AMBIENT TOXICITY TEST REPORT FORM

GENERAL INFORMATION												
PRC	JECT NAME:	Manitowoc River	Sediment	LABOF	RATORY	NAME:	Wisconsin S	tate Laborator	y of Hygiene			
		Project		REF	REPORT NUMBER: FZ000017-21							
RE	PORT TYPE:	 Original 	Amende	ed If amended, or	iginal report	number:						
			SA	MPLE INFORMAT	TION							
SAMPLE	LAB							STAT	ION NO.			
NO.	NO.	FIELD NO.		SITE DES	CRIPTION	J		(SWIMS, STOP	RET or LAT/LONG)			
1	FZ000017	MT Tox 1		Reference Se	diment Sit	e 1						
2	FZ000018	MT Tox 2		Manitowoc River	Sediment	Site 2						
3	FZ000019	MT Tox 3		Manitowoc River	Sediment	t Site 3						
4	FZ000020	MT Tox 4		Manitowoc River	Sediment	t Site 4						
5	FZ000021	MT Tox 5		Manitowoc River	Sediment	t Site 5						
6	FZ000022	MT Tox 3 Water		Manitowoc River \	Nater fron	n Site 3	3		•			
	SA	MPLE COLLECTIO	N	SAMPLE TEN	<i>I</i> Р. °С		HAND		SAMPLE			
SAMPLE	SAMPLE	SAMPLING	DATE at		Temp	pH at	DELIVER?	HOLD TIME	ACCEP-			
NO.	TYPE	DATE	LAB	COLLECTION	Blanks	LAB	(If Yes. <u>≤</u> 4 hr?)	<u>< 36 HR?</u>	TABLE?			
1	Sediment	7/21/2014	7/21/2014	iced	13.2		Ves No	Ves V No	Ves No			
2	Sediment	7/21/2014	7/21/2014	iced	2.0		✓ Yes No	Yes No	Ves No			
3	Sediment	7/21/2014	7/21/2014	iced	2.0		Ves No	Ves ✓ No	Yes No			
4	Sediment	7/21/2014	7/21/2014	ICED	13.2		Yes No					
5	Sediment	7/21/2014	7/21/2014	iced	11.2	<u> </u>	Ves No					
6	Vvater	1/21/2014	1/21/2014		10.9	612 of						
	COMMENTS: Manitowoc River water was collected at Site 3 for use in toxicity tests. Sediment was collected at 5 sites via boat. Phase 1 tests were set within 72 hours of collection, other tests were set greater than 72 hours as test dates indicate.											
		1	ACUT	E				CHRONIC				
		Disco				Ρ.	promelas 7/	31/14, D. mag	gna 7/31/14,			
Date les	st initiated:	Phase	and and	FHIM //24/14			P. Prome	las Phase 3 8	/28/14			
			Q	A/QC CONDITIO	NS							
							ACUTE	CH	RONIC			
Temperatur	es maintained	during test? (25 ± 1	<u>°C)</u>				es 🗹 No	Ves Ves	No			
Dissolved o	xygen <u>></u> 4.0 m	ig/l throughout tests?	, 			V Y	es No	Ves				
pH maintair	ed Within 6.0	- 9.0 s.u. throughout	DIVI and FHI	/I tests?				Ves				
Concurrent	or monunity rei	erence lesis within a	are throughout	IIIS?				Ves				
Were samp	les modified n	rior to testing? (av filt	ration peration	chem addition)				V Yes				
were samp		Samples wre modified	in that elutriate	samples were prepa	red from Ma	nitowou	River water an	d sediment which	then			
	COMMENTS.	filtered.										
		Temperatures reached	a high of 26.2°	C in the acute P. pron	nelas Trial 2	Test or	ı days 1 - 3 and	in the acute D. n	nagna Trial 1			
			W	ATER CHEMIST	RY							
		(All values report	ted in mg/L, except pH	and Conduc	tivity)						
SAMPLE TYPE	SAMPLE NO.	HARDNESS	ALKALIN	JITY TOTAL A	MMONIA	DIS C	SSOLVED XYGEN	pH (s.u.) After Warming	Conductivity (µS)			
	Manitowoc River	244	235	0.0	06		9.7	9.02	511			
Sites	Elutriate 3 Batch 2	272	255	NA - not volu	enough ume		8.9	8.21	629			
	Elutriate 3 Batch 4	260	235	NA - not volu	enough Ime		9.9	8.21	572			
	Hard Water	180	135	N	Α		8.8	8 58	600			
LAB	DC	196	335	N	A		8.9	8.50	802			
WATER	00	100	000		~		0.0	0.00	002			
	COMMENTS:	See narrative for other	chemistry data	notes pertaining to [Daphnia ma	gna and	Pimephales pro	omelas tests				
		DC = Dechlorinated Ma Hard water is ued for co MR= Manitowoc River v	dison tap wate ontrol in Daphn water	r is used as the lab co na magna tests.	ontrol for th	e fathea	d minnow test.					
		Elut= elutriate DM= Daphnia magna										

	ACUTE P	PHASE 1 TRIAL	1 TEST C	ONTROL	. PERFOR	RMANCE							
LAB	WATER CO	ONTROLS											
		Daphnia magna	Daphnia magna Acute Trial 1										
		Survival <u>></u> 90%		Set: 7/24/14									
		🗹 Yes 🗌 No											
	These are no could not be	n-standard tests run us done with fathead min	sing sedimen nows due to l	t and elutriate imited volum	e samples as e of elutriate	described un available.	der each specie	s test. This trial					
			Pei	rcent Surviv	al By Repli	cate	Mean Percent	Statistical					
SPECIES	SITE	DESCRIPTION	1	2	3	4	Survival	Significance*					
	LC	LW Control	100	100	100	100	100.0	А					
Daphnia magna	1	MT Tox 1	100	90	100	100	97.5	А					
	2	MT Tox 2	90	100	100	100	97.5	А					
Age of Organism:	3	MT Tox 3	20	30	30	30	27.5	В					
< 24 Hours Old	4	MT Tox 4	90	90	90	100	92.5	А					
	5	MT Tox 5	90	100	90	100	95.0	А					
	6												
COMMENTS:	Please descri * Samples w DM Trial 1 w test treatmer Lab control a control sedir not be found 100% surviva Please descri FHM Trial 1 w	ibe any unusual behavior with the same letter are n as done by making elut ht then had 30 ml sedim associated with this tes nent. 10 daphnia in eac on shut down but were al. ibe any unusual behavior was not conducted due	and/or appea. not statistical riate from sec lent and 120 r t was 120 ml ch replicate w e preseumed r and/or appea. to limited elu	rance of organ ly different fro diment from e nL of elutriate elutriate (mac rere fed 1 mL dead. Addition rance of organ triate volume	nisms.(see Par om each othe each sample s e in each bea de with lab wa YFC and 1 m onal hard wat nisms.(see Par s.	t 6.1.2 of the l site mixed wit ker. Tests we ater and lab c L S.cap on D er control is t 6.1.2 of the l	Methods Manual f h Maniotowoc R ere static non rer ontrol sediment, ay 0. Some of th listed on DM Tria Methods Manual f	or ex.) iver water. Each newal 48hours. I over 30 ml lab e daphnia could Il 3 and had					

Manitowoc River Sediment Project Report # : FZ000017-21

Acute Test Date: Phase 1 DM and FHM 7/24/14

LAB WA	-	UIE PHASE I IRI	AL 2 TES	ST CONT	ROL PER	RFORMA	NCE					
	TER C	ONTROLS										
Fathead Minno	W	Daphnia magna	Daphnia magna Acute Trial 2 - Set: 7/24/14									
Survival <u>></u> 90%	6	Survival <u>></u> 90%	Fathead minnow Acute Trial 2 - Set: 7/24/14									
Ves Ves	No	Ves No										
COMMENTS:	These a	ire non-standard tests run	using sedim	ent and elutria	ate samples a	as describec	under each spec	cies test.				
		ŀ	ACUTE T	EST DAT	Α							
			Per	cent Surviv	al By Replic	cate	Mean Percent	Statistical				
SPECIES	SI	TE DESCRIPTION	1	2	3	4	Survival	Significance*				
	LC	LW Control	70	100	100	100	92.5	А				
Fathead Minnow	1	MT Tox 1	100	100	100	100	100.0	А				
	2	MT Tox 2	100	100	100	80	95.0	А				
Age of Organism:	3	MT Tox 3	80	100	100	100	95.0	А				
13 days	4	MT Tox 4	100	100	100	100	100.0	А				
	5	MT Tox 5	100	100	100	100	100.0	А				
	6	MR + Lab Sed Control	100	100	100	90	97.5	А				
	with 1 p		/my. 16313 W	vere run for 9	6 hour with p	artial water	renewal daily. Be	akers were filled				
			t. Each beak	vere run for 90 ver had of 40	6 hour with p mL of sedime	artial water ent and 160	renewal daily. Be mL of overlying v	eakers were filled vater. FHM were				
SPECIES	fed 0.1	part water: 4 parts sedimen mL shrimp on Day 2.	t. Each beak	rere run for 90 er had of 40 cent Surviv	6 hour with p mL of sedim al By Replic	artial water ent and 160 cate	renewal daily. Be mL of overlying v Mean	eakers were filled water. FHM were Statistical				
SPECIES	fed 0.1 SI⊺	oart water: 4 parts sedimen mL shrimp on Day 2. FE DESCRIPTION	t. Each beak	rere run for 90 er had of 40 cent Surviv 2	6 hour with p mL of sedim al By Replic 3	artial water ent and 160 cate 4	renewal daily. Be mL of overlying v Mean Percent	akers were filled vater. FHM were Statistical Significance*				
SPECIES	fed 0.1 SIT	art water: 4 parts sedimen mL shrimp on Day 2. TE DESCRIPTION	t. Each beak Per 1 100	rere run for 90 er had of 40 cent Surviv 2 100	6 hour with p mL of sedim al By Replic 3 90	artial water ent and 160 cate 4 100	renewal daily. Be mL of overlying v Mean Percent 97.5	akers were filled vater. FHM were Statistical Significance* A				
SPECIES Daphnia magna	fed 0.1 SIT LC 1	TE DESCRIPTION	Per 1 100 100	rere run for 90 er had of 40 cent Surviv 2 100 100	6 hour with p mL of sedim al By Replic 3 90 100	artial water ent and 160 cate 4 100 90	Mean Percent 97.5 97.5	Statistical Significance*				
SPECIES Daphnia magna	fed 0.1	TE DESCRIPTION LW Control MT Tox 1	Per 1 100 100 100	rere run for 90 er had of 40 cent Surviv 2 100 100 100	6 hour with p mL of sedim al By Replic 3 90 100 100	artial water ent and 160 cate 4 100 90 90	Mean Percent 97.5 97.5 97.5	eakers were filled water. FHM were Statistical Significance* A A A A				
SPECIES Daphnia magna Age of Organism:	fed 0.1 SIT LC 1 2 3	Art water: 4 parts sedimen mL shrimp on Day 2. TE DESCRIPTION LW Control MT Tox 1 MT Tox 2 MT Tox 3	Per 1 100 100 100 90	rere run for 90 cent Surviv. 2 100 100 100 80	6 hour with p mL of sedim al By Replic 3 90 100 100 100	artial water ent and 160 cate 4 100 90 90 90 100	Mean Percent 97.5 97.5 97.5 92.5	eakers were filled vater. FHM were Statistical Significance* A A A A A				
SPECIES Daphnia magna Age of Organism: < 24 Hours Old	fed 0.1 SIT LC 1 2 3 4	TE DESCRIPTION LW Control MT Tox 1 MT Tox 2 MT Tox 3 MT Tox 4	Per 1 100 100 100 90 100 100	rere run for 90 er had of 40 cent Surviv 2 100 100 100 80 90	6 hour with p mL of sedim al By Replic 3 90 100 100 100 90	artial water ent and 160 cate 4 100 90 90 100 100	Mean Percent 97.5 97.5 97.5 97.5 92.5 95.0	A A A A A A A A A A A A A A A A A A A				
SPECIES Daphnia magna Age of Organism: < 24 Hours Old	fed 0.1 SIT LC 1 2 3 4 5	Art water: 4 parts sedimen mL shrimp on Day 2. TE DESCRIPTION LW Control MT Tox 1 MT Tox 2 MT Tox 3 MT Tox 4 MT Tox 5	Per 1 100 100 100 90 100 100 100	rere run for 90 er had of 40 cent Surviv 2 100 100 80 90 80	6 hour with p mL of sedim al By Replic 3 90 100 100 100 90 100	artial water ent and 160 cate 4 100 90 90 100 100 100	Mean Percent 97.5 97.5 97.5 97.5 97.5 97.5 97.5 97.5 97.5 97.5 97.5	A A A A A A A A A A A A A A A A A A A				

Project Name : Manitowoc River Sediment Project Report # : FZ000017-21 Acute Test Date : Phase 1 DM and FHM 7/24/14

LAB			3 1E21 C	ONIROL	PERFOR	RMANCE							
	WATER CO	NTROLS		Daphni	a magna Ag	cute Trial 3	- Set 7/24/14						
Fathead Minn	OW	Daphnia magna		Fathead Minnow Trial 3 - Set 7/24/14									
Survival > 90	%	Survival <u>></u> 90%											
			<u></u>										
COMMENTS.													
	These are nor	n-standard tests run using sed	liment and elut	riate samples	as described	under each	species test.						
	-	ACU	JTE TEST	DATA				-					
			Per	cent Surviv	al By Replic	cate	Mean Percent	Statistical					
SPECIES	SITE DESCRIPTION		1	2	3	4	Survival	Significance*					
	LC	LW Control	100	100	100	100	100.0	А					
Fathead Minnow	1	MT Tox 1	100	100	100	100	100.0	А					
	2	MT Tox 2	100	100	100	90	97.5	А					
Age of Organism:	3	MT Tox 3	90	100	90	100	95.0	А					
13 Days	4	MT Tox 4	100	100	90	100	97.5	А					
	5	MT Tox 5	100	100	100	100	100.0	А					
	6	Lab Control Elutriate	90	90	80	100	90.0	Α					
COMMENTS:	FHM Trial 3 w sediment) was	as done using elutriate made s used in each beaker. The la	from sediment	from each site lechlorinated	e mixed with I tap water (no	Manitowoc R n-elutriate), a	iver water. Only and treatment 6 w	elutriate (no ⁄as control					
COMMENTS:	FHM Trial 3 w. sediment) was elutriate, whic Tests were ru	as done using elutriate made s used in each beaker. The la h was prepared using hard la n for 96 hour with partial wate	from sediment b control was o b water and lak	from each of from each situ echlorinated control sedir Beakers had	e mixed with I tap water (no nent. d 140 mL of el	Manitowoc R n-elutriate), a lutriate, and	iver water. Only and treatment 6 w were fed 0.1 mL s	elutriate (no vas control shrimp on Day 2.					
	FHM Trial 3 w sediment) was elutriate, whic Tests were ru	as done using elutriate made s used in each beaker. The la h was prepared using hard la n for 96 hour with partial wate	from sediment from sediment b control was c b water and lat r renewal daily Per	from each sit from each situ lechlorinated o control sedii . Beakers had cent Surviv	e mixed with I tap water (no ment. d 140 mL of el al By Replic	Manitowoc R n-elutriate), a lutriate, and cate	iver water. Only and treatment 6 w were fed 0.1 mL s	elutriate (no vas control shrimp on Day 2. Statistical					
SPECIES	FHM Trial 3 w. sediment) was elutriate, whic Tests were ru SIT	as done using elutriate made s used in each beaker. The la h was prepared using hard la n for 96 hour with partial wate E DESCRIPTION	from sediment b control was c b water and lat r renewal daily Per	from each sit from each sit lechlorinated control sedii . Beakers had cent Surviv	e mixed with I tap water (no ment. d 140 mL of el al By Replic	Manitowoc R n-elutriate), a lutriate, and cate 4	iver water. Only and treatment 6 w were fed 0.1 mL s Mean Percent Survival	elutriate (no vas control shrimp on Day 2. Statistical Significance*					
SPECIES	FHM Trial 3 w sediment) was elutriate, whic Tests were ru SIT	as done using elutriate made s used in each beaker. The lai th was prepared using hard la n for 96 hour with partial wate E DESCRIPTION Lab Control Elutriate	from sediment b control was c b water and lat r renewal daily Per 1 100	from each sit from each sit lechlorinated control sedii . Beakers had cent Surviv 2 100	e mixed with I tap water (no ment. d 140 mL of el al By Replic 3 100	Manitowoc R n-elutriate), a lutriate, and cate 4 90	iver water. Only and treatment 6 w were fed 0.1 mL s Mean Percent Survival 97.5	elutriate (no vas control shrimp on Day 2. Statistical Significance* A					
SPECIES Daphnia magna	FHM Trial 3 w. sediment) was elutriate, whic Tests were ru SIT LC 1	as done using elutriate made s used in each beaker. The la h was prepared using hard la n for 96 hour with partial wate E DESCRIPTION Lab Control Elutriate MT Tox 1 Elutriate	from sediment from sediment b control was c b water and lat r renewal daily Per 1 1 100 100	from each sitt from each sitt lechlorinated control sedin Beakers had cent Surviv 2 100 100	e mixed with I tap water (no ment. d 140 mL of el al By Replic 3 100 100	Manitowoc R n-elutriate), a utriate, and cate 4 <u>90</u> 100	iver water. Only and treatment 6 w were fed 0.1 mL s Mean Percent Survival 97.5 100.0	elutriate (no vas control shrimp on Day 2. Statistical Significance* A A					
SPECIES Daphnia magna	FHM Trial 3 wasediment) was elutriate, which Tests were ruse SIT	as done using elutriate made s used in each beaker. The lai h was prepared using hard la n for 96 hour with partial wate E DESCRIPTION Lab Control Elutriate MT Tox 1 Elutriate MT Tox 2 Elutriate	from sediment b control was c b water and lat r renewal daily Per 1 100 100 100	from each sitt from each sitt lechlorinated control sedir Beakers had cent Surviv 2 100 100 100	e mixed with 1 tap water (no ment. d 140 mL of el al By Replic 3 100 100 100	Manitowoc R n-elutriate), a utriate, and cate 4 90 100 100	iver water. Only and treatment 6 w were fed 0.1 mL s Mean Percent Survival 97.5 100.0 100.0	elutriate (no vas control shrimp on Day 2. Statistical Significance* A A A A					
SPECIES Daphnia magna Age of Organism:	FHM Trial 3 w sediment) was elutriate, whic Tests were ru SIT LC 1 2 3	as done using elutriate made s used in each beaker. The lai h was prepared using hard la n for 96 hour with partial wate E DESCRIPTION Lab Control Elutriate MT Tox 1 Elutriate MT Tox 2 Elutriate MT Tox 3 Elutriate	from sediment b control was of b water and lat r renewal daily Per 1 100 100 100 90	cent Surviv 2 100 100 100 100 100 100	e mixed with I tap water (no ment. d 140 mL of el al By Replic 3 100 100 100 100	Manitowoc R n-elutriate), a utriate, and cate 4 <u>90</u> 100 100 100	iver water. Only and treatment 6 w were fed 0.1 mL s Mean Percent Survival 97.5 100.0 100.0 97.5	elutriate (no vas control shrimp on Day 2. Statistical Significance* A A A A A A					
SPECIES Daphnia magna Age of Organism: < 24 Hours Old	FHM Trial 3 w sediment) was elutriate, whic Tests were ru SIT LC 1 2 3 4	as done using elutriate made s used in each beaker. The lai h was prepared using hard la n for 96 hour with partial wate E DESCRIPTION Lab Control Elutriate MT Tox 1 Elutriate MT Tox 2 Elutriate MT Tox 3 Elutriate MT Tox 4 Elutriate	from sediment b control was of b water and lat r renewal daily Per 1 100 100 100 90 100	cent Surviv Beakers had control sedir Beakers had cent Surviv 2 100 100 100 100 100 100	e mixed with I tap water (no) ment. d 140 mL of el al By Replic 3 100 100 100 100 100 100	Manitowoc R n-elutriate), a utriate, and cate 4 90 100 100 100 100 100	iver water. Only and treatment 6 w were fed 0.1 mL s Mean Percent Survival 97.5 100.0 100.0 97.5 100.0	elutriate (no vas control shrimp on Day 2. Statistical Significance* A A A A A A A A A					
SPECIES Daphnia magna Age of Organism: < 24 Hours Old	FHM Trial 3 wasediment) wasediment) waselutriate, which Tests were rused states tates were rused states were rused states were rused state	as done using elutriate made s used in each beaker. The lai th was prepared using hard la n for 96 hour with partial wate E DESCRIPTION Lab Control Elutriate MT Tox 1 Elutriate MT Tox 2 Elutriate MT Tox 3 Elutriate MT Tox 4 Elutriate MT Tox 5 Elutriate	from sediment b control was of b water and lat r renewal daily Per 1 100 100 100 90 100 100 100	rom each sitt from each sitt lechlorinated control sedin . Beakers had cent Surviv 2 100 100 100 100 100 100 100	e mixed with I tap water (no ment. d 140 mL of el al By Replic 3 100 100 100 100 100 100 100	Manitowoc R n-elutriate), a lutriate, and cate 4 90 100 100 100 100 100 100	iver water. Only and treatment 6 w were fed 0.1 mL s Mean Percent Survival 97.5 100.0 100.0 97.5 100.0 100.0	elutriate (no vas control shrimp on Day 2. Statistical Significance* A A A A A A A A A A A A					
SPECIES Daphnia magna Age of Organism: < 24 Hours Old	FHM Trial 3 wasediment) was elutriate, whice Tests were ru SIT LC 1 2 3 4 5 6	as done using elutriate made s used in each beaker. The lai th was prepared using hard la n for 96 hour with partial wate E DESCRIPTION Lab Control Elutriate MT Tox 1 Elutriate MT Tox 2 Elutriate MT Tox 3 Elutriate MT Tox 4 Elutriate MT Tox 5 Elutriate	from sediment b control was c b water and lat r renewal daily Per 1 100 100 100 90 100 100 100	rom each sitt from each sitt lechlorinated control sedir Beakers had cent Surviv 2 100 100 100 100 100 100	e mixed with 1 tap water (noi nent. d 140 mL of el al By Replic 3 100 100 100 100 100 100 100	Manitowoc R n-elutriate), a utriate, and cate 4 90 100 100 100 100 100	iver water. Only and treatment 6 w were fed 0.1 mL s Mean Percent Survival 97.5 100.0 100.0 97.5 100.0 100.0	elutriate (no vas control shrimp on Day 2. Statistical Significance* A A A A A A A A A					

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CHRONIC PHASE 2 TEST										NTR	OL P	ERF	ORMAN	CE				
	LAB W	/ATEF	r Coi	NTRC	DLS													
Fathead	d Minnow			D	aphni	ia ma	gna											
Surviva	al > 80%			_ 5	Surviv	al > 8	0%											
✓ Yes	Ves No																	
	_> 15	neon	ates/	femal	е													
> 0.25	mg/fish	-	L	V Yes			1 10	0(- -	ia Dha	0	Dimonhol					
✓ Yes	Ves Vo Reproduc					on C\	/ < 40	%	Unronic Phase 2 Pimephales promelas and Daphnia magna									
Survival We	ight $CV < 40$	0/	Popr				8											
	1911. OV < 40 7 No	70	керп		80%	Cv= 3rd hi	o hoor											
Survival Weight				Yes		No	000											
% CV =	4	-			< 20%	6 mal	es											
				Yes		No												
		7/31/1	4 Set	FHM a	nd Dap	hnia n	nagna	Phase 2	Tests ·	- focus	sed on	Site 3	due to toxici	ty seen in Pha	ise 1. Site 1 is	the reference		
, c		site w	/hich c	did not	show	toxicit	y in Ph	ase 1.										
							CHR	ONIC	TES	ST D	ΑΤΑ							
								MEA	N DR	ry Bi	OMAS	S PE	R REPLIC	ATE PAIR	MEAN	Growth		
SPECIES	SITE DESCRIPTION			SUR	AN % VIVAI		(mg)					-	BIOMASS	Statistical				
					0011		1	1	2	3	3	4	5	(mg)	Significance*			
	LC	Cu	Iture W	Vater -	DC	<u> </u>	94	0.440	0.4	413	0.4	135	0.445	0.303	0.407	В		
	4				LW St	urvival	Weight	0.440	0.4	413	0.4	135	0.445	0.403	0.505	•		
Fathead	1	DC ·	+ Lab :	Sed Co	ntrol	1	00	0.628	0.5	120	0.5	152	0.458	0.440	0.525	A		
Minnow Growth	2	MR		3 Sodi	nont	2	20	0.463	0.2	1/18	0.4	105	0.720	0.403	0.495			
& Survival Test	3	IVIIX	S3 El	utriate	nem	2	25	0.073	0.0	323	0.0	203	0.000	0.000	0.034	C		
	5	Site 3	3 Elut +	-S3 Se	diment	5		0.028	0.0	000	0.0	000	0.000	0.000	0.006			
	0						<u> </u>	0.020	0.0		0.0		0.000	0.000	0.000			
		Pleas	e desc	ribe an	y unusi	ual beh	avior al	nd/or app	earanc	e of or	rganism	s.(see	Part 6.1.2 of	the Methods M	anual for ex.)			
C	OMMENTS	* San	nples \	with th	e same	e letter	are no	t statisti	cally d	lifferei	- nt from	each o	other.		-			
		Phase	e 2 Tes	st initia	ited 7/3	31/2014	4 - Chro	onic test	was s	et with	n contro	ol treat	tments, site 1	l as reference	site, and mult	iple treatments		
		involv	ving To	ox Site	3. All	treatm	ents ar	e descrit	oed in	the si	te desc	ription	above Stati	istical signific	ance is based	on growth		
		result	ts.										1	1		01-1-1-1		
SPECIES	SITE	-	4	NEC						Y REPLICATE MEAN % ADULT		% ADULT	SURVIVAL	Statistical				
			1	Z	57	4	52	52	60	8	57	10	54	1	00	A(Surv) A(Popro)		
	1		30	30	29	29	30	22	23	23	35	31	28		90	A(Surv) A(Repro)		
D magna	2		51	48	27	65	65	62	71	44	59	52	54	9	90	A(Surv) A(Repro)		
Reproduction &	3		56	56	58	59	51	52	56	49	60	59	56	1	00	A(Surv) A(Repro)		
Survival Test	4		39	44	57	29	26	67	52	40	56	51	46	Ę	50	B(Surv) A(Repro)		
	5		50	66	72	64	56	57	0	58	74	0	50	8	30	A(Surv) A(Repro)		
					Mal	e Pro	ductio	n <u><</u> 20%	6 Ove	r All T	reatm	ents?	Yes					
		Pleas	e desc	ribe an	y unusi	ual beh	avior al	nd/or app	earanc	e of or	rganism	s.(see	Part 6.1.2 of	the Methods M	anual for ex.)			
C	COMMENTS	* San	nples \	with th	e same	e letter	are no	t statisti	cally d	lifferei	nt from	each o	other.					
		Phase	e 2 Tes	st initia	ited 7/3	31/14 -	Chroni	ic test wa	as set	with c	ontrol	treatm	ent, site 1 as	reference site	e, and multiple	treatments		
		water	in trea	atment	3. 311 s LC. 1	e uesc I. and :	2. Stati	s are me stical sig	same	as ine nce w	as dete	remin	ents above, v ed for both s	urvival (Sur) a	ind reproducti	on (Rep).		

	CHR	ONIC PH	IASE 3 T	EST CO	NTROL	PERFOR	MANCE		
	RECEIVING WAT	ER CONT	ROLS			LAB	WATER	CONTROLS	
Fathear	d Minnow			Fat	head Minr				
Surviv	al <u>></u> 80%				S	urvival <u>></u> 80	%		
✓ Yes	No No				I	Yes 🗌	No		
> 0.25	5 ma/fish				>	0.25 mg/fis	sh		
Ves							No		
							NO		
Survival We	ight CV <u><</u> 40%				Surviva	I Weight CV	/ <u><</u> 40%		
✓ Yes	No No				Image: A start of the start	Yes 🗌	No		
%CV =	8				%	$_{\rm o}\rm CV = 9$			
CC)MMENTS: Only th	ne FHM test ri	un with dilute	ed sediment	S.				
			CHRC	NIC TE	ST DAT/	4			
			MEAN D	RY BIOM/	ASS PER I	REPLICAT	EPAIR	MEAN	SURVIVAL
SPECIES		MEAN % SURVIVAL	L		(mg)			BIOMASS	WEIGHT
		0011111	1	2	3	4	5	(mg)	%CV
	LW Control	95%	0.338	0.325	0.315	0.293	0.325	0.319	
!	survival weight	<u> </u>	0.338	0.325	0.315	0.391	0.325		9
	Site 1 Reference	85%	0.230	0.317	0.255	0.265	0.368	0.287	
Fathead	survival weight		0.306	0.317	0.340	0.353	0.368		8
Minnow Growth	25%	70%	0.250	0.075	0.160	0.165	0.095	0.149	
& Survival Test	50%	50%	0.258	0.133	0.083	0.210	0.180	0.173	
	75%	65%	0.233	0.210	0.073	0.120	0.000	0.127	
	100%	65%	0.120	0.130	0.098	0.088	0.130	0.113	
!									
FHM CHRC	NIC RESULTS:	IC ₂₅ =	17%	C.I.% =	11-36%	rTUc =	NA		
		Statistics	Program:	✓ EPA's	ICp Oth	er (See Comr	nents Below)	1	
	Based	on Phase 2 t	esting it was	decided tha	it a chronic	P. promleas	test should	be run with a dilu	ition series of
COMMEN	NTS: sedime	ents. Tox Site	e 3 sediments	s were dilut	ed based on	weight with	i the referen	ce sediment from	Tox Site 1.
	This w	as well mixed	J and then pla	aced into cu	ips with 1:4	ratio of sedi	ment to Mar	nitowoc River wat	er. LW control
	is dech	ilorinated tap	water only, a	and Site 1 re	erence is T	ox Site 1 se	diment with	Manitowoc River	water
	overlying. Diacondonarilla annung i bahasian ad international formations (and Dart 6.4.0 of the Mathada Manuel format)								



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

LAB REPRESENTATIVE:	Camille Turcotte			SIG	NATURE:			
DATE:	10/31/2014							
PHONE:	(608) 224-6230 WDNR LAB			CERT #:	11313379	90		
LAB ADDRESS:	Wisconsin State	ory of Hyg	jiene, 26	01 Agricult	ture Drive,	Madison, WI 53718		
REVIEWED BY:	Mallory Ballard			DATE:	10/31/201	14		
PERMITTEE				SIG	NATURE:			
PHONE:				DATE:				

Send <u>all pages</u> of this form (plus any attachments or additional information which you believe to be relevant to the test) to: Biomonitoring Coordinator, Bureau of Watershed Management, Department of Natural Resources, 101 South Webster St., P.O. Box 7921, Madison, WI 53707-7921.

Copies of the State of Wisconsin Aquatic Life Toxicity Testing Methods Manual (Methods Manual) and the WET Guidance Document can be obtained from the WDNR Biomonitoring Coordinator at the address given above or at: http://dnr.wi.gov/org/water/wm/ww/biomon/

🗌 Yes 🗌 No

TO BE COMPLETED BY THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES							
Results Entered Into Database?							
COMMENTS:							
REVIEWED BY:		DATE:					
CC:							

Project Name : Manitowoc River Sediment Project Report # : FZ000017-21 Test Date : P. promelas 7/31/14,