8.0	8.9	80	+
pH (s.u.)	FINAL	7.9	8.9	7.0	8.0	9.0	8:85	9.3	
temp (C)	INITIAL	25	50	22	22	22	21	97	-
remb (c)	FINAL	25	25	25	25	25	25	25	-
CONC:	52 Y.	()	6	-3	23	0/	65	~	
D.O. (mg/L		9,0	8.9	8:7	4.1	9-2	8.9	8-8	
D.O. (mg/L	FINAL	8.0		7.4	7.4	716	7:33	0-0	1
pH (s.u.)	INITIAL	7.7	7.3	9.0	8.0	8.0	89	8.1	-
pr r (3.u.)	FINAL	7,9	8.9	3.0	8.0	9.0	8.78	9.3	
temp (C)	INITIAL	2/	21	22	21	22	100	22	-
temp (C)	FINAL	25	25	25	25	25	25	25	-
CONC:	100 %		NAME AND ADDRESS OF THE OWNER, WHEN PERSON AND	THE RESERVE AND DESCRIPTION OF THE PERSON OF	25 B	AND DESCRIPTION OF THE PERSON NAMED IN COLUMN 2 IS NOT THE OWNER, THE	C	25	-
ALKALINIT		A	4	B	1)	7	<u> </u>	+	1
HARDNES		114	7	108	***************************************	90			1
CONDITION	SS (mg/L) TIVITY (umho	32		32		30			_h
CHLORINE				40.05					1
OFFICIAL	_ (IIIg/L)	40.05		1 -0.00		40.05			11

CHEMICAL DATA SHEET FOR CHRONIC TOXICITY TESTING Ceriodaphnia Dubia Lab # / Sample ID (49) 2004 Test Start (Date/Time) 12-11-19 / 0930 Dumas Client: Test End (Date/Time) 12-18-19/0945 Day of Test 2 3 4 5 7 notes/remarks Control MH5 047 12/11 12-16 12-12 12/12 12-14 12-15 12/17 MHS 048 D.O. (mg/L) INITIAL 8.9 8.4 9-0 2 5.2 Used 12/12 8.4 FINAL 7.9 8.4 8.3 8.5 8.5 8.3 MHS 049 7.8 INITIAL 8.8 3-5 8.4 pH (s.u.) 9.0 8.0 8.5 used 12/13 9.6 FINAL 9.4 8.8 7.6 9.1 9.0 22 INITIAL 821 temp (C) 22 20 22 23 23 MHS 050 25 25 25 29 FINAL 25 25 25 11 sed 12/17 ALKALINITY (mg/L) 104 108 70 102 HARDNESS (mg/L) 82 80 100 84 CONDUCTIVITY (umhos/cm) 357 311 2860 307 CHLORINE (mg/L) 10.05 20.05 40.05 40.05 CONC: 6% D.O. (mg/L) INITIAL 9.0 8-6 8.0 2-1-7.9 8.2 8.6 FINAL 8.4 8.4 8.5 8.41 8.8 INITIAL pH (s.u) 7.9 5.8 80 9.4 9. FINAL 7.7 4.0 9.5 9.0 8.8 INITIAL 20 temp (C) 22 21 22 23 21 22 FINAL 32 25 25 25 25 25 25 JJ-7. CONC: 8.9 D.O. (mg/L) INITIAL 87 217 8.3 8.8 8-7 8.6 **FINAL** 7.9 8.3 8.3 8.4 8.60 INITIAL 7.9 pH (mg/L) 8-0 8-1 9.0 8.8 FINAL 9,4 7.8 9.1 4.5 9.0 8.8 20 temp (C) INITIAL 21 22 22 FINAL 25 52 25 25 25 29-1 CONC: D.O. (mg/L) INITIAL 9,0 8-8 8-8 8.4 8-8 8.8 FINAL 8.3 8.4 8.3 8.6 7.7 8 4 8.9 INITIAL pH (s.u.) 8.8 7.9 9.0 8-0 9.3 FINAL 9,4 7-8 9.1 9.0 INITIAL temp (C) XI 20 22 22 21 FINAL 25 25 25 25 25 25 25 39-1 CONC: D.O. (mg/L) INITIAL 9-0 8.8 8.9 8,8 8,9 8.6 8.4 8.Z 7.9 8.3 8.6 **FINAL** 7.7 8.6 pH (s.u.) INITIAL 8.9 8.9 9.4 9.3 FINAL 7.8 91 9.0 91 8.4 25 temp (C) INITIAL 22 20 22 22 25 25 FINAL 25 25 25 CONC: 52.1 9.0 D.O. (mg/L) INITIAL 8.8 8.9 9.2 9.1 8.4 FINAL 8.2 8: -7.9 701 pH (s.u.) INITIAL 8,8 9.D 8.0 8-0 9.0 FINAL 7.8 9.2 9:4 9.3 9.0 7.9 0/1 temp (C) INITIAL 21 21 22 21 25 FINAL 25 25 25 25 25 CONC: 100-1. H B C ALKALINITY (mg/L) 114 108 90 HARDNESS (mg/L)

CHLORINE (mg/L)

CONDUCTIVITY (umhos/cm)

32

318

40.05

32

314

40.05

30

314

40.05

