

RESULTS OF ACUTE TOXICITY TESTING WITH *Ceriodaphnia dubia* AND *Pimephales* promelas ON A MAY 2021 SAMPLE FROM METROPOLITAN WATER RECLAMATION DISTRICT (MWRD)

By

EA Engineering, Science, and Technology, Inc., PBC 231 Schilling Circle Hunt Valley, Maryland 21031

Monitoring and Research Department Edward W. Podczerwinski, Director

June 2021



Metropolitan Water Reclamation District of Greater Chicago

CECIL LUE-HING RESEARCH AND DEVELOPMENT COMPLEX 6001 WEST PERSHING ROAD CICERO, ILLINOIS 60804-4112 Kari K. Steele President Barbara J. McGowan Vice President Marcelino Garcia *Chairman of Finance* Cameron Davis Kimberly Du Buclet Josina Morita Eira L. Corral Sepúlveda Debra Shore Mariyana T. Spyropoulos

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June 11, 2021

Illinois Environmental Protection Agency Compliance Assurance Section CAS # 19 1021 North Grand Avenue P.O. Box 19276 Springfield, IL 62794-9276

Subject: Biomonitoring Report for 2021 – Acute Toxicity Test Results for the Calumet Water Reclamation Plant, National Pollutant Discharge Elimination System Permit Number IL0028061

The subject Biomonitoring Report including Acute Whole Effluent Toxicity test results for *Pimephales promelas* and *Ceriodaphnia dubia* is submitted in compliance with National Pollutant Discharge Elimination System Permit Number IL0028061, Special Condition 10. The report covers the monitoring done for samples collected in the fourteenth month before the expiration of the permit.

The subject report prepared by EA Engineering, Science, and Technology, Inc., PBC includes copies of all bench sheets, chain-of-custody forms, sample receipt, preparation forms, summary of final results and test information, and quality assurance record.

If you have any questions concerning this report, please contact Mr. Thomas Minarik, Principal Environmental Scientist, at (708) 588-4223.

Very truly yours,

Jula Milit For AL

Albert Cox Environmental Monitoring and Research Manager Monitoring and Research Department

AC:TM:NK:lf Enclosure cc: E. Podczerwinski/P. Connolly J. Skawski/Ann Ko H. Zhang/T. Minarik N. Kollias Via electronic mail



RESULTS OF ACUTE TOXICITY TESTING WITH Ceriodaphnia dubia AND Pimephales promelas ON A MAY 2021 EFFLUENT SAMPLE FROM METROPOLITAN WATER RECLAMATION DISTRICT (MWRD)

Prepared for:

Metropolitan Water Reclamation District of Greater Chicago 6001 W. Pershing Road Cicero, Illinois 60804

Prepared by:

EA Engineering, Science, and Technology, Inc., PBC 231 Schilling Circle Hunt Valley, Maryland 21031 For questions, please contact Michael Chanov ph: 410-584-7000

Results relate only to the items tested or to the samples as received by the laboratory.

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This report contains 8 pages plus 2 attachments

Michael K. Chanov II Laboratory Director

EA Project Number 70019.TOX



4 June 2021

Date

EA Report Number 8559

INTRODUCTION

At the request of Metropolitan Water Reclamation District (MWRD), EA Engineering, Science, and Technology performed acute toxicity testing on a composite sample of Outfall 001 final effluent from MWRD's Calumet Water Reclamation Plant in Chicago, Illinois. The effluent composite sample was collected on 10-11 May 2021. The test organisms, *Ceriodaphnia dubia* (water flea) and *Pimephales promelas* (fathead minnow), were exposed to 100, 50, 25, 12.5 and 6.25 percent effluent, and a laboratory water control. The objective of this study was to assess the acute lethality of the effluent sample to the test species, expressed as a 48-hour (*C. dubia*), or 96-hour (*P. promelas*) median lethal concentration (LC50). This toxicity testing was conducted under the Section 10 biomonitoring requirements of Metropolitan Water Reclamation District's discharge permit number IL0028061.

This toxicity testing was conducted following EA's standard operating procedures (EA 2018) which are in accordance with US EPA guidance (2002). The results of the acute toxicity tests were analyzed using the ToxCalc statistical software package (Version 5.0, Tidepool Scientific Software) and followed US EPA guidance (2002). Summaries of sample and test information are presented on pages 5-6 for *C. dubia* and on pages 7-8 for *P. promelas*. Copies of raw data sheets and statistics are included in Attachment I. The Report Quality Assurance Record is included as Attachment II.

SUMMARY OF RESULTS

The results of the acute toxicity tests indicated that the 10-11 May 2021 Outfall 001 final effluent sample was not acutely toxic to *Ceriodaphnia dubia* or *Pimephales promelas*. The results of these toxicity tests comply with current NELAC standards.

The results of the *C. dubia* acute toxicity test are presented on page 6. After 48 hours, there was 100 percent survival in all of the effluent concentrations and 100 percent survival in the dilution water control. The 48-hour *C. dubia* LC50 for this test was >100 percent effluent (<1.0 TU_a). In the *P. promelas* acute toxicity test (page 8), at the end of 96 hours there was a minimum of 85 percent survival in all of the effluent concentrations. The laboratory control had 90 percent survival. The resulting 96-hour LC50 for *P. promelas* was >100 percent effluent (<1.0 TU_a).

In conformance with EA's quality assurance/quality control program, monthly reference toxicant tests using sodium chloride (NaCl) and potassium chloride (KCl) were performed on the inhouse cultured test species. The results of the *C. dubia* reference toxicant test was acceptable, with a 48-hour LC50 of 1,912 mg/L NaCl, and acceptable control chart limits of 1,617-2,270 mg/L NaCl. The results of the *P. promelas* reference toxicant test was acceptable, with a 48-hour LC50 of 810 mg/L KCl, and acceptable control chart limits of 594-1,249 mg/L KCl.

REFERENCES

- EA. 2018. EA Ecotoxicology Laboratory Quality Assurance and Standard Operating Procedures Manual. EA Manual ATS-102. Internal document prepared by EA's Ecotoxicology Laboratory, EA Engineering, Science, and Technology, Inc., PBC, Hunt Valley, Maryland.
- US EPA. 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA-821-R-02-012. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

SUMMARY OF SAMPLE/TEST INFORMATION

Test: Ceriodaphnia dubia 48-hour static acute toxicity test

Test Procedure: EA Protocol CD-AC-05 Acute assay with water flea (*Ceriodaphnia dubia*)

Client Name: Metropolitan Water Reclamation District (MWRD)

Permit Number: IL0028061

Receiving Water: Little Calumet River

Sample Description: Outfall 001 Final Effluent

EA Accession Number: AT1-280

Collection Time and Date: 0600, 10 May 2021 to 0600, 11 May 2021 Receipt Time and Date: 0930, 12 May 2021

Dilution Water Description: Moderately hard synthetic freshwater

EA Test Number: TN-21-281

Test Initiation Time and Date: 1038, 12 May 2021 Test Completion Time and Date: 1022, 14 May 2021

Number of Replicates: 4

Number of Organisms Per Replicate: 5

Test Chamber: 30 ml cup

Volume per Test Chamber: 15 ml

Feeding: None

Organism Lot Information

Lot Number: N/A Source: EA's Culture Facility (Hunt Valley, Maryland) Age: <24 hours old

Reference Toxicant Test Information

Reference Toxicant: Sodium chloride (NaCl) Reference Toxicant Information: Lab Chem Lot#F214-24 (Received 9/7/16) EA Test Number: RT-21-068 Test Date and Time: 0955, 6 May 2021 to 0902, 8 May 2021 Dilution Water: Moderately hard synthetic freshwater 48-hour LC50: 1,912 mg/L NaCl Laboratory control chart acceptability range for 48-hour LC50: 1,617-2,270 mg/L NaCl

SUMMARY OF SAMPLE/TEST INFORMATION (continued)

Test Species:	Ceriodaphnia dubia (water flea)
Sample Description:	Outfall 001 Final Effluent – MWRD
Sample Date:	10-11 May 2021
EA Test Number:	TN-21-281

48-Hour Survival (percent)		
100		
100		
100		
100		
100		
100		

48-Hour LC50 (percent effluent): >100 (TUa <1.0)

Water Quality Parameters on Test Solutions	Range
Temperature (°C):	24.0 - 25.7
pH:	7.7 - 8.5
Dissolved Oxygen (mg/L):	8.0 - 9.1
Conductivity (µS/cm):	324 - 1,197

ater Quality Parameters Measured on Sample Upon Receipt	Outfall 001 (AT1-280)
Temperature (°C):	2.3
pH:	7.8
Total Residual Chlorine (mg/L):	< 0.01
Alkalinity (mg/L as CaCO ₃):	164
Hardness (mg/L as CaCO ₃):	248
Conductivity (µS/cm):	1,153

SUMMARY OF SAMPLE/TEST INFORMATION

Test: Pimephales promelas 96-hour static renewal acute toxicity test

Test Procedure: EA Protocol FH-AC-05

Acute assay with fathead minnows (Pimephales promelas)

Client Name: Metropolitan Water Reclamation District (MWRD)

Permit Number: IL0028061

Receiving Water: Little Calumet River

Sample Description: Outfall 001 Final Effluent

EA Accession Number: AT1-280

Collection Time and Date: 0600, 10 May 2021 to 0600, 11 May 2021 Receipt Time and Date: 0930, 12 May 2021

Dilution Water Description: Moderately hard synthetic freshwater

EA Test Number: TN-21-282

Test Initiation Time and Date: 1055, 12 May 2021 Test Completion Time and Date: 1014, 16 May 2021

Number of Replicates: 2

Number of Organisms Per Replicate: 10

Test Chamber: 1-L beaker

Volume per Test Chamber: 250 ml

Feeding: 0.2 mL Artemia nauplii at 48 Hours

Organism Lot Information

Lot Number: FH1-5/8-9 Source: EA's Culture Facility (Hunt Valley, Maryland) Age: 3-4 days old (hatched within a 24-hour period)

Reference Toxicant Test Information

Reference Toxicant: Potassium chloride (KCl) Reference Toxicant Information: GFS Chemicals Lot#19430079 (Received 10/20/20) EA Test Number: RT-21-070 Test Date and Time: 1025, 6 May 2021 to 0932, 8 May 2021 Dilution Water: Moderately hard synthetic freshwater 48-hour LC50: 810 mg/L KCl Laboratory control chart acceptability range for 48-hour LC50: 594-1,249 mg/L KCl

SUMMARY OF SAMPLE/TEST INFORMATION (continued)

Test Species:	Pimephales promelas (fathead minnow)
Sample Description:	Outfall 001 Final Effluent – MWRD
Sample Date:	10-11 May 2021
EA Test Number:	TN-21-282

Test Concentration (percent effluent)	48-Hour Survival (percent)	96-Hour Survival (percent)
Lab Control	95	90
6.25	100	100
12.5	100	100
25	100	100
50	95	85
100	95	95

96-Hour LC50 (percent effluent): >100 (TUa <1.0)

ater Quality Parameters on Test Solutions	Range
Temperature (°C):	24.0 - 25.5
pH:	7.7 - 8.7
Dissolved Oxygen (mg/L):	7.6 - 8.6
Conductivity (µS/cm):	324 - 1,176

ATTACHMENT I

Data Sheets (18 pages)

	Chain-of-Custody Record
EA Engineering, Science, and Technology	
EA Ecotoxicology Laboratory 231 Schilling Circle Hunt Valley, Maryland 21031 Telephone: 410-584-7000 Fax: 410-584-1057	Sample Shipped By: (circle) Fed. Ex. UPS Other: Tracking #: 12.274 474849508 0337
Client: MWRDGIC Project No.: 4652-126-1	Hadwing #. 12 2. 1110 [1008 0007
NPDES Number: 11-002861 Client Purchase Order Number: 3111991	
City/State Collected:Chicago _ IL	
PLEASE READ SAMPLING INSTRUCTIONS O	N BACK OF FORM

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Accession		29	Col	lection	Sample Description	
Number (office use only)	Grab	Composite	Start Date/Time	End Date/Time	(including Site, Station Number, and Outfall Number)	. Number/Volume of Container
1086-1TA		·V	slipter olao	5/1/21 0600	Columnet WRP Final Efflorent	1 gallon
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				a (),		

Sampled By:	Date/Time \$/11/21 0900	Received By:	Date/Time
Sampler's Printed Name: Nick Kollies	Title: Aquatic Bioferist	Rélinquished By:	Date/Time
Relinquished By:	Date/Time 5/11/21 0900	Received By Laboratery	Date/Time 5-12-21 0930

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Was Sample Chilled During Collection?

Comments:

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Visual Description: Clear, green Temperature (°C): 11.7 pH: 7.27 TRC (mg/L): 0	
TRC (mg/L):	
Other:	

3

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SAMPLE CHECK-IN FOR TESTING.

MWRD. 3 Client: EA Accession Number: ______ A71- 280

Parameter	Acceptable Range	Measurement *	Meter	Date	Time	Initials
Temperature (°C)	. ≤4	2.3	7-21	รีเอโอเ	0937	LAO
ls ice present?	-	yes.	N/A	ſ		1
pH .	6.0-9.0	7.8	681			
TRC (mg/L)	⊲0.01	20.01	AT-01			
Visual Description	-	turbid + slighty tellow	N/A		V	

*If outside acceptable range, contact project manager.

OTHER PARAMETERS IF REQUIRED (SEE STUDY PLAN):

Parameter	Acceptable Range	(* .)	Meter	Date	Time	Initials
Ammonia (preserve aliquot)	-		N/A			
Parameter	Acceptable Range	Measurement	Meter	Date	Time	Initials
Salinity (ppt)						

r ATS-Q25 07/24/18



TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX

Client: MWRD

QC Test Number: <u>TN-スーク劣し</u>

\mathbf{T}	EST ORGANISM INFORMATION
Common Name: Water flea	Adults Isolated (Time, Date): 5711121 , 1630
Scientific Name: C. dubia	Neonates Pulled & Fed (Time, Date): 5/12/21, 0805
Lot Number: N/A	Acclimation: <u><24hrs</u> Age: <u><24 hrs</u>
Source: EA	Culture Water (T/S): <u>24.3</u> °C <u>0</u> ppt

Date	Time	Initials	Activity
5112121	1021	TP	Dilutions Made
	L		Test Vessels Filled
	1038	*	Organisms Transferred
\mathcal{V}	1137	dio	Head Counts

ample Number:		
Dilution Number: <u>LD1-279</u>		
Test Concentration	Volume Test Material	Final Volume
Control	0 ml	200 ml
6.25%	12.5 ml	
12.5%	25 ml	
25%	50 ml	
50%	100 ml	
100%	200 ml	1

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ACUTE TOXICITY TEST DATA SHEET

Project Number: 70019.TOX Client: <u>MWRD</u>	XOT.91				I I	TE	TEST ORGANISM Common Name	GAN.	SM ame:	T ORGANISM Common Name: <u>Water fica</u>	lca					Beginning Date: 5/12/3/ Ending Date: 5/14/0	Beginning Da Ending Date:	10	00	Slubi			Time: 1036 Time: 1027	34
QC Test Number: TN. CAI- Test Material: Effluent	N. N.	ae				TAJ	Scientific Name TARGET VALUES	tific N VAL)	lame: JES	Scientific Name: <u>C.dubia</u> tGET VALUES	ia				TE	TEST TYPE:	PE	Stat	Rene	Flowt wal /	Static Flowthrough Renewal / Non-renewal	renew		
Accession Number:		11	PT 1-280				Temp	Temp: 25±1	_	°C		DO: >4.0	4.0		1	_mg/L		Test C	ontain	er: <u>30</u>	Test Container: 30 ml cup			
Dilution Water: Mod Hard	1 Hard						pH:	pH: 6.0-9.0	9.0			Salinity: 0	0 :X			pot		Test V	ohume	Test Volume: 15 ml	1			
Accession Number:	Xer: L	101-279	279				Photo	period	Photoperiod: 161,8d	80		Light I	Light Intensity: 50 - 100 fc	y: 50 -	100 f			Test D	uration	Test Duration: 48 hrs	LIS .	1		
			Ni Live	Number of Live Organisms	of sms			Ten	Temperature (°C)	2	-		Hd	H		-	Diss	Dissolved Oxygen (m2/L)	Oxyge	a	ŏ	nducti	Conductivity (µS/cm)	S/cm)
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ATS-T01 12/02/08

Menidia:2006.0 OTHER: Americanysis: 2007.0 Cyprinodon: 2004.0

Ceriodaphnia: 2002.0 X Magna/pulex: 2021.0

EPA Test Method; EPA 821-R-02-012 (CHECK ONE)

Fathcad: 2000.0 Trout: 2019.0

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ACUTE TOXICITY TEST DATA SHEET

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Project Number: 70019.TOX	70019.7	LOX.				1	TEST	TEST ORGANISM	ANIS	¥							Begit	l guim	Date:	Beginning Date: 5112/21	131		F	Time: 1038	038
Chent: MWRD							0	Common	on Na	me: V	Name: Water flea	lea				Ĩ	Endir	Ending Date:	:0	ກ	10/11/2		E	Time: 1030	1030
QC Test Number: TN- 21 - 2 E	TN- NI	21-12	tare				3	Scientific Name: C. dubia	fic Na	me:	C.dubi	a				E	TEST TYPE:	(PE;		Static Flowthrough) Flor	wthrou			
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Dilution Water: Mod Hard	fod Har	p	8 - 1 8				4	pH:	6.0 - 9.0	0'6		3	Salinity: 0	v: 0			pot		Test	Test Volume: 15 ml	ie: 15	1	ļ		
Accession Number: $U = 279$	mber:	igi	3	19			ч	Photoperiod: 161,84	eriod:	16 L	8 d		Light]	Light Intensity: 50 - 100 fc	ty: <u>50</u>	- 100	14 g		Test	Test Duration: 48 hrs	on: 48	S hus			1
8			Live	Number of Live Organisms	r of nisms			Te	Temperature (°C)	ture				Hq				Disso	(mg/L)	Dissolved Oxygen (mg/L)		ပိ	Conductivity (µS/cm)	vity (µ	S/cm)
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ATS-T01 12/02/08

Menidia:2006.0 Americamysis: 2007.0 Cyprinodon: 2004.0

Fathead: 2000.0_____ Trout: 2019.0_____ EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 X Magna/pulex: 2021.0



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX

Client: MWRD

Date/Time/Initials

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Comments/Activity

E/S°

RANDOMIZATION CHART

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1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5

ATS-T48c 03/01/00



TOXICOLOGY LABORATORY BENCH SHEET -TESTING LOCATION

Project Number: ______70019.TOX

Client: _____MWRD

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QC Test Number: TN- 21-281

Day	Testing Location	Date	Time	Initials
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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: ______70019.TOX

Client: ____MWRD

QC Test Number: TN-Q1-201

Correction Explanations

- (a) Technician Error-Mathematical
- (b) Technician Error-Manual Data Recording
- (c) Technician Error-Head Count Observation
- (d) Technician Error-Overwrite
- (e) Technician Error-Missing Data
- (f) Technician Error-Lost Organism
- (g) Technician Error-Transcription Error

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- (h) Technician Error-Other:
- (i) Meter Malfunction

ATS-T78 05/11/16



TOXICITY TEST SET-UP BENCH SHEET

Project Number: _	70019.TOX	
Client: <u>MV</u>	VRD	
QC Test Number:	TN-21-282	
a Champage	TESTO	RGANISM INFORMATION
Common Name:	Fathead minnow	Adults Isolated (Time, Date):
Scientific Name: _	P. promelas	Magnatas Bullad & F. J (The Day)
Lot Number:	FH1-518-9	1. 1. 2-4 children
Source:	ĒA	$\frac{24 \text{ hrs}}{25 \text{ O}} = \frac{35 \text{ O}}{25 \text{ O}} = $

		TEST INITIA	TION	CONC	CENTRATION SERIE	ES
<u>Date</u> 5/12121	<u>Time</u> 102 1	Initials TP	Activity	Test <u>Concentration</u> Control	Volume <u>Test Material</u> 0 ml	Final <u>Volume</u> 500 ml
	L	1	Dilutions Made	6.25% 12.5%	31.25 ml 62.5 ml	1
			Test Vessels Filled	25%	125 ml	
	1055	V	Organisms Transferred	100%	250 ml 500 ml	Ţ
l	1116	(AD)	Head Counts			

		UTION PRI	PARATION	1	-		FEEDING	
<u>Day</u> 0	Date 5112121	<u>Time</u> 102	<u>Initials</u> TP	Sample / Diluent ATI-280 LDI-279	Food: 2 Day 0	Artemia Time, Initials, <u>Amount</u>	Time, Initials, <u>Amount</u>	Time, Initials Amount
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ATS-T27 09/22/08

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ACUTE TOXICITY TEST DATA SHEET

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at Number: TYPE: TTYPE: Table Trype: Test TYPE: Equito Dispetion: Intervit: Efficient Allower PACINES Test Container: 11.1.Beaker Intervit: Efficient Allower PACINES Sainty: 0 Part Test Container: 11.1.Beaker Intervit: Efficient Allower Dispetion: 16.0.9.0 Patient Allower Dispetion: 11.1.Beaker Interviti: Efficient Allower Efficient Allower Efficient Allower Dispetion: 11.1.Beaker Intervition Rep 10 <t< th=""><th>at Number: II-1-2/60 Scientific Name: Premeter TEST TYPE: Cash: Provenough Tester Montreewal Test Type: Cash: Provenough Tester: II. Basker Renewal Non-renewal Test Statistics TEST TYPE: Cash: Provenough Tester: Premeter Non-renewal Test Statistics TEST TYPE: Cash: Provenough Tester: Premeter Non-renewal Test Statistics TEST Type: Cash: Provenough Tester: Premeter Non-renewal Tester: Provenough Tester: Premeter Non-renewal Tester: Premeter Non- Premeter Non-renewal Tester: Premeter No</th><th>T-210-3 Scientifie Name: P. premata TEST TYPE: Gatio Defenvationality PT1 - 230 Taktoffer VALUES Test Values: Taktoffer VALUES Targe: 23:1 Test Value: Test Value: Test Value: D1 - 230 Taktoffer VALUES Sainity: 0 Dir Test Value: D1 - 230 Test Value: Sainity: 0 Dir Test Value: Test Value: D1 - 230 Sainity: 0 Dir Test Value: Test Value: Test Value: Phile Auniber of Test Value: Test Value: Test Value: Test Value: D1 - 230 23 48 72 96 0 24 48 72 D1 D1 (b) D1 D1 (b) D2 24 83 378 937 378 D1 D1 (b) D2 P2 84 73 96 0 24 48 72 D1 D1 D1 (b) D2 P2 84 84 86 84 729 729 737 D1 D1 D1 (b) D2</th><th></th><th></th><th></th><th>6</th><th></th><th></th><th>ĺ</th><th>•</th><th>OTHIN</th><th>TIBNI II</th><th>le: Fat</th><th>nead m</th><th>Wound</th><th></th><th></th><th></th><th>Endi</th><th>ng Date:</th><th></th><th>5116</th><th>131</th><th></th><th>Time</th><th>2</th><th>エ</th></t<>	at Number: II-1-2/60 Scientific Name: Premeter TEST TYPE: Cash: Provenough Tester Montreewal Test Type: Cash: Provenough Tester: II. Basker Renewal Non-renewal Test Statistics TEST TYPE: Cash: Provenough Tester: Premeter Non-renewal Test Statistics TEST TYPE: Cash: Provenough Tester: Premeter Non-renewal Test Statistics TEST Type: Cash: Provenough Tester: Premeter Non-renewal Tester: Provenough Tester: Premeter Non-renewal Tester: Premeter Non- Premeter Non-renewal Tester: Premeter No	T-210-3 Scientifie Name: P. premata TEST TYPE: Gatio Defenvationality PT1 - 230 Taktoffer VALUES Test Values: Taktoffer VALUES Targe: 23:1 Test Value: Test Value: Test Value: D1 - 230 Taktoffer VALUES Sainity: 0 Dir Test Value: D1 - 230 Test Value: Sainity: 0 Dir Test Value: Test Value: D1 - 230 Sainity: 0 Dir Test Value: Test Value: Test Value: Phile Auniber of Test Value: Test Value: Test Value: Test Value: D1 - 230 23 48 72 96 0 24 48 72 D1 D1 (b) D1 D1 (b) D2 24 83 378 937 378 D1 D1 (b) D2 P2 84 73 96 0 24 48 72 D1 D1 D1 (b) D2 P2 84 84 86 84 729 729 737 D1 D1 D1 (b) D2				6			ĺ	•	OTHIN	TIBNI II	le: Fat	nead m	Wound				Endi	ng Date:		5116	131		Time	2	エ	
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		(b) Telefilat	ttials		B			1	X			a	\vdash	1		R			2 2		30	-	84		2200			

ATS-T01 12/02/08

Menidia.2006.0

Americamysis: 2007.0 Cyprinodon: 2004.0

Fathead: 2000.0 X Trout: 2019.0 Ceriodaphnia: 2002.0 Magna/pulex: 2021.0



ACUTE TOXICITY TEST DATA SHEET - OLD SOLUTIONS

Beginning Date: 5/1/2/2/ Endino Date: 5/11/2/2/	YPE:	mg/L Test Container: 1 L Beaker	Test Duration:
TEST ORGANISM Common Name: Fathcad minnow	Scientific Name: P. promelas TARGET VALUES	Temp: <u>25±1 °</u> C DO: <u>≥4.0</u> pH: <u>6.0-9.0</u> Salinity: 0	Photoperiod: $16l, 8d$ Light Intensity: $50 - 100$ fo
70019.TOX RD	QC Test Number: TN21-363 Test Material: Effluent 1		Accession Number: UU 1- 219

1 48 72 96 24 48 72 96 24 48 72 96 24 48 72 1 8.2 8.1 8.5 8.3 8.0 8.3 8.0 8.3 8.9 8.9 1 8.2 8.1 8.5 8.3 8.0 8.3 8.0 8.3 8.9 8.9 8.9 1 8.2 8.1 8.0 8.3 7.8 8.0 8.3 8.9 8.9 1 8.2 8.1 8.0 8.3 7.8 8.0 8.9 8.9 1 8.2 8.4 8.0 8.3 7.6 8.9 8.9 8.1 8.1 8.1 8.0 8.3 7.6 8.0 8.1 8.1 8.1 8.1 8.1 8.1 8.9 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 7.1 8.1 7.6 8.1 8.1 8.1 8.1 7.1 8.1 7.6 8.1 8.1 8.1 8.1 8.1 7.1 8.1 8.1 8.1 8.1 8.1 </th <th></th> <th>,</th> <th>Live Organisms</th> <th></th> <th>(°)</th> <th>oc)</th> <th></th> <th></th> <th></th> <th>Ha</th> <th></th> <th></th> <th></th> <th>Disso</th> <th>Dissolved Oxygen</th> <th>xygen</th> <th></th> <th>Col</th> <th>Conductivity (µS/cm)</th> <th>rity (µ</th> <th>S/cm)</th>		,	Live Organisms		(°)	oc)				Ha				Disso	Dissolved Oxygen	xygen		Col	Conductivity (µS/cm)	rity (µ	S/cm)
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TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX

Client: _____MWRD

QC Test Number: TN- A1-383

Date/Time/Initials Comments/Activity

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RANDOMIZATION CHART

Project Number: 70019.TOX

Client: <u>MWRD</u>

QC Test Number: TN-21-282

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TOXICOLOGY LABORATORY BENCH SHEET -TESTING LOCATION

Project Number: ______70019.TOX

Client: <u>MWRD</u>

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QC Test Number: TN- 21-222

Day	Testing Location	Date	Time	Initials
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ATS-T80 07/24/18

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TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

27.0 22.02.0 22.0

Client: ____MWRD____

Correction Explanations

- (a) Technician Error-Mathematical
- (b) Technician Error-Manual Data Recording
- (c) Technician Error-Head Count Observation
- (d) Technician Error-Overwrite
- (e) Technician Error-Missing Data
- (f) Technician Error-Lost Organism
- (g) Technician Error-Transcription Error

St - - -

- (h) Technician Error-Other:
- (i) Meter Malfunction

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TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX

Client: MWRD

QC Test Number: TN-21-281, 287

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			ON .	AIR			OFF .	AIR	
Date	Sample #	Initial DO (mg/L)	Time	Meter	Initials	Final DO (mg/L)	Time	Meter	Initials
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ATS-T49 04/01/21

ATTACHMENT II

Report Quality Assurance Record (2 pages)

REPORT QUALITY ASSURANCE RECORD

REVIEWER

Client:MWRD	Project Number:	70019.TOX
Author: Rachael Brooks	EA Report Number:	8559

REPORT CHECKLIST

OA/OC ITEM

- Samples collected, transported, and received according to study plan requirements.
- Samples prepared and processed according to study plan requirements.
- Data collected using calibrated instruments and equipment.
- 4. Calculations checked:
 - Hand calculations checked
 - Documented and verified statistical procedure used.
- 5. Data input/statistical analyses complete and correct.
- Reported results and facts checked against original sources.
- Data presented in figures and tables correct and in agreement with text.
- Results reviewed for compliance with study plan requirements.
- 9. Commentary reviewed and resolved.
- All study plan and quality assurance/control requirements have been met and the report is approved:

AUTHOR

PROJECT MANAGER

FICER

SENIOR TECHNICAL OFFICER

DATE

2021

DATE

2021

DATE

5/27/2021

DATE

DATE

ATS-08 01/25/02

2021 2021 71 2521 261 24 RR 5/17/2021

