Aquatic Research Organisms

DATA SHEET

I. Organism History

Species Leptocheirus plumulosus

Source: Lab reared X Hatchery reared _____ Field collected _____

Hatch date 2/2023 Receipt date _____

Lot number 02 23 23 LP Strain AR20

Brood origination Chesapeake Bay, VA

II. Water Quality

Temperature 24 °C Salinity ~20 ppt D.O. SAT ppm

pH 8.0 su Hardness — ppm Alkalinity — ppm

III. Culture Conditions

Freshwater _____ Saltwater X Other _____

Recirculating _____ Flow through _____ Static renewal X

DIET: Flake food X Phytoplankton _____ Trout chow X

Artemia _____ Rotifers _____ YCT _____ Other "GORP"

Prophylactic treatments: _____

Comments: 2-4 um Algae

IV. Shipping Information

Client: NWDLS # of Organisms 1250

Carrier: FedEx Date shipped 2/23/23

Biologist: _____

PO BOX 1271 HAMPTON NH 03843-1271 (603) 926-1650 AROFISH@AOL.COM

SP – Mysid Shrimp 10 day (*Americamysis bahia)*

PCCA HI & CDP Resampling 2023				
Test Organism		*Americamysis bahia*	Test Type	SP 10 day
Number of Replicates		5	Number of Organisms/ Replicate	20
Test Organism Batch Number		23-0180-MB	Organism Date of Birth or Date Received	02/12/2023
Organism Source		NWDLS	Organism Age at Test Initiation	5 days
Dissolved Oxygen		≥ 4.0 mg/L	Temperature	20 ± 2 °C
Salinity		30 ± 2%	pH	6.0 – 9.0 S.U.
Ammonia		< 5 mg/L	Reference Toxicant	Potassium Chloride – see graph
Sample ID		CDP-06	Field Sampling Date/Time	01/23/2023 13:05
Sample ID		CDP-07	Field Sampling Date/Time	01/23/2023 10:00
Sample ID		REF	Field Sampling Date/Time	01/27/2023 09:20
Test Initiation Date/Time		02/17/2023 10:30	Test Termination Date/Time	02/27/2023 10:30
Renewal of Test Solution		See SP Summary	Feeding	Twice daily (AM and PM)
Sample ID	Total # of Organisms	Survival (%)	Significant Effect (>10% effect)	Effect (%)
CONTROL	100	91	---	0.00
REFERENCE	100	91	No	0.00
CDP-06	100	87	No	4.40
CDP-07	100	88	No	3.30

Mysidopsis 10-d Survival and Growth Sediment — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	19-1098-0718	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	27 Mar-23 7:19	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Batch ID:	20-4632-7685	**Test Type:**	Survival-Growth	**Analyst:**	Theran Gay
Start Date:	17 Feb-23 10:30	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	27 Feb-23 10:30	**Species:**	Mysidopsis bahia	**Brine:**	Instant Ocean
Test Length:	10d 0h	**Taxon:**	Malacostraca	**Source:**	NWDLS **Age:** 5
Sample ID:	00-2847-2144	**Code:**	1B27350	**Project:**	PCCA
Sample Date:	16 Jan-23 14:20	**Material:**	SPP	**Source:**	PCCA-HI
Receipt Date:	19 Jan-23 17:30	**CAS (PC):**		**Station:**	
Sample Age:	31d 20h	**Client:**	Terracon Consultants, Inc.		

Comments:
9.6=CDP-6 site and 9.7=CDP 7 site

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C > T	Control Sed passed mean dry biomass-mg	6.99%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Reference Sed		Control Sed	0.6172	1.86	0.022	8	CDF	0.2771	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	1.378	2.29	1.0000	No Outliers Detected
Control Trend	Mann-Kendall Trend Test	1.378		0.2269	Non-Significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0001332	0.0001332	1	0.3809	0.5543	Non-Significant Effect
Error	0.002798	0.0003498	8			
Total	0.0029312		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	3.123	23.15	0.2959	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9099	0.7411	0.2806	Normal Distribution

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	CS	5	0.3074	0.2912	0.3236	0.3	0.2955	0.326	0.005825	4.24%	0.00%
0	RS	5	0.3147	0.2861	0.3433	0.3095	0.2905	0.339	0.01029	7.31%	-2.37%

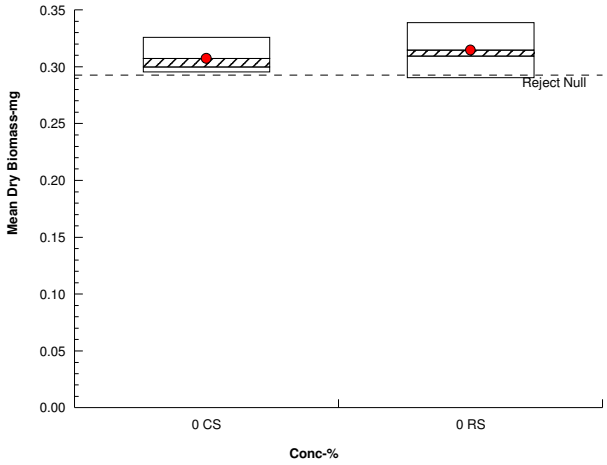
Mean Dry Biomass-mg Detail

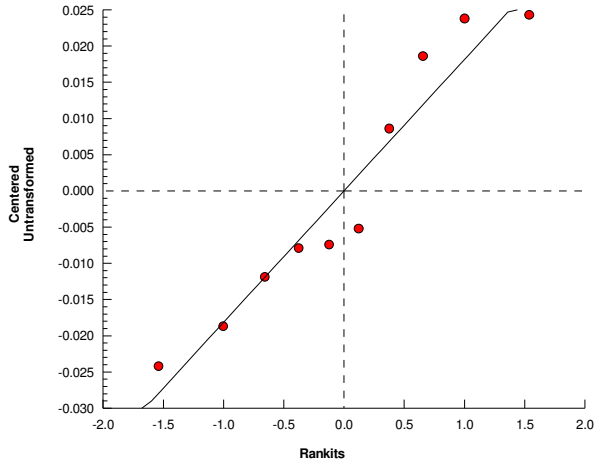
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	CS	0.3	0.326	0.2995	0.2955	0.316
0	RS	0.3095	0.339	0.3385	0.296	0.2905

Mysidopsis 10-d Survival and Growth Sediment **NWDLS Environ. Toxicol. Lab**

Analysis ID:	19-1098-0718	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	27 Mar-23 7:19	**Analysis:**	Parametric-Two Sample	**Status Level:**	1

Graphics





Mysidopsis 10-d Survival and Growth Sediment — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	10-4602-1208	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	27 Mar-23 7:19	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Batch ID:	20-4632-7685	**Test Type:**	Survival-Growth	**Analyst:**	Theran Gay
Start Date:	17 Feb-23 10:30	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater
Ending Date:	27 Feb-23 10:30	**Species:**	Mysidopsis bahia	**Brine:**	Instant Ocean
Test Length:	10d 0h	**Taxon:**	Malacostraca	**Source:**	NWDLS **Age:** 5
Sample ID:	00-2847-2144	**Code:**	1B27350	**Project:**	PCCA
Sample Date:	16 Jan-23 14:20	**Material:**	SPP	**Source:**	PCCA-HI
Receipt Date:	19 Jan-23 17:30	**CAS (PC):**		**Station:**	
Sample Age:	31d 20h	**Client:**	Terracon Consultants, Inc.		

Comments:
9.6=CDP-6 site and 9.7=CDP 7 site

Data Transform	Alt Hyp	Comparison Result	PMSD
Untransformed	C > T	Control Sed passed mean dry weight-mg	4.42%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Reference Sed		Control Sed	0.9059	1.86	0.015	8	CDF	0.1957	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	1.821	2.29	0.4629	No Outliers Detected
Control Trend	Mann-Kendall Trend Test	1.821		0.4790	Non-Significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0001385	0.0001385	1	0.8207	0.3914	Non-Significant Effect
Error	0.0013502	0.0001688	8			
Total	0.0014887		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	1.509	23.15	0.6998	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.8977	0.7411	0.2069	Normal Distribution

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	CS	5	0.3381	0.3204	0.3558	0.3432	0.3158	0.3511	0.006372	4.21%	0.00%
0	RS	5	0.3455	0.3311	0.3599	0.3439	0.3289	0.3568	0.005187	3.36%	-2.20%

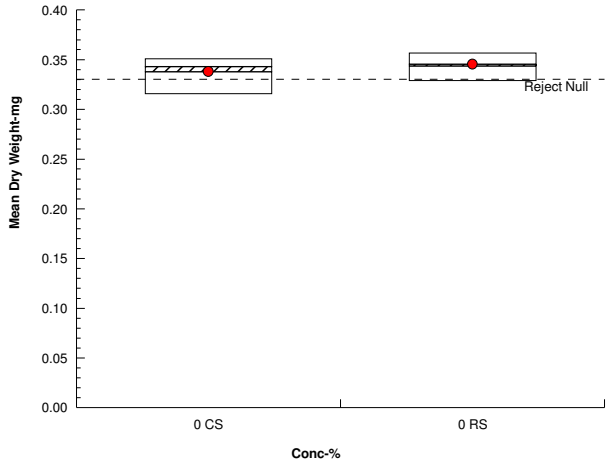
Mean Dry Weight-mg Detail

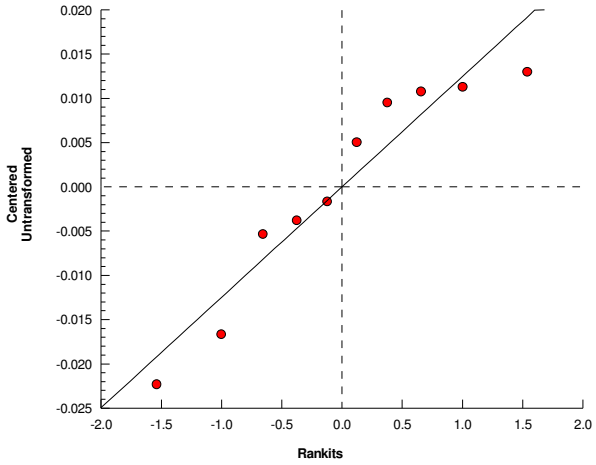
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	CS	0.3158	0.3432	0.3328	0.3476	0.3511
0	RS	0.3439	0.3568	0.3563	0.3289	0.3418

Mysidopsis 10-d Survival and Growth Sediment **NWDLS Environ. Toxicol. Lab**

Analysis ID:	10-4602-1208	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	27 Mar-23 7:19	**Analysis:**	Parametric-Two Sample	**Status Level:**	1

Graphics





Mysidopsis 10-d Survival and Growth Sediment — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	13-0637-0925	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4		
Analyzed:	27 Mar-23 7:18	**Analysis:**	Parametric-Two Sample	**Status Level:**	1		
Batch ID:	20-4632-7685	**Test Type:**	Survival-Growth	**Analyst:**	Theran Gay		
Start Date:	17 Feb-23 10:30	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater		
Ending Date:	27 Feb-23 10:30	**Species:**	Mysidopsis bahia	**Brine:**	Instant Ocean		
Test Length:	10d 0h	**Taxon:**	Malacostraca	**Source:**	NWDLS	**Age:**	5
Sample ID:	00-2847-2144	**Code:**	1B27350	**Project:**	PCCA		
Sample Date:	16 Jan-23 14:20	**Material:**	SPP	**Source:**	PCCA-HI		
Receipt Date:	19 Jan-23 17:30	**CAS (PC):**		**Station:**			
Sample Age:	31d 20h	**Client:**	Terracon Consultants, Inc.				

Comments:
9.6=CDP-6 site and 9.7=CDP 7 site

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Control Sed passed survival rate	5.60%

Equal Variance t Two-Sample Test

Control vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Reference Sed	Control Sed	0	1.86	0.086	8	CDF	0.5000	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	1.433	2.29	1.0000	No Outliers Detected
Control Trend	Mann-Kendall Trend Test	1.433		0.2605	Non-Significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	0	1.0000	Non-Significant Effect
Error	0.0431515	0.0053939	8			
Total	0.0431515		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	1	23.15	1.0000	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.818	0.7411	0.0240	Normal Distribution

Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	CS	5	0.9100	0.8581	0.9619	0.9000	0.8500	0.9500	0.0187	4.60%	0.00%
0	RS	5	0.9100	0.8581	0.9619	0.9000	0.8500	0.9500	0.0187	4.60%	0.00%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	CS	5	1.272	1.181	1.364	1.249	1.173	1.345	0.03284	5.77%	0.00%
0	RS	5	1.272	1.181	1.364	1.249	1.173	1.345	0.03284	5.77%	0.00%

Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	CS	0.9500	0.9500	0.9000	0.8500	0.9000
0	RS	0.9000	0.9500	0.9500	0.9000	0.8500

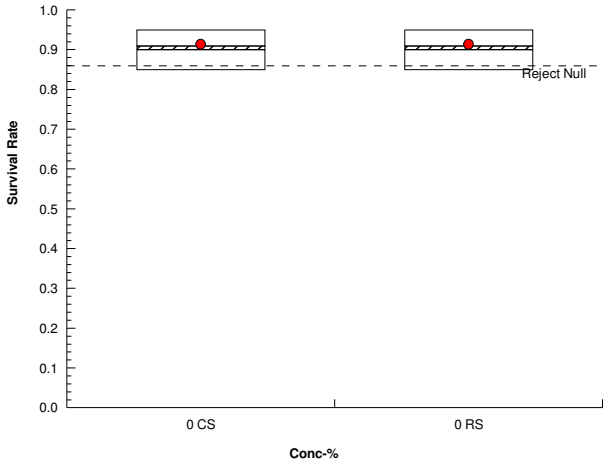
Angular (Corrected) Transformed Detail

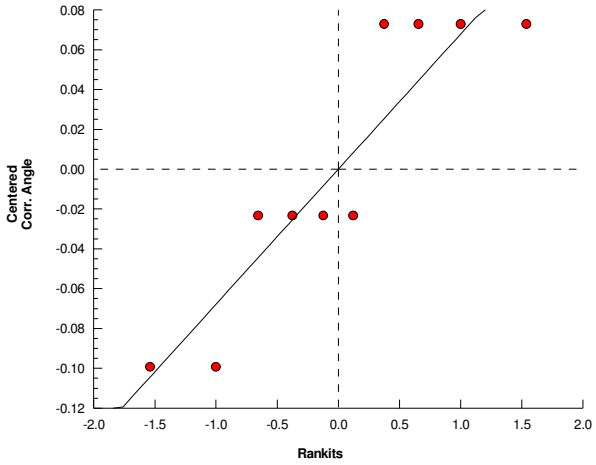
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	CS	1.345	1.345	1.249	1.173	1.249
0	RS	1.249	1.345	1.345	1.249	1.173

Mysidopsis 10-d Survival and Growth Sediment **NWDLS Environ. Toxicol. Lab**

Analysis ID:	13-0637-0925	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	27 Mar-23 7:18	**Analysis:**	Parametric-Two Sample	**Status Level:**	1

Graphics





Mysidopsis 10-d Survival and Growth Sediment — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	15-8531-9496	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4		
Analyzed:	24 Mar-23 8:11	**Analysis:**	No Statistical Comparisons Run	**Status Level:**	1		
Batch ID:	20-4632-7685	**Test Type:**	Survival-Growth	**Analyst:**	Theran Gay		
Start Date:	17 Feb-23 10:30	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater		
Ending Date:	27 Feb-23 10:30	**Species:**	Mysidopsis bahia	**Brine:**	Instant Ocean		
Test Length:	10d 0h	**Taxon:**	Malacostraca	**Source:**	NWDLS	**Age:**	5
Sample ID:	00-2847-2144	**Code:**	1B27350	**Project:**	PCCA		
Sample Date:	16 Jan-23 14:20	**Material:**	SPP	**Source:**	PCCA-HI		
Receipt Date:	19 Jan-23 17:30	**CAS (PC):**		**Station:**			
Sample Age:	31d 20h	**Client:**	Terracon Consultants, Inc.				

Comments:
9.6=CDP-6 site and 9.7=CDP 7 site

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	2.622	3.166	0.3813	No Outliers Detected
Control Trend	Mann-Kendall Trend Test	2.622		0.2269	Non-Significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0036760	0.0003676	10	1.156	0.3452	Non-Significant Effect
Error	0.0139919	0.000318	44			
Total	0.0176679		54			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	17.01	23.21	0.0741	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9866	0.9417	0.7971	Normal Distribution

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	RS	5	0.3147	0.2861	0.3433	0.3095	0.2905	0.339	0.01029	7.31%	0.00%
1		5	0.3176	0.2892	0.346	0.323	0.282	0.341	0.01022	7.19%	-0.92%
2		5	0.3097	0.2691	0.3503	0.304	0.2675	0.35	0.01461	10.55%	1.59%
3		5	0.3163	0.3	0.3326	0.3125	0.2995	0.333	0.005866	4.15%	-0.51%
4		5	0.3193	0.3141	0.3245	0.3175	0.3145	0.325	0.001861	1.30%	-1.46%
5		5	0.3162	0.3005	0.3319	0.311	0.306	0.3375	0.005649	4.00%	-0.48%
6		5	0.3209	0.2978	0.344	0.322	0.3015	0.3455	0.008309	5.79%	-1.97%
7		5	0.3017	0.2845	0.3189	0.309	0.284	0.3135	0.00621	4.60%	4.13%
8		5	0.3196	0.2998	0.3394	0.317	0.3	0.339	0.007118	4.98%	-1.56%
9.6		5	0.3057	0.2908	0.3206	0.3065	0.293	0.3225	0.005368	3.93%	2.86%
9.7		5	0.2941	0.282	0.3062	0.2895	0.2845	0.3065	0.004366	3.32%	6.55%

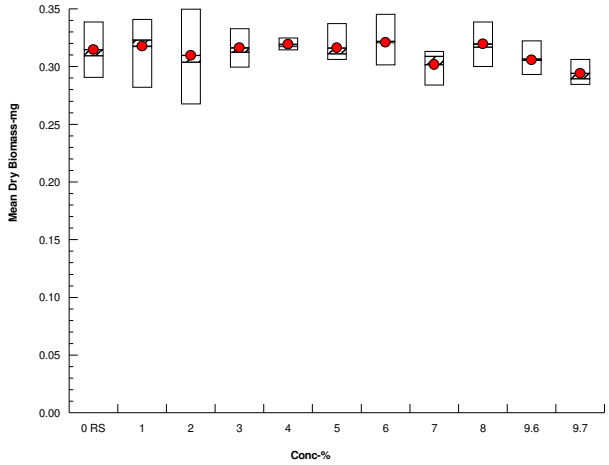
Mean Dry Biomass-mg Detail

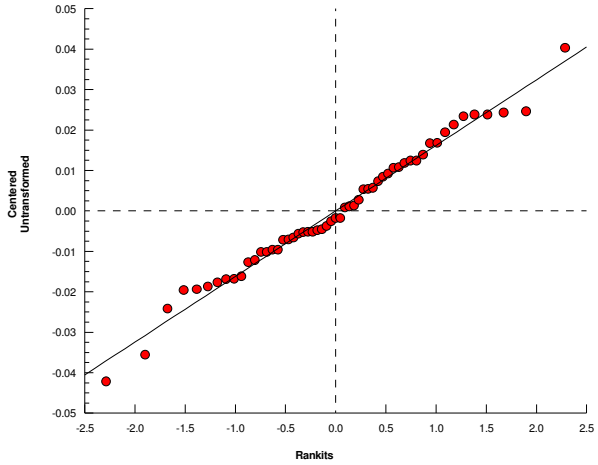
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	RS	0.3095	0.339	0.3385	0.296	0.2905
1		0.341	0.3105	0.3315	0.323	0.282
2		0.2675	0.304	0.2935	0.3335	0.35
3		0.311	0.2995	0.333	0.3125	0.3255
4		0.3175	0.3175	0.322	0.325	0.3145
5		0.3375	0.311	0.306	0.309	0.3175
6		0.3455	0.3315	0.322	0.3015	0.304
7		0.309	0.3135	0.284	0.3125	0.2895
8		0.3	0.31	0.317	0.332	0.339
9.6		0.3065	0.2955	0.293	0.311	0.3225
9.7		0.3065	0.2845	0.2875	0.2895	0.3025

Mysidopsis 10-d Survival and Growth Sediment **NWDLS Environ. Toxicol. Lab**

Analysis ID:	15-8531-9496	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	24 Mar-23 8:11	**Analysis:**	No Statistical Comparisons Run	**Status Level:**	1

Graphics





Mysidopsis 10-d Survival and Growth Sediment — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	07-1315-2970	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.9.4		
Analyzed:	24 Mar-23 8:11	**Analysis:**	No Statistical Comparisons Run	**Status Level:**	1		
Batch ID:	20-4632-7685	**Test Type:**	Survival-Growth	**Analyst:**	Theran Gay		
Start Date:	17 Feb-23 10:30	**Protocol:**	EPA/600/R-94/025 (1994)	**Diluent:**	Laboratory Seawater		
Ending Date:	27 Feb-23 10:30	**Species:**	Mysidopsis bahia	**Brine:**	Instant Ocean		
Test Length:	10d 0h	**Taxon:**	Malacostraca	**Source:**	NWDLS	**Age:**	5
Sample ID:	00-2847-2144	**Code:**	1B27350	**Project:**	PCCA		
Sample Date:	16 Jan-23 14:20	**Material:**	SPP	**Source:**	PCCA-HI		
Receipt Date:	19 Jan-23 17:30	**CAS (PC):**		**Station:**			
Sample Age:	31d 20h	**Client:**	Terracon Consultants, Inc.				

Comments:
9.6=CDP-6 site and 9.7=CDP 7 site

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	2.936	3.166	0.1248	No Outliers Detected
Control Trend	Mann-Kendall Trend Test	2.936		0.4790	Non-Significant Trend in Controls

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0044513	0.0004451	10	1.554	0.1529	Non-Significant Effect
Error	0.0126024	0.0002864	44			
Total	0.0170537		54			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	9.509	23.21	0.4846	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9858	0.9417	0.7600	Normal Distribution

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	RS	5	0.3455	0.3311	0.3599	0.3439	0.3289	0.3568	0.005187	3.36%	0.00%
1		5	0.3415	0.3239	0.3592	0.345	0.323	0.3589	0.006361	4.16%	1.16%
2		5	0.344	0.3099	0.3782	0.3378	0.3147	0.3889	0.0123	7.99%	0.44%
3		5	0.3555	0.3445	0.3666	0.3524	0.3456	0.3676	0.003994	2.51%	-2.90%
4		5	0.3556	0.3321	0.3791	0.3578	0.3311	0.3735	0.008463	5.32%	-2.91%
5		5	0.3555	0.345	0.3659	0.3553	0.3433	0.3659	0.003765	2.37%	-2.87%
6		5	0.3693	0.3492	0.3893	0.3788	0.3489	0.3839	0.007229	4.38%	-6.87%
7		5	0.3431	0.3263	0.3599	0.3406	0.3289	0.3635	0.00605	3.94%	0.71%
8		5	0.3552	0.338	0.3724	0.3568	0.3333	0.3689	0.006195	3.90%	-2.80%
9.6		5	0.3523	0.3254	0.3792	0.3476	0.3226	0.3794	0.009688	6.15%	-1.96%
9.7		5	0.3351	0.309	0.3613	0.3217	0.3184	0.3606	0.00942	6.28%	3.01%

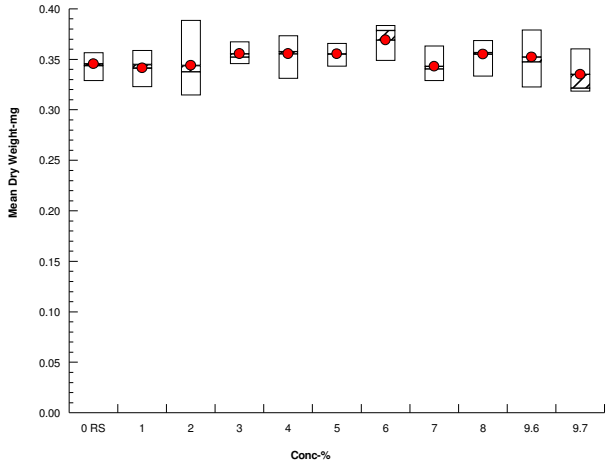
Mean Dry Weight-mg Detail

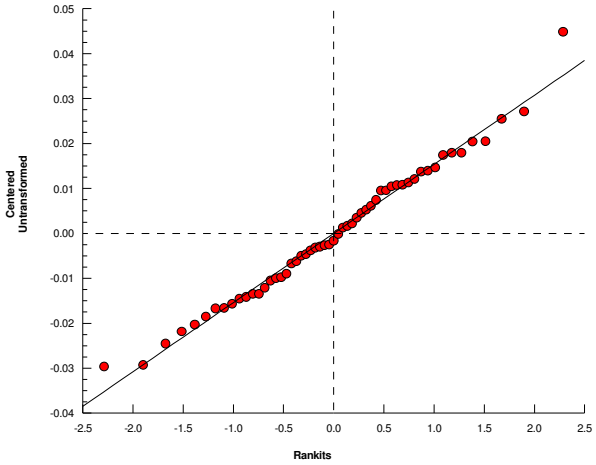
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	RS	0.3439	0.3568	0.3563	0.3289	0.3418
1		0.3589	0.345	0.3489	0.323	0.3318
2		0.3147	0.3378	0.3453	0.3335	0.3889
3		0.3456	0.3524	0.3505	0.3676	0.3617
4		0.3735	0.3735	0.3578	0.3421	0.3311
5		0.3553	0.3659	0.36	0.3433	0.3528
6		0.3839	0.3489	0.3788	0.3547	0.38
7		0.3635	0.3483	0.3341	0.3289	0.3406
8		0.3333	0.3647	0.3522	0.3689	0.3568
9.6		0.3226	0.3476	0.3662	0.3456	0.3794
9.7		0.3606	0.3556	0.3194	0.3217	0.3184

Mysidopsis 10-d Survival and Growth Sediment **NWDLS Environ. Toxicol. Lab**

Analysis ID:	07-1315-2970	**Endpoint:**	Mean Dry Weight-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	24 Mar-23 8:11	**Analysis:**	No Statistical Comparisons Run	**Status Level:**	1

Graphics





Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Mysidopsis bahia 10d Test Condition Summary - EPA 832 B-98 004 ; NWDLS SOP No. 4026			
Test Material:	Sediment	Test Type:	10d Whole Sediment
Temperature:	20 ± 2 °C	Photoperiod:	16L:8D
Test Chamber:	1L glass beaker	No. Replicates:	5
Test Organism:	***Mysidopsis bahia***	Organism Source:	~~AHO~~ O
Organism Batch No.:	23-0180-MB	DOB/Age:	5 @ 15 Days
Age Class:	1-5 days old	No. Organisms/Rep:	20
Aeration:	Aerate water in each chamber overnight before start of test, and throughout test, at rate that maintains ≥40% saturation of dissolved oxygen concentration	Control Sediment:	Clean beach sand
Feeding Schedule:	Twice daily (AM and PM)	Food Type:	2 drops of Artemia nauplii per feeding
Water Type:	30 ppt ± 2 ppt Synthetic seawater	Water Volume:	800 mL
Renewal Schedule:	Project specific	Sediment Volume:	~175 (2cm depth)

Comments: ① IC mL → [NWDLS]
② IC mL → [2-12-23]

Daily Feeds

Day	0	1		2		3		4		5		6		7		8		9		10
Hour	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM
Date	2/12	2-15-23		2-19-23		2-20-23		2-21-23		2-22-23		2-23-23		2-24-23		2-25-23		2-26-23		2/12
Time	1630	0810	1610	0734	1537	0755	1521	0758	1534	0744	1543	0904	1514	0758	1529	0715	1524	0741	1511	0735
Initials	JKW	MMB	MMB	BB	BB	JKW	JKW	JKW	JKW	MC	MC	JKW	BB	MC	MC	JKW	JKW	BB	BB	MC

Water Renewals

Day	0	2	4	6	8
Date	2-17-23	2-19-23	2-21-23	2-23-23	2-25-23
Time	0815	1316	0915	0910	0930
Initials	MC	BPP	MC	MC	MC

Client/Project Name:	PCCA HI & CDP Resampling 2023	W0 #:	23A1459

Initiation Date:	2-17-23	Termination Date:	2-27-23
Initiation Time:	1030	Termination Time:	1030
Initials:	TDL / TDL	Initials	TDL / TDL

***Mysidopsis bahia* - Survival**

Treatment	Rep	Day 0	Day 10	Treatment	Rep	Day 0	Day 10	Treatment	Rep	Day 0	Day 10
CONTROL	A	20	19	HI-DMMU-4	A	20	17	CDP-6	A	20	19
	B	20	19		B	20	17		B	20	17
	C	20	18		C	20	18		C	20	16
	D	20	17		D	20	19		D	20	18
	E	20	18		E	20	19		E	20	17
REF	A	20	18	HI-DMMU-5	A	20	19	CDP-7	A	20	17
	B	20	19		B	20	17		B	20	~~17~~ 16
	C	20	19		C	20	17		C	20	18
	D	20	18		D	20	18		D	20	18
	E	20	17		E	20	18		E	20	19
HI-DMMU-1	A	20	19	HI-DMMU-6	A	20	18		A		
	B	20	18		B	20	19		B		
	C	20	19		C	20	17		C		
	D	20	20		D	20	17		D		
	E	20	17		E	20	16		E		
HI-DMMU-2	A	20	17	HI-DMMU-7	A	20	17		A		
	B	20	18		B	20	18		B		
	C	20	17		C	20	17		C		
	D	20	20		D	20	19		D		
	E	20	18		E	20	17		E		
HI-DMMU-3	A	20	18	HI-DMMU-8	A	20	18		A		
	B	20	17		B	20	17		B		
	C	20	19		C	20	19		C		
	D	20	17		D	20	18		D		
	E	20	18		E	20	19		E		
Technician Initials								Technician Initials			

① DE TDL 2-27-23 → [16]

Client / Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Dry Tissue Weight - *Mysidopis bahia*

CONC. (%)	REP	PAN NO.	TARE WT (g)	TOTAL WT (g)
CONT.	A	1	.00642	.01242
	B	2	.00611	.01263
	C	3	.00598	.01197
	D	4	.00623	.01214
	E	5	.00636	.01268
REF	A	6	.00604	.01223
	B	7	.00610	.01288
	C	8	.00615	.01292
	D	9	.00642	.01234
	E	10	.00634	.01215
HI-DMMU-1	A	11	.00614	.01296
	B	12	.00587	.01208
	C	13	.00623	.01286
	D	14	.00653	.01299
	E	15	.00678	.01242
HI-DMMU-2	A	16	.00698	.01233
	B	17	.00626	.01234
	C	18	.00637	.01224
	D	19	.00619	.01286
	E	20	.00587	.01287
HI-DMMU-3	A	21	.00656	.01278
	B	22	.00665	.01264
	C	23	.00623	.01285
	D	24	.00621	.01246
	E	25	.00633	.01284

CONC. (%)	REP	PAN NO.	TARE WT (g)	TOTAL WT (g)
HI-DMMU-4	A	26	.00624	.01259
	B	27	.00629	.01264
	C	28	.00633	.01277
	D	29	.00644	.01294
	E	30	.00639	.01268
QA/QC (pans)				

BALANCE ID#	852
BALANCE VERIFICATION INITIALS	TRL
DATE /TARE WEIGHT INITIALS	2-16-23 / TRL
DATE DRYING INITIATED	2-22-23
TIME DRYING INITIATED	1230
OVEN TEMPERATURE (°C)	105/105
INITIALS	TRL
DATE/ TIME DRYING TERMINATED	2-28-23 / 0915
OVEN TEMPERATURE (°C)	105/105
BALANCE VERIFICATION INITIALS	TRL
TOTAL WEIGHT DATE/ INITIALS	2-28-23 / TRL

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

Client / Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

CONC. (%)	REP	PAN NO.	TARE WT (g)	TOTAL WT (g)
HI-DMMU-5	A	31	.00596	.01271
	B	32	.00614	.01236
	C	33	.00632	.01244
	D	34	.00654	.01272
	E	35	.00634	.01269
HI-DMMU-6	A	36	.00587	.01278
	B	37	.00625	.01288
	C	38	.00636	.01280
	D	39	.00664	.01267
	E	40	.00624	.01232
HI-DMMU-7	A	41	.00629	.01247
	B	42	.00638	.01265
	C	43	.00677	.01245
	D	44	.00658	.01283
	E	45	.00665	.01244
HI-DMMU-8	A	46	.00659	.01259
	B	47	.00644	.01264
	C	48	.00637	.01271
	D	49	.00618	.01282
	E	50	.00598	.01276
CDP-6	A	51	.00674	.01287
	B	52	.00645	.01236
	C	53	.00638	.01224
	D	54	.00644	.01266
	E	55	.00609	.01254

CONC. (%)	REP	PAN NO.	TARE WT (g)	TOTAL WT (g)
CDP-7	A	54	.00621	.01234
	B	57	.00629	.01198
	C	58	.00617	.01212
	D	59	.00654	.01233
	E	60	.00662	.01267
QA/QC (pans)				

BALANCE ID#	852
BALANCE VERIFICATION INITIALS	TNL
DATE /TARE WEIGHT INITIALS	2-16-23 / TNL
DATE DRYING INITIATED	2-27-23
TIME DRYING INITIATED	1230
OVEN TEMPERATURE (°C)	105/105
INITIALS	TNL
DATE DRYING TERMINATED	2-28-23/0945
OVEN TEMPERATURE (°C)	105/105
BALANCE VERIFICATION INITIALS	TNL
TOTAL WEIGHT DATE/ INITIALS	2-28-23 / TNL

CONT = Control CONC = Concentration REP = Replicate

Wt. = Weight ORG. = Organism

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

WET CHEMISTRY LOG- 10D M. bahia

Date	Client/ Sample No./Sample Date	Temp	pH	D.O. mg/L	Salinity ppt	NH_3N ppm*	Init.
2-16-23	CONTROL - NEW Day -1	20.4	7.9	8.8	29.9	.021	ML
2-17-23	CONTROL - NEW Day 0	20.2	8.0	8.4	29.1	.001	ML
	CONTROL - OLD Day 0	20.3	8.0	8.4	29.1	.003	
	REF Day 0	20.3	8.1	8.4	29.2	.003	
	HI-DMMU-1 Day 0	20.3	8.0	8.5	29.1	.003	
	HI-DMMU-2 Day 0	20.3	8.0	8.5	29.1	.004	
	HI-DMMU-3 Day 0	20.3	8.0	8.7	29.1	.005	
	HI-DMMU-4 Day 0	20.3	8.0	8.8	29.1	.005	
	HI-DMMU-5 Day 0	20.2	8.0	8.5	29.2	0.020	
	HI-DMMU-6 Day 0	20.2	8.0	8.5	29.1	.014	
	HI-DMMU-7 Day 0	20.2	8.0	8.5	29.1	.005	
	HI-DMMU-8 Day 0	20.2	8.0	8.2	29.1	.004	
	CDP-6 Day 0	20.2	8.0	8.2	29.1	.004	
	CDP-7 Day 0	20.2	8.0	8.2	29.1	.004	
2-18-23	CONTROL Day 1	20.1	7.9	8.6	29.3	.001	BMR/DPH
	REF Day 1	20.1	7.9	8.6	29.3	.001	
	HI-DMMU-1 Day 1	20.1	7.9	8.6	29.3	.001	
	HI-DMMU-2 Day 1	20.1	7.9	8.6	29.3	.001	
	HI-DMMU-3 Day 1	20.0	7.9	8.6	29.3	.002	
	HI-DMMU-4 Day 1	20.1	7.9	8.6	29.2	.002	
	HI-DMMU-5 Day 1	20.1	8.0	8.6	29.2	.016	
	HI-DMMU-6 Day 1	20.2	8.0	8.6	29.2	.008	
	HI-DMMU-7 Day 1	20.2	8.0	8.6	29.2	.003	
	HI-DMMU-8 Day 1	20.2	8.0	8.6	29.2	.002	
	CDP-6 Day 1	20.2	8.0	8.6	29.2	.002	
	CDP-7 Day 1	20.2	8.0	8.6	29.2	.002	

Comments:

Thermometer #: 737 pH meter #: 737 Sal meter #: 948

D.O. meter#: 405 Ammonia meter #: 506

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

WET CHEMISTRY LOG- 10D M. bahia

Date	Client/ Sample No./Sample Date	Temp	pH	D.O. mg/L	Salinity ppt	NH_3N ppm*	Init.
2-19-23	CONTROL - NEW Day 2	19.9	7.8	8.7	29.2	.001	MD /am
	CONTROL - OLD Day 2	19.0	7.9	8.7	29.1	.002	
	REF Day 2	19.8	7.9	8.7	29.1	.002	
	HI-DMMU-1 Day 2	19.9	7.9	8.8	29.1	.004	
	HI-DMMU-2 Day 2	19.9	8.0	8.8	29.2	.003	
	HI-DMMU-3 Day 2	19.9	7.9	8.9	29.2	.003	
	HI-DMMU-4 Day 2	19.9	7.9	8.9	29.2	.003	
	HI-DMMU-5 Day 2	19.9	8.0	8.8	29.2	.015	
	HI-DMMU-6 Day 2	20.1	8.0	8.8	29.2	.007	
	HI-DMMU-7 Day 2	20.1	8.1	8.8	29.2	.003	
	HI-DMMU-8 Day 2	20.1	8.1	8.8	29.2	.003	
	CDP-6 Day 2	20.1	8.1	8.8	29.2	.004	
	CDP-7 Day 2	20.1	8.1	8.8	29.2	.004	
2-20-23	CONTROL Day 3	20.2	7.9	8.6	29.4	.001	MD
	REF Day 3	20.2	7.9	8.6	29.4	.001	
	HI-DMMU-1 Day 3	20.2	7.9	8.8	29.3	.001	
	HI-DMMU-2 Day 3	20.2	8.0	8.8	29.4	.002	
	HI-DMMU-3 Day 3	20.2	8.0	8.8	29.4	.002	
	HI-DMMU-4 Day 3	20.2	8.0	8.8	29.4	.002	
	HI-DMMU-5 Day 3	20.1	8.0	8.8	29.4	.004	
	HI-DMMU-6 Day 3	20.1	8.0	8.7	29.4	.003	
	HI-DMMU-7 Day 3	20.4	8.1	8.7	29.4	.002	
	HI-DMMU-8 Day 3	20.3	8.1	8.7	29.4	.002	
	CDP-6 Day 3	20.3	8.1	8.7	29.4	.002	
	CDP-7 Day 3	20.4	8.1	8.6	29.0	.002	

Comments: DIE SOS 2-19-23 → [29.2]

Thermometer #: 737 pH meter #: 737 Sal meter #: 945

D.O. meter#: YSI Ammonia meter #: ML

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

WET CHEMISTRY LOG- 10D M. bahia

Date	Client/ Sample No./Sample Date	Temp	pH	D.O. mg/L	Salinity ppt	NH_3N ppm*	Init.
2-21-23	CONTROL - NEW Day 4	19.8	8.0	8.5	29.7	.001	TMH
	CONTROL - OLD Day 4	19.9	8.1	8.7	29.6	.001	
	REF Day 4	19.9	8.1	8.2	29.5	.001	
	HI-DMMU-1 Day 4	19.9	8.1	8.7	29.5	.002	
	HI-DMMU-2 Day 4	19.9	8.1	8.7	29.4	.002	
	HI-DMMU-3 Day 4	19.7	8.1	8.6	29.5	.002	
	HI-DMMU-4 Day 4	19.8	8.0	8.6	29.5	.002	
	HI-DMMU-5 Day 4	19.7	8.0	8.6	29.5	.004	
	HI-DMMU-6 Day 4	19.7	8.1	8.6	29.5	.005	
	HI-DMMU-7 Day 4	19.7	8.1	8.6	29.6	.002	
	HI-DMMU-8 Day 4	19.8	8.0	8.6	29.4	.002	
	CDP-6 Day 4	19.9	8.1	8.6	29.6	.002	
	CDP-7 Day 4	19.9	8.0	8.6	29.6	.002	
2-22-23	CONTROL Day 5	20.1	8.1	8.6	29.7	.001	MH
	REF Day 5	20.1	8.1	8.6	29.6	.001	
	HI-DMMU-1 Day 5	20.1	8.1	8.5	29.6	.001	
	HI-DMMU-2 Day 5	20.0	8.2	8.5	29.6	.002	
	HI-DMMU-3 Day 5	20.0	8.2	8.5	29.6	.001	
	HI-DMMU-4 Day 5	20.1	8.1	8.1	29.7	.002	
	HI-DMMU-5 Day 5	19.9	8.1	8.5	29.7	.006	
	HI-DMMU-6 Day 6	19.8	8.1	8.6	29.7	.002	
	HI-DMMU-7 Day 6	19.7	8.1	8.6	29.7	.001	
	HI-DMMU-8 Day 6	20.1	8.1	8.6	29.7	.001	
	CDP-6 Day 6	20.2	8.1	8.6	29.7	.001	
	CDP-7 Day 6	20.2	8.1	8.6	29.7	.001	

Comments:

Thermometer #: 737 pH meter #: 732 Sal meter #: 945

D.O. meter#: 5516 Ammonia meter #: 566

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

WET CHEMISTRY LOG- 10D M. bahia

Date	Client/ Sample No./Sample Date	Temp	pH	D.O. mg/L	Salinity ppt	NH_3N ppm*	Init.
2-23-23	CONTROL - NEW Day 6	19.9	8.0	8.6	29.8	.001	MH
	CONTROL - OLD Day 6	20.1	8.1	8.5	29.2	.001	
	REF Day 6	20.0	8.1	8.5	29.2	.001	
	HI-DMMU-1 Day 6	20.0	8.1	8.5	29.2	.002	
	HI-DMMU-2 Day 6	20.0	8.1	8.5	29.1	.001	
	HI-DMMU-3 Day 6	20.1	8.1	8.4	29.2	.001	
	HI-DMMU-4 Day 6	20.2	8.1	8.6	29.2	.002	
	HI-DMMU-5 Day 6	20.2	8.1	8.6	29.2	.008	
	HI-DMMU-6 Day 6	20.1	8.1	8.6	29.2	.004	
	HI-DMMU-7 Day 6	20.1	8.1	8.6	29.2	.002	
	HI-DMMU-8 Day 6	20.1	8.1	8.6	29.8	.002	
	CDP-6 Day 6	20.1	8.1	8.6	29.2	.002	
	CDP-7 Day 6	20.1	8.1	8.6	29.1	.002	
2-24-23	CONTROL Day 7	20.2	8.0	8.5	29.6	.001	MH
	REF Day 7	20.1	8.1	8.5	29.6	.001	
	HI-DMMU-1 Day 7	20.1	8.1	8.5	29.2	.001	
	HI-DMMU-2 Day 7	20.1	8.1	8.5	29.2	.001	
	HI-DMMU-3 Day 7	20.1	8.1	8.5	29.6	.001	
	HI-DMMU-4 Day 7	20.1	8.1	8.5	29.6	.003	
	HI-DMMU-5 Day 7	20.1	8.0	8.5	29.1	.001	
	HI-DMMU-6 Day 7	20.1	8.1	8.5	29.6	.001	
	HI-DMMU-7 Day 7	20.1	8.1	8.5	29.1	.001	
	HI-DMMU-8 Day 7	20.1	8.2	8.5	29.1	.001	
	CDP-6 Day 7	20.1	8.1	8.5	29.0	.001	
	CDP-7 Day 7	20.1	8.1	8.5	29.9	.001	

Comments:

Thermometer #: 732 pH meter #: 732 Sal meter #: 948

D.O. meter#: 4516 Ammonia meter #: 566

QAU Form # 3350

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

WET CHEMISTRY LOG- 10D M. bahia

Date	Client/ Sample No./Sample Date	Temp	pH	D.O. mg/L	Salinity ppt	NH_3N ppm*	Init.
2-25-23	CONTROL - NEW Day 8	20.0	7.9	8.6	29.9	.001	BMR KHT
	CONTROL - OLD Day 8	20.1	7.9	8.6	29.8	.001	
	REF Day 8	20.0	8.1	8.6	29.8	.002	
	HI-DMMU-1 Day 8	20.2	8.1	8.6	29.8	.003	
	HI-DMMU-2 Day 8	20.1	8.1	8.6	29.7	.001	
	HI-DMMU-3 Day 8	20.2	8.1	8.5	29.6	.001	
	HI-DMMU-4 Day 8	20.1	8.1	8.6	29.8	.001	
	HI-DMMU-5 Day 8	20.1	8.1	8.6	29.8	.002	
	HI-DMMU-6 Day 8	20.1	8.1	8.6	29.8	.003	
	HI-DMMU-7 Day 8	20.1	8.1	8.6	29.8	.001	
	HI-DMMU-8 Day 8	20.1	8.1	8.4	29.8	.001	
	CDP-6 Day 8	20.1	8.1	8.4	29.8	.001	
	CDP-7 Day 8	20.4	8.1	8.6	29.8	.001	
2-26-23	CONTROL Day 9	20.1	8.1	8.8	29.9	.001	BMR KHT
	REF Day 9	20.1	8.1	8.9	29.9	.002	
	HI-DMMU-1 Day 9	20.1	8.1	8.7	29.9	.001	
	HI-DMMU-2 Day 9	20.4	8.0	8.7	29.9	.001	
	HI-DMMU-3 Day 9	20.4	7.9	8.6	29.9	.001	
	HI-DMMU-4 Day 9	20.4	7.9	8.6	29.9	.001	
	HI-DMMU-5 Day 9	20.4	8.0	8.6	29.9	.002	
	HI-DMMU-6 Day 9	20.4	8.0	8.6	29.9	.001	
	HI-DMMU-7 Day 9	20.4	8.0	8.6	29.9	.001	
	HI-DMMU-8 Day 9	20.4	8.0	8.5	29.9	.001	
	CDP-6 Day 9	20.4	8.0	8.6	29.9	.002	
	CDP-7 Day 9	20.4	8.0	8.6	29.9	.001	

Comments:

Thermometer #: 737 pH meter #: 737 Sal meter #: 9911

D.O. meter#: 9516 Ammonia meter #: 556

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

WET CHEMISTRY LOG- 10D M. bahia

Date	Client/ Sample No./Sample Date	Temp	pH	D.O. mg/L	Salinity ppt	NH_3N ppm*	Init.
2-27-23	CONTROL - Day 10	20.1	7.7	5.4	29.5	.021	RL
	REF Day 10	20.1	7.9	8.5	29.4	.021	
	HI-DMMU-1 Day 10	20.2	8.0	8.5	29.5	.021	
	HI-DMMU-2 Day 10	20.2	8.1	8.5	29.6	.021	
	HI-DMMU-3 Day 10	20.2	8.1	8.5	29.8	.021	
	HI-DMMU-4 Day 10	20.2	8.0	8.5	29.7	.021	
	HI-DMMU-5 Day 10	20.2	8.0	8.5	29.7	.024	
	HI-DMMU-6 Day 10	20.2	8.0	8.5	29.8	.023	
	HI-DMMU-7 Day 10	20.2	8.1	8.5	29.5	.021	
	HI-DMMU-8 Day 10	20.3	8.1	8.5	29.5	.021	
	CDP-6 Day 10	20.2	8.1	8.5	29.5	.021	
	CDP-7 Day 10	20.2	8.1	8.6	29.7	.022	

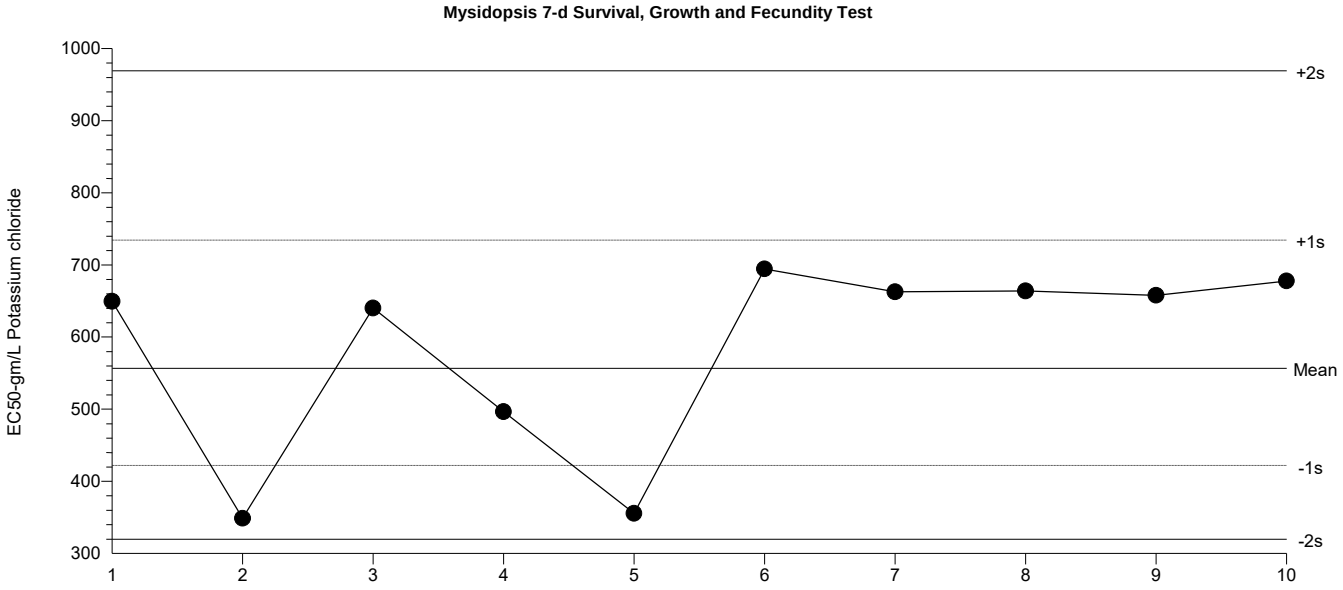
Comments:

Thermometer #: 737 pH meter #: 737 Sal meter #: 948

D.O. meter#: 4516 Ammonia meter #: 561

Mysidopsis 7-d Survival, Growth and Fecundity Test **All Matching Labs**

Test Type: Growth-Survival-Fec (7d) **Organism:** Mysidopsis bahia (Atlantic Mysid) **Material:** Potassium chloride
Protocol: EPA/821/R-02-014 (2002) **Endpoint:** 7d Survival Rate **Source:** Reference Toxicant-REF



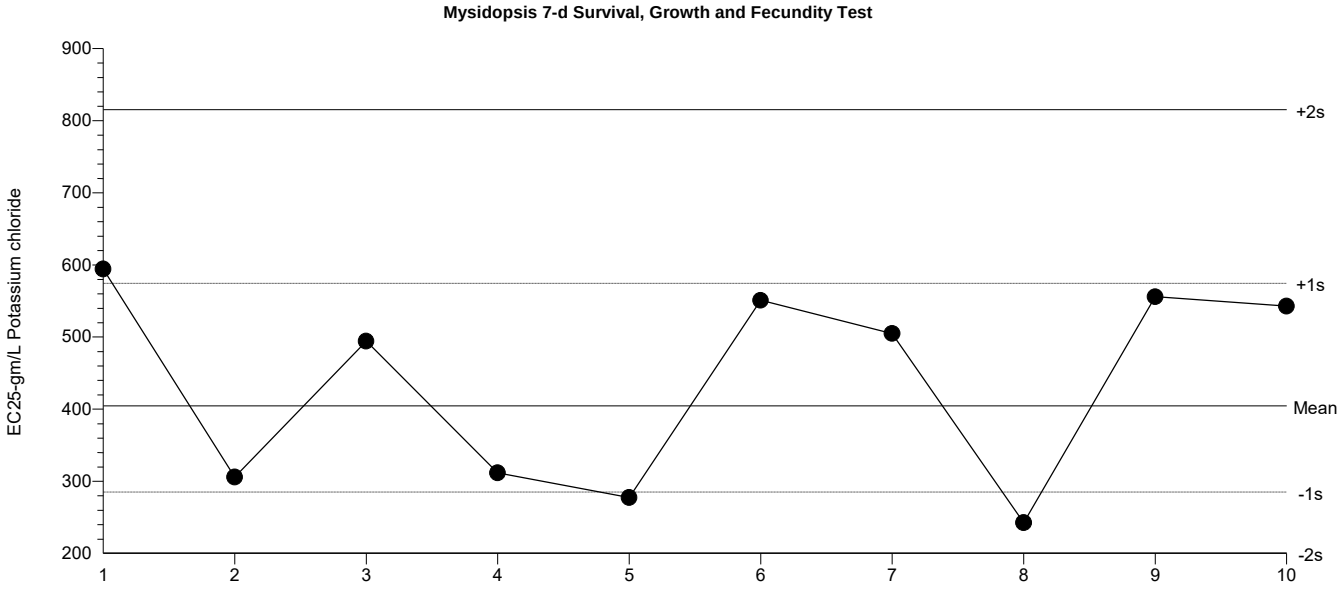
Mean: 556.7 **Count:** 9 **-1s Warning Limit:** 421.9 **-2s Action Limit:** 319.8
Sigma: n/a **CV:** 28.30% **+1s Warning Limit:** 734.5 **+2s Action Limit:** 969.1

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2022	Jun	3	13:15	649.6	92.88	0.5567			01-6211-0221	11-5901-8122	NWDLS Environ. Toxicol.
2			22	16:00	348.7	-208	-1.688	(-)		09-3616-1421	00-9150-0822	NWDLS Environ. Toxicol.
3		Jul	20	14:40	640.2	83.48	0.5041			11-8307-1033	20-9270-2210	NWDLS Environ. Toxicol.
4		Aug	31	10:45	496.5	-60.21	-0.4129			18-6777-7018	18-1763-7164	NWDLS Environ. Toxicol.
5		Sep	21	13:15	355.5	-201.2	-1.618	(-)		13-6667-4200	15-5979-0136	NWDLS Environ. Toxicol.
6		Oct	19	12:00	694.4	137.7	0.7976			09-3115-0814	15-7275-3360	NWDLS Environ. Toxicol.
7		Nov	3	13:45	662.7	106	0.629			19-3160-7260	04-3340-0504	NWDLS Environ. Toxicol.
8		Dec	12	13:00	663.9	107.2	0.6353			06-4905-6652	20-1321-0134	NWDLS Environ. Toxicol.
9	2023	Jan	3	10:30	657.9	101.2	0.6024			05-5770-2114	18-8602-2070	NWDLS Environ. Toxicol.
10		Feb	2	10:30	677.7	121	0.7098			08-8071-4725	11-7916-4212	NWDLS Environ. Toxicol.

Mysidopsis 7-d Survival, Growth and Fecundity Test **All Matching Labs**

Test Type: Growth-Survival-Fec (7d) **Organism:** Mysidopsis bahia (Atlantic Mysid) **Material:** Potassium chloride
Protocol: EPA/821/R-02-014 (2002) **Endpoint:** Mean Dry Biomass-mg **Source:** Reference Toxicant-REF



Mean: 404.6 **Count:** 9 **-1s Warning Limit:** 285 **-2s Action Limit:** 200.8
Sigma: n/a **CV:** 36.10% **+1s Warning Limit:** 574.4 **+2s Action Limit:** 815.5

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID	Laboratory
1	2022	Jun	3	13:15	594.3	189.6	1.097	(+)		01-6211-0221	06-7581-2449	NWDLS Environ. Toxicol.
2			22	16:00	305.9	-98.73	-0.7983			09-3616-1421	03-4116-2000	NWDLS Environ. Toxicol.
3		Jul	20	14:40	494.2	89.56	0.5706			11-8307-1033	07-3382-9498	NWDLS Environ. Toxicol.
4		Aug	31	10:45	311.8	-92.88	-0.7442			18-6777-7018	09-8654-5792	NWDLS Environ. Toxicol.
5		Sep	21	13:15	277.5	-127.1	-1.076	(-)		13-6667-4200	10-8885-9716	NWDLS Environ. Toxicol.
6		Oct	19	12:00	550.9	146.2	0.8805			09-3115-0814	01-6337-8754	NWDLS Environ. Toxicol.
7		Nov	3	13:45	504.9	100.2	0.6317			19-3160-7260	19-5328-5189	NWDLS Environ. Toxicol.
8		Dec	12	13:00	242.7	-161.9	-1.459	(-)		06-4905-6652	20-7921-9787	NWDLS Environ. Toxicol.
9	2023	Jan	3	10:30	555.9	151.2	0.9062			05-5770-2114	18-4604-0045	NWDLS Environ. Toxicol.
10		Feb	2	10:30	542.8	138.2	0.8385			08-8071-4725	02-7679-2403	NWDLS Environ. Toxicol.

CETIS Analytical Report

Mysidopsis 7-d Survival, Growth and Fecundity Test — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	11-7916-4212	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	16 Feb-23 9:21	**Analysis:**	Untrimmed Spearman-Kärber	**Status Level:**	1
Batch ID:	00-6254-9483	**Test Type:**	Growth-Survival-Fec (7d)	**Analyst:**	Dane DeGuzman
Start Date:	02 Feb-23 10:30	**Protocol:**	EPA/821/R-02-014 (2002)	**Diluent:**	Laboratory Seawater
Ending Date:	09 Feb-23 11:30	**Species:**	Mysidopsis bahia	**Brine:**	Instant Ocean
Test Length:	7d 1h	**Taxon:**	Malacostraca	**Source:**	NWDLS **Age:** 7d
Sample ID:	05-6268-9237	**Code:**	2189F4D5	**Project:**	047000100 0400.X
Sample Date:	02 Feb-23 09:00	**Material:**	Potassium chloride	**Source:**	Reference Toxicant
Receipt Date:	02 Feb-23 09:00	**CAS (PC):**		**Station:**	
Sample Age:	90m	**Client:**	North Water District Laboratory Services, In		

Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0.06	0.00%	2.831	0.01021	677.7	646.6	710.3

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.1028	<<	0.4	Yes	Passes Criteria
Control Resp	0.94	0.8	>>	Yes	Passes Criteria

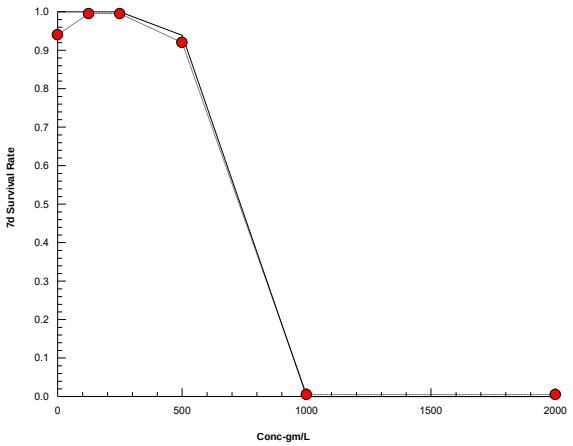
7d Survival Rate Summary

			Calculated Variate(A/B)							Isotonic Variate	
Conc-gm/L	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Dev**	**CV%**	**%Effect**	**A/B**	**Mean**	**%Effect**
0	L	10	0.9400	0.8000	1.0000	0.0966	10.28%	0.0%	47/50	0.98	0.0%
125		10	1.0000	1.0000	1.0000	0.0000	0.00%	-6.38%	50/50	0.98	0.0%
250		10	1.0000	1.0000	1.0000	0.0000	0.00%	-6.38%	50/50	0.98	0.0%
500		10	0.9200	0.6000	1.0000	0.1398	15.20%	2.13%	46/50	0.92	6.12%
1000		10	0.0000	0.0000	0.0000	0.0000		100.0%	0/50	0	100.0%
2000		10	0.0000	0.0000	0.0000	0.0000		100.0%	0/50	0	100.0%

7d Survival Rate Detail

Conc-gm/L	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	0.8000	1.0000	0.8000	1.0000	1.0000	1.0000	1.0000	0.8000	1.0000
125		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
250		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
500		0.8000	0.8000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6000	1.0000	1.0000
1000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Graphics



Mysidopsis 7-d Survival, Growth and Fecundity Test — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	02-7679-2403	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	16 Feb-23 9:33	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	00-6254-9483	**Test Type:**	Growth-Survival-Fec (7d)	**Analyst:**	Dane DeGuzman
Start Date:	02 Feb-23 10:30	**Protocol:**	EPA/821/R-02-014 (2002)	**Diluent:**	Laboratory Seawater
Ending Date:	09 Feb-23 11:30	**Species:**	Mysidopsis bahia	**Brine:**	Instant Ocean
Test Length:	7d 1h	**Taxon:**	Malacostraca	**Source:**	NWDLS **Age:** 7d
Sample ID:	05-6268-9237	**Code:**	2189F4D5	**Project:**	047000100 0400.X
Sample Date:	02 Feb-23 09:00	**Material:**	Potassium chloride	**Source:**	Reference Toxicant
Receipt Date:	02 Feb-23 09:00	**CAS (PC):**		**Station:**	
Sample Age:	90m	**Client:**	North Water District Laboratory Services, In		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	660708	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control CV	0.1363	<<	0.4	Yes	Passes Criteria
Control Resp	0.413	0.2	>>	Yes	Passes Criteria

Point Estimates

Level	gm/L	95% LCL	95% UCL
IC25	542.8	441	572.2

Mean Dry Biomass-mg Summary

			Calculated Variate						Isotonic Variate	
Conc-gm/L	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Dev**	**CV%**	**%Effect**	**Mean**	**%Effect**
0	L	10	0.413	0.312	0.512	0.05629	13.63%	0.0%	0.4162	0.0%
125		10	0.4194	0.34	0.498	0.05996	14.30%	-1.55%	0.4162	0.0%
250		10	0.3484	0.294	0.426	0.03531	10.14%	15.64%	0.3484	16.29%
500		10	0.3414	0.276	0.41	0.04498	13.18%	17.34%	0.3414	17.97%
1000		10	0	0	0	0		100.0%	0	100.0%
2000		10	0	0	0	0		100.0%	0	100.0%

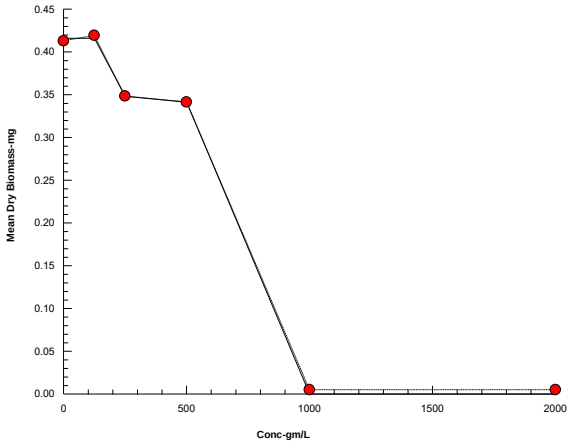
Mean Dry Biomass-mg Detail

Conc-gm/L	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	0.436	0.424	0.402	0.38	0.512	0.444	0.442	0.432	0.312	0.346
125		0.494	0.464	0.34	0.498	0.406	0.486	0.374	0.39	0.364	0.378
250		0.338	0.294	0.336	0.382	0.338	0.33	0.332	0.348	0.36	0.426
500		0.32	0.288	0.39	0.306	0.334	0.41	0.384	0.276	0.344	0.362
1000		0	0	0	0	0	0	0	0	0	0
2000		0	0	0	0	0	0	0	0	0	0

Mysidopsis 7-d Survival, Growth and Fecundity Test **NWDLS Environ. Toxicol. Lab**

Analysis ID:	02-7679-2403	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.4
Analyzed:	16 Feb-23 9:33	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1

Graphics



Client:	NWDLS KCl STOX - Mb7	Permit #:	N/A	Outfall #:	N/A	Login #:	23-0038

Chronic *Mysidopsis bahia* Test Condition Summary - EPA-821-R-02-014 Test Method 1007.0 ; NWDLS SOP No. 4020			
Test Organism:	*Mysidopsis bahia*	Age Class:	7 d old
Test Type:	Static-renewal	Test Duration:	7 d
Temperature:	26 ± 1	Photoperiod:	16:8 h; ambient light, 50-100 ft-c
Test Chamber Size:	12 oz plastic disposable cups	Cleaning:	daily during test renewal
No. of Replicates:	10	No. Organisms per Replicate:	5
Test Solution Volume:	250 mL	Dilution Water:	LAB W
Renewal of Test Solution:	Daily	Aeration :	None, unless DO < 4.0 mg/L
Feeding:	One drop; twice daily	Food Type:	*Artemia nauplii*
Acceptability Criteria:	≥80% survival in control; ≥.20 mg average dry weight in control	Sample Holding Time Requirements:	36 h maximum for first use; 72 h maximum for subsequent use.

Test Concentrations (mg/L):	Control , 125, 250, 500, 1000, 2000	DECHLOR:	N/A	Critical Dilution (mg/L):	N/A

STOX 1 Prep Date/Time/Initials:	2-2-23	0900	DPD	Analytical Standard Record Number	2302028
STOX 2 Prep Date/Time/Initials:	———	———	———	Analytical Standard Record Number	———

Sample Use									
Day #	Date:	Sample ID	Diluent ID	Initials	Day #	Date:	Sample ID	Diluent ID	Initials
Day 0	2-2-23	23-0038 -1	2301333	DPD	Day 4	2-6-23	23-0038 -1	2301333	DPD
Day 1	2-3-23	23-0038 -1	2301333	DPD	Day 5	2-7-23	23-0038 -1	2301333	KPI
Day 2	2-4-23	23-0038 -1	2301333	DPD	Day 6	2-8-23	23-0038 -1	2301333	CBR
Day 3	2-5-23	23-0038 -1	2301333	BRM	Day 7	———	23-0038	———	———

♦♦

This test was conducted in accordance with the method standard or according to the exception(s) as noted:

Comments:

TDS entry : AOJ 2-15-23

Data Sheet Preparation : Initials: BRM/DPD Date: 1-25-23 Arturo Ocampo Jr

End of Test Review : Initials: DPD Date: 2-9-23 Final Review (signature)

Codes: IE-incorrect entry; IL-illegible; ONV-organism not visible; SC-spilled cup; PB-pathogenic bacteria

Client:	NWDLS .KCl STOX - Mb7	Permit #:	N/A	Outfall #:	N/A	Login #:	23-00389

Water Quality Parameters

DATE	2/2/23	2/3/23		2/4/23		2/5/23		2/6/23		2/7/23		2/8/23		2/9/23
TIME	1030	0800	0800	0800	0800	0740	0740	0810	0810	0840	0840	0845	0845	0830
INITIALS	[illegible] (BW)	DPD KRI	DPD KRI	DPD KRI	DPD KRI	[illegible] KRI	[illegible] KRI	DPD KRI	DPD KRI	AOJ KRI	AOJ KRI	AOJ [illegible]	AOJ CBR	AOJ DPD
DAY	0	1		2		3		4		5		6		7
Solution	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old
CONC. (mg/L)	pH OLD/NEW SOLUTION													
Cont	8.1	7.8	8.2	7.9	8.2	7.9	8.2	7.3	8.3	7.7	8.0	7.8	8.2	7.9
125	8.1	7.8	8.2	7.9	8.2	7.9	8.2	7.7	8.2	7.7	8.1	7.7	8.2	7.9
250	8.1	7.9	8.2	8.0	8.2	7.9	8.2	7.8	8.2	7.8	8.1	7.7	8.2	7.9
500	8.1	7.9	8.2	7.9	8.2	7.9	8.2	7.8	8.2	7.8	8.1	7.7	8.2	8.0
1000	8.1	7.9	8.2	—	—	—	—	—	—	—	—	—	—	—
2000	8.1	7.9	8.2	—	—	—	—	—	—	—	—	—	—	—
METER No.	737	737	737	737	737	737	737	737	737	737	737	737	737	737
CONC. (mg/L)	DISSOLVED OXYGEN (mg/L) OLD/NEW SOLUTION													
Cont	8.2	7.7	8.2	7.9	8.4	8.2	8.4	6.2	8.7	7.8	9.8	7.6	8.1	7.6
125	8.3	7.7	8.3	7.9	8.4	8.1	8.6	6.4	8.6	7.7	9.3	7.2	8.1	7.6
250	8.3	7.4	8.2	8.0	8.4	8.0	8.5	7.2	8.6	7.7	9.4	7.0	8.2	7.5
500	8.3	7.3	8.2	8.0	8.4	8.0	8.4	7.4	8.6	7.7	9.4	7.1	8.0	7.3
1000	8.3	7.5	8.2	—	—	—	—	—	—	—	—	—	—	—
2000	8.2	7.3	8.2	—	—	—	—	—	—	—	—	—	—	—
METER No.	YSI6	YSI6	YSI6	YSI6	YSI6	YSI6	YSI6	YSI6	YSI6	YSI6	YSI6	YSI6	YSI6	YSI6
CONC. (mg/L)	TEMPERATURE (C) OLD/NEW SOLUTION (Actual)													
Cont	24.6	23.9	24.0	23.7	25.6	23.8	25.4	23.8	25.7	24.9	24.9	24.9	25.5	24.2
125	25.6	23.5	25.9	23.4	26.1	23.9	25.4	23.8	25.2	24.4	25.1	24.8	26.0	24.2
250	25.7	23.4	26.0	23.3	26.2	23.8	25.6	23.8	25.4	24.9	25.0	24.8	26.0	24.1
500	25.8	23.4	26.1	23.6	26.1	23.8	25.8	23.9	25.4	25.2	25.1	24.8	25.8	24.1
1000	25.8	23.3	26.1	—	—	—	—	—	—	—	—	—	—	—
2000	25.8	23.5	26.1	—	—	—	—	—	—	—	—	—	—	—
THERM No.	737	737	737	737	737	737	737	737	737	737	737	737	737	737
Offset (±°C)	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments: ① IE KRI 2-3-23 -> [25.7]

Codes: IE-incorrect entry; IL-illegible; ONV-organism not visible; SC-spilled cup; PB-pathogenic bacteria

Client:	NWDLS KCl STOX - Mb7	Permit #:	N/A	Outfall #:	N/A	Login #:	23-00380

Water Quality Parameters (Cont'd.)

Salinity (‰)							
Conc (mg/L)	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
Cont	26.3						
125	26.8						
250	27.0						
500	27.4						
1000	27.9						
2000	29.0						
Meter No.:	948	948	948	948	948	948	

Biological Data

Test Organism Data			
Test Organism Batch #	23-0135	DOB	1-26-23
Source	NWDLS	Age	7d

Feeding							
Day	AM Batch #	PM Batch #	Initials	Day	AM Batch #	PM Batch #	Initials
0		22116115		4	22116106	22116106	SKW / SKW
1	22116115	22116115	MMB / SKW	5	22116106	22116106	SKW /
2	22116115	22116115	MMB /	6	22116106	22116106	/
3	22116115	22116106	/	7	22116105		SKW

Comments:

Codes: IE-incorrect entry; IL-illegible; ONV-organism not visible; SC-spilled cup; PB-pathogenic bacteria

Client:	NWDLS KCl STOX - Mb7	Permit #:	N/A	Outfall #:	N/A	Login #:	23-0038

Test Organisms

Conc (mg/L)	Rep	NUMBER OF SURVIVING ORGANISMS (DAY) 0	1	2	3	4	5	6	7
Cont	A	5	5	5	5	5	5	5	5
	B	5	5	5	5	4	4	4	4
	C	5	5	5	5	5	5	5	5
	D	5	5	5	5	4	4	4	4
	E	5	5	5	5	5	5	5	5
	F	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5
	H	5	5	5	5	5	5	5	5
	I	5	5	5	5	4	4	4	4
	J	5	5	5	5	5	5	5	5
125	A	5	5	5	5	5	5	5	5
	B	5	5	5	5	5	5	5	5
	C	5	5	5	5	5	5	5	5
	D	5	5	5	5	5	5	5	5
	E	5	5	5	5	5	5	5	5
	F	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5
	H	5	5	5	5	5	5	5	5
	I	5	5	5	5	5	5	5	5
	J	5	5	5	5	5	5	5	5
250	A	5	5	5	5	5	5	5	5
	B	5	5	5	5	5	5	5	5
	C	5	5	5	5	5	5	5	5
	D	5	5	5	5	5	5	5	5
	E	5	5	5	5	5	5	5	5
	F	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5
	H	5	5	5	5	5	5	5	5
	I	5	5	5	5	5	5	5	5
	J	5	5	5	5	5	5	5	5
500	A	5	5	5	4	4	4	4	4
	B	5	4	4	4	4	4	4	4
	C	5	5	5	5	5	5	5	5
	D	5	5	5	5	5	5	5	5
	E	5	5	5	5	5	5	5	5
	F	5	5	5	5	5	5	5	5
	G	5	5	5	5	5	5	5	5
	H	5	4	3	3	3	3	3	3
	I	5	5	5	5	5	5	5	5
	J	5	5	5	5	5	5	5	5
Date		2/3/23	2/3/23	2/4/23	2/5/23	2/6/23	2/7/23	2/8/23	2/9/23
Time		1430	0900	1600	1040	0825	0930	0930	1130
Init		BBM EBV	DRD	BRM	BRM	KRI	KRI	AOJ	DRD

Conc (mg/L)	Rep	NUMBER OF SURVIVING ORGANISMS (DAY) 0	1	2	3	4	5	6	7
1000	A	5	0	0	0	0	0	0	0
	B	5	0	0	0	0	0	0	0
	C	5	0	0	0	0	0	0	0
	D	5	0	0	0	0	0	0	0
	E	5	0	0	0	0	0	0	0
	F	5	0	0	0	0	0	0	0
	G	5	0	0	0	0	0	0	0
	H	5	0	0	0	0	0	0	0
	I	5	0	0	0	0	0	0	0
	J	5	0	0	0	0	0	0	0
2000	A	5	0	0	0	0	0	0	0
	B	5	0	0	0	0	0	0	0
	C	5	0	0	0	0	0	0	0
	D	5	0	0	0	0	0	0	0
	E	5	0	0	0	0	0	0	0
	F	5	0	0	0	0	0	0	0
	G	5	0	0	0	0	0	0	0
	H	5	0	0	0	0	0	0	0
	I	5	0	0	0	0	0	0	0
	J	5	0	0	0	0	0	0	0
	A								
	B								
	C								
	D								
	E								
	F								
	G								
	H								
	I								
	J								
	A								
	B								
	C								
	D								
	E								
	F								
	G								
	H								
	I								
	J								

Comments: ① IL AOJ 2-8-23-D [3]

Codes: IE-incorrect entry; IL-illegible; ONV-organism not visible; SC-spilled cup; PB-pathogenic bacteria

Client:	NWDLS KCl STOX - Mb7	Permit #:	N/A	Outfall #:	N/A	Login #:	23-00389

Dry Tissue Weight

CONC (%)	REP	PAN NO.	TARE WT (g)	TOTAL WT (g)	CONC (%)	REP	PAN NO.	TARE WT (g)	TOTAL WT (g)
Cont	A	1	.00465	.00683	500	A	31	.00473	.00633
	B	2	.00467	.00679		B	32	.00464	.00608
	C	3	.00457	.00658		C	33	.00453	.00648
	D	4	.00454	.00644		D	34	.00462	.00615
	E	5	.00449	.00705		E	35	.00468	.00635
	F	6	.00448	.00670		F	36	.00472	.00677
	G	7	.00468	.00689		G	37	.00471	.00663
	H	8 *	.00454	.00670		H	38 *	.00468	.00606
	I	9	.00476	.00632		I	39	.00473	.00645
	J	10	.00442	.00615		J	40	.00455	.00636
125	A	11	.00470	.00717	1000	A	41	.00473	—
	B	12	.00449	.00681		B	42	.00461	—
	C	13	.00474	.00644		C	43	.00464	—
	D	14	.00431	.00680		D	44	.00459	—
	E	15	.00470	.00673		E	45	.00462	—
	F	16	.00456	.00699		F	46	.00464	—
	G	17	.00445	.00632		G	47	.00451	—
	H	18 *	.00439	.00634		H	48 *	.00463	—
	I	19	.00452	.00634		I	49	.00470	—
	J	20	.00441	.00630		J	50	.00455	—
250	A	21	.00450	.00619	2000	A	51	.00489	—
	B	22	.00436	.00583		B	52	.00471	—
	C	23	.00446	.00614		C	53	.00458	—
	D	24	.00424	.00615		D	54	.00466	—
	E	25	.00429	.00598		E	55	.00475	—
	F	26	.00444	.00609		F	56	.00467	—
	G	27	.00440	.00606		G	57	.00455	—
	H	28 *	.00455	.00629		H	58 *	.00459	—
	I	29	.00427	.00607		I	59	.00452	—
	J	30	.00475	.00688		J	60	.00494	—

Comments:

Codes: IE-incorrect entry; IL-illegible; ONV-organism not visible; SC-spilled cup; PB-pathogenic bacteria

Client:	NWDLS KCl STOX - Mb7	Permit #:	N/A	Outfall #:	N/A	Login #:	23-0038

Dry Tissue Weight (cont'd)

CONC (%)	REP	PAN NO.	TARE WT. (g)	TOTAL WT. (g)
	A	61		
	B	62		
	C	63		
	D	64		
	E	65		
	F	66		
	G	67		
	H	68		
	I	69		
	J	70		
	A	71		
	B	72		
	C	73		
	D	74		
	E	75		
	F	76		
	G	77		
	H	78		
	I	79		
	J	80		
QA/QC (pans)		8	.00454	.00669
		18	.00442	.00634
		28	.00452	.00628
		38	.00469	.00608
		48	.00464	—
		58	.00459	—

BALANCE ID#	852
OVEN ID#	SW-1
BALANCE VERIFICATION INITIALS	CBR
DATE/ TARE WEIGHT INITIALS	1-30-23 / CBR
DATE DRYING INITIATED	2-9-23
TIME DRYING INITIATED	1200
OVEN TEMP(Act/Corr) (°C)	105 / 105
INITIALS	DRD
DATE/TIME DRYING TERMINATED	2-10-23 / 1200
OVEN TEMP (Act/Corr) (°C)	105 / 105
BALANCE VERIFICATION INITIALS	DRD
TOTAL WEIGHT DATE/ INITIALS	2-10-23 / DRD

COMMENTS:

TREAT = Treatment REP = Replicate CONT = Control No. = Number ORG. = Organism

Codes: IE-incorrect entry; IL-illegible; ONV-organism not visible; SC-spilled cup; PB-pathogenic bacteria

Client:	NWDLS KCl STOX - Mb7	Permit #:	N/A	Outfall #:	N/A	Login #:	23-0038

Test Notes

Comments	Date	Time	Initials

Codes: IE-incorrect entry; IL-illegible; ONV-organism not visible; SC-spilled cup; PB-pathogenic bacteria

Analytical Standard Record

2302028

Description:	Mysid STOX Work Soln (KCl)	Expires:	02/09/2023
Standard Type:	Analyte Spike	Prepared:	02/02/2023
Solvent:	-	Prepared By:	Dane De Guzman
Final Volume (mls):	30000	Department:	Toxicology
Vials:	1	Last Edit:	02/02/2023 09:40 by DPD
Comments:	Measured 60.0g of KCl standard into 1-L volumetric flask and bring to volume with 25ppt saltwater. Add additional 29L to bring final solution to 30L. See attached PDF-file for dilution scheme.		

Analyte	Parent	CAS Number	Concentration	Units
				mg/L

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit	(mls)
2201575	Potassium chloride	02/10/2022	Thermo Fisher Scientific	T02H024	02/10/2025	07/19/2022 09:43 by TRG	60
2301333	Lab Saltwater	01/19/2023	-	-	06/06/2023	01/23/2023 11:25 by AOJ	30000

Mysid STOX Work Soln (KCl)

2302028

Expires 02/09/2023

Reviewed By

2-2-23

Date

Random Numbers 1-60

Nwdls KCL
STX

Mb -23-0038

1	59
2	28
3	39
4	30
5	14
6	8
7	11
8	52
9	18
10	54
11	19
12	58
13	10
14	49
15	12
16	33
17	50
18	36
19	34
20	40
21	42
22	43
23	2
24	1
25	35
26	45
27	15
28	7
29	51
30	53
31	56
32	9
33	24
34	29
35	41
36	17
37	6
38	21
39	48
40	38
41	44
42	37
43	27
44	20
45	5
46	32
47	46
48	47
49	60
50	55
51	31
52	23
53	25
54	16
55	3
56	26
57	4
58	57
59	22
60	13

Bioaccumulation Toxicology Analysis Summary

Bioaccumulation tests were conducted as specified in section 12.0 of the Green Book. Procedures for performing these tests can be found in Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (EPA,1991) and Appendix E of the Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S.– Testing Manual (EPA/USACE, 1998). Bioaccumulation was measured on sediments from each channel station, the reference station, and the true control. Sediment for the true control was clean beach sand.

The NWDLS Toxicology Laboratory has separate areas for water and sediment storage, culture of test organisms, and testing to minimize cross-contamination between areas.

Testing was performed in 20°C ± 2°C test chambers for the sand worm bioaccumulation study, and the clam bioaccumulation study was conducted at 14°C ± 2°C. Lighting was arranged for each test phase so that light intensity was approximately 1200 microwatt (µw)/square centimeters (cm^2) using cool-white fluorescent bulbs with a 16-hour light and 8-hour dark cycle.

Two field-collected organisms, the sand worm, *Alitta virens*, and the quahog clam, *Mercenaria mercenaria*, were analyzed for bioaccumulation. Both organisms were purchased from a commercial dealer, Aquatic Research Organisms, Inc. (ARO), Hampton, New Hampshire.

The sand worms were shipped dry in seaweed and allowed to come to test temperature in the shipping containers, from which they were introduced into the test vessels. The clams were shipped in bags of seawater, which, upon receipt, were aerated and allowed to come to test temperature and salinity. Both organisms were then introduced into the test, reference, or control sediments randomly, based on a computer-generated distribution pattern. Any of the organisms that did not burrow and any organisms that exhibited abnormal behavior, in the first 4 hours after being put into the test vessels, were replaced by healthy organisms. No organisms were held for more than 3 days. The sediment used for the bioaccumulation was sieved.

Ten-gallon aquaria were used in the bioaccumulation study for both sand worms and clams. A loading factor of no more than '/2 gram of test organism tissue per liter of medium was maintained.

Twenty-four hours after the addition of the sediment, or the end of the acclimation period for the new-work material, the water was changed, and organisms were placed in the test vessels for the bioaccumulation study (20 for the clams and 20 for the sand worms).

- Once prepared, the sediment pore water was tested for ammonia. No samples contained total ammonia > 60 mg/L.
- No test sediment presented the odor of hydrogen sulfide.

Temperature, DO, pH, salinity, and ammonia were recorded daily. Seventy-five percent of the water was siphoned off and replaced 1 hour before and 48 hours after test initiation and at 48-hour intervals thereafter. Aeration was supplied to the sand worms and clams to keep the DO level above 40% of saturation.

The bioaccumulation study was conducted for 28 days following the same procedures as the SP bioassay. After 28 days, the bioaccumulation study was terminated and the sand worms and clams were purged for 24 hours, by replicate, in clean aquaria filled with artificial seawater/ clean sand. After the purge period,

the organisms were sacrificed, the clams were removed from their shells (after initial freezing), and all animals were frozen and distributed for tissue chemistry analysis.

Bioaccumulation – Clams 28 day (*Mercenaria mercenaria)*

PCCA HI & CDP Resampling 2023				
Test Organism		*Mercenaria mercenaria*	Test Type	Bioaccumulation Static Renewal 28 day
Number of Replicates		5	Number of Organisms/ Replicate	20
Test Organism Batch Number		03-0123-MM	Organism Date of Birth or Date Received	03/02/2023
Organism Source		ARO	Organism Age at Test Initiation	Mixed days
Dissolved Oxygen		≥ 4.0 mg/L	Temperature	20 ± 2 °C
Salinity		30 ± 2%	pH	6.0 – 9.0 S.U.
Ammonia		< 5 mg/L		
Sample ID		CDP-06	Field Sampling Date/Time	01/23/2023 13:05
Sample ID		CDP-07	Field Sampling Date/Time	01/23/2023 10:00
Sample ID		REF	Field Sampling Date/Time	01/27/2023 09:20
Test Initiation Date/Time		03/03/2023 10:15	Test Termination Date/Time	03/31/2023 09:30
Renewal of Test Solution		48 hr intervals	Feeding	None
Sample ID	Total # of Organisms	Survival (%)	Significant Effect (>10% effect)	Effect (%)
REFERENCE	100	99	No	0.00
CDP-06	100	99	No	0.00
CDP-07	100	96	No	3.03

Mollusk 28d-Survival and Growth Sediment — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	20-8872-6326	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	05 Apr-23 8:49	**Analysis:**	No Statistical Comparisons Run	**Status Level:**	1
Batch ID:	13-6734-0432	**Test Type:**	Survival-Growth	**Analyst:**	Theran Gay
Start Date:	03 Mar-23 10:15	**Protocol:**	ASTM E1688-96 (1996)	**Diluent:**	Laboratory Seawater
Ending Date:	31 Mar-23 09:30	**Species:**	Mercenaria mercenaria	**Brine:**	Instant Ocean
Test Length:	27d 23h	**Taxon:**	Bivalvia	**Source:**	Aquatic Research Organis **Age:**
Sample ID:	00-2847-2144	**Code:**	1B27350	**Project:**	PCCA
Sample Date:	16 Jan-23 14:20	**Material:**	SPP	**Source:**	PCCA-HI
Receipt Date:	19 Jan-23 17:30	**CAS (PC):**		**Station:**	
Sample Age:	45d 20h	**Client:**	Terracon Consultants, Inc.		

Comments:
9.6=CDP-6 site and 9.7=CDP 7 site

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.138746	0.0138746	10	3.252	0.0032	Significant Effect
Error	0.187697	0.0042658	44			
Total	0.326442		54			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	2.472	2.754	0.0191	Equal Variances
Variances	Mod Levene Equality of Variance Test	0.8948	2.913	0.5481	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9097	0.9417	5.5E-04	Non-Normal Distribution

Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	RS	5	0.9900	0.9622	1.0000	1.0000	0.9500	1.0000	0.0100	2.26%	0.00%
1		5	0.9800	0.9460	1.0000	1.0000	0.9500	1.0000	0.0123	2.79%	1.01%
2		5	0.9900	0.9622	1.0000	1.0000	0.9500	1.0000	0.0100	2.26%	0.00%
3		5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-1.01%
4		5	0.9700	0.9145	1.0000	1.0000	0.9000	1.0000	0.0200	4.61%	2.02%
5		5	0.9900	0.9622	1.0000	1.0000	0.9500	1.0000	0.0100	2.26%	0.00%
6		5	0.9900	0.9622	1.0000	1.0000	0.9500	1.0000	0.0100	2.26%	0.00%
7		5	0.9100	0.8581	0.9619	0.9000	0.8500	0.9500	0.0187	4.60%	8.08%
8		5	0.9600	0.9081	1.0000	0.9500	0.9000	1.0000	0.0187	4.36%	3.03%
9.6		5	0.9900	0.9622	1.0000	1.0000	0.9500	1.0000	0.0100	2.26%	0.00%
9.7		5	0.9600	0.9081	1.0000	0.9500	0.9000	1.0000	0.0187	4.36%	3.03%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	RS	5	1.436	1.373	1.499	1.459	1.345	1.459	0.02269	3.53%	0.00%
1		5	1.413	1.336	1.491	1.459	1.345	1.459	0.0278	4.40%	1.58%
2		5	1.436	1.373	1.499	1.459	1.345	1.459	0.02269	3.53%	0.00%
3		5	1.459	1.458	1.459	1.459	1.459	1.459	0	0.00%	-1.58%
4		5	1.394	1.276	1.512	1.459	1.249	1.459	0.04241	6.80%	2.92%
5		5	1.436	1.373	1.499	1.459	1.345	1.459	0.02269	3.53%	0.00%
6		5	1.436	1.373	1.499	1.459	1.345	1.459	0.02269	3.53%	0.00%
7		5	1.272	1.181	1.364	1.249	1.173	1.345	0.03284	5.77%	11.40%
8		5	1.371	1.261	1.482	1.345	1.249	1.459	0.03975	6.48%	4.50%
9.6		5	1.436	1.373	1.499	1.459	1.345	1.459	0.02269	3.53%	0.00%
9.7		5	1.371	1.261	1.482	1.345	1.249	1.459	0.03975	6.48%	4.50%

Mollusk 28d-Survival and Growth Sediment — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	20-8872-6326	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	05 Apr-23 8:49	**Analysis:**	No Statistical Comparisons Run	**Status Level:**	1

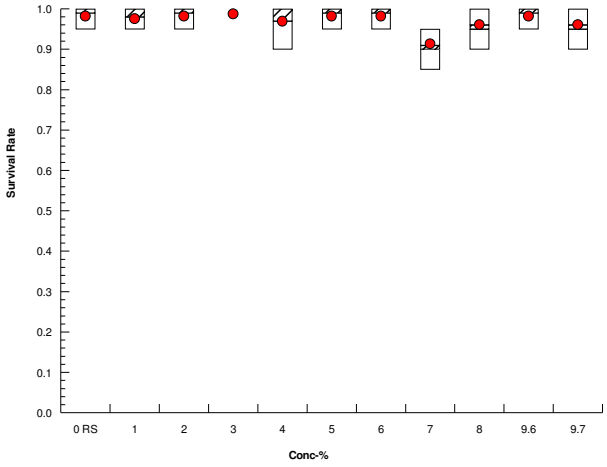
Survival Rate Detail

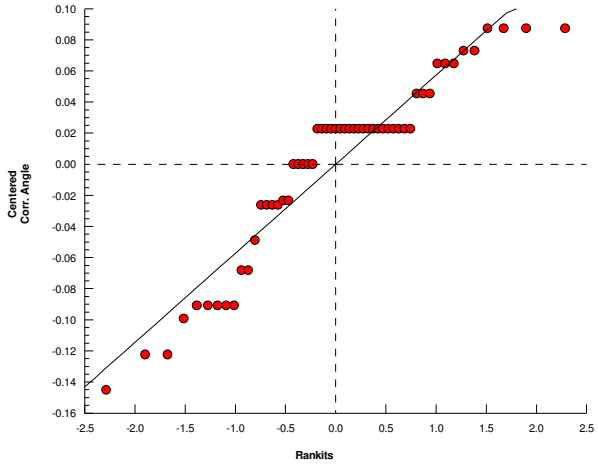
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	RS	1.0000	0.9500	1.0000	1.0000	1.0000
1		1.0000	0.9500	0.9500	1.0000	1.0000
2		0.9500	1.0000	1.0000	1.0000	1.0000
3		1.0000	1.0000	1.0000	1.0000	1.0000
4		0.9000	0.9500	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	0.9500	1.0000
6		1.0000	0.9500	1.0000	1.0000	1.0000
7		0.9000	0.9000	0.8500	0.9500	0.9500
8		1.0000	1.0000	0.9500	0.9000	0.9500
9.6		0.9500	1.0000	1.0000	1.0000	1.0000
9.7		1.0000	0.9000	1.0000	0.9500	0.9500

Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	RS	1.459	1.345	1.459	1.459	1.459
1		1.459	1.345	1.345	1.459	1.459
2		1.345	1.459	1.459	1.459	1.459
3		1.459	1.459	1.459	1.459	1.459
4		1.249	1.345	1.459	1.459	1.459
5		1.459	1.459	1.459	1.345	1.459
6		1.459	1.345	1.459	1.459	1.459
7		1.249	1.249	1.173	1.345	1.345
8		1.459	1.459	1.345	1.249	1.345
9.6		1.345	1.459	1.459	1.459	1.459
9.7		1.459	1.249	1.459	1.345	1.345

Graphics





Mollusk 28d-Survival and Growth Sediment **NWDLS Environ. Toxicol. Lab**

Analysis ID:	06-4057-0391	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	05 Apr-23 8:51	**Analysis:**	Nonparametric-Two Sample	**Status Level:**	1
Batch ID:	13-6734-0432	**Test Type:**	Survival-Growth	**Analyst:**	Theran Gay
Start Date:	03 Mar-23 10:15	**Protocol:**	ASTM E1688-96 (1996)	**Diluent:**	Laboratory Seawater
Ending Date:	31 Mar-23 09:30	**Species:**	Mercenaria mercenaria	**Brine:**	Instant Ocean
Test Length:	27d 23h	**Taxon:**	Bivalvia	**Source:**	Aquatic Research Organis **Age:**
Sample ID:	00-2847-2144	**Code:**	1B27350	**Project:**	PCCA
Sample Date:	16 Jan-23 14:20	**Material:**	SPP	**Source:**	PCCA-HI
Receipt Date:	19 Jan-23 17:30	**CAS (PC):**		**Station:**	
Sample Age:	45d 20h	**Client:**	Terracon Consultants, Inc.		

Comments:
9.6=CDP-6 site and 9.7=CDP 7 site

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Control Sed passed survival rate	2.76%

Wilcoxon Rank Sum Two-Sample Test

Control	vs	Control II	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Reference Sed		Control Sed	27.5	n/a	2	8	Exact	0.7778	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	0	1.0000	Non-Significant Effect
Error	0.0206028	0.0025754	8			
Total	0.0206028		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	1	23.15	1.0000	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.5093	0.7411	4.7E-06	Non-Normal Distribution

Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	CS	5	0.9900	0.9622	1.0000	1.0000	0.9500	1.0000	0.0100	2.26%	0.00%
0	RS	5	0.9900	0.9622	1.0000	1.0000	0.9500	1.0000	0.0100	2.26%	0.00%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	CS	5	1.436	1.373	1.499	1.459	1.345	1.459	0.02269	3.53%	0.00%
0	RS	5	1.436	1.373	1.499	1.459	1.345	1.459	0.02269	3.53%	0.00%

Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	CS	1.0000	0.9500	1.0000	1.0000	1.0000
0	RS	1.0000	0.9500	1.0000	1.0000	1.0000

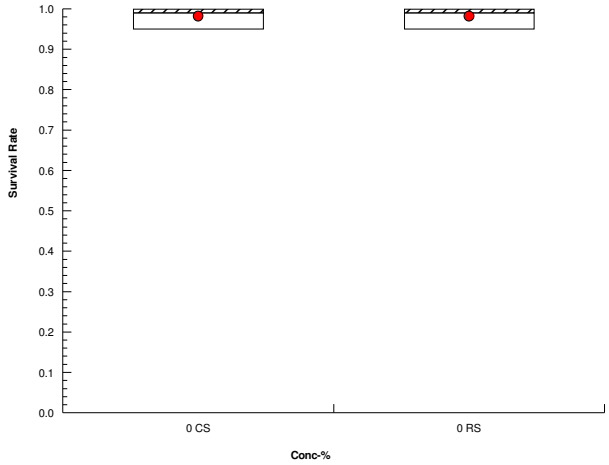
Angular (Corrected) Transformed Detail

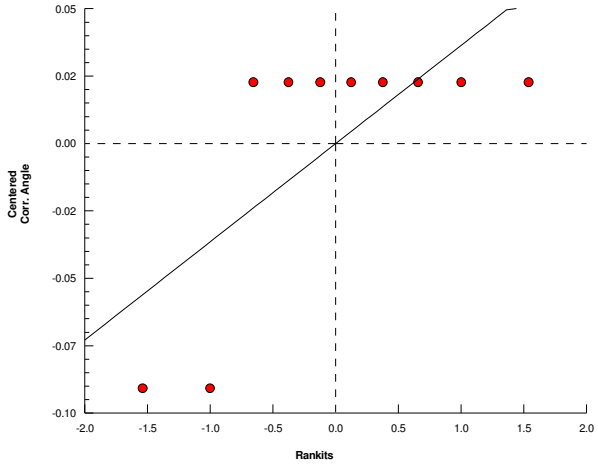
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	CS	1.459	1.345	1.459	1.459	1.459
0	RS	1.459	1.345	1.459	1.459	1.459

Mollusk 28d-Survival and Growth Sediment **NWDLS Environ. Toxicol. Lab**

Analysis ID:	06-4057-0391	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	05 Apr-23 8:51	**Analysis:**	Nonparametric-Two Sample	**Status Level:**	1

Graphics





Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Mercenaria mercenaria 28d Test Condition Summary - ASTM E 1688; NWDLS SOP No. 4CDP-83			
Test Material:	Sediment	Test Type:	28d Bioaccumulation Static Renewal
Temperature:	12 - 16 °C	Photoperiod:	16L:8D
Test Chamber:	10 gal glass aquaria	No. Replicates:	5
Test Organism:	***Mercenaria mercenaria***	Organism Source:	ARO
Organism Batch No.:	030123 MM	Date Received:	3-2-23
Age Class:	mixed ages	No. Organisms/Rep:	~~25~~ 20
Aeration:	Moderate, overnight before start of test and throughout duration of test; maintain ≥ 90% saturation of dissolved oxygen concentration	Control Sediment:	Clean Beach Sand or sediment from which the test organisms are collected
Feeding Schedule:	None	Food Type:	N/A
Water Type:	≥ 30 ppt Synthetic Seawater ± 2 ppt	Water Volume:	8-9 gal
Renewal Schedule:	48 h intervals, beginning on day 0 (min 3x per week)	Sediment Volume:	1 gal (2 gal for control sediment)

Comments:

Water Changes							
Day	0	2	4	6	8	10	12
Date	3-3-23	3-5-23	3-7-23	3-9-23	3-11-23	3-13-23	3-15-23
Time	0850	1300	0800	0900	0845	0850	0950
Initials	THL	DPD	THL	THL	THL	THL	AOT
Day	14	16	18	20	22	24	26
Date	3-17-23	3-19-23	~~3-21-23~~ ①	3-23-23	3-25-23	3-27-23	3-29-23
Time	1045	0945	0915	1100	1030	1000	1010
Initials	AOT	AOT	THL	AOT	AOT/VJC	AOT/VJC	AOT

Initiation Date:	3-3-23	Termination Date:	3-31-23
Initiation Time:	1015	Termination Time:	0930
Initials:	ABM / VJC	Initials:	ABM / DPD / KRE

① DL mL 3-21-23 → [3-21-23]

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Mercenaria mercenaria - Survival

Treatment	Rep	Day 0	Day 28		Treatment	Rep	Day 0	Day 28		Treatment	Rep	Day 0	Day28	
			1st Count	2nd Count				1st Count	2nd Count				1st Count	2nd Count
CONT	A	20	20	20	HI-DMMU-4		20	18	18	CDP-6	A	20	19	19
	B	20	19	19			20	19	19		B	20	20	20
	C	20	20	20			20	20	20		C	20	20	20
	D	20	20	20			20	20	20		D	20	20	20
	E	20	20	20			20	20	20		E	20	20	20
REF	A	20	20	20	HI-DMMU-5		20	20	20	CDP-7	A	20	20	20
	B	20	19	19			20	20	20		B	20	18	18
	C	20	20	20			20	20	20		C	20	20	20
	D	20	20	20			20	19	19		D	20	19	19
	E	20	20	20			20	20	20		E	20	19	19
HI-DMMU-1	A	20	20	20	HI-DMMU-6		20	20	20		A			
	B	20	19	19			20	19	19		B			
	C	20	19	19			20	20	20		C			
	D	20	20	20			20	20	20		D			
	E	20	20	20			20	20	20		E			
HI-DMMU-2	A	20	19	19	HI-DMMU-7		20	18	18		A			
	B	20	20	20			20	18	18		B			
	C	20	20	20			20	17	17		C			
	D	20	20	20			20	19	19		D			
	E	20	20	20			20	19	19		E			
HI-DMMU-3	A	20	20	20	HI-DMMU-8		20	20	20		A			
	B	20	20	20			20	20	20		B			
	C	20	20	20			20	19	19		C			
	D	20	20	20			20	18	18		D			
	E	20	20	20			20	19	19		E			
Tech Initials		ABH KRE	ABH/KRI	VJC/KRE			ABH KRE	KRE/ABH	VJC/KRE	Tech Initials:		KRE ABH	DPD/VJC	VJC/KRE

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

pH OLD/NEW Meter # 737

Day	-1	0-Old	0-New	1-Old	2-Old	2-New	3-Old	4-Old	4-New	5-Old	6-Old	6-New	7-Old	8-Old	8-New
Control	8.1	8.0	8.1	8.0	7.9	7.9	8.0	7.9	8.0	7.9	8.0	8.0	8.0	8.1	8.1
REF		8.0		8.0	8.0		8.0	8.0		7.9	8.0		8.0	8.0	
HI-DMMU-1		8.1		8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.1	
HI-DMMU-2		8.1		8.0	8.0		8.0	8.0		8.1	8.1		8.0	8.1	
HI-DMMU-3		8.1		8.0	8.0		8.0	8.0		8.0	8.1		8.1	8.0	
HI-DMMU-4		8.1		8.0	8.0		8.1	8.0		8.1	8.1		8.1	8.0	
HI-DMMU-5		8.1		8.0	8.0		8.1	8.0		8.0	8.1		8.1	8.1	
HI-DMMU-6		8.1		8.1	8.0		8.0	8.0		8.0	8.1		8.2	8.1	
HI-DMMU-7		8.1		8.1	8.1		8.0	8.1		8.1	8.1		8.2	8.2	
HI-DMMU-8		8.1		8.1	8.1		8.0	8.1		8.0	8.1		8.1	8.1	
CDP-6		8.1		8.1	8.1		8.0	8.1		8.0	8.1		8.1	8.1	
CDP-7		8.0		8.1	8.1		8.0	8.1		8.1	8.1		8.1	8.1	

DISSOLVED OXYGEN (mg/L) OLD/NEW Meter # 4516

Control	9.1	9.3	9.1	9.1	9.4	9.2	9.5	9.6	9.4	9.6	9.7	9.3	9.6	9.5	9.2
REF		9.3		9.1	9.4		9.5	9.6		9.5	9.7		9.7	9.6	
HI-DMMU-1		9.3		9.1	9.4		9.6	9.7		9.6	9.7		9.7	9.8	
HI-DMMU-2		9.3		9.1	9.4		9.6	9.7		9.7	9.7		9.6	9.7	
HI-DMMU-3		9.4		9.1	9.4		9.6	9.7		9.7	9.7		9.6	9.7	
HI-DMMU-4		9.4		9.1	9.4		9.6	9.7		9.6	9.7		9.6	9.7	
HI-DMMU-5		9.4		9.1	9.4		9.6	9.7		9.6	9.7		9.7	9.8	
HI-DMMU-6		9.4		9.1	9.4		9.6	9.7		9.6	9.7		9.7	9.8	
HI-DMMU-7		9.4		9.1	9.4		9.6	9.7		9.7	9.7		9.7	9.8	
HI-DMMU-8		9.4		9.1	9.4		9.6	9.8		9.7	9.7		9.7	9.8	
CDP-6		9.4		9.1	9.4		9.6	9.7		9.7	9.7		9.7	9.8	
CDP-7		9.4		9.1	9.4		9.6	9.7		9.7	9.7		9.7	9.8	

Salinity (ppt) Meter # 948

Control	29.8	29.9	29.8	29.7	29.6	29.6	29.9	29.6	28.2	29.1	29.7	28.4	28.7	28.5	28.6
REF		29.9		29.7	29.8		29.9	30.0		29.2	29.7		28.7	28.5	
HI-DMMU-1		29.8		29.8	29.9		30.1	30.1		29.2	29.3		28.6	28.6	
HI-DMMU-2		29.8		29.9	29.9		30.0	30.1		29.2	29.3		28.6	28.5	
HI-DMMU-3		29.8		29.8	29.9		30.1	30.1		29.3	29.4		28.5	28.5	
HI-DMMU-4		29.8		29.8	29.8		29.9	30.1		29.2	29.3		28.6	28.5	
HI-DMMU-5		29.8		30.1	29.8		29.9	30.1		29.2	29.2		28.7	28.6	
HI-DMMU-6		29.8		30.1	29.8		29.7	29.9		29.1	29.2		28.6	28.5	
HI-DMMU-7		29.8		30.1	29.8		29.8	30.1		29.2	29.3		28.6	28.5	
HI-DMMU-8		29.8		30.0	29.8		29.8	30.0		29.2	29.2		28.6	28.5	
CDP-6		29.9		30.0	29.8		29.8	29.8		29.3	29.2		28.6	28.4	
CDP-7		29.8		30.0	29.8		29.9	29.9		29.2	29.2		28.4	28.4	

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

TEMPERATURE (°C) OLD/NEW (Actual / Corrected) Therm# 737 Offset# 0															
Day	-1	0-Old	0-New	1-Old	2-Old	2-New	3-Old	4-Old	4-New	5-Old	6-Old	6-New	7-Old	8-Old	8-New
Control	14.6	14.8	14.7	14.8	14.9	15.0	15.1	15.0	15.0	15.0	14.9	14.8	14.7	14.8	14.8
REF		14.7		14.6	14.9		15.2	15.1		15.0	14.9		14.7	14.8	
HI-DMMU-1		14.8		14.7	14.9		15.2	15.0		15.0	15.1		14.8	14.8	
HI-DMMU-2		14.8		14.7	14.9		15.2	15.1		15.1	14.9		14.9	14.8	
HI-DMMU-3		14.7		14.6	14.9		15.2	15.1		15.0	15.2		14.9	14.8	
HI-DMMU-4		14.7		14.7	14.9		15.1	15.0		15.0	14.9		14.8	14.8	
HI-DMMU-5		14.7		14.8	14.9		15.1	15.0		15.1	14.9		14.7	14.7	
HI-DMMU-6		14.7		14.8	14.9		15.0	14.9		15.1	14.9		14.6	14.7	
HI-DMMU-7		14.6		14.8	14.9		15.0	14.9		15.0	15.0		14.7	14.8	
HI-DMMU-8		14.6		14.8	14.9		14.9	15.0		15.1	15.0		14.8	14.8	
CDP-6		14.6		14.8	14.9		14.9	15.0		15.1	14.9		14.8	14.9	
CDP-7		14.6		14.8	14.9		14.9	14.9		15.0	14.9		14.8	14.9	
Initials				BRM/DDN	BRM/DDN										

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

pH OLD/NEW Meter # 737

Day	9-O	10-O	10-N	11-O	12-O	12-N	13-O	14-O	14-N	15-O	16-O	16-N	17-O	18-O	18-N
Control	8.0	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.1	8.0	8.0
REF	8.1	8.1		8.1	8.0		8.0	8.1		8.1	8.0		8.1	8.1	
HI-DMMU-1	8.1	8.1		8.1	8.1		8.0	8.1		8.1	8.1		8.2	8.1	
HI-DMMU-2	8.1	8.2		8.1	8.1		8.0	8.1		8.2	8.1		8.1	8.1	
HI-DMMU-3	8.1	8.2		8.1	8.1		8.1	8.1		8.2	8.1		8.1	8.1	
HI-DMMU-4	8.1	8.1		8.1	8.1		8.1	8.1		8.2	8.1		8.2	8.1	
HI-DMMU-5	8.1	8.1		8.1	8.1		8.1	8.1		8.2	8.1		8.2	8.1	
HI-DMMU-6	8.1	8.2		8.1	8.1		8.1	8.1		8.1	8.1		8.2	8.1	
HI-DMMU-7	8.1	8.2		8.1	8.1		8.1	8.1		8.1	8.1		8.1	8.1	
HI-DMMU-8	8.1	8.2		8.1	8.1		8.1	8.1		8.1	8.1		8.2	8.1	
CDP-6	8.1	8.1		8.1	8.1		8.1	8.1		8.1	8.1		8.1	8.1	
CDP-7	8.1	8.1		8.1	8.1		8.1	8.1		8.1	8.1		8.2	8.1	

DISSOLVED OXYGEN (mg/L) OLD/NEW Meter # 45I6

Control	9.7	9.8	9.3	9.7	9.6	9.2	9.8	9.9	9.4	9.2	9.6	9.1	9.5	9.6	9.4
REF	9.7	9.9		9.8	9.6		9.8	9.9		9.7	9.7		9.6	9.6	
HI-DMMU-1	9.7	9.8		9.8	9.6		9.8	9.9		9.7	9.7		9.6	9.7	
HI-DMMU-2	9.7	9.8		9.8	9.7		9.8	9.9		9.7	9.8		9.6	9.7	
HI-DMMU-3	9.7	9.7		9.8	9.7		9.8	9.9		9.8	9.8		9.7	9.7	
HI-DMMU-4	9.7	9.7		9.8	9.7		9.9	9.9		9.8	9.8		9.7	9.7	
HI-DMMU-5	9.7	9.7		9.8	9.8		9.9	9.9		9.8	9.6		9.7	9.7	
HI-DMMU-6	9.7	9.6		9.8	9.8		9.9	9.9		9.8	9.6		9.8	9.7	
HI-DMMU-7	9.7	9.8		9.7	9.9		9.9	9.9		9.8	10.1		9.9	9.8	
HI-DMMU-8	9.7	9.8		9.7	9.9		9.9	10.0		9.9	10.1		9.9	9.8	
CDP-6	9.7	9.7		9.7	9.9		9.9	10.1		10.0	10.0		9.8	9.8	
CDP-7	9.6	9.7		9.8	9.9		9.9	10.1		10.0	10.1		9.8	9.7	

Salinity (ppt) Meter # 949

Control	28.6	28.7	28.6	28.8	28.8		28.8	28.7	29.1	29.1	29.1	29.7	29.1	29.2	28.6
REF	28.6	28.6		28.7	28.8		28.8	28.7		28.9	29.1		29.1	29.0	
HI-DMMU-1	28.5	28.6		28.7	28.9		28.7	28.7		28.9	29.2		29.0	29.0	
HI-DMMU-2	28.6	28.7		28.7	28.9		28.7	28.7		28.9	29.1		29.2	29.1	
HI-DMMU-3	28.6	28.7		28.6	28.9		28.7	28.7		28.9	29.1		29.3	29.1	
HI-DMMU-4	28.6	28.8		28.6	28.9		28.7	28.7		28.9	29.1		29.4	29.2	
HI-DMMU-5	28.7	28.8		28.7	28.9		28.7	28.8		28.9	29.1		29.3	29.2	
HI-DMMU-6	28.7	28.9		28.8	28.9		28.8	28.8		28.9	29.0		29.4	29.4	
HI-DMMU-7	28.7	28.7		28.7	28.9		28.8	28.8		28.9	29.0		29.3	29.1	
HI-DMMU-8	28.7	28.8		28.7	29.0		28.8	28.8		28.9	29.0		29.3	29.3	
CDP-6	28.7	28.8		28.8	29.0		28.8	28.9		28.9	29.0		29.4	29.4	
CDP-7	28.7	28.9		28.7	29.0		28.8	28.9		28.9	29.0		29.3	29.4	

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

TEMPERATURE (°C) OLD/NEW (Actual / Corrected)															
Therm# 737 Offset# 0															
Day	9-O	10-O	10-N	11-O	12-O	12-N	13-O	14-O	14-N	15-O	16-O	16-N	17-O	18-O	18-N
Control	14.9	15.2	15.0	14.8	14.7	14.9	15.0	14.7	14.9	14.7	14.4	14.9	14.4	14.5	14.8
REF	14.8	15.1		14.8	14.7		14.9	14.7		14.7	14.4		14.3	14.5	
HI-DMMU-1	14.4	14.7		14.8	14.7		14.9	14.6		14.8	14.5		14.4	14.5	
HI-DMMU-2	14.8	14.8		14.8	14.7		14.9	14.6		14.8	14.5		14.5	14.5	
HI-DMMU-3	14.7	14.4		14.8	14.7		14.8	14.6		14.7	14.5		14.6	14.5	
HI-DMMU-4	14.7	14.8		14.8	14.9		14.8	14.6		14.8	14.6		14.6	14.6	
HI-DMMU-5	14.7	14.7		14.6	14.9		14.9	14.7		14.8	14.6		14.5	14.6	
HI-DMMU-6	14.7	14.5		14.6	14.7		14.8	14.7		14.8	14.6		14.6	14.6	
HI-DMMU-7	14.7	14.9		14.7	14.9		14.8	14.7		14.7	14.6		14.7	14.6	
HI-DMMU-8	14.6	14.8		14.7	14.9		14.8	14.7		14.7	14.6		14.7	14.5	
CDP-6	14.7	14.8		14.7	14.8		14.7	14.7		14.7	14.6		14.7	14.5	
CDP-7	14.7	14.7		14.7	14.9		15.0	14.8		14.7	14.7		14.8	14.6	
Initials	14.8	TML	TML	ML	DID		KRI	KRI		CBR/KRI	KRI/CBR		TML	ML	ML

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

pH OLD/NEW Meter # 737

Day	19-O	20-O	20-N	21-O	22-O	22-N	23-O	24-O	24-N	25-O	26-O	26-N	27-O	28-O	28-N
Control	8.0	8.0	8.0	8.0	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.1
REF	8.0	8.1		8.0	8.1		8.1	8.1		8.1	8.1		8.1	8.1	
HI-DMMU-1	8.0	8.1		8.0	8.1		8.1	8.1		8.1	8.1		8.1	8.1	
HI-DMMU-2	8.1	8.1		8.1	8.1		8.1	8.1		8.0	8.0		8.2	8.1	
HI-DMMU-3	8.1	8.1		8.0	8.2		8.1	8.1		8.0	8.0		8.2	8.1	
HI-DMMU-4	8.1	8.1		8.0	8.2		8.1	8.1		8.1	8.1		8.2	8.1	
HI-DMMU-5	8.1	8.1		8.1	8.2		8.1	8.1		8.0	8.1		8.2	8.1	
HI-DMMU-6	8.1	8.1		8.0	8.3		8.2	8.1		8.1	8.1		8.2	8.2	
HI-DMMU-7	8.1	8.1		8.1	8.2		8.2	8.2		8.1	8.1		8.2	8.2	
HI-DMMU-8	8.2	8.2		8.1	8.2		8.2	8.2		8.1	8.1		8.2	8.2	
CDP-6	8.2	8.2		8.1	8.2		8.2	8.2		8.2	8.2		8.2	8.2	
CDP-7	8.1	8.2		8.1	8.2		8.3	8.1		8.1	8.2		8.2	8.2	

DISSOLVED OXYGEN (mg/L) OLD/NEW Meter # YSI6

Control	9.8	9.8	9.4	9.7	9.7	8.7	9.6	9.8	9.2	9.5	9.6	9.1	9.4	9.5	9.1
REF	9.9	9.8		9.7	9.7		9.6	9.8		9.6	9.6		9.5	9.6	
HI-DMMU-1	9.9	9.8		9.8	9.8		9.6	9.7		9.6	9.6		9.5	9.6	
HI-DMMU-2	9.9	9.9		9.8	9.8		9.6	9.8		9.8	9.7		9.5	9.6	
HI-DMMU-3	9.8	9.8		9.8	9.8		9.6	9.8		9.8	9.7		9.6	9.6	
HI-DMMU-4	9.8	9.8		9.8	9.8		9.6	9.8		9.9	9.7		9.6	9.7	
HI-DMMU-5	9.8	9.8		9.8	9.8		9.6	9.8		9.8	9.7		9.6	9.7	
HI-DMMU-6	9.8	9.9		9.7	9.8		9.6	9.7		9.8	9.6		9.6	9.6	
HI-DMMU-7	9.7	9.8		9.8	9.8		9.6	9.7		9.9	9.7		9.7	9.6	
HI-DMMU-8	9.7	9.8		9.8	9.7		9.6	9.7		9.9	9.7		9.7	9.6	
CDP-6	9.8	9.8		9.8	9.7		9.6	9.7		9.9	9.7		9.8	9.6	
CDP-7	9.8	9.9		9.8	9.7		9.6	9.7		9.8	9.7		9.7	9.6	

Salinity (ppt) Meter # 948

Control	28.7	28.8	28.8	28.7	29.0	29.9	29.0	29.3	28.4	28.9	28.6	29.0	28.8	28.9	29.0
REF	28.6	28.7		28.8	29.8		29.1	29.4		28.8	28.7		28.9	29.0	
HI-DMMU-1	28.5	28.6		28.9	28.9		29.1	29.4		28.8	28.9		28.7	28.8	
HI-DMMU-2	28.6	28.7		28.9	28.9		29.1	29.4		28.7	28.8		28.8	29.1	
HI-DMMU-3	28.5	28.6		28.9	28.8		29.1	29.3		28.7	28.6		28.8	29.0	
HI-DMMU-4	28.6	28.7		28.9	28.9		29.1	29.2		28.7	28.6		28.8	29.0	
HI-DMMU-5	28.5	28.7		29.0	29.1		29.1	29.2		28.8	28.6		28.8	28.9	
HI-DMMU-6	28.5	28.6		29.0	29.1		29.1	29.1		28.7	28.7		28.9	29.0	
HI-DMMU-7	28.6	28.6		29.1	29.0		29.1	29.1		28.7	28.6		28.8	29.0	
HI-DMMU-8	28.7	28.7		28.7	28.9		29.1	29.1		28.6	28.9		28.6	28.9	
CDP-6	28.6	28.7		28.8	29.9		29.1	29.1		28.6	28.6		28.7	28.9	
CDP-7	28.6	28.7		28.8	29.8		29.1	29.0		28.7	28.5		28.7	29.0	

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

TEMPERATURE (°C) OLD/NEW (Actual / Corrected)															
									Therm#	737	Offset#	0			
Day	19-O	20-O	20-N	21-O	22-O	22-N	23-O	24-O	24-N	25-O	26-O	26-N	27-O	28-O	28-N
Control	14.6	14.7	15.4	15.2	14.7	14.9	14.6	14.7	15.5	15.0	15.0	15.0	14.9	14.8	14.8
REF	14.8	14.8		15.1	14.7		14.6	14.6		15.1	14.9		14.9	14.7	
HI-DMMU-1	14.7	14.7		15.1	14.7		14.7	14.8		15.1	14.9		14.9	14.7	
HI-DMMU-2	14.9	14.8		15.1	14.8		14.7	14.7		15.1	14.9		14.7	14.6	
HI-DMMU-3	14.7	14.8		15.1	14.8		14.8	14.7		15.1	14.8		14.7	14.6	
HI-DMMU-4	14.8	14.9		15.1	14.8		14.8	14.8		15.0	14.8		14.9	14.7	
HI-DMMU-5	14.6	14.8		15.2	14.8		14.9	14.6		14.9	14.7		14.8	14.8	
HI-DMMU-6	14.8	14.9		15.2	14.9		14.9	14.6		14.9	14.7		14.8	14.7	
HI-DMMU-7	14.8	14.9		15.2	14.9		14.7	14.7		15.1	14.9		14.9	14.8	
HI-DMMU-8	14.8	14.9		15.1	14.8		14.7	14.7		15.2	14.9		15.0	14.8	
CDP-6	14.8	14.9		15.1	14.8		14.7	14.7		15.1	14.8		14.9	14.8	
CDP-7	14.7	14.8		15.1	14.8		14.7	14.7		15.1	14.8		14.9	14.8	
Initials	TM	TM	TM	TM	KDF		KDF	TM	TM	TM	TM	TM	TM	TM	TM

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Daily Water Quality Characteristics

Ammonia - Old/New

Day	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
Cont-O	.001	.007													
REF		.003													
HI-DMMU-1		.006													
HI-DMMU-2		.005													
HI-DMMU-3		.005													
HI-DMMU-4		.005													
HI-DMMU-5		.009													
HI-DMMU-6		.004													
HI-DMMU-7		.008													
HI-DMMU-8		.006													
CDP-6		.009													
CDP-7		.008													
Cont-N		.001													
Date															
Time															
Initials	NRL	NRL													
Meter #	566	566													

Day	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Cont-O															
REF															
HI-DMMU-1															
HI-DMMU-2															
HI-DMMU-3															
HI-DMMU-4															
HI-DMMU-5															
HI-DMMU-6															
HI-DMMU-7															
HI-DMMU-8															
CDP-6															
CDP-7															
Cont-N															
Date															
Time															
Initials															
Meter #															

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Tissue Weight - *M. ~~arenaria~~ mercenaria*

Treatment/Site (%)	REP	TOTAL WT (g)	Treatment/Site (%)	REP	TOTAL WT (g)	Treatment/Site (%)	REP	TOTAL WT (g)
ARCHIVES	A	~~241.6~~	HI-DMMU-5	A	235.7	CONTROL	A	236.9
	B	254.9		B	219.1		B	224.1
	C	212.9		C	233.3		C	254.2
	D	260.0		D	194.0		D	237.0
	E	232.4		E	263.8		E	242.6
REF	A	217.6	HI-DMMU-6	A	207.3		A	
	B	275.7		B	235.6		B	
	C	267.7		C	259.7		C	
	D	276.5		D	247.9		D	
	E	~~276.5~~ ①		E	259.4		E	
HI-DMMU-1	A	215.5	HI-DMMU-7	A	260.5		A	
	B	244.6		B	208.5		B	
	C	240.6		C	238.0		C	
	D	234.9		D	242.7		D	
	E	224.2		E	262.1		E	
HI-DMMU-2	A	245.7	HI-DMMU-8	A	206.9		A	
	B	257.7		B	211.8		B	
	C	278.3		C	240.7		C	
	D	243.2		D	256.5		D	
	E	223.8		E	260.5		E	
HI-DMMU-3	A	269.3	CDP-6	A	215.7		A	
	B	204.6		B	240.6		B	
	C	278.5		C	257.2		C	
	D	259.4		D	255.4		D	
	E	236.4		E	291.5		E	
HI-DMMU-4	A	252.4	CDP-7	A	261.2		A	
	B	264.8		B	207.4		B	
	C	280.4		C	251.0		C	
	D	225.2		D	245.4		D	
	E	292.5		E	235.6		E	

DATE 4-5-23 TIME 1 BALANCE ID 296 INITIALS LBJ

CONT = Control CONC = Concentration REP = Replicate
Wt. = Weight ORG. = Organism

① IE LBJ 4-5-23 → [239.3]

Aquatic Research Organisms

DATA SHEET

I. Organism History

Species Mercenaria mercenaria

Source: Lab reared _____ Hatchery reared _____ Field collected _____

Hatch date Mixed ages Receipt date 03/01/23

Lot number 030123MM Strain WILD

Brood origination ME

II. Water Quality

Temperature 6 °C Salinity 30 ppt D.O. Sat ppm

pH 8.4 su Hardness — ppm Alkalinity — ppm

III. Culture Conditions

Freshwater _____ Saltwater ✓ Other _____

Recirculating _____ Flow through ✓ Static renewal _____

DIET: Flake food _____ Phytoplankton ✓ Trout chow _____

Artemia _____ Rotifers _____ YCT _____ Other _____

Prophylactic treatments: _____

Comments: _____

_____

IV. Shipping Information

Client: NWDLS # of Organisms 1400+

Carrier: FED EX Date shipped 03/01/23

Biologist: Stan Lundberg

PO BOX 1271 HAMPTON NH 03843-1271 (603) 926-1650 AROFISH@AOL.COM

Bioaccumulation – Sand worms 28 day (*Alitta virens)*

PCCA HI & CDP Resampling 2023				
Test Organism		*Alitta virens*	Test Type	Bioaccumulation Static Renewal 28 day
Number of Replicates		5	Number of Organisms/ Replicate	20
Test Organism Batch Number		03-0123-NV	Organism Date of Birth or Date Received	03/02/2023
Organism Source		ARO	Organism Age at Test Initiation	3-15 g adults
Dissolved Oxygen		≥ 4.0 mg/L	Temperature	20 ± 2 °C
Salinity		30 ± 2%	pH	6.0 – 9.0 S.U.
Ammonia		< 5 mg/L		
Sample ID		CDP-06	Field Sampling Date/Time	01/23/2023 13:05
Sample ID		CDP-07	Field Sampling Date/Time	01/23/2023 10:00
Sample ID		REF	Field Sampling Date/Time	01/27/2023 09:20
Test Initiation Date/Time		03/03/2023 11:10	Test Termination Date/Time	03/31/2023 10:20
Renewal of Test Solution		48 hr intervals	Feeding	None
Sample ID	Total # of Organisms	Survival (%)	Significant Effect (>10% effect)	Effect (%)
REFERENCE	100	96	No	0.00
CDP-06	100	94	No	2.08
CDP-07	100	89	No	7.29

Polychaete Survival and Growth Test — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	16-7251-0148	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	05 Apr-23 8:40	**Analysis:**	No Statistical Comparisons Run	**Status Level:**	1
Batch ID:	09-0451-6552	**Test Type:**	Survival-Growth	**Analyst:**	Theran Gay
Start Date:	03 Mar-23 11:10	**Protocol:**	EC/EPS 1/RM/41	**Diluent:**	Laboratory Seawater
Ending Date:	31 Mar-23 10:20	**Species:**	Neanthes arenaceodentata	**Brine:**	Instant Ocean
Test Length:	27d 23h	**Taxon:**	Polychaeta	**Source:**	Aquatic Research Organis **Age:**
Sample ID:	00-2847-2144	**Code:**	1B27350	**Project:**	PCCA
Sample Date:	16 Jan-23 14:20	**Material:**	SPP	**Source:**	PCCA-HI
Receipt Date:	19 Jan-23 17:30	**CAS (PC):**		**Station:**	
Sample Age:	45d 21h	**Client:**	Terracon Consultants, Inc.		

Comments:
9.6=CDP-6 site and 9.7=CDP 7 site

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.273878	0.0273878	10	3.008	0.0056	Significant Effect
Error	0.40059	0.0091043	44			
Total	0.674468		54			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	3.059	2.754	0.0050	Unequal Variances
Variances	Mod Levene Equality of Variance Test	1.228	2.913	0.3099	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9504	0.9417	0.0240	Normal Distribution

Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	RS	5	0.9600	0.9081	1.0000	0.9500	0.9000	1.0000	0.0187	4.36%	0.00%
1		5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-4.17%
2		5	0.9900	0.9622	1.0000	1.0000	0.9500	1.0000	0.0100	2.26%	-3.13%
3		5	0.9500	0.9061	0.9939	0.9500	0.9000	1.0000	0.0158	3.72%	1.04%
4		5	0.9700	0.9145	1.0000	1.0000	0.9000	1.0000	0.0200	4.61%	-1.04%
5		5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-4.17%
6		5	0.9300	0.8358	1.0000	0.9500	0.8000	1.0000	0.0339	8.15%	3.12%
7		5	0.8900	0.7979	0.9821	0.9000	0.8000	1.0000	0.0332	8.33%	7.29%
8		5	0.9500	0.9061	0.9939	0.9500	0.9000	1.0000	0.0158	3.72%	1.04%
9.6		5	0.9400	0.8380	1.0000	1.0000	0.8500	1.0000	0.0367	8.74%	2.08%
9.7		5	0.8900	0.8091	0.9709	0.9000	0.8000	0.9500	0.0292	7.32%	7.29%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	RS	5	1.371	1.261	1.482	1.345	1.249	1.459	0.03975	6.48%	0.00%
1		5	1.459	1.458	1.459	1.459	1.459	1.459	0	0.00%	-6.37%
2		5	1.436	1.373	1.499	1.459	1.345	1.459	0.02269	3.53%	-4.71%
3		5	1.349	1.256	1.441	1.345	1.249	1.459	0.03323	5.51%	1.65%
4		5	1.394	1.276	1.512	1.459	1.249	1.459	0.04241	6.80%	-1.65%
5		5	1.459	1.458	1.459	1.459	1.459	1.459	0	0.00%	-6.37%
6		5	1.32	1.16	1.48	1.345	1.107	1.459	0.05765	9.76%	3.72%
7		5	1.247	1.083	1.412	1.249	1.107	1.459	0.05911	10.59%	9.04%
8		5	1.349	1.256	1.441	1.345	1.249	1.459	0.03323	5.51%	1.65%
9.6		5	1.344	1.15	1.539	1.459	1.173	1.459	0.06997	11.64%	1.96%
9.7		5	1.244	1.113	1.375	1.249	1.107	1.345	0.04706	8.46%	9.29%

Polychaete Survival and Growth Test — **NWDLS Environ. Toxicol. Lab**

Analysis ID:	16-7251-0148	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	05 Apr-23 8:40	**Analysis:**	No Statistical Comparisons Run	**Status Level:**	1

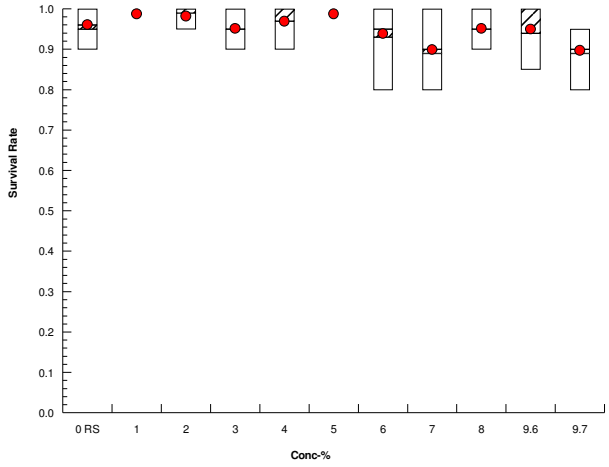
Survival Rate Detail

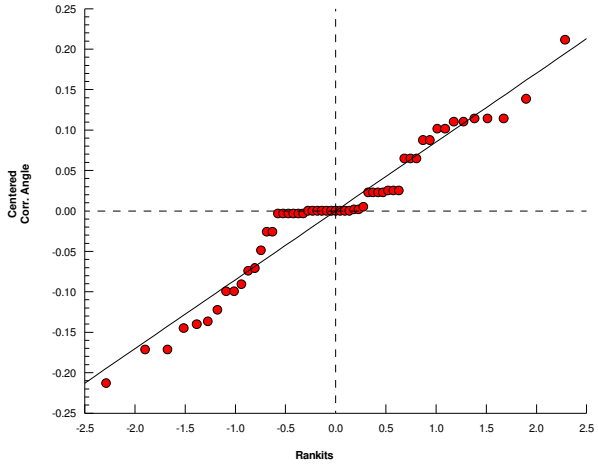
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	RS	0.9000	0.9500	1.0000	0.9500	1.0000
1		1.0000	1.0000	1.0000	1.0000	1.0000
2		0.9500	1.0000	1.0000	1.0000	1.0000
3		0.9500	1.0000	0.9000	0.9500	0.9500
4		0.9500	1.0000	1.0000	1.0000	0.9000
5		1.0000	1.0000	1.0000	1.0000	1.0000
6		0.9500	0.8000	0.9500	1.0000	0.9500
7		0.9000	1.0000	0.8500	0.9000	0.8000
8		0.9500	0.9000	0.9500	0.9500	1.0000
9.6		1.0000	1.0000	0.8500	0.8500	1.0000
9.7		0.8000	0.9500	0.8500	0.9000	0.9500

Angular (Corrected) Transformed Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	RS	1.249	1.345	1.459	1.345	1.459
1		1.459	1.459	1.459	1.459	1.459
2		1.345	1.459	1.459	1.459	1.459
3		1.345	1.459	1.249	1.345	1.345
4		1.345	1.459	1.459	1.459	1.249
5		1.459	1.459	1.459	1.459	1.459
6		1.345	1.107	1.345	1.459	1.345
7		1.249	1.459	1.173	1.249	1.107
8		1.345	1.249	1.345	1.345	1.459
9.6		1.459	1.459	1.173	1.173	1.459
9.7		1.107	1.345	1.173	1.249	1.345

Graphics





Polychaete Survival and Growth Test **NWDLS Environ. Toxicol. Lab**

Analysis ID:	09-3773-8075	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	05 Apr-23 8:43	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Batch ID:	09-0451-6552	**Test Type:**	Survival-Growth	**Analyst:**	Theran Gay
Start Date:	03 Mar-23 11:10	**Protocol:**	EC/EPS 1/RM/41	**Diluent:**	Laboratory Seawater
Ending Date:	31 Mar-23 10:20	**Species:**	Neanthes arenaceodentata	**Brine:**	Instant Ocean
Test Length:	27d 23h	**Taxon:**	Polychaeta	**Source:**	Aquatic Research Organis **Age:**
Sample ID:	00-2847-2144	**Code:**	1B27350	**Project:**	PCCA
Sample Date:	16 Jan-23 14:20	**Material:**	SPP	**Source:**	PCCA-HI
Receipt Date:	19 Jan-23 17:30	**CAS (PC):**		**Station:**	
Sample Age:	45d 21h	**Client:**	Terracon Consultants, Inc.		

Comments:
9.6=CDP-6 site and 9.7=CDP 7 site

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	Control Sed passed survival rate	8.75%

Equal Variance t Two-Sample Test

Control	vs	Control II	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Reference Sed		Control Sed	1.682	1.86	0.160	8	CDF	0.0655	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.052656	0.052656	1	2.829	0.1311	Non-Significant Effect
Error	0.148897	0.0186121	8			
Total	0.201553		9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F Test	3.712	23.15	0.2320	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9547	0.7411	0.7245	Normal Distribution

Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	CS	5	0.8700	0.7413	0.9987	0.8500	0.7500	1.0000	0.0464	11.92%	0.00%
0	RS	5	0.9600	0.9081	1.0000	0.9500	0.9000	1.0000	0.0187	4.36%	-10.34%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	CS	5	1.226	1.014	1.439	1.173	1.047	1.459	0.07658	13.96%	0.00%
0	RS	5	1.371	1.261	1.482	1.345	1.249	1.459	0.03975	6.48%	-11.83%

Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	CS	1.0000	0.8500	0.9500	0.8000	0.7500
0	RS	0.9000	0.9500	1.0000	0.9500	1.0000

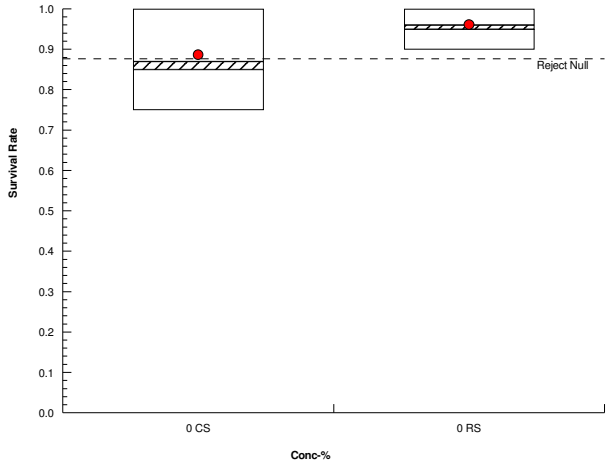
Angular (Corrected) Transformed Detail

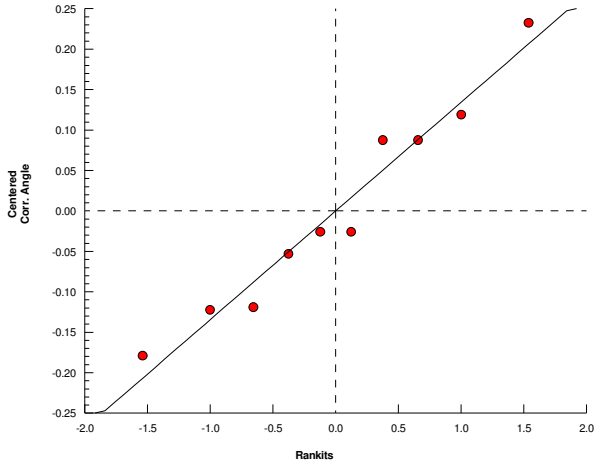
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	CS	1.459	1.173	1.345	1.107	1.047
0	RS	1.249	1.345	1.459	1.345	1.459

Polychaete Survival and Growth Test **NWDLS Environ. Toxicol. Lab**

Analysis ID:	09-3773-8075	**Endpoint:**	Survival Rate	**CETIS Version:**	CETISv1.9.4
Analyzed:	05 Apr-23 8:43	**Analysis:**	Parametric-Two Sample	**Status Level:**	1

Graphics





Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Nereis virens 28d Test Condition Summary - ASTM E 1688; NWDLS SOP No. 4FP2-12			
Test Material:	Sediment	Test Type:	28d Bioaccumulation Static Renewal
Temperature:	20 °C ± 2 °C	Photoperiod:	16L:8D
Test Chamber:	10 gal glass aquaria	No. Replicates:	5
Test Organism:	***Nereis virens***	Organism Source:	ARO
Organism Batch No.:	030123NV	Date Received:	3-2-23
Age Class:	3-15 g adults	No. Organisms/Rep:	20
Aeration:	Moderate, overnight before start of test and throughout duration of test; maintain ≥ 90% saturation of dissolved oxygen concentration	Control Sediment:	Clean Beach Sand or sediment from which the test organisms are collected
Feeding Schedule:	None	Food Type:	N/A
Water Type:	≥ 30 ppt Synthetic Seawater ± 2 ppt	Water Volume:	8-9 gal
Renewal Schedule:	48 h intervals, beginning on day 0 (min 3x per week)	Sediment Volume:	1 gal (2 gal for control sediment)

Comments:

Water Changes							
Day	0	2	4	6	8	10	12
Date	3-3-23	3-5-23	3-7-23	3-9-23	3-11-23	3-13-23	3-15-23
Time	1000	1400	0900	1000	1015	1010	1100
Initials	TRL	DPD	TRL	TRL	TRL	TRL	AOS
Day	14	16	18	20	22	24	26
Date	3-17-23	3-19-23	3-21-23	3-23-23	3-25-23	3-27-23	3-29-23
Time	1200	1100	0800	1215	1150	1100	1140
Initials	AOS	AOS	TRL	AOS	AOS/VJC	AOS/VJC	AOS

Initiation Date:	3-3-23	Termination Date:	3-31-23
Initiation Time:	1110	Termination Time:	1020
Initials:	TRL / AOS	Initials:	TRL/AOS / DPD

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Nereis virens - Survival

Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count	Treatment	Rep	Day 0	Day 28 1st Count	Day 28 2nd Count	Treatment	Rep	Day 0	Day28 1st Count	Day28 2nd Count
CONT	A	20	20	20	HI-DMMU-4	A	20	19	19	CDP-6	A	20	20	20
	B	20	17	17		B	20	20	20		B	20	20	20
	C	20	19	19		C	20	20	20		C	20	17	17
	D	20	16	16		D	20	20	20		D	20	17	17
	E	20	15	15		E	20	18	18		E	20	20	20
REF	A	20	18	18	HI-DMMU-5	A	20	20	20	CDP-7	A	20	16	16
	B	20	19	19		B	20	20	20		B	20	19	19
	C	20	20	20		C	20	20	20		C	20	17	17
	D	20	19	19		D	20	20	20		D	20	18	18
	E	20	20	20		E	20	20	20		E	20	19	19
HI-DMMU-1	A	20	20	20	HI-DMMU-6	A	20	19	19		A			
	B	20	20	20		B	20	16	16		B			
	C	20	20	20		C	20	19	19		C			
	D	20	20	20		D	20	20	20		D			
	E	20	20	20		E	20	19	19		E			
HI-DMMU-2	A	20	19	19	HI-DMMU-7	A	20	18	18		A			
	B	20	20	20		B	20	20	20		B			
	C	20	20	20		C	20	17	17		C			
	D	20	20	20		D	20	18	18		D			
	E	20	20	20		E	20	16	16		E			
HI-DMMU-3	A	20	19	19	HI-DMMU-8	A	20	19	19		A			
	B	20	20	20		B	20	18	19		B			
	C	20	18	18		C	20	19	19		C			
	D	20	19	19		D	20	19	19		D			
	E	20	19	19		E	20	20	20		E			
Tech Initials		MLL/ADS	MLL/DPD ADS	DPD/KRC			MLL/ADS	MLL/DPD	DPD/KRS	Tech Initials:		MLL/ADS	MLL/ADS	APD/KRC

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Daily Water Quality Characteristics

pH OLD/NEW Meter # 737

Day	-1	0-Old	0-New	1-Old	2-Old	2-New	3-Old	4-Old	4-New	5-Old	6-Old	6-New	7-Old	8-Old	8-New
Control	8.1	8.1	8.0	7.9	8.0	8.0	8.1	8.0	8.0	7.9	8.0	8.1	8.0	8.1	8.1
REF		8.1		7.9	8.0		8.1	8.0		7.9	8.1		8.0	8.1	
HI-DMMU-1		8.1		7.9	8.0		8.2	8.0		8.1	8.1		8.1	8.1	
HI-DMMU-2		8.1		7.9	8.0		8.2	8.0		8.1	8.1		8.1	8.1	
HI-DMMU-3		8.0		7.9	8.1		8.1	7.9		8.0	8.1		8.0	8.1	
HI-DMMU-4		8.1		8.0	8.1		8.2	8.0		8.1	8.1		8.1	8.1	
HI-DMMU-5		8.1		8.0	8.1		8.2	8.0		8.1	8.1		8.2	8.1	
HI-DMMU-6		8.1		8.0	8.1		8.2	8.0		8.1	8.2		8.2	8.1	
HI-DMMU-7		8.2		8.0	8.1		8.2	8.1		8.2	8.2		8.1	8.1	
HI-DMMU-8		8.2		8.0	8.1		8.2	8.1		8.1	8.2		8.1	8.1	
CDP-6		8.2		8.0	8.1		8.1	8.0		8.1	8.2		8.1	8.1	
CDP-7		8.1		8.0	8.1		8.1	8.0		8.1	8.2		8.1	8.1	

DISSOLVED OXYGEN (mg/L) OLD/NEW Meter # 4516

Control	8.7	8.9	8.7	9.2	9.1	8.8	8.9	9.0	8.7	8.9	9.0	8.6	8.8	8.9	8.7
REF		9.0		9.2	9.1		8.9	9.0		9.0	9.1		8.8	8.9	
HI-DMMU-1		9.0		9.2	9.1		8.8	8.9		9.0	9.0		8.9	9.0	
HI-DMMU-2		9.0		9.2	9.1		8.9	9.0		9.1	9.1		9.0	9.0	
HI-DMMU-3		9.0		9.2	9.1		9.0	9.1		9.1	9.1		8.9	9.0	
HI-DMMU-4		9.0		9.2	9.1		9.0	9.0		9.0	9.1		9.0	9.0	
HI-DMMU-5		9.0		9.2	9.1		8.9	9.0		9.1	9.0		8.9	9.0	
HI-DMMU-6		9.1		9.2	9.1		9.0	9.0		9.1	9.1		8.9	9.1	
HI-DMMU-7		9.1		9.2	9.1		9.0	9.0		9.0	9.1		9.0	9.1	
HI-DMMU-8		9.1		9.3	9.1		9.0	8.9		9.0	9.1		9.0	9.1	
CDP-6		9.1		9.3	9.1		9.0	8.9		9.0	9.1		9.0	9.1	
CDP-7		9.1		9.2	9.1		8.8	8.9		9.1	9.1		9.0	9.1	

Salinity (ppt) Meter # 948

Control	29.6	29.7	29.6	29.6	29.4	28.4	29.2	29.3	28.6	29.1	29.0	29.1	29.2	29.2	29.2
REF		29.6		29.6	29.8		29.1	29.2		29.0	28.9		29.0	29.2	
HI-DMMU-1		29.6		29.6	29.8		29.3	29.4		29.1	28.9		29.1	29.3	
HI-DMMU-2		29.7		29.7	29.7		29.4	29.4		29.2	29.0		29.1	29.3	
HI-DMMU-3		29.7		29.7	29.7		29.3	29.3		29.1	28.9		29.1	29.3	
HI-DMMU-4		29.7		29.7	29.7		29.3	29.6		29.2	29.1		29.2	29.3	
HI-DMMU-5		29.8		29.6	29.7		29.2	29.4		29.2	29.2		29.2	29.3	
HI-DMMU-6		29.7		29.6	29.7		29.1	29.3		29.1	29.0		29.1	29.3	
HI-DMMU-7		29.7		29.6	29.7		29.3	29.3		29.1	28.9		29.1	29.2	
HI-DMMU-8		29.7		29.8	29.7		29.3	29.4		29.2	29.0		29.1	29.2	
CDP-6		29.7		29.8	29.7		29.4	29.5		29.2	29.1		29.1	29.2	
CDP-7		29.7		29.	29.8		29.4	29.4		29.2	29.1		29.2	29.2	

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

TEMPERATURE (°C) OLD/NEW (Actual / Corrected)									Therm# 737		Offset# 0				
Day	-1	0-Old	0-New	1-Old	2-Old	2-New	3-Old	4-Old	4-New	5-Old	6-Old	6-New	7-Old	8-Old	8-New
Control	19.6	19.6	19.6	19.6	19.4	19.4	19.6	19.6	19.5	19.6	19.4	19.7	19.6	19.5	19.6
REF		19.6		19.6	19.5		19.7	19.6		19.7	19.5		19.7	19.5	
HI-DMMU-1		19.7		19.7	19.5		19.6	19.6		19.6	19.5		19.4	19.4	
HI-DMMU-2		19.5		19.7	19.5		19.5	19.4		19.5	19.5		19.7	19.5	
HI-DMMU-3		19.4		19.6	19.6		19.6	19.3		19.5	19.4		19.7	19.5	
HI-DMMU-4		19.6		19.6	19.6		19.4	19.4		19.6	19.4		19.6	19.6	
HI-DMMU-5		19.6		19.4	19.7		19.4	19.5		19.7	19.4		19.6	19.7	
HI-DMMU-6		19.6		19.4	19.6		19.3	19.4		19.4	19.3		19.5	19.7	
HI-DMMU-7		19.6		19.4	19.5		19.4	19.5		19.4	19.4		19.6	19.6	
HI-DMMU-8		19.6		19.5	19.4		19.4	19.5		19.4	19.4		19.6	19.7	
CDP-6		19.6		19.5	19.4		19.5	19.6		19.5	19.4		19.6	19.5	
CDP-7		19.6		19.6	19.5		19.6	19.6		19.6	19.4		19.7	19.7	
Initials	TRL	TRL		BRM/DPM	BRM/DPM		TRL	TRL	TRL	TRL	TRL	TRL	TRL	TRL	TRL

Daily Water Quality Characteristics

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

pH OLD/NEW Meter # 737

Day	9-O	10-O	10-N	11-O	12-O	12-N	13-O	14-O	14-N	15-O	16-O	16-N	17-O	18-O	18-N
Control	8.0	8.1	8.0	8.0	7.9	8.0	8.1	8.0	8.0	7.9	8.1	8.0	8.1	8.1	8.0
REF	8.0	8.0		8.1	7.9		8.1	8.0		7.9	8.0		8.1	8.1	
HI-DMMU-1	8.0	8.0		8.1	7.9		8.1	8.0		7.9	8.0		8.1	8.2	
HI-DMMU-2	8.0	8.0		8.0	7.9		8.1	8.0		7.9	8.0		8.1	8.2	
HI-DMMU-3	8.0	8.0		8.1	7.9		8.1	8.1		7.9	8.0		8.1	8.2	
HI-DMMU-4	8.0	8.1		8.0	7.9		8.2	8.2		7.9	8.0		8.0	8.2	
HI-DMMU-5	8.0	8.0		8.1	7.9		8.2	8.2		7.9	8.0		8.2	8.2	
HI-DMMU-6	8.0	7.9		8.0	7.9		8.1	8.2		8.0	8.0		8.0	8.2	
HI-DMMU-7	8.0	8.0		8.0	7.9		8.1	8.1		8.0	8.0		8.0	8.2	
HI-DMMU-8	8.0	8.0		8.1	7.9		8.1	8.1		8.0	8.0		8.2	8.2	
CDP-6	8.0	7.9		8.0	7.9		8.1	8.1		8.0	8.0		8.2	8.2	
CDP-7	8.0	8.0		8.1	7.9		8.1	8.1		8.0	8.0		8.1	8.2	

DISSOLVED OXYGEN (mg/L) OLD/NEW Meter # YSI6

Control	9.0	8.9	8.6	8.8	8.8	8.8	9.1	9.1	8.8	8.9	9.0	8.4	9.0	9.1	8.8
REF	9.0	8.9		8.8	8.8		9.1	9.1		8.9	9.1		9.1	9.1	
HI-DMMU-1	9.0	9.0		8.9	8.8		9.1	9.1		8.9	9.1		9.1	9.0	
HI-DMMU-2	9.0	9.0		9.0	9.1		9.2	9.1		9.0	9.1		9.1	9.1	
HI-DMMU-3	9.1	9.0		9.1	9.1		9.1	9.2		9.0	9.1		9.1	9.1	
HI-DMMU-4	9.1	9.0		9.1	9.2		9.1	9.2		9.0	9.1		9.0	9.1	
HI-DMMU-5	9.1	9.0		9.0	9.2		9.1	9.3		9.0	9.1		9.0	9.1	
HI-DMMU-6	9.1	9.1		9.1	9.2		9.2	9.4		9.0	9.1		9.0	9.2	
HI-DMMU-7	9.1	9.0		9.1	9.2		9.2	9.4		9.0	9.1		9.0	9.2	
HI-DMMU-8	9.1	9.1		9.1	9.2		9.3	9.4		9.0	9.1		9.0	9.1	
CDP-6	9.0	9.1		9.2	9.2		9.3	9.4		9.0	9.1		9.0	9.1	
CDP-7	9.1	9.1		9.2	9.2		9.3	9.4		9.2	9.2		9.0	9.1	

Salinity (ppt) Meter # 948

Control	29.6	29.5	29.3	29.4	29.2	29.1	29.1	29.2	29.2	29.4	29.2	29.5	29.6	29.6	29.5
REF	29.5	29.6		29.5	29.1		29.1	29.2		29.4	29.2		29.7	29.5	
HI-DMMU-1	29.6	29.4		29.5	29.2		29.2	29.3		29.4	29.2		29.8	29.8	
HI-DMMU-2	29.5	29.4		29.5	29.4		29.1	29.3		29.2	29.2		30.0	29.9	
HI-DMMU-3	29.5	29.4		29.4	29.4		29.1	29.3		29.4	29.2		29.9	29.1	
HI-DMMU-4	29.6	29.4		29.4	29.4		29.4	29.4		29.6	29.2		29.9	30.0	
HI-DMMU-5	29.5	29.6		29.5	29.4		29.4	29.4		29.6	29.2		29.8	30.1	
HI-DMMU-6	29.6	29.6		29.5	29.4		29.3	29.5		29.6	29.8		30.1	30.2	
HI-DMMU-7	29.6	29.7		29.6	29.4		29.2	29.4		29.6	29.2		30.1	30.2	
HI-DMMU-8	29.6	29.6		29.5	29.4		29.4	29.4		29.6	29.2		30.2	30.2	
CDP-6	29.6	29.6		29.5	29.4		29.4	29.4		29.6	29.6		29.9	30.1	
CDP-7	29.6	29.6		29.5	29.4		29.4	29.4		29.6	29.6		30.1	30.1	

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

TEMPERATURE (°C) OLD/NEW (Actual / Corrected) Therm# 737 Offset# 0

Day	9-O	10-O	10-N	11-O	12-O	12-N	13-O	14-O	14-N	15-O	16-O	16-N	17-O	18-0	18-N
Control	19.6	19.7	20.1	19.9	19.6	19.8	19.7	19.7	19.6	20.4	19.6	19.6	19.8	19.6	19.8
REF	19.6	19.6		19.9	19.6		19.7	19.7		20.1	19.6		19.6	19.8	
HI-DMMU-1	19.5	19.6		19.5	19.6		19.7	19.9		19.9	19.6		19.5	19.8	
HI-DMMU-2	19.5	19.6		19.5	19.7		19.9	19.9		19.9	19.6		19.5	19.8	
HI-DMMU-3	19.5	19.7		19.8	19.7		19.7	19.7		20.1	19.6		19.6	19.5	
HI-DMMU-4	19.5	19.5		19.7	19.6		19.7	19.6		20.1	19.6		19.7	19.5	
HI-DMMU-5	19.5	19.7		19.6	19.6		19.8	19.6		20.1	19.7		19.5	19.7	
HI-DMMU-6	19.5	19.7		19.5	19.6		19.6	19.6		20.2	19.7		19.5	19.6	
HI-DMMU-7	19.5	19.6		19.5	19.6		19.5	19.6		20.2	19.6		19.7	19.5	
HI-DMMU-8	19.5	19.6		19.5	19.6		19.5	19.6		20.1	19.8		19.6	19.5	
CDP-6	19.5	19.6		19.7	19.7		19.5	19.6		20.1	19.9		19.6	19.7	
CDP-7	19.6	19.6		19.7	19.7		19.6	19.6		20.1	19.9		19.6	19.7	
Initials	DDD	TRL	TRL	TRL	KRC	KRI	KRI	KRI	KRI	AOJ/VJC	AOJ/VJC		TRL	TRL	TRL

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Daily Water Quality Characteristics

pH OLD/NEW Meter # 737

Day	19-O	20-O	20-N	21-O	22-O	22-N	23-O	24-O	24-N	25-O	26-O	26-N	27-O	28-O	28-N
Control	8.1	8.1	8.0	8.1	8.1	8.0	8.0	8.1	7.9	8.0	8.1	7.9	8.0	8.0	7.9
REF	8.1	8.1		8.1	8.1		8.0	8.1		8.0	8.1		8.0	7.9	
HI-DMMU-1	8.1	8.1		8.1	8.1		8.0	8.1		8.0	8.1		8.0	7.9	
HI-DMMU-2	8.1	8.0		8.0	8.1		8.1	8.0		8.1	8.1		8.1	8.0	
HI-DMMU-3	8.1	8.1		8.1	8.1		8.0	8.1		8.1	8.1		8.0	8.0	
HI-DMMU-4	8.2	8.1		8.0	8.1		8.1	8.1		8.2	8.1		8.0	7.9	
HI-DMMU-5	8.2	8.1		8.1	8.1		8.1	8.2		8.1	8.2		8.1	8.1	
HI-DMMU-6	8.2	8.1		8.1	8.1		8.1	8.2		8.2	8.2		8.1	8.1	
HI-DMMU-7	8.2	8.1		8.1	8.1		8.1	8.1		8.2	8.2		8.1	8.1	
HI-DMMU-8	8.2	8.1		8.1	8.1		8.1	8.1		8.2	8.2		8.1	8.1	
CDP-6	8.2	8.1		8.1	8.1		8.1	8.1		8.2	8.2		8.1	8.1	
CDP-7	8.2	8.1		8.1	8.1		8.0	8.2		8.1	8.2		8.1	8.1	

DISSOLVED OXYGEN (mg/L) OLD/NEW Meter # YTI6

Control	9.1	9.1	8.7	9.0	9.1	8.6	9.1	9.2	8.8	9.2	9.2	8.7	8.4	8.4	8.7
REF	9.2	9.1		9.0	9.1		9.1	9.2		9.2	9.2		9.0	8.4	
HI-DMMU-1	9.2	9.1		9.0	9.1		9.1	9.3		9.1	9.2		9.0	9.1	
HI-DMMU-2	9.2	9.0		8.4	9.1		9.1	9.3		9.1	9.1		9.0	9.1	
HI-DMMU-3	9.2	9.1		8.4	9.1		9.1	9.3		9.1	9.3		9.0	9.1	
HI-DMMU-4	9.2	9.0		9.0	9.1		9.1	9.2		9.1	9.1		9.1	9.1	
HI-DMMU-5	9.2	9.1		9.0	9.1		9.1	9.2		9.2	9.3		9.4	9.1	
HI-DMMU-6	9.2	9.1		8.9	9.1		9.1	9.2		9.3	9.1		9.3	9.1	
HI-DMMU-7	9.2	9.1		8.9	9.0		9.1	9.2		9.2	9.1		9.1	9.1	
HI-DMMU-8	9.2	9.1		9.0	9.1		9.1	9.3		9.2	9.1		9.1	9.2	
CDP-6	9.2	9.1		9.0	9.2		9.1	9.3		9.2	9.1		9.1	9.2	
CDP-7	9.3	9.1		9.0	9.1		9.1	9.3		9.2	9.1		9.1	9.1	

Salinity (ppt)

Control	30.1	30.0	29.4	30.1	29.9	29.6	29.9	29.9	29.3	29.4	29.4	29.4	29.5	29.7	29.5
REF	30.1	30.1		29.8	29.9		29.9	29.8		29.5	29.5		29.6	29.7	
HI-DMMU-1	30.1	30.2		29.7	30.1		29.9	29.7		29.5	29.6		29.5	29.5	
HI-DMMU-2	30.0	30.3		29.6	30.1		30.0	29.7		29.5	29.6		29.5	29.5	
HI-DMMU-3	30.1	30.2		29.8	30.1		30.0	29.8		29.6	29.6		29.5	29.4	
HI-DMMU-4	30.1	30.4		29.8	30.1		29.8	29.8		29.6	29.6		29.6	29.4	
HI-DMMU-5	30.2	30.4		29.4	30.1		30.0	29.7		29.4	29.5		29.6	29.4	
HI-DMMU-6	30.1	30.2		29.4	30.2		30.0	29.6		29.4	29.5		29.6	29.6	
HI-DMMU-7	30.2	30.1		29.5	30.1		30.1	29.6		29.5	29.5		29.5	29.2	
CDP-6	30.2	30.4		29.2	30.1		30.1	29.7		29.5	29.4		29.5	29.3	
CDP-7	30.2	30.4		29.2	30.1		30.1	29.7		29.5	29.5		29.5	29.3	
Meter #	948	948	948	948	948	948	948	948	948	948	948	948	948	948	948

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

TEMPERATURE (°C) OLD/NEW (Actual / Corrected)															
Therm# 737 Offset# 0															
Day	19-O	20-O	20-N	21-O	22-O	22-N	23-O	24-O	24-N	25-O	26-O	26-N	27-O	28-O	28-N
Control	19.8	19.6	19.5	19.8	19.6	19.4	19.6	19.6	19.4	19.5	19.7	19.5	19.5	19.6	19.6
REF	19.8	19.6		19.7	19.6		19.6	19.5		19.5	19.6		19.6	19.7	
HI-DMMU-1	19.8	19.6		19.7	19.6		19.6	19.5		19.6	19.5		19.6	19.5	
HI-DMMU-2	19.8	19.6		19.7	19.6		19.6	19.6		19.6	19.6		19.7	19.8	
HI-DMMU-3	19.7	19.5		19.7	19.6		19.6	19.5		19.5	19.4		19.5	19.8	
HI-DMMU-4	19.7	19.6		19.8	19.7		19.6	19.4		19.5	19.5		19.6	19.8	
HI-DMMU-5	19.8	19.6		19.7	19.7		19.6	19.4		19.5	19.5		19.4	19.8	
HI-DMMU-6	19.7	19.4		19.7	19.7		19.7	19.4		19.6	19.5		19.5	19.6	
HI-DMMU-7	19.7	19.5		19.6	19.6		19.7	19.5		19.7	19.6		19.5	19.7	
HI-DMMU-8	19.6	19.4		19.5	19.6		19.7	19.5		19.6	19.5		19.6	19.8	
CDP-6	19.7	19.5		19.5	19.5		19.7	19.5		19.6	19.4		19.6	19.8	
CDP-7	19.6	19.5		19.5	19.6		19.6	19.5		19.6	19.4		19.6	19.7	
Initials	TRE	TRE	TRE	TRE	KRE		KRE	TRE		TRE	TRE		TRE	TRE	

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Daily Water Quality Characteristics

Ammonia - Old/New

Day	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
Cont-O	.001	.002													
REF		.003													
HI-DMMU-1		.004													
HI-DMMU-2		.007													
HI-DMMU-3		.005													
HI-DMMU-4		.008													
HI-DMMU-5		.006													
HI-DMMU-6		.004													
HI-DMMU-7		.008													
HI-DMMU-8		.007													
CDP-6		.006													
CDP-7		.005													
Cont-N		.001													
Date															
Time															
Initials	RCA	RCA													
Meter #	566	566													

Day	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Cont-O															
REF															
HI-DMMU-1															
HI-DMMU-2															
HI-DMMU-3															
HI-DMMU-4															
HI-DMMU-5															
HI-DMMU-6															
HI-DMMU-7															
HI-DMMU-8															
CDP-6															
CDP-7															
Cont-N															
Date															
Time															
Initials															
Meter #		56													

Client/Project Name:	PCCA HI & CDP Resampling 2023	WO #:	23A1459

Tissue Weight - *N. virens*

Treatment/Site (%)	REP	TOTAL WT (g)	Treatment/Site (%)	REP	TOTAL WT (g)	Treatment/Site (%)	REP	TOTAL WT (g)
ARCHIVES	A	104.4	HI-DMMU-5	A	82.0	CONTROL	A	65.7
	B	92.2		B	82.0		B	62.9
	C	86.6		C	64.3		C	67.8
	D	97.7		D	62.4		D	57.3
	E	114.9		E	72.8		E	58.0
REF	A	94.1	HI-DMMU-6	A	64.7		A	
	B	77.4		B	61.0		B	
	C	85.9		C	57.6		C	
	D	96.5		D	59.1		D	
	E	63.9		E	43.6		E	
HI-DMMU-1	A	94.9	HI-DMMU-7	A	74.7		A	
	B	77.2		B	106.4		B	
	C	70.6		C	50.4		C	
	D	59.7		D	58.1		D	
	E	62.4		E	41.4		E	
HI-DMMU-2	A	75.7	HI-DMMU-8	A	94.2		A	
	B	75.6		B	86.3		B	
	C	82.1		C	86.5		C	
	D	61.2		D	95.3		D	
	E	55.2		E	67.5		E	
HI-DMMU-3	A	64.3	CDP-6	A	101.2		A	
	B	55.6		B	82.7		B	
	C	78.0		C	58.8		C	
	D	74.3		D	77.1		D	
	E	69.1		E	92.5		E	
HI-DMMU-4	A	96.0	CDP-7	A	69.1		A	
	B	92.4		B	71.5		B	
	C	71.9		C	59.7		C	
	D	77.4		D	80.7		D	
	E	48.7		E	90.1		E	

Date 4-5-23 Time 1321 Balance ID 296 Initials AOS

CONT = Control CONC = Concentration REP = Replicate
Wt = Weight ORG = Organism

Aquatic Research Organisms

DATA SHEET

I. Organism History

Species

PO BOX 1271 HAMPTON NH 03843-1271 (603) 926-1650 AROFISH@AOL.COM

Analytical Standard Record

2302417

Description:	Lab Saltwater	Expires:	08/08/2023
Standard Type:	Other	Prepared:	02/08/2023
Solvent:	-	Prepared By:	Arturo Orozco Jr
Final Volume (mls):	3410000	Department:	Toxicology
Vials:	1	Last Edit:	02/14/2023 14:35 by JKW
Comments:	Chems Added: AOJ/VJC 2-8-23 Approved: AOJ 2-13-23 pH: 8.1 Salinity: 25.8 Transferred to Circ Tank: JKW 2/13/23 Used 12 bags (1 per 50gal of DI) of Instant Ocean		

Analyte	Parent	CAS Number	Concentration	Units
				ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
2214326	Instant Ocean Sea Salt (6.8kg/bag)	11/22/2022	-	S06262022	11/22/2026	11/22/2022 15:43	by AOJ	12
2215260	DI Water	12/08/2022	Suez	101222	06/06/2023	12/08/2022 14:56	by AOJ	1

Analytical Standard Record

2302748

Description:	Lab Saltwater	Expires:	08/14/2023
Standard Type:	Other	Prepared:	02/14/2023
Solvent:	-	Prepared By:	Justin Wood
Final Volume (mls):	3410000	Department:	Toxicology
Vials:	1	Last Edit:	02/14/2023 14:34 by JKW
Comments:	Chems Added: JKW 2/14/23 Approved: pH: Salinity: Transferred to Circ Tank: Used 12 bags (1 per 50gal of DI) of Instant Ocean		

Analyte	Parent	CAS Number	Concentration	Units
				ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
2214326	Instant Ocean Sea Salt (6.8kg/bag)	11/22/2022	-	S06262022	11/22/2026	11/22/2022 15:43	by AOJ	12
2215260	DI Water	12/08/2022	Suez	101222	06/06/2023	12/08/2022 14:56	by AOJ	1

Analytical Standard Record

2303061

Description:	Lab Saltwater	Expires:	06/06/2023
Standard Type:	Other	Prepared:	02/18/2023
Solvent:	-	Prepared By:	Vynna Chitolie
Final Volume (mls):	3410000	Department:	Toxicology
Vials:	1	Last Edit:	02/22/2023 15:19 by JKW
Comments:	Chems Added: VJC/BMR 2-18-23 Approved: JKW 2/22/23 pH: 8.0 Salinity:25.1 Transferred to Circ Tank: JKW 2/22/23 Used 12 bags (1 per 50gal of DI) of Instant Ocean		

Analyte	Parent	CAS Number	Concentration	Units
				ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
2214326	Instant Ocean Sea Salt (6.8kg/bag)	11/22/2022	-	S06262022	11/22/2026	11/22/2022 15:43	by AOJ	12
2215260	DI Water	12/08/2022	Suez	101222	06/06/2023	12/08/2022 14:56	by AOJ	1

Analytical Standard Record

2303586

Description:	Lab Saltwater	Expires:	03/24/2023
Standard Type:	Other	Prepared:	02/24/2023
Solvent:	-	Prepared By:	Theran Gay
Final Volume (mls):	3410000	Department:	Toxicology
Vials:	1	Last Edit:	03/01/2023 15:49 by JKW
Comments:	Chems Added: TRG 2-24-23 Approved: JKW 2/27/23 pH: 8.0 Salinity:23.8 Total Residual Chlorine: 0 Transferred to Circ Tank: JKW 2/27/23 Used 12 bags (1 per 50gal of DI) of Instant Ocean		

Analyte	Parent	CAS Number	Concentration	Units
				ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
2214326	Instant Ocean Sea Salt (6.8kg/bag)	11/22/2022	-	S06262022	11/22/2026	11/22/2022 15:43	by AOJ	12
2215260	DI Water	12/08/2022	Suez	101222	06/06/2023	12/08/2022 14:56	by AOJ	1

Analytical Standard Record

2303823

Description:	Lab Saltwater	Expires:	08/28/2023
Standard Type:	Other	Prepared:	02/28/2023
Solvent:	-	Prepared By:	Arturo Orozco Jr
Final Volume (mls):	3410000	Department:	Toxicology
Vials:	1	Last Edit:	03/01/2023 10:17 by TRG
Comments:	Chems Added: AOJ 2-28-23 Approved: TRG 3-1-23 pH: 8.15 Salinity: 26.4 Total Residual Chlorine: 0.0 Transferred to Circ Tank: 3-1-23 Used 12 bags (1 per 50gal of DI) of Instant Ocean		

Analyte	Parent	CAS Number	Concentration	Units
				ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
2214326	Instant Ocean Sea Salt (6.8kg/bag)	11/22/2022	-	S06262022	11/22/2026	11/22/2022 15:43	by AOJ	12
2215260	DI Water	12/08/2022	Suez	101222	06/06/2023	12/08/2022 14:56	by AOJ	1

Analytical Standard Record

2303885

Description:	Lab Saltwater	Expires:	06/06/2023
Standard Type:	Other	Prepared:	03/01/2023
Solvent:	-	Prepared By:	Theran Gay
Final Volume (mls):	3410000	Department:	Toxicology
Vials:	1	Last Edit:	03/03/2023 08:30 by AOJ
Comments:	Chems Added: TRG 3-1-23 Approved: AOJ 3-2-23 pH: 8.1 Salinity: 25.2 Transferred to Circ Tank: AOJ 3-2-23 Used 12 bags (1 per 50gal of DI) of Instant Ocean		

Analyte	Parent	CAS Number	Concentration	Units
				ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
2214326	Instant Ocean Sea Salt (6.8kg/bag)	11/22/2022	-	S06262022	11/22/2026	11/22/2022 15:43	by AOJ	12
2215260	DI Water	12/08/2022	Suez	101222	06/06/2023	12/08/2022 14:56	by AOJ	1

Analytical Standard Record

2304086

Description:	Lab Saltwater	Expires:	06/06/2023
Standard Type:	Other	Prepared:	03/03/2023
Solvent:	-	Prepared By:	Arturo Orozco Jr
Final Volume (mls):	3410000	Department:	Toxicology
Vials:	1	Last Edit:	03/03/2023 15:49 by AOJ
Comments:	Chems Added: AOJ 3-3-23 Approved: pH: Salinity: Transferred to Circ Tank: Used 4 buckets (21.7Kg) of Instant Ocean Aquarium Salt		

Analyte	Parent	CAS Number	Concentration	Units
				ug/mL

Parent Standards used:

Standard	Description	Prepared	Prepared By	Lot Nbr	Expires	Last Edit		(mls)
2215260	DI Water	12/08/2022	Suez	101222	06/06/2023	12/08/2022 14:56	by AOJ	1
2304026	Instant Ocean Sea Salt (21.7kg/bucket)	03/03/2023	-	22228 / 22229	01/01/2025	03/03/2023 08:37	by AOJ	4

130 S. Trade Center Parkway, Conroe TX 77385
Tel: (936) 321-6060
Email: lab@nwdls.com
www. NWDLS.com
TCEQ T104704238-23-39

Terracon_Houston	Project: PCCA HI & CDP Resampling 2023	
11555 Clay Road	Project Number:	**Reported:**
Houston, TX 77043	Project Manager: Gregg Pawlak	05/18/2023 09:58

Sample Condition Checklist

Work Order: 23A1459

Check Points	
Yes	Custody Seals
Yes	Containers Intact
Yes	COC/Labels Agree
Yes	Received On Ice
Yes	Appropriate Containers
Yes	Appropriate Sample Volume
Yes	Coolers Intact
Yes	Samples Accepted

130 S. Trade Center Parkway, Conroe TX 77385
Tel: (936) 321-6060
Email: lab@nwdls.com
www. NWDLS.com
TCEQ T104704238-23-39

Terracon_Houston	Project: PCCA HI & CDP Resampling 2023	
11555 Clay Road	Project Number:	**Reported:**
Houston, TX 77043	Project Manager: Gregg Pawlak	05/18/2023 09:58

Term and Qualifier Definitions

Item	Definition
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated
*	A = Accredited, N = Not Accredited or Accreditation not available
DF	Dilution Factor - the factor applied to the reported data due to sample preparation, dilution, or moisture content
MDL	Method Detection Limit - The minimum concentration of a substance (or analyte) that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. Based on standard deviation of replicate spiked samples take through all steps of the analytical procedure following 40 CFR Part 136 Appendix B.
SDL	Sample Detection Limit - The minimum concentration of a substance (analyte) that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The SDL is an adjusted limit thus sample specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments. If there are no sample specific parameters, the MDL = SDL.
MRL	Method Reporting Limit - Analyte concentration that corresponds to the lowest level lab reports with confidence in accuracy of quantitation and without qualification (i.e. J-flagged). The MRL is at or above the lowest calibration standard.
LRL	Laboratory Reporting Limit - Analyte concentration that corresponds to the lowest level lab reports with confidence in accuracy of quantitation and without qualification (i.e. J-flagged). The LRL is an adjusted limit thus sample specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments. If there are no sample specific parameters, the MRL = LRL.

Aquatic Research Organisms Inc.

1 Lafayette Road
PO Box 1271
Hampton, NH 03843-1271
(603) 926-1650

Invoice

Date	Invoice #
3/3/2023	2230210

Bill To

NORTH WATER DISTRICT LAB SERVICES
monica@nwdls.com
8725 FAWN TRAIL
THE WOODLANDS TX 77385

Ship To

NWDLS TOX LAB
THERAN GAY
888 WEST SAM HSTN. PRKWY SOUTH
SUITE 110
HOUSTON TX 77042

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
2023 100014	CREDIT CARD	SPS	3/1/2023	Federal Express	HAMPTON NH	

Quantity	Item Code	Description	Price Each	Amount
1,400	MMJ	MERCENARIA CLAMS		
1,400	NVA	NEREIS VIRENS, SEAWORM ADULTS		
6	PBC PACKAGING	PACKING BOX CHARGE		
3	100-AO FEDEX	FED EX PRIORITY OVERNIGHT (MERCENARIA)		
3	100-AO FEDEX	FED EX PRIORITY OVERNIGHT (NEREIS)		

Total

Aquatic Research Organisms

TAXONOMIC IDENTIFICATION

Americamysis bahia
(formerly Mysidopsis bahia)
Mysid shrimp

- Phylum – Arthropoda
- Subphylum- Crustacea
- Class - Malacostraca
- Subclass - Eumalacostraca
- Superorder - Peracardia
- Order - Mysida
- Family - Mysidae
- Genus - Americamysis
- Species - bahia

The U.S.Environmental Agency, Pensacola FL made the initial taxonomic identification. ARO received starter cultures from that EPA lab in September 1985. Additions to the stock were numerous in the late 1980's mostly from stocks originating in Texas and Florida. Stanley Sinitski of ARO has performed subsequent keying; the latest was done in June 2021. The keys used were "Key to Marine Invertebrates of the Woods Hole Region," Smith, R.I. 1964 pgs. 93-95 and "An Annotated Key To The Mysidacea of the North Central Coast of Mexico", Stuck, K., Perry, H., and Heard, W. 1979. pgs. 225-238

The name *Mysidopsis bahia* has been changed to *Americamysis bahia*. Documentation of this change can be found at: Price WW, Heard, RW, Stuck, L. 1994 Observation on the genus *Mysidopsis* Sars, 1864 with the designation of a new genus, *Americamysis*, and description of *Americamysis alleni and A.stucki* (Peracardia, mysidacae, mysidae), from the Gulf of Mexico. *Proc. Biol. Soc. Wash. 107: 680-698.*

The Taxonomic Hierarchy above reflects the latest published information available in the Integrated Taxonomic Information System (ITIS).

If you have any questions or need further assistance please call ARO at 1-800-927-1650.

Aquatic Research Organisms

TAXONOMIC IDENTIFICATION

Alitta virens
*(*formerly *Neanthes virens,* formerly *Nereis virens)*

- Phylum -Annelida
- Class - Polychaeta
- Order - Errantia
- Family - Nereidae
- Genus- Alitta
- Species - virens

Taxonomic identification was performed by Stanley Sinitski in June, 2021. The key used was "Key to Marine Invertebrates of the Woods Hole Region" by Ralph I. Smith 1964 pgs.48-71. Additional references were made from "The Peterson's Field Guide to the Atlantic Seashore", by Kenneth L.Gosner, 1978 pgs.176-178.

There has been much debate over the proper classification of this worm species. It has long been known as *Nereis virens,* but according to the World Register of Marine Species (WoRMS), the correct taxonomic identification is now *Alitta virens* with *Neanthes virens* and *Nereis(Alitta) virens* as acceptable synonyms.

Taxonomic citation
Read, G.; Fauchald, K. (Ed.) (2018). World Polychaeta database. *Alitta virens* (M. Sars, 1835). Accessed through: World Register of Marine Species at: http://www.marinespecies.org/aphia.php?p=taxdetails&id=234851 on 2018-06-10

If you have any questions or need further assistance please call ARO at 1-800-927-1650

Aquatic Research Organisms

TAXONOMIC IDENTIFICATION

Leptocheirus plumulosus

- Phylum - Arthropoda
- Class - Crustacea
- Subclass - Malacostraca
- Division - Peracardia
- Order - Amphipoda
- Family – Photidae
- Genus – Leptocheirus
- Species - plumulosus

Initial cultures originated from the University of Maryland and Maryland Department of Natural Resources. Additional cultures were obtained from Chesapeake Cultures in VA.

Taxonomic identification was last performed in June of 2021 by Stanley Sinitski. The key used was "Key to Marine Invertebrates of the Woods Hole Region" by Ralph I. Smith 1964 pgs 112-116. Additional references were made from Kenneth Gosner's Petersons Field Guide to the Atlantic Seashore pgs 225-229.

The *Leptocheirus* are laboratory cultured all year long in ARO's temperature controlled facility, ensuring that test aged specimens are available whenever needed.

If you have any questions or need further assistance please call ARO at 1-800-927-1650.

Aquatic Research Organisms

TAXONOMIC IDENTIFICATION

Macoma nasuta

- Phylum -Mollusca
- Class – Bivalvia
- Subclass- Heterodonta
- Order – Veneroida
- Superfamily- Tellinoidea
- Family - Tellinidae
- Genus - Macoma
- Species - nasuta

Taxonomic identification was performed in June 2021 by Reed Gunstone. The key used was "Marine Invertebrates of the Pacific Northwest". Kozloff, Eugene N., Price, Linda H. University of Washington Press: Washington State September 1996. Page 539.

If you have any questions or need further assistance please call ARO at 1-800-927-1650

Aquatic Research Organisms

TAXONOMIC IDENTIFICATION

Mercenaria mercenaria

- Phylum -Mollusca
- Class – Bivalvia
- Subclass- Heterodonta
- Order – Veneroida
- Superfamily- Veneroidae
- Family - Veneridae
- Genus - Mercenaria
- Species - mercenaria

Taxonomic identification was performed in June 2021 by Stan Sinitski. The key used was "Keys to Marine Invertebrates of the Woods Hole Region" by Ralph I. Smith 1964 pgs.146-150. Additional references were made from " Peterson's A Field Guide to the Atlantic Seashore", by Kenneth L.Gosner, 1978 pgs.142-156.

If you have any questions or need further assistance please call ARO at 1-800-927-1650

Aquatic Research Organisms

TAXONOMIC IDENTIFICATION

Raphidocelis subcapitata
*FKA Selenastrum capricornutm**
FKA Psuedokirchneriella subcapitata

- Phylum - Chlorophyta
- Class - Chlorophyceae
- Order - Chlorococcales
- Family - Scenedesmaceae
- Genus - Selenastrum
- Species - capricornutum

*The taxonomic identification of *Selenastrum capricornutum* has been redesignated to *Raphidocelis subcapitata* from *Psuedokirchneriella subcapitata.* The name "Selenastrum" has been used for many years in research and is still the widely used common and recognized name.

ARO purchases sterile agar slants of *Selenastrum capricornutum* on an as needed basis from Carolina Biological Supply Company in Burlington NC. The Selenastrum origin is from the UTEX Collection of Algae, the University of Texas at Austin. Catalog # 1648. ARO performs microscopic examination of the algae on a routine basis. The latest examination was performed in June 2021, by Stanley Sinitski.

If you have any questions or need further assistance please call ARO at 1-800-927-1650

Genus clarification, Selenastrum capricornutum/Raphidocelis subcapitata

-----Original Message-----
From: Michael Guiry <michael.guiry@algaebase.org>
To: arofish <arofish@aol.com>
Sent: Tue, Apr 21, 2015 6:22 am
Subject: Re: Genus clarification, Selenastrum capricornutum/Raphidocelis subcapitata

Raphidocelis subcapitata (Korshikov) Nygaard, Komárek, J.Kristiansen & O.M.Skulberg is currently the correct name taxonomically for the alga widely used as a test organism under the name "Selenastrum capricornutum NIVA-CHL-1" that has spread to many culture collections.

This is explained in this paper:

Nygaard, G., Komárek, J., Kristiansen, J. & Skulberg, O.M. (1987 '1986'). Taxonomic designations of the bioassay alga NIVA-CHL 1 ("Selenastrum capricornum") and some related strains. Opera Botanica 90: 1-46, 35 figs, 9 tables.

Here is the abstract:

"An outline is given of the application, physiological characteristics and pigmentation of NIVA-CHL1, named "Selenastrum capricornutum". This strain and clonal isolates of 12 related algae from Norway, Denmark, Holland and Kenya were grown as non-axenic batch cultures. Shape and dimensions of the cells were studied on the basis of LM-photomicrographs , combined with EM-micrographs and with observations on living cells. The mother cell wall breaks in different ways before the four or eight autospores are released; the individual opening pattern is of significant taxonomic value. EM-micrographs disclosed a rugose wall of the NIVA-CHL1 cells and a well defined specific ultrastructure on the cell apices of some of the other strains. Four quantitative characters showed large variations and overlap, especially the curvature values, while the diameter/breadth ratio and the sinus/cell ratio seemed to be of some taxonomic value. Nine strains were referred to the genus Raphidocelis: NIVA-CHL1 has been designated R. subcapitata and the following three species have been described as new: R. van-goori (+ var. decussata), R. inclinata (+ var. serialis) and R. valida. Three of the strains have been referred to Monoraphidium, one of them as M. lunare n.sp. One strain was described as Nephrochlamys rostrata n.sp."

You will see that not all strains were the same thing, but they say quite clearly that "NIVA-CHL1 has been designated R. subcapitata".

It seems that Selenastrum capricornutum as described by Printz (1914) is NOT the same thing as strain NIVA-CHL1. This is a taxonomic issue not a nomenclatural one.

Michael Guiry
Ryan Institute Annexe, Room 301
NUI Galway
University Road
Galway
Ireland
michael.guiry@nuigalway.ie

ANAMAR Environmental Consulting, Inc.

PROJECT: PCCA CDP and HI Resample Section 103

Chain-of-Custody

Page ___ of ___

Samples delivered by field team to NWDLS

Station ID	Sample Date	Sample Time	Sample Matrix	Sample Containers	Number of Containers	Analyses Requested	Comments
REF-S (23A14 59-47)	1/27/2023	0920 to 1125	Sediment	Buckets w/ Teflon Bags	3	Metals, OCP, PCB Aroclors, Organotins, SVOAs, TPH, Cr+3, Cr+6, Cyanide, Ammonia, pH, Grain size, TOC, % Solids	Analyze for sediment chemistry and toxicology
				Buckets	6		

Samples Relinquished by: [signature] Received by: _____ Custody seals intact (Y/N) Y

Date: _____ Time: _____ Date: _____ Time: _____

ANAMAR Environmental Consulting, Inc.
2106 NW 67th Place, Suite 5
Gainesville, FL 32653
Phone Number (352) 377-5770

Samples Relinquished by: _____ Received by: [signature]

Date: _____ Time: _____ Date: 1.28.23 Time: 1050

	Start	End
Reference Sample A	0920	1000
Reference Sample B	1053	1125
Reference Sample C	1003	1050

1 Bucket w/ Teflon Bag and 2 Buckets No Teflon Each Station 9 Buckets Total

ANAMAR
Environmental Consulting, Inc.

Chain-of-Custody

Page ___ of ___

Samples delivered by field team to NWDLS

Station ID	Sample Date	Sample Time	Sample Matrix	Sample Containers	Number of Containers	Analyses Requested	Comments
CDP-06-W (23A1459-49)	1/27/2023	1532 to 1607	Site Water	Buckets Site Water Ret *	8 0	Metals, Cr+3, Cr+6, OCP, PCB Aroclors, Organotins, SVOAs, TPH, Ammonia, Salinity, Cyanide, TOC, TSS, Toxicology	Use for elutriate prep with sediment samples CDP-06-S (23A1459-53). The final elutriates will correspond to CDP-06-E (23A1459-51). This site water should also be used for preparing toxicology samples using the same corresponding sediment samples.

Samples Relinquished by: [signature] Received by: _____ Custody seals intact (Y/N) Y

Date: _____ Time: _____ Date: _____ Time: _____

Samples Relinquished by: _____ Received by: [signature]

Date: _____ Time: _____ Date: 1.28.23 Time: 1050

ANAMAR Environmental Consulting, Inc.
2106 NW 67th Place, Suite 5
Gainesville, FL 32653
Phone Number (352) 377-5770

* See COC for Site Water Ret.

CHAIN OF CUSTODY RECORD

North Water District Laboratory Services
130 S. Trade Center Pkwy, Conroe Tx 77385
(936) 321-6060 - lab@nwdls.com

~~TCEQ T104704238-22-36~~ ~~TCEQ-TOX T104704202-22-17~~

`23A1459~

23A1459

Terracon_Houston Gregg Pawlak 11555 Clay Road Houston, TX 77043 Phone: (713) 690-8989	**Project Name** : PCCA HI & CDP Resampling 2023 **Project Comments:**

Schedule Comments:

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
23A1459-49	CDP-06-W	1/27/2023 1532 → to 1607 →		AQ Grab	A PreClean HDPE 250mL HNO3 after Fil AI HDPE 250mL NaOH AJ Amber Glass 1L w/ Teflon-lined Lid AK Amber Glass 1L w/ Teflon-lined Lid AL Glass VOA 60mL AM Glass VOA 60mL AN Glass VOA 60mL AC Glass VOA 40mL HCl pH<2 AF Glass VOA 40mL HCl pH<2 AC Glass VOA 40mL HCl pH<2 AR HDPE 1L AS HDPE Bucket 5 Gal AT HDPE Bucket 5 Gal AL HDPE Bucket 5 Gal	Antimony KED D ICPMS HNO3 Arsenic KED D ICPMS 2 HNO3 Beryllium KED D ICPMS HNO3 Cadmium KED D ICPMS HNO3 Chromium KED D ICPM HNO3 Copper KED D ICPMS 2 HNO3 Hg-245.1 HNO3 Lead KED D ICPMS 200 HNO3 Nickel KED D ICPMS 20 HNO3 Selenium KED ICPMS 2 HNO3 Silver KED D ICPMS 20(HNO3 Thallium KED D ICPMS HNO3 Zinc KED D ICPMS 200. HNO3 OCP-8081 4°C PCB-8082 4°C Sub_Organotins-TX10014°C SVOA-8270 4°C TPH-1005 4°C	8 Buckets

Field Remarks:

Preservation: H2SO4 (HNO3) NaOH Other:
(Circle and Write ID)
2113532

Sampler (Signature)	Relinquished By: (Signature)	Date/Time 1/27/2023	Received By: (Signature)	Date/Time
Print Name	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Affiliation	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time 1-28-23 1050

Custody Seal : Yes / No | COC Labels Agree: Yes / No | Appropriate Volume: Yes / No | Received on Ice: Yes / No | Temperature: ____ °C
Container Intact : Yes / No | Appropriate Containers: Yes / No | Coolers Intact: Yes / No | Samples Accepted: Yes / No | Thermometer ID: ____

wko_NWDLS_COC2_noDate_LS version 4: 02/21/2021

CHAIN OF CUSTODY RECORD

North Water District Laboratory Services
130 S. Trade Center Pkwy, Conroe Tx 77385
(936) 321-6060 - lab@nwdls.com
TCEQ T104704238-22-36 TCEQ-TOX T104704202-22-17

`23A1459~

23A1459

Terracon_Houston
Gregg Pawlak
11555 Clay Road
Houston, TX 77043
Phone: (713) 690-8989

Project Name : PCCA HI & CDP Resampling 2023

Schedule Comments:

Project Comments:

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
	CR-06W	See Pg 96			AVHDPE Bucket 5 Gal AWHDPE Bucket 5 Gal AXHDPE Bucket 5 Gal AYHDPE Bucket 5 Gal AZHDPE Bucket 5 Gal B HDPE 250 Cr6+Buf after filtration C PreCleaned HDPE 250mL HNO3 D Glass 250mL H2SO4 E Glass VOA 60mL F Glass VOA 60mL G Glass VOA 60mL H Glass VOA 60mL I Glass VOA 60mL J Glass VOA 60mL K Amber Glass 1L w/ Teflon-lined Lid L Amber Glass 1L w/ Teflon-lined Lid	Cr III D KED ICPMS [Group Analysis] Cr VI-D 3500 Cr6+Buf 4°C NH3-N SEAL-350.1 H2SO4 4°C Salinity-2520 4°C Site Water Elutriate Prep 4°C Sub_CN T-4500 NaOH 4°C TOC-415.1 H2SO4 4°C TSS-2540 4°C	

Field Remarks:

Preservation: (Circle and Write ID) H2SO4 (HNO3) (NaOH) Other: _____

2202216 2113532

Sampler (Signature) See Pg 96	Relinquished By: (Signature) See Pg 96	Date/Time	Received By: (Signature) See Pg 96	Date/Time	
Print Name See Pg 96	Relinquished By: (Signature) See Pg 96	Date/Time	Received By: (Signature) See Pg 96	Date/Time	
Affiliation	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time 1-28-23 1050	

Custody Seal : Yes / No COC Labels Agree: Yes / No Appropriate Volume: Yes / No Received on Ice: Yes / No Temperature: _____ °C

Container Intact : Yes / No Appropriate Containers: Yes / No Coolers Intact: Yes / No Samples Accepted: Yes / No Thermometer ID: _____

wko_NWDLS_COC2_noDate_LS version 4: 02/21/2021

CHAIN OF CUSTODY RECORD

North Water District Laboratory Services
130 S. Trade Center Pkwy, Conroe Tx 77385
(936) 321-6060 - lab@nwdls.com
~~TCEQ T104704238-22-36~~ ~~TCEQ-TOX T104704202-22-17~~

`23A1459~

23A1459

Terracon_Houston Gregg Pawlak 11555 Clay Road Houston, TX 77043 Phone: (713) 690-8989	**Project Name** : PCCA HI & CDP Resampling 2023 **Project Comments:**

Schedule Comments:

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
	CDP-06-W	See Pg 96			M Amber Glass 1L w/ Teflon-lined Lid N Amber Glass 1L w/ Teflon-lined Lid O Amber Glass 1L w/ Teflon-lined Lid P Amber Glass 1L w/ Teflon-lined Lid		

Field Remarks:

Preservation: (Circle and Write ID) H2SO4 HNO3 NaOH Other:

Sampler (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Print Name See Pg 96	Relinquished By: (Signature) See Pg 96	Date/Time	Received By: (Signature) See Pg 96	Date/Time
Affiliation	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time 1.28.23 1050

Custody Seal : Yes / No COC Labels Agree: Yes / No Appropriate Volume: Yes / No Received on Ice: Yes / No Temperature: ____ °C

Container Intact : Yes / No Appropriate Containers: Yes / No Coolers Intact: Yes / No Samples Accepted: Yes / No Thermometer ID: ____

wko_NWDLS_COC2_noDate_LS version 4: 02/21/2021

ANAMAR
Environmental Consulting, Inc.

Chain-of-Custody

Page ___ of ___

Samples delivered by field team to NWDLS

Station ID	Sample Date	Sample Time	Sample Matrix	Sample Containers	Number of Containers	Analyses Requested	Comments
CDP-07-W (23A1459-50)	1/27/2023	1440 to 1520	Site Water	Buckets SiteWater Kit*	8	Metals, Cr+3, Cr+6, OCP, PCB Aroclors, Organotins, SVOAs, TPH, Ammonia, Salinity, Cyanide, TOC, TSS, Toxicology	Use for elutriate prep with sediment samples CDP-07-S (23A1459-57). The final elutriates will correspond to CDP-07-E (23A1459-52). This site water should also be used for preparing toxicology samples using the same corresponding sediment samples.

Samples Relinquished by: [signature] Received by: _____

Custody seals intact (Y/N) Y

Date: _____ Time: _____ Date: _____ Time: _____

ANAMAR Environmental Consulting, Inc.
2106 NW 67th Place, Suite 5
Gainesville, FL 32653
Phone Number (352) 377-5770

Samples Relinquished by: _____ Received by: [signature]

Date: _____ Time: _____ Date: 1.28.23 Time: 1050

Duplicate Collected at 7C

* See COC for Site Water Kit.

CHAIN OF CUSTODY RECORD

North Water District Laboratory Services
130 S. Trade Center Pkwy, Conroe Tx 77385
(936) 321-6060 - lab@nwdls.com
TCEQ T104704238-22-36 TCEQ-TOX T104704202-22-17

`23A1459~

23A1459

Terracon_Houston Gregg Pawlak 11555 Clay Road Houston, TX 77043 Phone: (713) 690-8989	**Project Name** : PCCA HI & CDP Resampling 2023 **Project Comments:** **Schedule Comments:**

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
23A1459-50	CDP-07-W	1/27/2023 1440 → to 1520 →		AQ Grab	A PreClean HDPE 250mL HNO3 after Fil AI HDPE 250mL NaOH AJ Amber Glass 1L w/ Teflon-lined Lid AK Amber Glass 1L w/ Teflon-lined Lid AL Glass VOA 60mL AM Glass VOA 60mL AN Glass VOA 60mL AC Glass VOA 40mL HCl pH<2 AF Glass VOA 40mL HCl pH<2 AC Glass VOA 40mL HCl pH<2 AR HDPE 1L AS HDPE Bucket 5 Gal AT HDPE Bucket 5 Gal AU HDPE Bucket 5 Gal	Antimony KED D ICPMS HNO3 Arsenic KED D ICPMS 2 HNO3 Beryllium KED D ICPMS HNO3 Cadmium KED D ICPMS HNO3 Chromium KED D ICPM HNO3 Copper KED D ICPMS 2 HNO3 Hg-245.1 HNO3 Lead KED D ICPMS 200 HNO3 Nickel KED D ICPMS 20 HNO3 Selenium KED ICPMS 2 HNO3 Silver KED D ICPMS 20(HNO3 Thallium KED D ICPMS HNO3 Zinc KED D ICPMS 200. HNO3 OCP-8081 4°C PCB-8082 4°C Sub_Organotins-TX100 14°C SVOA-8270 4°C TPH-1005 4°C	8 Buckets.

Field Remarks: Duplicate Collected at 7C

Preservation: H2SO4 HNO3 (NaOH) Other: _____ **(Circle and Write ID)** 2113532

Sampler: (Signature)	Relinquished By: (Signature)	Date/Time 1/27/2023	Received By: (Signature)	Date/Time
Print Name	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Affiliation AWAMAR	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time 1·28·23 1050

Custody Seal : Yes / No | COC Labels Agree: Yes / No | Appropriate Volume: Yes / No | Received on Ice: Yes / No | Temperature: _____ °C

Container Intact : Yes / No | Appropriate Containers: Yes / No | Coolers Intact: Yes / No | Samples Accepted: Yes / No | Thermometer ID: _____

wko_NWDLS_COC2_noDate_LS version 4: 02/21/2021

CHAIN OF CUSTODY RECORD

North Water District Laboratory Services
130 S. Trade Center Pkwy, Conroe Tx 77385
(936) 321-6060 - lab@nwdls.com
TCEQ T104704238-22-36 TCEQ-TOX T104704202-22-17

`23A1459~

23A1459

Terracon_Houston Gregg Pawlak 11555 Clay Road Houston, TX 77043 Phone: (713) 690-8989	**Project Name** : PCCA HI & CDP Resampling 2023 **Project Comments:**

Schedule Comments:

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
	CDP-07-W	See Pg 99	See Pg 99		M Amber Glass 1L w/ Teflon-lined Lid N Amber Glass 1L w/ Teflon-lined Lid O Amber Glass 1L w/ Teflon-lined Lid P Amber Glass 1L w/ Teflon-lined Lid		See Pg 99

Field Remarks:

Preservation: (Circle and Write ID) H2SO4 HNO3 NaOH Other: _____

Sampler (Signature) See Pg 99	Relinquished By: (Signature) See Pg 99	Date/Time	Received By: (Signature)	Date/Time
Print Name See Pg 99	Relinquished By: (Signature) See Pg 99	Date/Time	Received By: (Signature) See Pg 99	Date/Time
Affiliation	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time 1-28-23 1650

Custody Seal : Yes / No COC Labels Agree: Yes / No Appropriate Volume: Yes / No Received on Ice: Yes / No Temperature: _____ °C

Container Intact : Yes / No Appropriate Containers: Yes / No Coolers Intact: Yes / No Samples Accepted: Yes / No Thermometer ID: _____

wko_NWDLS_COC2_noDate_LS version 4: 02/21/2021

CHAIN OF CUSTODY RECORD

North Water District Laboratory Services
130 S. Trade Center Pkwy, Conroe Tx 77385
(936) 321-6060 - lab@nwdls.com

TCEQ T104704238-22-36 TCEQ-TOX T104704202-22-17

`23A1459~

23A1459

Terracon_Houston Gregg Pawlak 11555 Clay Road Houston, TX 77043 Phone: (713) 690-8989	**Project Name** : PCCA HI & CDP Resampling 2023 **Project Comments:**

Schedule Comments:

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
	CDP07-W	See Pg 99	See Pg 99		AVHDPE Bucket 5 Gal AWHDPE Bucket 5 Gal AXHDPE Bucket 5 Gal AYHDPE Bucket 5 Gal AZHDPE Bucket 5 Gal B HDPE 250 Cr6+Buf after filtration C PreCleaned HDPE 250mL HNO3 D Glass 250mL H2SO4 E Glass VOA 60mL F Glass VOA 60mL G Glass VOA 60mL H Glass VOA 60mL I Glass VOA 60mL J Glass VOA 60mL K Amber Glass 1L w/ Teflon-lined Lid L Amber Glass 1L w/ Teflon-lined Lid	Cr III D KED ICPMS [Group Analysis] Cr VI-D 3500 Cr6+Buf 4°C NH3-N SEAL-350.1 H2SO4 4°C Salinity-2520 4°C Site Water Elutriate Prep 4°C Sub_CN T-4500 NaOH 4°C TOC-415.1 H2SO4 4°C TSS-2540 4°C	See Pg 99

Field Remarks:

Preservation (Circle and Write ID): H2SO4 HNO3 NaOH Other:

2108097 2202216

Sampler (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)		Date/Time
Print Name See Pg 99	Relinquished By: (Signature) See Pg 99	Date/Time	Received By: (Signature) See Pg 99		Date/Time
Affiliation	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)		Date/Time 1.28.23 1050

Custody Seal : Yes / No COC Labels Agree: Yes / No Appropriate Volume: Yes / No Received on Ice: Yes / No Temperature: °C

Container Intact : Yes / No Appropriate Containers: Yes / No Coolers Intact: Yes / No Samples Accepted: Yes / No Thermometer ID:

wko_NWDLS_COC2_noDate_LS version 4: 02/21/2021

ANAMAR
Environmental Consulting, Inc.

PROJECT: PCCA CDP and HI Resample Section 103

Chain-of-Custody

Page ___ of ___

Samples delivered by field team to NWDLS

Station ID	Sample Date	Sample Time	Sample Matrix	Sample Containers	Number of Containers	Analyses Requested	Comments
CDP-06-6A-S (23A1459-54)	1/25/2023	0800	Sediment	Bucket w/Teflon Bags	4	Metals, OCP, PCB Aroclors, Organotins, SVOAs, TPH, Cr+3, Cr+6, Cyanide, Ammonia, pH, Grain size, TOC, % Solids	Samples CDP-06-6A-S (23A1459-54), CDP-06-6B-S (23A1459-55), and CDP-06-6C-S (23A1459-56) should be composited to form sampleCDP-06-6-S (23A1459-53) for elutriate prep and toxicology analysis. 23A1459-51
CDP-06-6B-S (23A1459-55)	1/23/2023	1600	Sediment	Bucket w/Teflon Bags	5	Metals, OCP, PCB Aroclors, Organotins, SVOAs, TPH, Cr+3, Cr+6, Cyanide, Ammonia, pH, Grain size, TOC, % Solids	
CDP-06-6C-S (23A1459-56)	1/23/2023	1305	Sediment	Bucket w/Teflon Bags	4	Metals, OCP, PCB Aroclors, Organotins, SVOAs, TPH, Cr+3, Cr+6, Cyanide, Ammonia, pH, Grain size, TOC, % Solids	

Samples Relinquished by: Michael McDermott Received by: NWDLS Courier

Custody seals intact (Y/N) Y

Date: _____ Time: _____ Date: _____ Time: _____

Samples Relinquished by: Robert C. Pinch Received by: [signature]

Date: 1-26-23 Time: 16:00 Date: 1.27.23 Time: 0800

ANAMAR Environmental Consulting, Inc.
2106 NW 67th Place, Suite 5
Gainesville, FL 32653
Phone Number (352) 377-5770

ANAMAR
Environmental Consulting, Inc.

PROJECT: PCCA CDP and HI Resample Section 103

Chain-of-Custody Page ___ of ___

Samples delivered by field team to NWDLS

Station ID	Sample Date	Sample Time	Sample Matrix	Sample Containers	Number of Containers	Analyses Requested	Comments
CDP-07-7A-S (23A1459-58)	1/21/2023	1000	Sediment	Bucket to w/Teflon Bags	5	Metals, OCP, PCB Aroclors, Organotins, SVOAs, TPH, Cr+3, Cr+6, Cyanide, Ammonia, pH, Grain size, TOC, % Solids	Samples CDP-07-7A-S (23A1459-58) and CDP-07-7C-S (23A1459-59) should be composited to form sampleCDP-07-7-S (23A1459-57) for elutriate prep and toxicology analysis. 23A1459-52
CDP-07-7C-S (23A1459-59)	1/21/2023 Core#1 Core#2	1510 1645	Sediment	Bucket to w/Teflon Bags	4 + 2	Metals, OCP, PCB Aroclors, Organotins, SVOAs, TPH, Cr+3, Cr+6, Cyanide, Ammonia, pH, Grain size, TOC, % Solids	

Samples Relinquished by: [signature] Received by: ROBERT C. PARKER NWDLS Courier Custody seals intact (Y/N) Y

Date: _____ Time: _____ Date: 1-23-23 Time: 12:30p.m

Samples Relinquished by: [signature] Received by: [signature]

Date: 1-23-23 Time: 17:00 Date: 1-23-23 Time: 1710

ANAMAR Environmental Consulting, Inc.
2106 NW 67th Place, Suite 5
Gainesville, FL 32653
Phone Number (352) 377-5770

CDP-07C / Core#2 - Extra Sample for Toxicology as needed for Volume (2 Buckets w/Teflon Bags)

APPENDIX H

ADDAMS MODEL

Particle size Distribution & Percent Moisture of Sediments	
Sample Zone:	**CDP-07**
% Grain Size	
Gravel	0.0
Sand	34.9
Silt	52.8
Clay	12.3
% Moisture	17.8
% Solids	82.2
w(%) (water content)	22
specific gravity	2.65
Liquid limit	0

		Project
ID Number Characteristics:		**CDP-07**
% Coarse	**Enter**	34.9
%Silt	**Enter**	52.8
%Clay	**Enter**	12.3
Sum		100
Bucket Entrained	% by vol in dump vessel	
Free Water	**Enter**	20
%Sediment by vol		80
Specific Gravity coarse	**Enter**	2.65
SG silt	**Enter**	2.65
SG clay	**Enter**	2.65
ρw, g/cc (density of water)	**Enter**	1.025
LL, %	**Enter, if known**	0
Enter only one of these in blue		
w, % (water content)		21.655
%S by weight		
ρ_{sed}, g/cc or kg/L wet density		
Calculations:		2.723
SG eff		2.650
%W by vol		35.891
%Coarse by vol		22.374
%Silt by vol		33.849
%Clay by vol		7.885
		100.000
water content		21.655
%Saturataion		82.200
ρsed		2.067
	If LL is not known,	
%Clumps	0	0.00
Concentrations		
C solids, kg/L		1.6989
C barge, kg/L		1.3591
C clumps, kg/L		0.0000
C coarse, kg/L		0.4743
C silt, kg/L		0.7176
C clay, kg/L		0.1672
		1.3591
Volumetric Fractions (vf)		
vf clumps		0.00000
vf coarse		0.17899
vf silt		0.27080
vf clay		0.06308
vf water		0.48713
		1
SG clumps		2.067
Bulk Density, g/cc		1.858

Sediment		Project
ID Number Characteristics:		**CDP-07**
% Coarse	**Enter**	34.9
%Silt	**Enter**	52.8
%Clay	**Enter**	12.3
Sum		100
Bucket Entrained	% by vol in dump vessel	
Free Water	**Enter**	70
%Sediment by vol		30
Specific Gravity coarse	**Enter**	2.65
SG silt	**Enter**	2.65
SG clay	**Enter**	2.65
ρw, g/cc (density of water)	**Enter**	1.025
LL, %	**Enter, if known**	0
Enter only one of these in blue		
w, % (water content)		54.799
%S by weight		
ρ_{sed}, g/cc or kg/L wet density		
Calculations:		
SG eff		2.650
%W by vol		58.622
%Coarse by vol		14.441
%Silt by vol		21.848
%Clay by vol		5.089
		100.000
water content		54.799
%Saturataion		64.600
ρsed		1.697
	If LL is not known,	
%Clumps	0	0.00
Concentrations		
C solids, kg/L		1.0965
C barge, kg/L		0.3290
C clumps, kg/L		0.0000
C coarse, kg/L		0.1148
C silt, kg/L		0.1737
C clay, kg/L		0.0405
		0.3290
Volumetric Fractions (vf)		
vf clumps		0.000
vf coarse		0.043
vf silt		0.066
vf clay		0.015
vf water		0.876
		1
SG clumps		1.697
Bulk Density, g/cc		1.227

Values below based on Bray (2001) for mechanically dredged sediments.

Sediment Type	Bulking Factor (min.)	Bulking Factor (max)	Bulking Factor (mean)	Free Water
Hard Rock (blasted)	1.50	2.00	1.75	0.43
Medium rock (blasted)	1.40	1.80	1.60	0.38
Soft rock (blasted)	1.25	1.40	1.33	0.25
Gravel, hardpacked	not given	not given	1.35	0.26
Gravel, loose	not given	not given	1.10	0.09
Sand, hardpacked	1.25	1.35	1.30	0.23
Sand, medium soft to har	1.15	1.25	1.20	0.17
Sand, soft	1.05	1.15	1.10	0.09
Silts, freshly deposited	1.00	1.10	1.05	0.05
Silts, consolidated	1.10	1.40	1.25	0.20
Clay, vary hard	1.15	1.25	1.20	0.17
Clay, medium soft to hard	1.10	1.15	1.13	0.11
Clay, soft	1.00	1.10	1.05	0.05
Sand/gravel/clay mixtures	1.15	1.35	1.25	0.20

Sediment		Project
ID Number Characteristics:		**CDP-07**
% Coarse	**Enter**	34.9
%Silt	**Enter**	52.8
%Clay	**Enter**	12.3
Sum		100
Bucket Entrained	% by vol in dump vessel	
Free Water	**Enter**	70
%Sediment by vol		30
Specific Gravity coarse	**Enter**	2.65
SG silt	**Enter**	2.65
SG clay	**Enter**	2.65
ρw, g/cc (density of water)	**Enter**	1.025
LL, %	**Enter, if known**	0
Enter only one of these in blue		
w, % (water content)		54.799
%S by weight		
ρ_{sed}, g/cc or kg/L wet density		
Calculations:		
SG eff		2.650
%W by vol		58.622
%Coarse by vol		14.441
%Silt by vol		21.848
%Clay by vol		5.089
		100.000
water content		54.799
%Saturataion		64.600
ρsed		1.697
	If LL is not known,	
%Clumps	0	0.00
Concentrations		
C solids, kg/L		1.0965
C barge, kg/L		0.3290
C clumps, kg/L		0.0000
C coarse, kg/L		0.1148
C silt, kg/L		0.1737
C clay, kg/L		0.0405
		0.3290
Volumetric Fractions (vf)		
vf clumps		0.000
vf coarse		0.043
vf silt		0.066
vf clay		0.015
vf water		0.876
		1
SG clumps		1.697
Bulk Density, g/cc		1.227

APPENDIX I

PHOTOS OF SAMPLES AND FIELD OPERATIONS

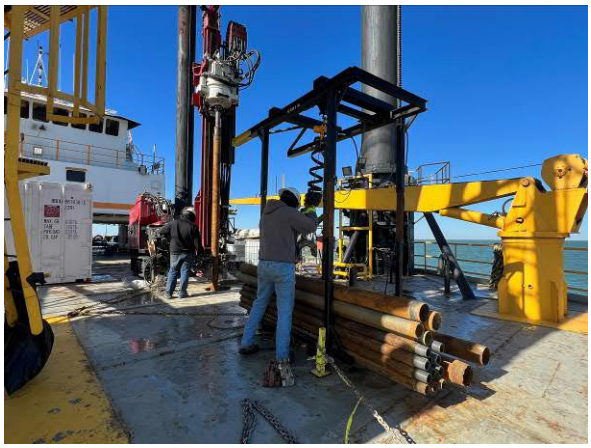


Photo 1 Advancement of boring CDP-06A utilizing sonic drill rig during 2023 resampling event.

Photo 2 View of sediment collected during boring CDP-06A resampling.

Photo 3 View of sediment collected during DMMU-06B resampling.

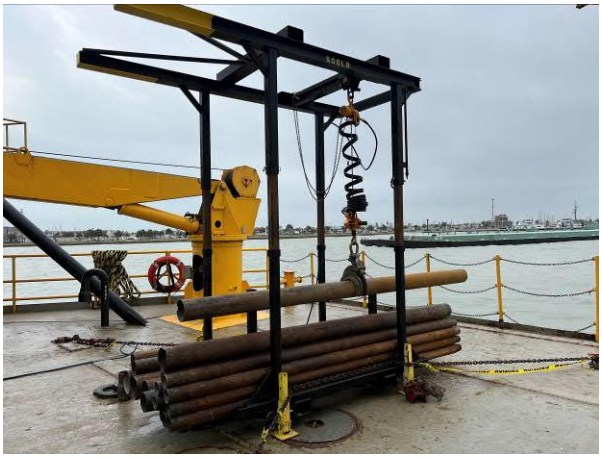


Photo 4 View of sonic drilling rods.

Photo 5 View of sediment collected during DMMU-06C resampling.

Photo 6 Typical view of sediment collected in 5-gallon food grade buckets during 2023 resampling event.

Photo 7 View of sediment collected during DMMU-07A resampling.

Photo 8 View of lift boat moonpool where sediment samples obtained utilizing sonic drill rig.

Photo 9 View of sediment collected during DMMU-07C resampling.

Photo 10 View of snail shell and sediment obtained during 2023 resampling of the Reference area utilizing double van Veen sampler.

Photo 11 Advancement of boring CDP-08A utilizing drill rig equipped with direct-push technology.

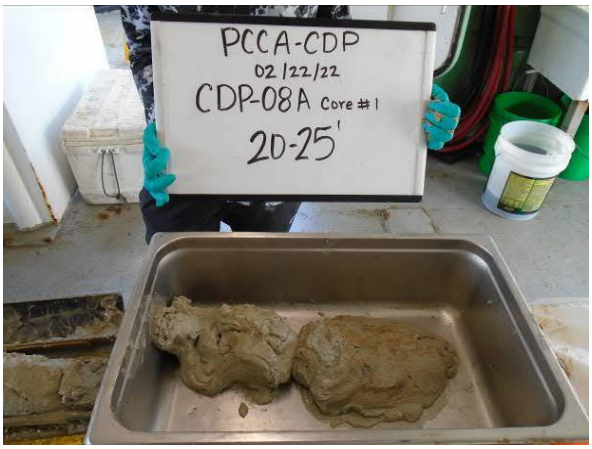


Photo 12 View of sediment collected from boring CDP-08A.

Photo 13 View of sediment collected from boring CDP-09A.

Photo 14 View of refrigerated unit at Martin Energy facility used to store samples at or below 4°C following collection.

Photo 15 Collection of sediment from Reference area utilizing double van Veen sampler.

Photo 16 View of sediment collected from CDP-REF-B.

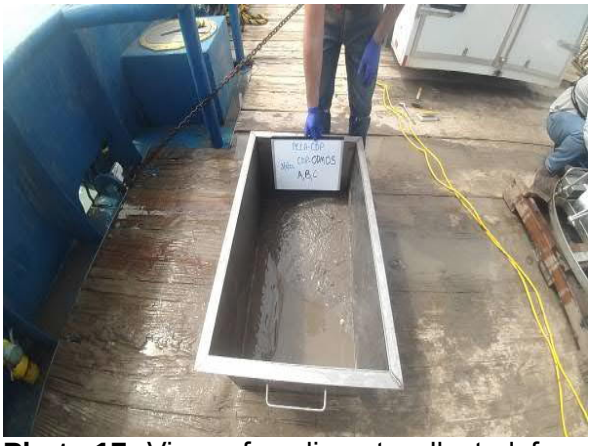


Photo 17 View of sediment collected from New Work ODMDS substations A, B and C.

Photo 18 Typical set-up used for collection of marine water from DMMUs specified in SAP.

APPENDIX J

PERTINENT CORRESPONDENCE

MEMORANDUM

TO: United States Army Corps of Engineers and United States Environmental Protection Agency

DATE: June 9, 2022

REF: Corpus Christi Channel Deepening Inner Harbor Project Tissue Chemistry Recommendations

Based on the analysis of sediment samples from the Corpus Christi Inner Harbor project area, the following recommendations for tissue chemistry analysis are proposed. As stated in Section 10.2.2 of the RIA,

Ordinarily, only those compounds detected in the sediment need be analyzed for in the tissue. In some cases, however, it may be desirable to analyze tissues for compounds not detected in the sediments. The target detection limits listed in Appendix B (Appendix C has the actual TDLs) will be used when conducting evaluations of tissues from bioaccumulation tests.

For this project, since the sediment chemistry was analyzed on the subsamples while the bioaccumulation was performed on the composites of the subsamples, the determination to run tissue chemistry is based on the detection of the contaminants in any of the subsamples.

Non-metals
Sediment analysis for cyanide and total petroleum hydrocarbons (TPH) showed no results with concentrations greater than the method reporting limit (MRL) in any sample. Analysis of tissue samples for cyanide and TPH is **not recommended**.

Trace metals
All sediment subsamples contained detectable levels of the trace metals analyzed. Although several metals were reported below the reporting limit, the analytical method used for testing will provide results for all metals. Analysis of all tissue samples for all metals is **recommended**.

Hexavalent Chromium
Sediment subsamples for hexavalent chromium showed no results with concentrations greater than the MRL in any sample. Analysis of tissue samples for hexavalent chromium is **not recommended.**

Organotins
Sediment analysis for organotins showed no results with concentrations greater than the MRL in any sample. Analysis of tissue samples for organotins is **not recommended.**

Pesticides
Sediment analysis for pesticides showed no results with concentrations greater than the MRL in any sample. Analysis of tissue samples for pesticides is **not recommended.**

PCBs

PCB Aroclors were analyzed for total PCB content using Aroclors. The total PCBs in all subsamples are reported as non-detects (U-qualified). All project sediment samples were reported with an MDL greater than the target detection limit in the SAP, but this was due to low total solids content in the sediment. Analysis of tissue samples for PCBs is **not recommended.**

PAHs

Sample CDP-06 had detectable concentrations of PAH compounds above the MRL in subsample 06A. All other sample results for all PAH compounds were below the MRL. Analysis of tissue sample CDP-06 for PAHs is **recommended**. Tissue analysis for all other samples for PAHs is not recommended.

Semi-Volatile Organic Compounds (SVOCs)

Three of the DMMUs, CDP-06, CDP-08, and CDP-09 had at least one subsample with detectable concentrations greater than the MRL for the following SVOC compounds: bis (2-ethylhexyl) phthalate, di-n-butyl phthalate, and total phenol. Analysis of tissues samples for these three SVOC compounds detected in the sediment is **recommended**. Tissue analysis for the remaining compounds is **not recommended**.

In addition, the reference and pre-exposure tissue samples will be run for background levels for all recommended analyses shown above. The table below summarized the tissue recommendations based on sample and analysis. Upon completion, the tissue samples will be compared to the reference tissue samples to determine statistical differences and the risk assessment as part of the final report.

Summary of PCCA CDP Inner Harbor Tissue Recommendations

Analyte	CDP-06	CDP-07	CDP-08	CDP-09	REF and Pre-exposure
Total cyanide	No	No	No	No	No
TPH	No	No	No	No	No
Metals	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Hexavalent chromium	No	No	No	No	No
Organotins	No	No	No	No	No
Pesticides	No	No	No	No	No
PCBs	No	No	No	No	No
PAHs	**Yes**	No	No	No	**Yes**
SVOCs (di-n-butyl phthalate, bis (2-ethylhexyl) phthalate, and total phenol)	**Yes**	No	**Yes**	**Yes**	**Yes**
All other SVOC compounds	No	No	No	No	No

TABLE 3
Results of Physical Analyses for Sediment Samples

DMMU Location:*		CDP-06 Stations 32+90 (Harbor Island Junction, channel deepening)				CDP-07 Stations 54+00 (Corpus Christi Channel, channel deepening)	
Sample ID:		6A	6A Duplicate	6B	6C	7A	7C
Sediment Description		Lean clay, some fine-grained quartz sand, little silt, trace fine gravel-size shell fragments, tan	Fat clay, some silt, little fine-grained quartz sand, tan	Silty sand, mostly fine-grained quartz sand, little silt, little clay, tan	Silt, some fine-grained quartz sand, little clay, tan	Lean clay, some silt, little fine-grained quartz sand, tan	Silt, some fine-grained quartz sand, little clay, trace fine gravel-size shell fragments, tan
% Gravel (Particles ≥4.750 mm)		1.2	0.0	0.0	0.0	0.0	1.9
% Coarse Sand		2.9	0.2	0.0	0.0	0.0	0.0
% Medium Sand		11.6	1.0	0.2	0.7	0.3	0.2
% Fine Sand		31.9	22.3	61.9	41.5	20.8	48.2
% Sand (total) (Particles 0.075-4.749 mm)		46.4	23.5	62.1	42.2	21.1	48.4
% Silt (Particles 0.005-0.074 mm)		19.5	30.7	19.7	31.4	38.1	27.3
% Clay (Particles <0.005 mm)		32.9	45.8	18.2	26.4	40.8	22.4
% Silt & Clay (combined)		52.4	76.5	37.9	57.8	78.9	49.7
USCS Classification		CL	CH	SM	ML	CL	ML
% Passing Sieve Size	**Metric Equivalent (mm)**						
#4	**4.75**	98.8	100.0	100.0	100.0	100.0	98.1
#10	**2.00**	95.9	99.8	100.0	100.0	100.0	98.1
#20	**0.85**	88.5	99.3	99.9	99.5	99.9	98.0
#40	**0.425**	84.3	98.8	99.8	99.3	99.7	97.9
#50	**0.297**	82.7	98.6	99.7	99.2	99.6	97.9
#70	**0.210**	80.9	98.2	99.1	98.8	99.3	97.4
#100	**0.149**	72.4	94.7	85.3	91.9	95.8	86.5
#140	**0.105**	60.0	85.4	56.4	75.5	87.2	62.9
#200	**0.075**	52.4	76.5	37.9	57.8	78.9	49.7
Hydrometer Readings (% less than the following sizes)		45.8 @ 0.0418 mm	60.4 @ 0.0388 mm	28.2 @ 0.0462 mm	44.0 @ 0.0421 mm	65.7 @ 0.0375 mm	38.5 @ 0.0430 mm
		44.0 @ 0.0298 mm	56.6 @ 0.0281 mm	26.7 @ 0.0329 mm	37.6 @ 0.0308 mm	56.8 @ 0.0281 mm	33.2 @ 0.0313 mm
		42.3 @ 0.0213 mm	53.5 @ 0.0202 mm	23.8 @ 0.0236 mm	34.0 @ 0.0222 mm	50.8 @ 0.0206 mm	29.3 @ 0.0226 mm
		38.8 @ 0.0112 mm	49.7 @ 0.0107 mm	20.8 @ 0.0123 mm	29.0 @ 0.0118 mm	43.5 @ 0.0111 mm	25.3 @ 0.0119 mm
		38.2 @ 0.0079 mm	48.0 @ 0.0076 mm	19.4 @ 0.0088 mm	27.6 @ 0.0084 mm	42.8 @ 0.0078 mm	24.1 @ 0.0085 mm
		37.5 @ 0.0056 mm	46.4 @ 0.0055 mm	18.8 @ 0.0062 mm	26.8 @ 0.0059 mm	41.3 @ 0.0056 mm	22.7 @ 0.0060 mm
		7.2 @ 0.0033 mm	36.9 @ 0.0029 mm	16.5 @ 0.0031 mm	24.5 @ 0.0030 mm	37.4 @ 0.0029 mm	20.8 @ 0.0030 mm
		4.5 @ 0.0013 mm	7.0 @ 0.0013 mm	15.0 @ 0.0013 mm	18.0 @ 0.0013 mm	25.6 @ 0.0012 mm	8.2 @ 0.0013 mm

TABLE 3 (*continued*)
Results of Physical Analyses for Sediment Samples

DMMU Location:*		CDP-08 Stations 74+00 (Corpus Christi Channel, channel deepening)		CDP-09 Stations 96+00 (Corpus Christi Channel, channel deepening)			CDP-REF (Reference Area)	CDP-ODMDS (Placement Area [New Work ODMDS])
Sample ID:		**8A**	**8C**	**9A**	**9C**	**9C Duplicate**	**CDP-REF (Composite)**	**CDP-ODMDS (Composite)**
Sediment Description		Silt, some fine-grained quartz sand, some clay, tan	Fat clay, little fine-grained quartz sand, little silt, tan	Lean clay, some fine-grained quartz sand, little silt, tan	Clayey sand, mostly fine-grained quartz sand, little clay, little silt, tan	Silty sand, mostly fine-grained quartz sand, little silt, little clay, tan	Silty sand, mostly fine-grained quartz sand, some silt, little clay, light brown	Sand, poorly graded, mostly fine-grained quartz sand, trace clay, trace fine gravel-size shell fragments, brown
% Gravel (Particles ≥4.750 mm)		0.0	0.0	0.0	0.0	0.0	0.0	2.4
% Coarse Sand		0.3	0.3	0.0	0.0	0.0	0.0	4.7
% Medium Sand		1.2	2.8	0.1	0.0	0.1	0.2	5.9
% Fine Sand		28.6	22.3	41.6	61.3	63.6	49.9	79.7
% Sand (total) (Particles 0.075-4.749 mm)		30.1	25.4	41.7	61.3	63.7	50.1	90.3
% Silt (Particles 0.005-0.074 mm)		40.1	21.1	22.4	15.4	18.2	30.8	1.4
% Clay (Particles <0.005 mm)		29.8	53.5	35.9	23.3	18.1	19.1	5.9
% Silt & Clay (combined)		69.9	74.6	58.3	38.7	36.3	49.9	7.3
USCS Classification		ML	CH	CL	SC	SM	SM	SP
% Passing Sieve Size	**Metric Equivalent (mm)**							
#4	**4.75**	100.0	100.0	100.0	100.0	100.0	100.0	97.6
#10	**2.00**	99.7	99.7	100.0	100.0	100.0	100.0	92.9
#20	**0.85**	99.1	98.3	99.9	100.0	100.0	99.9	88.5
#40	**0.425**	98.5	96.9	99.9	100.0	99.9	99.8	87.0
#50	**0.297**	98.2	96.2	99.8	100.0	99.9	99.7	85.7
#70	**0.210**	97.7	95.5	99.0	99.6	99.6	99.6	74.8
#100	**0.149**	94.1	91.8	86.1	88.6	86.9	99.0	44.2
#140	**0.105**	82.8	83.0	68.6	60.7	57.1	92.8	18.2
#200	**0.075**	69.9	74.6	58.3	38.7	36.3	49.9	7.3
Hydrometer Readings (% less than the following sizes)		50.2 @ 0.0406 mm	60.7 @ 0.0380 mm	45.6 @ 0.0423 mm	33.6 @ 0.0445 mm	27.1 @ 0.0468 mm	33.9 @ 0.0444 mm	7.1 @ 0.0490 mm
		43.8 @ 0.0298 mm	58.6 @ 0.0273 mm	44.1 @ 0.0301 mm	30.0 @ 0.0320 mm	23.0 @ 0.0336 mm	29.5 @ 0.0321 mm	6.9 @ 0.0347 mm
		38.8 @ 0.0217 mm	57.1 @ 0.0195 mm	42.5 @ 0.0215 mm	27.8 @ 0.0229 mm	20.6 @ 0.0240 mm	26.6 @ 0.0230 mm	6.7 @ 0.0246 mm
		33.1 @ 0.0115 mm	54.3 @ 0.0102 mm	40.2 @ 0.0112 mm	24.9 @ 0.0120 mm	19.0 @ 0.0125 mm	23.3 @ 0.0121 mm	6.7 @ 0.0127 mm
		31.7 @ 0.0082 mm	53.9 @ 0.0073 mm	37.8 @ 0.0080 mm	23.4 @ 0.0085 mm	18.2 @ 0.0088 mm	21.9 @ 0.0086 mm	6.7 @ 0.0090 mm
		30.3 @ 0.0058 mm	53.5 @ 0.0052 mm	36.3 @ 0.0057 mm	23.4 @ 0.0060 mm	18.2 @ 0.0063 mm	20.0 @ 0.0061 mm	6.0 @ 0.0064 mm
		28.8 @ 0.0029 mm	53.4 @ 0.0026 mm	34.3 @ 0.0029 mm	22.6 @ 0.0030 mm	17.8 @ 0.0031 mm	17.4 @ 0.0031 mm	5.7 @ 0.0032 mm
		22.9 @ 0.0012 mm	53.4 @ 0.0011 mm	25.8 @ 0.0012 mm	20.3 @ 0.0013 mm	15.7 @ 0.0013 mm	13.2 @ 0.0013 mm	5.6 @ 0.0013 mm

*DMMU and sample locations are in State Plane NAD 83. Note: DMMUs CDP-07, CDP-08 did not have sub-samples collected for B stations.
Note: Total distribution does not necessarily add up to 100% for each sample due to rounding. Some sieve openings differ slightly from phi mm scale.
Unified Soil Classification System (USCS) classes:
CH = Clay of high plasticity, elastic silt. CL = Clay. SC = Clayey sand. SM = Silty sand. SP = Poorly graded sand. ML = Silt of low plasticity.

Source: Results from Taylor Engineering, Inc.
Compiled by: ANAMAR Environmental Consulting, Inc.

TABLE 4
Analytical Results for Dry Weight Metals, Ammonia, Total Cyanide, TPHs, Total Solids, TOCs, Organotins, and pH in Sediment Samples

Analyte	Maximum Conc. mg/kg	TEL mg/kg	ERL mg/kg	DMMU:	CDP-06												CDP-07							
				Sample ID:	6A				6A (Duplicate)				6B				6C				7A				7C			
					Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL
Metals																												
Antimony	<0.421	x	x		<0.314	A, U	0.314	0.629	<0.341	A, U	0.341	0.684	<0.160	U	0.160	0.321	<0.415	A, U	0.415	0.831	<0.278	A, U	0.278	0.557	<0.319	A, U	0.319	0.640
Arsenic	3.91	7.24	8.2		3.91	--	0.0314	0.314	1.21	--	0.0341	0.341	1.13	--	0.0160	0.160	0.343	J	0.0415	0.415	0.294	--	0.0278	0.278	0.595	--	0.0319	0.319
Beryllium	0.247	x	x		0.247	--	0.00629	0.125	0.190	--	0.00684	0.136	0.0769	--	0.00321	0.0641	0.0518	J	0.00831	0.166	0.177	--	0.00557	0.111	0.162	--	0.00640	0.128
Cadmium	0.107	0.676	1.2		0.107	J	0.0314	0.629	0.0720	J	0.0341	0.684	0.0221	J	0.0160	0.321	<0.0415	A, U	0.0415	0.831	<0.0278	A, U	0.0278	0.557	<0.0319	A, U	0.0319	0.640
Chromium	5.47	52.3	81		4.76	--	0.0942	1.88	5.47	--	0.102	2.05	4.47	--	0.0481	0.962	1.51	J	0.124	2.49	3.24	--	0.0834	1.67	1.95	--	0.0957	1.91
Chromium (III)	5.47	x	x		4.76	J	2.12	7.61	5.47	J	2.22	8.03	4.47	J	2.20	7.03	<2.28	U	2.28	8.57	3.24	J	2.16	7.53	<2.06	U	2.06	7.47
Chromium (VI)	<3.20	x	x		<2.03	U	2.03	5.72	<2.12	U	2.12	5.98	<2.15	U	2.15	6.07	<2.15	U	2.15	6.08	<2.08	U	2.08	5.86	<1.97	U	1.97	5.55
Copper	6.15	18.7	34		6.15	--	0.125	0.629	3.72	--	0.136	0.684	1.18	--	0.0641	0.321	0.549	V, J	0.166	0.831	1.21	--	0.111	0.557	0.807	--	0.128	0.640
Lead	7.04	30.24	46.7		7.04	--	0.0314	0.314	4.38	--	0.0341	0.341	2.12	--	0.0160	0.160	1.58	--	0.0415	0.415	2.84	--	0.0278	0.278	3.42	--	0.0319	0.319
Mercury	0.0397	0.13	0.15		0.00663	J	0.00508	0.0102	<0.00500	U	0.00500	0.0100	0.00524	H, J	0.00485	0.00971	<0.00484	U	0.00484	0.00968	0.0397	--	0.00493	0.00986	0.0139	--	0.00505	0.0101
Nickel	5.00	15.9	20.9		5.00	--	0.629	0.629	3.47	--	0.684	0.684	1.71	--	0.321	0.321	<0.831	A, U	0.831	0.831	1.96	--	0.557	0.557	1.88	--	0.640	0.640
Selenium	0.959	x	x		0.959	J	0.629	3.14	<0.684	A, U	0.684	3.41	<0.321	U	0.321	1.60	<0.831	A, U	0.831	4.15	0.605	J	0.557	2.78	<0.640	A, U	0.640	3.19
Silver	0.0174	0.73	1		0.0174	V, J	0.0157	0.314	<0.0171	A, B, U	0.0171	0.341	0.0108	J	0.00803	0.160	<0.0208	A, U	0.0208	0.415	<0.0139	A, B, U	0.0139	0.278	<0.0160	A, B, U	0.0160	0.319
Thallium	0.0872	x	x		0.0872	J	0.0157	0.314	0.0595	J	0.0171	0.341	0.0395	J	0.00803	0.160	<0.0208	A, U	0.0208	0.415	0.0363	J	0.0139	0.278	0.0308	J	0.0160	0.319
Zinc	16.8	124	150		15.3	B	0.629	1.25	16.8	B	0.684	1.36	7.38	--	0.321	0.641	4.76	V	0.831	1.66	6.23	B	0.557	1.11	4.75	B	0.640	1.28
Others																												
Ammonia (as nitrogen)	42.2	x	x		<11.3	U	11.3	22.7	<11.5	U	11.5	23.1	<11.9	U	11.9	23.8	<11.2	U	11.2	22.4	<11.9	U	11.9	23.7	<11.9	U	11.9	23.9
Cyanide, Total	<0.0433	x	x		<0.0282	U	0.0282	0.0563	<0.0298	U	0.0298	0.0596	<0.0296	U	0.0296	0.0593	<0.0273	U	0.0273	0.0545	<0.0295	U	0.0295	0.0590	<0.0305	U	0.0305	0.0610
Petroleum Hydrocarbons, Total	6.44	x	x		<3.45	B, U	3.45	10.3	3.61	V, J	3.50	10.5	3.81	V, J	3.63	10.9	<3.36	U	3.36	10.1	<3.53	U	3.53	10.6	<3.45	U	3.45	10.4

Analyte	Maximum Conc. %	TEL %	ERL %	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL
Solids, Total	89.0	x	x	87.0	--	0.100	0.100	85.7	--	0.100	0.100	82.9	--	0.100	0.100	89.0	--	0.100	0.100	83.9	--	0.100	0.100	83.7	--	0.100	0.100
Carbon, Total Organic	0.42	x	x	0.05	J	0.02	0.10	0.03	J	0.02	0.10	0.02	J	0.02	0.10	<0.02	U	0.02	0.10	0.03	J	0.02	0.10	<0.02	U	0.02	0.10

Analyte	Maximum Conc. µg/kg	TEL µg/kg	ERL µg/kg	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Monobutyltin	0.43	x	x	<0.32	U	0.32	1.2	<0.32	U	0.32	1.2	<0.31	U	0.31	1.2	0.33	J	0.30	1.1	<0.30	U	0.30	1.1	<0.33	U	0.33	1.2
Dibutyltin	0.27	x	x	0.25	JP	0.23	1.2	<0.23	U	0.23	1.2	<0.23	U	0.23	1.2	<0.22	U	0.22	1.1	0.27	J	0.22	1.1	<0.24	U	0.24	1.2
Tributyltin	1.1	x	x	0.53	JP	0.52	1.2	<0.53	U	0.53	1.2	<0.52	U	0.52	1.2	<0.49	U	0.49	1.1	1.1	J	0.49	1.1	<0.54	U	0.54	1.2

Analyte	Maximum Conc. pH units	TEL pH units	ERL pH units	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL
pH	8.74	x	x	8.74	H		0.100	8.67	H		0.100	8.25	H		0.100	8.25	H		0.100	8.13	H		0.100	8.36	H		0.100

TABLE 4 (*continued*)
Analytical Results for Dry Weight Metals, Ammonia, Total Cyanide, TPHs, Total Solids, Lipids, TOCs, Organotins, and pH in Sediment Samples

DMMU:	CDP-08								CDP-09												Reference				ODMDS			
Sample ID:	8A				8C				9A				9C (Core 1)				9C (Core 2)				CDP-REF				CDP-ODMDS			
Analyte	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL
Metals																												
Antimony	<0.274	A, U	0.274	0.550	<0.392	A, U	0.392	0.786	<0.222	A, U	0.222	0.445	<0.385	A, U	0.385	0.772	<0.421	A, U	0.421	0.845	<0.263	A, U	0.263	0.526	<0.268	U, A	0.268	0.538
Arsenic	0.396	--	0.0274	0.274	2.68	--	0.0392	0.392	0.986	--	0.0222	0.222	0.439	--	0.0385	0.385	0.942	--	0.0421	0.421	<0.0263	A, U	0.0263	0.263	<0.0268	U, A	0.0268	0.268
Beryllium	0.0688	J	0.00550	0.110	0.0414	J	0.00786	0.157	0.111	--	0.00445	0.0887	0.137	J	0.00772	0.154	0.168	--	0.00845	0.168	<0.00526	A, U	0.00526	0.105	<0.00538	U, A	0.00538	0.107
Cadmium	<0.0274	A, U	0.0274	0.550	<0.0392	A, U	0.0392	0.786	0.0460	J	0.0222	0.445	<0.0385	A, U	0.0385	0.772	<0.0421	A, U	0.0421	0.845	<0.0263	A, U	0.0263	0.526	<0.0268	A, U	0.0268	0.538
Chromium	1.94	--	0.0823	1.65	3.76	--	0.118	2.35	2.46	V	0.0666	1.33	2.50	V	0.116	2.31	2.28	V, J	0.126	2.53	<0.0788	A, B, U	0.0788	1.58	<0.0805	A, B, U	0.0805	1.61
Chromium (III)	<2.05	U	2.05	7.21	3.76	J	2.30	8.53	2.46	J	2.15	7.21	2.50	J	2.44	8.86	2.28	J	2.20	8.38	<3.28	U	3.28	10.6	<2.22	U	2.22	7.66
Chromium (VI)	<1.97	U	1.97	5.57	<2.19	U	2.19	6.18	<2.08	U	2.08	5.88	<2.32	U	2.32	6.55	<2.07	U	2.07	5.85	<3.20	U	3.20	9.04	<2.14	U	2.14	6.05
Copper	1.42	V	0.110	0.550	0.979	V	0.157	0.786	1.65	--	0.0887	0.445	3.57	--	0.154	0.772	1.25	--	0.168	0.845	<0.105	A, U	0.105	0.526	<0.107	U, A	0.107	0.538
Lead	1.91	--	0.0274	0.274	2.61	--	0.0392	0.392	2.43	--	0.0222	0.222	3.60	--	0.0385	0.385	2.89	--	0.0421	0.421	<0.0263	A, U	0.0263	0.263	<0.0268	A, U	0.0268	0.268
Mercury	0.00737	J	0.00482	0.00963	0.00759	J	0.00493	0.00986	0.0127	--	0.00511	0.0102	0.0136	--	0.00514	0.0103	0.0148	--	0.00518	0.0104	0.0189	--	0.00780	0.0156	0.00526	J	0.00506	0.0101
Nickel	0.968	--	0.550	0.550	1.34	--	0.786	0.786	2.07	--	0.445	0.445	1.72	--	0.772	0.772	2.17	--	0.845	0.845	<0.526	A, U	0.526	0.526	<0.538	U, A	0.538	0.538
Selenium	<0.550	A, U	0.550	2.74	<0.786	A, U	0.786	3.92	0.847	J	0.445	2.22	<0.772	A, U	0.772	3.85	<0.845	A, U	0.845	4.21	<0.526	A, U	0.526	2.63	<0.538	A, U	0.538	2.68
Silver	<0.0137	A, U	0.0137	0.274	<0.0196	A, U	0.0196	0.392	<0.0111	A, U	0.0111	0.222	<0.0193	A, U	0.0193	0.385	<0.0211	A, U	0.0211	0.421	<0.0131	A, U	0.0131	0.263	<0.0134	A, U	0.0134	0.268
Thallium	0.0229	J	0.0137	0.274	<0.0196	A, U	0.0196	0.392	0.0346	J	0.0111	0.222	0.0343	J	0.0193	0.385	0.0347	J	0.0211	0.421	<0.0131	A, U	0.0131	0.263	<0.0134	A, U	0.0134	0.268
Zinc	5.43	V	0.550	1.10	4.87	V	0.786	1.57	7.27	--	0.445	0.887	8.24	--	0.772	1.54	6.46	--	0.845	1.68	<0.526	U	0.526	1.05	<0.538	U	0.538	1.07
Others																												
Ammonia (as nitrogen)	12.0	J	11.9	23.8	<11.8	U	11.8	23.5	<12.4	U	12.4	24.8	<11.8	U	11.8	23.6	<11.9	U	11.9	23.8	42.2	--	17.1	34.3	<12.6	U	12.6	25.2
Cyanide, Total	<0.0303	U	0.0303	0.0607	<0.0280	U	0.0280	0.0559	<0.0295	U	0.0295	0.0591	<0.0269	U	0.0269	0.0539	<0.0278	U	0.0278	0.0555	<0.0433	U	0.0433	0.0866	<0.0347	U	0.0347	0.0694
Petroleum Hydrocarbons, Total	<3.53	U	3.53	10.6	<3.55	U	3.55	10.7	<3.72	B, U	3.72	11.2	<3.55	B, U	3.55	10.7	<3.60	B, U	3.60	10.8	6.44	J	5.14	15.4	<3.74	U	3.74	11.2

Analyte	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL
Solids, Total	84.1	--	0.100	0.100	84.3	--	0.100	0.100	80.6	--	0.100	0.100	84.4	--	0.100	0.100	83.4	--	0.100	0.100	58.3	--	0.100	0.100	79.2	HR	0.100	0.100
Carbon, Total Organic	0.02	J	0.02	0.10	<0.02	U	0.02	0.10	<0.02	U	0.02	0.10	<0.02	U	0.02	0.10	<0.02	U	0.02	0.10	0.42	--	0.02	0.10	0.10	J	0.02	0.10

Analyte	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Monobutyltin	<1.1	U	1.1	2.000	0.43	JP	0.30	1.1	<0.35	U	0.35	1.3	<0.31	U	0.31	1.2	<0.32	U	0.32	1.2	<0.43	U	0.43	1.6	<0.34	U	0.34	1.3
Dibutyltin	<0.76	U	0.76	2.4	<0.22	U	0.22	1.1	<0.26	U	0.26	1.3	<0.23	U	0.23	1.2	<0.24	U	0.24	1.2	<0.31	U	0.31	1.6	<0.25	U	0.25	1.3
Tributyltin	<1.8	U	1.8	2.8	<0.50	U	0.50	1.1	<0.58	U	0.58	1.3	<0.51	U	0.51	1.2	<0.53	U	0.53	1.2	<0.70	U	0.70	1.6	<0.55	U	0.55	1.3

Analyte	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL
pH	8.34	H		0.100	8.17	H		0.100	8.45	H		0.100	8.63	H		0.100	8.59	H		0.100	8.58	H		0.100	8.43	H		0.100

Bolded values meet or exceed the TEL and (or) ERL. DMMUs CDP-07, CDP-08, CDP-09 did not have sub-samples collected for B stations.
< #.## = The analyte was not detected (ND) at or above the MDL. The value indicates the MDL.
Qualifiers: A = Detection limit elevated due to abundance of non-target analyte. B = Analyte was found in the associated method blank. H = The parameter was analyzed outside the method specified holding time. HR = The rerun parameter was analyzed outside the method specified holding time.
J = Estimated value - The reported value is between the detection limit and reporting limit. U = The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. V = Analyte was detected in both sample and method blank. * = The result is an outlier. See case narrative.

Sources: All results from NWDLS with the exception of the cyanide, and TOC results which came from ALS; TEL and ERL values from Buchman (2008).
Compiled by: ANAMAR Environmental Consulting, Inc.

TABLE 5
Analytical Results for Dry Weight Pesticides, and Total PCBs in Sediment Samples

		DMMU:		CDP-06													CDP-07							
		Sample ID:		6A				6A (Duplicate)				6B				6C				7A				7C			
Analyte	Maximum Conc. µg/kg	TEL µg/kg	ERL µg/kg	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Aldrin	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Chlordane (technical)	**<3.08**	2.26	0.5	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
α (cis)-Chlordane	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
γ (trans)-Chlordane	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
p,p' (4,4')-DDD	<3.08	1.22	2	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
p,p' (4,4')-DDE	<3.08	2.07	2.2	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
p,p' (4,4')-DDT	<3.08	1.19	1	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Dieldrin	**<3.08**	0.72	0.02	**<0.340**	H, U	0.340	1.13	**<0.332**	U	0.332	1.11	**<0.352**	U	0.352	1.17	**<0.332**	U	0.332	1.11	**<0.349**	U	0.349	1.16	**<0.329**	U	0.329	1.10
Endosulfan I	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Endosulfan II	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Endosulfan Sulfate	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Endrin	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Endrin Aldehyde	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Endrin Ketone	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Heptachlor	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Heptachlor Epoxide	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
α-BHC	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
β-BHC	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
δ-BHC	0.585	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
γ-BHC (Lindane)	**<3.08**	0.32	x	**<0.340**	H, U	0.340	1.13	**<0.332**	U	0.332	1.11	**<0.352**	U	0.352	1.17	**<0.332**	U	0.332	1.11	**<0.349**	U	0.349	1.16	**<0.329**	U	0.329	1.10
Methoxychlor	<3.08	x	x	<0.340	H, U	0.340	1.13	<0.332	U	0.332	1.11	<0.352	U	0.352	1.17	<0.332	U	0.332	1.11	<0.349	U	0.349	1.16	<0.329	U	0.329	1.10
Toxaphene	**<154**	0.1	x	**<17.0**	H, U	17.0	17.0	**<16.6**	U	16.6	16.6	**<17.6**	U	17.6	17.6	**<16.6**	U	16.6	16.6	**<17.4**	U	17.4	17.4	**<16.5**	U	16.5	16.5
PCBs, Total	<10.3	21.6	22.7	<1.12	U	1.12	2.24	<1.10	U	1.10	2.20	<1.20	U	1.20	2.40	<1.11	U	1.11	2.23	<1.16	U	1.16	2.33	<1.14	U	1.14	2.28

TABLE 5 (*continued*)
Analytical Results for Dry Weight Pesticides, and Total PCBs in Sediment Samples

DMMU:	CDP-08								CDP-09												Reference				ODMDS			
Sample ID:	8A				8C				9A				9C (Core 1)				9C (Core 2)				CDP-REF				CDP-ODMDS			
Analyte	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Aldrin	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Chlordane (technical)	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	**<0.506**	U	0.506	1.69	<0.369	U	0.369	1.23
α (cis)-Chlordane	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
γ (trans)-Chlordane	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
p,p' (4,4')-DDD	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
p,p' (4,4')-DDE	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
p,p' (4,4')-DDT	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Dieldrin	**<0.345**	U	0.345	1.15	**<0.336**	U	0.336	1.12	**<0.366**	U	0.366	1.22	**<0.340**	U	0.340	1.13	**<0.347**	U	0.347	1.16	**<0.506**	U	0.506	1.69	**<0.369**	U	0.369	1.23
Endosulfan I	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endosulfan II	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endosulfan Sulfate	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endrin	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endrin Aldehyde	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endrin Ketone	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Heptachlor	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Heptachlor Epoxide	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
α-BHC	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
β-BHC	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
δ-BHC	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	0.585	J	0.506	1.69	<0.369	U	0.369	1.23
γ-BHC (Lindane)	**<0.345**	U	0.345	1.15	**<0.336**	U	0.336	1.12	**<0.366**	U	0.366	1.22	**<0.340**	U	0.340	1.13	**<0.347**	U	0.347	1.16	**<0.506**	U	0.506	1.69	**<0.369**	U	0.369	1.23
Methoxychlor	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Toxaphene	**<17.2**	U	17.2	17.2	**<16.8**	U	16.8	16.8	**<18.3**	U	18.3	18.3	**<17.0**	U	17.0	17.0	**<17.4**	U	17.4	17.4	**<25.3**	U	25.3	25.3	**<18.5**	U	18.5	18.5
PCBs, Total	<1.19	U	1.19	2.38	<1.15	U	1.15	2.31	<1.23	U	1.23	2.46	<1.12	U	1.12	2.24	<1.18	U	1.18	2.36	<1.70	U	1.70	3.39	<1.24	U	1.24	2.47

Bolded values meet or exceed the TEL and (or) ERL.
< #.## = The analyte was not detected (ND) at or above the MDL. The value indicates the MDL. DMMUs CDP-07, CDP-08, CDP-09 did not have sub-samples collected for B stations.
Non-detect (ND) results use the MDL for calculating total pesticides and total PCBs. (J-qualified results use the value reported by the laboratory for calculating total pesticides and total PCBs).
Qualifiers: H = The parameter was analyzed outside the method specified holding time. J = Estimated value - The reported value is between the detection limit and reporting limit. U = Indicates that the compound was analyzed for but not detected.

Sources: Results from NWDLS; TEL and ERL values from Buchman (2008).
Compiled by: ANAMAR Environmental Consulting, Inc.

TABLE 6
Analytical Results for Dry Weight PAHs in Sediment Samples

Analyte	Maximum Conc. µg/kg	TEL µg/kg	ERL µg/kg	DMMU:	CDP-06												CDP-07							
				Sample ID:	6A				6A (Duplicate)				6B				6C				7A				7C			
					Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Acenaphthene[LPAH]	<2.08	6.71	16		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Acenaphthylene[LPAH]	<2.08	5.87	44		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Anthracene[LPAH]	<2.08	46.9	85.3		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Benzo(a)anthracene[HPAH]	2.92	74.8	261		2.92	--	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Benzo(a)pyrene[HPAH]	2.01	88.8	430		2.01	J	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Benzo(b&k)fluoranthene[HPAH]	3.77	x	x		3.77	--	1.35	2.70	1.99	J	1.42	2.84	1.62	J	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Benzo(g,h,i)perylene[HPAH]	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Chrysene[HPAH]	1.74	108	384		1.74	J	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Dibenzo(a,h)anthracene[HPAH]	<2.08	6.22	63.4		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Fluoranthene[HPAH]	4.82	113	600		4.82	--	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Fluorene[LPAH]	<2.08	21.2	19		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Indeno(1,2,3-cd)pyrene[HPAH]	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Naphthalene[LPAH]	<2.08	34.6	160		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Phenanthrene[LPAH]	2.49	86.7	240		2.15	J	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Pyrene[HPAH]	4.33	153	665		4.33	--	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Total LPAHs	78.0	312	552		8.90				8.52				8.82				8.10				8.82				8.46			
Total HPAHs	117	655	1700		23.6				13.4				13.4				12.2				13.2				12.7			
Total PAHs	195	1684	4022		32.5				21.9				22.2				20.3				22.1				21.2			

TABLE 6 (*continued*)
Analytical Results for Dry Weight PAHs in Sediment Samples

DMMU:	CDP-08								CDP-09												Reference				ODMDS			
Sample ID:	8A				8C				9A				9C (Core 1)				9C (Core 2)				CDP-REF				CDP-ODMDS			
Analyte	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Acenaphthene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Acenaphthylene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Anthracene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Benzo(a)anthracene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Benzo(a)pyrene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Benzo(b&k)fluoranthene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	3.69	J	2.08	4.16	<1.56	U	1.56	3.12
Benzo(g,h,i)perylene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Chrysene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Dibenzo(a,h)anthracene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Fluoranthene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Fluorene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Indeno(1,2,3-cd)pyrene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Naphthalene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Phenanthrene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	2.49	J	2.08	4.16	<1.56	U	1.56	3.12
Pyrene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Total LPAHs	8.64				8.28				9.00				8.46				8.58				12.9				9.36			
Total HPAHs	13.0				12.4				13.5				12.7				12.9				20.3				14.0			
Total PAHs	21.6				20.7				22.5				21.2				21.5				33.2				23.4			

LPAH = Low molecular weight PAH as defined in the *Regional Implementation Agreement* by USEPA/USACE (2003).

HPAH = High molecular weight PAH as defined in the *Regional Implementation Agreement* by USEPA/USACE (2003).

< #.## = The analyte was not detected (ND) at or above the MDL. The value indicates the MDL. DMMUs CDP-07, CDP-08, CDP-09 did not have sub-samples collected for B stations.

For calculating total PAHs, U-qualified results use the MDL and J-qualified results use the value reported by the laboratory.

Qualifiers: J = Estimated value - The reported value is between the detection limit and reporting limit. U = Indicates that the compound was analyzed for but not detected.

Sources: Results from NWDLS; TEL and ERL values from Buchman (2008).
Compiled by: ANAMAR Environmental Consulting, Inc.

TABLE 7
Analytical Results for Dry Weight SVOCs in Sediment Samples

Analyte	Maximum Conc. µg/kg	TEL µg/kg	ERL µg/kg	DMMU:	CDP-06												CDP-07							
				Sample ID:	6A				6A (Duplicate)				6B				6C				7A				7C			
					Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
1,2,4-Trichlorobenzene	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
1,2-Dichlorobenzene	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
1,2-Diphenylhydrazine	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
1,3-Dichlorobenzene	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
1,4-Dichlorobenzene	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
2,4,6-Trichlorophenol	<4.16	x	x		<2.70	U	2.70	5.41	<2.84	U	2.84	5.68	<2.94	U	2.94	5.87	<2.71	U	2.71	5.42	<2.94	U	2.94	5.88	<2.82	U	2.82	5.64
2,4-Dichlorophenol	<4.16	x	x		<2.70	U	2.70	5.41	<2.84	U	2.84	5.68	<2.94	U	2.94	5.87	<2.71	U	2.71	5.42	<2.94	U	2.94	5.88	<2.82	U	2.82	5.64
2,4-Dimethylphenol	<4.16	x	x		<2.70	U	2.70	5.41	<2.84	U	2.84	5.68	<2.94	U	2.94	5.87	<2.71	U	2.71	5.42	<2.94	U	2.94	5.88	<2.82	U	2.82	5.64
2,4-Dinitrophenol	<4.16	x	x		<2.70	U	2.70	5.41	<2.84	U	2.84	5.68	<2.94	U	2.94	5.87	<2.71	U	2.71	5.42	<2.94	U	2.94	5.88	<2.82	U	2.82	5.64
2,4-Dinitrotoluene (2,4-DNT)	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
2,6-Dinitrotoluene (2,6-DNT)	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
2-Chloronaphthalene	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
2-Chlorophenol	<4.16	x	x		<2.70	U	2.70	5.41	<2.84	U	2.84	5.68	<2.94	U	2.94	5.87	<2.71	U	2.71	5.42	<2.94	U	2.94	5.88	<2.82	U	2.82	5.64
2-Nitrophenol	<4.16	x	x		<2.70	U	2.70	5.41	<2.84	U	2.84	5.68	<2.94	U	2.94	5.87	<2.71	U	2.71	5.42	<2.94	U	2.94	5.88	<2.82	U	2.82	5.64
3,3'-Dichlorobenzidine	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
4,6-Dinitro-o-Cresol	<16.7	x	x		<10.8	U	10.8	21.6	<11.4	U	11.4	22.7	<11.7	U	11.7	23.5	<10.8	U	10.8	21.7	<11.8	U	11.8	23.5	<11.3	U	11.3	22.6
4-Bromophenyl phenyl ether (BDE-3)	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
4-Chlorophenyl phenyl ether	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
4-Nitrophenol	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Benzidine	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Bis(2-Chloroethoxy) methane	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Bis(2-Chloroethyl) ether	<2.08	x	x		<1.35	CQb, U	1.35	2.70	<1.42	CQb, U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	CQb, U	1.47	2.94	<1.41	CQb, U	1.41	2.82
Bis(2-chloroisopropyl) ether	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Bis(2-ethylhexyl) phthalate	19.8	182	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	5.60	--	1.47	2.94	2.20	J	1.35	2.71	<1.47	U	1.47	2.94	1.87	J	1.41	2.82
Butyl benzyl phthalate	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Diethyl phthalate	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Dimethyl phthalate	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Di-n-butyl phthalate	14.1	x	x		<1.35	B, U	1.35	2.70	<1.42	B, U	1.42	2.84	3.03	--	1.47	2.94	<1.35	U	1.35	2.71	<1.47	B, U	1.47	2.94	<1.41	B, U	1.41	2.82
Di-n-octyl phthalate	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Hexachlorobenzene	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Hexachlorobutadiene	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Hexachlorocyclopentadiene	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Hexachloroethane	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Isophorone	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
Nitrobenzene	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
N-Nitrosodimethylamine	<7.34	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<7.34	U	7.34	14.7	<6.77	U	6.77	13.5	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
N-Nitrosodi-n-propylamine	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
N-Nitrosodiphenylamine	<2.08	x	x		<1.35	U	1.35	2.70	<1.42	U	1.42	2.84	<1.47	U	1.47	2.94	<1.35	U	1.35	2.71	<1.47	U	1.47	2.94	<1.41	U	1.41	2.82
P-Chloro-m-Cresol	<4.16	x	x		<2.70	U	2.70	5.41	<2.84	U	2.84	5.68	<2.94	U	2.94	5.87	<2.71	U	2.71	5.42	<2.94	U	2.94	5.88	<2.82	U	2.82	5.64
Pentachlorophenol	<4.16	x	x		<2.70	U	2.70	5.41	<2.84	U	2.84	5.68	<2.94	U	2.94	5.87	<2.71	U	2.71	5.42	<2.94	U	2.94	5.88	<2.82	U	2.82	5.64
Phenol, Total	8.54	x	x		2.99	J	2.70	5.41	7.66	--	2.84	5.68	<2.94	U	2.94	5.87	<2.71	U	2.71	5.42	3.38	J	2.94	5.88	4.91	J	2.82	5.64

TABLE 7 (*continued*)
Analytical Results for Dry Weight SVOCs in Sediment Samples

DMMU:	CDP-08								CDP-09								Reference				ODMDS			
Sample ID:	8A				8C				9A				9C (Core 1)				9C (Core 2)				CDP-REF				CDP-ODMDS			
Analyte	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
1,2,4-Trichlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
1,2-Dichlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
1,2-Diphenylhydrazine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
1,3-Dichlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
1,4-Dichlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
2,4,6-Trichlorophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2,4-Dichlorophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2,4-Dimethylphenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2,4-Dinitrophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2,4-Dinitrotoluene (2,4-DNT)	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
2,6-Dinitrotoluene (2,6-DNT)	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
2-Chloronaphthalene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
2-Chlorophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2-Nitrophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
3,3'-Dichlorobenzidine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
4,6-Dinitro-o-Cresol	<11.5	U	11.5	23.1	<11.0	U	11.0	22.0	<12.0	U	12.0	24.1	<11.2	U	11.2	22.5	<11.5	U	11.5	22.9	<16.7	U	16.7	33.3	<12.5	U	12.5	25.0
4-Bromophenyl phenyl ether (BDE-3)	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
4-Chlorophenyl phenyl ether	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
4-Nitrophenol	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Benzidine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Bis(2-Chloroethoxy) methane	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Bis(2-Chloroethyl) ether	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	CQb, U	1.50	3.01	<1.41	CQb, U	1.41	2.81	<1.43	CQb, U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Bis(2-chloroisopropyl) ether	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Bis(2-ethylhexyl) phthalate	11.8	--	1.44	2.88	19.8	--	1.38	2.75	<1.50	U	1.50	3.01	3.46	--	1.41	2.81	<1.43	U	1.43	2.87	3.09	V, J	2.08	4.16	2.49	V, J	1.56	3.12
Butyl benzyl phthalate	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Diethyl phthalate	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Dimethyl phthalate	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Di-n-butyl phthalate	1.87	J	1.44	2.88	<1.38	U	1.38	2.75	<1.50	B, U	1.50	3.01	<1.41	B, U	1.41	2.81	<1.43	B, U	1.43	2.87	14.1	V	2.08	4.16	5.69	V	1.56	3.12
Di-n-octyl phthalate	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Hexachlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Hexachlorobutadiene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Hexachlorocyclopentadiene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Hexachloroethane	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Isophorone	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Nitrobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
N-Nitrosodimethylamine	<7.20	U	7.20	14.4	<6.88	U	6.88	13.8	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
N-Nitrosodi-n-propylamine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
N-Nitrosodiphenylamine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
P-Chloro-m-Cresol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
Pentachlorophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
Phenol, Total	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	8.54	--	2.87	5.74	8.12	J	4.16	8.33	3.20	J	3.12	6.24

< #.## = The analyte was not detected (ND) at or above the MDL. The value indicates the MDL. DMMUs CDP-07, CDP-08, CDP-09 did not have sub-samples collected for B stations.
Qualifiers: B = Analyte was found in the associated method blank. CQb = CCV out of control high, no hits in samples, data not affected. J = Estimated value - The reported value is between the detection limit and reporting limit.
U = Indicates that the compound was analyzed for but not detected. V = Analyte was detected in both sample and method blank.

Sources: Results from NWDLS; TEL and ERL values from Buchman (2008).
Compiled by: ANAMAR Environmental Consulting, Inc.

From: Hudson, Jayson M CIV USARMY CESWG (USA) <Jayson.M.Hudson@usace.army.mil>
Sent: Tuesday, June 21, 2022 7:20 AM
To: Garza, Sarah <Sarah@pocca.com>; Wood, Kristie A CIV USARMY CESWG (USA) <Kristie.A.Wood@usace.army.mil>; Pattillo, Mark E CIV USARMY CESWG (USA) <mark.e.pattillo@usace.army.mil>
Cc: Pawlak, Gregg A. <Gregg.Pawlak@terracon.com>; Rajulu, Prasad <Prasad.Rajulu@terracon.com>; McNeil, Harrison <hmcneil@pocca.com>; Barker, Tom <Tom.Barker@terracon.com>; Schulz, Robert <rschulz@pocca.com>; Hudson, Jayson M CIV USARMY CESWG (USA) <Jayson.M.Hudson@usace.army.mil>
Subject: RE: Proposals for Tissue Chemistry Analyses - Harbor Island and CDP Inner Harbor Borings

The Corps and EPA have reviewed the memos regarding tissue samples for Harbor Island and the inshore borings for the Channel Deepening project. We concur with one exception, TPH must be carried forward for tissue chemistry analysis in all samples.

Jayson M Hudson
Regulatory Project Manager
409.766.3108

From: Garza, Sarah <Sarah@pocca.com>
Sent: Thursday, June 9, 2022 2:56 PM
To: Hudson, Jayson M CIV USARMY CESWG (USA) <Jayson.M.Hudson@usace.army.mil>; Wood, Kristie A CIV USARMY CESWG (USA) <Kristie.A.Wood@usace.army.mil>; Pattillo, Mark E CIV USARMY CESWG (USA) <mark.e.pattillo@usace.army.mil>
Cc: Pawlak, Gregg A. <Gregg.Pawlak@terracon.com>; Rajulu, Prasad <Prasad.Rajulu@terracon.com>; McNeil, Harrison <hmcneil@pocca.com>; Barker, Tom <Tom.Barker@terracon.com>; Schulz, Robert <rschulz@pocca.com>
Subject: [URL Verdict: Neutral][Non-DoD Source] Fwd: Proposals for Tissue Chemistry Analyses - Harbor Island and CDP Inner Harbor Borings

Good afternoon, Jayson,

Please see attached memos regarding tissue samples for Harbor Island sediment sampling and the inshore borings for the Channel Deepening Project. I am providing for your review and approval.

Please let us know if you have questions or if you want to discuss further.

Thank you.

Sarah L. Garza
Port of Corpus Christi Authority
Director of Environmental
Planning & Compliance
(361) 885-6163 office
(361) 813-0068 cell

From: Pawlak, Gregg A. <Gregg.Pawlak@terracon.com>
Sent: Thursday, June 9, 2022 2:49:10 PM
To: Garza, Sarah <Sarah@pocca.com>
Cc: Rajulu, Prasad <Prasad.Rajulu@terracon.com>; McNeil, Harrison <hmcneil@pocca.com>; Schulz, Robert <rschulz@pocca.com>; Barker, Tom <Tom.Barker@terracon.com>
Subject: Proposals for Tissue Chemistry Analyses - Harbor Island and CDP Inner Harbor Borings

Sarah,

As we discussed, attached are the Tissue Recommendation Memos for both Harbor Island and the CDP Inner Harbor Borings. Upon PCCAs review, will you please forward the memos to the USACE and USEPA for their approval.

Gregg

Gregg Pawlak
Senior Scientist I Environmental Department

Terracon
11555 Clay Road I Houston, Texas 77043
P (713) 329-2537 (Direct) I P (713) 690-8989 (Main) I F (713) 690-8787 I M (281) 467-2158
gregg.pawlak@terracon.com I terracon.com

MEMORANDUM

TO: United States Army Corps of Engineers and United States Environmental Protection Agency

DATE: April 4, 2023

REF: Corpus Christi Channel Deepening Inner Harbor Project Tissue Chemistry Recommendations CDP-06 and CDP-07

Based on the analysis of sediment samples from the Corpus Christi Inner Harbor project area, the following recommendations for tissue chemistry analysis are proposed. As stated in Section 10.2.2 of the RIA,

Ordinarily, only those compounds detected in the sediment need be analyzed for in the tissue. In some cases, however, it may be desirable to analyze tissues for compounds not detected in the sediments. The target detection limits listed in Appendix B (Appendix C has the actual TDLs) will be used when conducting evaluations of tissues from bioaccumulation tests.

For this project, since the sediment chemistry was analyzed on the subsamples while the bioaccumulation was performed on the composites of the subsamples, the determination to run tissue chemistry is based on the detection of the contaminants in any of the subsamples.

Non-Metals
Sediment analysis for cyanide showed no results with concentrations greater than the method reporting limit (MRL) in subsamples from CDP-06 or CDP-07. Analysis of tissue samples for cyanide is **not recommended**.

Total Petroleum Hydrocarbons (TPH)
In accordance with EPA approval email June 21, 2022, TPH analysis is required on all CDP tissue samples. Therefore, analysis of tissue samples is **recommended** for TPH.

Trace Metals
All sediment subsamples contained detectable levels of the trace metals analyzed. Although several metals were reported below the reporting limit, the analytical method used for testing will provide results for all metals. Analysis of all tissue samples for all metals is **recommended**.

Hexavalent Chromium
Sediment subsamples for hexavalent chromium showed no results with concentrations greater than the MRL in samples from CDP-06 or CDP-07. Analysis of tissue samples for hexavalent chromium is **not recommended.**

Organotins
Sediment analysis for organotins showed no results with concentrations greater than the MRL in subsamples from CDP-06 and CDP-07 with the exception of monobutyltin in CDP-07-7A. Analysis of tissue samples for monobutyltin only in CDP-07 **is recommended**. Analysis of tissue samples for organotins in CDP-06 is **not recommended.**

Pesticides
Sediment analysis for pesticides showed no results with concentrations greater than the MRL in subsamples from CDP-06 or CDP-07. Analysis of tissue samples for pesticides is **not recommended.**

PCBs
PCB Aroclors were analyzed for total PCB content using Aroclors. The total PCBs in all subsamples are reported as non-detects (U-qualified). All project sediment samples were reported with an MDL greater than the target detection limit in the SAP, but this was due to low total solids content in the sediment. Analysis of tissue samples for PCBs is **not recommended.**

PAHs
Sediment analysis for PAHs showed no results with concentrations greater than the MRL in subsamples from CDP-06 or CDP-07. Analysis of tissue samples for PAHs is **not recommended**.

Semi-Volatile Organic Compounds (SVOCs)
DMMU CDP-06 had one subsample with a detectable concentration greater than the MRL for total phenol. DMMU CDP-07 had at least one subsample with detectable concentrations greater than the MRL for the following SVOC compounds: bis (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, and total phenol. Analysis of tissues samples for total phenol detected in CDP-06 is **recommended**. Analysis of tissues samples for the four SVOC compounds detected in CDP-07 is **recommended**. Tissue analysis for the remaining compounds is **not recommended**.

In addition, the reference and pre-exposure tissue samples will be run for background levels for all recommended analyses shown above. The table on the following page summarizes the tissue recommendations based on sample and analysis. Upon completion, the tissue samples will be compared to the reference tissue samples to determine statistical differences and the risk assessment as part of the final report.

Summary of PCCA CDP Inner Harbor Tissue Recommendations

Analyte	CDP-06	CDP-07	REF and Pre-exposure
Total cyanide	No	No	No
TPH	**Yes**	**Yes**	**Yes**
Metals	**Yes**	**Yes**	**Yes**
Hexavalent chromium	No	No	No
Organotins	No	**Yes (Monobutyltin only)**	**Yes**
Pesticides	No	No	No
PCBs	No	No	No
PAHs	No	No	No
SVOCs (bis (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, and total phenol)	**Yes (Total Phenol only)**	**Yes (All Listed)**	**Yes (All Listed)**
All other SVOC compounds	No	No	No

Bold = Yes -Tissue Analysis is Recommended

TABLE 3
Results of Physical Analyses for Sediment Samples

DMMU Location:*		CDP-06 Stations 32+90 (Harbor Island Junction, channel deepening)			CDP-07 Stations 54+00 (Corpus Christi Channel, channel deepening)			CDP-REF (Reference Area)	CDP-ODMDS (Placement Area [New Work ODMDS])
Sample ID:		**6A**	**6B**	**6C**	**7A**	**CDP-DUP**	**7C**	**CDP-REF (Composite) January 2023**	**CDP-ODMDS (Composite) January 2023**
Sediment Description		Clay, lean, some silt, few fine-grained sand-sized quartz, tan	Silt, little fine-grained sand-sized quartz, little clay, tan	Silt, some fine-grained sand-sized quartz, trace clay, tan	Sand, silty, mostly fine-grained sand-sized quartz, some silt, little clay, tan	Sand, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, tan	Silt, little fine-grained sand-sized quartz, few clay, tan	Sand, silty, mostly fine-grained sand-sized quartz, some silt, trace clay, tan	Sand, silty, mostly fine-grained sand-sized quartz, little silt, tan
% Gravel (Particles ≥4.750 mm)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Coarse Sand		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
% Medium Sand		0.1	0.1	0.5	0.4	0.0	0.2	0.1	2.3
% Fine Sand		6.2	26.7	41.2	50.8	56.3	18.4	59.7	73.0
% Sand (total) (Particles 0.075-4.749 mm)		6.3	26.8	41.7	51.2	56.3	18.6	59.8	76.3
% Silt (Particles 0.005-0.074 mm)		43.5	48.7	56.2	33.6	42.2	72.0	39.1	23.3
% Clay (Particles <0.005 mm)		50.2	24.5	2.1	15.2	1.5	9.4	1.1	0.4
% Silt & Clay (combined)		93.7	73.2	58.3	48.8	43.7	81.4	40.2	23.7
USCS Classification		CL	ML	ML	SM	SM	ML	SM	SM
% Passing Sieve Size	**Metric Equivalent (mm)**								
#4	**4.75**	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
#10	**2.00**	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.0
#20	**0.85**	99.9	100.0	99.9	99.8	100.0	99.9	100.0	97.6
#40	**0.425**	99.9	99.9	99.5	99.6	100.0	99.8	99.9	96.7
#50	**0.297**	99.9	99.9	99.3	99.5	100.0	99.7	99.9	96.0
#70	**0.210**	99.8	99.6	97.9	99.2	99.8	99.4	99.8	90.9
#100	**0.149**	99.2	95.1	85.2	91.2	98.2	97.0	98.9	68.7
#140	**0.105**	97.2	83.9	68.5	63.8	83.9	89.8	89.9	42.9
#200	**0.075**	93.7	73.2	58.3	48.8	43.7	81.4	40.2	23.7
Hydrometer Readings (% less than the following sizes)		74.3 @ 0.0409 mm.	51.2 @ 0.0447 mm.	35.9 @ 0.0472 mm.	31.4 @ 0.0479 mm.	18.1 @ 0.0499 mm.	52.5 @ 0.0450 mm.	15.4 @ 0.0496 mm.	6.6 @ 0.0510 mm.
		71.2 @ 0.0293 mm.	46.6 @ 0.0321 mm.	30.1 @ 0.0340 mm.	27.2 @ 0.0343 mm.	13.3 @ 0.0357 mm.	44.9 @ 0.0326 mm.	11.8 @ 0.0355 mm.	2.4 @ 0.0367 mm.
		69.7 @ 0.0209 mm.	43.0 @ 0.0230 mm.	26.5 @ 0.0243 mm.	24.6 @ 0.0245 mm.	11.2 @ 0.0254 mm.	40.0 @ 0.0234 mm.	9.1 @ 0.0254 mm.	0.3 @ 0.0261 mm.
		63.0 @ 0.0111 mm.	38.4 @ 0.0121 mm.	21.8 @ 0.0127 mm.	23.1 @ 0.0127 mm.	5.8 @ 0.0133 mm.	30.8 @ 0.0124 mm.	6.7 @ 0.0132 mm.	0.3 @ 0.0135 mm.
		61.0 @ 0.0079 mm.	34.8 @ 0.0086 mm.	19.7 @ 0.0091 mm.	21.1 @ 0.0090 mm.	2.1 @ 0.0095 mm.	28.7 @ 0.0088 mm.	3.9 @ 0.0094 mm.	0.3 @ 0.0095 mm.
		59.0 @ 0.0056 mm.	33.3 @ 0.0061 mm.	3.6 @ 0.0067 mm.	19.1 @ 0.0064 mm.	1.6 @ 0.0067 mm.	17.9 @ 0.0064 mm.	2.0 @ 0.0067 mm.	0.4 @ 0.0067 mm.
		2.7 @ 0.0033 mm.	0.7 @ 0.0033 mm.	0.7 @ 0.0033 mm.	6.9 @ 0.0033 mm.	1.3 @ 0.0033 mm.	0.7 @ 0.0033 mm.	0.5 @ 0.0033 mm.	0.5 @ 0.0033 mm.
		0.5 @ 0.0014 mm.	0.5 @ 0.0014 mm.	0.5 @ 0.0014 mm.	0.5 @ 0.0014 mm.	0.5 @ 0.0014 mm.	0.6 @ 0.0014 mm.	0.4 @ 0.0014 mm.	0.4 @ 0.0014 mm.

TABLE 3 (*continued*)
Results of Physical Analyses for Sediment Samples

DMMU Location*:		CDP-08 Stations 74+00 (Corpus Christi Channel, channel deepening)		CDP-09 Stations 96+00 (Corpus Christi Channel, channel deepening)			CDP-REF (Reference Area) Inshore Event	CDP-ODMDS (Placement Area [New Work ODMDS])
Sample ID:		**8A**	**8C**	**9A**	**9C**	**9C Duplicate**	**CDP-REF (Composite) March 2022**	**CDP-ODMDS (Composite) March 2022**
Sediment Description		Silt, some fine-grained quartz sand, some clay, tan	Fat clay, little fine-grained quartz sand, little silt, tan	Lean clay, some fine-grained quartz sand, little silt, tan	Clayey sand, mostly fine-grained quartz sand, little clay, little silt, tan	Silty sand, mostly fine-grained quartz sand, little silt, little clay, tan	Silty sand, mostly fine-grained quartz sand, some silt, little clay, light brown	Sand, poorly graded, mostly fine-grained quartz sand, trace clay, trace fine gravel-size shell fragments, brown
% Gravel (Particles ≥4.750 mm)		0.0	0.0	0.0	0.0	0.0	0.0	2.4
% Coarse Sand		0.3	0.3	0.0	0.0	0.0	0.0	4.7
% Medium Sand		1.2	2.8	0.1	0.0	0.1	0.2	5.9
% Fine Sand		28.6	22.3	41.6	61.3	63.6	49.9	79.7
% Sand (total) (Particles 0.075-4.749 mm)		30.1	25.4	41.7	61.3	63.7	50.1	90.3
% Silt (Particles 0.005-0.074 mm)		40.1	21.1	22.4	15.4	18.2	30.8	1.4
% Clay (Particles <0.005 mm)		29.8	53.5	35.9	23.3	18.1	19.1	5.9
% Silt & Clay (combined)		69.9	74.6	58.3	38.7	36.3	49.9	7.3
USCS Classification		ML	CH	CL	SC	SM	SM	SP
% Passing Sieve Size	**Metric Equivalent (mm)**							
#4	**4.75**	100.0	100.0	100.0	100.0	100.0	100.0	97.6
#10	**2.00**	99.7	99.7	100.0	100.0	100.0	100.0	92.9
#20	**0.85**	99.1	98.3	99.9	100.0	100.0	99.9	88.5
#40	**0.425**	98.5	96.9	99.9	100.0	99.9	99.8	87.0
#50	**0.297**	98.2	96.2	99.8	100.0	99.9	99.7	85.7
#70	**0.210**	97.7	95.5	99.0	99.6	99.6	99.6	74.8
#100	**0.149**	94.1	91.8	86.1	88.6	86.9	99.0	44.2
#140	**0.105**	82.8	83.0	68.6	60.7	57.1	92.8	18.2
#200	**0.075**	69.9	74.6	58.3	38.7	36.3	49.9	7.3
Hydrometer Readings (% less than the following sizes)		50.2 @ 0.0406 mm	60.7 @ 0.0380 mm	45.6 @ 0.0423 mm	33.6 @ 0.0445 mm	27.1 @ 0.0468 mm	33.9 @ 0.0444 mm	7.1 @ 0.0490 mm
		43.8 @ 0.0298 mm	58.6 @ 0.0273 mm	44.1 @ 0.0301 mm	30.0 @ 0.0320 mm	23.0 @ 0.0336 mm	29.5 @ 0.0321 mm	6.9 @ 0.0347 mm
		38.8 @ 0.0217 mm	57.1 @ 0.0195 mm	42.5 @ 0.0215 mm	27.8 @ 0.0229 mm	20.6 @ 0.0240 mm	26.6 @ 0.0230 mm	6.7 @ 0.0246 mm
		33.1 @ 0.0115 mm	54.3 @ 0.0102 mm	40.2 @ 0.0112 mm	24.9 @ 0.0120 mm	19.0 @ 0.0125 mm	23.3 @ 0.0121 mm	6.7 @ 0.0127 mm
		31.7 @ 0.0082 mm	53.9 @ 0.0073 mm	37.8 @ 0.0080 mm	23.4 @ 0.0085 mm	18.2 @ 0.0088 mm	21.9 @ 0.0086 mm	6.7 @ 0.0090 mm
		30.3 @ 0.0058 mm	53.5 @ 0.0052 mm	36.3 @ 0.0057 mm	23.4 @ 0.0060 mm	18.2 @ 0.0063 mm	20.0 @ 0.0061 mm	6.0 @ 0.0064 mm
		28.8 @ 0.0029 mm	53.4 @ 0.0026 mm	34.3 @ 0.0029 mm	22.6 @ 0.0030 mm	17.8 @ 0.0031 mm	17.4 @ 0.0031 mm	5.7 @ 0.0032 mm
		22.9 @ 0.0012 mm	53.4 @ 0.0011 mm	25.8 @ 0.0012 mm	20.3 @ 0.0013 mm	15.7 @ 0.0013 mm	13.2 @ 0.0013 mm	5.6 @ 0.0013 mm

*DMMU and sample locations are in State Plane NAD 83. Note: DMMUs CDP-07, CDP-08 did not have sub-samples collected for B stations.
Note: Total distribution does not necessarily add up to 100% for each sample due to rounding. Some sieve openings differ slightly from phi mm scale.
Unified Soil Classification System (USCS) classes:
CH = Clay of high plasticity, elastic silt. CL = Clay. SC = Clayey sand. SM = Silty sand. SP = Poorly graded sand. ML = Silt of low plasticity.

Source: Results from Taylor Engineering, Inc.
Compiled by: ANAMAR Environmental Consulting, Inc.

TABLE 4
Analytical Results for Dry Weight Metals, Ammonia, Total Cyanide, TPHs, Total Solids, TOCs, Organotins, and pH in Sediment Samples

			DMMU:	CDP-06											CDP-07										Reference				ODMDS			
			Sample ID:	6A				6B				6C				7A				7C (Duplicate)				7C				CDP-REF (January 2023)				CDP-ODMDS (January 2023)			
Analyte	Maximum Conc. mg/kg	TEL mg/kg	ERL mg/kg	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL
Metals																																			
Antimony	<0.421	x	x	<0.124	U	0.124	0.249	<0.0243	U	0.0243	0.0486	<0.0256	U	0.0256	0.0513	<0.0245	U	0.0245	0.0491	<0.0253	U	0.0253	0.0508	<0.0259	U	0.0259	0.0520	<0.0297	U	0.0297	0.0596	<0.0270	U	0.0270	0.0542
Arsenic	3.99	7.24	8.2	3.99	--	0.00248	0.0248	1.08	--	0.0121	0.121	3.11	--	0.0128	0.128	0.462	--	0.00245	0.0245	0.371	--	0.00253	0.0253	1.87	--	0.00259	0.0259	1.71	--	0.00297	0.0297	1.39	--	0.0135	0.135
Beryllium	0.705	x	x	0.705	--	0.00249	0.0496	0.447	--	0.00243	0.0485	0.587	--	0.00256	0.0511	0.280	--	0.000491	0.00980	0.331	--	0.000508	0.0101	0.465	--	0.000520	0.0104	0.176	--	0.00298	0.0594	0.0655	--	0.00271	0.0541
Cadmium	0.137	0.676	1.2	0.137	J	0.0124	0.249	0.00849	J	0.00243	0.0486	0.0147	J	0.00256	0.0513	0.00525	J	0.00245	0.0491	0.0161	J	0.00253	0.0508	0.0199	J	0.00259	0.0520	0.0152	J	0.00297	0.0596	0.00909	J	0.00270	0.0542
Chromium	7.11	52.3	81	7.11	--	0.00745	0.149	4.25	--	0.00728	0.146	5.70	--	0.00767	0.153	5.04	V	0.00736	0.147	4.31	V	0.00761	0.152	5.00	V	0.00778	0.156	2.91	--	0.00893	0.179	1.27	--	0.00812	0.162
Chromium (III)	6.60	x	x	6.60	--	0.131	5.15	3.63	J	0.127	5.15	5.26	--	0.130	5.15	4.68	J	0.121	5.15	4.14	J	0.127	5.15	4.76	J	0.128	5.16	2.32	J	0.153	5.18	1.13	J	0.137	5.16
Chromium (VI)	0.616	x	x	0.508	J	0.124	5.00	0.616	J	0.119	5.00	0.439	J	0.123	5.00	0.356	J	0.114	5.00	0.165	J	0.119	5.00	0.241	J	0.120	5.00	0.587	J	0.144	5.00	0.144	J	0.129	5.00
Copper	17.5	18.7	34	15.4	V	0.0496	0.249	5.09	V	0.00970	0.0486	4.69	V	0.0102	0.0513	5.41	V	0.00980	0.0491	17.5	V	0.0507	0.254	7.21	V	0.0104	0.0520	1.68	V	0.0119	0.0596	0.435	V	0.0108	0.0542
Lead	10.8	30.24	46.7	10.8	--	0.0124	0.124	3.63	--	0.00243	0.0243	7.55	--	0.0128	0.128	3.74	--	0.00245	0.0245	9.18	--	0.0127	0.127	7.37	--	0.0130	0.130	2.730	--	0.00297	0.0297	1.700	--	0.00270	0.0270
Mercury	0.0263	0.13	0.15	0.0263	--	0.00986	0.0197	0.0135	J	0.00992	0.0198	<0.00994	U	0.00994	0.0199	<0.00996	U	0.00996	0.0199	0.0118	J	0.00990	0.0198	0.0199	--	0.00990	0.0198	0.0121	J	0.00991	0.0198	<0.00999	U	0.00999	0.0200
Nickel	10.0	15.9	20.9	8.74	--	0.0497	0.0497	4.55	--	0.0486	0.0486	10.0	--	0.0513	0.0513	3.22	--	0.0491	0.0491	3.72	--	0.0508	0.0508	8.30	--	0.0520	0.0520	3.03	--	0.0596	0.0596	1.17	--	0.0542	0.0542
Selenium	1.51	x	x	1.50	--	0.0497	0.0992	1.29	--	0.0486	0.0970	1.16	--	0.0513	0.102	0.778	--	0.0491	0.0980	0.860	--	0.0508	0.101	1.51	--	0.0520	0.104	0.458	--	0.0596	0.119	0.363	--	0.0542	0.108
Silver	0.0174	0.73	1	0.0124	J	0.00124	0.0248	0.00262	J	0.00121	0.0243	0.00384	J	0.00128	0.0256	0.00589	J	0.00123	0.0245	0.0174	J	0.00127	0.0253	0.00571	J	0.00130	0.0259	0.00851	J	0.00149	0.0297	0.004	J	0.00135	0.0270
Thallium	0.0906	x	x	0.0906	--	0.00124	0.0248	0.0643	--	0.00121	0.0243	0.0643	--	0.00128	0.0256	0.0464	--	0.00123	0.0245	0.0575	--	0.00127	0.0253	0.0744	--	0.00130	0.0259	0.0295	J	0.00149	0.0297	0.022	J	0.00135	0.0270
Zinc	24.9	124	150	24.9	--	0.249	0.496	12.7	--	0.0486	0.0970	17.9	--	0.0513	0.102	9.43	--	0.0491	0.0980	12.3	--	0.0508	0.101	18.0	--	0.0520	0.104	11.3	--	0.0596	0.119	5.47	--	0.0542	0.108
Others																																			
Ammonia (as nitrogen)	42.2	x	x	<6.21	U	6.21	12.4	<5.99	U	5.99	12.0	<6.11	U	6.11	12.2	<5.89	U	5.89	11.8	<6.11	U	6.11	12.2	8.03	J	6.24	12.5	13.4	J	7.23	14.5	<6.60	U	6.60	13.2
Cyanide, Total	<0.0433	x	x	<0.0312	U	0.0312	0.0623	<0.0300	U	0.0300	0.0600	<0.0309	U	0.0309	0.0617	<0.0290	U	0.0290	0.0580	<0.0295	U	0.0295	0.0590	<0.0307	U	0.0307	0.0613	<0.0362	U	0.0362	0.0724	<0.0331	U	0.0331	0.0662
Petroleum Hydrocarbons, Total	71.8	x	x	<6.20	U	6.20	25	<6.20	U	6.20	25	<6.20	U	6.20	25	67.4	--	6.20	25	66.2	--	6.20	25	71.8	--	6.20	25	<6.20	U	6.20	25	<1.86	U	1.86	25
Analyte	Maximum Conc. %	TEL %	ERL %	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL	Result %	Qualifier	MDL	LRL
Solids, Total	84.5	x	x	80.2	V	0.100	0.100	83.3	V	0.100	0.100	81.0	V	0.100	0.100	84.5	V	0.100	0.100	81.5	V	0.100	0.100	79.9	V	0.100	0.100	69.0	H, V	0.100	0.100	75.6	H, V	0.100	0.100
Carbon, Total Organic		x	x																																
Analyte	Maximum Conc. µg/kg	TEL µg/kg	ERL µg/kg	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Monobutyltin	1.5	x	x	0.37	J, P*	0.32	1.2	<0.30	U	0.30	1.2	<0.32	U	0.32	1.2	1.5	--	0.31	1.2	0.47	J	0.32	1.2	<0.33	U	0.33	1.3	<0.40	U	0.40	1.5	<0.34	U	0.34	1.3
Dibutyltin	0.75	x	x	<0.24	U*	0.24	1.2	<0.22	U	0.22	1.2	<0.23	U	0.23	1.2	0.75	J	0.22	1.2	<0.24	U	0.24	1.2	<0.24	U	0.24	1.3	<0.29	U	0.29	1.5	<0.25	U	0.25	1.3
Tributyltin	0.78	x	x	0.78	J, P*	0.53	1.2	<0.50	U	0.50	1.2	<0.52	U	0.52	1.2	<0.50	U	0.50	1.2	<0.53	U	0.53	1.2	<0.54	U	0.54	1.3	<0.66	U	0.66	1.5	<0.56	U	0.56	1.3
Analyte	pH units Range	TEL pH units	ERL pH units	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL	Result pH units	Qualifier	MDL	LRL
pH	7.91-8.90	x	x	8.61	H		0.100	8.90	H		0.100	8.60	H		0.100	8.12	H		0.100	8.22	H		0.100	7.91	H		0.100	8.53	H		0.100	8.41	H		0.100

TABLE 4 (*continued*)
Analytical Results for Dry Weight Metals, Ammonia, Total Cyanide, TPHs, Total Solids, Lipids, TOCs, Organotins, and pH in Sediment Samples

DMMU:	CDP-08								CDP-09												Reference				ODMDS			
Sample ID:	8A				8C				9A				9C (Core 1)				9C (Core 2)				CDP-REF (March 2022)				CDP-ODMDS (March 2022)			
Analyte	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL	Result mg/kg	Qualifier	MDL	LRL
Metals																												
Antimony	<0.274	A, U	0.274	0.550	<0.392	A, U	0.392	0.786	<0.222	A, U	0.222	0.445	<0.385	A, U	0.385	0.772	<0.421	A, U	0.421	0.845	<0.263	A, U	0.263	0.526	<0.268	A, U	0.268	0.538
Arsenic	0.396	--	0.0274	0.274	2.68	--	0.0392	0.392	0.986	--	0.0222	0.222	0.439	--	0.0385	0.385	0.942	--	0.0421	0.421	<0.0263	A, U	0.0263	0.263	<0.0268	A, U	0.0268	0.268
Beryllium	0.0688	J	0.00550	0.110	0.0414	J	0.00786	0.157	0.111	--	0.00445	0.0887	0.137	J	0.00772	0.154	0.168	--	0.00845	0.168	<0.00526	A, U	0.00526	0.105	<0.00538	A, U	0.00538	0.107
Cadmium	<0.0274	A, U	0.0274	0.550	<0.0392	A, U	0.0392	0.786	0.0460	J	0.0222	0.445	<0.0385	A, U	0.0385	0.772	<0.0421	A, U	0.0421	0.845	<0.0263	A, U	0.0263	0.526	<0.0268	A, U	0.0268	0.538
Chromium	1.94	--	0.0823	1.65	3.76	--	0.118	2.35	2.46	V	0.0666	1.33	2.50	V	0.116	2.31	2.28	V, J	0.126	2.53	<0.0788	A, B, U	0.0788	1.58	<0.0805	A, B, U	0.0805	1.61
Chromium (III)	<2.05	U	2.05	7.21	3.76	J	2.30	8.53	2.46	J	2.15	7.21	2.50	J	2.44	8.86	2.28	J	2.20	8.38	<3.28	U	3.28	10.6	<2.22	U	2.22	7.66
Chromium (VI)	<1.97	U	1.97	5.57	<2.19	U	2.19	6.18	<2.08	U	2.08	5.88	<2.32	U	2.32	6.55	<2.07	U	2.07	5.85	<3.20	U	3.20	9.04	<2.14	U	2.14	6.05
Copper	1.42	V	0.110	0.550	0.979	V	0.157	0.786	1.65	--	0.0887	0.445	3.57	--	0.154	0.772	1.25	--	0.168	0.845	<0.105	A, U	0.105	0.526	<0.107	A, U	0.107	0.538
Lead	1.91	--	0.0274	0.274	2.61	--	0.0392	0.392	2.43	--	0.0222	0.222	3.60	--	0.0385	0.385	2.89	--	0.0421	0.421	<0.0263	A, U	0.0263	0.263	<0.0268	A, U	0.0268	0.268
Mercury	0.00737	J	0.00482	0.00963	0.00759	J	0.00493	0.00986	0.0127	--	0.00511	0.0102	0.0136	--	0.00514	0.0103	0.0148	--	0.00518	0.0104	0.0189	--	0.00780	0.0156	0.00526	J	0.00506	0.0101
Nickel	0.968	--	0.550	0.550	1.34	--	0.786	0.786	2.07	--	0.445	0.445	1.72	--	0.772	0.772	2.17	--	0.845	0.845	<0.526	A, U	0.526	0.526	<0.538	A, U	0.538	0.538
Selenium	<0.550	A, U	0.550	2.74	<0.786	A, U	0.786	3.92	0.847	J	0.445	2.22	<0.772	A, U	0.772	3.85	<0.845	A, U	0.845	4.21	<0.526	A, U	0.526	2.63	<0.538	A, U	0.538	2.68
Silver	<0.0137	A, U	0.0137	0.274	<0.0196	A, U	0.0196	0.392	<0.0111	A, U	0.0111	0.222	<0.0193	A, U	0.0193	0.385	<0.0211	A, U	0.0211	0.421	<0.0131	A, U	0.0131	0.263	<0.0134	A, U	0.0134	0.268
Thallium	0.0229	J	0.0137	0.274	<0.0196	A, U	0.0196	0.392	0.0346	J	0.0111	0.222	0.0343	J	0.0193	0.385	0.0347	J	0.0211	0.421	<0.0131	A, U	0.0131	0.263	<0.0134	A, U	0.0134	0.268
Zinc	5.43	V	0.550	1.10	4.87	V	0.786	1.57	7.27	--	0.445	0.887	8.24	--	0.772	1.54	6.46	--	0.845	1.68	<0.526	U	0.526	1.05	<0.538	U	0.538	1.07
Others																												
Ammonia (as nitrogen)	12.0	J	11.9	23.8	<11.8	U	11.8	23.5	<12.4	U	12.4	24.8	<11.8	U	11.8	23.6	<11.9	U	11.9	23.8	42.2	--	17.1	34.3	<12.6	U	12.6	25.2
Cyanide, Total	<0.0303	U	0.0303	0.0607	<0.0280	U	0.0280	0.0559	<0.0295	U	0.0295	0.0591	<0.0269	U	0.0269	0.0539	<0.0278	U	0.0278	0.0555	<0.0433	U	0.0433	0.0866	<0.0347	U	0.0347	0.0694
Petroleum Hydrocarbons, Total	<3.53	U	3.53	10.6	<3.55	U	3.55	10.7	<3.72	B, U	3.72	11.2	<3.55	B, U	3.55	10.7	<3.60	B, U	3.60	10.8	6.44	J	5.14	15.4	<3.74	U	3.74	11.2
Analyte	**Result %**	**Qualifier**	**MDL**	**LRL**	**Result %**	**Qualifier**	**MDL**	**LRL**	**Result %**	**Qualifier**	**MDL**	**LRL**	**Result %**	**Qualifier**	**MDL**	**LRL**	**Result %**	**Qualifier**	**MDL**	**LRL**	**Result %**	**Qualifier**	**MDL**	**LRL**	**Result %**	**Qualifier**	**MDL**	**LRL**
Solids, Total	84.1	--	0.100	0.100	84.3	--	0.100	0.100	80.6	--	0.100	0.100	84.4	--	0.100	0.100	83.4	--	0.100	0.100	58.3	--	0.100	0.100	79.2	HR	0.100	0.100
Carbon, Total Organic	0.02	J	0.02	0.10	<0.02	U	0.02	0.10	<0.02	U	0.02	0.10	<0.02	U	0.02	0.10	<0.02	U	0.02	0.10	0.42	--	0.02	0.10	0.10	J	0.02	0.10
Analyte	**Result µg/kg**	**Qualifier**	**MDL**	**LRL**	**Result µg/kg**	**Qualifier**	**MDL**	**LRL**	**Result µg/kg**	**Qualifier**	**MDL**	**LRL**	**Result µg/kg**	**Qualifier**	**MDL**	**LRL**	**Result µg/kg**	**Qualifier**	**MDL**	**LRL**	**Result µg/kg**	**Qualifier**	**MDL**	**LRL**	**Result µg/kg**	**Qualifier**	**MDL**	**LRL**
Monobutyltin	<1.1	U	1.1	2.0	0.43	J, P	0.30	1.1	<0.35	U	0.35	1.3	<0.31	U	0.31	1.2	<0.32	U	0.32	1.2	<0.43	U	0.43	1.6	<0.34	U	0.34	1.3
Dibutyltin	<0.76	U	0.76	2.4	<0.22	U	0.22	1.1	<0.26	U	0.26	1.3	<0.23	U	0.23	1.2	<0.24	U	0.24	1.2	<0.31	U	0.31	1.6	<0.25	U	0.25	1.3
Tributyltin	<1.8	U	1.8	2.8	<0.50	U	0.50	1.1	<0.58	U	0.58	1.3	<0.51	U	0.51	1.2	<0.53	U	0.53	1.2	<0.70	U	0.70	1.6	<0.55	U	0.55	1.3
Analyte	**Result pH units**	**Qualifier**	**MDL**	**LRL**	**Result pH units**	**Qualifier**	**MDL**	**LRL**	**Result pH units**	**Qualifier**	**MDL**	**LRL**	**Result pH units**	**Qualifier**	**MDL**	**LRL**	**Result pH units**	**Qualifier**	**MDL**	**LRL**	**Result pH units**	**Qualifier**	**MDL**	**LRL**	**Result pH units**	**Qualifier**	**MDL**	**LRL**
pH	8.34	H		0.100	8.17	H		0.100	8.45	H		0.100	8.63	H		0.100	8.59	H		0.100	8.58	H		0.100	8.43	H		0.100

Bolded values meet or exceed the TEL and (or) ERL. DMMUs CDP-07, CDP-08, CDP-09 did not have sub-samples collected for B stations.
< #.## = The analyte was not detected (ND) at or above the MDL. The value indicates the MDL.
Qualifiers: A = Detection limit elevated due to abundance of non-target analyte. B = Analyte was found in the associated method blank. H = The parameter was analyzed outside the method specified holding time. HR = The rerun parameter was analyzed outside the method specified holding time.
J = Estimated value - The reported value is between the detection limit and reporting limit. P = The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. U = The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. V = Analyte was detected in both sample and method blank. * = The result is an outlier. See case narrative.
Sources: All results from NWDLS with the exception of the cyanide, and TOC results which came from ALS; TEL and ERL values from Buchman (2008).
Compiled by: ANAMAR Environmental Consulting, Inc.

TABLE 5
Analytical Results for Dry Weight Pesticides, and Total PCBs in Sediment Samples

				DMMU:	CDP-06												CDP-07												Reference				ODMDS			
				Sample ID:	6A				6B				6C				7A				7C				7C (Duplicate)				CDP-REF (January 2023)				CDP-ODMDS (January 2023)			
Analyte	Maximum Conc. µg/kg	TEL µg/kg	ERL µg/kg		Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Aldrin	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Chlordane (technical)	**<0.724**	2.26	0.5		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	**<0.695**	U	0.695	2.32	**<0.724**	U	0.724	2.41	**<0.705**	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
α (cis)-Chlordane	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
γ (trans)-Chlordane	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
p,p' (4,4')-DDD	<0.724	1.22	2		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
p,p' (4,4')-DDE	<0.724	2.07	2.2		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
p,p' (4,4')-DDT	<0.724	1.19	1		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Dieldrin	**<0.724**	0.72	0.02		**<0.374**	U	0.374	1.25	**<0.360**	U	0.360	1.20	**<0.370**	U	0.370	1.23	**<0.695**	U	0.695	2.32	**<0.724**	U	0.724	2.41	**<0.705**	U	0.705	2.35	**<0.434**	U	0.434	1.45	**<0.395**	U	0.395	1.32
Endosulfan I	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Endosulfan II	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Endosulfan Sulfate	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Endrin	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Endrin Aldehyde	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Endrin Ketone	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Heptachlor	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Heptachlor Epoxide	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
α-BHC	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	C+, U	0.695	2.32	<0.724	C+, U	0.724	2.41	<0.705	C+, U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	C+, U	0.395	1.32
β-BHC	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
δ-BHC	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
γ-BHC (Lindane)	**<0.724**	0.32	x		**<0.374**	U	0.374	1.25	**<0.360**	U	0.360	1.20	**<0.370**	U	0.370	1.23	**<0.695**	U	0.695	2.32	**<0.724**	U	0.724	2.41	**<0.705**	U	0.705	2.35	**<0.434**	U	0.434	1.45	**<0.395**	U	0.395	1.32
Methoxychlor	<0.724	x	x		<0.374	U	0.374	1.25	<0.360	U	0.360	1.20	<0.370	U	0.370	1.23	<0.695	U	0.695	2.32	<0.724	U	0.724	2.41	<0.705	U	0.705	2.35	<0.434	U	0.434	1.45	<0.395	U	0.395	1.32
Toxaphene	**<36.2**	0.1	x		**<18.7**	C+, U	18.7	18.7	**<18.0**	C+, U	18.0	18.0	**<18.5**	C+, U	18.5	18.5	**<34.7**	U	34.7	34.7	**<36.2**	U	36.2	36.2	**<35.2**	U	35.2	35.2	**<21.7**	C+, U	21.7	21.7	**<19.7**	U	19.7	19.7
PCBs, Total	<1.70	21.6	22.7		<1.25	C+, U	1.25	2.49	<1.20	C+, U	1.20	2.40	<1.23	C+, U	1.23	2.47	<1.15	U	1.15	2.30	<1.18	U	1.18	2.36	<1.20	U	1.20	2.40	<1.45	C+, U	1.45	2.90	<1.31	C+, U	1.31	2.62

TABLE 5 (*continued*)
Analytical Results for Dry Weight Pesticides, and Total PCBs in Sediment Samples

DMMU:	CDP-08								CDP-09												Reference				ODMDS			
Sample ID:	8A				8C				9A				9C (Core 1)				9C (Core 2)				CDP-REF (March 2022)				CDP-ODMDS (March 2022)			
Analyte	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Aldrin	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Chlordane (technical)	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	**<0.506**	U	0.506	1.69	<0.369	U	0.369	1.23
α (cis)-Chlordane	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
γ (trans)-Chlordane	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
p,p' (4,4')-DDD	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
p,p' (4,4')-DDE	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
p,p' (4,4')-DDT	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Dieldrin	**<0.345**	U	0.345	1.15	**<0.336**	U	0.336	1.12	**<0.366**	U	0.366	1.22	**<0.340**	U	0.340	1.13	**<0.347**	U	0.347	1.16	**<0.506**	U	0.506	1.69	**<0.369**	U	0.369	1.23
Endosulfan I	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endosulfan II	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endosulfan Sulfate	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endrin	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endrin Aldehyde	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Endrin Ketone	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Heptachlor	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Heptachlor Epoxide	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
α-BHC	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
β-BHC	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
δ-BHC	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	0.585	J	0.506	1.69	<0.369	U	0.369	1.23
γ-BHC (Lindane)	**<0.345**	U	0.345	1.15	**<0.336**	U	0.336	1.12	**<0.366**	U	0.366	1.22	**<0.340**	U	0.340	1.13	**<0.347**	U	0.347	1.16	**<0.506**	U	0.506	1.69	**<0.369**	U	0.369	1.23
Methoxychlor	<0.345	U	0.345	1.15	<0.336	U	0.336	1.12	<0.366	U	0.366	1.22	<0.340	U	0.340	1.13	<0.347	U	0.347	1.16	<0.506	U	0.506	1.69	<0.369	U	0.369	1.23
Toxaphene	**<17.2**	U	17.2	17.2	**<16.8**	U	16.8	16.8	**<18.3**	U	18.3	18.3	**<17.0**	U	17.0	17.0	**<17.4**	U	17.4	17.4	**<25.3**	U	25.3	25.3	**<18.5**	U	18.5	18.5
PCBs, Total	<1.19	U	1.19	2.38	<1.15	U	1.15	2.31	<1.23	U	1.23	2.46	<1.12	U	1.12	2.24	<1.18	U	1.18	2.36	<1.70	U	1.70	3.39	<1.24	U	1.24	2.47

Bolded values meet or exceed the TEL and (or) ERL.
< #.## = The analyte was not detected (ND) at or above the MDL. The value indicates the MDL. DMMUs CDP-07, CDP-08, CDP-09 did not have sub-samples collected for B stations.
Non-detect (ND) results use the MDL for calculating total pesticides and total PCBs. (J-qualified results use the value reported by the laboratory for calculating total pesticides and total PCBs).
Qualifiers: C+ = The associated calibration QC is higher than the established quality control criteria for accuracy - no hit in sample; data not affected and acceptable to report. J = Estimated value - The reported value is between the detection limit and reporting limit. U = Indicates that the compound was analyzed for but not detected.
Sources: Results from NWDLS; TEL and ERL values from Buchman (2008).
Compiled by: ANAMAR Environmental Consulting, Inc.

TABLE 6
Analytical Results for Dry Weight PAHs in Sediment Samples

			DMMU:	CDP-06												CDP-07												Reference (Inshore)				ODMDS			
			Sample ID:	6A				6B				6C				7A				7C				7C (Duplicate)				CDP-REF				CDP-ODMDS			
Analyte	Maximum Conc. µg/kg	TEL µg/kg	ERL µg/kg	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Acenaphthene[LPAH]	<2.08	6.71	16	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Acenaphthylene[LPAH]	<2.08	5.87	44	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Anthracene[LPAH]	<2.08	46.9	85.3	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Benzo(a)anthracene[HPAH]	<2.08	74.8	261	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Benzo(a)pyrene[HPAH]	<2.08	88.8	430	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Benzo(b&k)fluoranthene[HPAH]	3.69	x	x	<3.12	U	3.12	6.24	<3.00	U	3.00	6.00	<3.08	U	3.08	6.18	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<3.62	U	3.62	7.24	<3.10	U	3.10	6.22
Benzo(g,h,i)perylene[HPAH]	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Chrysene[HPAH]	<2.08	108	384	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Dibenzo(a,h)anthracene[HPAH]	<2.08	6.22	63.4	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Fluoranthene[HPAH]	<2.08	113	600	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Fluorene[LPAH]	<2.08	21.2	19	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Indeno(1,2,3-cd)pyrene[HPAH]	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Naphthalene[LPAH]	<2.08	34.6	160	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Phenanthrene[LPAH]	2.49	86.7	240	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Pyrene[HPAH]	<2.08	153	665	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Total LPAHs	12.9	312	552	9.36				9.00				9.24				8.52				9.18				9.18				10.9				9.30			
Total HPAHs	20.3	655	1700	15.6				15.0				15.4				12.8				13.8				13.8				18.1				15.5			
Total PAHs	33.2	1684	4022	25.0				24.0				24.6				21.3				23.0				23.0				29.0				24.8			

TABLE 6 (*continued*)
Analytical Results for Dry Weight PAHs in Sediment Samples

DMMU:	CDP-08								CDP-09												Reference (Inshore)				ODMDS			
Sample ID:	8A				8C				9A				9C (Core 1)				9C (Core 2)				CDP-REF				CDP-ODMDS			
Analyte	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
Acenaphthene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Acenaphthylene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Anthracene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Benzo(a)anthracene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Benzo(a)pyrene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Benzo(b&k)fluoranthene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	3.69	J	2.08	4.16	<1.56	U	1.56	3.12
Benzo(g,h,i)perylene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Chrysene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Dibenzo(a,h)anthracene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Fluoranthene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Fluorene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Indeno(1,2,3-cd)pyrene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Naphthalene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Phenanthrene[LPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	2.49	J	2.08	4.16	<1.56	U	1.56	3.12
Pyrene[HPAH]	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Total LPAHs	8.64				8.28				9.00				8.46				8.58				12.9				9.36			
Total HPAHs	13.0				12.4				13.5				12.7				12.9				20.3				14.0			
Total PAHs	21.6				20.7				22.5				21.2				21.5				33.2				23.4			

LPAH = Low molecular weight PAH as defined in the *Regional Implementation Agreement* by USEPA/USACE (2003).
HPAH = High molecular weight PAH as defined in the *Regional Implementation Agreement* by USEPA/USACE (2003).
< #.## = The analyte was not detected (ND) at or above the MDL. The value indicates the MDL. DMMUs CDP-07, CDP-08, CDP-09 did not have sub-samples collected for B stations.
For calculating total PAHs, U-qualified results use the MDL and J-qualified results use the value reported by the laboratory.
Qualifiers: J = Estimated value - The reported value is between the detection limit and reporting limit. U = Indicates that the compound was analyzed for but not detected.
Sources: Results from NWDLS; TEL and ERL values from Buchman (2008).
Compiled by: ANAMAR Environmental Consulting, Inc.

TABLE 7
Analytical Results for Dry Weight SVOCs in Sediment Samples

Analyte	Maximum Conc. µg/kg	TEL µg/kg	ERL µg/kg	CDP-06												CDP-07												Reference (Inshore)				ODMDS			
DMMU:				6A				6B				6C				7A				7C				7C (Duplicate)				CDP-REF (January 2023)				CDP-ODMDS (January 2023)			
Sample ID:																																			
				Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
1,2,4-Trichlorobenzene	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
1,2-Dichlorobenzene	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
1,2-Diphenylhydrazine	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
1,3-Dichlorobenzene	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
1,4-Dichlorobenzene	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
2,4,6-Trichlorophenol	<4.16	x	x	<3.12	U	3.12	6.23	<3.00	U	3.00	6.00	<3.09	U	3.09	6.17	<2.84	U	2.84	5.67	<3.07	U	3.07	6.13	<3.05	U	3.05	6.10	<3.62	U	3.62	7.24	<3.11	U	3.11	6.22
2,4-Dichlorophenol	<4.16	x	x	<3.12	U	3.12	6.23	<3.00	U	3.00	6.00	<3.09	U	3.09	6.17	<2.84	U	2.84	5.67	<3.07	U	3.07	6.13	<3.05	U	3.05	6.10	<3.62	U	3.62	7.24	<3.11	U	3.11	6.22
2,4-Dimethylphenol	<4.16	x	x	<3.12	U	3.12	6.23	<3.00	U	3.00	6.00	<3.09	U	3.09	6.17	<2.84	U	2.84	5.67	<3.07	U	3.07	6.13	<3.05	U	3.05	6.10	<3.62	U	3.62	7.24	<3.11	U	3.11	6.22
2,4-Dinitrophenol	<4.16	x	x	<3.12	U	3.12	6.23	<3.00	U	3.00	6.00	<3.09	U	3.09	6.17	<2.84	C+, U	2.84	5.67	<3.07	C+, U	3.07	6.13	<3.05	C+, U	3.05	6.10	<3.62	U	3.62	7.24	<3.11	U	3.11	6.22
2,4-Dinitrotoluene (2,4-DNT)	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	C+, U	1.42	2.84	<1.53	C+, U	1.53	3.07	<1.53	C+, U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
2,6-Dinitrotoluene (2,6-DNT)	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
2-Chloronaphthalene	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
2-Chlorophenol	<4.16	x	x	<3.12	U	3.12	6.23	<3.00	U	3.00	6.00	<3.09	U	3.09	6.17	<2.84	U	2.84	5.67	<3.07	U	3.07	6.13	<3.05	U	3.05	6.10	<3.62	U	3.62	7.24	<3.11	U	3.11	6.22
2-Nitrophenol	<4.16	x	x	<3.12	U	3.12	6.23	<3.00	U	3.00	6.00	<3.09	U	3.09	6.17	<2.84	U	2.84	5.67	<3.07	U	3.07	6.13	<3.05	U	3.05	6.10	<3.62	U	3.62	7.24	<3.11	U	3.11	6.22
3,3'-Dichlorobenzidine	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
4,6-Dinitro-o-Cresol	<16.7	x	x	<12.5	U	12.5	24.9	<12.0	U	12.0	24.0	<12.3	U	12.3	24.7	<11.3	U	11.3	22.7	<12.3	U	12.3	24.5	<12.2	U	12.2	24.4	<14.5	U	14.5	29.0	<12.4	U	12.4	24.9
4-Bromophenyl phenyl ether (BDE-3)	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
4-Chlorophenyl phenyl ether	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
4-Nitrophenol	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Benzidine	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Bis(2-Chloroethoxy) methane	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Bis(2-Chloroethyl) ether	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Bis(2-chloroisopropyl) ether	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Bis(2-ethylhexyl) phthalate	19.8	182	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	2.35	V, J	1.42	2.84	5.27	V	1.53	3.07	1.87	V, J	1.53	3.05	<1.81	U	1.81	3.62	<1.55	B, U	1.55	3.11
Butyl benzyl phthalate	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Diethyl phthalate	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	1.60	V, J	1.42	2.84	1.65	V, J	1.53	3.07	<1.53	B, U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Dimethyl phthalate	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Di-n-butyl phthalate	14.1	x	x	<1.56	B, U	1.56	3.12	<1.50	B, U	1.50	3.00	<1.54	B, U	1.54	3.09	10.3	V	1.42	2.84	10.5	V	1.53	3.07	9.01	V	1.53	3.05	3.54	V, J	1.81	3.62	<1.55	U	1.55	3.11
Di-n-octyl phthalate	3.38	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	3.38	--	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Hexachlorobenzene	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Hexachlorobutadiene	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Hexachlorocyclopentadiene	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Hexachloroethane	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Isophorone	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
Nitrobenzene	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
N-Nitrosodimethylamine	<7.20	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	C+, U	1.55	31.1
N-Nitrosodi-n-propylamine	<2.08	x	x	<1.56	U	1.56	3.12	<1.50	U	1.50	3.00	<1.54	U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	U	1.81	3.62	<1.55	U	1.55	3.11
N-Nitrosodiphenylamine	<2.08	x	x	<1.56	C+, U	1.56	3.12	<1.50	C+, U	1.50	3.00	<1.54	C+, U	1.54	3.09	<1.42	U	1.42	2.84	<1.53	U	1.53	3.07	<1.53	U	1.53	3.05	<1.81	C+, U	1.81	3.62	<1.55	U	1.55	3.11
P-Chloro-m-Cresol	<4.16	x	x	<3.12	U	3.12	6.23	<3.00	U	3.00	6.00	<3.09	U	3.09	6.17	<2.84	U	2.84	5.67	<3.07	U	3.07	6.13	<3.05	U	3.05	6.10	<3.62	U	3.62	7.24	<3.11	U	3.11	6.22
Pentachlorophenol	<4.16	x	x	<3.12	U	3.12	6.23	<3.00	U	3.00	6.00	<3.09	U	3.09	6.17	<2.84	U	2.84	5.67	<3.07	U	3.07	6.13	<3.05	U	3.05	6.10	<3.62	U	3.62	7.24	<3.11	U	3.11	6.22
Phenol, Total	11.3	x	x	<3.12	U	3.12	6.23	<3.00	U	3.00	6.00	6.52	--	3.09	6.17	<2.84	U	2.84	5.67	10.2	--	3.07	6.13	<3.05	U	3.05	6.10	<3.62	U	3.62	7.24	11.3	V	3.11	6.22

TABLE 7 (*continued*)
Analytical Results for Dry Weight SVOCs in Sediment Samples

DMMU:	CDP-08								CDP-09												Reference (Inshore)				ODMDS			
Sample ID:	8A				8C				9A				9C (Core 1)				9C (Core 2)				CDP-REF (March 2022)				CDP-ODMDS (March 2022)			
Analyte	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL	Result µg/kg	Qualifier	MDL	LRL
1,2,4-Trichlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
1,2-Dichlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
1,2-Diphenylhydrazine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
1,3-Dichlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
1,4-Dichlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
2,4,6-Trichlorophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2,4-Dichlorophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2,4-Dimethylphenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2,4-Dinitrophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2,4-Dinitrotoluene (2,4-DNT)	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
2,6-Dinitrotoluene (2,6-DNT)	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
2-Chloronaphthalene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
2-Chlorophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
2-Nitrophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
3,3'-Dichlorobenzidine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
4,6-Dinitro-o-Cresol	<11.5	U	11.5	23.1	<11.0	U	11.0	22.0	<12.0	U	12.0	24.1	<11.2	U	11.2	22.5	<11.5	U	11.5	22.9	<16.7	U	16.7	33.3	<12.5	U	12.5	25.0
4-Bromophenyl phenyl ether (BDE-3)	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
4-Chlorophenyl phenyl ether	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
4-Nitrophenol	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Benzidine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Bis(2-Chloroethoxy) methane	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Bis(2-Chloroethyl) ether	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	CQb, U	1.50	3.01	<1.41	CQb, U	1.41	2.81	<1.43	CQb, U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Bis(2-chloroisopropyl) ether	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Bis(2-ethylhexyl) phthalate	11.8	--	1.44	2.88	19.8	--	1.38	2.75	<1.50	U	1.50	3.01	3.46	--	1.41	2.81	<1.43	U	1.43	2.87	3.09	V, J	2.08	4.16	2.49	V, J	1.56	3.12
Butyl benzyl phthalate	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Diethyl phthalate	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Dimethyl phthalate	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Di-n-butyl phthalate	1.87	J	1.44	2.88	<1.38	U	1.38	2.75	<1.50	B, U	1.50	3.01	<1.41	B, U	1.41	2.81	<1.43	B, U	1.43	2.87	14.1	V	2.08	4.16	5.69	V	1.56	3.12
Di-n-octyl phthalate	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Hexachlorobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Hexachlorobutadiene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Hexachlorocyclopentadiene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Hexachloroethane	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Isophorone	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
Nitrobenzene	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
N-Nitrosodimethylamine	<7.20	U	7.20	14.4	<6.88	U	6.88	13.8	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
N-Nitrosodi-n-propylamine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
N-Nitrosodiphenylamine	<1.44	U	1.44	2.88	<1.38	U	1.38	2.75	<1.50	U	1.50	3.01	<1.41	U	1.41	2.81	<1.43	U	1.43	2.87	<2.08	U	2.08	4.16	<1.56	U	1.56	3.12
P-Chloro-m-Cresol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
Pentachlorophenol	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	<2.87	U	2.87	5.74	<4.16	U	4.16	8.33	<3.12	U	3.12	6.24
Phenol, Total	<2.88	U	2.88	5.76	<2.75	U	2.75	5.50	<3.01	U	3.01	6.01	<2.81	U	2.81	5.62	8.54	--	2.87	5.74	8.12	J	4.16	8.33	3.20	J	3.12	6.24

< #.## = The analyte was not detected (ND) at or above the MDL. The value indicates the MDL. DMMUs CDP-07, CDP-08, CDP-09 did not have sub-samples collected for B stations.
Qualifiers: B = Analyte was found in the associated method blank. C+ = The associated calibration QC is higher than the established quality control criteria for accuracy - no hit in sample; data not affected and acceptable to report. CQb = CCV out of control high, no hits in samples, data not affected. J = Estimated value - The reported value is between the detection limit and reporting limit. U = Indicates that the compound was analyzed for but not detected. V = Analyte was detected in both sample and method blank.
Sources: Results from NWDLS; TEL and ERL values from Buchman (2008).
Compiled by: ANAMAR Environmental Consulting, Inc.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1201 ELM STREET, SUITE 500
DALLAS, TEXAS 75270

April 27, 2023

Robert Heinly
Chief, Policy Analysis Branch
Galveston District
United States Army Corps of Engineers
Post Office Box 1229
Galveston, Texas 77533

Re: Corpus Christi Channel Deepening Inner Harbor Project Tissue Chemistry Recommendations CDP-06 and CDP-07

Dear Mr. Heinly:

This letter is written in response to your April 4, 2023, request for concurrence on the Corpus Christi Inner Harbor Project Tissue Chemistry Recommendations. The Environmental Protection Agency received the letter and included support documents via email on April 6, 2023.

As stated in Section 10.2.2 of the Regional Implementation Agreement (RIA): Tissues of appropriate benthic organisms exposed to the dredged material shall be analyzed for classes of Contaminants of Concern detected in the sediments. Ordinarily, only those compounds detected in the sediment need be analyzed for in the tissue. In some cases, however, it may be desirable to analyze tissues for compounds not detected in the sediments.

Your recommendation includes analysis of all tissue samples from CDP-06 and CDP-07 for TPH, all trace metals, and one SVOC [total phenol]. Your recommendation includes analysis of all tissue samples for monobutyltin only in CDP-07. Your recommendation includes analysis of all tissue samples from CDP-07 for bis (2-ethylhexyl) phthalate, di-n-butyl phthalate, and di-n-octyl phthalate. Your recommendation is based on the results from sediment analysis conducted by Anamar Environmental Consulting Inc. Based on the information provided to the EPA, we concur with your analysis recommendations.

Should you have any questions regarding this determination or management of the Corpus Christi New Work ODMDSs, please feel free to contact Wendy Jacques, Region 6 Ocean Dumping Coordinator at 214-665-7395 or by email at jacques.wendy@epa.gov.

Sincerely,

Charles W. Maguire
Director
Water Division

ecc: Jayson Hudson, Regulatory Project Manager