Amphipod Bioassay Evaluation
UNOCAL Edmonds Bulk Fuel Terminal
Upland Sediments Investigation

Sample Number	y=arcsine(sqrt(mortality/100))					W Statistic	Assume Normal?	t-stat	t significant (t>1.86)	Mean Mortality
US-01	0	0	0.2255	0.3218	0.3977	2.0182	Yes	0.329	No	6
US-02	0	0	0.2255	0.2255	0.3218	2.5268	Yes	0.000	No	4
US-03	0.321751	0.32175	0.3977	0.3977	0.7854	1.6666	Yes	2.669	Yes	20
US-04	0	0.22551	0.2255	0.2255	0.5236	2.7208	Yes	0.807	No	8
US-05	0.523599	0.73531	0.7353	0.8355	0.8861	4.5308	Yes	6.518	Yes	46
US-06	0	0.22551	0.2255	0.3977	0.3977	2.6190	Yes	0.964	No	8
US-07	0	0.22551	0.2255	0.3218	0.3977	3.2012	Yes	0.850	No	7
US-08	0.225513	0.22551	0.2255	0.2255	0.3218	2.3749	Yes	1.321	No	6
US-09	0.321751	0.46365	0.4636	0.4636	0.6847	3.7940	Yes	3.708	Yes	22
US-10	0	0.32175	0.3977	0.4636	0.5236	2.8338	Yes	1.370	No	14
US-11	0	0	0.2255	0.2255	0.3977	2.3078	Yes	0.151	No	5
US-12	0.321751	0.32175	0.3977	0.4636	0.6847	1.9667	Yes	3.021	Yes	19
US-13	0	0.39770	0.4636	0.5236	0.5796	2.1711	Yes	1.956	Yes	18
US-14	0	0.32175	0.3218	0.3977	0.3977	2.8849	Yes	1.349	No	10
US-15	0	0	0.2255	0.2255	0.3218	2.5268	Yes	0.000	No	4
NISQ	0	0	0.2255	0.2255	0.3218	2.5268	Yes	0.000	No	4
CARR	0	0	0.0000	0.2255	0.3218	2.2946	Yes	-0.475	No	3
Control 1	0	0	0.0000	0.2255	0.2255	2.5044	Yes	-0.751	No	2
Control 2	0	0	0.0000	0.2255	0.2255	2.5044	Yes	-0.751	No	2

NOTE: Shading indicates significance relative to reference station NISQ or mean mortality greater than SMS criteria.

Juvenile Polychaete Bioassay Evaluation
UNOCAL Edmonds Bulk Fuel Terminal
Upland Sediments Investigation

Sample Number	Individual Growth Rates					Mean	W Statistic	Assume Normal?	t-stat	t significant (t < -1.86)	Mean Growth < .7 * NISQ
US-01	0.424	0.437	0.660	0.717	0.806	0.609	1.56	Yes	2.050	No	No
US-02	0.293	0.367	0.369	0.425	0.426	0.376	5.05	Yes	-1.468	No	No
US-03	0.287	0.296	0.338	0.437	0.487	0.369	2.32	Yes	-1.309	No	No
US-04	0.269	0.351	0.377	0.591	0.689	0.455	1.86	Yes	0.210	No	No
US-05	0.352	0.352	0.396	0.475	0.505	0.416	2.00	Yes	-0.463	No	No
US-06	0.280	0.298	0.308	0.412	0.495	0.358	2.62	Yes	-1.475	No	No
US-07	0.248	0.337	0.355	0.367	0.502	0.362	4.42	Yes	-1.418	No	No
US-08	0.321	0.323	0.343	0.416	0.610	0.402	2.23	Yes	-0.540	No	No
US-09	0.165	0.260	0.279	0.322	0.338	0.273	5.02	Yes	-3.612	Yes	Yes
US-10	0.345	0.460	0.465	0.554	No value	0.456	6.54	Yes	0.346	No	No
US-11	0.346	0.351	0.360	0.367	0.445	0.374	2.80	Yes	-1.652	No	No
US-12	0.361	0.421	0.432	0.475	0.532	0.444	5.30	Yes	0.158	No	No
US-13	0.264	0.277	0.279	0.291	0.377	0.298	3.59	Yes	-3.518	Yes	Yes
US-14	0.145	0.277	0.349	0.434	0.492	0.339	2.85	Yes	-1.403	No	No
US-15	0.357	0.375	0.385	0.445	0.496	0.412	3.34	Yes	-0.603	No	No
NISQ	0.341	0.423	0.433	0.434	0.555	0.437	5.53	Yes	0.000	No	No
CARR	0.282	0.308	0.447	0.469	0.504	0.402	2.25	Yes	-0.633	No	No
Control	0.192	0.236	0.257	0.258	0.431	0.275	3.73	Yes	-3.055	Yes	Yes
Control	0.121	0.179	0.269	0.371	0.502	0.288	2.37	Yes	-1.952	Yes	Yes

NOTE: Sample NISQ used as reference, shading indicates statistically significant results or results less than 70 percent of reference (0.388).

Bivalve Larvae Bioassay Evaluation
UNOCAL Edmonds Bulk Fuel Terminal
Upland Sediments Investigation

Sample Number	Effective Mortality						y=arcsine(sqrt(mortality/100))					W Statistic	Assume Normal?	t-stat	significan (t>1.86)	Mean Survival less than .85* ref
	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean										
US-01	41	32	25	28	38	33	0.521	0.555	0.605	0.663	0.697	4.571	Yes	0.937	No	No
US-02	27	56	19	41	23	33	0.457	0.501	0.541	0.697	0.846	2.089	Yes	0.762	No	No
US-03	89	25	27	42	44	45	0.518	0.547	0.710	0.721	1.227	1.342	Yes	1.447	No	Yes
US-04	45	12	11	30	20	23	0.334	0.348	0.461	0.576	0.738	1.751	Yes	-0.295	No	No
US-05	54	33	34	39	35	39	0.610	0.620	0.630	0.673	0.829	4.552	Yes	1.601	No	Yes
US-06	20	15	43	18	21	23	0.403	0.432	0.463	0.478	0.712	2.809	Yes	-0.272	No	No
US-07	40	38	26	15	30	30	0.396	0.530	0.576	0.663	0.680	3.647	Yes	0.454	No	No
US-08	37	42	42	53	55	46	0.653	0.705	0.707	0.810	0.835	6.810	Yes	2.423	Yes	Yes
US-09	45	38	30	30	46	38	0.579	0.581	0.663	0.738	0.742	3.007	Yes	1.507	No	Yes
US-10	40	25	19	24	43	30	0.457	0.514	0.527	0.686	0.716	5.126	Yes	0.217	No	No
US-11	32	15	25	10	31	22	0.318	0.391	0.519	0.592	0.600	2.269	Yes	-0.408	No	No
US-12	44	14	40	14	48	32	0.377	0.380	0.683	0.721	0.767	1.196	Yes	0.511	No	No
US-13	38	45	14	47	38	36	0.377	0.660	0.664	0.738	0.757	3.829	Yes	1.064	No	No
US-14	24	28	10	15	48	25	0.320	0.393	0.507	0.563	0.766	2.158	Yes	-0.133	No	No
US-15	62	43	58	66	46	55	0.715	0.746	0.870	0.908	0.952	4.605	Yes	3.307	Yes	Yes
NISQ	38	50	80	88	62	64	0.667	0.787	0.908	1.106	1.219	2.027	Yes	3.157	Yes	Yes
CARR	41	24	41	6	21	27	0.246	0.474	0.516	0.691	0.697	2.263	Yes	0.000	No	No
Control 1	39	35	24	45	47	38	0.507	0.636	0.677	0.731	0.752	5.421	Yes	1.450	No	Yes
Control 2	23	22	29	49	34	31	0.493	0.495	0.566	0.619	0.772	2.634	Yes	0.659	No	No
Control 3	12	7	12	3	8	8	0.174	0.265	0.284	0.348	0.351	4.372	Yes	-2.700	No	No

NOTE: Shading indicates significance relative to reference station CARR or mortality/abnormality >85 percent of reference (62.4).

SEDIMENT TOXICITY TESTING AND PHYSICAL CHARACTERIZATION

for

UNOCAL Edmonds Bulk Fuel Terminal

Prepared For:

EMCON Northwest, Inc.
18912 North Creek Parkway, Suite 100
Bothell, WA 98011-8016

ANALYTICAL SYSTEMS, INC.

MEC ANALYTICAL SYSTEMS, INC.

August 24, 1995

John Virgin
EMCON Northwest, Inc.
18921 N. Creek Parkway
Bothell, WA 98011-8016

SBJ: **UNOCAL Edmonds Bulk Fuel Terminal Sediment Toxicity Testing and Physical Characterization Final Report**

Dear Mr. Virgin:

Enclosed you will find the final draft for the UNOCAL Edmonds Bulk Fuel Terminal study. The results are based on the samples received during the period of June 14th through June 20, 1995. Sediment testing was conducted from July 11th through July 21, 1995 on three marine species:

Eohaustorius estuarius (Amphipod)
Neanthes arenaceodentata (Polychaete)
Mytilus edulis (Bivalve)

Physical characteristics were also analyzed during this time period. They include:

Dissolved Sulfides
Ammonia
Total Organic Carbon
Grain Size Analysis

All testing and analyses were performed consistent with MEC's laboratory Quality Assurance program and all samples met the quality control criteria specified in the above methods and /or our internal Standard Operating Procedures.

Sincerely,

William A. Schmitz

2433 Impala Dr., Carlsbad, CA 92008
(619) 931-8081 FAX (619) 931-1580

2300 Contra Costa Blvd., Suite 370, Pleasant Hill, CA 94523
(510) 602-4900 FAX (510) 602-4907

98 Main St., Suite 428, Tiburon, CA 94920
(415) 435-1847 FAX (415) 435-0479

SEDIMENT TOXICITY TESTING AND PHYSICAL CHARACTERIZATION

for

UNOCAL Edmonds Bulk Fuel Terminal

Prepared For

EMCON Northwest, Inc.
18912 North Creek Parkway, Suite 100
Bothell, WA 98011-8016

Prepared By

MEC Analytical Systems, Inc.
6060 Corte del Cedro
Carlsbad, CA 92009-1514

August 24, 1995

CONTENTS

10-Day Amphipod Mortality Test with *Eohaustorius estuarius*

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	11Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	21Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Work Request No.:**	0694-002

Acute Sediment Toxicity Study with Amphipods for 10 Days
MEC Testing Protocol No. P010.0

Test Organism: *Eohaustorius estuarius*

Sample ID	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	% Survival
C950614.0337	US-01	20	18	20	17	19	94%
C950614.0437	US-02	18	19	20	19	20	96%
C950614.0537	US-03	18	18	17	17	10	80%
C950615.0137	US-04	15	19	20	19	19	92%
C950615.0237	US-05	11	8	15	9	11	54%
C950615.0337	US-06	17	20	19	19	17	92%
C950615.0437	US-07	17	20	18	19	19	93%
C950616.0137	US-08	19	19	19	19	18	94%
C950616.0237	US-10	20	17	15	16	18	86%
C950616.0337	US-11	20	19	19	17	20	95%
C950616.0437	US-12	16	18	17	18	12	81%
C950616.0537	US-13	20	14	17	15	16	82%
C950620.0337	US-09	16	12	18	16	16	78%
C950620.0437	US-14	17	17	18	18	20	90%
C950620.0537	US-15	19	18	20	20	19	96%
C950620.0637	NISQ	19	22	19	18	20	96%
C950620.0737	CARR	18	19	20	20	20	97%
C950622.0337	Control 1	23	20	19	19	20	98%
C950622.0437	Control 2	23	20	19	19	20	98%

Approved by Wille E. Schaf Date 24AUG95

REBURIAL

Sample	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	% Reburied
C950614.0337	US-01	20	18	20	17	19	100%
C950614.0437	US-02	18	19	20	19	20	100%
C950614.0537	US-03	18	18	17	17	10	100%
C950615.0137	US-04	15	19	20	19	19	100%
C950615.0237	US-05	11	8	15	9	11	100%
C950615.0337	US-06	17	20	19	19	13	96%
C950615.0437	US-07	17	20	18	19	19	100%
C950616.0137	US-08	19	19	19	19	18	100%
C950616.0237	US-10	20	17	15	16	18	100%
C950616.0337	US-11	20	19	19	17	20	100%
C950616.0437	US-12	16	18	17	17	12	99%
C950616.0537	US-13	20	14	17	15	16	100%
C950620.0337	US-09	15	12	18	16	16	99%
C950620.0437	US-14	17	17	18	18	20	100%
C950620.0537	US-15	19	18	20	19	19	99%
C950620.0637	NISQ	19	22	19	18	20	100%
C950620.0737	CARR	18	19	20	20	20	100%
C950622.0337	Control 1	23	20	19	19	20	100%
C950622.0437	Control 2	23	20	19	19	20	100%

Approved by Wil E. Schuh Date 24AUG95

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	11Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	21Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Work Request No.:**	0694-002

Acute Sediment Toxicity Study with Amphipods for 10 Days
MEC Testing Protocol No. P010.0

Test Organism: *Eohaustorius estuarius*

Test Solution Physical and Chemical Data

Sample ID	Site	Statistic	Dissolved Oxygen (%)	pH (units)	Salinity (ppt)
C950615.0335	US-01	Mean	98	7.8	19.9
		Minimum	86	7.6	19.7
		Maximum	110	8.0	20.3
C950615.0435	US-02	Mean	98	7.7	20.0
		Minimum	88	7.5	19.8
		Maximum	106	8.0	20.3
C950614.0535	US-03	Mean	99	7.7	19.8
		Minimum	87	7.4	19.6
		Maximum	113	7.9	20.2
C950615.0135	US-04	Mean	99	7.8	19.9
		Minimum	88	7.5	19.8
		Maximum	113	8.0	20.3
C950615.0235	US-05	Mean	99	7.7	20.0
		Minimum	90	7.5	19.7
		Maximum	113	8.0	20.3
C950615.0335	US-06	Mean	100	7.8	20.0
		Minimum	90	7.6	19.9
		Maximum	111	8.1	20.3
C950615.0435	US-07	Mean	98	7.7	19.8
		Minimum	87	7.4	19.4
		Maximum	114	7.9	20.1
C950616.0135	US-08	Mean	100	7.8	20.0
		Minimum	88	7.5	19.8
		Maximum	113	8.0	20.3
C950616.0235	US-10	Mean	99	7.9	19.9
		Minimum	87	7.6	19.7
		Maximum	113	8.1	20.3

Approved by _____ Date 24AUG95

Sample ID	Site	Statistic	Dissolved Oxygen (%)	pH (units)	Salinity (ppt)
C950616.0335	US-11	Mean	99	8.0	19.6
		Minimum	90	7.6	19.0
		Maximum	114	8.6	20.2
C950616.0435	US-12	Mean	97	7.8	19.5
		Minimum	90	7.2	19.0
		Maximum	113	8.1	20.0
C950616.0535	US-13	Mean	98	8.0	19.0
		Minimum	86	7.8	18.7
		Maximum	110	8.2	20.0
C950620.0335	US-09	Mean	98	7.9	20.0
		Minimum	88	7.7	19.7
		Maximum	113	8.2	20.3
C950620.0435	US-14	Mean	99	~~7.9~~ ~~8.1~~	19.3
		Minimum	87	7.9	18.5
		Maximum	116	8.3	20.3
C950620.0535	US-15	Mean	100	7.9 ~~14.3~~	19.9
		Minimum	89	7.6	19.5
		Maximum	115	8.0 ~~79.0~~	20.4
C950620.0635	NISQ	Mean	101	7.7	19.8
		Minimum	91	7.4	19.6
		Maximum	110	7.9	20.2
C950620.0735	CARR	Mean	97	8.1	20.1
		Minimum	88	7.9	19.0
		Maximum	108	8.4	20.8
C950620.0135	Control 1	Mean	102	8.0	19.4
		Minimum	89	7.7	19.2
		Maximum	115	8.1	19.7
C950620.0235	Control 2	Mean	100	7.9	19.4
		Minimum	91	7.7	19.3
		Maximum	114	8.0	19.6

Approved by W. H. Schmidt Date 24AUG95

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	11Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	21Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Work Request No.:**	0694-002

APPENDIX
Pertinent Test Data

TEST: Acute Sediment Toxicity Study with Amphipods for 10 Days, MEC Testing Protocol No. P010.0

DILUTION WATER: Filtered seawater.

TEST ORGANISM: *Eohaustorius estuarius*, purchased from Northwest Aquatic.

TEST CHAMBER: 1 L glass beakers.

EXPERIMENTAL DESIGN:
1. Test sediments were homogenized and added to randomized test chambers to 2 cm.
2. Test sediments were aerated and allowed to settle overnight.
3. 20 test organisms were placed into each chamber.
4. Sterile, particle-free, dry air was delivered through a Pasteur pipet into each chamber to bring the dissolved oxygen to levels above 60% saturation.
5. Test chambers were held at 15°C for 10 days with a photo period of 24 hours light.
6. Temperature was monitored with a continuous recording computer (plot attached).

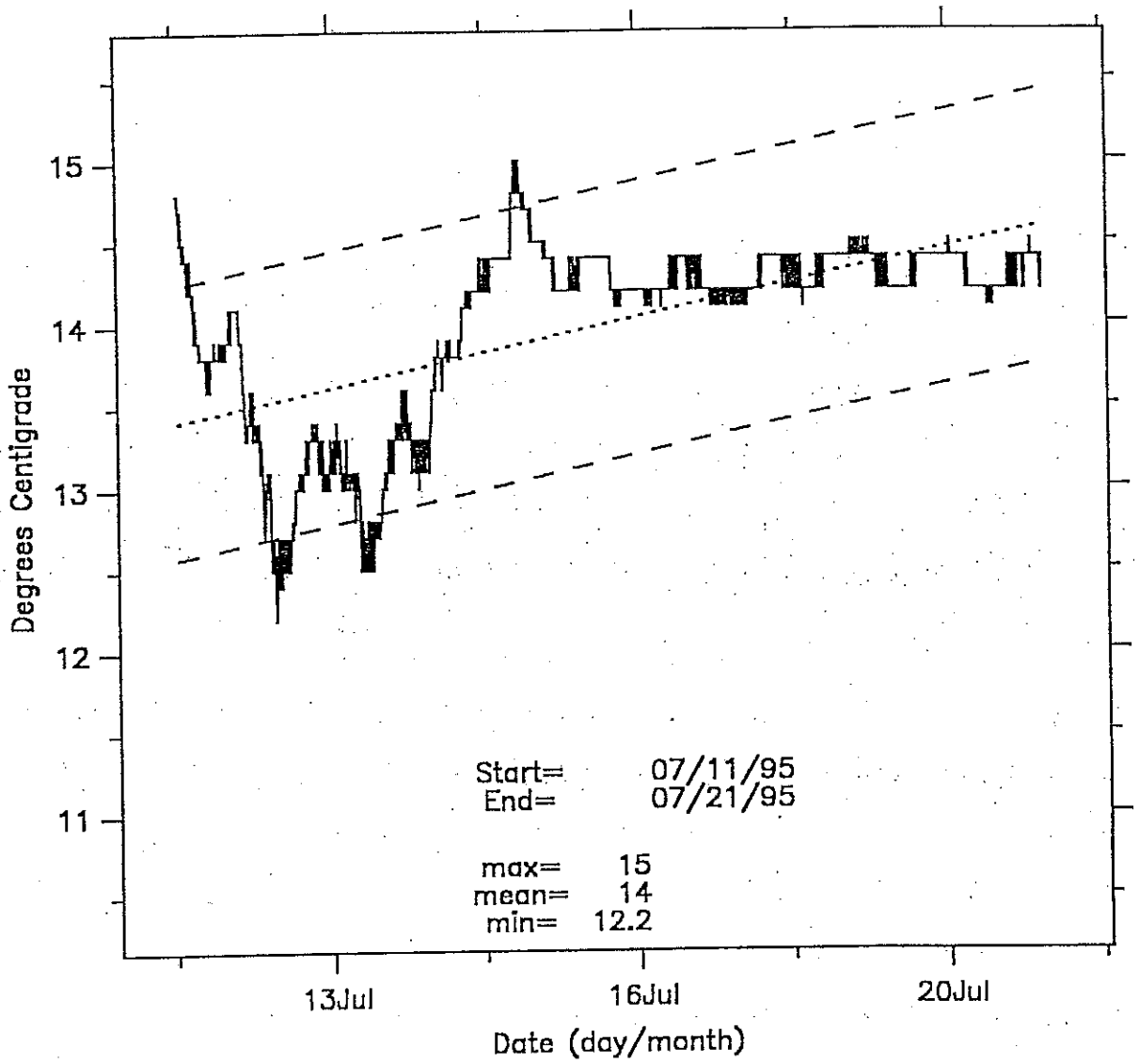
MORTALITY CRITERIA: Lack of respiratory movement and lack of reaction to gentle prodding.

REFERENCE TOXICITY:
1. Toxicant: CdCl, USEPA Reference Toxicant
2. 96 Hour LC_{50}: 5.85 mg/L (95% confidence limits 4.61, 7.41)
3. Test Date: 7/13/95

STUDY DIRECTOR: F.C. Newton

INVESTIGATORS: N. Lewnes, E. Calix, B. Schmitz, A. Monji, T. McLeod, T. Fitzsimmons

Approved by _____ Date 24AUG95



Test Temperature Recorded At 5 Minute Intervals

(dotted line = predicted mean temperature, dashed line = 95% confidence bounds)

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950614.0335	11 July 95 1500	Eohaustorius estuarius	MONJI
Seawater Batch No.	Location	No. Organisms/Chamber	Hobo No.
SIO 6-27-95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1342	1	8.0	110	15.4	20.3						
1	12July95	0849	2	8.0	106	14.3	20.0	ϕ	ϕ	ϕ	ϕ	ϕ	
2	13July95	1558	3	7.9	93	13.5	19.9	ϕ	ϕ	ϕ	ϕ	ϕ	
3	14Jul95	1137	4	7.6	98	14.3	20.0	ϕ	ϕ	ϕ	ϕ	ϕ	
4	15Jul95	1025	5	8.0	102	15.1	19.9	ϕ	ϕ	ϕ	ϕ	ϕ	
5	16Jul95	1408	1	7.8	*	14.8	20.0	ϕ	ϕ	ϕ	ϕ	ϕ	TF
6	17JUL95	1646	2	7.8	86	14.5	20.0	ϕ	ϕ	ϕ	ϕ	ϕ	
7	18JUL95	1622	3	7.9	94	15.1	19.9	ϕ	ϕ	ϕ	ϕ	ϕ	
8	19Jul95	0930	4	7.6	91	15.4	19.7	0	0	0	0	0	ATM
9	20Jul95	1310	5	7.7	100	15.2	19.7	0	0	0	0	0	ATM
10	21Jul95	0925	1	7.8	100	15.3	20.0	—	—	①KB	—	—	KB

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	20 KB	18 KB	20 KB	17 ATM	19 ATM	
	Number That	20 KB	18 KB	20 KB	17 ATM	19 ATM	
	Start Interstitial						
	Final Interstitial						

* unable to take D.O., meter not functioning 7-16-95 TF

① NA KB 21Jul95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C9SD614.0435	7/11/95 1520	Eohaustorius estuarius	Monji
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
S10627 95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1353	1	7.9	100	16.5	20.3						
1	12July95	0851	2	7.9	106	14.4	19.9	ø	ø	ø	ø	ø	
2	13July95	1600	3	8.0	94	13.7	19.8	ø	ø	ø	ø	ø	EC
3	14JUl95	1147	4	7.5	100	14.4	20.0	ø	ø	ø	ø	ø	BB
4	15JUl95	1040	5	7.8	102	15.1	19.9	ø	ø	ø	ø	ø	BB
5	16JUl95	1401	1	7.8	*	16.3	20.0	ø	ø	ø	ø	ø	TF
6	17JUL95	1717	2	7.6	88	14.3	19.9	ø	ø	ø	ø	ø	
7	18 JUL	1625	3	7.7	94	14.7	19.8	ø	ø	ø	ø	ø	
8	19 Jul95	0930	4	7.6	100	15.1	20.0	0	0	0	0	0	AJM
9	20Jul95	1310	5	7.7	100	14.2	20.1	0	0	0	0	0	AJM
10	21JUl95	0932	1	7.6	96	15.7	20.0	—	—	①BB	—	—	BB

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	18	19 FP	20 KB	19 KB	20 KB	
	Number That	18	19 FP	20 KB	19 KB	20 KB	
	Start Interstitial						
	Final Interstitial	24	20 FP	23	23	② KB	

* unable to take D.O., meter not functioning 7-16-95 TF

① N/A BB 12Jul95

② SAMPLE DISCARDED BEFORE MEASUREMENT TAKEN KB 7/24/95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950614.0535	11 July 95 1500	Eohaustorius estuarius	HONJI
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
SID 6-27-95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1332	1	7.8	104	15.8	20.2						TF
1	12July95	0926	2	7.9	113	15.2	19.9	Ø	Ø	Ø	Ø	Ø	TF
2	13July95	1626	3	7.8	95	13.5	19.9	Ø	Ø	Ø	Ø	Ø	EC
3	14Jul95	1230	4	7.8	103	14.Ø	19.7	Ø	Ø	Ø	Ø	Ø	BS
4	15Jul95	1005	5	7.8	101	16.5	19.8	Ø	Ø	Ø	Ø	Ø	BS
5	16Jul95	1412	1	7.6	*	16.Ø	19.7	Ø	Ø	Ø	Ø	Ø	TF
6	17JUL95	1655	2	7.5	87	15.1	19.8	Ø	Ø	Ø	Ø	Ø	TF
7	18JUL95	1625	3	7.7	93	14.7	19.8	1	Ø	Ø	Ø	Ø	TF
8	19 Jul95	0430	4	7.5	94	14.5	19.6	0	0	0	0	0	ATM
9	20 Jul95	1310	5	7.4	100	16.4	19.7	0	0	0	0	0	ATM
10	21Jul95	0930	1	7.6	99	15.7	19.9	0	0	0	0	0	BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	18 KB	18KB	17 ATM	17 RCW	1Ø RCW	
	Number That	18 KB	18 KB	17 ATM	17 RCW	1Ø RCW	
	Start Interstitial						
	Final Interstitial	21	22	20	21	21	

* Unable to take D.O., meter not functioning 7-16-95 TF

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950615.0135	7/11/95 1500	Eohaustorius estuarius	MONZI
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
S10062795	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July 95	1349	1	8.0	108	15.6	20.3						CAP
1	12July 95	0906	2	8.0	113	14.9	19.9	0	0	0	0	0	CAP
2	13July 95	1616	3	7.8	89	13.9	19.9	0	0	0	0	0	EC
3	14JUL95	1230	4	7.9	98	14.1	19.9	0	0	0	0	0	BS
4	15JUL95	1033	5	8.0	106	14.8	19.9	0	0	0	0	0	BS
5	16JUL95	1415	1	7.8	*	15.7	19.9	0	0	0	0	0	TF
6	17JUL95	1659	2	7.7	88	14.9	20.0	0	0	0	0	0	MS
7	18JUL95	1626	3	7.7	92	15.2	19.9	0	0	0	0	0	MS
8	19JUL95	0930	4	7.7	101	14.4	19.9	0	0	0	0	0	ATM
9	20JUL95	1310	5	7.5	98	14.3	19.8	0	0	0	0	0	ATM
10	21JUL95	0956	1	7.7	98	14.7	20.0	—	—	①	—	—	BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	15 BS	19 BS	20 RCW	19 BS	19 RCW	
	Number That	15	19 BS	20 RCW	19 BS	19 RCW	
	Start Interstitial					21	
	Final Interstitial	21 BS	21	22	21	21	

* unable to take D.O., meter not functioning 7-16-95 TF

① N/A BS 7/21/95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950615.0235	11 July 95 1500	Eohaustorius estuarius	MONJI
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
SIO 6-27-95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1346	1	8.0	98	15.8	20.3						
1	12July95	0915	2	7.9	113	15.4	19.9	0	0	0	0	0	
2	13July95	1635	3	7.8	95	14.9	19.7	0	0	0	0	0	EC
3	14JUL95	1225	4	7.8	98	14.5	20.0	0	0	0	0	0	BS
4	15JUL95	1030	5	7.9	105	14.8	19.9	0	0	0	0	0	BS
5	16JUL95	1410	1	7.6	*	15.9	20.1	0	0	0	0	0	TF
6	17JUL95	1709	2	7.5	90	15.1	20.1	0	0	0	0	0	MJ
7	18JUL95	1626	3	7.7	94	15.4	19.9	0	0	0	0	0	MJ
8	19Jul95	0930	4	7.6	100	14.8	20.0	0	0	0	0	0	ATM
9	20JUL95	1315	5	7.6	98	14.2	19.8	0	0	0	0	0	ATM
10	21JUL95	0959	1	7.8	100	14.8	20.3	—	—	DBS	—	—	BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	11 (1) KB	8 RCW	15 KB	9 RCW	11 ATM	
	Number That	11 KB	8 RCW	15 KB	9 RCW	11 ATM	
	Start Interstitial						
	Final Interstitial	20	21	20	21	20	

* unable to take D.O., meter not functioning 7-16-95 TF

(1) NA 21 Jul 95 AT

MEC Analytical Services, Inc.

(2) MC 20 July 95 RCW

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950615.0335	7/11/95 1500	Eohaustorius estuarius	MONJI
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
S10627 95	RM2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1359	1	8.1	111	15.9	20.3						
1	12July95	0914	2	7.9	107	15.5	19.9	1	Ø	Ø	Ø	Ø	
2	13JulyTF	1623	3	7.8	94	14.2	19.9	Ø	Ø	Ø	Ø	Ø	EC
3	14JUL95	1217	4	7.8	99	14.5	20.0	Ø	Ø	Ø	Ø	Ø	BB
4	15JUL95	1009	5	7.9	105	16.2	20.1	Ø	Ø	Ø	Ø	Ø	BB
5	16JUL95	1417	1	7.7	*	15.5	20.1	Ø	Ø	Ø	Ø	Ø	TF
6	17JUL95	1657	2	7.8	90	15.3	19.9	Ø	Ø	Ø	Ø	Ø	
7	18JUL95	1626	3	7.7	90	15.1	19.9	Ø	Ø	Ø	Ø	Ø	
8	19Jul95	0930	4	7.7	101	15.1	20.1	0	0	0	0	0	ATM
9	20Jul95	1315	5	7.6	101	15.3	20.2	0	0	0	0	0	ATM
10	21Jul95	0936	1	7.7	100	14.9	20.0	—	—	OBB	—	—	BB

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	17 ATM	20 PCM	19 KB	19 KB	17 KB	
	Number That	17 ATM	20 PCM	19 KB	19 KB	13 KB	
	Start Interstitial						
	Final Interstitial	20	21	20	21	21	

* unable to take D.O., meter not functioning 7-16-95 TF

① N/A PB 7/10/95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950615.0435	7/11/95 1500	Eohaustorius estuarius	MONI
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
S10062795	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	~~1327~~ 1323	1	~~7.6~~ 7.2	~~98~~ 94	~~15.4~~ 15.6	~~19.9~~ 20.0						CMF
1	12July95	0853	2	7.9	114	14.6	19.9	ϕ	ϕ	ϕ	ϕ	ϕ	ZF
2	13July95	1602	3	7.7	94	13.9	19.4	ϕ	ϕ	ϕ	ϕ	ϕ	EC
3	14Jul95	1219	4	7.6	98	14.7	19.9	ϕ	ϕ	ϕ	ϕ	ϕ	BB
4	15Jul95	1045	5	7.9	104	15.0	20.1	ϕ	ϕ	ϕ	ϕ	ϕ	RB
5	16Jul95	1414	1	7.6	*	14.9	19.8	ϕ	ϕ	ϕ	ϕ	ϕ	TF
6	17JUL95	1702	2	7.7	87	14.6	20.0	ϕ	ϕ	ϕ	ϕ	ϕ	MF
7	18JUL95	1627	3	7.7	93	14.9	19.5	ϕ	ϕ	ϕ	ϕ	ϕ	MF
8	19Jul95	0930	4	7.4	100	15.2	20.0	0	0	1	0	0	ATM
9	20Jul95	1315	5	7.6	96	14.3	20.0	0	0	0	0	0	ATM
10	21Jul95	1015	1	~~7.7~~ 7.6 (BW)	99	14.5	19.8	—	—	~~(BB)~~	—	—	BB

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	17 KB	@ ATM 4 20 ATM	18 KB	19 KB	19 KB	
	Number That	17 KB	20 ATM	18 KB	19 KB	19 KB	
	Start Interstitial						
	Final Interstitial	20	21	20	21	20 KB	

*① IE - whole line excluding date, rep, initials 11July95 CMF

* Unable to take D.O., meter not functioning 7-16-95 TF

@ IE ATM 7/21/95

② NA 21Jul95 BB

③ MF 21Jul95 BB

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950616.0135	11 July 95 1500	Eohaustorius estuarius	MONIT
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
SIO 6-27-95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1339	1	8.0	109	15.2	20.1						
1	12July95	0901	2	8.0	113	14.7	19.8	0	0	0	0	0	
2	13July95	1611	3	7.8	94	13.8	19.9	0	0	0	0	0	EC
3	14Jul95	1139	4	7.8	101	14.5	20.2	0	0	0	0	0	BB
4	15Jul95	1007	5	7.8	104	15.7	20.1	0	0	0	0	0	BB
5	16Jul95	1433	1	7.7	*	14.5	19.9	0	0	0	0	0	TR
6	17JUL95	1718	2	7.8	88	14.6	19.9	0	0	0	0	0	LMS
7	18JUL95	1627	3	7.7	96	14.8	19.9	0	0	0	0	0	LMS
8	19Jul95	0430	4	7.7	99	15.1	20.3	0	0	0	0	0	ATM
9	20Jul95	1320	5	7.5	100	15.4	20.1	0	0	0	0	0	ATM
10	21Jul95	1040	1	7.9	98	14.3	19.9	—	—	①BB	—	—	BB

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	19 ATM	19 RCW	19 KB	19 BB	18 TF	
	Number That	19 ATM	19 RCW	19 KB	19	18 TF	
	Start Interstitial						
	Final Interstitial	②KB 21 21	25	21	21	21	

* unable to take D.O., meter not functioning 7-16-95 TF ③KB WC 7/21/95

① N/A BB 21Jul95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950516.0235	7/11/95 1520	*Eohaustorius estuarius*	MDNJ
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
510627 95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead 1	2	3	4	5	Initials
0	11July 95	1401	1	8.0	110	15.8	203						
1	12July95	0905	2	7.9	113	14.8	19.9	0	0	0	0	0	
2	13July 95	1615	3	7.9	87	16.6	17.7	0	0	0	0	0	EC
3	14Jul95	1227	4	8.0	100	14.3	19.8	0	0	1	0	0	BS
4	15Jul95	1027	5	7.9	104	15.4	20.0	0	0	0	0	0	BS
5	16 Jul 95	1418	1	7.9	*	15.4	19.9	0	0	0	0	0	TF
6	17JUL95	1658	2	7.6	89	15.0	19.9	0	0	0	0	0	
7	18JUL95	1627	3	7.8	94	15.5	19.7	0	0	0	0	0	
8	19Jul95	0930	4	8.1	101	14.7	19.8	0	0	0	0	0	ATM
9	20Jul95	1320	5	7.6	100	14.7	20.0	0	0	0	0	0	ATM
10	21Jul95	0950	1	8.0	94	14.8	19.7			① BS			BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep 1	2	3	4	5	Initials
	Start Number of	20	20	20	20	20	
	End Number of	20 FCM	17 FCM	15 FCM	16 KB ATM 18 17 ATM		
	Number That	20 FCM	17 FCM	15 FCM	16 KB ATM 18 ② 17 ATM		
	Start Interstitial						
	Final Interstitial	20	21	20	21	20	

* unable to take D.O., meter not functioning 7-16-95 TF

① NA BS 21 Jul 95

② IE ATM 7/21/95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950616a.0335	7/11/95 1520	Eohaustorius estuarius	HONJI
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
S/0627 95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1356	1	7.9	107	15.5	20.2						
1	12July95	0900	2	7.9	114	14.7	19.7	ø	ø	ø	ø	ø	
2	13 July 95	15:56	3	7.8	93	13.9	19.7	ø	ø	ø	ø	ø	
3	14Jul95	1141	4	7.9	89	14.8	19.4	ø	ø	ø	ø	1	
4	15Jul95	1011	5	8.1	103	15.4	19.4	ø	ø	ø	ø	ø	
5	16 Jul 95	1407	1	7.9	*	15.7	19.9	ø	ø	ø	ø	ø	TF
6	17 JUL 95	1713	2	7.6	96	14.5	19.8	ø	ø	ø	ø	ø	
7	18 JUL 95	1628	3	7.8	93	14.9	19.7	ø	ø	ø	ø	ø	
8	19Jul95	0930	4	8.1	97	15.2	19.3	0	0	0	0	0	ATM
9	20Jul95	1322	5	7.9	100	15.0	19.6	0	0	0	0	0	ATM
10	21Jul95	0953	1	8.6	95	14.7	19.9	—	—	① BB	—	—	BB

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	20 RM	19 TF	19 ATM	17 ATM	20 RM	
	Number That	20 RM	19 TF	19 ATM	17 ATM	20 RM	
	Start Interstitial						
	Final Interstitial	22	21	21	20	20	

* Unable to take D.O., meter not functioning 7-16-95 TF

① NA 21Jul95 BB

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950616.0435	7/11/95 1540	Eohaustorius estuarius	MONU
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
S100627 95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July 95	1323	1	7.2	94	15.6	20.0						CLF
1	12July 95	0855	2	7.8	113	14.6	19.4	0	0	0	0	0	CLF
2	13 July 95	1605	3	7.6	91	14.3	19.8	0	0	0	0	0	EC
3	14JUL95	1210	4	8.0	98	14.2	19.1	1	0	0	0	0	BS
4	15JUL95	1022	5	8.0	103	15.8	19.0	0	0	0	0	0	BS
5	16JUL95	1405	1	7.6	*	15.3	19.9	0	0	0	0	0	TF
6	17 JUL95	1715	2	7.5	90	14.5	19.4	0	0	0	0	0	CLF
7	18JUL95	1628	3	7.7	92	15.3	19.8	0	0	0	0	0	CLF
8	19JUL95	0430	4	8.0	100	14.8	19.1	0	0	0	0	0	AJM
9	20JUL95	1325	5	8.0	97	15.4	19.1	0	0	0	0	0	AJM
10	21JUL95	0940	1	8.1	96	14.9	19.9	—	—	① BS	—	—	BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	16 FCV	18 KB	17 KB	18 KB ②	12 AJM	
	Number That	16 FCV	18 KB	17 KB	17 KB	12 AJM	
	Start Interstitial						
	Final Interstitial	20	21	21	21	20	

* Unable to take D.O., meter not functioning 7-16-95 TF

① NA BS 21 JUL95

② FOUND ANOTHER ANIMAL KB 7/21/95 KB

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C.950616.0535	11 July 95	Eohaustorius estuarius	MONJ
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
SIO L-27-95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1336	1	8.1	103	15.2	19.1						
1	12July95	0927	2	8.2	110	14.7	18.7	0	0	0	0	0	
2	13July95	1552	3	7.8	94	13.8	20.0	0	0	0	0	0	EC
3	14Jul95	1204	4	8.0	102	14.2	18.9	0	0	0	0	0	BS
4	15Jul95	1038	5	8.1	102	14.7	19.1	0	0	0	0	0	BS
5	16Jul95	1428	1	8.0	*	14.7	18.9	0	0	0	0	0	TF
6	17JUL95	1652	2	7.8	86	14.8	18.7	0	0	0	0	0	CHS
7	18JUL95	1629	3	7.8	93	15.4	18.8	0	0	0	0	0	MHS
8	19Jul95	0930	4	8.0	100	14.8	18.8	0	0	0	0	0	AJM
9	20Jul95	1325	5	7.9	95	14.4	19.1	0	0	0	0	0	ATM
10	21Jul95	1032	1	8.0	98	14.3	19.1	—	—	①	RB	—	BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	20 FCM	14 ATM	17 KB ②	15 FCM	② ATM 4 16 ATM	
	Number That	20 FCM	14 ATM	17 KB	15 FCM	ATM 4 16 ATM	
	Start Interstitial						
	Final Interstitial	20	20	20	20	20	

* Unable to take D.O., meter not functioning 7-16-95 TF ② KB FOUND 1 ANIMAL 7/21/95
① NA 21Jul95
② FE ATM 7/21/95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950620.0335	11 July 95 1500	Eohaustorius estuarius	MONJI
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
JID 6-27-95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July 95	1335	1	8.2	113	15.5	20.3						ZP
1	12July 95	0900	2	7.9	109	15.1	19.7	Ø	Ø	Ø	Ø	Ø	
2	13 July 95	1620	3	7.8	89	14.1	19.9	Ø	Ø	Ø	Ø	Ø	EC
3	14JJ/95	1207	4	7.9	98	14.1	20.0	Ø	Ø	Ø	Ø	Ø	KB
4	15JJ/95	1013	5	8.0	104	15.5	20.0	Ø	Ø	Ø	Ø	Ø	KB
5	16 Jul/95	1403	1	7.8	*	15.2	20.0	Ø	Ø	Ø	Ø	Ø	TF
6	17JUL95	1714	2	7.7	88	15.1	19.9	Ø	Ø	Ø	Ø	Ø	MS
7	18 JUL95	1630	3	7.9	90	15.0	19.9	Ø	Ø	Ø	Ø	Ø	MS
8	19Jul 95	0430	4	7.9	95	14.5	20.1	0	0	0	0	0	ATM
9	20Jul 95	1330	5	7.8	98	14.9	20.2	0	0	0	0	0	ATM
10	21JJ/95	0952	1	7.9	96	14.7	20.1	—	—	①KB	—	—	KB

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	16 KB	12 KB	18 RAW	②16/5 ATM	16 RAW	
	Number That	15 KB	12 KB	18 RAW	16/5 ATM	16 RAW	
	Start Interstitial						
	Final Interstitial	28	21	22	21	21	

* Unable to take D.O., meter not functioning 7-16-95 TF

① NA KB 21Jul95

② IE ATM 7/21/95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950620.0435	7/11/95 1520	Eohaustorius estuarius	MONU
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
SLO062795	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July 95	1345	1	8.0	103	15.5	20.3						MJ
1	12July95	0912	2	8.3	116	14.7	18.5	0	0	0	0	0	EC
2	13 July 95	1623	3	8.0	87	14.6	19.2	0	0	0	0	0	EC
3	14JJ195	1144	4	8.0	100	14.4	19.2	0	0	0	0	0	BS
4	15JJ195	1018	5	8.2	105	15.7	19.2	0	0	0	0	0	BS
5	16 JJ195	1425	1	7.9	*	14.9	20.0	0	0	0	0	0	TF
6	17JJL95	1650	2	7.9	88	15.0	18.6	0	0	0	0	0	MS
7	18JJL95	1630	3	8.0	92	15.7	19.2	0	0	0	0	0	MS
8	19Jul 95	0930	4	7.9	99	14.9	19.2	0	0	0	0	0	ATM
9	20Jul 95	1330	5	8.3	103	15.2	19.3	0	0	0	0	0	ATM
10	21JJ195	1035	1	8.2	99	14.5	19.9	—	(1) BS		—	—	BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	17 ATM	17	18 BS	18 FCW	20 BS	
	Number That	17 ATM	17	18 BS	18 FCW	20	
	Start Interstitial						
	Final Interstitial	21	21	21	20	21	

* Unable to take D.O., meter not functioning 7-16-95 TF

(1) NA BS-21Jul95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950620.0535	11July95 1500	Eohaustorius estuarius	HONJI
Seawater Batch No. SIO 6-27-95	Location RM 2	No. Organisms/Chamber 20	Hobo No. 3259

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11Jul95	1344	1	8.0	106	15.4	20.4						CAP
1	12July95	0918	2	7.9	115	14.9	19.9	0	0	0	0	0	CAP
2	13Jul95	1633	3	7.8	94	13.7	20.0	0	0	0	0	0	EC
3	14Jul95	1224	4	7.9	101	14.3	19.6	0	0	0	0	0	BS
4	15Jul95	1015	5	7.9	103	15.2	19.5	0	0	0	0	0	BS
5	16Jul95	1430	1	7.8	*	14.9	20.1	0	0	0	0	0	TF
6	17JUL95	1648	2	7.6	89	14.9	20.0	1	0	0	0	0	CAP
7	18JUL95	1630	3	7.9	89	15.1	19.9	0	0	1	0	0	CAP
8	19Jul95	0930	4	7.8	99	14.9	19.8	0	0	0	0	0	ATM
9	20Jul95	1330	5	7.9	101	14.5	19.6	0	0	0	0	0	ATM
10	21Jul95	1030	1	~~8.2~~ 7.8	102	14.4	20.2	—	①BS	—	—	—	BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	19 CAP	18 KB	20 KB	20 ATM	19 KB	③ KB 19 KB
	Number That	19 CAP	18 KB	20 KB	19 ATM	19 KB	③ KB 19 KB
	Start Interstitial						
	Final Interstitial	22	21	21	20	20	20

* unable to take D.O., meter not functioning 7-16-95 TF

③ WC KB 7/26/95

①NA BS 21JUL95

②MR 21JUL95 BS

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950620.0635	11July95 1500	Eohaustorius estuarius	HONJ
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
S106-27-95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1347	1	7.9	187	16.2	20.2						
1	12July95	0903	2	7.8	110	15.0	19.8	0	0	0	0	0	
2	13July95	1638	3	7.8	95	14.9	20.1	0	0	0	0	0	CC
3	14Jul95	1202	4	7.7	102	14.1	19.9	0	0	0	0	0	BS
4	15Jul95	1030	5	7.6	108	15.1	19.7	0	0	0	0	0	BS
5	16Jul95	1409	1	7.6	*	15.9	19.6	0	0	0	0	0	TF
6	17JUL95	1710	2	7.4	91	14.9	19.8	0	0	0	0	0	MJL
7	18JUL95	1630	3	7.8	94	15.0	19.9	0	0	0	0	0	MJL
8	19Jul95	0430	4	7.8	99	14.7	19.9	0	0	0	0	0	AJM
9	20Jul95	1335	5	7.7	102	14.4	19.6	0	0	0	0	0	AJM
10	21Jul95	0958	1	7.8	103	15.2	19.6	—	—	DNB	—	—	BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	19 BS	22 AJM	19 AJM	18 KB	20 KB	
	Number That	19 BS	22 AJM	19 AJM	18 KB	20 KB	
	Start Interstitial						
	Final Interstitial	21	21	21	20	21	

* unable to take D.O., meter not functioning 7-16-95 TF

① DWC MJL 17JUL95 ② NA BS 21Jul95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950620.0735	7/11/95 1520	Eohaustorius estuarius	MONI
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
S10627 95	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1350	1	8.1	108	16.0	20.2						KH
1	12July95	0924	2	8.0	94	15.2	19.9	0	0	0	0	0	[illegible]
2	13July95	1629	3	8.1	94	13.3	20.1	0	0	0	0	0	EC
3	14JUL95	1233	4	8.0	102	14.3	①18.7 ~~20.0~~	0	0	0	0	0	BS
4	15JUL95	1020	5	8.1	101	15.6	19.0	0	0	0	0	0	BS
5	16JUL95	1400	1	8.2	*	15.6	19.9	0	0	0	0	0	TF
6	17JUL95	1717	2	7.9	88	15.1	20.0	0	0	0	0	0	MS
7	18JUL95	1631	3	8.1	91	14.4	20.2	0	0	0	0	0	MS
8	19JUL95	0430	4	8.0	99	14.9	20.8	0	0	0	0	0	AJH
9	20JUL95	1335	5	8.1	99	15.0	19.9	0	0	0	0	0	AJH
10	21JUL95	0941	1	8.4	97	15.3	19.9	—	—	②BS	—	—	BS

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	18 KH	19 KB	20 KB	20 BS	20 TF	
	Number That	18 KH	19 KB	20 KB	20 BS	20 TF	
	Start Interstitial						
	Final Interstitial	20	21	22	21	21	

① KB BS 14JUL95 * unable to take D.O., meter not functioning 7-16-95 TF

② NA BS 21JUL95

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950620.0135 R	7/11/95 1520	Eohaustorius estuarius	MONJ
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
SWS10062795	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1331	1	7.9	111	15.2	19.7						
1	12July95	0847	2	①~~7.9~~ 7.9	115	14.1	19.4	1	Ø	2	Ø	Ø	
2	13Jul95	1550	3	8.0	94	13.7	19.5	Ø	Ø	Ø	Ø	Ø	EC
3	14Jul95	1215	4	8.Ø	105	14.8	19.3	Ø	Ø	Ø	Ø	Ø	BB
4	15Jul95	1002	5	8.1	106	15.9	19.5	Ø	Ø	Ø	Ø	Ø	BB
5	16Jul95	1420	1	8.Ø	*	15.2	19.2	Ø	Ø	Ø	Ø	Ø	TF
6	17JUL95	1654	2	7.7	89	14.2	19.4	Ø	Ø	1	Ø	Ø	
7	18JUL95	1629	3	7.9	95	14.9	19.4	Ø	Ø	Ø	Ø	Ø	
8	19Jul95	0930	4	8.1	100	15.6	19.2	0	0	0	0	0	AJM
9	20Jul95	1330	5	8.0	105	15.7	19.7	0	0	0	0	0	AJM
10	21Jul95	0927	1	8.Ø	96	14.9	19.3	0	0	0	0	0	BB

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	23 KB	20 AJM	19 AJM	19 KB	20 KB	KB
	Number That	23 KB	20 AJM	19 AJM	19 KB	20 KB	
	Start Interstitial						
	Final Interstitial						

① WN = 12July95 BB PH = 7.9 * unable to take D.O., meter not functioning 7-16-95 TF

PSEP Amphipod 10 Day Chronic Test Data Sheet

Test ID	Start Date/Time	Species/Common Name	Study Director
C950620.0235	7/11/95 1520	Eohaustorius estuarius	KONJI
Seawater Batch No.	**Location**	**No. Organisms/Chamber**	**Hobo No.**
S1062795	RM 2	20	3258

Concentraton:

WATER QUALITY

Day	Date	Time	Rep	pH	D.O. (%)	Temp (°C)	Salinity (‰)	# Observed Dead					Initials
								1	2	3	4	5	
0	11July95	1353	1	8.0	109	15.8	19.6						
1	12July95	0857	2	7.9	114	14.5	19.3	0	0	0	1	0	
2	13July95	1608	3	7.9	92	13.9	19.4	0	0	0	0	0	CC
3	14Jul95	1224	4	8.0	101	14.4	19.5	0	0	1	0	0	BB
4	15Jul95	953	5	8.0	106	15.0	19.4	0	0	1	0	0	BB
5	16Jul95	1402	1	7.9	*	15.3	19.3	0	0	0	0	0	TF
6	17JUL95	1716	2	7.7	91	14.5	19.3	0	0	0	0	0	
7	18JUL95	1629	3	7.9	93	15.0	19.4	0	0	0	0	0	
8	19Jul95	0930	4	8.0	98	15.0	19.4	0	0	0	0	0	ATM
9	20Jul95	1330	5	8.0	101	14.5	19.4	0	0	0	0	0	ATM
10	21Jul95	0930	1	8.0	98	15.2	19.3	0	0	0	0	0	BB

SURVIVORSHHIP AND INTERSTITIAL SALINITY DATA

Date	Parameter	Rep					Initials
		1	2	3	4	5	
	Start Number of	20	20	20	20	20	
	End Number of	22 ATM	20 KB	19 KB	19 KB	20 ATM	
	Number That	22 ATM	20 KB	19 KB	19 KB	20 ATM	
	Start Interstitial						
	Final Interstitial						

* unable to take D.O., meter not functioning 7-16-95 TF

20-Day Polychaete Survival and Growth Test with *Neanthes arenaceodentata*

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	24Jun95
Sample Matrix:	Sediment	**Date Test Ended:**	14Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Test ID No.:**	0694-004

PSEP 20-Day Chronic Test
MEC Testing Protocol No. P014.1

Test Organism: *Neanthes arenaceodenta*

Sample ID	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	% Survival
C950614.0337	US-01	4	5	4	4	5	88%
C950614.0437	US-02	5	5	5	5	5	100%
C950614.0537	US-03	5	5	5	4	5	96%
C950615.0137	US-04	5	5	3	4	4	84%
C950615.0237	US-05	4	3	5	5	4	84%
C950615.0337	US-06	5	5	5	5	5	100%
C950615.0437	US-07	5	5	5	5	4	96%
C950616.0137	US-08	5	5	4	6	5	100%
C950616.0237	US-10	3	*	3	3	4	65%
C950616.0337	US-11	5	5	4	5	5	96%
C950616.0437	US-12	4	5	5	3	5	88%
C950616.0537	US-13	4	5	4	5	5	92%
C950620.0337	US-09	4	3	3	3	3	64%
C950620.0437	US-14	5	5	5	5	5	100%
C950620.0537	US-15	5	5	5	5	5	100%
C950620.0637	NISQ	5	5	5	5	5	100%
C950620.0737	CARR	5	5	5	5	5	100%
C950622.0337	Control 1	5	5	5	4	5	96%
C950622.0437	Control 2	5	5	5	4	5	96%

*sample lost

Approved by [signature] Date 24AUG95

Growth Data

Sample ID	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	No. Alive	Mean/ Worm
C950614.0337	US-01	52.82	71.65	34.99 35.44	64.50	42.37	53.27	22	2.42
C950614.0437	US-02	42.59	36.67	29.26	42.45	36.91 33.92	37.58	25	1.50
C950614.0537	US-03	33.79	28.67	29.62	38.92	43.70	34.94	24	1.46
C950615.0137	US-04	35.05	37.65	35.48	55.14	21.55	36.97	21	1.76
C950615.0237	US-05	38.02	21.10	39.56	35.15	40.38	34.84	21	1.66
C950615.0337	US-06	30.76	41.21	49.48	29.83	27.95	35.85	25	1.43
C950615.0437	US-07	33.69	35.51	24.82	36.69	40.19	34.18	24	1.42
C950616.0137	US-08	32.25	32.14	33.25	41.14	61.01	39.96	25	1.60
C950616.0237	US-10	27.58	24.04	27.91	33.23	27.61	28.07	14	2.01
C950616.0337	US-11	44.47	36.65	27.67	35.07	35.99	35.97	24	1.50
C950616.0437	US-12	42.55	36.14	43.21	28.51	42.09	38.50	22	1.75
C950616.0537	US-13	22.19	27.86	21.11	37.74	29.09	27.60	23	1.20
C950620.0337	US-09	22.28	9.91	19.30	20.27	15.57	17.47	16	1.09
C950620.0437	US-14	14.52	43.40	49.22	34.92	27.65	33.94	24	1.41
C950620.0537	US-15	38.52	44.48	49.62	35.67	37.47	41.15	25	1.65
C950620.0637	NISQ	42.27	43.43	34.14	43.34	55.46	43.73	25	1.75
C950620.0737	CARR	50.35	30.75	28.23	44.66	46.86	40.17	25	1.61
C950622.0337	Control	19.22	43.12	25.65	20.63	23.59	26.44	24	1.02
C950622.0437	Control	26.94	37.11	12.06	40.18	17.86	26.83	24	1.12

Approved by William E. Schaal Date 29AUG95

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14Jun95
Project:	Unocal	**Date Test Started:**	24Jun95
Sample Matrix:	Sediment	**Date Test Ended:**	14Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Test ID No.:**	0694-004

Test Solution Physical and Chemical Data

Sample ID	Site	Statistic	Dissolved Oxygen (%)	pH (units)	Salinity (ppt)
C950614.0337	US-01	Mean	91	7.8	27.2
		Minimum	79	7.5	20.0
		Maximum	96	8.0	29.0
C950614.0437	US-02	Mean	92	7.9	27.3
		Minimum	80	7.6	26.6
		Maximum	96	8.1	28.0
C950614.0537	US-03	Mean	91	7.8	27.2
		Minimum	86	7.6	24.8
		Maximum	96	8.1	28.0
C950615.0137	US-04	Mean	92	7.8	27.5
		Minimum	83	7.6	26.5
		Maximum	98	8.0	28.0
C950615.0237	US-05	Mean	93	7.8	27.6
		Minimum	83	7.7	27.1
		Maximum	98	7.9	28.1
C950615.0337	US-06	Mean	95	7.8	27.2
		Minimum	86	7.6	26.4
		Maximum	98	8.1	28.0
C950615.0437	US-07	Mean	91	7.8	27.4
		Minimum	79	7.6	26.2
		Maximum	97	8.1	28.3
C950616.0137	US-08	Mean	93	7.9	27.1
		Minimum	87	7.7	24.4
		Maximum	100	8.1	28.0
C950616.0237	US-10	Mean	87	7.8	26.9
		Minimum	73	7.5	23.7
		Maximum	95	8.1	27.7
C950616.0337	US-11	Mean	91	7.9	27.9
		Minimum	81	7.6	24.8
		Maximum	96	8.3	28.1
C950616.0437	US-12	Mean	90	7.9	27.3
		Minimum	81	7.6	26.3
		Maximum	97	8.3	28.5

Approved by Wil El. Schmidt Date 24 Aug 95

Sample ID	Site	Statistic	Dissolved Oxygen (%)	pH (units)	Salinity (ppt)
C950616.0537	US-13	Mean Minimum Maximum	92 85 98	7.9 7.7 8.1	27.0 25.7 28.1
C950620.0337	US-09	Mean Minimum Maximum	90 73 97	7.9 7.5 8.1	27.6 27.0 29.0
C950620.0437	US-14	Mean Minimum Maximum	92 82 101	8.0 7.7 8.2	27.0 26.3 27.4
C950620.0537	US-15	Mean Minimum Maximum	94 88 109	7.9 7.6 8.0	27.4 24.7 28.2
C950620.0637	NISQ	Mean Minimum Maximum	94 87 103	7.7 7.5 7.9	27.1 24.6 28.0
C950620.0737	CARR	Mean Minimum Maximum	92 84 108	8.0 7.6 8.2	27.4 23.8 28.3
C950622.0337	Control	Mean Minimum Maximum	95 92 104	8.0 7.9 8.2	27.4 26.9 28.0
C950622.0437	Control	Mean Minimum Maximum	96 92 108	8.0 7.8 8.4	27.4 26.3 28.0

Approved by William C. Schmidt Date 24 Aug 95

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14Jun95
Project:	Unocal	**Date Test Started:**	24Jun95
Sample Matrix:	Sediment	**Date Test Ended:**	14Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Test ID No.:**	0694-004

APPENDIX
Pertinent Test Data

TEST: PSEP 20-Day Chronic Test with *Neanthes arenaceodenta*, MEC Protocol No. P014.1

DILUTION WATER: Filtered seawater.

TEST ORGANISM: *Neanthes arenaceodenta*, purchased from California State University, Long Beach; fed TetraMarin on an every-other-day basis.

TEST CHAMBER: 1 L glass beakers.

EXPERIMENTAL DESIGN:
1. Test sediments were homogenized and added to randomized test chambers to 2 cm.
2. Test sediments were aerated and allowed to settle overnight.
3. 5 test organisms were placed into each chamber.
4. Sterile, particle-free, dry air was delivered through a Pasteur pipet into each chamber to bring the dissolved oxygen to levels above 60% saturation.
5. Test chambers were held at 20°C for 20 days with a photo period of 16 hours light, 8 hours darkness.
6. Temperature was monitored with a continuous recording computer (plot attached).

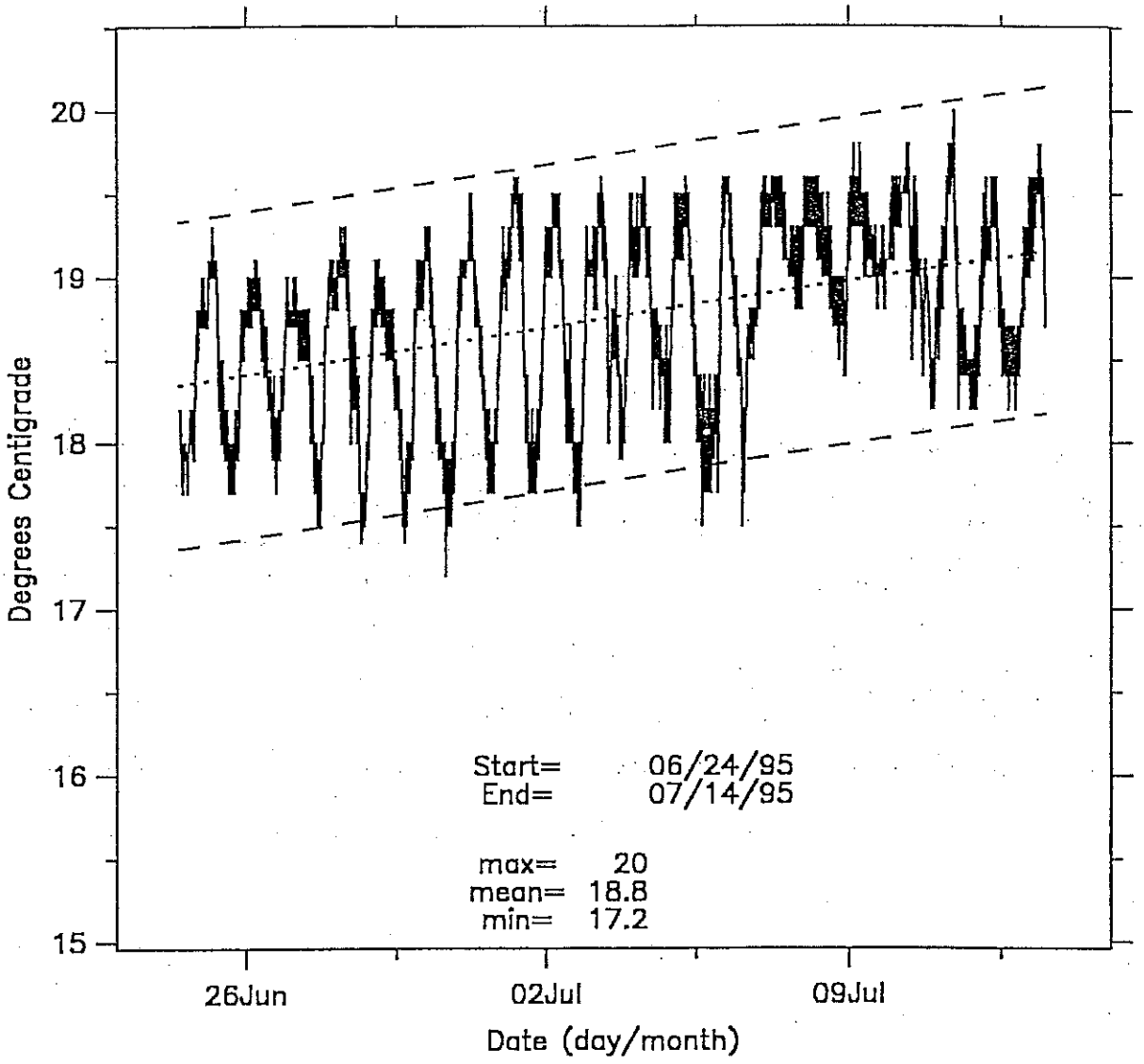
MORTALITY CRITERIA: Lack of respiratory movement and lack of reaction to gentle prodding.

REFERENCE TOXICITY:
1. Toxicant: CdCl, USEPA Reference Toxicant
2. 96 Hour LC_{50}: 6.59 mg/L (95% confidence limits 5.72, 7.60)
3. Test Date: 6/27/95

STUDY DIRECTOR: F.C. Newton

INVESTIGATORS: E. Calix, K. Bothner, N. Lewnes, B. Schmitz, A. Monji

Approved by _____ Date 24AUG95



Test Temperature Recorded At 5 Minute Intervals

(dotted line = predicted mean temperature, dashed line = 95% confidence bounds)

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950614.0337	24 June 95 08:50	*Neanthes arenaceodenta*	Newton
Seawater Batch No.	**Bath/Room ID**	**No. Organisms/Chamber**	
S10 061395	Room #3	5	
Test Location:	**HOBO Temp. No:**		
Room 3	8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24June95	85-0	1	88	21.1	28·3	7·8	EC
2	25June95	1019	2	90	20.4	29	7.5	KB, MSB
5	29JUNE95	1555	3	94	20.2	28.4	7.9	KM/EC
8	2Jul95	1041	4	79	20·3	28.6	7.9	EC
11	5 Jul 95	1025	1	9Ø	2Ø.6	27.9	7.8	KB
14	8 Jul 95	1230	2	95	2Ø.3	26.9	7.8	EC
17	11 Jul 95	0756	3	96	2Ø.Ø	2Ø.Ø	7.9	KB
20	14 Jul 95	1010	4	96	20.4	28.4	8.Ø	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A) KB	Initials
	1	5	1	97.85	1Ø3.43	5.58	KB
	2	5	2	96.90	1Ø2.16	5.26	KB
	3	5	3	103.00	11Ø.23	7.23	KB

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A) KB	Initials
	1	4 FW	1	51.39	1Ø4.21	52.82	MSB
	2	5 KB	2	51.69	123.34	71.65	
	3	4 KB MSB	3	42.61	77.60	~~35.44~~ 34.99	
	4	4 KB	4	5Ø.64	115.14	64.50	
	5	5 FW	5	5Ø.92	93.29	42.37	

Renewed 7/27/95 KB ① IE MSB 14 JULY 95

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950914.0437	24 June 95 08:50	*Neanthes arenaceodenta*	Newton
Seawater Batch No.	**Bath/Room ID**	**No. Organisms/Chamber**	
S100613S5	Room #3	5	
Test Location:	**HOBO Temp. No:**		
Room 3	8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	852	1	8.6	20.9	27.4	7.6	EC
2	25 June 95	1020	2	9.4	20.2	27	7.7	MSB, KB
5	28 June 95	1400	3	9.5	19.9	27.2	8.0	EM/DE
8	2 July 95	1043	4	8.0	20.8	27.8	8.1	EC
11	5 July 95	1022	1	9.5	20.6	27.4	8.0	KB
14	8 July 95	1232	2	9.4	19.9	26.8	7.9	EC
17	11 July 95	~~0758~~ 0758	3	9.6	20.2	26.6	7.9	~~DE~~
20	14 July 95	1016	4	9.6	20.9	28.0	7.9	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A) KB	Initials
	1	5 ATM	6	56.15	98.74	① 42.59 KB ~~42.24~~	MSB
	2	5 ATM	7	49.81	86.48	36.67	
	3	5 MJ	8	47.35	76.61	29.26	
	4	5 FW	9	51.04	93.49	42.45	
	5	5 MJ	10	48.05	84.96	33.92	

① WT = 11July95 DE ② IE KB 7/17/95 36.91

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950614.0537	24 June 08:50	*Neanthes arenaceodenta*	Newton

Seawater Batch No.	Bath/Room ID	No. Organisms/Chamber
S10 061395	Room #3	5

Test Location:	HOBO Temp. No:
Rm 3	8378

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24June95	854	1	86	20.4	27.5	7.7	EC
2	25June95	1022	2	94	20.7	27	7.6	MSB, KB
5	28JUN95	1401	3	86	20.4	27.6	7.7	CR/CC
8	2July95	1044	4	89	20.7	27.7	8.1	EC
11	5July95	1025	1	93	20.0	28.0	7.7	KB
14	8July95	1234	2	92	20.4	27.0	7.9	EC
17	11July95	0759	3	91	20.8	24.8	7.7	[illegible]
20	14Jul96	1007	4	96	20.4	28.0	7.8	BB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5 SN	11	48.74	82.53	33.79	MM
	2	6 AM	12	48.18	76.85	28.67	
	3	5 SN	13	42.66	72.28	29.62	
	4	4 MM	14	45.43	84.35	38.92	
	5	6 MM	15	51.72	95.42	43.70	

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950615.0137	24 June 95 0859	*Neanthes arenaceodenta*	Newton
Seawater Batch No.	**Bath/Room ID**	**No. Organisms/Chamber**	
SIO 061395	Room #3	5	
Test Location:	**HOBO Temp. No:**		
Rm 3	8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	858	1	86	20.9	27.6	7.8	EC
2	25 June 95	1022	2	92	20.8	28	7.6	MSB, KB
5	28 June 95	1402	3	95	20.7	27.6	7.9	KB/EC
8	2 July 95	1045	4	83	20.8	27.7	8.0	EC
11	5 July 95	1026	1	96	20.8	27.4	7.7	KB
14	8 July 95	1206	2	91	20.2	26.7	7.8	EC
17	11 July 95	0800	3	96	20.7	26.5	7.8	MSB
20	14 July 95	1015	4	98	20.9	28.0	7.9	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5 KB	16	54.88	85.93		MSB
	2	5 KB	17	46.55	(2) KB 88 84.20		
	3	3 FCN	18	54.72	86.20		
	4	4 MSB (1) 5 KB	19	49.85	104.99		
	5	4 MSB	20	53.13	74.68		

(1) WC KB 7/14/95 (2) IE KB 7/17/95

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950615.0237	24 June 95 08:50	*Neanthes arenaceodenta*	Ulton
Seawater Batch No.	**Bath/Room ID**	**No. Organisms/Chamber**	
SLO 061395	Room #3	5	
Test Location:	**HOBO Temp. No:**		
Rm 3	8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	900	1	8.7	20.6	27.5	7.9	EC
2	25 June 95	1022	2	9.6	20.2	28	7.7	MSB, KB
5	29 June 95	1405	3	8.8	20.6	27.6	7.7	EM/EC
8	2 July 95	1047	4	8.3	20.4	27.7	7.8	EC
11	5 July 95	1028	1	9.7	20.5	27.5	7.8	KB
14	8 July 95	1237	2	9.5	20.1	27.1	7.9	EC
17	11 July 95	0801	3	9.6	20.4	27.6	7.9	MF
20	14 JUL 95	1023	4	~~20.6~~ 9.8 ①	~~21.~~ 20.6 ①	~~21.7~~ 28.1 ①	7.8	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	4	21	53.43	91.45		KB
	2	3 KB	22	50.62	71.72		
	3	5	23	49.80	89.32		
	4	5	24	53.11	88.26		
	5	4 KB	25	52.40	92.78		

① IE 14 JUL 95

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C95D015.0337	24 June 95 0850	*Neanthes arenaceodenta*	Newton
Seawater Batch No.	**Bath/Room ID**	**No. Organisms/Chamber**	
S10 061395	Room #3	5	
Test Location:	**HOBO Temp. No:**		
Rm 3	8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	902	1	86	20.6	27.5	7.6	EC
2	25 June 95	1023	2	96	20.3	28	7.7	MSB, KB
5	29 June 95	1406	3	92	20.6	27.7	7.9	GN/GC
8	2 July 95	1049	4	93	20.6	27.7	8.1	EC
11	5 July 95	1028	1	98	20.2	27.5	7.8	KB
14	8 July 95	1238	2	98	20.1	26.6	8.0	EC
17	11 July 95	0803	3	98	20.9	26.4	7.9	[illegible]
20	14 JUL 95	1022	4	98	21.0	26.5	7.7	[illegible]

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5	26	50.92	81.68		[illegible]
	2	5 MF	27	53.95	95.16		
	3	5	28	53.93	103.41		
	4	5 MF	29	44.34	74.17		
	5	5	30	50.87	78.82		

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C9SDA5.0437	24 June 95	*Neanthes arenaceodenta*	Newton

Seawater Batch No.	Bath/Room ID	No. Organisms/Chamber
S10 061395	Room#3	5

Test Location:	HOBO Temp. No:
Run 3	8378

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24June95	906	1	85	21.2	27.7	7.6	EC
2	25June95	1023	2	93	20.6	27	7.6	MSB, KB
5	29JUN95	1407	3	92	19.7	27.6	7.7	EM/GC
8	2July95	1050	4	79	20.6	28.3	8.1	EC
11	5July95	1030	1	97	19.9	27.6	7.8	KB
14	8July95	1239	2	92	20.6	26.2	7.6	EC
17	11July95	0805	3	97	19.9	27.1	7.9	[illegible]
20	14Jul96	1020	4	93	21.3	27.7	7.8	[illegible]

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5 PCN	31	53.74	87.43		[illegible]
	2	5 [illegible]	32	54.56	90.07		
	3	5 KB	33	52.34	77.14		
	4	5 KB	34	47.94	84.63		
	5	4 PCN	35	54.69	90.80		

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950616.0137	24 June 95 08:58	*Neanthes arenaceodenta*	Newton
Seawater Batch No.	**Bath/Room ID**	**No. Organisms/Chamber**	
SLO 061395	Room #3	5	
Test Location:	**HOBO Temp. No:**		
Rm 3	8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24June95	911	1	87	20.4	27.7	7.7	EC
2	25June95	1024	2	96	20.6	28	7.7	MSB/KE
5	29June95	1408	3	94	19.6	27.5	7.9	DN/EC
8	2July95	1051	4	89	20.6	27.7	7.9	EC
11	5July95	1032	1	95	20.4	27.4	7.8	KB
14	8July95	1241	2	87	20.5	26.8	8.1	EC
17	11July95	0807	3	97	20.4	24.4	7.9	KB
20	14July96	1003	4	100	19.9	27.5	7.9	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5 ASM	36	58.60	90.85		KB
	2	5 ASM	37	49.26	81.40		
	3	4 ASM	38	55.10	88.35		
	4	6 ASM	39	48.50	89.64		
	5	5 ASM	40	46.54	107.55		

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C95X016.0237	24 June 95 0850	*Neanthes arenaceodenta*	Newton

Seawater Batch No.	Bath/Room ID	No. Organisms/Chamber
S10 061395	Room #3	5

Test Location:	HOBO Temp. No:
Rm 3	8378

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	910	1	7.3	20.5	27.4	7.6	EC
2	25 June 95	1024	2	8.7	20.6	27	7.5	WSB, KB
5	29 JUNE 95	1409	3	8.6	20.4	27.4	8.1	EN/EC
8	2 July 95	1052	4	8.3	20.5	27.5	8.1	EC
11	5 July 95	1033	1	8.8	20.1	27.7	7.7	KB
14	8 July 95	1242	2	8.7	20.7	26.9	7.9	EC
17	11 July 95	0809	3	9.4	20.7	23.7	7.7	ZL
20	14 JUL 95	1008	4	9.5	20.4	24.4	7.8	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	3 YF	41	49.66	77.24		YF
	2	2 ① YF	42	52.16	76.20		
	3	3 KB	43	50.49	78.40		
	4	3 KB	44	48.73	81.96		
	5	4 KB	45	47.45	75.06		

① WC YF 14 JUL 95

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C9506160337	24 June 95 08:59	*Neanthes arenaceodenta*	Newton

Seawater Batch No.	Bath/Room ID	No. Organisms/Chamber
S10 061395	Room #3	5

Test Location:	HOBO Temp. No:
Rm 3	8378

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	913	1	88	20.6	27.2	7.9	EC
2	25 June 95	1025	2	91	20.5	27	7.6	MSB, KB
5	28 June 95	1410	3	89	20.4	26.8	8.1	BM/DSC
8	2 July 95	1053	4	81	20.3	27.6	8.3	EC
11	5 July 95	1035	1	94	20.6	27.4	7.9	KB
14	8 July 95	1242	2	90	20.2	27.1	7.9	EC
17	11 July 95	0810	3	95	20.4	24.8	7.8	[illegible]
20	14 July 95	1004	4	95	20.3	28.1	7.9	BS

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1	5 ~~5~~ ATM	46	49.55	94.02		MY
	2	5 ATM	47	53.86	99.51		
	3	4 MY	48	46.81	74.48		
	4	5 MY	49	56.66	91.73		
	5	5 ATM	50	54.45	99.44		

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950616.0437	24 June 95 0850	*Neanthes arenaceodenta*	Newton

Seawater Batch No.	Bath/Room ID	No. Organisms/Chamber
SLO 061395	Room #3	5

Test Location:	HOBO Temp. No:
Run 3	8378

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	915	1	81	21.9	27.1	7.6	EC
2	25 June 95	1038	2	93	20.6	27	7.7	MSB, KB
5	29 JUNE 95	1411	3	92	20.2	27.6	8.0	BR/EC
8	2 July 95	10:55	4	89	20.3	27.7	8.3	EC
11	5 July 95	1040	1	88	20.2	27.2	7.8	KB
14	8 July 95	1245	2	90	20.4	26.3	7.9	EC
17	11 July 95	0811	3	97	20.3	26.9	7.9	BR
20	14 Jul 95	1001	4	93	19.4	28.5	7.8	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	4 KB	51	55.00	97.55	42.55	KB
	2	5 ATM	52	56.57	92.71	36.14	
	3	5 KB	53	51.35	94.56	43.21	
	4	3 MSB	54	49.53	78.04	28.51	
	5	5 ATM	55	49.89	91.98	42.09	

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950616.0537	24 June 95 08:57	*Neanthes arenaceodenta*	Newton
Seawater Batch No.	**Bath/Room ID**	**No. Organisms/Chamber**	
SLO 061395	Room #3	5	
Test Location:	**HOBO Temp. No:**		
Rm 3	8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	917	1	8.7	20.6	26.9	7.8	cc
2	25 June 95	1028	2	9.6	20.3	27.	7.8	MSB, KE
5	29 June 95	1412	3	9.1	①24.30 19.5	27.1	7.7	GM/CC
8	2 July 95	1056	4	8.5	20.6	27.4	8.1	CC
11	5 July 95	1045	1	9.8	20.7	27.4	7.9	KB
14	8 July 95	1246	2	9.1	20.1	26.4	7.9	cc
17	11 July 95	0813	3	9.5	20.3	25.7	8.0	
20	14 Jul 95	0953	4	9.3	20.1	28.1	7.7	BB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	4	56	49.65	71.84		
	2	5	57	52.34	80.20		
	3	4 KB	58	48.39	69.50		
	4	5 KB AST ②	59	50.40	88.14		
	5	5	③ 60 66	48.43	77.52		

① WN - CC 6-29-95
② IE ATA 7/19/95
③ NUMBERS WERE SWITCHED

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950620.0337	24 June 95 0450	*Neanthes arenaceodenta*	Newton
Seawater Batch No. Renewals SID 27 JUN 95	**Bath/Room ID** Room #3	**No. Organisms/Chamber** 5	
Test Location: Rm 3	**HOBO Temp. No:** 8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	919	1	89	20.3	27.5	7.9	EC
2	25 June 95	1029	2	95	20.6	29	7.8	MSB, KB
5	28 JUNE 95	1415	3	88	20	27.4	7.8	MSB/GC
8	2 July 95	1057	4	87	~~19.8~~ 20.2	~~27.4~~ 27.5	~~8.0~~ 8.0	EC
11	5 July 95	1043	1	97	20.3	27.3	7.9	KB
14	8 July 95	1243	2	96	20.5	27.0	8.1	EC
17	11 July 95	0814	3	94	19.9	28.3	7.9	MSB
20	14 JUL 95	1036	4	73	20.5	27.1	7.5	BB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	4 KB	61	47.79	70.07		MSB
	2	3 MSB	62	48.65	58.52		
	3	3 ATM	63	49.30	68.60		
	4	~~2~~ 3 ATM (2)	64	50.37	70.64		
	5	3 MSB	65	43.20	58.77		

(2) ON MSB 14 JUL 95

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950620.0437	24 June 95 0850	*Neanthes arenaceodenta*	Munji
Seawater Batch No.	**Bath/Room ID**	**No. Organisms/Chamber**	
SIO 061395	Room #3	5	
Test Location:	**HOBO Temp. No:**		
Rm 3	8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 JUNE 95	921	1	88	20.4	27.1	8.0	EC
2	25 June 95	1030	2	94	21.4	27	7.7	MSB, KB
5 ①	29 JUNE 95 EM	1650	3	82	19.1	27.1	8.2	EM/EC
8	2 July 95	1059	4	85	20.5	27.3	8.2	EC
11	5 July 95	1045	1	100	19.9	27.4	7.9	KB
14	8 July 95	1245	2	88	20.8	26.3	8.1	EC
17	11 July 95	0815	3	101	20.2	27.1	7.9	MSL
20	14 Jul 95	1018	4	95	21.3	27.0	7.8	BS

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5 ATM	③KB 66 60	48.81	63.33		MSL
	2	5 KB	67	45.10	88.50		
	3	5 MSL	68	50.85	100.07		
	4	5 MSL	69	54.28	89.20		
	5	5 ~~4~~ ATM	70	50.80	78.45		

① IE EM - 6-29-95 IE - ATM 7/14/95

③ NUMBERS WERE SWITCHED

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
c950620.0537	24 June 95 0850	*Neanthes arenaceodenta*	D Lawton

Seawater Batch No.	Bath/Room ID	No. Organisms/Chamber
SLO 061395	Room #3	5

Test Location:	HOBO Temp. No:
Rm 3	83780

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	923	1	88	20.4	27.8	7.9	EC
2	25 June 95	1030	2	90	20.7	28	7.6	MSB, KB
5	28 JUNE 95	1451	3	91	20.6	27.7	7.9	EM/EC
8	2 June 95	1100	4	91	21.3	28.0	7.9	EC
11	5 July 95	1048	1	99	19.9	27.6	7.7	KB
14	8 July 95	1245	2	89	21.1	27.3	7.9	EC
17	11 July 95	0817	3	109	20.7	24.7	7.9	MB
20	14 JUL 95	1014	4	97	21.3	28.2	8.0	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5 MM	71	43.62	82.14		MM
	2	5 ATM	72	44.71	89.19		
	3	5 KB	73	50.52	100.14		
	4	5	74	51.63	87.30		
	5	5 SN	75	54.87	92.34		

D IE ATM 7/27/95

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950620.0637	24 June 95 0850	*Neanthes arenaceodenta*	Newton

Seawater Batch No.	Bath/Room ID	No. Organisms/Chamber
SLO 061395	Room #3	5

Test Location:	HOBO Temp. No:
Rm 3	8378

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	925	1	89	20.9	27.6	7.6	EC
2	25 June 95	1031	2	94	20.9	28	7.5	MSB, KB
5	29 June 95	1655	3	88	20.6	27.3	7.5	KB/EC
8	2 July 95	1101	4	87	20.0	27.6	7.9	EC
11	5 July 95	1047	1	97	20.2	27.5	7.8	KB
14	8 July 95	1246	2	90	20.8	27.1	7.9	EC
17	11 July 95	0818	3	103	21.2	24.6	7.7	MSB
20	14 July 95	0833	4	100	20.3	27.3	7.9	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5 ATM	76	52.50	94.77		MSB
	2	5 MSB	77	53.90	97.33		
	3	5 4th FCN	78	57.22	91.36		
	4	5 MSB	79	53.66	97.00		
	5	5 MSB	80	57.38	112.84		

① WC/MC 14 July 95 RW

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950620.0737	24 June 95 0850	*Neanthes arenaceodenta*	Newton

Seawater Batch No.	Bath/Room ID	No. Organisms/Chamber
SLO 061395	Room #3	5

Test Location:	HOBO Temp. No:
Rm 3	8378

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	930	1	92	21.2	28.2	8.0	EC
2	25 June 95	1033	2	87	21.3	28	7.6	MSB, KB
5	29 JUNE 95	1656	3	88	20.1	27.8	8.0	KB/EC
8	2 July 95	1103	4	85	20.7	28.0	8.2	EC
11	5 July 95	1049	1	97	19.4	27.9	8.2	KB
14	8 July 95	1250	2	84	21.3	26.8	7.9	EC
17	11 July 95	0820	3	108	20.7	23.8	8.0	[illegible]
20	14 JULY 95	1012	4	97	20.9	28.3	8.1	BS

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5 MS	81	57.23	107.58		MS
	2	5 KB	82	50.92	81.67		
	3	5 MS	83	55.50	83.73		
	4	5 KB	84	56.27	100.93		
	5	5 KB	85	57.46	104.32		

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950622.0337	24 June 95 0852	*Neanthes arenaceodenta*	Newton

Seawater Batch No.	Bath/Room ID	No. Organisms/Chamber
S10 061395	Room #3	5

Test Location:	HOBO Temp. No:
Rm 3	8378

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	933	1	92	21.2	27.1	8.1	EC
2	25 June 95	1034	2	96	20.8	28	7.9	MSB/KB
5	29 JUNE 95	1657	3	93	20.0	27.5	7.9	KB/EC
8	2 July 95	1104	4	93	20.7	27.3	8.0	EC
11	5 July 95	1047	1	97	20.8	27.2	8.0	KB
14	8 July 95	1252	2	93	20.6	26.9	8.2	EC
17	11 July 95	0822	3	104	20.0	27.4	80	KB
20	14 Jul 95	0952	4	94	21.1	27.6	7.9	KB

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5	86	53.43	72.65	19.22	MSB
	2	5	87	52.95	96.07	43.12	
	3	5	88	54.19	79.84	25.65	
	4	4	89	54.29	74.92	20.63	
	5	5	90	58.21	81.80	23.59	

PSEP *Neanthes* 20 Day Chronic Test Data Sheet

Sample ID	Start Date/Time	Species/Common Name	Study Director
C950622.0437	24 June 95 0859	*Neanthes arenaceodenta*	Newton
Seawater Batch No.	**Bath/Room ID**	**No. Organisms/Chamber**	
S10 061395	Room #3	5	
Test Location:	**HOBO Temp. No:**		
12m 3	8378		

WATER QUALITY

Day	Date	Time	Rep	D.O. (ppm)	Temp (°C)	Salinity (‰)	pH	Initials
0	24 June 95	940	1	92	20.9	27.9	8.0	EC
2	25 June 95	1034	2	94	20.3	28	7.8	MSB, KB
5	29 JUNE 95	1700	3	93	20.6	27.6	7.9	CM/DC
8	2 July 95	1106	4	92	20.3	27.7	8.0	EC
11	5 July 95	1049	1	98	20.3	27.8	8.0	KB
14	8 July 95	1254	2	96	20.1	26.3	8.1	EC
17	11 July 95	0826	3	108	20.8	26.6	8.4	[illegible]
20	②							

BIOMASS DATA - START

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B	Biomass (B - A)	Initials
	1						
	2						
	3						

BIOMASS DATA - END

Date	Rep	No. Worms Alive	Tare ID	Initial Weight (mg) A	Final Weight (mg) B KB	Biomass (B - A)	Initials
	1	5	91	0.0960	122.94		
	2	5	92	0.1091	146.21		
	3	5	93	0.0898	101.86		
	4	① 4 5 ATM	94	0.0927	132.88		
	5	5	15	0.0871	104.96		

① JE ATM 7/14/95 ② WATER QUALITY NOT TAKEN BF 14JUL95

48-60 Hour Bivalve Larvae Survival and Normal Development Test with *Mytilus edulis*

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	7Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	10Jul95
Sample Name/ID:	C950614.03-C950620.07	**Work Request No.:**	0694-003

Sediment Toxicity Study with Bivalve Larvae for 48-60 Hours
MEC Testing Protocol No. P048.0

Test Organism: *Mytilus edulis*

Normal Development

Sample ID	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	% Normal
C950614.0343	US-01	98%	98%	99%	99%	97%	98%
C950614.0443	US-02	93%	83%	97%	98%	95%	93%
C950614.0543	US-03	81%	98%	96%	81%	94%	90%
C950615.0143	US-04	96%	94%	97%	99%	99%	97%
C950615.0243	US-05	95%	96%	96%	94%	96%	95%
C950615.0343	US-06	92%	94%	94%	97%	95%	95%
C950615.0443	US-07	96%	97%	98%	99%	95%	97%
C950616.0143	US-08	97%	98%	92%	95%	92%	95%
C950616.0243	US-10	95%	97%	97%	96%	85%	94%
C950616.0343	US-11	92%	95%	92%	94%	93%	93%
C950616.0443	US-12	91%	95%	97%	98%	96%	95%
C950616.0543	US-13	94%	96%	94%	96%	96%	95%
C950620.0343	US-09	96%	97%	97%	96%	97%	97%
C950620.0443	US-14	98%	98%	99%	97%	98%	98%
C950620.0543	US-15	97%	100%	99%	99%	98%	99%
C950620.0643	NISQ	98%	89%	61%	44%	86%	76%
C950620.0743	CARR	98%	97%	99%	94% 99	99%	98%
C950622.0343	Control 1	95%	98%	98%	94%	97%	96%
C950622.0443	Control 2	98%	97%	99%	95%	99%	97%
C950622.0543	Control 3	95%	96%	98%	97%	97%	97%

Approved by W. H. Ehrhardt Date 24AUG95

Percent Survival

Sample ID	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	% Survived
C950614.0343	US-01	60%	69%	76%	73%	64%	68%
C950614.0443	US-02	79%	53%	83%	60%	81%	71%
C950614.0543	US-03	14%	77%	76%	71%	60%	60%
C950615.0143	US-04	57%	94%	92%	71%	81%	79%
C950615.0243	US-05	48%	70%	69%	65%	68%	64%
C950615.0343	US-06	87%	90%	61%	85%	83%	81%
C950615.0443	US-07	63%	64%	76%	86%	74%	73%
C950616.0143	US-08	65%	59%	63%	50%	49%	57%
C950616.0243	US-10	63%	77%	83%	79%	67%	74%
C950616.0343	US-11	74%	90%	82%	96%	74%	83%
C950616.0443	US-12	62%	91%	62%	88%	54%	71%
C950616.0543	US-13	66%	57%	92%	55%	65%	67%
C950620.0343	US-09	57%	64%	72%	73%	56%	65%
C950620.0443	US-14	78%	73%	91%	88%	53%	77%
C950620.0543	US-~~0~~15	39%	57%	42%	34%	55%	45%
C950620.0643	NISQ	63%	56%	33%	27%	44%	44%
C950620.0743	CARR	60%	78%	60%	95 ~~100%~~	80%	~~75%~~ ok
C950622.0343	Control 1	64%	66%	78%	59%	55%	64%
C950622.0443	Control 2	79%	80%	72%	54%	67%	70%
C950622.0543	Control 3	93%	97%	90%	101%	95%	95%

Approved by [signature] Date 24AUG95

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	7Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	10Jul95
Sample Name/ID:	C950614.03-C950620.07	**Work Request No.:**	0694-003

Sediment Toxicity Study with Bivalve Larvae for 48-60 Hours
MEC Testing Protocol No. P048.0

Test Organism: *Mytilus edulis*

Test Solution Physical and Chemical Data

Sample	Site	Statistic	Dissolved Oxygen (%)	pH	Salinity (ppt)
C950614.0343	US-01	Mean	80	7.9	29.5
		Minimum	70	7.6	29.5
		Maximum	85	8.1	29.6
C950614.0443	US-02	Mean	82	8.0	29.5
		Minimum	72	7.8	29.4
		Maximum	88	8.2	29.7
C950614.0543	US-03	Mean	79	8.0	30.1
		Minimum	67	7.8	30.0
		Maximum	86	8.1	30.2
C950615.0143	US-04	Mean	82	8.0	30.1
		Minimum	69	7.8	30.1
		Maximum	88	8.2	30.1
C950615.0243	US-05	Mean	82	8.0	30.3
		Minimum	74	7.8	30.2
		Maximum	88	8.1	30.4
C950615.0343	US-06	Mean	74	7.8	29.5
		Minimum	66	7.7	29.5
		Maximum	80	8.0	29.6
C950615.0443	US-07	Mean	82	7.9	30.3
		Minimum	71	7.8	30.1
		Maximum	86	8.1	30.6
C950616.0143	US-08	Mean	85	7.9	29.6
		Minimum	81	7.7	29.5
		Maximum	86	8.0	29.6
C950616.0243	US-10	Mean	79	7.9	30.2
		Minimum	56	7.7	30.1
		Maximum	89	8.1	30.3

Approved by _____ Date 24JUL95

Sample	Site	Statistic	Dissolved Oxygen (%)	pH	Salinity (ppt)
C950616.0343	US-11	Mean	78	7.9	29.4
		Minimum	65	7.7	29.4
		Maximum	86	8.1	29.5
C950616.0443	US-12	Mean	80	7.9	29.4
		Minimum	67	7.8	29.4
		Maximum	87	8.0	29.4
C950616.0543	US-13	Mean	78	7.9	29.2
		Minimum	62	7.7	29.0
		Maximum	86	8.0	29.3
C950620.0343	US-09	Mean	80	7.9	29.6
		Minimum	72	7.7	29.0
		Maximum	85	8.1	30.2
C950620.0443	US-14	Mean	74	8.0	29.5
		Minimum	67	7.8	29.4
		Maximum	79	8.1	29.6
C950620.0543	US-15	Mean	85	8.0	30.0
		Minimum	75	7.9	29.4
		Maximum	91	8.1	30.2
C950620.0643	NISQ	Mean	87	7.9	29.6
		Minimum	82	7.7	29.3
		Maximum	90	8.0	30.2
C950620.0743	CARR	Mean	85	8.1	30.0
		Minimum	81	7.9	29.4
		Maximum	88	8.3	30.3
C950622.0343	Control 1	Mean	89	8.2	30.3
		Minimum	87	8.0	30.2
		Maximum	93	8.3	30.4
C950622.0443	Control 2	Mean	86	8.1	30.3
		Minimum	85	7.9	30.1
		Maximum	88	8.3	30.5
C950622.0543	Control 3	Mean	89	8.2	30.2
		Minimum	86	7.9	30.1
		Maximum	92	8.4	30.2
C950622.0643	Control 4	Mean	91	8.2	30.3
		Minimum	87	8.0	30.1
		Maximum	94	8.4	30.6

Approved by Wilbur D. Schmidt Date 24AUG95

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	7Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	10Jul95
Sample Name/ID:	C950614.03-C950620.07	**Work Request No.:**	0694-003

APPENDIX
Pertinent Test Data

TEST: Sediment Toxicity Study with Bivalve Larvae for 48-60 Hours, MEC Testing Protocol No. P048.0

DILUTION WATER: Treated Sea water.

Salinity	30.3 ppt
pH	8.3
Dissolved Oxygen	87%
Temperature	15.9° C

TEST ORGANISM: *Mytilus edulis*, purchased from Carlsbad Aquafarm, maintained in filtered seawater at 15°C until spawned.

TEST CHAMBER: 1 L glass chambers.

EXPERIMENTAL DESIGN:
1. Test sediments were suspended by shaking and added to randomized test chambers with seawater for a final volume of 20 g/L.
2. Test sediments were allowed to settle for 4 hours.
3. 20,000-30,000 embryos were added to each test chamber.
4. Test chambers were held at 16°C for 60 hours with a photo period of 16 hours light, 8 hours dark.
5. Temperature was monitored with a continuous recording computer (plot attached).

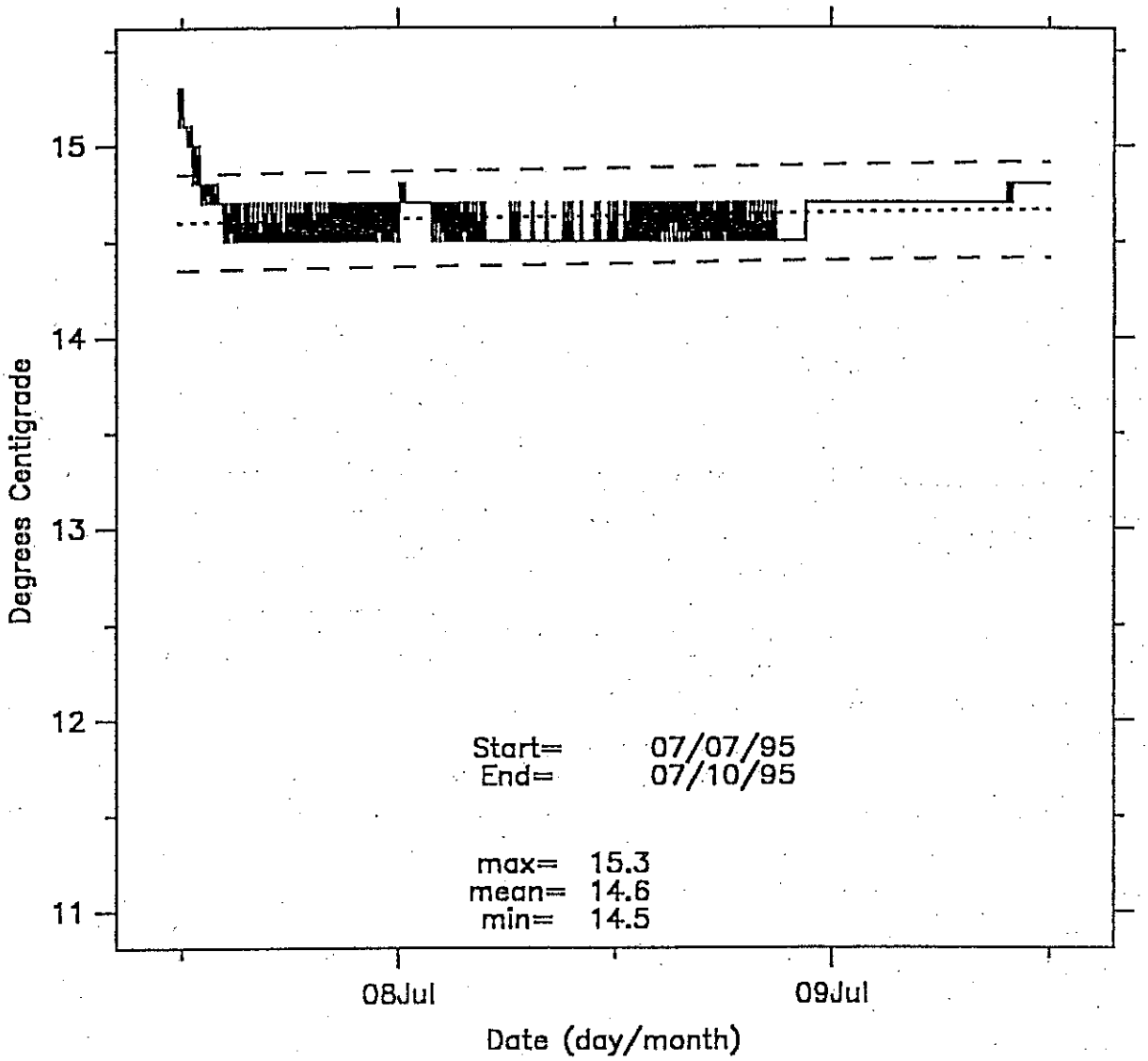
MORTALITY CRITERIA: Lack of fertilization membrane.

REFERENCE TOXICITY:
1. $CuSO_4$, Lot No. 9409146, received 6/23/95, opened 6/23/95, expires 6/23/96.
2. 48 Hour Develop. EC_{50}: 7.55 ppb (95% confidence limits 5.83, 9.72)
3. Test Date: 7/12/95

STUDY DIRECTOR: F.C. Newton

INVESTIGATORS: A. Monji, E. Calix, T. Fitzsimmons

Approved by William A. Schmidt Date 24 AUG 95



Test Temperature Recorded At 5 Minute Intervals

(dotted line = predicted mean temperature, dashed line = 95% confidence bounds)

48-60 HOUR BIVALVE DEVELOPMENT TEST DATA SHEET

Sample ID	Reps	Species/Common Name (Circle One)	Study Director
CA5061 4.0343 →	5	OYSTER / MUSSEL	Monji
Dilution Water Batch No.	**Test Start (Date/Hour)**	**Test End (Date/Hour)**	
SIO 062795	7/7/95 1835/1900	10 JULY 95 1500	
Test Location:	**HOBO Temp No:**		
Room 2	2298		

0-Hour | Date: 7 July 95 | Time: 1800 | Technician: TF/EC

Test No. (1)	D.O. (% Sat.)	Temp (°C)	Salinity (‰)	pH	Test No.	D.O. (% Sat.)	Temp (°C)	Salinity (‰)	pH
14.03	70	15.9	29.6	8.1	16.05	62	16.0	29.0	7.9
14.04	72	16.7	29.4	7.9	20.03 B	72	16.4	29.5	7.9
14.05	67	16.6	30.0	8.0	20.04 A	67	15.6	29.5	8.1
15.01	69	15.8	30.1	8.1	20.05 C	75	16.5	30.1	7.9
15.02	74	16.2	30.2	8.0	20.06 D	82	16.0	29.5	7.7
15.03	66	16.1	29.5	7.9	20.07 E	81	16.2	29.8	8.3
15.04	71	16.5	30.1	7.9	22.03	87	15.9	30.3	8.3
16.01	81	15.7	29.6	8.0	22.04	87	15.7	30.3	8.3
16.02	56	16.2	30.1	7.9	22.05	86	16.2	30.1	8.4
16.03	65	15.9	29.4	8.0	22.06	88	16.2	30.2	8.4
16.04	67	15.9	29.4	8.0					

4-Hour | Date: 8 July 95 | Time: 1200 | Technician: EC

Test No.	D.O. (% Sat.)	Temp (°C)	Salinity (‰)	pH	Test No.	D.O. (% Sat.)	Temp (°C)	Salinity (‰)	pH
14.03	84	15.4	29.5	7.6	16.05	86	15.3	29.3	7.9
14.04	88	15.7	29.4	7.9	20.03 B	79	15.5	29.6	7.9
14.05	86	15.3	30.1	7.9	20.04 A	72	15.2	29.4	8.0
15.01	88	15.1	30.1	7.9	20.05 C	84	15.4	30.1	8.0
15.02	84	15.1	30.2	7.9	20.06 D	90	15.1	29.5	8.0
15.03	73	15.4	29.6	7.7	20.07 E	84	15.4	29.8	8.0
15.04	84	15.5	30.2	7.9	22.03	87	15.1	30.3	8.1
16.01	86	15.1	29.6	7.9	22.04	85	15.2	30.3	8.1
16.02	84	15.4	30.1	7.9	22.05	91	14.9	30.2	8.1
16.03	86	14.9	29.5	7.9	22.06	87	15.8	30.2	8.1
16.04	87	15.2	29.4	7.9					

(1) Aeration started on all tests. 7/7/95 ATM

48-Hour		Date: 9 July 95			Time: 1910		Technician: KB		
Test No.	D.O. (% Sat.)	Temp (°C)	Salinity (‰)	pH	Test No.	D.O. (% Sat.)	Temp (°C)	Salinity (‰)	pH
14.03	82	14.9	29.5	8.1	16.05	82	14.9	29.3	8.0
14.04	84	15.3	29.7	8.2	20.03	85	15.1	30.2	8.1
14.05	84	15.2	30.2	8.1	20.04	78	14.7	29.4	8.1
15.01	87	14.9	30.1	8.2	20.05	88	15.2	30.2	8.1
15.02	88	14.9	30.4	8.1	20.06	86	15.2	29.3	7.8
15.03	89	14.9	29.5	8.0	20.07	88	15.2	29.0	8.2
15.04	86	15.0	30.6	8.1	22.03	87	15.0	30.1	8.2
16.01	86	14.8	29.6	8.0	22.04	85	15.0	30.4	8.2
16.02	87	15.2	30.2	8.1	22.05	88	14.7	30.2	8.3
16.03	80	14.9	29.4	8.1	22.06	94	14.6	30.6	8.3
16.04	83	15.0	29.4	8.0					

BACDE

60-Hour		Date: 10 JUL 95			Time: 1647		Technician: MY		
Test No.	D.O. (% Sat.)	Temp (°C)	Salinity (‰)	pH	Test No.	D.O. (% Sat.)	Temp (°C)	Salinity (‰)	pH
14.03	85	15.0	29.5	7.8	16.05	81	15.1	29.2	7.8
14.04	85	15.5	29.6	7.8	20.03	82	15.5	29.6	7.7
14.05	89	15.2	30.2	7.8	20.04	79	15.0	29.4	7.8
15.01	83	15.0	30.1	7.8	20.05	91	15.5	30.2	8.0
15.02	83	15.2	30.4	7.8	20.06	90	15.0	29.4	8.0
15.03	75	15.1	29.5	7.7	20.07	86	15.4	29.9	7.9
15.04	86	15.5	30.4	7.8	22.03	93	15.0	30.2	8.0
16.01	86	15.0	29.5	7.7	22.04	88	15.4	30.5	7.9
16.02	89	15.5	30.3	7.7	22.05	92	15.1	30.1	7.9
16.03	82	14.7	29.4	7.7	22.06	94	15.2	30.3	① ~~7.8~~ 8.0
16.04	82	15.1	29.4	7.8					

BACDE

① WC MY 10 JUL 95

COUNT DATA

	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Initials
Zero Time-1						
Fertilized	443	①	346	449	354	ATM
Unfertilized						
Zero Time-2						
Fertilized						
Unfertilized						

① Sample Lost ATM 7/27/95 $\bar{X} = 398$

48-60 HOUR BIVALVE DEVELOPMENT TEST DATA SHEET

Sample ID	Species/Common Name	Study Director
Unocal / see below	OYSTER ~~MUSSEL~~	Moniji

COUNT DATA

Test	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Initials
14.03						
Normal	~~233~~ 46 ATM	~~267~~ 269 ~~302~~ ATM	299	288	246	ATM
Abnormal	5 ~~+~~ ① ATM	6 ~~5~~ ① ATM	3	3	7	
No. Survive	238	273	302	291	253	
14.04						
Normal	292	173	322	234	308	ATM
Abnormal	23	36	9	4	15	
No. Survive	315	209	331	238	323	
14.05						
Normal	46	302	288	229	226	ATM
Abnormal	11	5	13	55	14	
No. Survive	57	307	301	284	240	
15.01						
Normal	② 217	353	358	② 280	318	ATM
Abnormal	8	21	10	2	4	
No. Survive	225	374	368	282	322	
15.02						
Normal	181	267	261	242	263	ATM
Abnormal	10	11	12	15	10	
No. Survive	191	278	273	257	272	
15.03						
Normal	320	336	229 ②	328	313	ATM
Abnormal	28	21	14	9	16	
No. Survive	348	357	243	337	329	

① WC ATM 7/27/05

② Heavy w/ detritus, difficult to read.

COUNT DATA

Test	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Initials
15.04						
Normal	(3) 243	246	296	339	279	AJM
Abnormal	9	7	6	4	14	
No. Survive	252	253	302	343	293	
16.01						
Normal	250	229	230	189	180	AJM
Abnormal	7	5	19	9	15	
No. Survive	257	234	249	198	195	
16.02						
Normal	238	298	322	301	226	AJM
Abnormal	12	9	10	14	39	
No. Survive	250	307	332	315	265	
16.03						
Normal	273	340	300	360	226	AJM
Abnormal	23	18	25	22	20	
No. Survive	296	358	325	382	296	
16.04						
Normal	225	342	239	342	206	AJM
Abnormal	22	19	8	7	9	
No. Survive	247	361	247	349	215	
16.05						
Normal	248	217	346	209	247	AJM
Abnormal	16	8	21	9	11	
No. Survive	264	225	367	218	258	
20.03 B						
Normal	220	249	277	281	216	AJM
Abnormal	8	7	10	11	7	
No. Survive	228	256	287	292	223	
20.04 A						
Normal	306	286	360	343	205	AJM
Abnormal	6	6	4	9	4	
No. Survive	312	292	364	352	209	

COUNT DATA

Test	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Initials
20.05						
Normal	151	224	167	135	214	AJM
Abnormal	4	1	1	2	5	
No. Survive	155	225	168	137	219	
20.06						
Normal	245	199	80	47	150	AJM
Abnormal	4	24	51	59	25	
No. Survive	249	223	131	106	175	
20.07						
Normal	232	302	234	① ~~304~~ 374	315	AJM
Abnormal	5	8	3	3	2	
No. Survive	237	310	237	377	317	
22.03			AJM			
Normal	242	257	② ~~264~~ 306	218	210	AJM
Abnormal	12	5	5	15	7	
No. Survive	254	262	311	233	217	
22.04	AJM					
Normal	② 265 306	307	284	205	265	AJM
Abnormal	7	11	2	11	3	
No. Survive	~~325~~ 313	318	286	216	268	
22.05						
Normal	353	373	349	389	367	AJM
Abnormal	17	15	8	13	10	
No. Survive	370	388	357	402	377	
22.06						
Normal						
Abnormal						
No. Survive						

① IE AJM 8/1/65

② WC AJM 8/2/65

$\overline{4572}$ = tot ♯ ctrl survivors

$\bar{x} = 304.8 = 305$

305/338 = 76.6% survival

Dissolved Sulfides in Sediments

Ammonia in Sediments

Ammonia in Sediments
(as NH_3, mg/L)

Sample ID	Site	INITIAL			FINAL		
		Amphipod	Polychaete	Bivalve	Amphipod	Polychaete	Bivalve
614.03	US-01	> 0.17	> 0.17	0.61	*	> 0.17	> 0.17
614.04	US-02	> 0.17	0.26	0.23	*	> 0.17	> 0.17
614.05	US-03	0.19	0.56	0.55	*	> 0.17	0.62
615.01	US-04	> 0.17	0.23	0.31	*	> 0.17	> 0.17
615.02	US-05	> 0.17	> 0.17	0.21	*	> 0.17	> 0.17
615.03	US-06	> 0.17	> 0.17	0.44	*	> 0.17	> 0.17
615.04	US-07	> 0.17	> 0.17	> 0.17	*	> 0.17	> 0.17
616.01	US-08	> 0.17	> 0.17	0.60	*	> 0.17	> 0.17
616.02	US-10	0.37	1.38	1.35	*	0.24	0.97
616.03	US-11	0.24	1.01	1.15	*	> 0.17	0.31
616.04	US-12	> 0.17	0.22	0.36	*	> 0.17	0.26
616.05	US-13	0.45	0.81	3.05	*	> 0.17	0.43
620.01	Control	> 0.17	N/A	> 0.17	*	N/A	> 0.17
620.02	Control	> 0.17	N/A	> 0.17	*	N/A	> 0.17
620.03	US-09	0.32	0.49	1.71	*	> 0.17	1.27
620.04	US-14	0.31	1.49	3.16	*	> 0.17	0.87
620.05	US-15	> 0.17	0.30	0.24	*	> 0.17	> 0.17
620.06	NISQ	> 0.17	0.53	0.83	*	1.14	> 0.17
620.07	CARR	0.27	2.15	4.56	*	> 0.17	1.11
622.03	Control	N/A	> 0.17	N/A	N/A	> 0.17	N/A
622.04	Control	N/A	> 0.17	N/A	N/A	> 0.17	N/A
622.05	Control	N/A	> 0.17	N/A	N/A	> 0.17	N/A
622.06	Control	N/A	> 0.17	N/A	N/A	> 0.17	N/A

* Sample not taken

Dissolved Sulfides in Sediments
(Dissolved Sulfide Ion S^{-}, mg/L)

Sample ID	Site	INITIAL			FINAL		
		Amphipod	Polychaete	Bivalve	Amphipod	Polychaete	Bivalve
614.03	US-01	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
614.04	US-02	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
614.05	US-03	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
615.01	US-04	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
615.02	US-05	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
615.03	US-06	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
615.04	US-07	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
616.01	US-08	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
616.02	US-10	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
616.03	US-11	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
616.04	US-12	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
616.05	US-13	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
620.01	Control	>0.001	N/A	N/A	>0.001	N/A	N/A
620.02	Control	>0.001	N/A	N/A	>0.001	N/A	N/A
620.03	US-09	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
620.04	US-14	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
620.05	US-15	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
620.06	NISQ	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
620.07	CARR	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
622.03	Control	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
622.04	Control	>0.001	>0.001	>0.001	>0.001	>0.001	>0.001
622.05	Control	N/A	>0.001	N/A	N/A	>0.001	N/A
622.06	Control	N/A	>0.001	N/A	N/A	>0.001	N/A

MEC ANALYTICAL SYSTEMS, INC.

August 25, 1995

John Virgin
EMCON Northwest, Inc.
18912 N. Creek Parkway, Suite 100
Bothell, WA 98011-8016

AUG 28 1995

Dear John:

Enclosed you will find the corrected "Ammonia in Sediment" table located in the fourth section of the UNOCAL Edmonds sediment report. I apologize for any confusion this may have caused.

Sincerely,

Bill Schmitz

ORIGINAL IS IN PROJECT FILING

2433 Impala Dr., Carlsbad, CA 92008
(619) 931-8081 FAX (619) 931-1580

6060 Corte del Cedro, Carlsbad, CA 92009
(619) 931-9225 FAX (619) 931-9251

98 Main St., Suite 428, Tiburon, CA 94920
(415) 435-1847 FAX (415) 435-0479

Ammonia in Sediments
(as NH_3, mg/L)

Sample ID	Site	INITIAL			FINAL		
		Amphipod	Polychaete	Bivalve	Amphipod	Polychaete	Bivalve
614.03	US-01	0.61	> 0.17	0.19	> 0.17	> 0.17	> 0.17
614.04	US-02	0.23	0.26	> 0.17	> 0.17	> 0.17	> 0.17
614.05	US-03	0.55	0.56	0.27	0.62	> 0.17	0.24
615.01	US-04	0.31	0.23	> 0.17	> 0.17	> 0.17	> 0.17
615.02	US-05	0.21	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17
615.03	US-06	0.44	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17
615.04	US-07	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17
616.01	US-08	0.60	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17
616.02	US-10	1.35	1.38	0.31	0.97	0.24	> 0.17
616.03	US-11	1.15	1.01	0.23	0.31	> 0.17	> 0.17
616.04	US-12	0.36	0.22	> 0.17	0.26	> 0.17	> 0.17
616.05	US-13	3.05	0.81	0.20	0.43	> 0.17	> 0.17
620.01	Control	> 0.17	N/A	N/A	> 0.17	N/A	N/A
620.02	Control	> 0.17	N/A	N/A	> 0.17	N/A	N/A
620.03	US-09	1.71	0.49	0.19	1.27	> 0.17	> 0.17
620.04	US-14	3.16	1.49	0.20	0.87	> 0.17	> 0.17
620.05	US-15	0.24	0.30	> 0.17	> 0.17	> 0.17	> 0.17
620.06	NISQ	0.83	0.53	0.19	> 0.17	1.14	> 0.17
620.07	CARR	4.56	2.15	0.37	1.11	> 0.17	0.32
622.03	Control	N/A	> 0.17	> 0.17	N/A	> 0.17	> 0.17
622.04	Control	N/A	> 0.17	> 0.17	N/A	> 0.17	> 0.17
622.05	Control	N/A	N/A	> 0.17	N/A	N/A	> 0.17
622.06	Control	N/A	N/A	> 0.17	N/A	N/A	> 0.17

Ammonia in Sediments
(as NH_3, mg/L)

Sample ID	Site	INITIAL			FINAL		
		Amphipod	Polychaete	Bivalve	Amphipod	Polychaete	Bivalve
614.03	US-01	0.61	> 0.17	0.19	> 0.17	> 0.17	> 0.17
614.04	US-02	0.23	0.26	> 0.17	> 0.17	> 0.17	> 0.17
614.05	US-03	0.55	0.56	0.27	0.62	> 0.17	0.24
615.01	US-04	0.31	0.23	> 0.17	> 0.17	> 0.17	> 0.17
615.02	US-05	0.21	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17
615.03	US-06	0.44	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17
615.04	US-07	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17
616.01	US-08	0.60	> 0.17	> 0.17	> 0.17	> 0.17	> 0.17
616.02	US-10	1.35	1.38	0.31	0.97	0.24	> 0.17
616.03	US-11	1.15	1.01	0.23	0.31	> 0.17	> 0.17
616.04	US-12	0.36	0.22	> 0.17	0.26	> 0.17	> 0.17
616.05	US-13	3.05	0.81	0.20	0.43	> 0.17	> 0.17
620.01	Control	> 0.17	N/A	N/A	> 0.17	N/A	N/A
620.02	Control	> 0.17	N/A	N/A	> 0.17	N/A	N/A
620.03	US-09	1.71	0.49	0.19	1.27	> 0.17	> 0.17
620.04	US-14	3.16	1.49	0.20	0.87	> 0.17	> 0.17
620.05	US-15	0.24	0.30	> 0.17	> 0.17	> 0.17	> 0.17
620.06	NISQ	0.83	0.53	0.19	> 0.17	1.14	> 0.17
620.07	CARR	4.56	2.15	0.37	1.11	> 0.17	0.32
622.03	Control	N/A	> 0.17	> 0.17	N/A	> 0.17	> 0.17
622.04	Control	N/A	> 0.17	> 0.17	N/A	> 0.17	> 0.17
622.05	Control	N/A	N/A	> 0.17	N/A	N/A	> 0.17
622.06	Control	N/A	N/A	> 0.17	N/A	N/A	> 0.17

Total Organic Carbon and Grain Size Analysis

Total Organic Carbon and Grain Size Analysis

Sample ID	Site	TOC	% Gravel	% Sand	% Silt	% Clay
614.03	US-01	0.779	45.335	51.316	1.915	1.434
614.04	US-02	0.971	2.020	76.034	15.485	6.462
614.05	US-03	3.506	0.000	57.585	21.126	21.290
615.01	US-04	1.273	11.325	81.850	4.106	2.719
615.02	US-05	1.777	0.931	69.345	20.834	8.891
615.03	US-06	2.537	2.208	55.082	29.450	13.261
615.04	US-07	1.580	7.701	76.179	11.511	4.610
616.01	US-08	2.737	0.700	17.974	59.09	22.235
616.02	US-10	7.379	3.159	30.045	39.828	26.969
616.03	US-11	6.347	0.400	37.752	43.340	18.508
616.04	US-12	6.734	0.745	31.207	46.405	21.643
616.05	US-13	9.427	1.405	28.906	43.768	25.921
616.06	US-20	9.968	1.593	28.469	45.305	24.632
620.03	US-09	8.175	5.169	40.497	34.446	19.889
620.04	US-14	7.036	6.564	9.036	63.104	21.296
620.05	US-15	0.730	0.027	92.791	5.290	1.892
620.06	NISQ	1.045	0.125	75.582	20.407	3.886
620.07	CARR	0.55	0.000	43.535	50.635	5.830

Analytical Report

Project: Emcon-Unocal
Contact: Skip Newton
Sample Matrix: Sediment

Date Received: 29Jun95
Date Analyzed: 18Jul95
Batch No.: 950718A

Total Organic Carbon
Analysis Method: Combustion/IR
Percent (%)

Sample I.D.	Lab. Rep.	Result
0614.05	1	3.506
0615.01	1	1.273
0615.02	1	1.777
0615.03	1	2.537
0615.04	1	1.580
0616.01	1	2.737
0616.01	2	2.619
0616.02	1	7.379
0616.03	1	6.347
0616.04	1	6.734
0616.05	1	9.427
0616.06	1	9.968
0620.03	1	8.175
0620.04	1	7.036
0624.05	1	0.730
0624.05	2	0.689
		ppm
Method blank	1	7.800

ASTM D2579, modified

Approved by: Brian R. Clay Date: July 25, 1995

Analytical Report

Project: Emcon-Unocal
Contact: Skip Newton
Sample Matrix: Sediment

Date Received: 29Jun95
Date Analyzed: 18Jul95
Batch No.: 950718B

Total Organic Carbon
Analysis Method: Combustion/IR
Percent (%)

Sample I.D.	Lab. Rep.	Result
0614.03	1	0.779
0614.04	1	0.971
0624.06	1	1.045
0624.07	1	0.550
		ppm
Method blank	2	3.000

ASTM D2579, modified

Approved by: Brian R. [illegible]

Date: July 25, 1995

QA/QC Report

Project: Emcon-Unocal
Contact: Skip Newton
Sample Matrix: Sediment

Date Received: 29Jun95
Date Analyzed: 18Jul95
Batch No.: 950718A - 950718B

Duplicate Summary
Total Organic Carbon
Percent (%)

Sample I.D.	Sample Result	Duplicate Result	Average	RPD
0616.01	2.737	2.619	2.678	4.413
0624.05	0.730	0.689	0.710	5.779

ASTM D2579, modified

Approved by: Brian R. Clay

Date: July 25, 1995

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950614.03
Total sample weight: 33.424 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	15.153	45.335	45.335
1414.214	-0.5	1.378	4.123	49.458
1000.000	0.0	1.069	3.198	52.656
707.107	0.5	1.210	3.620	56.276
500.000	1.0	2.399	7.177	63.454
353.553	1.5	6.742	20.171	83.625
250.000	2.0	2.145	6.417	90.042
176.777	2.5	1.430	4.278	94.321
125.000	3.0	0.432	1.292	95.613
88.388	3.5	0.193	0.577	96.191
62.500	4.0	0.154	0.461	96.651
31.250	5.0	0.256	0.766	97.417
15.625	6.0	0.128	0.383	97.800
7.812	7.0	0.171	0.511	98.311
3.906	8.0	0.085	0.255	98.566
1.953	9.0	0.128	0.383	98.949
< 1.953	> 9.0	0.351	1.051	100.000

% < 4 phi = 3.349
% > 1 phi = 56.276
% gravel = 45.335
% sand = 51.316
% silt = 1.915
% clay = 1.434

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
0	1334	.	*	.	.

5th percentile = .
16th percentile = .
50th percentile = -0.415
84th percentile = 1.529
95th percentile = 2.763
*** 5th percentile not obtainable ***
*** 16th percentile not obtainable ***
*** 16th percentile extrapolated ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950614.04
Total sample weight: 29.207 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.590	2.020	2.020
1414.214	-0.5	0.261	0.894	2.914
1000.000	0.0	0.469	1.606	4.519
707.107	0.5	1.018	3.485	8.005
500.000	1.0	2.429	8.317	16.322
353.553	1.5	8.778	30.055	46.376
250.000	2.0	3.408	11.668	58.045
176.777	2.5	3.061	10.480	68.525
125.000	3.0	1.504	5.149	73.674
88.388	3.5	0.754	2.582	76.256
62.500	4.0	0.525	1.798	78.054
31.250	5.0	1.493	5.113	83.166
15.625	6.0	1.408	4.821	87.987
7.812	7.0	0.853	2.922	90.909
3.906	8.0	0.768	2.629	93.538
1.953	9.0	0.469	1.607	95.145
< 1.953	> 9.0	1.418	4.855	100.000

% < 4 phi = 21.946
% > 1 phi = 8.005
% gravel = 2.020
% sand = 76.034
% silt = 15.485
% clay = 6.462

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
1.655	317.47	3.077	118.52	2.096	0.678

5th percentile = 0.069
16th percentile = 0.981
50th percentile = 1.655
84th percentile = 5.173
95th percentile = 8.910

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950614.05
Total sample weight: 6.059 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.000	0.000	0.000
1414.214	-0.5	0.007	0.116	0.116
1000.000	0.0	0.015	0.248	0.363
707.107	0.5	0.359	5.925	6.288
500.000	1.0	0.714	11.784	18.073
353.553	1.5	1.151	18.997	37.069
250.000	2.0	0.837	13.814	50.884
176.777	2.5	0.246	4.060	54.944
125.000	3.0	0.087	1.436	56.380
88.388	3.5	0.042	0.693	57.073
62.500	4.0	0.031	0.512	57.585
31.250	5.0	0.085	1.408	58.993
15.625	6.0	0.597	9.859	68.851
7.812	7.0	0.341	5.633	74.485
3.906	8.0	0.256	4.225	78.710
1.953	9.0	0.555	9.154	87.864
< 1.953	> 9.0	0.735	12.136	100.000

% < 4 phi = 42.415
% > 1 phi = 6.288
% gravel = 0.000
% sand = 57.585
% silt = 21.126
% clay = 21.290

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
1.968	255.60	4.745	37.29	3.833	0.725

5th percentile = 0.391
16th percentile = 0.912
50th percentile = 1.968
84th percentile = 8.578
95th percentile = .
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract:	EMCON-UNOCAL
Contact person:	SKIP NEWTON
Date of analysis:	30Jun95
Date of report:	12Jul95
Analysis method:	Sieve/pipette (Plumb, 1981)
Sample Identification:	950615.01
Total sample weight:	23.902 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	2.707	11.325	11.325
1414.214	-0.5	0.496	2.075	13.400
1000.000	0.0	0.807	3.376	16.777
707.107	0.5	1.394	5.832	22.609
500.000	1.0	2.731	11.426	34.034
353.553	1.5	4.687	19.609	53.643
250.000	2.0	5.406	22.617	76.261
176.777	2.5	2.414	10.099	86.360
125.000	3.0	1.101	4.606	90.966
88.388	3.5	0.330	1.381	92.347
62.500	4.0	0.198	0.828	93.175
31.250	5.0	0.299	1.250	94.425
15.625	6.0	0.299	1.250	95.674
7.812	7.0	0.171	0.714	96.388
3.906	8.0	0.213	0.893	97.281
1.953	9.0	0.128	0.536	97.816
< 1.953	> 9.0	0.522	2.184	100.000

% < 4 phi	= 6.825
% > 1 phi	= 22.609
% gravel	= 11.325
% sand	= 81.850
% silt	= 4.106
% clay	= 2.719

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
1.407	377.07	1.134	455.63	1.249	-0.219

5th percentile	= .
16th percentile	= -0.115
50th percentile	= 1.407
84th percentile	= 2.383
95th percentile	= 5.460

*** 5th percentile not obtainable ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950615.02
Total sample weight: 21.708 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.202	0.931	0.931
1414.214	-0.5	0.144	0.663	1.594
1000.000	0.0	0.263	1.212	2.805
707.107	0.5	0.526	2.423	5.229
500.000	1.0	1.264	5.823	11.051
353.553	1.5	4.855	22.366	33.417
250.000	2.0	2.758	12.705	46.122
176.777	2.5	2.887	13.300	59.422
125.000	3.0	0.987	4.547	63.969
88.388	3.5	0.597	2.750	66.719
62.500	4.0	0.772	3.556	70.275
31.250	5.0	1.365	6.290	76.565
15.625	6.0	1.536	7.076	83.641
7.812	7.0	0.683	3.145	86.785
3.906	8.0	0.939	4.324	91.109
1.953	9.0	0.555	2.555	93.665
< 1.953	> 9.0	1.375	6.335	100.000

% < 4 phi = 29.725
% > 1 phi = 5.229
% gravel = 0.931
% sand = 69.345
% silt = 20.834
% clay = 8.891

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
2.146	225.97	3.612	81.76	2.502	0.586

5th percentile = 0.453
16th percentile = 1.111
50th percentile = 2.146
84th percentile = 6.114
95th percentile = .
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract:	EMCON-UNOCAL
Contact person:	SKIP NEWTON
Date of analysis:	30Jun95
Date of report:	12Jul95
Analysis method:	Sieve/pipette (Plumb, 1981)
Sample Identification:	950615.03
Total sample weight:	16.806 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.371	2.208	2.208
1414.214	-0.5	0.211	1.256	3.463
1000.000	0.0	0.275	1.636	5.099
707.107	0.5	0.444	2.642	7.741
500.000	1.0	1.007	5.992	13.733
353.553	1.5	1.737	10.336	24.069
250.000	2.0	2.410	14.340	38.409
176.777	2.5	1.369	8.146	46.555
125.000	3.0	0.662	3.939	50.494
88.388	3.5	0.509	3.029	53.523
62.500	4.0	0.633	3.767	57.290
31.250	5.0	1.365	8.124	65.414
15.625	6.0	1.621	9.647	75.061
7.812	7.0	0.981	5.839	80.900
3.906	8.0	0.981	5.839	86.739
1.953	9.0	0.640	3.808	90.547
< 1.953	> 9.0	1.589	9.453	100.000

% < 4 phi = 42.710
% > 1 phi = 7.741
% gravel = 2.208
% sand = 55.082
% silt = 29.450
% clay = 13.261

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
2.937	130.56	4.320	50.06	3.211	0.431

5th percentile = -0.030
16th percentile = 1.110
50th percentile = 2.937
84th percentile = 7.531
95th percentile = .
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract:	EMCON-UNOCAL
Contact person:	SKIP NEWTON
Date of analysis:	30Jun95
Date of report:	12Jul95
Analysis method:	Sieve/pipette (Plumb, 1981)
Sample Identification:	950615.04
Total sample weight:	25.205 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	1.941	7.701	7.701
1414.214	-0.5	0.618	2.452	10.153
1000.000	0.0	0.866	3.436	13.588
707.107	0.5	1.638	6.499	20.087
500.000	1.0	2.731	10.835	30.922
353.553	1.5	7.062	28.018	58.940
250.000	2.0	2.426	9.625	68.565
176.777	2.5	2.090	8.292	76.857
125.000	3.0	0.925	3.670	80.527
88.388	3.5	0.488	1.936	82.463
62.500	4.0	0.357	1.416	83.879
31.250	5.0	0.768	3.047	86.926
15.625	6.0	0.768	3.047	89.973
7.812	7.0	0.939	3.724	93.697
3.906	8.0	0.427	1.693	95.390
1.953	9.0	0.213	0.846	96.236
< 1.953	> 9.0	0.949	3.764	100.000

% < 4 phi = 16.121
% > 1 phi = 20.087
% gravel = 7.701
% sand = 76.179
% silt = 11.511
% clay = 4.610

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
1.340	394.90	2.113	231.24	1.927	0.401

5th percentile = .
16th percentile = 0.186
50th percentile = 1.340
84th percentile = 4.040
95th percentile = 7.770
*** 5th percentile not obtainable ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950616.01
Total sample weight: 20.001 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.140	0.700	0.700
1414.214	-0.5	0.045	0.225	0.925
1000.000	0.0	0.059	0.295	1.220
707.107	0.5	0.175	0.875	2.095
500.000	1.0	0.379	1.895	3.990
353.553	1.5	1.141	5.705	9.695
250.000	2.0	0.480	2.400	12.095
176.777	2.5	0.336	1.680	13.775
125.000	3.0	0.158	0.790	14.564
88.388	3.5	0.239	1.195	15.759
62.500	4.0	0.583	2.915	18.674
31.250	5.0	1.707	8.533	27.207
15.625	6.0	5.845	29.225	56.432
7.812	7.0	2.603	13.013	69.445
3.906	8.0	1.664	8.320	77.765
1.953	9.0	1.109	5.546	83.311
< 1.953	> 9.0	3.338	16.689	100.000

% < 4 phi = 81.326
% > 1 phi = 2.095
% gravel = 0.700
% sand = 17.974
% silt = 59.090
% clay = 22.235

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
5.780	18.20	6.304	12.66	2.763	0.190

5th percentile = 1.089
16th percentile = 3.541
50th percentile = 5.780
84th percentile = 9.067
95th percentile = .
*** 84th percentile extrapolated ***
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950616.02
Total sample weight: 9.213 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.291	3.159	3.159
1414.214	-0.5	0.054	0.586	3.745
1000.000	0.0	0.086	0.933	4.678
707.107	0.5	0.204	2.214	6.893
500.000	1.0	0.359	3.897	10.789
353.553	1.5	1.006	10.920	21.709
250.000	2.0	0.415	4.505	26.213
176.777	2.5	0.340	3.690	29.904
125.000	3.0	0.136	1.476	31.380
88.388	3.5	0.091	0.988	32.368
62.500	4.0	0.077	0.836	33.204
31.250	5.0	0.171	1.852	35.056
15.625	6.0	1.365	14.820	49.876
7.812	7.0	1.109	12.041	61.917
3.906	8.0	1.024	11.115	73.031
1.953	9.0	0.555	6.020	79.052
< 1.953	> 9.0	1.930	20.948	100.000

% < 4 phi = 66.796
% > 1 phi = 6.893
% gravel = 3.159
% sand = 30.045
% silt = 39.828
% clay = 26.969

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
6.010	15.51	5.374	24.12	4.135	-0.154

5th percentile = 0.073
16th percentile = 1.239
50th percentile = 6.010
84th percentile = 9.509
95th percentile = .
*** 84th percentile extrapolated ***
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950616.03A
Total sample weight: 12.503 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.050	0.400	0.400
1414.214	-0.5	0.069	0.552	0.952
1000.000	0.0	0.150	1.200	2.152
707.107	0.5	0.350	2.799	4.951
500.000	1.0	0.665	5.319	10.270
353.553	1.5	0.956	7.646	17.916
250.000	2.0	1.157	9.254	27.171
176.777	2.5	0.550	4.399	31.570
125.000	3.0	0.360	2.879	34.449
88.388	3.5	0.225	1.800	36.249
62.500	4.0	0.238	1.904	38.152
31.250	5.0	1.664	13.309	51.461
15.625	6.0	1.835	14.674	66.136
7.812	7.0	1.067	8.531	74.667
3.906	8.0	0.853	6.825	81.492
1.953	9.0	0.640	5.119	86.611
< 1.953	> 9.0	1.674	13.389	100.000

% < 4 phi = 61.848
% > 1 phi = 4.951
% gravel = 0.400
% sand = 37.752
% silt = 43.340
% clay = 18.508

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
4.890	33.72	4.932	32.75	3.558	0.012

5th percentile = 0.505
16th percentile = 1.375
50th percentile = 4.890
84th percentile = 8.490
95th percentile = .
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950616.03B
Total sample weight: 12.133 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.068	0.560	0.560
1414.214	-0.5	0.080	0.659	1.220
1000.000	0.0	0.162	1.335	2.555
707.107	0.5	0.355	2.926	5.481
500.000	1.0	0.650	5.358	10.839
353.553	1.5	0.955	7.871	18.710
250.000	2.0	1.112	9.165	27.876
176.777	2.5	0.567	4.673	32.549
125.000	3.0	0.307	2.530	35.079
88.388	3.5	0.225	1.855	36.934
62.500	4.0	0.303	2.497	39.431
31.250	5.0	0.683	5.627	45.058
15.625	6.0	2.304	18.990	64.048
7.812	7.0	1.280	10.550	74.598
3.906	8.0	0.811	6.682	81.280
1.953	9.0	0.597	4.923	86.203
< 1.953	> 9.0	1.674	13.797	100.000

% < 4 phi = 60.569
% > 1 phi = 5.481
% gravel = 0.560
% sand = 38.871
% silt = 41.848
% clay = 18.720

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
5.260	26.09	4.940	32.57	3.612	-0.089

5th percentile = 0.418
16th percentile = 1.328
50th percentile = 5.260
84th percentile = 8.553
95th percentile = .
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950616.04
Total sample weight: 11.677 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.087	0.745	0.745
1414.214	-0.5	0.084	0.719	1.464
1000.000	0.0	0.172	1.473	2.937
707.107	0.5	0.418	3.580	6.517
500.000	1.0	0.514	4.402	10.919
353.553	1.5	1.313	11.244	22.164
250.000	2.0	0.420	3.597	25.760
176.777	2.5	0.405	3.468	29.229
125.000	3.0	0.117	1.002	30.231
88.388	3.5	0.079	0.677	30.907
62.500	4.0	0.122	1.045	31.952
31.250	5.0	1.664	14.250	46.202
15.625	6.0	1.707	14.616	60.818
7.812	7.0	1.152	9.866	70.683
3.906	8.0	0.896	7.673	78.357
1.953	9.0	1.024	8.769	87.126
< 1.953	> 9.0	1.503	12.874	100.000

% < 4 phi = 68.048
% > 1 phi = 6.517
% gravel = 0.745
% sand = 31.207
% silt = 46.405
% clay = 21.643

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
5.260	26.10	4.935	32.70	3.709	-0.088

5th percentile = 0.288
16th percentile = 1.226
50th percentile = 5.260
84th percentile = 8.644
95th percentile = .
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950616.05
Total sample weight: 7.116 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.100	1.405	1.405
1414.214	-0.5	0.095	1.335	2.740
1000.000	0.0	0.163	2.291	5.031
707.107	0.5	0.227	3.190	8.221
500.000	1.0	0.247	3.471	11.692
353.553	1.5	0.248	3.485	15.177
250.000	2.0	0.293	4.117	19.294
176.777	2.5	0.259	3.640	22.934
125.000	3.0	0.238	3.344	26.278
88.388	3.5	0.200	2.810	29.088
62.500	4.0	0.087	1.223	30.311
31.250	5.0	0.384	5.396	35.707
15.625	6.0	1.067	14.989	50.696
7.812	7.0	0.853	11.991	62.687
3.906	8.0	0.811	11.392	74.079
1.953	9.0	0.853	11.991	86.070
< 1.953	> 9.0	0.991	13.930	100.000

% < 4 phi = 69.689
% > 1 phi = 8.221
% gravel = 1.405
% sand = 28.906
% silt = 43.768
% clay = 25.921

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
5.954	16.14	5.214	26.95	3.614	-0.205

5th percentile = -0.007
16th percentile = 1.600
50th percentile = 5.954
84th percentile = 8.827
95th percentile = .
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950616.06
Total sample weight: 6.969 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.111	1.593	1.593
1414.214	-0.5	0.091	1.306	2.899
1000.000	0.0	0.117	1.679	4.577
707.107	0.5	0.194	2.784	7.361
500.000	1.0	0.224	3.214	10.576
353.553	1.5	0.380	5.453	16.028
250.000	2.0	0.161	2.310	18.339
176.777	2.5	0.254	3.645	21.983
125.000	3.0	0.201	2.884	24.868
88.388	3.5	0.189	2.712	27.580
62.500	4.0	0.173	2.482	30.062
31.250	5.0	0.299	4.286	34.348
15.625	6.0	1.067	15.306	49.654
7.812	7.0	1.024	14.694	64.347
3.906	8.0	0.768	11.020	75.368
1.953	9.0	0.640	9.184	84.551
< 1.953	> 9.0	1.077	15.449	100.000

% < 4 phi = 69.938
% > 1 phi = 7.361
% gravel = 1.593
% sand = 28.469
% silt = 45.305
% clay = 24.632

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
6.024	15.37	5.219	26.85	3.721	-0.216

5th percentile = 0.076
16th percentile = 1.497
50th percentile = 6.024
84th percentile = 8.940
95th percentile = .
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950620.03
Total sample weight: 10.776 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.557	5.169	5.169
1414.214	-0.5	0.253	2.348	7.517
1000.000	0.0	0.214	1.986	9.502
707.107	0.5	0.341	3.164	12.667
500.000	1.0	0.393	3.647	16.314
353.553	1.5	0.916	8.500	24.814
250.000	2.0	0.447	4.148	28.962
176.777	2.5	0.694	6.440	35.402
125.000	3.0	0.484	4.491	39.893
88.388	3.5	0.341	3.164	43.058
62.500	4.0	0.281	2.608	45.665
31.250	5.0	0.597	5.543	51.208
15.625	6.0	1.493	13.857	65.066
7.812	7.0	0.853	7.919	72.984
3.906	8.0	0.768	7.127	80.111
1.953	9.0	0.725	6.731	86.842
< 1.953	> 9.0	1.418	13.158	100.000

% < 4 phi = 54.335
% > 1 phi = 12.667
% gravel = 5.169
% sand = 40.497
% silt = 34.446
% clay = 19.889

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
4.782	36.35	4.767	36.72	3.810	-0.004

5th percentile = .
16th percentile = 0.957
50th percentile = 4.782
84th percentile = 8.578
95th percentile = .
*** 5th percentile not obtainable ***
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950620.04
Total sample weight: 9.263 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.608	6.564	6.564
1414.214	-0.5	0.095	1.026	7.589
1000.000	0.0	0.073	0.788	8.378
707.107	0.5	0.057	0.615	8.993
500.000	1.0	0.068	0.734	9.727
353.553	1.5	0.078	0.842	10.569
250.000	2.0	0.093	1.004	11.573
176.777	2.5	0.079	0.853	12.426
125.000	3.0	0.063	0.680	13.106
88.388	3.5	0.064	0.691	13.797
62.500	4.0	0.167	1.803	15.600
31.250	5.0	1.536	16.582	32.182
15.625	6.0	2.261	24.413	56.595
7.812	7.0	1.109	11.976	68.571
3.906	8.0	0.939	10.134	78.704
1.953	9.0	0.597	6.449	85.153
< 1.953	> 9.0	1.375	14.847	100.000

% < 4 phi = 84.400
% > 1 phi = 8.993
% gravel = 6.564
% sand = 9.036
% silt = 63.104
% clay = 21.296

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
5.730	18.84	6.423	11.66	2.399	0.289

5th percentile = .
16th percentile = 4.024
50th percentile = 5.730
84th percentile = 8.821
95th percentile = .
*** 5th percentile not obtainable ***
*** 95th percentile not reached ***

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950624.05
Total sample weight: 29.843 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.008	0.027	0.027
1414.214	-0.5	0.207	0.694	0.720
1000.000	0.0	0.783	2.624	3.344
707.107	0.5	2.204	7.385	10.729
500.000	1.0	4.538	15.206	25.936
353.553	1.5	11.900	39.875	65.811
250.000	2.0	4.203	14.084	79.894
176.777	2.5	2.335	7.824	87.718
125.000	3.0	0.810	2.714	90.432
88.388	3.5	0.398	1.334	91.766
62.500	4.0	0.314	1.052	92.818
31.250	5.0	0.725	2.430	95.249
15.625	6.0	0.640	2.145	97.393
7.812	7.0	0.085	0.286	97.679
3.906	8.0	0.128	0.429	98.108
1.953	9.0	0.171	0.572	98.680
< 1.953	> 9.0	0.394	1.320	100.000

% < 4 phi = 7.182
% > 1 phi = 10.729
% gravel = 0.027
% sand = 92.791
% silt = 5.290
% clay = 1.892

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
1.302	405.63	1.468	361.52	0.795	0.209

5th percentile = 0.112
16th percentile = 0.673
50th percentile = 1.302
84th percentile = 2.262
95th percentile = 4.898

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950624.06
Total sample weight: 25.508 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.032	0.125	0.125
1414.214	-0.5	0.025	0.098	0.223
1000.000	0.0	0.028	0.110	0.333
707.107	0.5	0.047	0.184	0.517
500.000	1.0	0.059	0.231	0.749
353.553	1.5	0.265	1.039	1.788
250.000	2.0	0.431	1.690	3.477
176.777	2.5	2.345	9.193	12.671
125.000	3.0	5.213	20.437	33.108
88.388	3.5	6.322	24.785	57.893
62.500	4.0	4.544	17.814	75.707
31.250	5.0	3.328	13.047	88.754
15.625	6.0	1.024	4.014	92.768
7.812	7.0	0.384	1.505	94.274
3.906	8.0	0.469	1.840	96.114
1.953	9.0	0.299	1.171	97.285
< 1.953	> 9.0	0.693	2.715	100.000

% < 4 phi = 24.293
% > 1 phi = 0.517
% gravel = 0.125
% sand = 75.582
% silt = 20.407
% clay = 3.886

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
3.341	98.70	3.609	81.98	1.027	0.261

5th percentile = 2.083
16th percentile = 2.581
50th percentile = 3.341
84th percentile = 4.636
95th percentile = 7.395

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950624.07A
Total sample weight: 25.784 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.000	0.000	0.000
1414.214	-0.5	0.000	0.000	0.000
1000.000	0.0	0.004	0.016	0.016
707.107	0.5	0.006	0.023	0.039
500.000	1.0	0.029	0.112	0.151
353.553	1.5	0.065	0.252	0.403
250.000	2.0	0.125	0.485	0.888
176.777	2.5	0.248	0.962	1.850
125.000	3.0	1.141	4.425	6.275
88.388	3.5	4.220	16.367	22.642
62.500	4.0	5.387	20.893	43.535
31.250	5.0	7.509	29.123	72.658
15.625	6.0	3.968	15.389	88.047
7.812	7.0	1.109	4.302	92.350
3.906	8.0	0.469	1.820	94.170
1.953	9.0	0.341	1.324	95.494
< 1.953	> 9.0	1.162	4.506	100.000

% < 4 phi = 56.465
% > 1 phi = 0.039
% gravel = 0.000
% sand = 43.535
% silt = 50.635
% clay = 5.830

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
4.222	53.59	4.517	43.67	1.220	0.242

5th percentile = 2.856
16th percentile = 3.297
50th percentile = 4.222
84th percentile = 5.737
95th percentile = 8.627

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

GRAIN SIZE ANALYSIS

Contract: EMCON-UNOCAL
Contact person: SKIP NEWTON
Date of analysis: 30Jun95
Date of report: 12Jul95
Analysis method: Sieve/pipette (Plumb, 1981)
Sample Identification: 950624.07B
Total sample weight: 26.006 grams

Size (Microns)	Size (Phi)	Weight grams	Percent	Cumulative Percent
2000.000	-1.0	0.000	0.000	0.000
1414.214	-0.5	0.002	0.008	0.008
1000.000	0.0	0.005	0.019	0.027
707.107	0.5	0.010	0.038	0.065
500.000	1.0	0.028	0.108	0.173
353.553	1.5	0.064	0.246	0.419
250.000	2.0	0.138	0.531	0.950
176.777	2.5	0.242	0.931	1.880
125.000	3.0	1.123	4.318	6.199
88.388	3.5	4.130	15.881	22.080
62.500	4.0	5.534	21.280	43.360
31.250	5.0	8.747	33.633	76.993
15.625	6.0	3.243	12.469	89.462
7.812	7.0	0.683	2.625	92.087
3.906	8.0	0.597	2.297	94.384
1.953	9.0	0.384	1.477	95.860
< 1.953	> 9.0	1.077	4.140	100.000

% < 4 phi = 56.640
% > 1 phi = 0.065
% gravel = 0.000
% sand = 43.360
% silt = 51.024
% clay = 5.616

Sample Statistics

Median phi	Median microns	Mean phi	Mean microns	Dispersion	Skewness
4.197	54.51	4.435	46.22	1.127	0.211

5th percentile = 2.861
16th percentile = 3.309
50th percentile = 4.197
84th percentile = 5.562
95th percentile = 8.418

MEC Analytical Systems, Inc.
2433 Impala Dr.
Carlsbad, CA 92008

Appendix

MEC ANALYTICAL SYSTEMS, INC.

(☒ Check one)

☐ 6060 Corte del Cedro • Carlsbad, CA 92009-1514 • (619) 931-9225, FAX 931-9251
☐ 98 Main Street, Suite #428 • Tiburon, CA 94920 • (415) 435-1847, FAX 435-0479

CHAIN OF CUSTODY

DATE ________ PAGE ____ OF ____

PROJECT NAME/NUMBER: UNOCAL Upland Sediments 40524-035.014

PROJECT MANAGER: John Virgin

COMPANY: EMCON

ADDRESS: 18912 N Creek Parkway Bothell WA 98011

PHONE/FAX: (206)485-5000 486-9776

SAMPLE I.D.	DATE	TIME	DESCRIPTION/MATRIX	INITIALS	NUMBER OF CONTAINERS	CA TITLE 22 BIOASSAY SCREENING ☐ DEFINITIVE ☐	WDOE 80-12 DW ☐ EHW ☐ BOTH ☐	OTHER E.E.H/benthic/Neanthes	COMMENTS
US-01	6/12/95	12:45	Sediments C950614.03	[illegible]	6			X	plus TOC, G.S.
US-02	6/12/95	13:30	C950614.04	[illegible]	6			X	✓ ✓
US-03	6/12/95	14:45	C950614.05	[illegible]	6			X	

RELINQUISHED BY	RECEIVED BY	INVOICE INFORMATION:
Signature: [signature]	Signature:	P.O. #:
Printed Name: John Virgin	Printed Name:	Bill to:
Firm: EMCON	Firm:	
Date/Time: 6/13/95 0730	Date/Time:	

RELINQUISHED BY	RECEIVED BY	SHIPPING:
Signature: [signature]	Signature:	Shipping VIA:
Printed Name: Alan T Maeji	Printed Name:	Airbill #:
Firm: MEC - Carlsbad	Firm:	Condition:
Date/Time: 6/14/95 1335	Date/Time:	

TURNAROUND TIME:	REPORT REQUIREMENTS:	SPECIAL INSTRUCTIONS/COMMENTS:
☐ Standard (10 working days) ☐ 48 hours after completion of test ☐ 24 hours after completion of test	☐ Routine Report ☐ Magnetic deliverable (specify format)	Analyses per PSEP and SAP. Freeze 8-oz samples for potential chemistry.

INSTRUCTIONS

1. To request a Title 22 or WDOE 80-12 test, call MEC Analytical Systems, Inc. at (619)931-9225 or (415)435-1847 to schedule. Unless special arrangements are made, MEC will not receive samples on Saturdays or holidays.

2. The sample shipping kit (SSK) contains a piece of blue ice which should be kept frozen until shipping.

3. Each SSK can hold up to four samples. The sample must weigh at least 18 grams for a Title 22 screen, 45 grams for a Title 22 definitive, 14 grams for an 80-12 DW, and 4 grams for an 80-12 EHW.

Solid: Fill jar full (include minimum weight if sample is scarce) to provide for additional testing if required. Liquid: Fill jar half full.

4. Fill out the label provided and affix to sample jar. Place sample jars in foam and return unused jars as well so that they may be used again.

5. Place the frozen blue ice between the top of the jars and the top piece of foam.

6. Fill out the Chain of Custody and replace in ziplock bag provided. Place chain on top of foam.

7. Securely tape the box closed.

8. The SSK can be shipped by Federal Express Economy 2-day or UPS Blue Label. If results are needed fast, use Federal Express Standard Overnight or UPS Red Label. Ship to one of the following:

MEC Analytical Systems, Inc.
6060 Corte del Cedro
Carlsbad, CA 92009
(619) 931-9225

MEC Analytical Systems, Inc.
3150 Paradise Dr. #36
Tiburon, CA 94920
(415) 435-1847

9. The day the samples are shipped, call or FAX MEC to confirm shipment.

It is not advisable to ship on a Friday as the shipment may not be received until the following Monday.

1 jar from US-01 broken.
ATM

WHITE - return to originator • YELLOW - [illegible] • PINK - retained by originator

CHAIN OF CUSTODY

MEC ANALYTICAL SYSTEMS, INC.

(☒ Check one)

☐ 6060 Corte del Cedro • Carlsbad, CA 92009-1514 • (619) 931-9225, FAX 931-9251

☐ 98 Main Street, Suite #428 • Tiburon, CA 94920 • (415) 435-1847, FAX 435-0479

DATE 6/14/95 PAGE 1 OF 1

PROJECT NAME/NUMBER: UNOCAL UPLAND SEDIMENTS 40324-035.014

PROJECT MANAGER: John Virgin

COMPANY: EMCON

ADDRESS: Bothell WA

PHONE/FAX: (206) 485-5000 486-9766

SAMPLE I.D.	DATE	TIME	DESCRIPTION/MATRIX	INITIALS	NUMBER OF CONTAINERS	ANALYSIS/TEST REQUESTED: CA TITLE 22 BIOASSAY SCREENING ☐ DEFINITIVE ☐	WDOE 80-12 DW ☐ EHW ☐ BOTH ☐	OTHER Biossay/TOC/Grain Size	COMMENTS
US-04	6/13/95	11:15	Sediment	JJV	6			X	
US-05	6/13/95	12:00	Sediment	JJV	6			X	
US-06	6/13/95	13:25	Sediment	JJV	6			X	
US-07	6/13/95	14:15	Sediment	JJV	6			X	

RELINQUISHED BY

Signature: John Virgin

Printed Name: John Virgin

Firm: EMCON

Date/Time: 6/14/95 0730

RECEIVED BY

Signature: Bill Schmitz

Printed Name: BILL SCHMITZ

Firm: MEC ANALYTICAL

Date/Time: 15 JUN 95 / 1610

RELINQUISHED BY

Signature:

Printed Name:

Firm:

Date/Time:

RECEIVED BY

Signature:

Printed Name:

Firm:

Date/Time:

INVOICE INFORMATION:

P.O. #:

Bill to:

SHIPPING:

Shipping VIA:

Airbill #:

Condition:

TURNAROUND TIME:

☐ Standard (10 working days)
☐ 48 hours after completion of test
☐ 24 hours after completion of test

REPORT REQUIREMENTS:

☐ Routine Report
☐ Magnetic deliverable (specify format)

SPECIAL INSTRUCTIONS/COMMENTS:

Freeze 8-oz samples
Analysis per PSEP and SAP

INSTRUCTIONS

1. To request a Title 22 or WDOE 80-12 test, call MEC Analytical Systems, Inc. at (619)931-9225 or (415)435-1847 to schedule. Unless special arrangements are made, MEC will not receive samples on Saturdays or holidays.

2. The sample shipping kit (SSK) contains a piece of blue ice which should be kept frozen until shipping.

3. Each SSK can hold up to four samples. The sample must weigh at least 18 grams for a Title 22 screen, 45 grams for a Title 22 definitive, 14 grams for an 80-12 DW, and 4 grams for an 80-12 EHW.

Solid: Fill jar full (include minimum weight if sample is scarce) to provide for additional testing if required. Liquid: Fill jar half full.

4. Fill out the label provided and affix to sample jar. Place sample jars in foam and return unused jars as well so that they may be used again.

5. Place the frozen blue ice between the top of the jars and the top piece of foam.

6. Fill out the Chain of Custody and replace in ziplock bag provided. Place chain on top of foam.

7. Securely tape the box closed.

8. The SSK can be shipped by Federal Express Economy 2-day or UPS Blue Label. If results are needed fast, use Federal Express Standard Overnight or UPS Red Label. Ship to one of the following:

MEC Analytical Systems, Inc.
6060 Corte del Cedro
Carlsbad, CA 92009
(619) 931-9225

MEC Analytical Systems, Inc.
3150 Paradise Dr. #36
Tiburon, CA 94920
(415) 435-1847

9. The day the samples are shipped, call or FAX MEC to confirm shipment.

It is not advisable to ship on a Friday as the shipment may not be received until the following Monday.

WHITE - return to originator • YELLOW - lab • PINK - retained by originator

CHAIN OF CUSTODY

MEC ANALYTICAL SYSTEMS, INC.

(☒ Check one)
☐ 6060 Corte del Cedro • Carlsbad, CA 92009-1514 • (619) 931-9225, FAX 931-9251
☐ 98 Main Street, Suite #428 • Tiburon, CA 94920 • (415) 435-1847, FAX 435-0479

DATE 6/15/95 PAGE 1 OF 1

PROJECT NAME/NUMBER: Unocal Upland Sediments 40524-035.014
PROJECT MANAGER: John Virgin
COMPANY: EMCON
ADDRESS: Bothell WA
PHONE/FAX: (206) 485-5000 486-9766

SAMPLE I.D.	DATE	TIME	DESCRIPTION/MATRIX	INITIALS	NUMBER OF CONTAINERS	CA TITLE 22 BIOASSAY SCREENING ☐ DEFINITIVE ☐	WDOE 80-12 DW ☐ EHW ☐ BOTH ☐	OTHER (Bioassay/Toc/Grain size)	COMMENTS
US-08	6/14/95	0945	Sediment	JJV	6			X	
US-10	6/14/95	10:45	Sediment	JJV	6			X	
US-11	6/14/95	12:00	Sediment	JJV	6			X	
US-12	6/14/95	13:45	Sediment	JJV	6			X	
US-13	6/14/95	14:45	Sediment	JJV	6			X	
US-20	6/14/95	16:00	Sediment	JJV	2				*Toc/Grain-size

ANALYSIS/TEST REQUESTED

RELINQUISHED BY
Signature: John Virgin
Printed Name: John Virgin
Firm: EMCON
Date/Time: 6/15/95 0830

RECEIVED BY
Signature: Bill Schmitz
Printed Name: Bill Schmitz
Firm: MEC Analytical
Date/Time: 16 JUN 95 12A2

INVOICE INFORMATION:
P.O. #:
Bill to:

RELINQUISHED BY
Signature:
Printed Name:
Firm:
Date/Time:

RECEIVED BY
Signature:
Printed Name:
Firm:
Date/Time:

SHIPPING:
Shipping VIA:
Airbill #:
Condition:

TURNAROUND TIME:
☐ Standard (10 working days)
☐ 48 hours after completion of test
☐ 24 hours after completion of test

REPORT REQUIREMENTS:
☐ Routine Report
☐ Magnetic deliverable (specify format)

SPECIAL INSTRUCTIONS/COMMENTS:
Analyses per PSEP protocols and SAP

INSTRUCTIONS

1. To request a Title 22 or WDOE 80-12 test, call MEC Analytical Systems, Inc. at (619)931-9225 or (415)435-1847 to schedule. Unless special arrangements are made, MEC will not receive samples on Saturdays or holidays.

2. The sample shipping kit (SSK) contains a piece of blue ice which should be kept frozen until shipping.

3. Each SSK can hold up to four samples. The sample must weigh at least 18 grams for a Title 22 screen, 45 grams for a Title 22 definitive, 14 grams for an 80-12 DW, and 4 grams for an 80-12 EHW.

Solid: Fill jar full (include minimum weight if sample is scarce) to provide for additional testing if required. Liquid: Fill jar half full.

4. Fill out the label provided and affix to sample jar. Place sample jars in foam and return unused jars as well so that they may be used again.

5. Place the frozen blue ice between the top of the jars and the top piece of foam.

6. Fill out the Chain of Custody and replace in ziplock bag provided. Place chain on top of foam.

7. Securely tape the box closed.

8. The SSK can be shipped by Federal Express Economy 2-day or UPS Blue Label. If results are needed fast, use Federal Express Standard Overnight or UPS Red Label. Ship to one of the following:

MEC Analytical Systems, Inc.
6060 Corte del Cedro
Carlsbad, CA 92009
(619) 931-9225

MEC Analytical Systems, Inc.
3150 Paradise Dr. #36
Tiburon, CA 94920
(415) 435-1847

9. The day the samples are shipped, call or FAX MEC to confirm shipment.

It is not advisable to ship on a Friday as the shipment may not be received until the following Monday.

* - Archive chemistry sample, grain size analysis on composited sample. Remove aliquot of chemistry (Archive) sample for TOC analysis.

WHITE - return to originator • YELLOW • PINK - retained by originator

CHAIN OF CUSTODY

MEC ANALYTICAL SYSTEMS, INC.

(☒ Check one)
☐ 6060 Corte del Cedro • Carlsbad, CA 92009-1514 • (619) 931-9225, FAX 931-9251
☐ 98 Main Street, Suite #428 • Tiburon, CA 94920 • (415) 435-1847, FAX 435-0479

DATE 6/19/95 PAGE 1 OF 1

PROJECT NAME/NUMBER: UNOCAL Upland Sediments 40324-035.014
PROJECT MANAGER: John Virgin
COMPANY: ENCON
ADDRESS: Bothell WA
PHONE/FAX: 206 485-5000 206 486-9766

SAMPLE I.D.	DATE	TIME	DESCRIPTION/MATRIX	INITIALS	NUMBER OF CONTAINERS	CA TITLE 22 BIOASSAY SCREENING ☐ DEFINITIVE ☐	WDOE 80-12 DW ☐ EHW ☐ BOTH ☐	OTHER Biossay (TOC/Grain Size)	COMMENTS
US-09	6/16/95	09:50	Sediment	JJV	4			X	C950620.03
US-14	6/16/95	11:30	Sediment	JJV	4			X	C950620.04
WS-I	6/16/95	11:00	Reference Sediment	JJV	5			X	C950620.05
NIST	6/17/95	10:50	Reference Sediment	JJV	6			X	C950620.06

RELINQUISHED BY
Signature: John Virgin
Printed Name: John Virgin
Firm: ENCON
Date/Time: 6/19/95 0750

RECEIVED BY
Signature: Alan T Mayji
Printed Name: Alan T Mayji
Firm: MEC-Carlsbad
Date/Time: 6/20/95 1050

INVOICE INFORMATION:
P.O. #
Bill to:

RELINQUISHED BY
Signature
Printed Name
Firm
Date/Time

RECEIVED BY
Signature
Printed Name
Firm
Date/Time

SHIPPING:
Shipping VIA:
Airbill #:
Condition:

TURNAROUND TIME:
☐ Standard (10 working days)
☐ 48 hours after completion of test
☐ 24 hours after completion of test

REPORT REQUIREMENTS:
☐ Routine Report
☐ Magnetic deliverable (specify format)

SPECIAL INSTRUCTIONS/COMMENTS:

INSTRUCTIONS

1. To request a Title 22 or WDOE 80-12 test, call MEC Analytical Systems, Inc. at (619)931-9225 or (415)435-1847 to schedule. Unless special arrangements are made, MEC will not receive samples on Saturdays or holidays.

2. The sample shipping kit (SSK) contains a piece of blue ice which should be kept frozen until shipping.

3. Each SSK can hold up to four samples. The sample must weigh at least 18 grams for a Title 22 screen, 45 grams for a Title 22 definitive, 14 grams for an 80-12 DW, and 4 grams for an 80-12 EHW.

Solid: Fill jar full (include minimum weight if sample is scarce) to provide for additional testing if required. Liquid: Fill jar half full.

4. Fill out the label provided and affix to sample jar. Place sample jars in foam and return unused jars as well so that they may be used again.

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6. Fill out the Chain of Custody and replace in ziplock bag provided. Place chain on top of foam.

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Carlsbad, CA 92009
(619) 931-9225

MEC Analytical Systems, Inc.
3150 Paradise Dr. #36
Tiburon, CA 94920
(415) 435-1847

9. The day the samples are shipped, call or FAX MEC to confirm shipment.

It is not advisable to ship on a Friday as the shipment may not be received until the following Monday.

WHITE - return to originator • YELLOW - lab • PINK - retained by originator

CHAIN OF CUSTODY

MEC ANALYTICAL SYSTEMS, INC.

(☒ Check one)
☐ 6060 Corte del Cedro • Carlsbad, CA 92009-1514 • (619) 931-9225, FAX 931-9251
☐ 98 Main Street, Suite #428 • Tiburon, CA 94920 • (415) 435-1847, FAX 435-0479

DATE 6/19/95 PAGE 1 OF 1

PROJECT NAME/NUMBER: LNO CAL Upland Sediments
PROJECT MANAGER: John Virgin
COMPANY: Emcon
ADDRESS: Bothell WA
PHONE/FAX: 206 485-5000 206 486-9766

SAMPLE I.D.	DATE	TIME	DESCRIPTION/MATRIX	INITIALS	NUMBER OF CONTAINERS	ANALYSIS/TEST REQUESTED: CA TITLE 22 BIOASSAY SCREENING ☐ DEFINITIVE ☐	WDOE 80-12 DW ☐ EHW ☐ BOTH ☐	OTHER Grain size/TOC/Grain size	COMMENTS
CAP2	6/18/95	14:20	Sediment	JJV	5			X	CA506207

RELINQUISHED BY
Signature: C. M. Eaton
Printed Name: Charles Eaton
Firm: Bio-Marine
Date/Time: 6/18/95 2030

RECEIVED BY
Signature: J. Russell Stolsen
Printed Name: J. Russell Stolsen
Firm: EMCON
Date/Time: 6/18/95 2030

INVOICE INFORMATION:
P.O. #:
Bill to:

RELINQUISHED BY
Signature: J. Russell Stolsen
Printed Name: J. Russell Stolsen
Firm: Emcon
Date/Time: 6/19/95 0750

RECEIVED BY
Signature: John Virgin
Printed Name: EMCON
Firm: EMCON
Date/Time: 6/19/95 0750

SHIPPING:
Shipping VIA:
Airbill #:
Condition:

TURNAROUND TIME:
☐ Standard (10 working days)
☐ 48 hours after completion of test
☐ 24 hours after completion of test

REPORT REQUIREMENTS:
☐ Routine Report
☐ Magnetic deliverable (specify format)

SPECIAL INSTRUCTIONS/COMMENTS:
Marine Reference Sediment

INSTRUCTIONS

1. To request a Title 22 or WDOE 80-12 test, call MEC Analytical Systems, Inc. at (619)931-9225 or (415)435-1847 to schedule. Unless special arrangements are made, MEC will not receive samples on Saturdays or holidays.

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6. Fill out the Chain of Custody and replace in ziplock bag provided. Place chain on top of foam.

7. Securely tape the box closed.

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Carlsbad, CA 92009
(619) 931-9225

MEC Analytical Systems, Inc.
3150 Paradise Dr. #36
Tiburon, CA 94920
(415) 435-1847

9. The day the samples are shipped, call or FAX MEC to confirm shipment.

It is not advisable to ship on a Friday as the shipment may not be received until the following Monday.

6/20/95 10:50

WHITE - return to originator • YELLOW • PINK - retained by originator

MEC ANALYTICAL SYSTEMS, INC.

ORIGINAL IS IN PROJECT FILING

RECEIVED
JAN 29 1996

January 24, 1996

John Virgin
EMCON Northwest, Inc.
18921 N. Creek Parkway
Bothell, WA 98011-8016

SBJ: Unocal Edmonds Bulk Fuel Terminal Replacement Report Pages

John:

I am providing you with replacement report pages for the **Unocal Edmonds Bulk Fuel Terminal** Project. I signed where appropriate, since Bill Schmitz (original signature) is no longer with MEC. I dated the pages January 19, 1996 and indicated that they were replacement copies. That should fly with the QA types.

MEC Analytical Systems, Inc. greatly appreciates the opportunity to provide aquatic services to EMCON Northwest and I look forward to supporting you on future projects. If you have any questions please contact me at (619) 931-9225.

Sincerely,

F. Charles Newton
Director of Laboratory Services

enclosures as stated

2433 Impala Dr., Carlsbad, CA 92008
(619) 931-8081 FAX (619) 931-1580

6060 Corte del Cedro, Carlsbad, CA 92009
(619) 931-9225 FAX (619) 931-9251

98 Main St., Suite 428, Tiburon, CA 94920
(415) 435-1847 FAX (415) 435-4670

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	11Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	21Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Work Request No.:**	0694-002

Acute Sediment Toxicity Study with Amphipods for 10 Days
MEC Testing Protocol No. P010.0

Test Organism: *Eohaustorius estuarius*

Sample ID	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	% Survival
C950614.0335	US-01	20	18	20	17	19	94%
C950614.0435	US-02	18	19	20	19	20	96%
C950614.0535	US-03	18	18	17	17	10	80%
C950615.0135	US-04	15	19	20	19	19	92%
C950615.0235	US-05	11	8	15	9	11	54%
C950615.0335	US-06	17	20	19	19	17	92%
C950615.0435	US-07	17	20	18	19	19	93%
C950616.0135	US-08	19	19	19	19	18	94%
C950616.0235	US-10	20	17	15	16	18	86%
C950616.0335	US-11	20	19	19	17	20	95%
C950616.0435	US-12	16	18	17	18	12	81%
C950616.0535	US-13	20	14	17	15	16	82%
C950620.0335	US-09	16	12	18	16	16	78%
C950620.0435	US-14	17	17	18	18	20	90%
C950620.0535	US-15	19	18	20	20	19	96%
C950620.0635	NISQ	19	22	19	18	20	96%
C950620.0735	CARR	18	19	20	20	20	97%
C950622.0335	Control 1	23	20	19	19	20	98%
C950622.0435	Control 2	23	20	19	19	20	98%

Approved by _____ Date Jan 19, 1996 Page 1

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REBURIAL

Sample	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	% Reburied
C950614.0335	US-01	20	18	20	17	19	100%
C950614.0435	US-02	18	19	20	19	20	100%
C950614.0535	US-03	18	18	17	17	10	100%
C950615.0135	US-04	15	19	20	19	19	100%
C950615.0235	US-05	11	8	15	9	11	100%
C950615.0335	US-06	17	20	19	19	13	96%
C950615.0435	US-07	17	20	18	19	19	100%
C950616.0135	US-08	19	19	19	19	18	100%
C950616.0235	US-10	20	17	15	16	18	100%
C950616.0335	US-11	20	19	19	17	20	100%
C950616.0435	US-12	16	18	17	17	12	99%
C950616.0535	US-13	20	14	17	15	16	100%
C950620.0335	US-09	15	12	18	16	16	99%
C950620.0435	US-14	17	17	18	18	20	100%
C950620.0535	US-15	19	18	20	19	19	99%
C950620.0635	NISQ	19	22	19	18	20	100%
C950620.0735	CARR	18	19	20	20	20	100%
C950622.0335	Control 1	23	20	19	19	20	100%
C950622.0435	Control 2	23	20	19	19	20	100%

Approved by _____ Date J-19, 1996

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MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	11Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	21Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Work Request No.:**	0694-002

Acute Sediment Toxicity Study with Amphipods for 10 Days
MEC Testing Protocol No. P010.0

Test Organism: *Eohaustorius estuarius*

Test Solution Physical and Chemical Data

Sample ID	Site	Statistic	Dissolved Oxygen (%)	pH (units)	Salinity (ppt)
C950615.0335	US-01	Mean	98	7.8	19.9
		Minimum	86	7.6	19.7
		Maximum	110	8.0	20.3
C950615.0435	US-02	Mean	98	7.7	20.0
		Minimum	88	7.5	19.8
		Maximum	106	8.0	20.3
C950614.0535	US-03	Mean	99	7.7	19.8
		Minimum	87	7.4	19.6
		Maximum	113	7.9	20.2
C950615.0135	US-04	Mean	99	7.8	19.9
		Minimum	88	7.5	19.8
		Maximum	113	8.0	20.3
C950615.0235	US-05	Mean	99	7.7	20.0
		Minimum	90	7.5	19.7
		Maximum	113	8.0	20.3
C950615.0335	US-06	Mean	100	7.8	20.0
		Minimum	90	7.6	19.9
		Maximum	111	8.1	20.3
C950615.0435	US-07	Mean	98	7.7	19.8
		Minimum	87	7.4	19.4
		Maximum	114	7.9	20.1
C950616.0135	US-08	Mean	100	7.8	20.0
		Minimum	88	7.5	19.8
		Maximum	113	8.0	20.3
C950616.0235	US-10	Mean	99	7.9	19.9
		Minimum	87	7.6	19.7
		Maximum	113	8.1	20.3

Approved by _____ Date Jan 19, 1996

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Sample ID	Site	Statistic	Dissolved Oxygen (%)	pH (units)	Salinity (ppt)
C950616.0335	US-11	Mean Minimum Maximum	99 90 114	8.0 7.6 8.6	19.6 19.0 20.2
C950616.0435	US-12	Mean Minimum Maximum	97 90 113	7.8 7.2 8.1	19.5 19.0 20.0
C950616.0535	US-13	Mean Minimum Maximum	98 86 110	8.0 7.8 8.2	19.0 18.7 20.0
C950620.0335	US-09	Mean Minimum Maximum	98 88 113	7.9 7.7 8.2	20.0 19.7 20.3
C950620.0435	US-14	Mean Minimum Maximum	99 87 116	8.1 7.9 8.3	19.3 18.5 20.3
C950620.0535	US-15	Mean Minimum Maximum	100 89 115	7.9 7.6 8.0	19.9 19.5 20.4
C950620.0635	NISQ	Mean Minimum Maximum	101 91 110	7.7 7.4 7.9	19.8 19.6 20.2
C950620.0735	CARR	Mean Minimum Maximum	97 88 108	8.1 7.9 8.4	20.1 19.0 20.8
C950620.0135	Control 1	Mean Minimum Maximum	102 89 115	8.0 7.7 8.1	19.4 19.2 19.7
C950620.0235	Control 2	Mean Minimum Maximum	100 91 114	7.9 7.7 8.0	19.4 19.3 19.6

Approved by _____ Date Jan 19, 1996

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COLUMBIA AQUATIC SCIENCES

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	7Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	10Jul95
Sample Name/ID:	C950614.03-C950620.07	**Work Request No.:**	0694-003

APPENDIX
Pertinent Test Data

TEST: Sediment Toxicity Study with Bivalve Larvae for 48-60 Hours, MEC Testing Protocol No. P048.0

DILUTION WATER: Treated Sea water.

Salinity	30.3 ppt
pH	8.3
Dissolved Oxygen	87%
Temperature	15.9° C

TEST ORGANISM: *Mytilus edulis*, purchased from Carlsbad Aquafarm, maintained in filtered seawater at 15°C until spawned.

TEST CHAMBER: 1 L glass chambers.

EXPERIMENTAL DESIGN:

1. Test sediments were suspended by shaking and added to randomized test chambers with seawater for a final volume of 20 g/L.
2. Test sediments were allowed to settle for 4 hours.
3. 20,000-30,000 embryos were added to each test chamber.
4. Test chambers were held at 16°C for 60 hours with a photo period of 16 hours light, 8 hours dark.
5. Temperature was monitored with a continuous recording computer (plot attached).

REFERENCE TOXICITY:

1. $CuSO_4$, Lot No. 9409146, received 6/23/95, opened 6/23/95, expires 6/23/96.
2. 48 Hour Develop. EC_{50}: 7.55 ppb (95% confidence limits 5.83, 9.72)
3. Test Date: 7/12/95

STUDY DIRECTOR: F.C. Newton

INVESTIGATORS: A. Monji, E. Calix, T. Fitzsimmons

Approved by _____ Date Jan 19, 1996 Page 5

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MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	11Jul95
Sample Matrix:	Sediment	**Date Test Ended:**	21Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Work Request No.:**	0694-002

APPENDIX
Pertinent Test Data

TEST: Acute Sediment Toxicity Study with Amphipods for 10 Days, MEC Testing Protocol No. P010.0

DILUTION WATER: Filtered seawater.

TEST ORGANISM: *Eohaustorius estuarius*, purchased from Northwest Aquatic.

TEST CHAMBER: 1 L glass beakers.

EXPERIMENTAL DESIGN:
1. Test sediments were homogenized and added to randomized test chambers to 2 cm.
2. Test sediments were aerated and allowed to settle overnight.
3. 20 test organisms were placed into each chamber.
4. Sterile, particle-free, dry air was delivered through a Pasteur pipet into each chamber to bring the dissolved oxygen to levels above 60% saturation.
5. Test chambers were held at 15°C for 10 days with a photo period of 24 hours light.
6. Temperature was monitored with a continuous recording computer (plot attached).

MORTALITY CRITERIA: Lack of respiratory movement and lack of reaction to gentle prodding.

REFERENCE TOXICITY:
1. Toxicant: CdCl, USEPA Reference Toxicant
2. 96 Hour LC_{50}: 5.85 mg/L (95% confidence limits 4.61, 7.41)
3. Test Date: 7/13/95

STUDY DIRECTOR: F.C. Newton

INVESTIGATORS: N. Lewnes, E. Calix, B. Schmitz, A. Monji, T. McLeod, T. Fitzsimmons

Approved by _____ Date Jan 19, 1996

vaplant copy

MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	24Jun95
Sample Matrix:	Sediment	**Date Test Ended:**	14Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Test ID No.:**	0694-004

PSEP 20-Day Chronic Test
MEC Testing Protocol No. P014.1

Test Organism: *Neanthes arenaceodenta*

Sample ID	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	% Survival
C950614.0337	US-01	4	5	4	4	5	88%
C950614.0437	US-02	5	5	5	5	5	100%
C950614.0537	US-03	5	5	5	4	5	96%
C950615.0137	US-04	5	5	3	4	4	84%
C950615.0237	US-05	4	3	5	5	4	84%
C950615.0337	US-06	5	5	5	5	5	100%
C950615.0437	US-07	5	5	5	5	4	96%
C950616.0137	US-08	5	5	4	6	5	100%
C950616.0237	US-10	3	*	3	3	4	65%
C950616.0337	US-11	5	5	4	5	5	96%
C950616.0437	US-12	4	5	5	3	5	88%
C950616.0537	US-13	4	5	4	5	5	92%
C950620.0337	US-09	4	3	3	3	3	64%
C950620.0437	US-14	5	5	5	5	5	100%
C950620.0537	US-15	5	5	5	5	5	100%
C950620.0637	NISQ	5	5	5	5	5	100%
C950620.0737	CARR	5	5	5	5	5	100%
C950622.0337	Control 1	5	5	5	4	5	96%
C950622.0437	Control 2	5	5	5	4	5	96%

*count lost

Approved by _____ Date Jan 19, 1996

replacement copy

Growth Data

Sample ID	Site	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Mean	No. Alive	Mean/ Worm
C950614.0337	US-01	52.82	71.65	34.99	64.50	42.37	53.27	22	2.42
C950614.0437	US-02	36.91	36.67	29.26	42.45	33.92	37.58	25	1.50
C950614.0537	US-03	33.79	28.67	29.62	38.92	43.70	34.94	24	1.46
C950615.0137	US-04	35.05	37.65	35.48	55.14	21.55	36.97	21	1.76
C950615.0237	US-05	38.02	21.10	39.56	35.15	40.38	34.84	21	1.66
C950615.0337	US-06	30.76	41.21	49.48	29.83	27.95	35.85	25	1.43
C950615.0437	US-07	33.69	35.51	24.82	36.69	40.19	34.18	24	1.42
C950616.0137	US-08	32.25	32.14	33.25	41.14	61.01	39.96	25	1.60
C950616.0237	US-10	27.58	*	27.91	33.23	27.61	29.08	13	2.24
C950616.0337	US-11	44.47	36.65	27.67	35.07	35.99	35.97	24	1.50
C950616.0437	US-12	42.55	36.14	43.21	28.51	42.09	38.50	22	1.75
C950616.0537	US-13	22.19	27.86	21.11	37.74	29.09	27.60	23	1.20
C950620.0337	US-09	22.28	9.91	19.30	20.27	15.57	17.47	16	1.09
C950620.0437	US-14	14.52	43.40	49.22	34.92	27.65	33.94	~~24~~ 25	(1.41) - 1.36 gv
C950620.0537	US-15	38.52	44.48	49.62	35.67	37.47	41.15	25	1.65
C950620.0637	NISQ	42.27	43.43	34.14	43.34	55.46	43.73	25	1.75
C950620.0737	CARR	50.35	30.75	28.23	44.66	46.86	40.17	25	1.61
C950622.0337	Control	19.22	43.12	25.65	20.63	23.59	26.44	24	~~1.02~~ 1.10 MRM
C950622.0437	Control	26.94	37.11	12.06	40.18	17.86	26.83	24	1.12

*count lost

Approved by _____ Date Jan 19, 1996 Page 2

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MEC ANALYTICAL SYSTEMS, INC.

Analytical Report

Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	24Jun95
Sample Matrix:	Sediment	**Date Test Ended:**	14Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Test ID No.:**	0694-004

Test Solution Physical and Chemical Data

Sample ID	Site	Statistic	Dissolved Oxygen (%)	pH (units)	Salinity (ppt)
C950614.0337	US-01	Mean	91	7.8	27.2
		Minimum	79	7.5	20.0
		Maximum	96	8.0	29.0
C950614.0437	US-02	Mean	92	7.9	27.3
		Minimum	80	7.6	26.6
		Maximum	96	8.1	28.0
C950614.0537	US-03	Mean	91	7.8	27.2
		Minimum	86	7.6	24.8
		Maximum	96	8.1	28.0
C950615.0137	US-04	Mean	92	7.8	27.5
		Minimum	83	7.6	26.5
		Maximum	98	8.0	28.0
C950615.0237	US-05	Mean	93	7.8	27.6
		Minimum	83	7.7	27.1
		Maximum	98	7.9	28.1
C950615.0337	US-06	Mean	95	7.8	27.2
		Minimum	86	7.6	26.4
		Maximum	98	8.1	28.0
C950615.0437	US-07	Mean	91	7.8	27.4
		Minimum	79	7.6	26.2
		Maximum	97	8.1	28.3
C950616.0137	US-08	Mean	93	7.9	27.1
		Minimum	87	7.7	24.4
		Maximum	100	8.1	28.0
C950616.0237	US-10	Mean	87	7.8	26.9
		Minimum	73	7.5	23.7
		Maximum	95	8.1	27.7
C950616.0337	US-11	Mean	91	7.9	27.0
		Minimum	81	7.6	24.8
		Maximum	96	8.3	28.1
C950616.0437	US-12	Mean	90	7.9	27.3
		Minimum	81	7.6	26.3
		Maximum	97	8.3	28.5

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Sample ID	Site	Statistic	Dissolved Oxygen (%)	pH (units)	Salinity (ppt)
C950616.0537	US-13	Mean Minimum Maximum	92 85 98	7.9 7.7 8.1	27.0 25.7 28.1
C950620.0337	US-09	Mean Minimum Maximum	90 73 97	7.9 7.5 8.1	27.6 27.0 29.0
C950620.0437	US-14	Mean Minimum Maximum	92 82 101	8.0 7.7 8.2	27.0 26.3 27.4
C950620.0537	US-15	Mean Minimum Maximum	94 88 109	7.9 7.6 8.0	27.4 24.7 28.2
C950620.0637	NISQ	Mean Minimum Maximum	94 87 103	7.7 7.5 7.9	27.1 24.6 28.0
C950620.0737	CARR	Mean Minimum Maximum	92 84 108	8.0 7.6 8.2	27.4 23.8 28.3
C950622.0337	Control	Mean Minimum Maximum	95 92 104	8.0 7.9 8.2	27.4 26.9 28.0
C950622.0437	Control	Mean Minimum Maximum	96 92 108	8.0 7.8 8.4	27.4 26.3 28.0

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Client:	EMCON Northwest	**Date Received:**	14-20Jun95
Project:	Unocal	**Date Test Started:**	24Jun95
Sample Matrix:	Sediment	**Date Test Ended:**	14Jul95
Sample Name/ID:	C950614.03-C9506220.07	**Test ID No.:**	0694-004

APPENDIX
Pertinent Test Data

TEST: PSEP 20-Day Chronic Test with *Neanthes arenaceodenta*, MEC Protocol No. P014.1

DILUTION WATER: Filtered seawater.

TEST ORGANISM: *Neanthes arenaceodenta*, purchased from California State University, Long Beach; fed TetraMarin on an every-other-day basis.

TEST CHAMBER: 1 L glass beakers.

EXPERIMENTAL DESIGN:
1. Test sediments were homogenized and added to randomized test chambers to 2 cm.
2. Test sediments were aerated and allowed to settle overnight.
3. 5 test organisms were placed into each chamber.
4. Sterile, particle-free, dry air was delivered through a Pasteur pipet into each chamber to bring the dissolved oxygen to levels above 60% saturation.
5. Test chambers were held at 20 ± 2°C for 20 days with a photo period of 16 hours light, 8 hours darkness.
6. Temperature was monitored with a continuous recording computer (plot attached).

MORTALITY CRITERIA: Lack of respiratory movement and lack of reaction to gentle prodding.

REFERENCE TOXICITY:
1. Toxicant: CdCl, USEPA Reference Toxicant
2. 96 Hour LC_{50}: 6.59 mg/L (95% confidence limits 5.72, 7.60)
3. Test Date: 6/27/95

STUDY DIRECTOR: F.C. Newton

INVESTIGATORS: E. Calix, K. Bothner, N. Lewnes, B. Schmitz, A. Monji

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Dissolved Sulfides in Sediments
(Dissolved Sulfide Ion $S^{=}$, mg/L)

Sample ID	Site	INITIAL			FINAL		
		Amphipod	Polychaete	Bivalve	Amphipod	Polychaete	Bivalve
614.03	US-01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
614.04	US-02	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
614.05	US-03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
615.01	US-04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
615.02	US-05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
615.03	US-06	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
615.04	US-07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
616.01	US-08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
616.02	US-10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
616.03	US-11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
616.04	US-12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
616.05	US-13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
620.01	Control	<0.001	N/A	N/A	<0.001	N/A	N/A
620.02	Control	<0.001	N/A	N/A	<0.001	N/A	N/A
620.03	US-09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
620.04	US-14	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
620.05	US-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
620.06	NISQ	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
620.07	CARR	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
622.03	Control	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
622.04	Control	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
622.05	Control	N/A	<0.001	N/A	N/A	<0.001	N/A
622.06	Control	N/A	<0.001	N/A	N/A	<0.001	N/A

Ammonia in Sediments
(as NH_3, mg/L)

Sample ID	Site	INITIAL			FINAL		
		Amphipod	Polychaete	Bivalve	Amphipod	Polychaete	Bivalve
614.03	US-01	0.61	< 0.17	0.19	< 0.17	< 0.17	< 0.17
614.04	US-02	0.23	0.26	< 0.17	< 0.17	< 0.17	< 0.17
614.05	US-03	0.55	0.56	0.27	0.62	< 0.17	0.24
615.01	US-04	0.31	0.23	< 0.17	< 0.17	< 0.17	< 0.17
615.02	US-05	0.21	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
615.03	US-06	0.44	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
615.04	US-07	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
616.01	US-08	0.60	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
616.02	US-10	1.35	1.38	0.31	0.97	0.24	< 0.17
616.03	US-11	1.15	1.01	0.23	0.31	< 0.17	< 0.17
616.04	US-12	0.36	0.22	< 0.17	0.26	< 0.17	< 0.17
616.05	US-13	3.05	0.81	0.20	0.43	< 0.17	< 0.17
620.01	Control	< 0.17	N/A	N/A	< 0.17	N/A	N/A
620.02	Control	< 0.17	N/A	N/A	< 0.17	N/A	N/A
620.03	US-09	1.71	0.49	0.19	1.27	< 0.17	< 0.17
620.04	US-14	3.16	1.49	0.20	0.87	< 0.17	< 0.17
620.05	US-15	0.24	0.30	< 0.17	< 0.17	< 0.17	< 0.17
620.06	NISQ	0.83	0.53	0.19	< 0.17	1.14	< 0.17
620.07	CARR	4.56	2.15	0.37	1.11	< 0.17	0.32
622.03	Control	N/A	< 0.17	< 0.17	N/A	< 0.17	< 0.17
622.04	Control	N/A	< 0.17	< 0.17	N/A	< 0.17	< 0.17
622.05	Control	N/A	N/A	< 0.17	N/A	N/A	< 0.17
622.06	Control	N/A	N/A	< 0.17	N/A	N/A	< 0.17

MEC ANALYTICAL SYSTEMS, INC.

May 23, 1996

John Virgin
EMCON Northwest, Inc.
18921 N. Creek Parkway
Bothell, WA 98011-8016

SBJ: Unocal Edmonds Bulk Fuel Terminal Positive Control Test Results

John:

I am providing you with statistical outputs from reference toxicity tests (positive controls) performed in conjunction with the **Unocal Edmonds Bulk Fuel Terminal** Project. Three data sets are attached; ***Neanthes arenaceodenta*, *Eohaustorius estuaris* and *Mytilus edulis*.** All the information that you need for your DOE magnetic files, should be contained on these records.

MEC Analytical Systems, Inc. greatly appreciates the opportunity to provide aquatic services to EMCON Northwest and I look forward to supporting you in the future. If you have any questions regarding the attached information please contact me at (619) 931-9225.

Sincerely,

F. Charles Newton
Director, Toxicology and Chemistry

attachments as stated

2433 Impala Dr., Carlsbad, CA 92008
(619) 931-8081 FAX (619) 931-1580

6060 Corte del Cedro, Carlsbad, CA 92009
(619) 931-9225 FAX (619) 931-9251

98 Main St., Suite 428, Tiburon, CA 94920
(415) 435-1847 FAX (415) 435-0479

Acute Test-96 Hr Survival

Start Date:	27 Jun-95 00:00	Test ID:	623-0105	Sample ID:	REF-Ref Toxicant
End Date:	02 Jul-95 00:00	Lab ID:	CAMEC-Carlsbad MEC	Sample Type:	CDCL-Cadmium chloride
Sample Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	NA-Neanthes arenaceodentata
Comments:	DR0322				

Conc-mg/L	1	2
Control	0.9000	1.0000
3.8	1.0000	1.0000
7.5	0.4000	0.2000
15	0.0000	0.0000
30	0.0000	0.0000
60	0.0000	0.0000

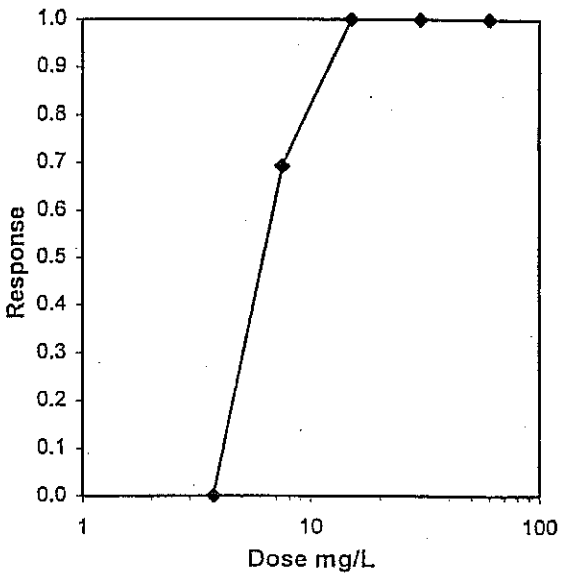
			Transform: Arcsin Square Root						1-Tailed		Number	Total
Conc-mg/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Resp	Number
Control	0.9500	1.0000	1.3305	1.2490	1.4120	8.661	2				1	20
3.8	1.0000	1.0526	1.4120	1.4120	1.4120	0.000	2	-0.727	3.182	0.3568	0	20
*7.5	0.3000	0.3158	0.5742	0.4636	0.6847	27.225	2	6.746	3.182	0.3568	14	20
15	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2				20	20
30	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2				20	20
60	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2				20	20

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSB	MSE	F-Stat	F-Prob	df
Bonferroni t Test	3.8	7.5	5.33854		0.25949	0.42689	0.01257	33.9555	0.0087	2, 3

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	6.5942	5.7230	7.5981
5.0%	6.5073	5.5687	7.6040
10.0%	6.4257	5.4237	7.6127
20.0%	6.2860	5.1694	7.6437
Auto-0.0%	6.5942	5.7230	7.5981



Acute Test-96 Hr Survival

Start Date:	13 Jul-95 11:14	Test ID:	628.01	Sample ID:	REF-Ref Toxicant
End Date:	17 Jul-95 14:05	Lab ID:	CAMEC-Carlsbad MEC	Sample Type:	CDCL-Cadmium chloride
mple Date:		Protocol:	EPAA 91-EPA Acute	Test Species:	EE-Eohaustorius estuarius
mments:	NA8010				

Conc-mg/L	1	2
Control	1.0000	1.0000
2.5	0.9000	0.8000
5	0.7000	0.6000
10	0.1000	0.4000
20	0.0000	0.0000
40	0.0000	0.0000

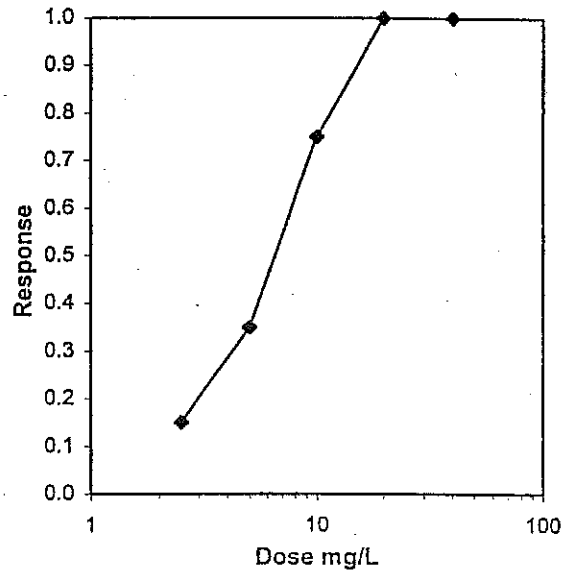
			Transform: Arcsin Square Root					1-Tailed			Number	Total
Conc-mg/L	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Resp	Number
Control	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	2				0	20
2.5	0.8500	0.8500	1.1781	1.1071	1.2490	8.517	2	1.639	3.186	0.4547	3	20
*5	0.6500	0.6500	0.9386	0.8861	0.9912	7.916	2	3.317	3.186	0.4547	7	20
*10	0.2500	0.2500	0.5032	0.3218	0.6847	51.002	2	6.368	3.186	0.4547	15	20
20	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2				20	20
40	0.0000	0.0000	0.1588	0.1588	0.1588	0.000	2				20	20

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Normality of the data set cannot be confirmed				
Equality of variance cannot be confirmed				

pothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSB	MSE	F-Stat	F-Prob	df
.lferroni t Test	2.5	5	3.53553		0.30646	0.30118	0.02037	14.7887	0.01247	3, 4

Trimmed Spearman-Karber

Trim Level	EC50	95% CL	
0.0%	5.8474	4.6114	7.4146
5.0%	5.9963	4.6356	7.7564
10.0%	6.1237	4.6792	8.0141
20.0%	6.2905	4.7174	8.3882
Auto-0.0%	5.8474	4.6114	7.4146



Bivalve Larval Survival and Development Test-Proportion Alive

Start Date:	12 Jul-95 16:07	Test ID:	623-0112	Sample ID:	REF-Ref Toxicant
End Date:	14 Jul-95 18:30	Lab ID:	CAMEC-Carlsbad MEC	Sample Type:	CUSO-Copper sulfate
Sample Date:		Protocol:	ASTM 87	Test Species:	ME-Mytilis edulis
Comments:	JD071295				

Conc-ppb	1	2	3
Control	0.9167	0.8770	1.0000
2.5	1.0000	1.0000	1.0000
5	1.0000	0.7500	0.9167
10	0.5794	0.7579	0.5952
20	0.5595	0.1071	0.2659
40	0.0437	0.4921	0.3770

			Transform: Arcsin Square Root					1-Tailed			Isotonic	
Conc-ppb	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
Control	0.9312	1.0000	1.3432	1.2124	1.5393	12.874	3				0.9656	1.0000
2.5	1.0000	1.0739	1.5393	1.5393	1.5393	0.000	3	-1.159	2.500	0.4230	0.9656	1.0000
5	0.8889	0.9545	1.2881	1.0472	1.5393	19.113	3	0.326	2.500	0.4230	0.8889	0.9205
10	0.6442	0.6918	0.9342	0.8651	1.0564	11.357	3	2.417	2.500	0.4230	0.6442	0.6671
*20	0.3108	0.3338	0.5734	0.3335	0.8451	44.864	3	4.550	2.500	0.4230	0.3108	0.3219
*40	0.3042	0.3267	0.5497	0.2105	0.7775	54.480	3	4.690	2.500	0.4230	0.3042	0.3151

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95607	0.858	-0.1432	-0.4889
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSB	MSE	F-Stat	F-Prob	df
Dunnett's Test	10	20	14.1421		0.31589	0.52325	0.04294	12.1854	2.3E-04	5, 12

Linear Interpolation (80 Resamples)

Point	ppb	SE	95% CL(Exp)		Skew
IC05	4.073	0.908	2.199	7.687	0.2758
IC10	5.405	0.889	2.163	7.890	-0.2761
IC15	6.392	0.920	2.508	8.941	-0.5422
IC20	7.378	0.913	3.437	10.455	-0.3701
IC25	8.365	0.892	5.082	11.439	-0.0306
IC40	11.944	1.627	7.778	18.585	1.5522
IC50	14.841	2.666	11.023	35.725	2.1138