

## 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



## 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:

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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<sub>a</sub>). 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<sub>a</sub>).

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

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

Water Quality Parameters Measured on Sample Upon Receipt Temperature (°C):	Outfall 001 (AT1-280) 2.3
pH:	7.8
Total Residual Chlorine (mg/L):	< 0.01
Alkalinity (mg/L as CaCO <sub>3</sub> ):	164
Hardness (mg/L as CaCO <sub>3</sub> ):	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)

Water 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:
Client: MWRDGC Project No.: 4652-126-1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
NPDES Number: 1202861 Client Purchase Order Number: 3111991	
City/State Collected: Chicago, JL	
PLEASE READ SAMPLING INSTRUCTIONS ON	PACK OF FORM

No. 3 Line river

يريد مرتوجيه ورو

LEAD SAMPLING INSTACTIONS ON BACK OF FORM					
Accession Number (office use only)	Grab	Composite	Collection Start End Date/Time Date/Time	Sample Description (including Site, Station Number, and Outfall Number)	Number/Volume of Container
ATT-280		·V	5/10/21 0600 5/11/21 0600	Columet WRP Final Efflorent	I gallon
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of Oppower					
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Sampled By:	Date/Time	Received By:	Date/Time
War Keller	s/11/21 0900	Received and the	
Sampler's Printed Name:	Title: Title: The second	Relinquished By:	Date/Time
Nich Kollias	Aquatic Biologist		
Relinquished By:	Date/Time	Received By	Date/Time
sto-kilhi	5/11/21 0900	Laboratory	5-12-21 0930

Was Sample Chilled During Collection? (1) No

Comments:

6

Sample Collection Parameters

Visual Description: Clear, green		· .		
Temperature (°C): 11, 7	<i></i>			
pH: 7.27			5	1. A. A.
TRC (mg/L):	1. A.	÷.,	·	
Other:	· · · · · ·	· · · ·	· • · · ·	£.,

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## SAMPLE CHECK-IN FOR TESTING

Client:	- MWRD -	
EA Accession Number:	ATI- 280	

Parameter	Acceptable Range	Measurement *	Meter	Date	Time	Initials
Temperature (°C)	. ≤4	2.3	7-21	5/12/21	0937	LAO
ls ice present?	-	Yes .	N/A	ſ		(
pH .	6.0-9.0	7.8	681			
TRC (mg/L)	⊲0.01	20.01	AT-01			
Visual Description		turbid + Slyhthy dellow	N/A		V	

\*If outside acceptable range, contact project manager.

OTHER PARAMETERS IF REQUIRED (SEE STUDY PLAN):

Parameter	Acceptable Range	(1.)	Meter	Date	Time	Initials
Ammonia (preserve aliquot)			N/A	-		-
Parameter	Acceptable Range	Measurement. *	Meter	Date	Time	Initials
Salinity (ppt)					-	

. ATS-0.25 07/24/18



# TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX

Client: MWRD

QC Test Number: TN-21- 281

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

		TEST INITIATIO	Ň
Date	Time	Initials	Activity
5112121	1021	TP	Dilutions Made
	~		Test Vessels Filled
	1038	4	Organisms Transferred
	1137	(AD	Head Counts

	TEST SET-UP	
Sample Number:	+TI-280 -DI-279	
Test Concentration	n <u>Volume Test Material</u>	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	$\downarrow$

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# ACUTE TOXICITY TEST DATA SHEET

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The Model Hard       pH: $6.0-90$ Salinity: 9       Text Volume: 15 ml         Number $O_1 - 374$ Patoperiod. 16 L 8 d.       Light intensity. 50 - 100 fs       Text Volume: 15 ml         Number $O_1 - 374$ Patoperiod. 16 L 8 d.       Light intensity. 50 - 100 fs       Text Dumtor: 48 lns         On       Rep $0 - 24 - 48$ 72       96 $0 - 24 - 48$ 72       96 $0 - 24 - 48$ 72         On       Rep $0 - 24 - 48$ 72       96 $0 - 24 - 48$ 72       96 $0 - 24 - 48$ 72         On       Rep $0 - 24 - 48$ 72       96 $0 - 24 - 48$ 72       96 $0 - 24 - 48$ 72         O       S 5       S 5       S 4 + 24       Rep       73       83       9.0       24 - 48       72         D       S 5       S 5       S 4 + 24       Rep       73       93       9.7       14       72       96       74       72       96       72       48       72       96       72       48       72       97       73       93       97       14       72       87       97       17       73       93       <	ession Numb	1	- 12	-280				Temj	p: <u>25</u> ±		0	с	ö	0.4			mg/L		Test (	Contair	ler: <u>30</u>	ml cup				
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EPA Test Method; EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 X Magna/pulex: 2021.0

Fathcad: 2000.0 Trout: 2019.0

Americanysis: 2007.0 Cyprinodon: 2004.0

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# ACUTE TOXICITY TEST DATA SHEET

Project Number: 70019.TOX	T.0107	XO					TES	TEST ORGANISM	GANI	SM							Begi	guinn	Date:	Beginning Date: 5/12/21	2/21		FI I	Time: 1038	038	
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QC Test Number: TN- 21- 222	TN-	21-	विह					Scien	ific N	ame:	Scientific Name: C.dubia	la				E	TEST TYPE:	YPE:	. –	tatic	O FIC	Static / Flowthrough		1		
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Dilution Water: Mod Hard	tod Har	p						pH: _	pH: 6.0 - 9.0	9.0			Salini	Salinity: 0			ppt		Tes	Test Volume: 15 ml	me: 1.	5 ml				
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EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Americanysis: 2007.0\_ Cyprinodon: 2004.0\_

Fathead: 2000.0 Trout: 2019.0

Ceriodaphnia: 2002.0 X Magna/pulex: 2021.0

Menidia:2006.0 OTHER:

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# TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX

Client: <u>MWRD</u>

QC Test Number: TN-21-281

Date/Time/Initials

·····

Comments/Activity



## RANDOMIZATION CHART

11

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



## TOXICOLOGY LABORATORY BENCH SHEET -TESTING LOCATION

Project Number: \_\_\_\_\_\_70019.TOX

Client: \_\_\_\_\_MWRD

QC Test Number: <u>TN-21-281</u>

Day	Testing Location	Date	Time	Initials
0	25 25	5112121	1045	P
1	25	5113121	0850	TP
2	25	5/14/21	1027	Uto
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ATS-T80 07/24/18

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## TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

\_\_\_\_

Project Number: 70019.TOX

Client: <u>MWRD</u>

QC Test Number: TN-Q1-281

## 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

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

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# TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70019.TOX	
Client:MWRD	
QC Test Number:	
a service and the second s	
TEST ORGAN	ISM INFORMATION
Common Name: Fathead minnow	Adults Isolated (Time, Date):
Scientific Name: P. promelas	Neonates Pulled & Fed (Time, Date):
Lot Number:	Acclimation: Age: Age: Age: JS 0
Source: EA	Culture Water (T/S): 25.0 °C ppt

지 않는 것은 것을 가지 않는다. 같이 있는 것은 것을 가지 않는다. 같이 있는 것은 것을 같이 있는 것을 같이 없는다. TEST SET-UP TEST INITIATION CONCENTRATION SERIES Test Volume Final Date Time Initials Activity Concentration Test Material Volume 5/12121 Control 0 ml 500 ml TP 1021 Dilutions Made 6.25% 31.25 ml 12.5% 62.5 ml Test Vessels Filled 25% 125 ml 50% 1055 250 ml 100% Organisms Transferred 500 ml 1116 (AD) Head Counts Comments:

		UTION PRI	EPARATION	<u>v</u>			FEEDING	
<u>Dav</u> 0	<u>Date</u> 5]12/21	<u>Time</u> [02]	<u>Initials</u> TP	Sample / <u>Diluent</u> <u>A71-280</u> (DI-279	Food:	Artemia Time, Initials, <u>Amount</u>	Time, Initials, <u>Amount</u>	Time, Initials, <u>Amount</u>
1					1			
2	5114121	0815	TP	AT1-280 CP1-279	2		0835 A4 3 drops	
3					3			
4					4			
5					5			
6					6			

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# ACUTE TOXICITY TEST DATA SHEET

Project Number: 70019.TOX Client: MWRD	20019.2	TOX					TEST	ORG	TEST ORGANISM							Begit	Beginning Date:	ł	511212	131		Time:	2	1055	1
OC Test Number TV 100 (20)	, I	12	200					ommo	n Nam	Common Name: Fathead minnow	ead mi	woun				Endir	Ending Date:		21	5110121		Time:		1014	
Test Material: Diffusion	J TINE (	2	00				s	cientif	Scientific Name:	1.1	P. prometas	18				TEST	TEST TYPE:		Static	Static / Flowthrough	owthro	ugh			
				101			TARC	ΉET V.	TARGET VALUES									V	Renewal	/ 1	D Non-renewal	-renew	al		
Accession Number;	umber:	Ē		202			F	Temp:	<u>25±1</u>		ပ္ပ	ÖÖ	DO: >4.0			mg/L		Test (	Test Container			1 I. Resher	har		
Dilution Water: Mod Hard	<u> </u>	p					Įď	pH: _ 6	6.0 - 9.0	_		Salin	Salinity: 0			, the		T <sub>20</sub> t	1.				INCI		1
Accession Number:	unber:	ē	W1-279	19			- <b>2</b>	totope	riod: 1	Photoperiod: 161,8d	. `	Light	t Inten	Light Intensity: <u>50 - 100</u> fc	- 100	1 4 2 4		Test D	/ ouume	Test Volume: 200 ml Test Duration: 96 hrs					1
2			A live	Number of Live Orognisms	r of nisme			Ten	Temperature	2							Dissolved Oxygen	/ed Ox	ygen		Condt	Conductivity (uS/cm)	v (uS/o	) (iii	
Concentration	Rep	0	24	4	12	96	0	24	28	72 96	0	24	H H H H H H	7.	0K	4	2			-			,		
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EPA Test Method: EPA 821-R-02-012 (CHECK ONE)	PA 821-	R-02-0	112 (CE	ECK C	(INE)							517	5												

ATS-T01 12/02/08

> Menidia:2006.0 OTHER:

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/     Time:     1055       Ending Date:     5/1/6/2/     Time:     10/4       TEST TYPE:     Static     Flowthrough       TBST TYPE:     Static     Flowthrough       TBST TYPE:     Static     Flowthrough       TBST TYPE:     Static     Flowthrough       mg/L     Test Container:     1L.Beaker       .ppt     Test Volume:     250 ml       .fc     Test Duration:     96 hrs	
TEST ORGANISM     E       Common Name:     Fathead minnow       Beientific Name:     P. promelas       Scientific Name:     P. promelas       TARGET VALUES     P. promelas       Temp:     25±1       PH:     6.0 - 9.0       Photoperiod:     16 l, 8 d       Light Intensity:     50 - 100 fc	
Project Number:     70019. TOX       Client:     MWRD       QC Test Number:     TN-Q1-DB 3       QC Test Number:     Effluent       Accession Number:     PT-1-280       Dilution Water:     Mod Hard       Accession Number:     LD-77	

Concentration         Rep         Live Organisans         CO           Control         A         24         47         72         96         24         48         72         96         24         48         72         96           Control         A         Experiment         21         48         72         96         24         48         72         96           Control         A         Experiment         21         49         77         8.4         8.5         8.4         85         8.4         85         8.4         85         8.4         85         8.4         8.5 <t< th=""><th></th><th></th><th>Number of</th><th></th><th>Temperature</th><th>crature</th><th></th><th>L</th><th></th><th></th><th></th><th>Γ</th><th>ſ</th><th>aloon</th><th>0</th><th></th><th>+</th><th></th><th></th><th></th><th></th><th>Г</th></t<>			Number of		Temperature	crature		L				Γ	ſ	aloon	0		+					Г
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A     B     7.4     8.4     8.4     8.5     8.4     8.5     8.4     8.5     8.3     8.4     8.5     8.3     8.4       B		1.			-			10 A 10	54	48	72	96		1		$\vdash$	뼯	0. 24	4 48	8 72	96	1.0
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A     Reference     Sc.J. at 9.15.1 (244)     T 9.25.1 (25		В			-						_	ó			2		اللہ ح	1.2	324	28	337	
B     A     B     A     B <td></td> <td>A</td> <td></td> <td>Ř.</td> <td></td> <td>0 15</td> <td>1 240</td> <td></td> <td>1</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td>_</td> <td>_</td> <td>_</td>		A		Ř.		0 15	1 240		1	0						-				_	_	_
A     X     X     8.0     8.1     8.2     8.4     8.0     8.3     7.8       B     X     X     X     X     X     X     X     8.1     8.2     8.4     8.0     8.3     7.8       B     X     X     X     X     X     8.1     8.2     8.4     8.0     8.1     7.4       B     X     X     X     8.1     8.1     8.1     8.1     8.1     7.4       B     X     X     8.1     8.1     8.1     8.1     8.1     8.1     7.4       B     X     X     8.1     8.1     8.1     8.1     8.1     7.4       B     X     X     8.1     8.1     8.1     8.1     7.4       B     X     X     8.1     8.1     8.1     7.4       B     X     7.4     1.4		В		5 5		2	1.410		4 1	8.8	4	8.5					33	379	9 379	9 334	322	2
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# TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX

Client: \_\_\_\_\_MWRD\_\_\_\_\_

QC Test Number:  $\underline{TN} - \partial I - \partial \partial \partial$ 

Date/Time/Initials

Comments/Activity



## **RANDOMIZATION CHART**

Project Number: \_\_\_\_\_70019.TOX \_\_\_\_\_

Client: \_\_\_\_\_MWRD

QC Test Number: TN- 21-282

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# TOXICOLOGY LABORATORY BENCH SHEET -TESTING LOCATION

Project Number: \_\_\_\_\_\_70019.TOX

Client: <u>MWRD</u>

QC Test Number: TN- 21- 222

Day	Testing Location	Date	Time	Initials
0	24	5/12/21	1056	TP
1	26	5/13/21	0847	TP
2	26	5/14/21	(033	(AO
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4	26	5/14/21	10 09	"UR
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ATS-T80 07/24/18



# TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: \_\_\_\_\_\_70019.TOX

Client: <u>MWRD</u>

## 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

4 1

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



# TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70019.TOX

Client: MWRD

QC Test Number: <u>TN-21-281,287</u>

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Aliquot of sample warmed to test temperature, then aerated if supersaturated:

			ON	AIR			OFF .	AIR	
Date	Sample #	Initial DO (mg/L)	Time	Meter	Initials	Final DO (mg/L)	Time	Meter	Initials
5-12-21	AFTY 280	10.3	1005	080	UAD	8.3	1015	680	LAO
5/14/21	ATI-280	9.7	0803	680	TP	83	0813	680	'ap
				1		00	0010	000	
					†——–				
				<u> </u>					
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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.
- 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:

12521 2261 N. Re 5/17/2521

AUTHOR

PROJEČT MAŇAGER

FFICER

SENIOR TECHNICAL OFFICER

DATE

2021

DATE

7

<u>\_2</u>2 (

2021

2021

DATE

5/27/2021

DATE

DATE