APPENDIX 7B.12

HYALELLA AZTECA, 42-DAY CHRONIC TOXICITY TESTS

Chronic *Hyalella azteca* Survival, Growth and Reproduction Toxicity Tests Conducted on Sediment Samples from the Industriplex Site

Reference BTRs 3152, 3153, 3169, 3189, 3196

Prepared for:
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Aquatec Biological Sciences

Ecology | Environmental Toxicology | Natural Resource Assessments | Microbiology

BTRS 3152, 3153, 3169, 3189, 3196

PROJECT: 99026

I have reviewed this data package, which was completed under my supervision. This data package is complete, and to the best of my ability, accurately reflects the conditions and the results of the reported tests.

John W. Williams
Toxicity Laboratory Manager

12/14/99
Date

I have reviewed and discussed this data package with the responsible laboratory manager. Based on this review, the data package was, to the best of my knowledge and belief, conducted in accordance with established company quality assurance procedures.

Philip C. Downey, Ph.D.
Director

12/14/99
Date

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EXECUTIVE SUMMARY

100.4HA Amphipod, *Hyalella azteca*, 42-day Survival, Growth and Reproduction Test
Conducted July 7-August 18, 1999
for Menzie-Cura & Associates
Industriplex Site

Lab Test ID	Sample ID	Day 28 Mean Survival (%)	Day 28 Mean Dry Weight (mg)	Day 35 Mean Survival (%)	Day 42 Mean Survival (%)	Day 42 Mean Dry Weight (mg)	Day 42 Mean Number of Neonates/ Female
10219	SD-04 Hall's Brook	93	0.356	91	93	0.782	4.4
10220	SD-12 Hall's Brook	92	0.277	83	83	0.822	2.8
10221	SD-13 Aberjona River	76	0.260	69	73	1.018	1.9
10222	Laboratory Control	80	0.215	80	79	0.815	2.4
10224	SD-03 Phillips Pond	99	0.471	95	95	1.010	7.9
10341	SD-01 Aberjona S. Branch	92	0.395	91	90	0.707*	8.9
10342	SD-02 South Pond	99	0.370	98	99	0.735*	4.3
10343	SD-10 HBHA Creek	96	0.320	94	91	0.762*	3.3
10344	SD-11 HBHA Pond	79	0.233	84	81	0.755*	1.0
10345	Laboratory Control	85	0.269	81	80	1.018	2.1
10446	SD-06 HBHA	60*	--	60*	59*	1.101	0.5*
10447	SD-07 HBHA	Acute Toxicity					
10448	Laboratory Control	94	0.262	93	91	0.845	2.2
10472	SD-8	88	0.259	88	89	1.107	2.5
10473	SD-9	92	0.291	85	84	1.108	2.4
10474	SD-5	Acute Toxicity					
10475	SD-5DUP	Acute Toxicity					

* The response data were statistically significantly different from the corresponding laboratory control sediment ($p \leq 0.05$).

-- When a significant reduction in survival was detected, mean dry weight data were only reported in Appendix A (see Results).

INTRODUCTION:

Samples were received for toxicity testing at Aquatec Biological Sciences of 75 Green Mountain Drive, South Burlington, Vermont. The results of the following tests are reported:

Client:	Menzie-Cura & Associates
Facility/Location:	Industriplex Site
Initial Sampling Date:	June 17, 1999
Testing Dates:	July 2-August 18, 1999
Tests Conducted:	Amphipod, *Hyalella azteca* , 42-day Survival, Growth, and Reproduction

METHODS:

Toxicity Tests

The procedures followed in conducting these toxicity tests were based on draft methods described by the USEPA (EPA 600/R-98/XXX [new number pending]). Test conditions for *Hyalella azteca* are listed in Table 1. Testing was completed in three separate groupings based upon chronological sequencing from the time of sediment collection. The objective for the test groupings was to complete the 10-day acute tests prior to expiration of a project-specific 14-day sediment storage time so that subsequent chronic toxicity tests could be started within a 14-day time frame. The acute toxicity results were reported separately (Aquatec Biological Sciences, August 1999).

The results of the continuation of these evaluations, i.e., the chronic toxicity test results, are reported in this report. The first testing group was initiated on July 2, 1999. The second testing group was initiated on July 6, 1999. The third testing group was initiated on July 7, 1999. A laboratory control (artificial sediment) was included with each testing group. The objective of starting all tests within 14-days verified time of arrival was accomplished for these samples.

Sediment Preparation

The samples were stored refrigerated and in the dark whenever they were not being used in preparation for testing. Sediments distributed in test beakers were examined for the presence of indigenous organisms which were removed when observed. Also, large pieces of vegetative

material (e.g., leaf litter, sticks, grass) were removed. Qualitative observations regarding the sediment type and indigenous organisms removed were recorded. A laboratory control sediment was used with each Sample Delivery Group. The laboratory control sediment (artificial sediment) was prepared following formulations specified in the USEPA protocols and then hydrated prior to distribution to test chambers. Sediments were then distributed to individual replicate test chambers, overlying water was added, and the overlying water renewal system was activated. The unused portion of each sample (in the original sample container) was returned to refrigerated storage.

Statistical Analyses

Survival of the original amphipods and production of neonates was evaluated on Days 35 and 42. On the Day 35 assessment, the number of original amphipods were counted (alive) in the test beakers while the neonates were removed for enumeration. On Day 42 the original amphipods were removed and weighed, while the additional neonates produced were enumerated. Occasionally, the number of original amphipods counted on Day 35 were lower than those counted on Day 42, due in a large part to underestimation of Day 35 original ampipods associated with the variability of counting live swimming organisms. Statistical analyses of the Day 35 data was conducted on the observed counts.

Statistical comparisons were performed against the concurrent laboratory control. In some cases, where the laboratory control response was visually less or equal to the test sediment the test samples were judged to be non-significant. If complete mortality was observed in any sample, the response was considered to be significant.

Statistical comparisons of organism response data (larval survival and dry weight) from individual test samples were performed relative to the organism response data from the Laboratory Control (Sample 13304) and the Reference Site (Sample 13303). An F-Test was performed to test for equality of variances between each sample comparison to the control. If variances were not significantly different, paired T-Tests with equal variances were used to determine whether there were significant reductions in mean survival (Arcsin transformed) and/or mean growth in each

sample relative to the control. If the variance between a sample and control comparison was significantly different, paired T-Tests with unequal variances were used to determine significant reductions in mean survival and/or growth.

PROTOCOL DEVIATIONS:

On July 15, 1999 (Day 13) test beaker 10220L was observed to be cracked. Sediments and organisms were transferred to a new test beaker. All amphipods were recovered on Day 28.

On August 13, 1999 (Day 42) conductivity on the first sample group (10219, 10220, 10221, 10222, 10224), was not completed.

Three replicates (10342G, 10342L, 10345F) had more than 10 surviving original amphipods on Day 42. In these replicates survival was viewed as being 100 percent and the number of starting organisms adjusted for conducting the statistical analyses.

RESULTS:

Summary result tabulations for the *Hyalella azteca* whole sediment toxicity tests are located in Appendix A.

Group 1 Test Results: This group included samples 10219 (SD-04 Hall's Brook), 10220 (SD-12 Hall's Brook), 10221 (SD-13 Aberjona River), and 10224 (SD-03 Phillips Pond). None of the samples in this testing group had survival, growth, or reproduction responses that were significantly less than the Laboratory Control sample (10222).

Group 2 Test Results: This group included samples 10341 (SD-01 Aberjona S. Branch), 10342 (SD-02 South Pond), 10343 (SD-10 HBHA Creek), and 10344 (SD-11 HBHA Pond). None of the samples in this testing group had survival or reproduction responses that were significantly less than the Laboratory Control sample (10345). However all samples (10341, 10342, 10343, and 10344)displayed a significantly lower average adult amphipod weight on Day 42 than the corresponding control. The average weight per adult amphipod in the Group 2 laboratory control

(10345) was about 20 percent higher than either of the laboratory controls for the other two testing groups (samples 10222 and 10448).

Group 3 Test Results: This group included samples 10446 (SD-06 HBHA), 10447 (SD-07 HBHA), 10472 (SD-8), 10473 (SD-9), 10474 (SD-5), and 10475 (SD-5DUP). Sample 10472 displayed a significantly lower survival than the laboratory control at Day 28 only. Sample 10446 displayed a significantly lower survival for all observations (days 28, 35, and 42) when compared to the laboratory control (10448). Amphipod reproduction in this sample (10446) was also significantly less than the average control value.

Total Ammonia and Sulfide: Overlying water total ammonia concentrations for Days 0 and 28, and weekly thereafter are reported in Appendix C. As reported in the acute toxicity report, porewater total sulfide was less than 0.5 g/l for all original sediment samples, therefore, testing for sulfide in overlying water during the chronic testing was deemed unnecessary.

QUALITY ASSURANCE:

A standard reference toxicant SRT test was conducted concurrently with each batch of *Hyalella azteca*. The resulting LC50 values fell within control chart limits and were viewed as being acceptable.

Table 1. Test Conditions for the Amphipod (*Hyalella azteca*) 42-day Whole Sediment Survival, Growth and Reproduction Toxicity Test.

ASSOCIATED PROTOCOL: EPA, 1997. Draft *Methods for Measuring the Toxicity and Bioaccummulation of Sediment-associated Contaminants with Freshwater Invertebrates*, Second Edition Method 100.4 (EPA/600/R-98/XXX).

1. Test type:	Whole-sediment toxicity (static renewal)
2. Test temperature:	23 ± 1°C
3. Light quality:	Wide-spectrum fluorescent lights
4. Light illuninance:	500 to 1000 lux
5. Photoperiod:	16 hr. light, 8 hr. dark
6. Test chamber size:	300 mL beaker
7. Sediment volume:	100 mL (distributed to test chambers on the day prior to administration of test organisms (Days 0-28) then water only exposure (Days 28-42)
8. Overlying water volume:	175 mL
9. Renewal of overlying water	Twice daily
10. Age of test organisms:	7-8 days old at the start of the test
11. Number of organisms / test chamber:	10 (acclimated to test conditions)
12. Number of replicate test chambers / treatment:	12 (4 for 28-day survival and growth and 8 for 35- and 42-day observations)
13. Feeding regime:	1.0 mL YCT daily
14. Aeration:	None, unless dissoved oxygen in overlying water drops below 40% saturation or demonstrates a declining trend during daily monitoring. If supplemental water renewals may be implemented to raised dissolved oxygen concentrations

Table 1. Test Conditions for the Amphipod (*Hyalella azteca*) 42-Day Whole Sediment Survival, Growth and Reproduction Toxicity Test (continued).

15. Overlying water:	Reconstituted water and natural lake water (Lake Champlain, Vermont) mixed 1:1
16. Control sediment:	Formulated sediment (EPA/600/R-94/024, section 7.2.3.2)
17. Test chamber cleaning:	None
18. Monitoring:	
Overlying water	
Temperature	Daily, one replicate
Dissolved oxygen	Daily for Days 0-33, three days weekly beginning on Day 34, one replicate
pH	Three days weekly, one replicate
Conductivity	Weekly, one replicate
Alkalinity	Days 0, 28, 35, 42, pooled replicates
Hardness	Days 0, 28, 35, 42, pooled replicates
Ammonia	Days 0, 28, pooled replicates
Organism behavior	Within 2 hours to remove "floaters" Daily, all replicates
19. Test duration:	42 days (exposed to sediment for 28 days followed by water-only exposure for an additional 14 days
20. End points:	Survival on Days 28, 35, and 42; Growth (dry weight to 0.01 mg, 60°C overnight) on Days 28 and 42; Reproduction (average neonates produced per female) on Day 42
21. Reference toxicant:	96-h acute, water only (KCl)
22. Test acceptability:	Reference or Laboratory Control survival should be 80% or greater on Day 28 with adherence to performance-based criteria outlined in EPA/600/R-98/XXX, Table 14.1

Table 1. Test Conditions for the Amphipod (*Hyalella azteca*) 42-Day Whole Sediment Survival, Growth and Reproduction Toxicity Test (continued).

23. Statistical analysis and data interpretation:	Arc-sine (square-root) transformation of survival data followed by paired-sample hypothesis testing (e.g. t-test) versus the negative control and/or the appropriate reference site responses

APPENDIX A

Amphipod, *Hyalella azteca*,
Chronic Toxicity Test (July 2-July 30, 1999)

Menzie-Cura Industriplex
99026

BTR 3152 / 3153
Aquatec Biological Sciences

			Day 28 Data				Day 35 Data			Day 42 Data			Day 35 + 42 Reproduction Data				Day 42 Growth Data		
ple ber	Replicate	Start Count	Proportion Surviving	Mean Proportion Surviving	Mean Weight within Rep (mg)	Mean Weight Reps I-L (mg)	Proportion Surviving	Mean Survival	Number Neonates	Proportion Surviving	Mean Survival / Sample	Number Neonates	Total # Neonates	# Females per rep	Average neonates per female	Average Neonates per Sample	Number organisms weighed	Mean Weight within replicate	Mean Weight replicates A - H
219	A	10	0.90				0.80		14	0.90		36	50	7	7.1		9	0.746	
	B	10	0.90				0.90		28	0.90		5	33	5	6.6		9	0.761	
	C	10	0.90				0.80		13	0.80		0	13	3	4.3		8	0.856	
	D	10	0.90				0.90		0	0.90		2	2	2	1.0		9	0.659	
	E	10	1.00				1.00		9	1.00		20	29	6	4.8		10	0.659	
	F	10	1.00				1.00		5	1.00		17	22	5	4.4		10	0.788	
	G	10	1.00				1.00		2	1.00		19	21	6	3.5		10	0.771	
	H	10	0.90				0.90	0.91	2	0.90	0.93	5	7	2	3.5	4.4	9	1.016	0.782
	I	10	0.70		0.311														
	J	10	0.90		0.347														
	K	10	1.00		0.384														
	L	10	1.00	0.93	0.383	0.356													
220	A	10	0.90				0.90		0	0.90		2	8	3	2.7		9	0.614	
	B	10	0.80				0.80		4	0.80		1	5	3	1.7		8	0.645	
	C	10	0.90				0.90		0	0.90		17	17	7	2.4		9	0.639	
	D	10	0.90				0.70		0	0.70		16	16	4	4.0		7	0.861	
	E	10	1.00				1.00		5	0.90		6	11	3	3.7		9	0.677	
	F	10	0.90				0.80		0	0.80		15	15	4	3.8		8	1.076	
	G	10	0.60				0.60		0	0.60		7	7	3	2.3		6	1.327	
	H	10	1.00				0.90	0.83	1	1.00	0.83	11	12	6	2.0	2.8	10	0.735	0.822
	I	10	1.00		0.294														
	J	10	1.00		0.297														
	K	10	1.00		0.314														
	L	10	1.00	0.92	0.291	0.277													
221	A	10	0.70				0.70		0	0.70		10	10	4	2.5		7	0.757	
	B	10	0.40				0.40		0	0.40		0	0	0	0.0		4	1.240	
	C	10	1.00				1.00		9	1.00		9	18	5	3.6		10	0.742	
	D	10	0.90				0.90		3	0.90		12	15	4	3.8		9	0.891	
	E	10	0.50				0.50		6	0.50		2	8	4	2.0		5	1.074	
	F	10	0.50				0.50		0	0.50		5	5	3	1.7		5	0.936	
	G	10	1.00				1.00		5	1.00		5	10	7	1.4		10	1.050	
	H	10	0.90				0.50	0.69	0	0.80	0.73	0	0	7	0.0	1.9	8	1.456	1.018
	I	10	0.80		0.249														
	J	10	0.70		0.303														
	K	10	0.70		0.247														
	L	10	1.00	0.76	0.240	0.260													

1 0 0 0 0 0

Amphipod, *Hyalella azteca*,
Chronic Toxicity Test (July 2-July 30, 1999)

Menzie-Cura Industriplex
99026

BTR 3152 / 3153
Aquatec Biological Sciences

			Day 28 Data				Day 35 Data			Day 42 Data			Day 35 + 42 Reproduction Data				Day 42 Growth Data		
ple ber	Replicate	Start Count	Proportion Surviving	Mean Proportion Surviving	Mean Weight within Rep (mg)	Mean Weight Reps I-L (mg)	Proportion Surviving	Mean Survival	Number Neonates	Proportion Surviving	Mean Survival / Sample	Number Neonates	Total # Neonates	# Females per rep	Average neonates per femal	Average Neonates per Sample	Number organisms weighed	Mean Weight within replicate	Mean Weight replicates A - H
22	A	10	0.80				0.80		3	0.80		10	13	4	3.3		8	0.642	
	B	10	0.80				0.80		5	0.80		1	8	2	3.0		8	0.809	
	C	10	0.90				0.90		0	0.90		8	8	4	2.0		8	0.816	
	D	10	0.90				0.90		3	0.80		5	8	3	2.7		8	0.554	
	E	10	0.90				0.90		0	0.90		1	1	3	0.3		9	0.813	
	F	10	0.50				0.50		5	0.50		1	6	2	3.0		5	0.938	
	G	10	0.80				0.80		4	0.80		9	13	4	3.3		8	0.969	
	H	10	0.90				0.80	0.80	0	0.80	0.79	4	4	3	1.3	2.4	8	0.976	0.815
	I	10	1.00		0.140														
	J	10	0.60		0.272														
	K	10	0.90		0.209														
	L	10	0.60	0.80	0.240	0.215													
24	A	10	1.00				1.00		6	1.00		24	32	3	10.7		10	1.486	
	B	10	1.00				1.00		4	1.00		9	13	3	4.3		10	0.678	
	C	10	1.00				1.00		3	1.00		37	40	9	4.4		10	0.705	
	D	10	0.90				0.80		8	0.80		36	44	4	11.0		8	0.979	
	E	10	1.00				1.00		14	1.00		29	43	6	7.2		10	0.851	
	F	10	1.00				0.80		17	0.80		33	50	5	10.0		8	0.945	
	G	10	1.00				1.00		8	1.00		10	16	3	6.0		10	1.159	
	H	10	1.00				1.00	0.95	6	1.00	0.95	51	57	6	9.5	7.9	10	1.278	1.010
	I	10	1.00		0.493														
	J	10	1.00		0.385														
	K	10	1.00		0.493														
	L	10	1.00	0.99	0.512	0.471													

Summary of Statistical Tests and Probabilities

BTR: 31523153

		Survival				Growth				Neonate Production			
		Proportion Surviving	F-Test Equal Variance	T-Test Statistical Probability	Statistically Significant[1]	Average Weight(mg)	F-Test Equal Variance	T-Test Statistical Probability	Statistically Significant[1]	Average neonates/ female	F-Test Equal Variance	T-Test Statistical Probability	Statistically Significant[1]
Day 28													
10222	Control	0.80				0.215							
10219	Sample	0.83	0.195	0.009		0.358	0.445	0.003					
10220	Sample	0.92	0.643	0.016		0.277	0.786	0.073					
10221	Sample	0.76	0.301	0.339		0.260	0.306	0.169					
10224	Sample	0.99	0.000	0.000		0.471	0.964	0.000					
Day 35													
10222	Control	0.80											
10219	Sample	0.91	0.657	0.023									
10220	Sample	0.83	0.819	0.329									
10221	Sample	0.69	0.002	0.193									
10224	Sample	0.95	0.515	0.009									
Day 42													
10222	Control	0.79				0.815				2.4			
10219	Sample	0.93	0.503	0.005		0.782	0.473	0.317		4.4	0.137	0.989	
10220	Sample	0.83	0.699	0.250		0.822	0.196	0.474		2.8	0.639	0.180	
10221	Sample	0.73	0.085	0.337		1.018	0.243	0.032		1.9	0.448	0.225	
10224	Sample	0.95	0.970	0.003		1.010	0.128	0.053		7.9	0.022	0.000	

[1] A statistically significant reduction in the response was observed (relative to the Laboratory Control, P<0.05)

Amphipod, *Hyalella azteca*,
Chronic Toxicity Test (July 6-August 3, 1999)

Menzie-Cura Industriplex
99026

BTR 3169 _
Aquatec Biological Sciences

			Day 28 Data				Day 35 Data			Day 42 Data			Day 35 + 42 Reproduction Data				Day 42 Growth Data		
ple ber	Replicate	Start Count	Proportion Surviving	Mean Proportion Surviving	Mean Weight within Rep (mg)	Mean Weight Reps I-L (mg)	Proportion Surviving	Mean Survival	Number Neonates	Proportion Surviving	Mean Survival / Sample	Number Neonates	Total # Neonates	# Females per rep	Average neonates per female	Average Neonates per Sample	Number organisms weighed	Mean Weight within replicates	Mean Weight replicates A - H
11	A	10	1.00				1.00		13	1.00		35	50	6	8.3		10	0.594	
	B	10	1.00				0.90		3	0.90		38	41	4	10.3		9	0.759	
	C	10	0.90				0.90		6	0.90		19	25	3	8.3		9	0.770	
	D	10	1.00				1.00		16	0.90		50	66	5	13.2		9	0.897	
	E	10	1.00				1.00		27	1.00		42	69	7	9.9		10	0.582	
	F	10	0.70				0.70		12	0.70		15	27	3	9.0		7	0.761	
	G	10	0.80				0.80		14	0.80		26	40	6	6.7		8	0.780	
	H	10	1.00				1.00	0.91	9	1.00	0.90	13	22	4	5.5	8.9	10	0.604	0.707
	I	10	0.90		0.368														
	J	10	0.80		0.424														
	K	10	1.00		0.240														
	L	10	0.90	0.92	0.528	0.395													
12	A	10	1.00				1.00		3	1.00		11	14	4	3.5		10	0.611	
	B	10	1.00				1.00		9	1.00		19	28	5	5.6		10	0.566	
	C	10	0.90				0.90		12	0.90		7	19	5	3.8		9	0.841	
	D	10	1.00				1.00		1	1.00		19	20	4	5.0		10	0.776	
	E	10	1.00				0.90		2	1.00		13	15	3	5.0		10	0.902	
	F	10	1.00				1.00		6	1.00		12	18	5	3.6		10	0.849	
	G	11	1.00				1.00		17	1.00		11	28	6	4.7		11	0.779	
	H	10	1.00				1.00	0.98	8	1.00	0.99	9	17	5	3.4	4.3	10	0.759	0.735
	I	10	1.00		0.305														
	J	10	1.00		0.398														
	K	10	1.00		0.282														
	L	11	1.00	0.99	0.495	0.370													
13	A	10	1.00				1.00		8	1.00		15	23	5	4.6		10	0.684	
	B	10	1.00				1.00		4	1.00		9	13	6	0.0		10	0.551	
	C	10	0.90				0.90		7	0.90		7	14	4	3.5		9	0.793	
	D	10	0.90				0.80		7	0.70		31	38	6	6.3		7	0.701	
	E	10	0.90				0.90		14	0.90		11	25	6	4.2		9	0.670	
	F	10	0.90				0.90		0	0.90		7	7	4	1.8		9	0.914	
	G	10	1.00				1.00		2	1.00		4	6	4	1.5		10	0.654	
	H	10	1.00				1.00	0.94	13	0.90	0.91	14	27	6	4.5	3.3	9	0.928	0.762
	I	10	0.90		0.307														
	J	10	1.00		0.413														
	K	10	1.00		0.359														
	L	10	1.00	0.96	0.201	0.320													

Amphipod, *Hyalella azteca*,
Chronic Toxicity Test (July 6-August 3, 1999)

Menzie-Cura Industriplex
99026

BTR 3169
Aquatec Biological Sciences

			Day 28 Data				Day 35 Data			Day 42 Data			Day 35 + 42 Reproduction Data				Day 42 Growth Data		
ile er	Replicate	Start Count	Proportion Surviving	Mean Proportion Surviving	Mean Weight within Rep (mg)	Mean Weight Reps I-L (mg)	Proportion Surviving	Mean Survival	Number Neonates	Proportion Surviving	Mean Survival / sample	Number Neonates	Total # Neonates	# Females per rep	Average neonates per female	Average Neonates er Sampl	Number organisms weighed	Mean Weight within replicate	Mean Weight replicates A - H
4	A	10	1.00				0.90		0	0.90		6	6	6	1.0		9	0.749	
	B	10	0.90				0.90		0	0.80		3	3	5	0.6		9	0.993	
	C	10	1.00				1.00		0	1.00		2	2	4	0.5		10	0.503	
	D	10	0.80				0.90		0	0.80		2	2	4	0.5		8	0.646	
	E	10	0.60				0.60		0	0.60		5	5	3	1.7		6	0.792	
	F	10	1.00				1.00		0	1.00		1	1	8	0.1		10	0.585	
	G	10	0.80				0.80		0	0.70		4	4	3	1.3		7	0.871	
	H	10	0.70				0.60	0.84	1	0.60	0.81	1	2	1	2.0	1.0	6	0.897	0.755
	I	10	0.60		0.247														
	J	10	0.70		0.233														
	K	10	0.60		0.248														
	L	10	0.80	0.79	0.204	0.233													
5	A	10	0.90				0.90		13	0.90		18	29	6	4.8		9	0.817	
	B	10	0.80				0.80		14	0.80		16	30	6	5.0		8	0.926	
	C	10	0.50				0.50		1	0.40		0	1	2	0.5		4	0.967	
	D	10	0.80				0.50		0	0.50		3	3	2	1.5		5	0.926	
	E	10	1.00				1.00		0	1.00		17	17	5	3.4		11	1.112	
	F	11	1.00				0.80		1	0.80		1	2	3	0.7		8	1.220	
	G	10	1.00				1.00		0	1.00		3	3	9	0.3		10	1.155	
	H	10	1.00				1.00	0.91	0	1.00	0.80	6	6	8	0.8	2.1	10	1.019	1.018
	I	10	0.90		0.228														
	J	10	0.90		0.300														
	K	10	0.70		0.296														
	L	10	0.90	0.85	0.253	0.269													

Summary of Statistical Tests and Probabilities

BTR: 3169

		Survival				Growth				Neonate Production			
		Proportion Surviving	F-Test Equal Variance	T-Test Statistical Probability	Statistically Significant[1]	Average Weight(mg)	F-Test Equal Variance	T-Test Statistical Probability	Statistically Significant[1]	Average neonates/ female	F-Test Equal Variance	T-Test Statistical Probability	Statistically Significant[1]
Day 28													
10345	Control	0.85				0.269							
10341	Sample	0.92	0.251	0.140		0.385	0.978	0.044					
10342	Sample	0.99	0.000	0.001		0.370	0.134	0.049					
10343	Sample	0.96	0.004	0.022		0.320	0.181	0.188					
10344	Sample	0.79	0.890	0.180		0.233	0.394	0.067					
Day 35													
10345	Control	0.81											
10341	Sample	0.81	0.227	0.142									
10342	Sample	0.98	0.064	0.023									
10343	Sample	0.94	0.046	0.076									
10344	Sample	0.84	0.542	0.426									
Day 42													
10345	Control	0.88				1.016				2.1			
10341	Sample	0.90	0.125	0.168		0.787	0.376	0.000	*	5.9	0.869	0.990	
10342	Sample	0.99	0.000	0.016		0.735	0.729	0.000	*	4.3	0.039	0.006	
10343	Sample	0.91	0.064	0.130		0.762	0.956	0.001	*	3.3	0.923	0.133	
10344	Sample	0.81	0.474	0.491		0.755	0.590	0.002	*	1.0	0.009	0.068	

1. * A statistically significant reduction in the response was observed (relative to the Laboratory Control, P<0.05).

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Amphipod, *Hyalella azteca*,
Chronic Toxicity Test (July 7-August 4, 1999)

Menzie-Cura Industriplex
99026

BTR 3189/3196
Aquatec Biological Sciences

			Day 28 Data				Day 35 Data			Day 42 Data			Day 35 + 42 Reproduction Data				Day 42 Growth Data		
te er	Replicate	Start Count	Proportion Surviving	Mean Proportion Surviving	Mean Weight within Rep (mg)	Mean Weight Reps I-L (mg)	Proportion Surviving	Mean Survival	Number Neonates	Proportion Surviving	Mean Survival / Sample	Number Neonates	Total # Neonates	# Females per rep	Average neonates per female	Average Neonates per Sample	Number organisms weighed	Mean Weight within replicate	Mean Weight replicates A - H
5	A	10	0.40				0.40		0	0.40		0	0	2	0.0		4	0.840	
	B	10	0.80				0.80		0	0.70		4	4	4	1.0		7	1.070	
	C	10	0.60				0.40		0	0.60		0	0	4	0.0		8	0.970	
	D	10	0.70				0.70		0	0.70		0	0	7	0.0		7	0.816	
	E	10	0.60				0.50		0	0.50		2	2	3	0.7		5	1.078	
	F	10	0.60				0.60		0	0.60		2	2	2	1.0		6	0.900	
	G	10	0.80				0.80		0	0.80		12	12	7	1.7		8	1.074	
	H	10	0.50				0.60	0.60	0	0.40	0.59	0	0	3	0.0	0.5	4	2.060	1.101
	I	10	0.60		0.228														
	J	10	0.70		0.200														
	K	10	0.00		0.000														
	L	10	0.80	0.60	0.206	0.159													
	A	10	1.00				1.00		10	1.00		1	11	5	2.2		10	0.570	
	B	10	0.90				0.90		1	0.90		0	1	3	0.3		9	0.549	
	C	10	0.90				0.90		16	0.90		6	22	6	3.7		9	0.716	
	D	10	1.00				1.00		2	1.00		5	7	6	1.2		10	0.741	
	E	10	1.00				0.90		0	0.90		2	2	3	0.7		9	0.776	
	F	10	0.80				0.60		0	0.70		6	6	2	3.0		7	1.149	
	G	10	1.00				0.90		8	0.90		8	16	5	3.2		9	1.230	
	H	10	1.00				1.00	0.93	2	1.00	0.91	11	13	4	3.3	2.2	10	1.030	0.845
	I	10	0.90		0.257														
	J	10	0.80		0.304														
	K	10	1.00		0.264														
	L	10	1.00	0.94	0.204	0.262													
	A	10	0.90				0.80		2	0.80		15	17	5	3.4		8	0.586	
	B	10	0.80				0.80		0	0.80		4	12	4	0.0		8	0.711	
	C	10	1.00				1.00		3	1.00		27	30	7	4.3		10	0.899	
	D	10	0.80				0.80		1	0.80		13	14	7	2.0		8	0.876	
	E	10	0.80				0.80		0	0.80		9	9	4	2.3		8	1.178	
	F	10	0.90				0.90		3	1.00		17	20	6	3.3		10	1.117	
	G	10	1.00				1.00		0	1.00		18	18	7	2.6		10	1.353	
	H	10	0.90				0.90	0.88	0	0.90	0.89	10	10	5	2.0	2.5	9	1.413	1.017
	I	10	1.00		0.298														
	J	10	0.80		0.221														
	K	10	0.80		0.246														
	L	10	0.80	0.88	0.269	0.259													

Amphipod, *Hyalella azteca*,
Chronic Toxicity Test (July 7-August 4, 1999)

Menzie-Cura Industriplex
99026

BTR 3189/3196 -
Aquatec Biological Sciences

le ar	Replicate	Start Count	Day 28 Data: Proportion Surviving	Day 28 Data: Mean Proportion Surviving	Day 28 Data: Mean Weight within Rep (mg)	Day 28 Data: Mean Weight Reps I-L (mg)	Day 35 Data: Proportion Surviving	Day 35 Data: Mean Survival	Day 35 Data: Number Neonates	Day 42 Data: Proportion Surviving	Day 42 Data: Mean Survival / Sample	Day 42 Data: Number Neonates	Day 35 + 42 Reproduction Data: Total # Neonates	Day 35 + 42 Reproduction Data: # Females per rep	Day 35 + 42 Reproduction Data: Average neonates per female	Day 35 + 42 Reproduction Data: Average Neonates per Sample	Day 42 Growth Data: Number organisms weighed	Day 42 Growth Data: Mean Weight within replicate	Day 42 Growth Data: Mean Weight replicates A - H
J	A	10	1.00				1.00		6	1.00		16	22	6	3.7		10	0.582	
	B	10	0.90				0.90		12	0.90		15	27	6	4.5		9	0.879	
	C	10	0.80				0.80		1	0.70		5	6	2	3.0		7	1.173	
	D	10	0.70				0.60		1	0.60		0	1	3	0.3		6	1.275	
	E	10	1.00				1.00		0	1.00		6	6	3	2.0		10	0.823	
	F	10	1.00				0.80		3	0.80		5	8	4	2.0		8	1.293	
	G	10	0.90				0.90		0	0.90		2	2	4	0.5		9	1.401	
	H	10	0.80				0.80	0.85	2	0.80	0.84	8	10	3	3.3	2.4	8	1.441	1.108
	I	10	1.00		0.319														
	J	10	0.90		0.299														
	K	10	1.00		0.251														
	L	10	1.00	0.92	0.296	0.291													

Summary of Statistical Tests and Probabilities

BTR: 3189

		Survival				Growth				Neonate Production			
		Proportion Surviving	F-Test Equal Variance[2]	T-Test Statistical Probability	Statistically Significant[1]	Average Weight(mg)	F-Test Equal Variance[2]	T-Test Statistical Probability	Statistically Significant[1]	Average neonates/ female	F-Test Equal Variance[2]	T-Test Statistical Probability	Statistically Significant[1]
Day 28													
10448	Control	0.94				0.262							
10446	Sample	0.60	0.006	0.000	*	0.159	0.174	0.061					
10472	Sample	0.68	0.822	0.031	*	0.259	0.556	0.450					
10473	Sample	0.92	0.501	0.269		0.291	0.517	0.152					
Day 35													
10448	Control	0.93											
10446	Sample	0.60	0.281	0.000	*								
10472	Sample	0.88	0.611	0.125									
10473	Sample	0.85	0.235	0.095									
Day 42													
10448	Control	0.91				0.845				2.2			
10446	Sample	0.59	0.852	0.000	*	1.101	0.271	0.076		0.5	0.090	0.003	*
10472	Sample	0.89	0.865	0.302		1.017	0.729	0.119		2.5	0.975	0.327	
10473	Sample	0.84	0.460	0.122		1.108	0.647	0.043		2.4	0.731	0.373	

1. * A statistically significant reduction in the response was observed (relative to the Laboratory Control, P<0.05).
2. If the F-Test result was significant (relative to the Reference Site Sample, P<0.05), the T-Test was performed using unequal variances.

APPENDIX: B

Industri-Plex Site
CHAIN OF CUSTODY RECORD

Project No.: 578
Project Name: Industriplex
Project Location: Woburn, MA

DATE: 6/17/99
SAMPLERS: CAM/PK

MENZIE-CURA & ASSOCIATES, INC.
1 COURTHOUSE LANE, SUITE 2
CHELMSFORD, MA 01824
TEL: 978/453-4300 FAX: 978/453-7260

SAMPLE ID	Date	Comp.	Grab	Station Locations	No. of Containers	Acute Chironomy	Acute Hyalella	Chronic Chironomy	Chronic Hyalella		NOTES
SD-04	6/17		✓	Halls Brook	1	X	X	X	X		
SD-12	6/17		✓	Halls Brook	1	X	X	X	X		
SD-13	6/17		✓	Aberjona Riv	1	X	X	X	X		

Internal Cooler Temp 0.6°C on delivery

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
[signature]	6/17/99	1800	[signature]	6/18/99	1000
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time

Laboratory:
Phone:
Contact Person:

Remarks: Halls Brook are reference areas. SD-13 is possibly contaminated with arsenic.

CHAIN OF CUSTODY RECORD

Project No.	Project Name:	Project Location:
578	Industriplex	

DATE: 6/18/99

SAMPLERS: C AM

MENZIE-CURA & ASSOCIATES, INC.
1 COURTHOUSE LANE, SUITE 2
CHELMSFORD, MA 01824
TEL: 978/453-4300 FAX: 978/453-7260

Analyses Required

SAMPLE ID	Date	Comp.	Grab	Station Locations	No. of Containers	Acute Amphibian	Chronic Amphibian	Acute Cladoceran	Chronic Cladoceran		NOTES
SD-03	6/18	✓		Phillips Pond	11	X	X	X	X		

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
[signature]	6/18/99	0800			
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
	6/19/99	10:30	[signature]		
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time

Laboratory:

Phone:

Contact Person:

Remarks:

Cooler Temp. 7.9 C

CHAIN OF CUSTODY RECORD

Project No.: 578
Project Name: Industriplex
Project Location: Woburn

DATE: 6/21/99

SAMPLERS: MA, CM, KC,

MENZIE-CURA & ASSOCIATES, INC.
1 COURTHOUSE LANE, SUITE 2
CHELMSFORD, MA 01824
TEL: 978/453-4300 FAX: 978/453-7260

SAMPLE ID	Date	Comp.	Grab	Station Locations	No. of Containers	Acute Hyalella	Chronic Hyalella	Acute Chironomy	Chronic Chironomy		NOTES
SD-01	6/21	✓		Aberjona S. Branch	1	X	X	X	X		
SD-02	"	✓		South Pond	1	X	X	X	X		
SD-10	"	✓		HBHA Creek	1	X	X	X	X		
SD-11	"	✓		HBHA Pond 3	1	X	X	X	X		

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
[signature]	6/21/99	1800			
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
	6/22/99	11:00	[signature]		
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time

Laboratory:
Phone:
Contact Person:

Remarks:
Cooler Temp. 10.3°C

CHAIN OF CUSTODY RECORD

Project No.	Project Name:	Project Location:
578	Industriplex	Woburn

DATE: 6-23-99

SAMPLERS

MENZIE-CURA & ASSOCIATES, INC.
1 COURTHOUSE LANE, SUITE 2
CHELMSFORD, MA 01824
TEL: 978/453-4300 FAX: 978/453-7260

Analyses Required

SAMPLE ID	Date	Comp.	Grab	Station Locations	No. of Containers	Bioassay Chemical Hazard	Acute Chronic				NOTES
SD-6	6-23-99		✓	SD-06 HBHA	1	✓	✓				
SD-07	6-23-99		✓	SD-07 HBHA	1	✓	✓				

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
Burt Hoffman	6-23-99	1220	[signature]	6/24/99	1000
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time

Laboratory:

Phone:

Contact Person:

Remarks:
Final 2 Samples for Industriplex Bioassays
Cooler Temp. 9.3°C

PAGE OF

CHAIN OF CUSTODY RECORD

Project No.	Project Name:	Project Location:
598	Industri-plex	Woburn

DATE: 6/22/99

SAMPLERS: C. Menzie

MENZIE-CURA & ASSOCIATES, INC.
1 COURTHOUSE LANE, SUITE 2
CHELMSFORD, MA 01824
TEL: 978/453-4300 FAX: 978/453-7260

Analyses Required

SAMPLE ID	Date	Comp.	Grab	Station Locations	No. of Containers	BIOASSAY					NOTES
SD-8	6/22/99	✓			1	✓					
SD-9	6/22/99	✓			1	✓					
SD-5	6/22/99	✓			1	✓					
SD-5 (dup)	6/22/99	✓			1	✓					

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
[signature]	6/22/99	5:13 pm	Karen Downey	6/23/99	10:00
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time

Remarks: ID

Laboratory: Aquatech Biological Sciences

Phone: 802-860-1638

Contact Person: John Williams

Cooler Temp = 5.5°C

APPENDIX C

Amphipod (*Hyalella azteca*) Chronic Toxicity Test Day 28 Survival and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: ~~3189 / 3196~~ 3152/3153 RB
	Test Start: July 2, 1999	Day 28: July 30, 1999

Sample	Repl.	# Alive	Init.	Repick #	Repick Init.	Total Surv	# Weighed	Init Pan Wt.	Total Dry Wt.
10219	A	9	JJG	—	—	9	-	-	-
	B	9	JJG	—	—	9	-	-	-
	C	9	J	—	—	9	-	-	-
	D	9	J	—	—	9	-	-	-
	E	10	JJG	—	—	10	-	-	-
	F	10	JJG	—	—	10	-	-	-
	G	10	JJG	—	—	10	-	-	-
	H	9	SAT	—	—	9	-	-	-
	I	7	J	0	J	7	7	46.78	48.96
	J	9	J	—	—	9	9	46.43	49.55
	K	10	JJG	—	—	10	10	32.79	36.63
	L	10	J	—	—	10	10	41.63	45.46
10220	A	9	J	—	—	9	-	-	-
	B	8	J	0	J	8	-	-	-
	C	9	J	—	—	9	-	-	-
	D	9	J	—	—	9	-	-	-
	E	10	J	—	—	10	-	-	-
	F	9	JJG	—	—	9	-	-	-
	G	① 6	J	0	J	6	-	-	-
	H	10	SAT	—	—	10	-	-	-
	I	10	JJG	—	—	10	10	39.38	42.52
	J	10	JJG	—	—	10	10	42.86	44.93
	K	10	JJG	—	—	10	10	44.33	47.47
	L	10	JJG	—	—	10	10	42.12	45.03
10221	A	7	SAT	0	J	7	-	-	-
	B	4	JJG	0	J	0 ~~0~~ 4	[illegible]	-	-
	C	10	J	—	—	10	-	-	-
	D	9	SAT	—		9	-	-	-
	E	5	SAT	0	J	5	-	-	-
	F	5	SAT	0	J	5	-	-	-
	G	10	SAT	—	—	10	-	-	-
	H	9	SAT	—	—	9	-	-	-
	I	8	JJG	0	J	8	8	42.74	44.73
	J	7	SAT	0	J	7	7	37.85	39.97
	K	7	SAT	0	J	7	7	43.34	45.07
	L	10	SAT	—	—	10	10	42.35	44.75

Balance QC: Initial (20 mg =)	Final (20 mg =)	Balance Asset #:
Date/time In Temp(°C) Init.	Date/time out 7/31 Temp(°C) 81	Init. SAT

Comments: Organisms in Replicates A - H transferred to water only exposure. Organisms in Replicates I - L to dry weight analysis.

① Large leech present - possible predation on 7/30/99

Reviewer: J Date: 11/23/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

haday28.doc

Amphipod (*Hyalella azteca*) Chronic Toxicity Test Day 28 Survival and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: ~~3189 / 3196~~ 3152 / 3153
	Test Start: July 2, 1999	Day 28: July 30, 1999

Sample	Repl.	# Alive	7/30/99 Init.	Repick #	Repick Init.	Total Surv	# Weighed	Init Pan Wt.	Total Dry Wt.
10222	A	8	J	0	J	8	-	-	-
	B	8	J	0	J	8	-	-	-
	C	9	J	0	J	9	-	-	-
	D	9	J	0	J	9	-	-	-
	E	9	J	0	J	9	-	-	-
	F	5	J	0	J	5	-	-	-
	G	8	J	0	J	8	-	-	-
	H	9	JJG	—	—	9	-	-	-
	I	10	J	—	—	10	10	43.23	45.63
	J	6	J	0	J	6	6	39.03	40.66
	K	9	J	0	J	9	9	45.19	47.07
	L	6	J	0	J	6	6	36.74	38.18
10224	A	10	SAT	—	—	10	-	-	-
	B	10	SAT	—	—	10	-	-	-
	C	10	SAT	—	—	10	-	-	-
	D	9	SAT	—	—	9	-	-	-
	E	10	SAT	—	—	10	-	-	-
	F	10	SAT	—	—	10	-	-	-
	G	10	SAT	—	—	10	-	-	-
	H	10	SAT	—	—	10	-	-	-
	I	10	SAT	—	—	10	10	34.44	39.37
	J	10	SAT	—	—	10	10	44.04	47.89
	K	10	SAT	—	—	10	10	44.13	49.06
	L	10	SAT	—	—	10	10	40.81	45.93
	A						-	-	-
	B						-	-	-
	C						-	-	-
	D						-	-	-
	E						-	-	-
	F						-	-	-
	G						-	-	-
	H						-	-	-
	I								
	J								
	K								
	L								

Balance QC: Initial (20 mg = 20.04) Final (20 mg = 20.04) Balance Asset #:

Date/time In Temp(°C) Init. Date/time out 7/31/99 Temp(°C) 6 Init. SAT

Comments: Organisms in Replicates A - H transferred to water only exposure. Organisms in Replicates I - L to dry weight analysis.

Reviewer: J Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000216

Amphipod (*Hyalella azteca*) Chronic Toxicity Test
Days 35 and 42 Survival, Reproduction, and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: ~~3152 / 3153~~ 3144
	Test Start: July 2, 1999	

		Day 35 Data: 8/6/99			Day 42 Data: 8/13/99							
Sample	Rep	Amplexus pairs	# Adults	# Neonates	Amplexus pairs	# Adults	# Neonates	# Females	# Males	# Weighed	Init Pan Wt.	Total Dry Wt.
10219	A	~~0~~ 10	8 (4)	14	2	9	36	7	2	9	27.74	34.45
	B	1	9	28	1	9	5	5	4	9	32.53	39.38
	C	0	8	13	3	8	0	3	5	8	29.49	36.34
	D	2	~~8~~ 9	0	1	9	2	2	7	9	27.59	33.52
	E	3	10	9	1	10	20	6	4	10	26.90	33.49
	F	~~2~~ 1	10	~~9~~ 5	3	10	17	5	5	10	28.85	36.73
	G	3	10	2	1	10	19	6	4	10	28.00	35.71
	H	1	9	2	1	9	5	2	7	9	27.85	36.97
10220	A	2	9	6	1	9	2	3	6	9	26.94	32.47
	B	1	8	4	2	8	1	3	5	8	29.81	34.97
	C	2	9	0	1	9	17	7	2	9	32.03	37.78
	D	1	7	0	1	7	16	4	3	7	30.14	36.17
	E	2	10	5	2	9	6	3	6	9	30.21	36.30
	F	0	8	0	2	8	15	4	4	8	33.24	41.85
	G	0	6	0	0	6	7	3	3	6	30.74	38.70
	H	~~0~~ 1	9 (3)	1	3	10	11	6	4	10	27.34	34.54
10221	A	0 ~~6~~ JG	7 ~~8~~ JG	0	2	7	10	4	3	7	31.18	36.48
	B	0	4	0	0	4	0	0 ~~4~~ JG	4	4	31.39	36.35
	C	1	10	9	1	10	9	5	5	10	27.86	35.28
	D	1	9	3	1	9	12	4	5	9	29.77	32.79
	E	1	5	6	1	5	2	4	1	5	29.13	34.50
	F	1	5	0	0	5	5	3	2	5	28.92	33.65
	G	0	~~8~~ 10	5	1	10	5	7 ~~6~~ JG	3	10	30.96	41.46
(1)	H	~~0~~ 0	~~0~~ 5	0	0	8	0	7	1	8	30.32	41.97
10222	A	0	8	~~0~~ 3	1	8	10	4 ~~7~~ JG	4	8	37.84	37.93
	B	1	8	5	1	8	1	2	6	8	30.53	37.00
	C	0	9	0	1	9 (2)	8	4	4	8	33.06	39.59
	D	0	9	3	1	8	5	3	5	8	31.91	36.34
	E	1	9	0	1	9	1	3	6	9	35.43	42.75
	F	~~0~~ 1	5	5	0	5	1	2	3	5	29.78	34.47
	G	1	8	4	1	8	4 ~~2~~ 4	4	4	8	29.66	37.41
	H	2	8	0	1	8	4	3	5	8	29.74	37.55

Day 35 Initials / Date: JJS JG 8/6/99	Day 42 Initials / Date: RAG 8/13/99

(1) Assume 8 alive at day 35 because 8 were present on Day 42. JG

Balance QC: Initial (20 mg = 20.04)	Final (20 mg = 20.04)	Balance Asset #:
Date/time in 8/16 Temp(°C) 20-90	Init. JJG	Date/time out 8/17/99 Temp(°C) 26 Init. JJG

(2) Day 42, 10222 C - Assume 8 adults present (4 male, 4 female). JG
Not recorded.

Reviewer: [illegible] Date: 11/29/99

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(3) Ten alive recorded on Day 42, Assume Day 35 # alive = 10. JJ
(4) Nine alive recorded on Day 42. Assume Day 35 # alive = 9 JJ

Amphipod (*Hyalella azteca*) Chronic Toxicity Test
Days 35 and 42 Survival, Reproduction, and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: 3152 / 3153
	Test Start: July 2, 1999	

		Day 35 Data: 8/6/99			Day 42 Data: 8/13/99							
Sample	Rep	Amplexus pairs	# Adults	# Neonates	Amplexus pairs	# Adults	# Neonates	# Females	# Males	# Weighed	Init Pan Wt.	Total Dry Wt.
10224	A	1	10	8	2	10	10	3	7	33.17	10	48.03
	B	2	10	4	3	10	9	3	7	31.61	10	38.39
	C	1	10	3	1	10	37	9	1	30.60	10	37.65
	D	3	8	8	1	8	36	4	4	30.59	8	38.42
	E	3	10	14	0	10	29	6	4	30.92	10	39.43
	F	2	8	17	1	8	33	5	3	28.79	8	36.35
	G	1	10	8	3	10	10	3	7	31.24	10	42.83
	H	3	10	6	0	10	51	6	4	28.78	10	41.56
	A											
	B											
	C											
	D											
	E											
	F											
	G											
	H											
	A											
	B											
	C											
	D											
	E											
	F											
	G											
	H											
	A											
	B											
	C											
	D											
	E											
	F											
	G											
	H											

Day 35 Initials / Date: JJG / [illegible] 8/6/99 | Day 42 Initials / Date: RHB 8/16/99

Balance QC: Initial (20 mg =) Final (20 mg =) Balance Asset #:

Date/time In Temp(°C) Init. Date/time out 8/17 1470 Temp(°C) 26 Init. [illegible]

Reviewer: [illegible] Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Hyalella azteca Chronic
Initial Weight Results

Menzie Cura
Industriplex
99026

BTR 3152 / 3153
Aquatec Biological Sciences

Initial Dry Weight Data					
Replicate	# Weighed	Initial Boat Weight (mg)	Final Dry Weight (mg)	Mean Wt. within Rep (mg)	Mean Wt. Reps I-L (mg)
1	10	20.57	20.73	0.016	
2	10	20.69	20.85	0.016	
3	10	24.47	24.63	0.016	
4	10	21.67	21.83	0.016	
5	10	27.58	27.71	0.013	
6	*				
7	*				
8	*				0.015

* Not enough organisms to weigh eight replicates of 10.

Hyalella azteca Initial Dry Wt.

Client: Menzie-Cura & Assoc.	Project: 99026	BTR: 3152 / 3153
Culture ID: 6/29/99	Age: 7 days	

Replicate	Number of Organisms weighed	Initial Pan Weight (mg)	Final Pan Weight (mg)
1	10	20.57	20.73
2	10	20.69	20.85
3	10	24.47	24.63
4	10	21.67	21.83
5	10	27.58	27.71
6	10	23.41*	—
7	10	25.13*	—
8	10	25.17*	—
Initials:	7/2 - 7/3/99		
Date:			
	J for SE		

Balance QC: Initial (20 mg = 19.99)	Final (20 mg = 20.00)	Balance Asset #:	
Date/time In 7/2 1700 Temp(°C) 90	Init. SE	Date/time out 7/3 Temp(°C) 86	Init. SE
Comments: Subset of amphipods used for chronic tests initiated on 7/2/99 J			

Balance I = 20.02
F = 20.02

* not enough hyalella to start

Reviewer: _____ Date: 12/9/99.
Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Organism Holding and Acclimation

Species: *Hyalella azteca*	Date Received: 6/29/99 No. Rec. 800
Supplier: EC & T	Hatch Date:. 6/25/99
Apparent Conditon: Excellent	Culture ID: HA~~62499~~ G2999

For M-C Chemist (99026) - Round 1

Acclimation / Holding Procedures: Transfer to holding culture boxes, add laboratory reconstituted water. Acclimate to water to be used for testing: EPA/600/R-94/024 moderately hard reconstituted water (sediment overlying water formulation). Aerate lightly. Water change once (50%) weekly.
Daily Feeding: 1:1 mix of *Selenastrum* / YCT, 1-3 mL (maintain hint of green algal coloration on culture box bottom). Do not allow excess food/fungus to accumulate.
Monitoring: Examine over a light box daily, record apparent condition. Temperature daily; pH, D.O. on Mon., Weds., Fri., (miniumum); A&H, conductivity weekly.
Test starts: record date, time, initials for sediment test and SRT test starts.

1999 Date	Fed	Temp	pH	D.O.	Cond uct.			Water Chg.	Age / Condition	Init.
6/29	yct/sel	23.4	7.1	6.8	350			✓	4d	
6/30	yct/sel	22.8	—	—	—			—	5d	
7/1	yct/sel	22.8						fresh	6d	
7/2		23.1	8.0	8.0	350				7d	
7/3									8d	
7/4									9d	
7/5									10d	

* N = normal, appear healthy. Record # dead if any observed.

Sediment test start (Date/time/Init.) 7/2 1900 SR SRT test start: (Date/time/Init.) 7/2/99 1600

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3152 / 3153 Test Starts 7/2/99

Sample	Parameter	Day of Analysis 0	1	2	3	4	5	6	7	8	9	10
10219	T (°C)	24.0	21.3	22.9	22.7	22.7	21.9	21.7	23.1	23.9	22.3	21.8
	pH	7.2	7.6	7.4	7.5	7.6	7.6	7.2	7.5	7.5	7.6	7.7
	DO (mg/L)	6.6	8.2	7.1	6.4	6.7	7.0	7.6	7.1	7.1	7.1	7.3
	Conductivity	270	X	X	X	X	X	X	X	X	X	255
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
10220	T (°C)	24.0	21.0	22.8	22.7	22.2	21.9	21.6	22.8	23.8	22.7	21.8
	pH	7.3	7.6	7.5	7.5	7.6	7.5	7.6	7.5	7.5	7.7	7.8
	DO (mg/L)	6.5	8.0	7.0	6.9	7.1	7.0	7.4	7.4	6.9	7.3	7.7
	Conductivity	310	X	X	X	X	X	X	X	X	X	~~275~~ 280 cc
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
10221	T (°C)	24.1	21.0	23.0	22.6	22.4	21.8	21.7	22.7	23.8	22.1	21.7
	pH	7.3	7.7	7.5	7.5	7.5	7.5	7.5	7.4	7.5	7.4	7.5
	DO (mg/L)	6.2	7.9	6.8	6.5	6.9	7.0	6.8	6.6	6.5	6.5	6.7
	Conductivity	330	X	X	X	X	X	X	X	X	X	300
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/2 JG	7/3 JG	7/4 JG	7/5 JG	7/6 CC JG	7/7 CC	7/8 CC JG	7/9 JG	7/10 JG	7/11 CC	7/12 CC

Start 7/2 1545 JG

Comments: chemistries taken, manual renewal followed. 7/2/99 JSG

Review: [illegible] Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000022

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3152 / 3153 Test Starts 7/2/99

Sample	Parameter	Day of Analysis 0	1	2	3	4	5	6	7	8	9	10
10222	T (°C)	24.2	21.3	22.4	22.8	22.3	22.3	22.0	22.7	23.8	22.2	21.9
	pH	7.4	7.7	7.7	7.7	7.7	7.8	7.8	7.1	7.6	7.9	8.0
	DO (mg/L)	7.8	8.1	7.1	7.2	7.1	7.7	7.5	7.9	7.6	7.8	8.1
	Conductivity	350	X	X	X	X	X	X	X	X	X	330
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
10224	T (°C)	24.2	21.2	22.3	22.7	22.2	22.4	22.0	22.7	23.8	22.2	21.9
	pH	7.4	7.7	7.7	7.7	7.7	7.6	7.7	7.5	7.4	7.8	7.7
	DO (mg/L)	6.7	7.6	7.0	7.2	7.3	7.0	7.5	7.0	7.2	7.3	7.2
	Conductivity	450	X	X	X	X	X	X	X	X	X	310
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity		X	X	X	X	X	X	X	X	X	
	Ammonia, alk/hardness Sulfide		X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/2 JG	7/3 JG	7/4 JG	7/5 JG	7/6 CC JG	7/7 CC	7/8 JG	7/9 [illegible]	7/10 [illegible]	7/11 CC	7/12 CC

Start: 7/2 1545 st

Comments:

Review: [illegible] Date: 11/11/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000023

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3152 / 3153 Test Starts 7/2/99

Sample	Parameter	Day of Analysis 11	12	13	14	15	16	17	18	19	20	21
10219	T (°C)	23.3	22.4	22.5	22.7	22.8	23.5	21.5	22.9	21.9	22.8	~~22.9~~ JG 23.5
	pH	7.6	7.7	~~7.6~~ 7.4	7.4	7.7	7.5	7.5	7.5	7.6	7.5	7.4
	DO (mg/L)	7.2	7.5	~~7.1~~ 7.0	6.8	7.1	7.0	7.0	6.8	6.2	6.1	6.3
	Conductivity	X	X	X	X	X	X	X	X	X	X	230
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
10220	T (°C)	23.2	22.4	22.4	22.7	22.7	23.6	21.5	23.0	21.8	22.7	~~22.8~~ JG 23.4
	pH	7.7	7.8	~~7.7~~ 7.6	7.6	7.8	7.7	7.7	7.6	7.7	7.7	7.6
	DO (mg/L)	7.4	7.6	7.3	7.0	7.1	7.1	7.0	7.0	6.3	6.5	6.7
	Conductivity	X	X	X	X	X	X	X	X	X	X	240
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
10221	T (°C)	22.8	22.4	22.7	22.8	22.8	23.6	21.7	22.9	21.4	22.8	~~22.7~~ JG 23.4
	pH	7.4	7.6	~~7.5~~ 7.4	7.3	7.4	7.4	7.3	7.4	7.4	7.3	7.3
	DO (mg/L)	6.3	7.4	6.8	6.3	6.4	5.9	5.4	6.8	5.4	5.2	5.7
	Conductivity	X	X	X	X	X	X	X	X	X	X	240
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/13 JG/JB	7/14 BT	7/15 CC	7/16 CC	7/17 JG	7/18 [illegible]	7/19 CC	7/20 CC	7/21 CC	7/22 JG	7/23 JG

Comments: 7/15/99 (10220) Rep L - beaker broken, saved sediment, transferred to new beaker. JJG 19:00

Review: [illegible] Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000024

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3152 / 3153 Test Starts 7/2/99

Sample	Parameter	Day of Analysis 11	12	13	14	15	16	17	18	19	20	21	
10222	T (°C)	23.1	22.5	22.9	22.7	22.9	23.7	21.7	23.1	21.8	23.0	23.7	22
	pH	7.9	8.0	~~8.0~~ 7.8a	7.9	8.0	7.9	7.9	7.9	8.0	8.0	7.8	23.2
	DO (mg/L)	8.0	7.9	7.8	7.3	7.7	7.4	7.8	8.0	7.0	7.4	7.0	7.8
CL	Conductivity	X	X	X	X	X	X	X	X	X	X	~~230~~ 220	7.5
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X	
10224	T (°C)	22.9	22.8	22.6	22.9	22.9	23.6	21.7	23.0	21.5	22.7	23.3	23.2
	pH	7.9	7.9	7.9	8.1	8.0	8.1	7.9	7.8	7.8	7.8	7.8	7.7
	DO (mg/L)	7.4	7.4	7.4	6.6	7.3	6.8	7.4	7.0	6.3	6.1	6.6	7.0
	Conductivity	X	X	X	X	X	X	X	X	X	X	270	
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X	
	T (°C)												
	pH												
	DO (mg/L)												
	Conductivity	X	X	X	X	X	X	X	X	X	X		
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X	
	Init./Date (1999):	7/13 [illegible]	7/14 [illegible]	7/15 CC	7/16 CC	7/17 JJG	7/18 [illegible]	7/19 CC	7/20 CC	7/21 CC	7/22 JJG	7/23 JJG	7/24 [illegible]

Comments:

Review: [illegible] Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000095

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industripiex	BTR: 3152 / 3153 Test Starts 7/2/99

		Day of Analysis										
Sample	Parameter	22	23	24	25	26	27	28	29	30	31	32
10219	T (°C)	23.3	23.0	23.1	22.9	23.0	22.9	22.4	22.5	23.4	22.9	21.4
	pH	7.7	7.5	7.8	7.6	7.5	7.5	7.5	7.8	7.6	7.7	7.7
	DO (mg/L)	7.4	6.5	6.8	7.0	6.9	6.5	6.5	7.3	7.3	7.5	7.4
	Conductivity	X	X	X	X	X	X	240	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
10220	T (°C)	23.4	23.0	23.3	22.8	22.4	22.9	22.4	22.6	23.4	22.8	21.3
	pH	7.8	7.4	7.5	7.7	7.5	7.6	7.4	7.9	7.8	7.8	7.8
	DO (mg/L)	7.8	6.4	7.0	6.9	7.0	6.8	6.3	7.6	7.5	7.7	7.9
	Conductivity	X	X	X	X	X	X	230	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
10221	T (°C)	23.4	22.9	23.2	22.8	22.5	22.9	22.4	22.7	23.5	23.0	21.4
	pH	7.4	7.3	7.4	7.3	7.4	7.2	7.4	7.8	7.8	7.8	7.8
	DO (mg/L)	6.5	5.9	6.1	5.5	5.7	5.3	5.8	7.5	7.5	7.6	7.9
	Conductivity	X	X	X	X	X	X	250	X	X	X	✓
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
	Init./Date (1999):	7/24	7/25 JG	7/26 JG	7/27	7/28	7/29	7/30	7/31	8/1 JG	8/2 JG	8/3 JG

Comments:

Review: _____ Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000026

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3152 / 3153 Test Starts 7/2/99

		Day of Analysis										
Sample	Parameter	22	23	24	25	26	27	28	29	30	31	32
10222	T (°C)	23.2	22.9	23.5	22.9	22.5	22.9	22.5	22.9	23.3	23.0	21.7
	pH	7.8	7.8	7.9	7.8	7.8	7.8	7.8	7.9	7.8	7.9	7.9
	DO (mg/L)	7.5	7.0	7.4	6.9	7.3	7.2	7.3	7.5	7.5	7.8	7.9
	Conductivity	X	X	X	X	X	X	240	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
10224	T (°C)	23.2	22.9	23.4	22.9	22.5	22.9	22.5	22.7	23.5	22.8	21.4
	pH	7.7	7.6	7.6	7.5	7.5	7.5	7.5	7.9	7.8	7.8	7.8
	DO (mg/L)	7.0	6.7	6.9	6.5	6.5	7.0	6.7	7.5	7.5	7.7	7.7
	Conductivity	X	X	X	X	X	X	230	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity	X	X	X	X	X	X		X	X	X	-
	Ammonia, alk/hardness	X	X	X	X	X	X		X	X	X	X
	Init./Date (1999):	7/24	7/25	7/26	7/27	7/28	7/29	7/30	7/31	8/1	8/2	8/3

Comments:

000027

Review: _____ Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3152 / 3153 Test Starts 7/2/99

Sample	Parameter	Day of Analysis 33	34	35	36	37	38	39	40	41	42	
10219	T (°C)	22.1	22.1	22.5	20.7	22.3 ~~26~~	22.4	20.5	22.3	22.7	22.4	X
	pH	7.7	X	7.7	X	X	7.7	X	7.8	X	7.8	X
	DO (mg/L)	7.8	X	7.7	X	X	7.5	X	8.0	X	7.5	X
	Conductivity	X	X	230	X	X	X	X	X	X	①	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
10220	T (°C)	22.8	22.0	22.4	20.8	22.2	22.1	20.0	21.9	22.5	22.0	X
	pH	7.8	X	7.7	X	X	7.~~8~~7 JG	X	7.6	X	7.7	X
	DO (mg/L)	7.9	X	7.6	X	X	7.4	X	7.4	X	7.3	X
	Conductivity	X	X	240	X	X	X	X	X	X	①	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
10221	T (°C)	22.2	22.1	22.5	20.7	22.5	22.3	20.2	21.9	22.7	22.0	X
	pH	7.9	X	7.7	X	X	7.8	X	7.6	X	7.6	X
	DO (mg/L)	7.9	X	7.6	X	X	7.4	X	7.3	X	6.8	X
	Conductivity	X	X	250	X	X	X	X	X	X	①	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
	Init./Date (1999):	8/4 JG	8/5 SAT	8/6 JG	8/7 J	8/8 JT	8/9 JG	8/10 JG	8/11 SAT	8/12 JG	8/13 JG	

Comments:

① Didn't take cond.

000028

Review: J Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3152 / 3153 Test Starts 7/2/99

		Day of Analysis										
Sample	Parameter	33	34	35	36	37	38	39	40	41	42	
10222	T (°C)	21.5	22.4	22.5	20.8	22.1	22.3	20.2	21.8	22.8	22.1	X
	pH	7.9	X	7.8	X	X	7.7	X	7.8	X	7.8	X
	DO (mg/L)	8.0	X	7.7	X	X	7.2	X	8.0	X	7.4	X
	Conductivity	X	X	250	X	X	X	X	X	X	①	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
10224	T (°C)	21.4	22.1	22.8	20.7	22.3	22.4	20.2	21.9	22.9	22.2	X
	pH	7.9	X	7.7	X	X	7.7	X	7.8	X	7.7	X
	DO (mg/L)	7.9	X	7.5	X	X	7.1	X	7.9	X	7.0	X
	Conductivity	X	X	250	X	X	X	X	X	X	①	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
	T (°C)											X
	pH		X		X	X		X		X		X
	DO (mg/L)		X		X	X		X		X		X
	Conductivity	X	X		X	X	X	X	X	X		X
	Ammonia, alk/hardness	X	X		X	X	X	X	X	X		X
	Init./Date (1999):	8/4 JJG	8/5 JAT	8/6 JG	8/7 J	8/8 J	8/9 JG	8/10 JG	8/11 JAT	8/12 JG	8/13 JG	

Comments:

Review: _____ Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

000029

Amphipod (*Hyalella azteca*) Chronic Toxicity Test Day 28 Survival and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: 3169
	Test Start: July 6, 1999	Day 28: August 3, 1999

Sample	Repl.	# Alive	7/30/99 Init.	Repick #	Repick Init.	Total Surv	# Weighed	Init Pan Wt.	Total Dry Wt.
10341	A	(2) 11	JJG	—	—	11 (3)	-	-	-
	B	10	RHB	—	—	10	-	-	-
	C	9	RHB	—	—	9	-	-	-
	D	10	SAT	—	—	10	-	-	-
	E	10	SAT	—	—	10	-	-	-
	F	7	SAT	0	RHB	7	-	-	-
	G	8	RHB	0	SAT	8	-	-	-
	H	10	SAT	—	—	10	-	-	-
	I	9	RHB	—	—	9	9	42.16	45.65
	J	8	SAT	0	SAT	8	8	43.06	46.45
	K	10	RHB	—	—	10	10	42.40	45.00
	L	9	RHB	—	—	9	9	41.11	45.86
10342	A	10	PGD	—	—	10	-	-	-
	B	10	[illegible]	—	—	10	-	-	-
	C	9	PGD	—	—	9	-	-	-
	D	10	PGD	—	—	10	-	-	-
	E	10	SAT	—	—	10	-	-	-
	F	10	PGD	—	—	10	-	-	-
	G	10	SAT	—	—	10	-	-	-
	H	10	SAT	—	—	10	-	-	-
	I	10	PGD	—	—	10	10	41.67	44.72
	J	10	SAT	—	—	10	10	39.42	43.60
	K	10	SAT	—	—	10	10	42.45	45.27
	L	11	RHB	—	—	11	11	41.87	47.31
10343	A	10	SAT	—	—	10	-	-	-
	B	10	SAT	—	—	10	-	-	-
	C	9	SAT	—	—	9	-	-	-
	D	9	SAT	—	—	9	-	-	-
	E	9	SAT	—	—	9	-	-	-
	F	9	SAT	—	—	9	-	-	-
	G	10	SAT	—	—	10	-	-	-
	H	10	SAT	—	—	10	-	-	-
	I	9	SAT	—	—	9	9	39.84	42.60
	J	10	SAT	—	—	10	10	43.79	47.92
	K	9 (1)	SAT	—	—	10	9	44.09	47.32
	L	10	SAT	—	—	10	10	37.76	39.77

Balance QC: Initial (20 mg = 20.05) Final (20 mg = 20.06) Balance Asset #:

Date/time In 8/3/99 Temp(°C) 85 Init. SAT Date/time out JJG 8/4/99 Temp(°C) 84°C Init. JJG

Comments: Organisms in Replicates A - H transferred to water only exposure. Organisms in Replicates I - L to dry weight analysis.

(1) 9 + 1 lost during spill = 10

Reviewer: [signature] Date: 11/21/99 (2) 1 extra found, indigenous to sample. 8/3/99 JJG

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

(3) Assume Day 28 survival = 10

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000030

Amphipod (*Hyalella azteca*) Chronic Toxicity Test Day 28 Survival and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: 3169
	Test Start: July 6, 1999	Day 28: August 3, 1999

Sample	Repl.	# Alive	7/30/99 Init.	Repick #	Repick Init.	Total Surv	# Weighed	Init Pan Wt.	Total Dry Wt.
10344	A	10	SAT	—	—	10	-	-	-
	B	9	PCD	—	—	9	-	-	-
	C	10	SAT	—	—	10	-	-	-
	D	8	SAT	0	SAT	8	-	-	-
	E	6	SAT	0	SAT	6	-	-	-
	F	10	RHB	—	—	10	-	-	-
	G	8	SAT	0	SAT	8	-	-	-
	H	7	RHB	0	SAT	7	-	-	-
	I	6	PAD	0	SAT	6	6	46.13	47.61
	J	7	PAD	0	RBB	7	7	43.48	45.11
	K	5	PAD	1	SAT	6	6	41.29	42.78
	L	8	PAD	0	RHB	8	8	45.18	46.81
10345	A	9	RHD	—	—	9	-	-	-
	B	8	J	0	J	8	-	-	-
	C	5	RHB	0	J	5	-	-	-
	D	6	J	0	J	6	-	-	-
	E	10	PAD	—	—	10	-	-	-
	F	10	PCD	—	—	10	-	-	-
	G	10	J	—	—	10	-	-	-
	H	10	PAD	—	—	10	-	-	-
	I	9	J	—	—	9	9	46.67	48.70
	J	9	J	—	—	9	9	41.82	44.52
	K	7	J	0	J	7	7	45.78	~~48.70~~ 47.85
	L	9	J	—	—	9	9	45.26	47.54
	A						-	-	-
	B						-	-	-
	C						-	-	-
	D						-	-	-
	E						-	-	-
	F						-	-	-
	G						-	-	-
	H						-	-	-
	I								
	J								
	K								
	L								

Balance QC: Initial (20 mg = 20.05) Final (20 mg = 20.05) Balance Asset #:

Date/time In 8/3 11:00 Temp(°C) 46 Init. SAT Date/time out 8/4 10:00 Temp(°C) 84°C Init. JJG

Comments: Organisms in Replicates A - H transferred to water only exposure. Organisms in Replicates I - L to dry weight analysis.

Reviewer: J Date: 11/20/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

Amphipod (*Hyalella azteca*) Chronic Toxicity Test
Days 35 and 42 Survival, Reproduction, and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: 3169
	Test Start: July 6, 1999	

		Day 35 Data: 8/10/99			Day 42 Data: 8/17/99							
Sample	Rep	Amplexus pairs	# Adults	# Neonates	Amplexus pairs	# Adults	# Neonates	# Females	# Males	# Weighed	Init Pan Wt.	Total Dry Wt.
10341	A	2	10	15	1	10	35	6	4	10	29.49	35.43
	B	2	9	3	1	9	38	4	5	9	29.41	36.24
	C	2	9	6	2	9	19	3	6	9	29.76	36.69
	D	1	10	16	2	9	50	5	4	9	29.85	42.11
	E	0	10	27	2	10	42	7	3	10	30.60	36.42
	F	1	9	8	1	7	15	3	4	7	30.00	35.33
	G	1	8	14	2	8	26	6	2	8	29.87	36.11
	H	1	10	9	3	10	13	4	6	10	30.06	36.10
10342	A	2	10	3	1	10	11	4	6	10	29.37	35.48
	B	2	10	9	2	10	19	5	5	10	28.26	38.92
	C	1	9	12	4	9	7	5	4	9	26.32	32.04
	D	1	10	1	1	10	19	4	6	10	32.70	40.46
	E	1	9	2	1	10	13	3	7	10	30.91	39.93
	F	1	10	6	2	10	12	5	5	10	30.54	39.03
	G	1	11	17	4	11	11	6	5	11	31.48	40.05
	H	2	10	8	2	10	9	5	5	10	27.09	34.68
10343	A	1	9	8	0	10	15	5	5	10	26.57	33.35
	B	3	10	4	0	10	9	6	4	10	29.03	34.54
	C	2	9	7	2	9	7	4	5	9	30.23	37.37
	D	2	8	7	0	7	31	6	1	7	28.50	33.41
	E	1	9	14	2	9	11	6	3	9	29.16	35.19
	F	3	9	0	2	9	7	4	5	9	29.10	42.33
	G	3	10	2	2	10	4	4	6	10	30.21	38.75
	H	3	9	13	1	9	14	6	3	9	30.31	38.66
10344	A	1	9	0	3	9	6	6	3	9	29.79	36.53
	B	0	9	0	3	9	8	5	4	9	27.45	36.39
	C	0	10	0	2	10	2	4	6	10	31.38	36.41
	D	1	9	0	2	8	2	4	4	8	26.71	31.88
							5	2	2	6	29.65	34.40

Amphipod (*Hyalella azteca*) Chronic Toxicity Test
Days 35 and 42 Survival, Reproduction, and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: 3169
	Test Start: July 6, 1999	

		Day 35 Data: 8/10/99			Day 42 Data: 8/17/99							
Sample	Rep	Amplexus pairs	# Adults	# Neonates	Amplexus pairs	# Adults	# Neonates	# Females	# Males	# Weighed	Init Pan Wt.	Total Dry Wt.
10345	A	2	9	13	1	9	16+2	6	3	9	31.20	38.55
	B	2	8	14	2	8	16	6	2	8	27.59	35.00
	C	0	5	1	1	4	0	2	2	4	31.39	35.26
	D	1	5	0	1	5	3	2	3	5	31.17	35.80
	E	1	11	0	1	11	17	5	6	11	32.58	44.81
	F	0	8	1	2	8	1	3	5	8	32.37	42.13
	G	0	10	0	1	10	3	9	1	10	28.76	40.31
	H	2	10	0	2	10	6	8	2	10	33.93	44.12
	A											
	B											
	C											
	D											
	E											
	F											
	G											
	H											
	A											
	B											
	C											
	D											
	E											
	F											
	G											
	H											
	A											
	B											
	C											
	D											
	E											
	F											
	G											
	H											

Day 35 Initials / Date: JJG 8/10/99 | Day 42 Initials / Date: JJG JPM 8/17/99

Balance QC: Initial (20 mg = 20.04) Final (20 mg = 20.02) Balance Asset #:

Date/time In Temp(°C) 84 Init. Date/time out 8/20 17:00 Temp(°C) 84 Init. JJG

Reviewer: CT Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Hyalella azteca Chronic
Initial Weight Results

Menzie Cura
Industriplex
99026

BTR 3169
Aquatec Biological Sciences

Initial Dry Weight Data					
Replicate	# Weighed	Initial Boat Weight (mg)	Final Dry Weight (mg)	Mean Wt. within Rep (mg)	Mean Wt. Reps I-L (mg)
1	10	37.16	37.27	0.011	
2	10	32.06	32.15	0.009	
3	10	33.12	33.20	0.008	
4	10	29.79	29.89	0.010	
5	10	28.19	28.30	0.011	
6	10	26.40	26.51	0.011	
7	10	28.51	28.60	0.009	
8	10	25.47	25.56	0.009	0.010

Hyalella azteca Initial Dry Wt.

Project: Menzie-Cura 99026, Industriplex ECBT	
Culture ID: 7/1 R2	Age: 7 days

Replicate	Number of Organisms weighed	Initial Pan Weight (mg)	Final Pan Weight (mg)	Replicate Avg. WT.
1	10	37.16	37.27	0.011
2	10	32.06	32.15	0.009
3	10	33.12	33.20	0.008
4	10	29.79	29.89	0.010
5	10	28.19	28.30	0.011
6	10	26.40	26.51	0.011
7	10	28.51	28.60	0.009
8	10	25.47	25.56	0.009
Initials:				
Date:				

Balance QC: Initial (20 mg = 20.05)	Final (20 mg = 20.05)	Balance Asset #:	
Date/time In 7/7 1110 Temp(°C) 86	Init. SF	Date/time out 7/7 1100 Temp(°C) 87	Init. SF
Comments: Subset of amphipods used to initiate chronic tests on 7/6/99			

Reviewer: J Date: 11/21/99
Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

hainlwt.doc

000035

Organism Holding and Acclimation

Species: *Hyalella azteca*	Date Received: 7/1/99 No. Rec. 800
Supplier: EC & T	Hatch Date:. 6/29/99
Apparent Conditon: Excellent	Culture ID: HA7199A

Acclimation / Holding Procedures: Transfer to holding culture boxes, add laboratory reconstituted water. Acclimate to water to be used for testing: EPA/600/R-94/024 moderately hard reconstituted water (sediment overlying water formulation). Aerate lightly. Water change once (50%) weekly.
Daily Feeding: 1:1 mix of *Selenastrum* / YCT, 1-3 mL (maintain hint of green algal coloration on culture box bottom). Do not allow excess food/fungus to accumulate.
Monitoring: Examine over a light box daily, record apparent condition. Temperature daily; pH, D.O, on Mon., Weds., Fri., (miniumum); A&H, conductivity weekly.
Test starts: record date, time, initials for sediment test and SRT test starts.

1999 Date	Fed	Temp	pH	D.O.	Cond uct.			Water Chg.	Age / Condition	Init.
7/1	Sel YCT TC	22.9	7.3	7.3	350			50% w/ Reaw	2d	
7/2	~~Sel~~ YCT CT								3d normal	JJG
7/3	YCT/Sel TC	22.70							4d N	JJG
7/4	YCT/Sel	22.7							5d	J
7/5	YCT/Sel	20.6							6d N	JJG
7/6	YCT/Sel	23.0	8.0	7.7	350				7d N	JJG
7/7									8d	
7/8									9d	

* N = normal, appear healthy. Record # dead if any observed.

Sediment test start (Date/time/init.) Chronics 7/6/99 SRT test start: (Date/time/init.) 7/7/99 1330 J

J

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3169 Test Starts 7/6/99 (Chronic)

Sample	Parameter	Day of Analysis 0	1	2	3	4	5	6	7	8	9	10
10341	T (°C)	23.0	21.9	21.4	22.6	23.2	21.6	21.3	22.7	22.5	22.4	22.7
	pH	7.4	7.5	7.5	7.4	7.4	7.5	7.5	7.4	7.5	7.4	7.5
	DO (mg/L)	7.4	7.3	7.0	7.2	7.0	7.4	7.4	7.4	7.4	7.1	7.0
	Conductivity	260	X	X	X	X	X	X	X	X	X	~~280~~ 240 cc
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
10342	T (°C)	22.9	21.9	21.6	22.7	23.2	21.8	21.6	22.6	22.6	22.0	22.4
	pH	7.5	7.6	7.4	7.4	7.5	~~7.75~~ 7.6 cc	7.5	7.6	7.6	7.6	7.5
	DO (mg/L)	7.4	7.6	7.0	7.1	7.2	7.2	7.5	7.4	7.4	7.0	7.1
	Conductivity	260	X	X	X	X	X	X	X	X	X	~~275~~ 250 cc
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
10343	T (°C)	23.3	21.9	21.0	22.8	23.1	21.4	21.8	22.8	22.5	22.4	22.5
	pH	7.4	7.6	7.4	7.4	7.5	~~7.05~~ 7.6 cc	7.6	7.5	7.6	7.6	7.6
	DO (mg/L)	7.1	7.5	7.1	7.2	7.1	~~7.20~~ 7.2 cc	7.2	7.3	7.6	7.1	7.1
	Conductivity	270	X	X	X	X	X	X	X	X	X	~~275~~ 275 cc
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/6 JG	7/7 CC	7/8 JG	7/9 [illegible]	7/10 [illegible]	7/11 CC	7/12 CC	7/13 JG/[illegible]	7/14 [illegible]	7/15 CC	7/16 [illegible]

Comments: Test solutions to replicates m, n, o, p discarded for Pax. Male growth 7/15/99 (for H. azteca)

7/7: chemistries taken after AM renewal — CMC

① 7/16/99 - 11:00 Discarded C.t. larvae to auxiliary male test replicates (m, n, o, p) for each sample, 12 larvae each. Source of larvae = Aquatic egg cases deposited 7/13/99. [illegible] 7/16/99

Review: [illegible] Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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① This comment applies to Chironomus [illegible]

000037

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3169 Test Starts 7/6/99 (Chronic)

		Day of Analysis										
Sample	Parameter	0	1	2	3	4	5	6	7	8	9	10
10344	T (°C)	23.2	21.8	21.7	23.1	23.4	21.9	22.1	22.8	22.7	22.4	22.9
	pH	7.5	7.6	7.5	7.5	7.6	7.6	7.7	7.5	7.6	7.6	7.5
	DO (mg/L)	6.8	6.9	6.6	6.5	6.8	7.0	6.8	7.1	6.3	6.2	6.6
	Conductivity	300	X	X	X	X	X	X	X	X	X	280
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
10345	T (°C)	23.0	21.8	21.7	23.2	23.2	22.2	22.4	22.9	22.4	22.3	22.8
	pH	7.6	7.5	7.6	7.7	7.7	7.9	7.9	7.9	7.9	8.0	7.9
	DO (mg/L)	8.3	7.7	7.5	8.1	8.1	7.9	8.1	8.1	7.7	7.7	7.6
	Conductivity	270	X	X	X	X	X	X	X	X	X	250
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity		X	X	X	X	X	X	X	X	X	
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/6 JG	7/7 CC	7/8 JG	7/9 SR	7/10 SR	7/11 CC	7/12 CC	7/13 JG/KB	7/14 SR	7/15 CC	7/16 CC

Comments:

000037A

Review: [illegible] Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3169 Test Starts 7/6/99 (Chronic)

		Day of Analysis										
Sample	Parameter	11	12	13	14	15	16	17	18	19	20	21
10341	T (°C)	22.8	23.6	22.7	22.1	21.5	22.4	23.2	22.7	22.4	22.8	22.9
	pH	7.6	7.5	7.5	7.5	7.5	7.4	7.4	7.5	7.5	7.4	7.5
	DO (mg/L)	7.3	6.6	7.0	7.5	5.9	5.7	6.2	6.9	~~5.0~~ JG 7.4	6.3	5.4
	Conductivity	X	X	X	X	X	X	X	X	X	X	270
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
10342	T (°C)	22.8	23.4	22.6	21.9	21.5	22.6	23.2	22.7	22.4	22.9	23.0
	pH	7.7	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.3	7.5	7.4
	DO (mg/L)	7.4	7.1	6.8	7.2	6.1	6.3	6.4	7.4	~~4.8~~ JG 6.2	6.4	5.9
	Conductivity	X	X	X	X	X	X	X	X	X	X	260
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
10343	T (°C)	22.9	23.5	22.8	22.0	20.2	22.7	23.3	22.8	22.3	22.9	23.1
	pH	7.7	7.6	7.5	7.6	7.5	7.5	7.5	7.5	~~7.3~~ JG 7.5	7.5	7.5
	DO (mg/L)	7.5	7.0	6.7	7.3	6.0	6.4	6.4	7.0	~~4.4~~ JG 6.6	6.4	6.2
	Conductivity	X	X	X	X	X	X	X	X	X	X	260
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/17 JJG	7/18 [illegible]	7/19 CC	7/20 [illegible]	7/21 CC	7/22 JJG	7/23 JJG	7/24 JJG	7/25 JJG	7/26 JJG	7/27 [illegible]

Comments: Emergence traps installed 7/26/99 – applies to concurrent C. tentans tests only

[illegible] 7/26/99 (11/21/99)

Review: [illegible] Date: _____

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3169 Test Starts 7/6/99 (Chronic)

		Day of Analysis										
Sample	Parameter	11	12	13	14	15	16	17	18	19	20	21
10344	T (°C)	22.7	23.5	22.9	22.5	21.3	22.5	23.3	22.9	22.5	23.1	23.0
	pH	7.6	7.4	7.4	7.5	7.4	7.4	7.3	7.5	7.3	7.4	7.4
	DO (mg/L)	6.5	5.6	5.3	6.4	5.2	5.1	5.2	6.5	4.9	5.3	5.4
	Conductivity	X	X	X	X	X	X	X	X	X	X	270
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
10345	T (°C)	22.9	23.5	22.8	23.0	21.7	22.7	23.4	22.9	22.7	23.1	23.0
	pH	8.1	7.9	7.7	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.7
	DO (mg/L)	7.8	7.6	6.8	8.0	6.5	7.1	7.1	7.6	7.3	7.1	6.9
	Conductivity	X	X	X	X	X	X	X	X	X	X	270
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity	X	X	X	X	X	X	X	X	X	X	
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/17 JG	7/18 T	7/19 CC	7/20 SAA	7/21 CC	7/22 JG	7/23 JL	7/24 JG	7/25 JG	7/26	7/27 SAA

Comments:

Review: T Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000033

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3169 Test Starts 7/6/99

		Day of Analysis										
Sample	Parameter	22	23	24	25	26	27	28	29	30	31	32
10341	T (°C)	22.2	22.7	22.3	22.4	22.9	21.7	21.2	21.6	22.0	22.5	20.6
	pH	7.7	7.5	7.6	7.5	7.3	7.6	7.4	7.7		7.6	
	DO (mg/L)	7.3	6.3	6.6	6.1	6.5	6.7	6.5	7.6		7.7	
	Conductivity	X	X	X	X	X	X	200	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
10342	T (°C)	22.2	22.7	22.2	22.2	23.1	21.6	21.1	21.4	22.0	22.4	20.3
	pH	7.5	7.5	7.5	7.5	7.4	7.5	7.4	7.8		7.7	
	DO (mg/L)	7.0	6.4	6.6	6.0	6.7	6.6	6.7	7.7		7.6	
	Conductivity	X	X	X	X	X	X	230	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
10343	T (°C)	22.3	22.7	22.1	22.2	22.9	21.3	21.2	21.2	21.9	22.4	20.9
	pH	7.6	6.5	7.6	7.6	7.5	7.5	7.4	7.8		7.7	
	DO (mg/L)	7.0	6.4	7.0	6.4	6.6	6.5	6.7	7.7		7.5	
	Conductivity	X	X	X	X	X	X	240	X	X	X	
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
	Init./Date (1999):	7/28 JG	7/29 J	7/30 JG	7/31 JG	8/1 JG	8/2 JG	8/3 JG	8/4 JG	8/5 JG	8/6 JG	8/7 J

Comments:

— chems/temps taken after renewals. 8/4/99 JJG

Review: J Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000140

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3169 Test Starts 7/6/99

		Day of Analysis										
Sample	Parameter	22	23	24	25	26	27	28	29	30	31	32
10344	T (°C)	22.2	22.8	22.1	22.5	23.0	21.6	21.2	21.5	22.1	22.5	20.7
	pH	7.6	7.4	7.4	7.4	7.4	7.4	7.3	7.8		7.7	
	DO (mg/L)	6.7	5.3	5.2	5.0	5.4	5.1	5.4	7.7		7.4	
	Conductivity	X	X	X	X	X	X	260	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
10345	T (°C)	22.4	22.7	22.1	22.5	23.0	21.6	21.2	21.4	22.1	22.5	20.6
	pH	7.8	7.7	7.8	7.8	7.8	7.8	7.7	7.9		7.5	
	DO (mg/L)	7.2	6.5	7.2	6.7	7.3	7.4	7.1	7.8		7.7	
	Conductivity	X	X	X	X	X	X	270	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity	X	X	X	X	X	X		X	X	X	
	Ammonia, alk/hardness	X	X	X	X	X	X		X	X	X	X
	Init./Date (1999):	7/28 JG	7/29 [illegible]	7/30 JG	7/31 JG	8/1 JG	8/2 JG	8/3 JG	8/4 JG	8/5 SM	8/6 JG	8/7

Comments:

Review: [illegible] Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000041

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3169 Test Starts 7/6/99

		Day of Analysis										
Sample	Parameter	33	34	35	36	37	38	39	40	41	42	
10341	T (°C)	22.3	22.4	20.0	22.1	22.7	22.0	22.4	21.0 ~~22.4~~	21.7	23.4	X
	pH	X	7.7	7.7	7.8	X	7.7	X	X	7.7	7.6	X
	DO (mg/L)	X	7.4	7.6	7.8	X	7.2	X	X	7.3	6.5	X
	Conductivity	X	X	250	X	X	X	X	X	X	~~850~~ 300 JM	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
10342	T (°C)	22.2	22.0	20.1	21.1	22.6	22.1	22.4	21.1 ~~22.3~~	21.4	22.9	X
	pH	X	7.7	7.7	7.7	X	7.7	X	X	7.7	7.7	X
	DO (mg/L)	X	7.4	7.6	7.6	X	7.3	X	X	7.5	6.8	X
	Conductivity	X	X	250	X	X	X	X	X	X	290	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
10343	T (°C)	22.2	22.0	20.1	22.0	22.6	22.0	22.5	21.0 ~~22.4~~	21.4	22.9	X
	pH	X	7.8	7.7	7.8	X	7.7	X	X	7.8	7.7	X
	DO (mg/L)	X	7.5	7.5	8.0	X	7.4	X	X	7.7	6.9	X
	Conductivity	X	X	260	X	X	X	X	X	X	280	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
	Init./Date (1999):	8/8 J	8/9 JG	8/10 JG	8/11 SAS	8/12 JG	8/13 JG	8/14 SAS	8/15 JG	8/16 JG	8/17 JM	

Comments: 8/16/99 chemistries taken after renewal. JJG

Review: J Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000043

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3169 Test Starts 7/6/99

		Day of Analysis										
Sample	Parameter	33	34	35	36	37	38	39	40	41	42	
10344	T (°C)	22.7	22.1	20.1	21.8	22.8	22.0	22.4	~~22.0~~ 21.6	21.4	23.3	X
	pH	X	7.7	7.7	7.8	X	7.8	X	X	7.8	7.7	X
	DO (mg/L)	X	7.1	7.3	7.7	X	7.5	X	X	7.7	6.9	X
	Conductivity	X	X	250	X	X	X	X	X	X	280	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
10345	T (°C)	22.3	22.2	20.0	21.8	22.6	22.0	22.6	~~22.0~~ 21.5	21.5	23.2	X
	pH	X	7.9	7.8	7.9	X	7.7	X	X	7.9	7.7	X
	DO (mg/L)	X	7.5	7.8	8.0	X	7.5	X	X	7.8	7.1	X
	Conductivity	X	X	250	X	X	X	X	X	X	280	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓	X
	T (°C)											X
	pH	X				X		X	X			X
	DO (mg/L)	X				X		X	X			X
	Conductivity	X	X		X	X	X	X	X	X		X
	Ammonia, alk/hardness	X	X		X	X	X	X	X	X		X
	Init./Date (1999):	8/8	8/9 JG	8/10 JG	8/11	8/12 JG	8/13	8/14	8/15 JG	8/16 JG	8/17	

Comments:

Review: _____ Date: 11/21/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000043

Amphipod (*Hyalella azteca*) Chronic Toxicity Test Day 28 Survival and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: 3186/3189
	Test Start: July 7, 1999	Day 28: August 4, 1999

Sample	Repl.	# Alive	7/30/99 Init.	Repick #	Repick Init.	Total Surv	# Weighed	Init Pan Wt.	Total Dry Wt.
10446	A	4	CM	0	PWO	4	-	-	-
	B	8	CM	0	PWO	8	-	-	-
	C	6	CM	0	PWO	6	-	-	-
	D	7	CM	0	PWO	7	-	-	-
	E	6	CM	0	PWO	6	-	-	-
	F	6	SAT	0	PWO	6	-	-	-
	G	8	CM	1	PWO	8	-	-	-
	H	6	SAT	0	PWO	6	- 36	-	-
	I	6	SAT	0	PWO	6	5	42.14	43.28
	J	7	CM	0	PWO	7	7	41.15	42.55
	K	0	SAT	0	PWO	0	0	38.22	—
	L	8	CM	0	8/5	8	8	35.92	37.57
10448	A	10	SAT	—	—	10	-	-	-
	B	9	SAT	—	—	9	-	-	-
	C	9	SAT	—	—	9	-	-	-
	D	10	SAT	—	—	10	-	-	-
	E	10	SAT	—	—	10	-	-	-
	F	8	SAT	0	PWO	8	-	-	-
	G	10	SAT	—	—	10	-	-	-
	H	10	SAT	—	—	10	-	-	-
	I	9	CM	—	—	9	9	48.88	51.19
	J	8	CM	0	PWO	8	8	40.94	43.37
	K	10	CM	—	—	10	10	39.77	42.61
	L	10	CM	—	—	10	10	37.57	39.61
10472	A	9	SAT	—	—	9	-	-	-
	B	8	CM	0	PWO	8	-	-	-
	C	10	CM	—	—	10	-	-	-
	D	8	VFD PWO	0	PWO	8	-	-	-
	E	8	SAT	0	PWO	8	-	-	-
	F	9	VFD PWO	—	—	9	-	-	-
	G	10	CM	—	—	10	-	-	-
	H	9	CM	—	—	9	-	-	-
	I	10	SAT	—	—	10	10	39.75	~~40.26~~ 42.73
	J	8	CM	0	8/5	8	8	39.23	~~38.43~~ 41.00
	K	8	SAT	0	8/5	8	8	37.11	~~39.12~~ 39.08
	L	8	CM	0	8/5	8	8	38.36	~~38.32~~ 40.51

Balance QC: Initial (20 mg = 20.02) Final (20 mg = 20.02) Balance Asset #:

Date/time In Temp(°C) Init. Date/time out 8/5 1600 Temp(°C) 86 Init. SMT

Comments: Organisms in Replicates A - H transferred to water only exposure. Organisms in Replicates I - L to dry weight analysis.

① 2 of 6 are possible offspring

Reviewer: [illegible] Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Chronic Toxicity Test Day 28 Survival and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: 3186/3189
	Test Start: July 7, 1999	Day 28: August 4, 1999

Sample	Repl.	# Alive	7/30/99 Init.	Repick #	Repick Init.	Total Surv	# Weighed	Init Pan Wt.	Total Dry Wt.
10473	A	10	SAT	—	—	10	-	-	-
	B	9	CM	—	—	9	-	-	-
	C	8	SAT	0	RUD	8	-	-	-
	D	7	SAT	0	RUD	7	-	-	-
	E	10	SAT	—	—	10	-	-	-
	F	10	SAT	—	—	10	-	-	-
	G	9	SAT	—	—	9	-	-	-
	H	6	SAT	2	PUD	8	-	-	-
	I	10	SAT	—	—	10	10	37.07	40.26
	J	9	SAT	—	—	9	9	35.74	38.43
	K	10	SAT	—	—	10	10	36.61	39.12
	L	10	SAT	—	—	10	10	47.36	50.32
	A						-	-	-
	B						-	-	-
	C						-	-	-
	D						-	-	-
	E						-	-	-
	F						-	-	-
	G						-	-	-
	H						-	-	-
	I								
	J								
	K								
	L								
	A						-	-	-
	B						-	-	-
	C						-	-	-
	D						-	-	-
	E						-	-	-
	F						-	-	-
	G						-	-	-
	H						-	-	-
	I	10	SAT	—	—	10			
	J								
	K								
	L								

Balance QC: Initial (20 mg = 20.00)	Final (20 mg = 20.00)	Balance Asset #:			
Date/time In	Temp(°C)	Init.	Date/time out	Temp(°C)	Init.

Comments: Organisms in Replicates A - H transferred to water only exposure. Organisms in Replicates I - L to dry weight analysis.

Reviewer: [signature] Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Chronic Toxicity Test
Days 35 and 42 Survival, Reproduction, and Dry Weight Data

Client: Menzie-Cura & Assoc.	Project: 99026 Industriplex	BTR: 3186 / 3189
	Test Start: July 7, 1999	

		Day 35 Data: 8/11/99			Day 42 Data: 8/18/99							
Sample	Rep	Amplexus pairs	# Adults	# Neonates	Amplexus pairs	# Adults	# Neonates	# Females	# Males	# Weighed	Init Pan Wt.	Total Dry Wt.
10446	A	0	4	0	2	4	0	2	2	4	26.31	29.67
	B	1	8	0	2	7	4	4	3	7	26.67	34.16
	C	0	4	0	1	6	0	4	2	6	27.83	33.65
	D	0	7	0	0	7	0	7 ~~6~~ 36	0	7	29.36	35.07
	E	1	5	0	0	5	2	3	2	5	27.29	32.68
	F	2	6	0	1	6	2	2	4	6	25.79	31.19
	G	0	8	0	1	8	12	7	1	8	28.01	36.60
	H	0	6	0	0	4	0	3	1	4	27.07	36.31
10448	A	2	10	10	3	10	1	5	5	10	26.99	32.69
	B	2	9	1	2	9	0	3	6	9	31.54	36.48
	C	1	9	16	3	9	6	6	3	9	30.90	37.14
	D	3	10	2	2	10	5 ~~4~~ jm	6	4	10	28.68	36.09
	E	2	9	0	1	9 ~~10~~ jm	2	3	6	9	28.20	35.18
	F	1	8	0	0	~~6~~ 7	6	2	5	7	26.05	34.09
	G	1	9	8	3	9	8	5	4	9	29.58	40.65
	H	2	10	2	1	10	11	36 ~~3~~ 4	6	10	30.66	40.96
10472	A	0	8	2	1	8	15	~~6~~ 5	3	8	29.54	34.24
	B	1	8	8	3	8	4	4	4	8	28.60	34.29
	C	1	10	3	1	10	27	7	3	10	28.67	37.66
	D	0	8	1	1	8	13	7	1	8	26.55	33.56
	E	2	8	0	2	8	9 ~~8~~ jm	4	4	8	28.56	37.98
	F	1	9	3	0	10	~~7~~ 5 jm	6	4	10	29.74	40.91
	G	2	10	0	0	10	18	7	3	10	26.37	~~40~~ 39.92
	H	0	9	0	2	9	10	5	4	9	31.46	44.18
10473	A	1	10	6	3	10	16	6	4	10	31.74	37.56
	B	0	9	12	1	9	15	6	3	9	27.88	35.79
	C	2	8	1	2	7	5	2	5	7	25.67	33.88
	D	1	6	1	2	6	0	3	3	6	28.16	35.81
	E	2	10	0	2	10	6	3	7	10	30.45	38.68
	F	0	8	3	2	8	5	4	4	8	29.56	39.90
	G	2	~~8~~ 9	0	3	9	2	4	5	9	31.28	43.89
	H	2	8	2	2	8	8	3	5	8	29.78	41.31

Day 35 Initials / Date: SF / 8/11/99	Day 42 Initials / Date: JM 8/18/99

Balance QC: Initial (20 mg = 20.01)	Final (20 mg = 20.03)	Balance Asset #:
Date/time In 8/18/99 1345 Temp(°C) 20-20 Init. JJG	Date/time out 8/20 17:00 Temp(°C) 8.4	Init. JJG

Reviewer: [signature] Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Hyalella azteca Chronic
Initial Weight Results

Menzie Cura
Industriplex
99026

BTR 3189
Aquatec Biological Sciences

Initial Dry Weight Data					
Replicate	# Weighed	Initial Boat Weight (mg)	Final Dry Weight (mg)	Mean Wt. within Rep (mg)	Mean Wt. Reps I-L (mg)
1	10	31.49	31.67	0.018	
2	10	26.55	26.74	0.019	
3	10	26.05	26.26	0.021	
4	10	26.63	26.83	0.020	
5	10	25.67	25.84	0.017	
6	10	26.56	26.70	0.014	
7	10	23.58	23.79	0.021	
8	10	24.72	24.93	0.021	0.019

Hyalella azteca Initial Dry Wt.

Project: Menzie-Cura 99026, Industriplex	ARO
Culture ID: 7/1 R1	Age: Day 7

Replicate	Number of Organisms weighed	Initial Pan Weight (mg)	Final Pan Weight (mg)
1	10	31.49	31.67
2	10	26.55	26.74
3	10	26.05	26.26
4	10	26.63	26.83
5	10	25.67	25.84
6	10	26.56	26.70
7	10	23.58	23.79
8	10	24.72	24.93
Initials:			
Date:			

Balance QC: Initial (20 mg = 20.05)	Final (20 mg = 20.05)	Balance Asset #:	
Date/time in 7/7 1417 Temp(°C) 87	Init. SL	Date/time out 7/7 1415 Temp(°C) 87	Init. SL
Comments: Subset of amphipods used to initiate chronic test on 7/7/99.			

Reviewer: _____ Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Organism Holding and Acclimation

Species: *Hyalella azteca*	Date Received: 7/1/99 No. Rec. 900
Supplier: ARO	Hatch Date:. 6/30/99
Apparent Conditon: Excellent	Culture ID: HA7199B

Acclimation / Holding Procedures: Transfer to holding culture boxes, add laboratory reconstituted water. Acclimate to water to be used for testing: EPA/600/R-94/024 moderately hard reconstituted water (sediment overlying water formulation). Aerate lightly. Water change once (50%) weekly.
Daily Feeding: 1:1 mix of *Selenastrum* / YCT, 1-3 mL (maintain hint of green algal coloration on culture box bottom). Do not allow excess food/fungus to accumulate.
Monitoring: Examine over a light box daily, record apparent condition. Temperature daily; pH, D.O, on Mon., Weds., Fri., (miniumum); A&H, conductivity weekly.
Test starts: record date, time, initials for sediment test and SRT test starts.

1999 Date	Fed	Temp	pH	D.O.	Cond uct.			Water Chg.	Age / Condition	Init.
7/1	sel/yct TC	20.5	6.9	720	600			50% 4 Recov	1d	J
7/2	sel/yct TC								2d normal	JJG
7/3	sel/yct TC	22.7							3d N	JJG
7/4	sel/yct	22.7							4d	J
7/5	sel/yct JG	20.8							5d N	JJG
7/6	sel/yct TC	22.7							6d N	J
7/7		20.2	7.6	7.9	450				7d N	amc
7/8									8d	

* N = normal, appear healthy. Record # dead if any observed.

Sediment test start (Date/time/Init.) J Chronics 7/7/99 SRT test start: (Date/time/init.) 7/7/99 1400 J

Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3189/3186 Test Starts 7/7/99

Sample	Parameter	Day of Analysis 0	1	2	3	4	5	6	7	8	9	10
10446	T (°C)	21.8	21.7	22.7	22.6	21.4	21.7	22.7	22.1	21.8	22.4	22.7
	pH	7.4	7.4	7.3	7.1	7.5	7.6	7.5	7.5	7.~~6~~7 cc	7.~~9~~ cc	7.8
	DO (mg/L)	7.7	7.3	7.4	6.9	7.4	7.8	7.9	7.3	~~7.8~~ 8.0 cc	7.6	7.8
	Conductivity	220	X	X	X	X	X	X	X	X	X	260
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
10448	T (°C)	21.8	21.9	22.8	23.1	22.3	21.4	22.6	22.5	21.9	22.4	22.5
	pH	7.7	7.7	7.6	7.3	7.8	7.8	7.8	7.8	8.0 cc ~~7.7~~	7.9	8.1
	DO (mg/L)	8.9	8.2	8.3	7.9	7.6	8.0	8.3	7.7	~~7.3~~ 8.0 cc	7.7	8.0
	Conductivity	220	X	X	X	X	X	X	X	X	X	310
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
1047~~3~~2 cc	T (°C)	21.4	21.7	22.7	23.2	22.2	21.1	22.1	22.6	21.2	21.9	22.5
	pH	7.4	7.4	7.4	7.5	7.6	7.6	7.5	7.5	7.7	7.6	7.7
	DO (mg/L)	7.4	7.3	7.1	6.8	7.2	7.3	7.3	6.6	6.8	7.1	7.5
	Conductivity	200	X	X	X	X	X	X	X	X	X	270
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/7 JG/cc	7/8 JG	7/9 SY	7/10 SY	7/11 cc	7/12 cc	7/13 JG/SY	7/14 SY	7/15 cc	7/16 cc	7/17 JJG

Comments: Test Start 7/7/99 1300 SY
Chem collected after renewal 7/17/99 JJG

Review: [signature] Date: 12/9/99
Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3189/3186 Test Starts 7/7/99

Sample	Parameter	Day of Analysis 0	1	2	3	4	5	6	7	8	9	10
10473	T (°C)	21.4	21.8	23.1	23.4	21.7	21.3	22.3	22.3	21.5	21.8	22.2
	pH	7.2	7.4	7.4	7.4	7.6	7.6	7.5	7.6	7.67 CC	7.5	7.8
	DO (mg/L)	6.8	7.1	6.9	6.9	7.4	7.2	7.5	6.9	6.8	6.8	7.5
	Conductivity	260	X	X	X	X	X	X	X	X	X	270
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity		X	X	X	X	X	X	X	X	X	
	Ammonia, alk/hardness Sulfide	✓	X	X	X	X	X	X	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity		X	X	X	X	X	X	X	X	X	
	Ammonia, alk/hardness Sulfide		X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/7 JG/CC	7/8 JG	7/9 [illegible]	7/10 [illegible]	7/11 CC	7/12 CC	7/13 JG/CC	7/14 [illegible]	7/15 CC	7/16 CC	7/17 JJG

Comments: test start: 7/7/99 1300 SC

Review: [illegible] Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3186 / 3189 Test Starts 7/7/99

		Day of Analysis										
Sample	Parameter	11	12	13	14	15	16	17	18	19	20	21
10446	T (°C)	23.2	21.2	22.5	22.2	22.5	22.8	22.9	22.3	22.9	23.0	22.2
	pH	7.7	~~7.7~~ 7.5	7.6	7.6	7.5	7.6	7.6	7.4	7.6	7.5	7.6
	DO (mg/L)	7.6	7.9	7.9	6.8	6.8	7.9	6.7	6.7	7.4	7.0	7.4
	Conductivity	X	X	X	X	X	X	X	X	X	X	270
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
10448	T (°C)	23.2	21.3	22.7	21.7	22.3	22.9	22.7	22.2	22.9	23.1	22.2
	pH	8.0	7.9	7.2	7.9	7.9	7.9	8.0	7.8	7.9	7.8	7.8
	DO (mg/L)	7.9	8.1	8.5	6.9	7.3	7.7	8.2	7.8	7.6	7.4	7.3
	Conductivity	X	X	X	X	X	X	X	X	X	X	300
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
10472	T (°C)	23.2	21.4	22.6	21.3	22.7	22.7	22.7	22.2	22.8	23.0	22.1
	pH	7.6	7.5	7.6	7.6	7.5	7.6	7.6	7.5	7.6	7.5	7.5
	DO (mg/L)	7.3	7.4	7.8	6.3	6.5	7.2	7.3	6.6	7.1	7.1	6.8
	Conductivity	X	X	X	X	X	X	X	X	X	X	270
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/18	7/19 CC	7/20	7/21 CC	7/22 JJG	7/23 JJG	7/24 JJG	7/25 JJG	7/26 JJG	7/27	7/28 JJG

Comments:

Review: _____ Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3186 / 3189 Test Starts 7/7/99

		Day of Analysis										
Sample	Parameter	11	12	13	14	15	16	17	18	19	20	21
10473	T (°C)	23.1	21.2	22.6	21.8	22.4	22.8	22.7	22.1	22.8	22.9	22.4
	pH	7.7	7.6	7.6	7.7	7.5	7.7	7.6	7.5	7.6	7.6	7.6
	DO (mg/L)	7.5	7.5	7.8	6.4	6.4	7.2	7.4	6.4	7.1	6.7	6.7
	Conductivity	X	X	X	X	X	X	X	X	X	X	260
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity	X	X	X	X	X	X	X	X	X	X	
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity	X	X	X	X	X	X	X	X	X	X	
	Ammonia, alk/hardness Sulfide	X	X	X	X	X	X	X	X	X	X	X
	Init./Date (1999):	7/18 [illegible]	7/19 CC	7/20 CC	7/21 CC	7/22 JJG	7/23 JJG	7/24 JJG	7/25 JJG	7/26 JJG	7/27 [illegible]	7/28 JJG

Comments:

Review: [illegible] Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3186 / 3189 Test Starts 7/7/99

		Day of Analysis										
Sample	Parameter	22	23	24	25	26	27	28	29	30	31	32
10446	T (°C)	22.6	22.0	22.4	22.8	21.7	21.7	21.0	22.2	22.6	20.4	22.3
	pH	7.5	7.5	7.5	7.5	7.5	7.~~3~~7	JG 7.5	/	7.9	/	/
	DO (mg/L)	7.1	~~6.3~~ 7.1	KK 6.9	7.2	7.3	7.4	6.9	/	8.3	/	/
	Conductivity	X	X	X	X	X	X	270	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
10448	T (°C)	22.5	22.0	22.1	22.5	21.4	21.7	21.0	22.2	22.7	20.6	22.5
	pH	7.9	7.9	7.8	7.8	7.8	7.8	7.8	/	7.9	/	/
	DO (mg/L)	7.7	7.5	7.2	7.3	7.5	7.6	7.5	/	8.3	/	/
	Conductivity	X	X	X	X	X	X	300	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
10472	T (°C)	22.4	22.0	22.1	22.7	21.2	21.8	21.0	22.3	22.7	20.4	22.7
	pH	7.5	7.6	7.6	7.7	7.6	7.6	7.6	/	7.9	/	/
	DO (mg/L)	6.8	6.9	6.7	7.2	7.1	7.2	6.8	/	8.2	/	/
	Conductivity	X	X	X	X	X	X	270	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
	Init./Date (1999):	7/29	7/30 JG	7/31 JG	8/1 JG	8/2 JG	8/3 JG	8/4 JG	8/5 [illegible]	8/6 JG	8/7	8/8

Comments:

Review: [illegible] Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Amphipod (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3186 / 3189 Test Starts 7/7/99

		Day of Analysis										
Sample	Parameter	22	23	24	25	26	27	28	29	30	31	32
10473	T (°C)	22.4	22.2	22.1	22.7	21.6	21.6	21.1	22.3	22.7	20.4	22.2
	pH	7.5	7.6	7.6	7.6	7.6	7.6	7.5	/	7.9	/	/
	DO (mg/L)	6.9	7.0	6.6	6.9	7.0	7.3	6.9	/	8.3	/	/
	Conductivity	X	X	X	X	X	X	270	X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X	✓	X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity	X	X	X	X	X	X		X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X		X	X	X	X
	T (°C)											
	pH											
	DO (mg/L)											
	Conductivity	X	X	X	X	X	X		X	X	X	X
	Ammonia, alk/hardness	X	X	X	X	X	X		X	X	X	X
	Init./Date (1999):	7/29 J	7/30 JG	7/31 JG	8/1 JG	8/2 JG	8/3 JG	8/4 JG	8/5 SAT	8/6 JG	8/7 J	8/8

Comments:

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Review: J Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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Midge (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Toxicity Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3186 / 3189 Test Starts 7/7/99

		Day of Analysis										
Sample	Parameter	33	34	35	36	37	38	39	40	41	42	43
10446	T (°C)	22.5	20.0	20 21.9	22.6	21.6	22.8	~~22.7~~ 21.3	21.0	23.3	22.9	~~21.5~~ JM
	pH	7.8	X	7.8	X	7.7	X	X	7.8	X	8.0	X
	DO (mg/L)	7.8	X	8.0	X	7.5	X	X	7.9	X	7.2	X
	Conductivity	X	X	290	X	X	X	X	X	X	X	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓X JM	X
10448	T (°C)	22.4	20.2	23.0	22.7	22.1	22.6	~~20.7~~ 21.3	21.1	23.9	23.1	~~21.3~~ JM
	pH	7.9	X	7.9	X	7.8	X	X	8.0	X	8.0	X
	DO (mg/L)	7.8	X	7.8	X	7.5	X	X	7.9	X	7.6	X
	Conductivity	X	X	280	X	X	X	X	X	X	X	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓X JM	X
10472	T (°C)	22.5	20.1	22.4	22.6	22.0	22.6	~~27.1~~ 22.6	21.2	23.5	22.7	~~21.6~~ JM
	pH	7.8	X	7.8	X	7.7	X	X	7.9	X	8.0	X
	DO (mg/L)	7.7	X	8.0	X	7.6	X	X	7.7	X	7.4	X
	Conductivity	X	X	290	X	X	X	X	X	X	X	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓X JM	X
	Init./Date (1999):	8/9 JG	8/10 JG	8/11 JM	8/12 JG	8/13 JG	8/14	8/15 JG	8/16 JG	8/17 JM	8/18 JM	8/19 JM

Comments: 8/16/99 chemistries taken after renewal. JJG

Review: J Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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000035

Midge (*Hyalella azteca*) Overlying Water Environmental Monitoring: Chronic Toxicity Tests

Project: Menzie-Cura & Associates	Project: 99026 Industriplex	BTR: 3186 / 3189 Test Starts 7/7/99

		Day of Analysis										
Sample	Parameter	33	34	35	36	37	38	39	40	41	42	43
10473	T (°C)	22.5	20.0	22.1	22.6	22.0	22.5	22.4	21.3	23.5	22.7	~~21.7~~ JM
	pH	7.8	X	7.8	X	7.7	X	X	7.9	X	8.0	X
	DO (mg/L)	7.6	X	8.0	X	7.5	X	X	8.0	X	7.3	X
	Conductivity	X	X	290	X	X	X	X	X	X	X	X
	Ammonia, alk/hardness	X	X	✓	X	X	X	X	X	X	✓ JM	X
	T (°C)	~~X~~										
	pH		X		X		X	X		X		X
	DO (mg/L)		X		X		X	X		X		X
	Conductivity	X	X		X	X	X	X	X	X	X	X
	Ammonia, alk/hardness	X	X		X	X	X	X	X	X	X	X
	T (°C)											
	pH		X		X		X	X		X		X
	DO (mg/L)		X		X		X	X		X		X
	Conductivity	X	X		X	X	X	X	X	X	X	X
	Ammonia, alk/hardness	X	X		X	X	X	X	X	X	X	X
	Init./Date (1999):	8/9 JG	8/10 JG	8/11 JM	8/12 JG	8/13 JG	8/14	8/15 JG	8/16 JG	8/17 JM	8/18 JM	8/19 JM

Comments:

Review: _____ Date: 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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ALKALINITY AND HARDNESS

Sample Number	Date	Alkalinity Volume (mls)	Initial Titrant	Final Titrant	Alkalinity (mg/l)	Hardness Volume (mls)	Initial Titrant	Final Titrant	Hardness (mg/l)
10219									
	7/2/1999	50	0	0.9	18	50	0	3.6	72
	7/30/1999	50	0	1.1	22	50	0	4.2	84
	8/6/1999	50	16.7	17.8	22	50	13.8	18	64
	8/13/1999	50	1.3	2.5	24	50	0	4.7	94
Avg					*21.5*				*83.5*
Min					*18*				*72*
Max					*24*				*94*
10220									
	7/2/1999	50	0.9	1.9	20	50	3.6	8	88
	7/30/1999	50	1.1	2.2	22	50	4.2	8.1	78
	8/6/1999	50	17.8	18.8	20	50	18	22	80
	8/13/1999	50	2.5	3.5	20	50	4.7	9.2	90
Avg					*20.5*				*84.0*
Min					*20*				*78*
Max					*22*				*90*
10221									
	7/2/1999	50	1.9	2.7	16	50	8	12.3	86
	7/30/1999	50	2.2	3.2	20	50	8.1	11.9	76
	8/6/1999	50	18.8	20.1	26	50	22	26.5	90
	8/13/1999	50	3.5	4.6	22	50	9.2	13.4	84
Avg					*21.0*				*84.0*
Min					*16*				*76*
Max					*26*				*90*
10222									
	7/2/1999	50	2.7	4.9	44	50	12.3	20	154
	7/30/1999	50	3.2	4.4	24	50	11.9	16.5	92

Sample Number	Date	Alkalinity Volume (mls)	Initial Titrant	Final Titrant	Alkalinity (mg/l)	Hardness Volume (mls)	Initial Titrant	Final Titrant	Hardness (mg/l)
	8/6/1999	50	20.1	21.2	22	50	26.5	30.8	86
	8/13/1999	50	4.6	5.6	20	50	13.4	18	92
Avg					27.5				106.0
Min					20				86
Max					44				154
10224									
	7/2/1999	50	4.9	5.7	16	50	20	23.6	72
	7/30/1999	50	4.4	5.4	20	50	16.5	20.3	76
	8/6/1999	50	21.2	22.3	22	25	30.8	33	88
	8/13/1999	50	5.6	6.7	22	50	18	22.4	88
Avg					20.0				81.0
Min					16				72
Max					22				88
10341									
	7/6/1999	50	5.7	6.7	20	50	0	2.9	58
	8/3/1999	50	5.4	6.6	24	50	20.3	24.3	80
	8/10/1999	50	29	30.1	22	50	34.1	38.2	82
	8/17/1999	50	13.1	14.2	22	50	0	4.5	90
Avg					22.0				77.5
Min					20				58
Max					24				90
10342									
	7/6/1999	50	6.7	7.5	16	50	2.9	6	62
	8/3/1999	50	5.6	7.6	20	50	24.3	28.3	80
	8/10/1999	50	30.1	31.3	24	50	38.2	42.1	78
	8/17/1999	50	14.2	15.2	20	50	4.5	9	90
Avg					20.0				77.5
Min					16				62
Max					24				90

Sample Number	Date	Alkalinity Volume (mls)	Initial Titrant	Final Titrant	Alkalinity (mg/l)	Hardness Volume (mls)	Initial Titrant	Final Titrant	Hardness (mg/l)
10343									
	7/6/1999	50	7.5	8.3	16	50	6	9.5	70
	8/3/1999	50	7.6	8.7	22	50	28.3	32.4	82
	8/10/1999	50	31.3	32.7	28	50	42.1	46.1	80
	8/17/1999	50	15.2	16.4	24	50	9	13.3	86
Avg					*22.5*				*79.5*
Min					*16*				*70*
Max					*28*				*86*
10344									
	7/6/1999	50	8.3	9.5	24	50	9.5	14.3	96
	8/3/1999	50	8.7	9.8	22	50	32.4	36.6	84
	8/10/1999	50	32.7	34.1	28	50	0	4.2	84
	8/17/1999	50	16.4	17.5	22	50	13.3	17.9	92
Avg					*24.0*				*89.0*
Min					*22*				*84*
Max					*28*				*96*
10345									
	7/6/1999	50	9.5	11	30	50	14.3	18.1	76
	8/3/1999	50	9.8	11.2	28	50	36.6	41.4	96
	8/10/1999	50	34.1	35.6	30	50	4.2	8.7	90
	8/17/1999	50	17.5	18.7	24	50	17.9	22.4	90
Avg					*28.0*				*88.0*
Min					*24*				*76*
Max					*30*				*96*
10446									
	7/7/1999	50	27.3	28.1	16	50	0	3.4	68
	8/4/1999	50	11.2	12.1	18	50	41.4	45.8	88
	8/11/1999	50	41.3	42.4	22	50	8.7	13.1	88
	8/18/1999	50	25.6	26.7	22	50	0	4.5	90
	8/20/1999	50	30.2	31.6	28	50	17.4	22.3	98

Sample Number	Date	Alkalinity Volume (mls)	Initial Titrant	Final Titrant	Alkalinity (mg/l)	Hardness Volume (mls)	Initial Titrant	Final Titrant	Hardness (mg/l)
Avg					*21.2*				*86.4*
Min					*16*				*68*
Max					*28*				*98*
10448									
	7/7/1999	50	26.1	29.3	24	50	3.4	6.9	70
	8/4/1999	50	12.1	13.5	28	50	0	5	100
	8/11/1999	50	42.4	43.6	24	50	13.1	17.6	90
	8/18/1999	50	26.7	28	26	50	4.5	8.8	86
	8/20/1999	50	31.6	32.9	26	50	22.3	27.6	106
Avg					*25.6*				*90.4*
Min					*24*				*70*
Max					*28*				*106*
10472									
	7/7/1999	50	29.3	30	14	50	6.9	9.7	56
	8/4/1999	50	13.5	14.6	22	50	5	9.6	92
	8/11/1999	50	43.6	44.7	22	50	17.6	22.1	90
	8/18/1999	50	28	29.1	22	50	8.8	13	84
	8/20/1999	50	32.9	34.5	32	50	27.6	32.7	102
Avg					*22.4*				*84.8*
Min					*14*				*56*
Max					*32*				*102*
10473									
	7/7/1999	50	30	30.8	16	50	9.7	13.2	70
	8/4/1999	50	14.6	15.6	20	50	9.6	13.8	84
	8/11/1999	50	44.7	45.7	20	50	22.1	26.9	95
	8/18/1999	50	29.1	30.2	22	50	13	17.4	88
	8/20/1999	50	34.6	35.9	28	50	32.7	37.7	100
Avg					*21.2*				*87.6*
Min					*16*				*70*
Max					*28*				*100*

Alkalinity and Hardness Analysis

Client: Menzie-Cura	Project:	BTR:
Sample Description: overlying Water, H. azteca & C. tentans		Day 0: 7/2

Day 20: 7/22
Day 28: 7/30
35: 8/6
42: 8/13

		ALKALINITY				HARDNESS				
Sample ID	Sample Date	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Data entered Init.
10219	7/2/99	50	0	0.9	8/20 SAT	50	0	3.6	8/20 SAT	
10220	7/2/99	50	0.9	1.9	8/20 SAT	50	3.6	8.0	8/20 SAT	
10221	7/2/99	50	1.9	2.7	8/20 SAT	50	8.0	12.3	8/20 SAT	
10222/3	7/2/99	50	2.7	4.9	8/20 SAT	50	12.3	20.0	8/20 SAT	
10224	7/2/99	50	4.9	5.7	8/20 SAT	50	20.0	23.6	8/20 SAT	
10341	7/6	50	5.7	6.7	8/20 SAT	50	0	2.9	8/20 SAT	
10342	7/6		6.7	7.5			2.9	6.0		
10343	7/6		7.5	8.3			6.0	9.5		
10344	7/6		8.3	9.5			9.5	14.3		
10345/6	7/6		9.5	11.0			14.3	18.1		
10446	7/7	50	27.3	28.1	8/23 SAT	50	0	3.4	8/23 SAT	
10448	7/7	50	28.1	29.3	8/23 SAT	50	3.4	6.9	8/23 SAT	
10472	7/7	50	29.3	30.0	8/23 SAT	50	6.9	9.7	8/23 SAT	
10473	7/7	50	30.0	30.8	8/23 SAT	50	9.7	13.2	8/23 SAT	
10446	7/7	50	30.8	31.6	8/23 SAT	50	13.2	17.1	8/23 SAT	
10449	7/7	50	31.6	34.5		50	17.1	25.5		
10472	7/7	50	34.5	35.3		50	25.5	29.1		
10473	7/7	50	35.3	36.2		50	29.1	33.0		

H. azteca (1.1 lake H2O)

C. tentans sediment region (H2O)

000062

Alkalinity and Hardness Analysis

Client: Mepre-Cura	Project:	BTR:
Sample Description: Overlying water H. azteca Day 28		

		ALKALINITY				HARDNESS				
Sample ID	Sample Date	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Data entered Init.
10219	7/30	50	0	1.1	8/23 SE	50	0	4.2	8/23 SE	
10220			1.1	2.2			4.2	8.1		
10221			2.2	3.2			8.1	11.9		
10222			3.2	4.4			11.9	16.5		
10224			4.4	5.4			16.5	20.3		
10341	8/3	50	5.4	6.6	8/23 SE	50	20.3	24.3	8/23 SE	
10342			6.6	7.6			24.3	28.3		
10343			7.6	8.7			28.3	32.4		
10344			8.7	9.8			32.4	36.6		
10345			9.8	11.2			36.6	41.4		
10446	8/4	50	11.2	12.1	8/23 SE	50	41.4	45.8	8/23 SE	
10448			12.1	13.5			~~45.8~~ 0	5.0		
10472			13.5	14.6			5.0	9.6		
10473			14.6	15.6			9.6	13.8		

000053

Alkalinity and Hardness Analysis

Client: Menzie-Cura	Project:	BTR:
Sample Description: overlying H_2O H. azteca C. tentans Day 35		

			ALKALINITY				HARDNESS				
	Sample ID	Sample Date	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Data entered Init.
H.a.	10219	8/6	50	16.7	17.8	8/23 SAT	50	13.8	18.0	8/23 SAT	
	10220			17.8	18.8		50	18.0	22.0		
	10221			18.8	20.1		50	22.0	26.5		
	10222			20.1	21.2		50	26.5	30.8		
	10224			21.2	22.3		25:25	30.8	33.0		
C.t.	10219	8/6	50	22.3	23.4	8/23 SAT	50	33.0	37.6	8/23 SAT	
	10220			23.4	25.3			37.6	42.5		
	10221			25.3	26.2			42.5	47.3		
	10223			26.2	27.8			0 ~~47.3~~	4.3		
	10224			27.8	29.0			4.3	9.9		
C.b.	10341	8/10	50	35.8	36.8	8/23 SAT	50	9.9	14.3	8/23 SAT	
	10342			36.8	37.9			14.3	19.0		
	10343			37.9	39.0			19.0	23.7		
	10344			39.0	40.1			23.7	29.0		
	10345			40.1	41.3			29.0	34.1		
H.a.	10341	8/10	50	29.0	30.1	8/23 SAT	50	34.1	38.2	8/23 SAT	
	10342			30.1	31.3			38.2	42.1		
	10343			31.3	32.7			42.1	46.1		
	10344			32.7	34.1			~~46.1~~ 0	4.2		
	10345			34.1	35.6			4.2	8.7		
C.a.	10446	8/11	50	41.3	42.4	8/23 SAT	50	8.7	13.1	8/23 SAT	
	10447			42.4	43.6			13.1	17.6		
	10472			43.6	44.7			17.6	22.1		
	10473			44.7	45.7			22.1	26.9		
C.t.	10446			45.7	47.1			26.9	32.0		
	10448			47.1	48.5			32.0	37.5		
	10472			48.5	49.9			37.5	42.6		
	10473			0	1.3			42.6	47.9		

Alkalinity and Hardness Analysis

Client: menzie-cura	Project:	BTR:
Sample Description: Overlying H_2O H. azteca C. tentans Day 42		

			ALKALINITY				HARDNESS				
	Sample ID	Sample Date	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Data entered Init.
Ha.	10219	8/13	50	1.3	2.5	8/23 SAT	50	0	4.7	8/23 SAT	
	10220			2.5	3.5			4.7	9.2		
	10221			3.5	4.6			9.2	13.4		
	10222			4.6	5.6			13.4	18.0		
	10224			5.6	6.7			18.0	22.4		
Cl	10219	8/13	50	6.7	8.1	8/23 SAT	50	22.4	27.6	8/23 SAT	
	10220			8.1	9.3			27.6	32.8		
	10221			9.3	10.5			32.8	38.1		
	10223			10.5	11.8			38.1	43.3		
	10224			11.8	13.1			43.3	48.4		
H.a	10341	8/17	50	13.1	14.2	8/23 SAT	50	0	4.5	8/23 SAT	
	10342			14.2	15.2			4.5	9.0		
	10343			15.2	16.4			9.0	13.3		
	10344			16.4	17.5			13.3	17.9		
	10345			17.5	18.7			17.9	22.4		
Ct	10341	8/17	50	18.7	19.9	8/23 SAT	50	22.4	27.4	8/23 SAT	
	10342			19.9	21.2			27.4	32.5		
	10343			21.2	22.6			32.5	37.7		
	10344			22.6	24.1			37.7	43.1		
	10345			24.1	25.6			43.1	48.2		
Ha.	10446	8/18	50	25.6	26.7	8/23 SAT	50	0	4.5	8/23 SAT	
	10448			26.7	28.0			4.5	8.8		
	10472			28.0	29.1			8.8	13.0		
	10473			29.1	30.2			13.0	17.4		

000065

Alkalinity and Hardness Analysis

Client: menzie-cura	Project:	BTR:
Sample Description: Overlying H_2O H. aztecu/C. bendens Day 44		

		ALKALINITY				HARDNESS				
Sample ID	Sample Date	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Sample Vol.	Titrant Init. Vol.	Titrant Final Vol.	Analyst Date/ Init.	Data entered Init.
10446	8/20	50	30.2	31.6	8/23 [illegible]	50	17.4	22.3	8/23 [illegible]	
10448/9	↓	50	31.6	32.9	↓	50	22.3	27.6	8/23 [illegible]	
10472	↓	50	32.9	34.5	↓	50	27.6	32.7	8/23 [illegible]	
10473	↓	50	34.5	35.9	↓	50	32.7	32.7	8/23 [illegible]	

000066

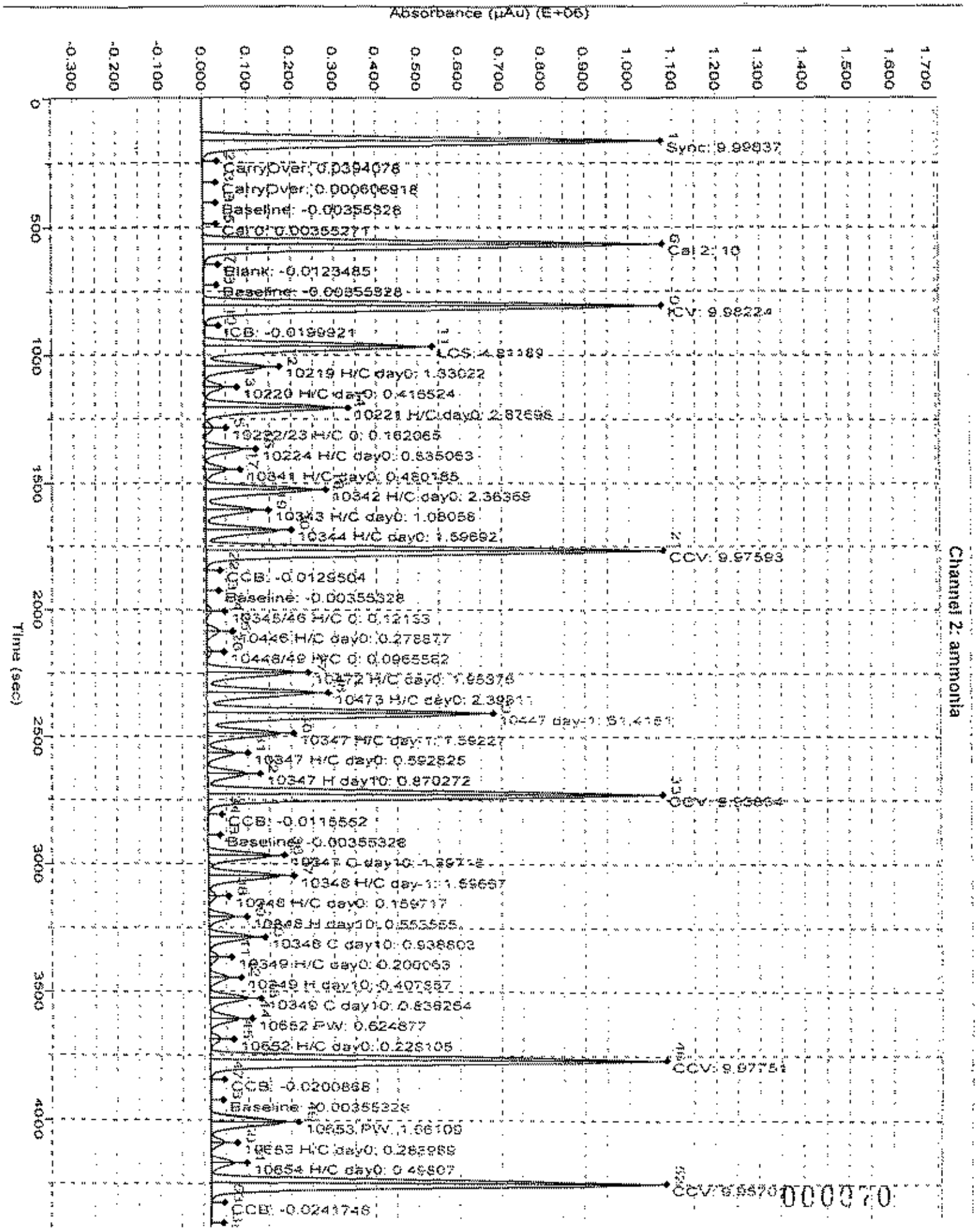
AMMONIA RESULTS FOR INITIAL AND DAY 28

SAMPLE NUMBER	DAYS PASSED		AMMONIA CONCENTRATION (mg/l)						
10219									
	0	INIT	1.3						
	28	HA	0.2						
				Avg	0.8	Min	0.2	Max	1.3
10220									
	0	INIT	0.4						
	28	HA	0.0						
				Avg	0.2	Min	0.0	Max	0.4
10221									
	0	INIT	2.9						
	28	HA	0.1						
				Avg	1.5	Min	0.1	Max	2.9
10222									
	0	INIT	0.2						
	28	HA	0.1						
				Avg	0.1	Min	0.1	Max	0.2
10224									
	0	INIT	0.8						
	28	HA	0.0						
				Avg	0.4	Min	0.0	Max	0.8
10341									
	0	INIT	0.5						
	28	HA	0.1						
				Avg	0.3	Min	0.1	Max	0.5
10342									
	0	INIT	2.4						

SAMPLE NUMBER	DAYS PASSED		AMMONIA CONCENTRATION (mg/l)						
	28	HA	0.5						
				Avg	1.4	Min	0.5	Max	2.4
10343									
	0	INIT	1.1						
	28	HA	0.0						
				Avg	0.5	Min	0.0	Max	1.1
10344									
	0	INIT	1.6						
	28	HA	0.3						
				Avg	1.0	Min	0.3	Max	1.6
10345									
	0	INIT	0.1						
	28	HA	0.0						
				Avg	0.1	Min	0.0	Max	0.1
10446									
	0	INIT	0.3						
	28	HA	0.1						
				Avg	0.2	Min	0.1	Max	0.3
10448									
	0	INIT	0.1						
	28	HA	0.1						
				Avg	0.1	Min	0.1	Max	0.1
10472									
	0	INIT	2.0						
	28	HA	0.3						
				Avg	1.1	Min	0.3	Max	2.0
10473									
	0	INIT	2.4						

SAMPLE NUMBER	DAYS PASSED	AMMONIA CONCENTRATION (mg/l)
	28 HA	0.1

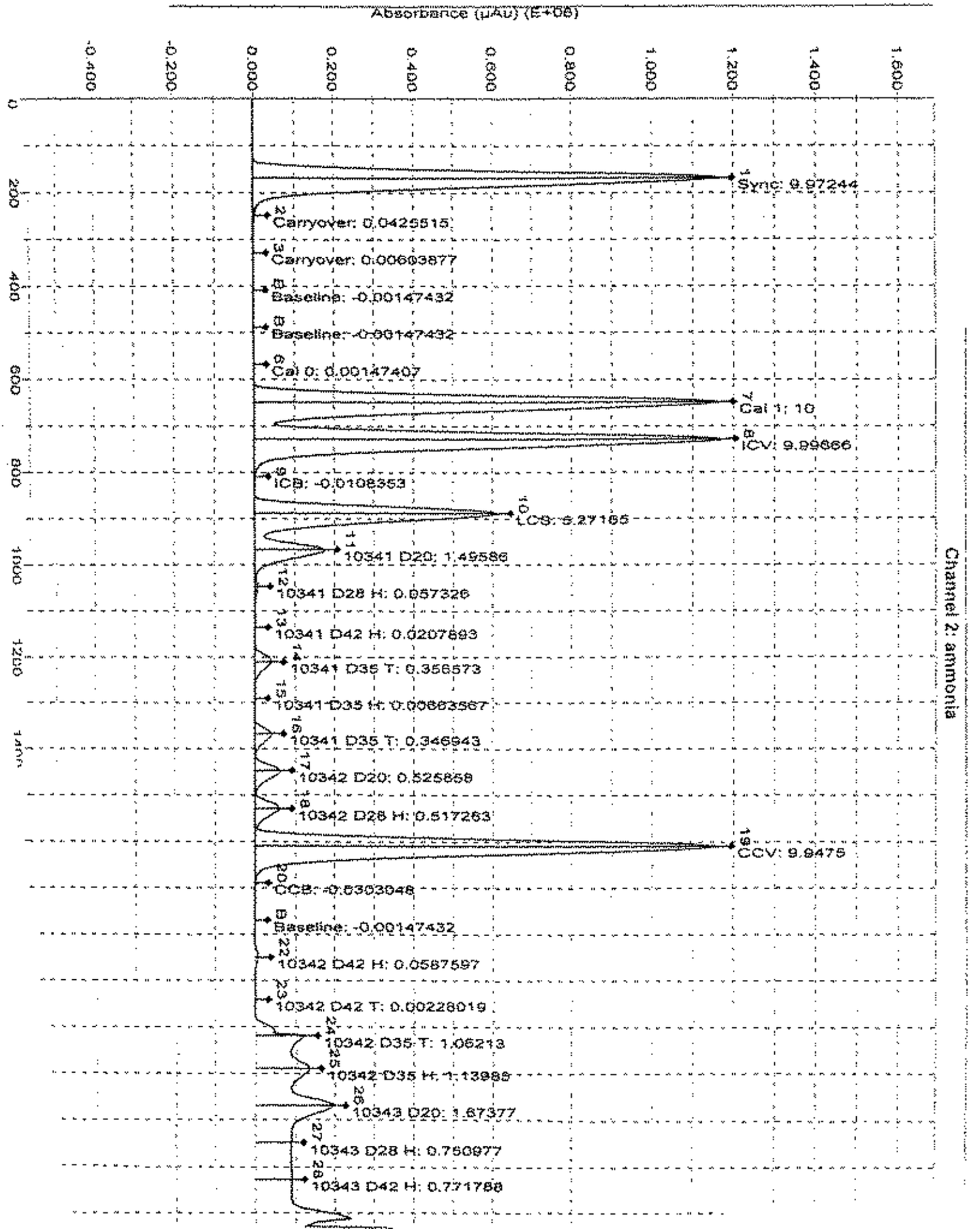
Avg 1.3 Min 0.1 Max 2.4


Absorbance (µAu) (E+06)
Channel 2: ammonia
Time (sec)
Sync: 9.99937
CarryOver: 0.0394076
CarryOver: 0.00060918
Baseline: -0.00355328
Cal 0: 0.00355271
Cal 2: 10
Blank: -0.0123485
Baseline: -0.00355328
CCV: 9.9822
ICB: -0.0199921
LCS: 4.81189
10219 H/C day0: 1.33022
10220 H/C day0: 0.416524
10221 H/C day0: 2.87598
10222/23 H/C 0: 0.162065
10224 H/C day0: 0.835063
10341 H/C day0: 0.480185
10342 H/C day0: 2.36369
10343 H/C day0: 1.08056
10344 H/C day0: 1.59692
CCV: 9.97593
CCB: -0.0129504
Baseline: -0.00355328
10345/46 H/C 0: 0.12153
10446 H/C day0: 0.278877
10448/49 H/C 0: 0.0965562
10472 H/C day0: 1.55375
10473 H/C day0: 2.39811
10447 day-1: 51.4151
10347 H/C day-1: 1.59227
10347 H/C day0: 0.592825
10347 H day10: 0.870272
CCV: 9.99864
CCB: -0.0115552
Baseline: -0.00355328
10348 C day10: 1.39715
10348 H/C day-1: 1.59657
10348 H/C day0: 0.159717
10348 H day10: 0.553555
10348 C day10: 0.938802
10349 H/C day0: 0.200063
10349 H day10: 0.407887
10349 C day10: 0.836264
10652 PW: 0.624877
10652 H/C day0: 0.228105
CCV: 9.97754
CCB: -0.0200868
Baseline: -0.00355328
10653 PW: 1.66109
10653 H/C day0: 0.283989
10654 H/C day0: 0.49807
CCV: 9.9570
CCB: -0.0241746
000070

Peak Table: ammonia

File name: C:\FLOW_4\071499D.RST
Date: July 14, 1999
Operator: lks

Peak	Cup	Name	Type	Dil	Wt	Height	Calc. (mg/L)	Flags
1	2	Sync	SYNC	1	1	1046453	9.998365	
2	0	CarryOver	CO	1	1	4495	0.039408	
3	0	CarryOver	CO	1	1	435	0.000607	
B	0	Baseline	RB	1	1	0	-0.003553	BL
5	1	Cal 0	C	1	1	743	0.003553	
6	2	Cal 2	C	1	1	1046624	10.000000	
7	0	Blank	U	1	1	-920	-0.012348	LO
B	0	Baseline	RB	1	1	0	-0.003553	BL
9	2	ICV	U	1	1	1044766	9.982244	
10	1	ICB	U	1	1	-1720	-0.019992	LO
11	3	LCS	U	1	1	503817	4.811894	
12	61	10219 H/C day0	U	1	1	139546	1.330220	
13	62	10220 H/C day0	U	1	1	43846	0.415524	
14	63	10221 H/C day0	U	1	1	301377	2.876983	
15	64	10222/23 H/C 0	U	1	1	17328	0.162065	
16	65	10224 H/C day0	U	1	1	87740	0.835063	
17	66	10341 H/C day0	U	1	1	50611	0.480185	
18	67	10342 H/C day0	U	1	1	247673	2.363685	
19	68	10343 H/C day0	U	1	1	113427	1.080578	
20	69	10344 H/C day0	U	1	1	167450	1.596921	
21	2	CCV	U	1	1	1044106	9.975932	
22	1	CCB	U	1	1	-983	-0.012950	LO
B	0	Baseline	RB	1	1	0	-0.003553	BL
24	70	10345/46 H/C 0	U	1	1	13066	0.121330	
25	71	10446 H/C day0	U	1	1	29549	0.278877	
26	72	10448/49 H/C 0	U	1	1	10474	0.096558	
27	73	10472 H/C day0	U	1	1	204785	1.953765	
28	74	10473 H/C day0	U	1	1	251275	2.398111	
29	75	10447 day-1	U	10	1	642929	61.415092	
30	76	10347 H/C day-1	U	1	1	166963	1.592268	
1	77	10347 H/C day0	U	1	1	62396	0.592825	
2	78	10347 H day10	U	1	1	91424	0.870272	
3	2	CCV	U	1	1	1040173	9.938340	
4	1	CCB	U	1	1	-837	-0.011555	LO
	0	Baseline	RB	1	1	0	-0.003553	BL
6	79	10347 C day10	U	1	1	146550	1.397163	
7	80	10348 H/C day-1	U	1	1	167423	1.596665	
8	81	10348 H/C day0	U	1	1	17082	0.159717	
9	82	10348 H day10	U	1	1	58268	0.553555	
0	83	10348 C day10	U	1	1	98594	0.938803	
	84	10349 H/C day0	U	1	1	21303	0.200063	
	85	10349 H day10	U	1	1	43044	0.407857	
	86	10349 C day10	U	1	1	88075	0.838264	
	87	10652 PW	U	1	1	65750	0.624877	
	88	10652 H/C day0	U	1	1	24237	0.228105	
	2	CCV	U	1	1	1044272	9.977513	
	1	CCB	U	1	1	-1730	-0.020087	LO
	0	Baseline	RB	1	1	0	-0.003553	BL
	89	10653 PW	U	1	1	174164	1.661091	
	90	10653 H/C day0	U	1	1	30607	0.288989	
	91	10654 H/C day0	U	1	1	52482	0.498070	
	2	CCV	U	1	1	1042127	9.957014	
	1	CCB	U	1	1	-2156	-0.024175	LO
	0	Baseline	RB	1	1	0	-0.003553	BL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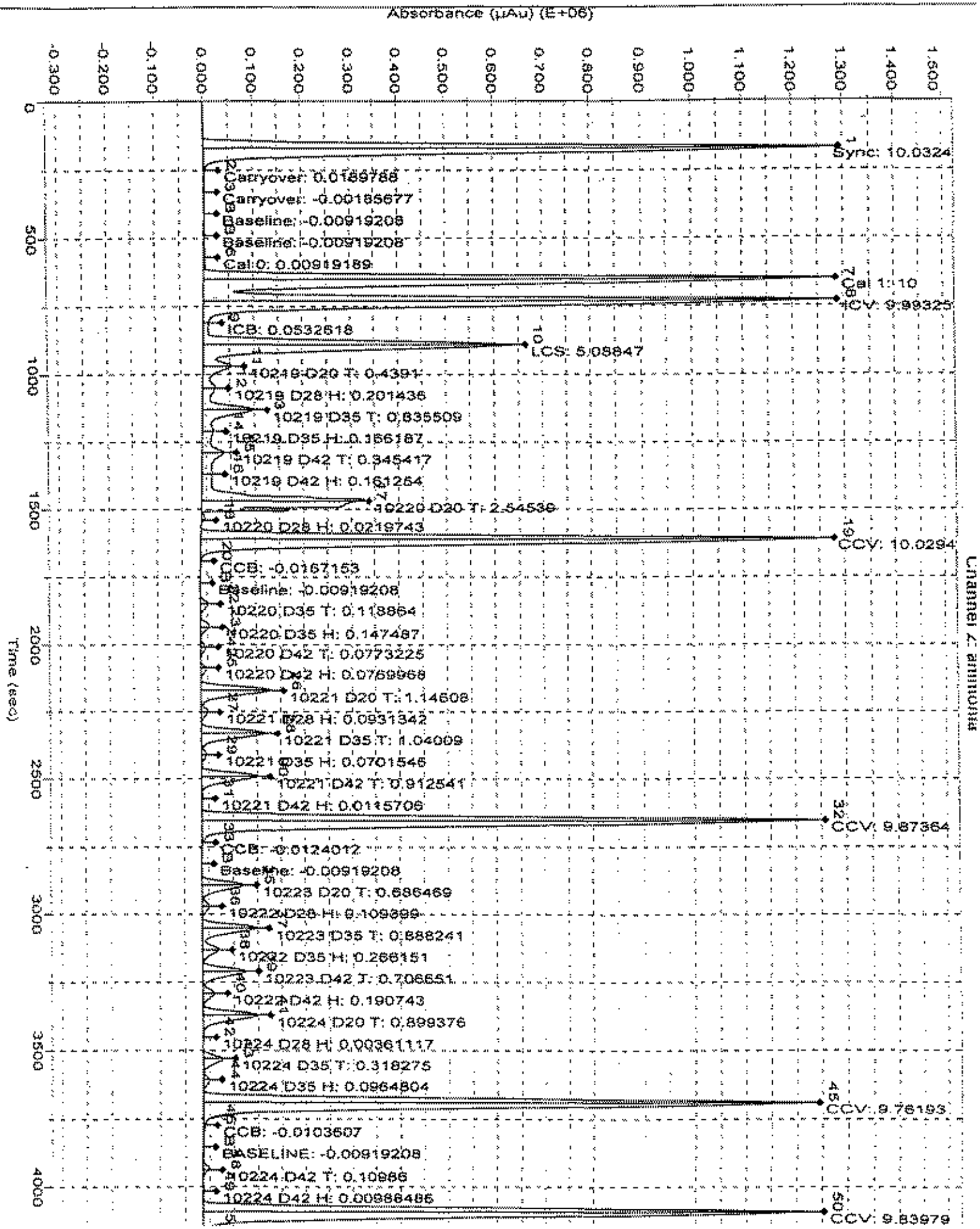
-0.200
0.000
0.200
0.400
0.600
0.800
1.000
1.200
1.400
1.600
0
200
400
600
800
1000
1200
1400
Channel 2: ammonia
1 Sync: 9.97244
2 Carryover: 0.0429515
3 Carryover: 0.00603877
4 B Baseline: -0.00147432
5 B Baseline: -0.00147432
6 Cal 0: 0.00147407
7 Cal 1: 10
8 ICV: 9.99666
9 ICB: -0.0108353
10 LCS: 5.27165
11 10341 D20: 1.49586
12 10341 D28 H: 0.657326
13 10341 D42 H: 0.0207893
14 10341 D35 T: 0.356573
15 10341 D35 H: 0.00663567
16 10341 D35 T: 0.346943
17 10342 D20: 0.525859
18 10342 D28 H: 0.517263
19 CCV: 9.9475
20 CCB: -0.0303048
21 B Baseline: -0.00147432
22 10342 D42 H: 0.0587597
23 10342 D42 T: 0.00228019
24 10342 D35 T: 1.06213
25 10342 D35 H: 1.13985
26 10343 D20: 1.67377
27 10343 D28 H: 0.750977
28 10343 D42 H: 0.771788

Peak Table: ammonia

File name: F:\FLOW 4\082399B.RST
Date: August 23, 1999
Operator: NVW

Peak	Cup	Name	Type	Dil	Wt	Height	Calc. (mg/L)
1	2	Sync	SYNC	1	1	1167716	9.972436
2	0	Carryover	CO	1	1	5154	0.042551
3	0	Carryover	CO	1	1	880	0.006039
B	0	Baseline	RB	1	1	0	-0.001474
B	0	Baseline	RB	1	1	0	-0.001474
6	1	Cal 0	C	1	1	345	0.001474
7	2	Cal 1	C	1	1	1170943	10.000001
8	2	ICV	U	1	1	1170552	9.996662
9	1	ICB	U	1	1	-1096	-0.010835
10	3	LCS	U	1	1	617362	5.271652
11	4	10341 D20	U	1	1	175303	1.495859
12	5	10341 D28 H	U	1	1	6884	0.057326
13	6	10341 D42 H	U	1	1	2607	0.020789
14	7	10341 D35 T	U	1	1	41919	0.356573
15	8	10341 D35 H	U	1	1	949	0.006636
16	9	10341 D35 T	U	1	1	40792	0.346943
17	10	10342 D20	U	1	1	61739	0.525858
18	11	10342 D28 H	U	1	1	60732	0.517263
19	2	CCV	U	1	1	1164797	9.947505
20	1	CCB	U	1	1	-3375	-0.030305
B	0	Baseline	RB	1	1	0	-0.001474
22	12	10342 D42 H	U	1	1	7052	0.058760
23	13	10342 D42 T	U	1	1	440	0.002280
24	14	10342 D35 T	U	1	1	124524	1.062130
25	15	10342 D35 H	U	1	1	133622	1.139846
26	16	10343 D20	U	1	1	196133	1.673772
27	17	10343 D28 H	U	1	1	88095	0.750977
28	18	10343 D42 H	U	1	1	90531	0.771788

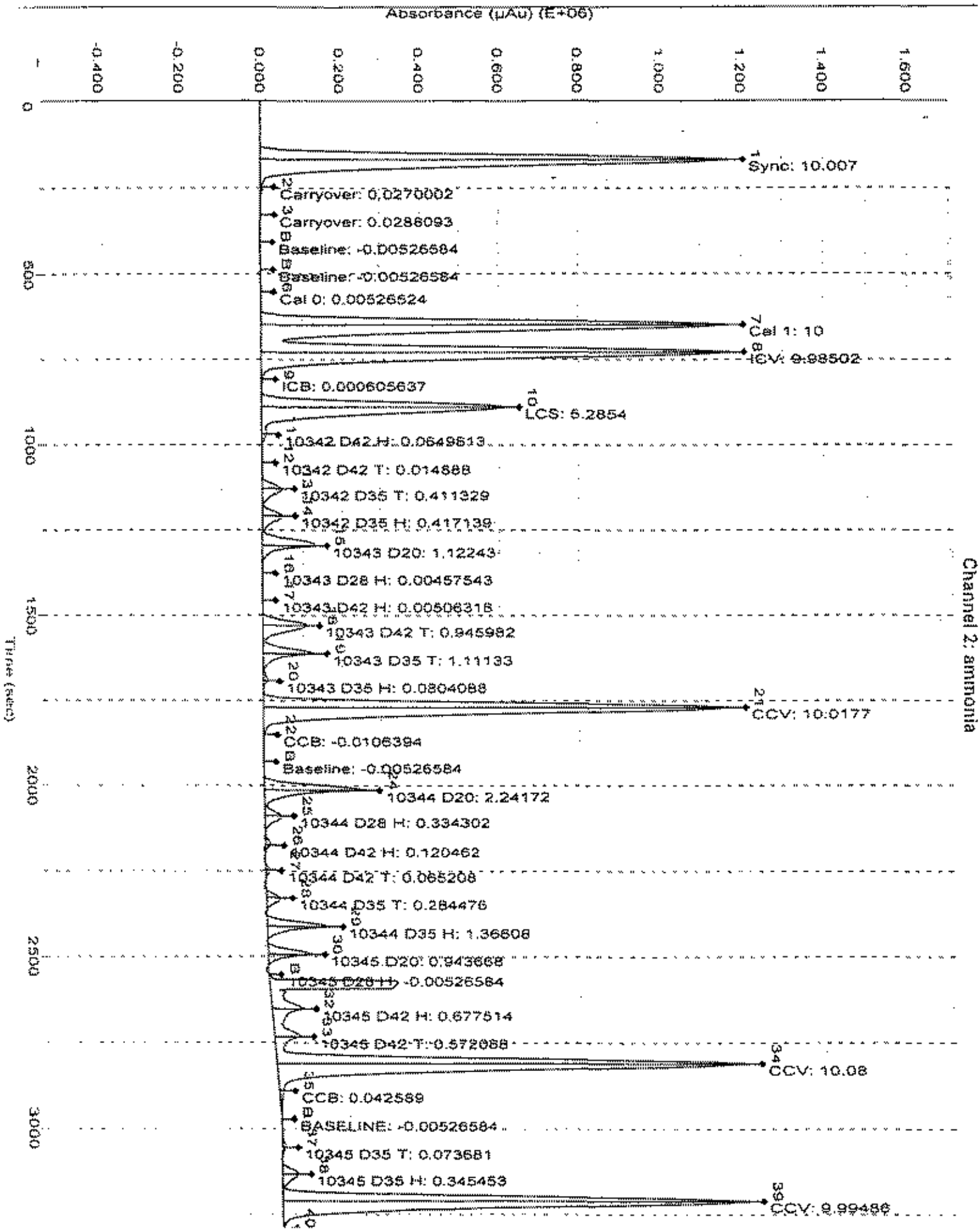
Peak	Cup	Flags
1	2	
2	0	
3	0	
B	0	BL
B	0	BL
6	1	
7	2	
8	2	
9	1	LO
10	3	
11	4	
12	5	
13	6	
14	7	
15	8	
16	9	
17	10	
18	11	
19	2	
20	1	LO


Absorbance (µAu) (E+06)
Time (sec)
Channel 2 ammonia
Sync: 10.0324
Carryover: 0.0189788
Carryover: -0.00185677
Baseline: -0.00919208
Baseline: -0.00919208
Cal 0: 0.00919189
Cal 1: 10
CCV: 9.99325
ICB: 0.0532618
LCS: 5.09847
10219 D20 T: 0.4391
10219 D28 H: 0.201436
10219 D35 T: 0.835509
10219 D35 H: 0.156187
10219 D42 T: 0.345417
10219 D42 H: 0.161254
10220 D20 T: 2.54539
10220 D28 H: 0.0219743
CCV: 10.0294
CCB: -0.0167153
Baseline: -0.00919208
10220 D35 T: 0.118864
10220 D35 H: 0.147487
10220 D42 T: 0.0773225
10220 D42 H: 0.0769968
10221 D20 T: 1.14608
10221 D28 H: 0.0931342
10221 D35 T: 1.04009
10221 D35 H: 0.0701546
10221 D42 T: 0.912541
10221 D42 H: 0.0115706
CCV: 9.87364
CCB: -0.0124012
Baseline: -0.00919208
10223 D20 T: 0.686469
10222 D28 H: 0.109899
10223 D35 T: 0.688241
10222 D35 H: 0.266151
10223 D42 T: 0.706651
10222 D42 H: 0.190743
10224 D20 T: 0.899376
10224 D28 H: 0.00361117
10224 D35 T: 0.318275
10224 D35 H: 0.0964804
CCV: 9.76193
CCB: -0.0103607
BASELINE: -0.00919208
10224 D42 T: 0.10966
10224 D42 H: 0.00988486
CCV: 9.83979

Peak Table: ammonia

File name: F:\FLOW_4\082399F.RST
Date: August 23, 1999
Operator: NVW

Peak	Cup	Name	Type	Dil	Wt	Height	Calc. (mg/L)
1	2	Sync	SYNC	1	1	1266027	10.032393
2	0	Carryover	CO	1	1	3552	0.018979
3	0	Carryover	CO	1	1	925	-0.001857
B	0	Baseline	RB	1	1	0	-0.009192
B	0	Baseline	RB	1	1	0	-0.009192
6	1	Cal 0	C	1	1	2318	0.009192
7	2	Cal 1	C	1	1	1261943	10.000000
8	2	ICV	U	1	1	1261092	9.993252
9	1	ICB	U	1	1	7874	0.053262
10	3	LCS	U	1	1	642705	5.088472
11	4	10219 D20 T	U	1	1	56520	0.439100
12	5	10219 D28 H	U	1	1	26556	0.201436
13	6	10219 D35 T	U	1	1	106499	0.835509
14	7	10219 D35 H	U	1	1	22111	0.166187
15	8	10219 D42 T	U	1	1	44709	0.345417
16	9	10219 D42 H	U	1	1	21490	0.161254
17	10	10220 D20 T	U	1	1	322078	2.545392
18	11	10220 D28 H	U	1	1	3929	0.021974
19	2	CCV	U	1	1	1265652	10.029422
20	1	CCB	U	1	1	-949	-0.016715
B	0	Baseline	RB	1	1	0	-0.009192
22	12	10220 D35 T	U	1	1	16145	0.118864
23	13	10220 D35 H	U	1	1	19754	0.147487
24	14	10220 D42 T	U	1	1	10908	0.077322
25	15	10220 D42 H	U	1	1	10867	0.076997
26	16	10221 D20 T	U	1	1	145655	1.146084
27	17	10221 D28 H	U	1	1	12901	0.093134
28	18	10221 D35 T	U	1	1	132291	1.040087
29	19	10221 D35 H	U	1	1	10004	0.070155
30	20	10221 D42 T	U	1	1	116211	0.912541
31	21	10221 D42 H	U	1	1	2618	0.011571
32	2	CCV	U	1	1	1246012	9.873642
33	1	CCB	U	1	1	-405	-0.012401
B	0	Baseline	RB	1	1	0	-0.009192
35	22	10223 D20 T	U	1	1	87708	0.686469
36	23	10222 D28 H	U	1	1	14952	0.109399
37	24	10223 D35 T	U	1	1	113147	0.888241
38	25	10222 D35 H	U	1	1	34715	0.266151
39	26	10223 D42 T	U	1	1	90252	0.706651
40	27	10222 D42 H	U	1	1	25207	0.190743
41	28	10224 D20 T	U	1	1	114551	0.899376
42	29	10224 D28 H	U	1	1	1614	0.003611
43	30	10224 D35 T	U	1	1	41287	0.318275
44	31	10224 D35 H	U	1	1	13323	0.096480
45	2	CCV	U	1	1	1231928	9.761934
46	1	CCB	U	1	1	-147	-0.010361
B	0	BASELINE	RB	1	1	0	-0.009192
48	32	10224 D42 T	U	1	1	15010	0.109860
49	33	10224 D42 H	U	1	1	2405	0.009885
50	2	CCV	U	1	1	1241744	9.839792
51	1	CCB	U	1	1	-21	-0.009357
B	0	BASELINE	RB	1	1	0	-0.009192

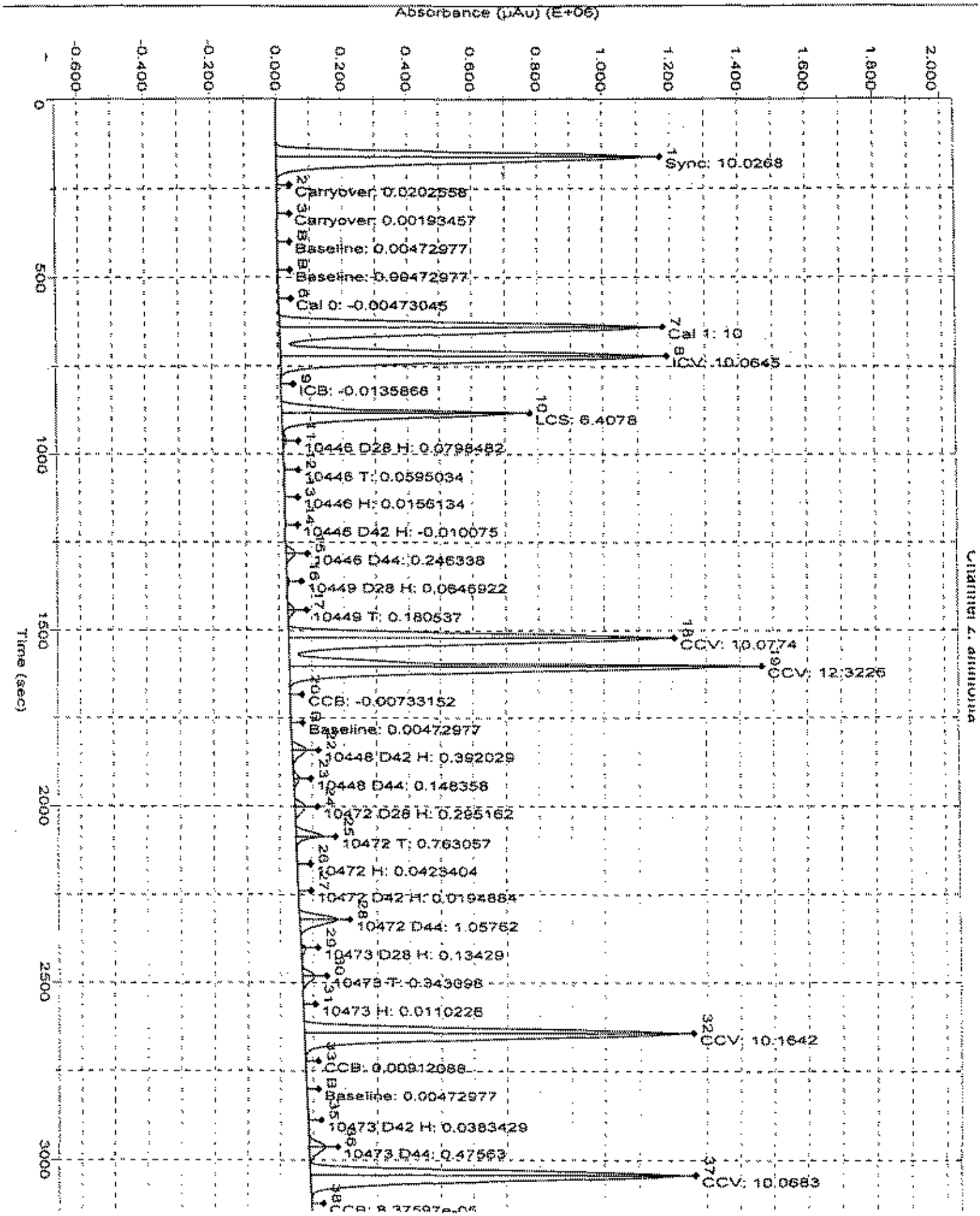

Absorbance (µAu) (E+06)
-0.400
-0.200
0.000
0.200
0.400
0.600
0.800
1.000
1.200
1.400
1.600
Time (secs)
0
500
1000
1500
2000
2500
3000
Channel 2: ammonia
1 Sync: 10.007
2 Carryover: 0.0270002
3 Carryover: 0.0286093
B Baseline: -0.00526584
B Baseline: -0.00526584
6 Cal 0: 0.00526524
7 Cal 1: 10
8 ICV: 9.98502
9 ICB: 0.000605637
10 LCS: 6.2854
11 10342 D42 H: 0.0649613
12 10342 D42 T: 0.014688
13 10342 D35 T: 0.411329
14 10342 D35 H: 0.417139
15 10343 D20: 1.12243
16 10343 D28 H: 0.00457543
17 10343 D42 H: 0.00506318
18 10343 D42 T: 0.945982
19 10343 D35 T: 1.11133
20 10343 D35 H: 0.0804088
21 CCV: 10.0177
22 CCB: -0.0106394
B Baseline: -0.00526584
24 10344 D20: 2.24172
25 10344 D28 H: 0.334302
26 10344 D42 H: 0.120462
27 10344 D42 T: 0.065208
28 10344 D35 T: 0.284476
29 10344 D35 H: 1.36608
30 10345 D20: 0.943668
B 10345 D28 H: -0.00526584
32 10345 D42 H: 0.677514
33 10345 D42 T: 0.572088
34 CCV: 10.08
35 CCB: 0.042569
B BASELINE: -0.00526584
37 10345 D35 T: 0.073681
38 10345 D35 H: 0.345453
39 CCV: 9.99486
40

Peak Table: ammonia

File name: C:\FLOW_4\082399H1.RST
Date: August 23, 1999
Operator: NVW

Peak	Cup	Name	Type	Dil	Wt	Height	Calc. (mg/L)
1	2	Sync	SYNC	1	1	1175225	10.007032
2	0	Carryover	CO	1	1	3787	0.027000
3	0	Carryover	CO	1	1	4000	0.028809
B	0	Baseline	RB	1	1	0	-0.005266
B	0	Baseline	RB	1	1	0	-0.005266
6	1	Cal 0	C	1	1	1236	0.005265
7	2	Cal 1	C	1	1	1174400	10.000000
8	2	ICV	U	1	1	1172641	9.985017
9	1	ICB	U	1	1	689	0.000606
10	3	LCS	U	1	1	621008	5.285396
11	12	10342 D42 H	U	1	1	8245	0.064981
12	13	10342 D42 T	U	1	1	2366	0.014888
13	14	10342 D35 T	U	1	1	48899	0.411329
14	15	10342 D35 H	U	1	1	49581	0.417139
15	16	10343 D20	U	1	1	132366	1.122426
16	17	10343 D28 H	U	1	1	1155	0.004575
17	18	10343 D42 H	U	1	1	1212	0.005063
18	19	10343 D42 T	U	1	1	111656	0.945982
19	20	10343 D35 T	U	1	1	131064	1.111330
20	21	10343 D35 H	U	1	1	10056	0.080409
21	2	CCV	U	1	1	1176476	10.017688
22	1	CCB	U	1	1	-631	-0.010639
B	0	Baseline	RB	1	1	0	-0.005266
24	22	10344 D20	U	1	1	263747	2.241716
25	23	10344 D28 H	U	1	1	39858	0.334302
26	24	10344 D42 H	U	1	1	14758	0.120462
27	25	10344 D42 T	U	1	1	8272	0.065208
28	26	10344 D35 T	U	1	1	34009	0.284476
29	27	10344 D35 H	U	1	1	160965	1.366075
30	28	10345 D20	U	1	1	111384	0.943668
B	29	10345 D28 H	U	1	1	0	-0.005266
32	30	10345 D42 H	U	1	1	80143	0.677514
33	31	10345 D42 T	U	1	1	67769	0.572088
34	2	CCV	U	1	1	1183792	10.080021
35	1	CCB	U	1	1	5617	0.042589
B	0	BASELINE	RB	1	1	0	-0.005266
37	32	10345 D35 T	U	1	1	9267	0.073681
38	33	10345 D35 H	U	1	1	41167	0.345453
39	2	CCV	U	1	1	1173796	9.994657
40	1	CCB	U	1	1	245	-0.003177
B	0	BASELINE	RB	1	1	0	-0.005266

Peak	Cup	Flags
1	2	
2	0	
3	0	
B	0	BL
B	0	BL
6	1	
7	2	


Absorbance (µAu) (E+06)
-0.600
-0.400
-0.200
0.000
0.200
0.400
0.600
0.800
1.000
1.200
1.400
1.600
1.800
2.000
Time (sec)
0
500
1000
1500
2000
2500
3000
1 Sync: 10.0268
2 Carryover: 0.0202558
3 Carryover: 0.00193457
4 B Baseline: 0.00472977
5 B Baseline: 0.00472977
6 Cal 0: -0.00473045
7 Cal 1: 10
8 ICV: 10.0645
9 ICB: -0.0135868
10 LCS: 6.4078
11 10446 D28 H: 0.0798482
12 10446 T: 0.0595034
13 10446 H: 0.0156134
14 10446 D42 H: -0.010075
15 10446 D44: 0.246338
16 10449 D28 H: 0.0646922
17 10449 T: 0.180537
18 CCV: 10.0774
19 CCV: 12.3226
20 CCB: -0.00733152
21 B Baseline: 0.00472977
22 10448 D42 H: 0.392029
23 10448 D44: 0.148358
24 10472 D28 H: 0.295162
25 10472 T: 0.763057
26 10472 H: 0.0423404
27 10472 D42 H: 0.0194884
28 10472 D44: 1.05762
29 10473 D28 H: 0.13429
30 10473 T: 0.343098
31 10473 H: 0.0110226
32 CCV: 10.1642
33 CCB: 0.00912088
34 B Baseline: 0.00472977
35 10473 D42 H: 0.0383429
36 10473 D44: 0.47563
37 CCV: 10.0683
38 CCB: 8.37597e-05

Peak Table: ammonia

File name: C:\FLOW_4\082399L.RST
Date: August 24, 1999
Operator: nvw

Peak	Cup	Name	Type	Dil	Wt	Height	Calc. (mg/L)
1	2	Sync	SYNC	1	1	1134453	10.026785
2	0	Carryover	CO	1	1	1757	0.020256
3	0	Carryover	CO	1	1	-316	0.001935
B	0	Baseline	RB	1	1	0	0.004730
B	0	Baseline	RB	1	1	0	0.004730
6	1	Cal 0	C	1	1	-1071	-0.004730
7	2	Cal 1	C	1	1	1131421	10.000000
8	2	ICV	U	1	1	1138724	10.064519
9	1	ICB	U	1	1	-2073	-0.013587
10	3	LCS	U	1	1	724800	6.407803
11	4	10446 D28 H	U	1	1	8503	0.079848
12	5	10446 T	U	1	1	6200	0.059503
13	6	10446 H	U	1	1	1232	0.015613
14	7	10446 D42 H	U	1	1	-1676	-0.010075
15	8	10446 D44	U	1	1	27349	0.246338
16	9	~~10449~~ 10442 D28 H	U	1	1	6787	0.064692
17	10	~~10449~~ 10442 T	U	1	1	19901	0.180537
18	2	CCV	U	1	1	1140183	10.077406
19	2	CCV	U	1	1	1394326	12.322570
20	1	CCB	U	1	1	-1365	-0.007332
B	0	Baseline	RB	1	1	0	0.004730
22	12	10448 D42 H	U	1	1	43841	0.392029
23	13	10448 D44	U	1	1	16258	0.148358
24	14	10472 D28 H	U	1	1	32876	0.295162
25	15	10472 T	U	1	1	85839	0.763057
26	16	10472 H	U	1	1	4257	0.042340
27	17	10472 D42 H	U	1	1	1671	0.019488
28	18	10472 D44	U	1	1	119182	1.057615
29	19	10473 D28 H	U	1	1	14666	0.134290
30	20	10473 T	U	1	1	38302	0.343098
31	21	10473 H	U	1	1	712	0.011023
32	2	CCV	U	1	1	1150005	10.164170
33	1	CCB	U	1	1	497	0.009121
B	0	Baseline	RB	1	1	0	0.004730
35	22	10473 D42 H	U	1	1	3805	0.038343
36	23	10473 D44	U	1	1	53304	0.475630
37	2	CCV	U	1	1	1139148	10.068260
38	1	CCB	U	1	1	-526	0.000084
B	0	BASELINE	RB	1	1	0	0.004730

Peak	Cup	Flags
1	2	
2	0	
3	0	
B	0	BL
B	0	BL
6	1	LO
7	2	
8	2	
9	1	LO
10	2	

Sediment Characterization

Client: Menzie-Cura & Assoc.	Project: 99026	BTR: 3152 / 3153

Date sediments distributed to test chambers (100 mL homogenized sediment):

- *H. azteca* acute test: 6/20/99
- *C. tentans* acute test: 6/20/99
- *H. azteca* chronic test: 7/1/99 } entire sample used with exception of aliquot reserved
- *C. tentans* chronic test: 7/1/99 } for C. tentans auxillary male treatments.

7/11/99 - Sediments into beakers on Day 9 for aux. males.
7/12/99 - Larvae added to aux. male replicates (4)
From 99 case deposit 7/9 (Aquatec)

Sample Number	porew pH	porew H2S	porew Amm	Sediment Visual Characterization
10219	415 mL 6.7	extracted	6/21/99 1.7	black mud, watery, Chironomids (several) present removed
				black, watery mud, few Chironomids removed
10220	213 mL 7.1	extracted	6/21/99 1.86	
10221	240 mL 7.3	extracted	6/21/99 13.5	brownish, black watery mud few Chironomids removed.
~~10222~~				
10224	125 mL 6.7	extracted	3.62	very black, watery mud. 125 mL extracted 6/21/99
	Pore water extraction 6/21/99 - 250 g / centrifuge bottle			
number ~~10225~~ not used	15 m, 7640 RPM.			
~~10226~~ Number not used				
~~10227~~ Number not used				
10222 / 23 LCS	/	/	/	EPA artificial control sediment (77% med. and fine sand; 17% kaolinite clay; 5% 0.5 mm-sieved peat; 1% $CaCO_3$). Stored dry, then hydrated prior to addition to test chambers.

S = sample collected / preserved.

Extract porewater, measure and record pH, decant and preserve sulfide and ammonia samples.

Entered by: _____ Date: 6/20 7/1/99

Sediments distributed to beakers 6/19/99 13:00 JJG

Reviewer: _____ Date: _____

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

hasurvwt.doc

7/1/99 15:30 JJG

Sediment Characterization

Client: Menzie-Cura & Assoc.	Project: 99026	BTR: 3169

Date sediments distributed to test chambers (100 mL homogenized sediment):

- *H. azteca* acute test: > 6/23/99
- *C. tentans* acute test:
- *H. azteca* chronic test: > 7/15/99 For Auxiliary make on 7/15/99
- *C. tentans* chronic test:

Sample Number	porew pH	porew H2S	porew Amm	Sediment Visual Characterization
10341	6.4			Brown/black liquid/mud. Some vegetation
10342	6.6			Soupy black ~~brown~~ sediment
10343	6.4			Soupy black sediment / Debris
10344	6.8			Very liquid black fine mud.
				Sediments distributed to test
				beakers, overlying water added
				6/23/99 1800
10345 / 46 LCS	/	/	/	EPA artificial control sediment (77% med. and fine sand; 17% kaolinite clay; 5% 0.5 mm-sieved peat; 1% CaCO3). Stored dry, then hydrated prior to addition to test chambers.

Extract porewater, measure and record pH, decant and preserve sulfide and ammonia samples.

Entered by: [signature] Date: 6/23/99

Reviewer: [signature] Date: 8/19/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

Sediment Characterization

Client: Menzie-Cura & Assoc.	Project: 99026	BTR: 3189 / 3196

Date sediments distributed to test chambers (100 mL homogenized sediment):

- *H. azteca* acute test: 6/25/99
- *C. tentans* acute test: 6/25/99
- *H. azteca* chronic test: 7/6/99 (Samples 10446, 10472, 10473)
- *C. tentans* chronic test:

Sample Number	porew pH	porew H2S	porew Amm	Sediment Visual Characterization
10446	6.6			Soft black mud
10447	7.1			Black, very liquid, fine
10472	6.8			Black, viscous mud.
10473	6.8			Black, very liquid, fine
10474	7.6 pore water black/dark tan			Black, very liquid, fine, odorous
10475	7.6 pore water black/dark tan			Black, soupy, very fine sediment
10448 / 449 LCS				EPA artificial control sediment (77% med. and fine sand; 17% kaolinite clay; 5% 0.5 mm-sieved peat; 1% CaCO3). Stored dry, then hydrated prior to addition to test chambers.

Extract porewater, measure and record pH, decant and preserve sulfide and ammonia samples.

Entered by: _____ Date: 6/25/99

Reviewer: _____ Date: 8/12/99

hasurwt.doc

Preparation of Formulated Control Sediment
for
Freshwater Sediment Toxicity Tests

Procedure based on EPA/600/R-94/024

Batch No. 6/18/99 Preparation Date: 6/18/99 Prepared by: [signature]

Ingredient	Amount (g)	Percent composition
Fine sand	1848 ✓	
Medium sand	924 ✓	77
Kaolinite clay	612 ✓	17
Blended and 0.~~3~~ 5 mm sieved Canadian sphagnum peat	180 ✓	5
CaCO3	36 ✓	1
Total	3600	100

Store well-mixed and dry in a sealed Rubbermaid box. Label by batch number. Store copy of this documentation in project file. Store original in Sed/Water preparation notebook.

Hydrate to a cohesive sediment consistency before use.

Hydrated/placed in refrig.
Assigned sample #s

10222 - Hazteca
10223 - Centers

Preparation of Formulated Control Sediment
for
Freshwater Sediment Toxicity Tests

Procedure based on EPA/600/R-94/024

Batch No. 6/25/99 Preparation Date: 6/25/00 Prepared by: SG

Ingredient	Amount (g)		Percent composition
Fine sand	1848	X 2 = 3696	
Medium sand	924	1848	77
Kaolinite clay	612	1224	17
Blended and 0.~~3~~ 56 mm sieved Canadian sphagnum peat	180	360	5
CaCO3	36	72	1
Total	3600		100

Store well-mixed and dry in a sealed Rubbermaid box. Label by batch number. Store copy of this documentation in project file. Store original in Sed/Water preparation notebook.

Hydrate to a cohesive sediment consistency before use.

DAILY CHECKLIST FOR AUTOMATED DELIVERY SEDIMENT TOXICITY TESTS

Project: 99026 Menzie-Cura Industriplex
Week of June 20, 1999

***H. azteca* 10 d Survival & Growth**
***C. tentans* 10 d Survival & Growth**
BTR: 3152 / 3153

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Noon delivery cycle							
• splitter boxes filling?	✓	✓	✓	✓	✓	✓	✓
• syringes filling?	✓	✓	✓	✓	✓	✓	✓
• needles flowing?	✓	✓	✓	✓	[illegible]	✓	✓
• beaker screens clear, flowing?	✓	✓	✓	✓	✓	✓	✓
• drainage to waste ok?	✓	✓	✓	✓	✓	✓	✓
• empty waste buckets?	—	✓	—	✓	✓	✓	
Test monitoring							
• test temperature ok?	✓	✓	✓	✓	[illegible]	✓	✓
• D.O. ok?	✓	✓	✓	✓	✓	✓	✓
• check for floating organisms	✓	✓	✓	✓	✓	✓	✓
• feeding completed?	H. azteca 1200 C. tentans 2130	✓	✓	✓	✓	✓	✓
Additional activities							
Prior to midnight fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Check sediment water supply	✓	✓	✓	✓	✓	✓	✓
Corrective Action / Comments							
Initials/Date	6/20/99 [illegible]	6/21/99 [illegible]	6/22/99 [illegible]	6/23/99 [illegible]	6/24/99 [illegible]	6/25/99 JJG	6/26 JJG

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments:

Reviewer [illegible] Date 12/9/99

Laboratory Manager, Biological Sciences, South Burlington, Vermont

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DAILY CHECKLIST FOR AUTOMATED DELIVERY SEDIMENT TOXICITY TESTS

Project: 99026 Menzie-Cura Industriplex
Week of June 27, 1999

***H. azteca* 10 d Survival & Growth**
***C. tentans* 10 d Survival & Growth**
BTR: 3152 / 3153

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Noon delivery cycle							
• splitter boxes filling?	✓	✓	✓	✓	✓	✓	✓
• syringes filling?	✓	✓	✓	✓	✓	✓	✓
• needles flowing?	✓	✓	✓	✓	✓	✓	✓
• basket screens clear, flowing?	✓	✓	✓	✓	✓	✓	✓
• drainage to waste ok?	✓	✓	✓	✓	✓	✓	✓
• empty waste buckets?	✓	✓	✓	✓	✓	✓	✓
Test monitoring							
• test temperature ok?	✓	✓	✓	✓	✓	✓	✓
• D.O. ok?	✓	✓	✓	✓	✓	✓	✓
• check for floating organisms	✓	✓	✓	✓	✓	✓	✓
• feeding completed?	✓	✓	✓	✓	✓	✓	✓
Additional activities							
Prior to midnight fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Check sediment water supply	✓	✓	✓	✓	✓	✓	✓
Corrective Action / Comments							
Initials/Date	JJG 6/27	JJG 6/28	JJG 6/29	6/30	7/1	7/2	7/3

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments: Removed 1 dead Chironomus from 4755 6/29/99 14:45 JJG

Reviewer [illegible] Date 12/9/99

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DAILY CHECKLIST FOR AUTOMATED DELIVERY SEDIMENT TOXICITY TESTS

Week of June 27, 1999

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)			✓	✓	✓	✓	✓
Noon delivery cycle							
• splitter boxes filling?			✓	✓	✓	✓	✓
• syringes filling?			✓	✓	✓	✓	✓
• needles flowing?			✓	✓	✓	✓	✓
• beaker screens clear, flowing?			✓	✓	✓	✓	✓
• drainage to waste ok?			✓	✓	✓	✓	✓
• empty waste buckets?			✓	✓	✓	✓	✓
Test monitoring							
• test temperature ok?			✓	✓	✓	✓	✓
• D.O. ok?			✓	✓	✓	✓	✓
• check for floating organisms			✓	✓	✓	✓	✓
• feeding completed?			✓	✓	✓	✓	✓
Additional activities							
Prior to midnight fill reservoirs (1L)		✓	✓	✓	✓	✓	✓
Check sediment water supply		✓	✓	✓	✓	✓	✓
Corrective Action / Comments							
Initials/Date		6/28	6/29	JJG 6/30	SY 7/1	JJG 7/2	JJG 7/3

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments:

Reviewer [illegible] Date 12/9/99
Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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DAILY CHECKLIST FOR AUTOMATED DELIVERY SEDIMENT TOXICITY TESTS

Week of July 4, 1999

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Noon delivery cycle							
• splitter boxes filling?	✓	✓	✓	✓	✓	✓	✓
• syringes filling?	✓	✓	✓	✓	✓	✓	✓
• needles flowing?	✓	✓	✓	✓	✓	✓	✓
• beaker screens clear, flowing?	✓	✓	✓	✓	✓	✓	✓
• drainage to waste ok?	✓	✓	✓	✓	✓	✓	✓
• empty waste buckets?	✓	✓	✓	✓			✓
Test monitoring							
• test temperature ok?	✓	✓	✓	✓	✓	✓	✓
• D.O. ok?	✓	✓	✓	✓	✓	✓	✓
• check for floating organisms	✓	✓	✓	✓	✓	✓	✓
• feeding completed?	✓	✓	✓	✓	✓	✓	✓
Additional activities							
Prior to midnight fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Check sediment water supply	✓	✓	✓	✓	✓	✓	✓
Corrective Action / Comments							
Initials/Date	JJG 7/4/99	JJG 7/5/99	JJG 7/6/99	[illegible] 7/7/99	JJG 7/8/99	CC 7/9/99	[illegible] 7/10/99

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments:

Reviewer [illegible] Date 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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DAILY CHECKLIST FOR AUTOMATED DELIVERY SEDIMENT TOXICITY TESTS

Week of July 11, 1999

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Noon delivery cycle							
• splitter boxes filling?	✓	✓	✓	✓	✓	✓	✓
• syringes filling?	✓	✓	✓	✓	✓	✓	✓
• needles flowing?	✓	✓	✓	✓	✓	✓	✓
• beaker screens clear, flowing?	✓	✓	✓	✓	✓	✓	✓
• drainage to waste ok?	✓	✓	✓	✓	✓	✓	✓
• empty waste buckets?		✓	✓	✓	✓	✓	✓
Test monitoring							
• test temperature ok?	✓	✓	✓	✓	✓	✓	✓
• D.O. ok?	✓	✓	✓	✓	✓	✓	✓
• check for floating organisms	✓	✓	✓	✓	✓	✓	✓
• feeding completed?	✓	✓	✓	✓	✓	✓	✓
Additional activities							
Prior to midnight fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Check sediment water supply	✓	✓	✓	✓	✓	✓	✓
Corrective Action / Comments							
Initials/Date	7/11 CC	7/12 JJG	7/13 JG/CC	7/14 CC JJG	7/15 JJG	7/16 JJG	7/17 JJG

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments:

Reviewer [signature] Date 12/9/99
Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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DAILY CHECKLIST FOR AUTOMATED DELIVERY
SEDIMENT TOXICITY TESTS

Week of July 18, 1999

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓

Noon delivery cycle

• splitter boxes filling?	✓	✓	✓	✓	✓	✓	✓
• syringes filling?	✓	✓	✓	✓	✓	✓	✓
• needles flowing?	✓	✓	✓	✓	✓	✓	✓
• beaker screens clear, flowing?	✓	✓	✓	✓	✓	✓ ①	✓
• drainage to waste ok?	✓	✓	✓	✓	✓	✓	✓
• empty waste buckets?	✓	✓	✓	✓	✓	✓	✓

Test monitoring

• test temperature ok?	✓	slightly low	✓	✓	✓	✓	✓
• D.O. ok?	✓	✓	✓	✓	✓	✓	✓
• check for floating organisms	✓	✓	✓	✓	✓	✓	✓
• feeding completed?	✓	✓	✓	✓	✓	✓	✓

CC

Additional activities

Prior to midnight fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Check sediment water supply	✓	✓	✓	✓	✓	✓	✓

Corrective Action / Comments				JJG			
Initials/Date	J 7/18/99	JJG 7/19/99	JJG 7/20/99	CMC 7/21/99	JJG 7/22/99	SJK 7/23/99	JJG 7/24

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments:

① Some clogged

Reviewer [signature] Date 12/9/99

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DAILY CHECKLIST FOR AUTOMATED DELIVERY SEDIMENT TOXICITY TESTS

Week of July 25, 1999

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Noon delivery cycle							
• splitter boxes filling?	✓	✓	✓	✓	✓	✓	✓
• syringes filling?	✓	✓	✓	✓	✓	✓	✓
• needles flowing?	✓	✓	✓	✓	✓	✓	✓
• beaker screens clear, flowing?	✓	✓	✓	✓	✓	✓	✓
• drainage to waste ok?	✓	✓	✓	✓	✓	✓	✓
• empty waste buckets?	✓	✓	✓	✓		✓	✓
Test monitoring							
• test temperature ok?	✓	✓	✓	✓	✓	✓	✓
• D.O. ok?	✓	✓	✓	✓	✓	✓	✓
• check for floating organisms	✓	✓	✓	✓	✓	✓	✓
• feeding completed?	✓	✓	✓	✓	✓	✓	✓
Additional activities							
Prior to midnight fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Check sediment water supply	✓	✓	✓	✓	✓	✓	✓
Corrective Action / Comments							
Initials/Date	JJG 7/25	JJG 7/26	JJG 7/27	JJG 7/28	JJG 7/29	JJG 7/30	JJG 7/31

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments:

Reviewer _____ Date 12/9/99

Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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DAILY CHECKLIST FOR AUTOMATED DELIVERY
SEDIMENT TOXICITY TESTS

Week of AUGUST 1, 1999

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓

Noon delivery cycle

• splitter boxes filling?	✓	✓	✓	✓	✓	✓	✓
• syringes filling?	✓	✓	✓	✓	✓	✓	✓
• needles flowing?	✓	✓	✓	✓	✓	✓	✓
• beaker screens clear, flowing?	✓	✓	✓	✓	✓	✓	✓
• drainage to waste ok?	✓	✓	✓	✓	✓	✓	✓
• empty waste buckets?	✓	✓	✓	✓	✓	✓	✓

Test monitoring

• test temperature ok?	✓	slightly lower	✓	✓	✓	✓	Low increased heating
• D.O. ok?	✓	✓	✓	✓	—	✓	not measured
• check for floating organisms	✓	✓	✓	✓	✓	✓	✓
• feeding completed?	✓	✓	✓	✓	✓	✓	H.A. - yes

C.T. - Food present skipped feeding

Additional activities

Prior to midnight fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Check sediment water supply	✓	✓	✓	✓	✓	✓	✓

Corrective Action / Comments	Adjusted heater to increase test temperature → JJG 8/2						
Initials/Date	8/1 JJG	8/2 JJG	JJG 8/3	JJG 8/4	SAT 8/5	JJG 8/6	[illegible] 8/7

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments:

Reviewer [signature] Date 12/9/99
Laboratory: Aquatec Biological Sciences, South Burlington, Vermont

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DAILY CHECKLIST FOR AUTOMATED DELIVERY
SEDIMENT TOXICITY TESTS

Week of AUGUST 8, 1999

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Noon delivery cycle							
• splitter boxes filling?	✓	✓	✓	✓	✓	✓	✓
• syringes filling?	✓	✓	✓	✓	✓	✓	✓
• needles flowing?	✓	✓	✓	✓	✓	✓	✓
• beaker screens clear, flowing?	✓	✓	✓	✓	✓	✓	✓
• drainage to waste ok?	✓	✓	✓	✓	✓	✓	✓
• empty waste buckets?	✓	✓	✓	✓	✓	✓	✓
Test monitoring							
• test temperature ok?	✓	✓	temps low	✓	✓	✓	✓
• D.O. ok?	✓	✓	✓	✓	—	✓	✓
• check for floating organisms	✓	✓	✓	✓	✓	✓	✓
• feeding completed?	✓	✓	✓	Empty C.T. feeding Fed H.a.	✓	✓	✓
Additional activities							
Prior to midnight fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Check sediment water supply	✓	✓	✓	✓	✓	✓	✓
Corrective Action / Comments			Adjusted room temperature.				
Initials/Date	8/8	8/9 JJG	8/10 JJG	8/11 SDS	8/12 JG	8/13 JJG	8/14 JJG

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments:

Reviewer J Date 12/5/99

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DAILY CHECKLIST FOR AUTOMATED DELIVERY SEDIMENT TOXICITY TESTS

Week of AUGUST 15, 1999

ACTIVITY / DAY	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Prior to noon fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Noon delivery cycle							
• splitter boxes filling?	✓	✓	✓	✓	✓	✓	✓
• syringes filling?	✓	✓	✓	✓	✓	✓	✓
• needles flowing?	✓	✓	✓	✓	✓	✓	✓
• beaker screens clear, flowing?	✓	✓	✓	✓	✓	✓	✓
• drainage to waste ok?	✓	✓	✓	✓	✓	✓	✓
• empty waste buckets?	✓	✓	✓	✓	✓	—	✓
Test monitoring							
• test temperature ok?	slightly low	low ✓	✓	✓	✓	✓	✓
• D.O. ok?	—	✓	✓	✓	—	✓	—
• check for floating organisms	✓	✓	✓	✓	✓	✓	✓
• feeding completed?	✓	✓	✓	✓	✓	✓	✓
Additional activities							
Prior to midnight fill reservoirs (1L)	✓	✓	✓	✓	✓	✓	✓
Check sediment water supply	✓	✓	✓	✓	✓	✓	✓
Corrective Action / Comments	Adjusted room temperature						
Initials/Date	JJG 8/15	JJG 8/16	JJG 8/17	JJG 8/18	JJG 8/19	JJG 8/20	JJG 8/21

Procedure: All operating systems listed above must be checked on a daily basis when sediment toxicity tests are in progress. Corrective action must be taken whenever appropriate. Document corrective action on this form. If project-specific documentation is required, write a brief description (on Project Documentation form) and include with the test data package.

Comments:

Reviewer [illegible] Date [illegible]

MC H.2.
Chronics
NY 14D

Manual Renewal for *C. tentans / H. azteca*

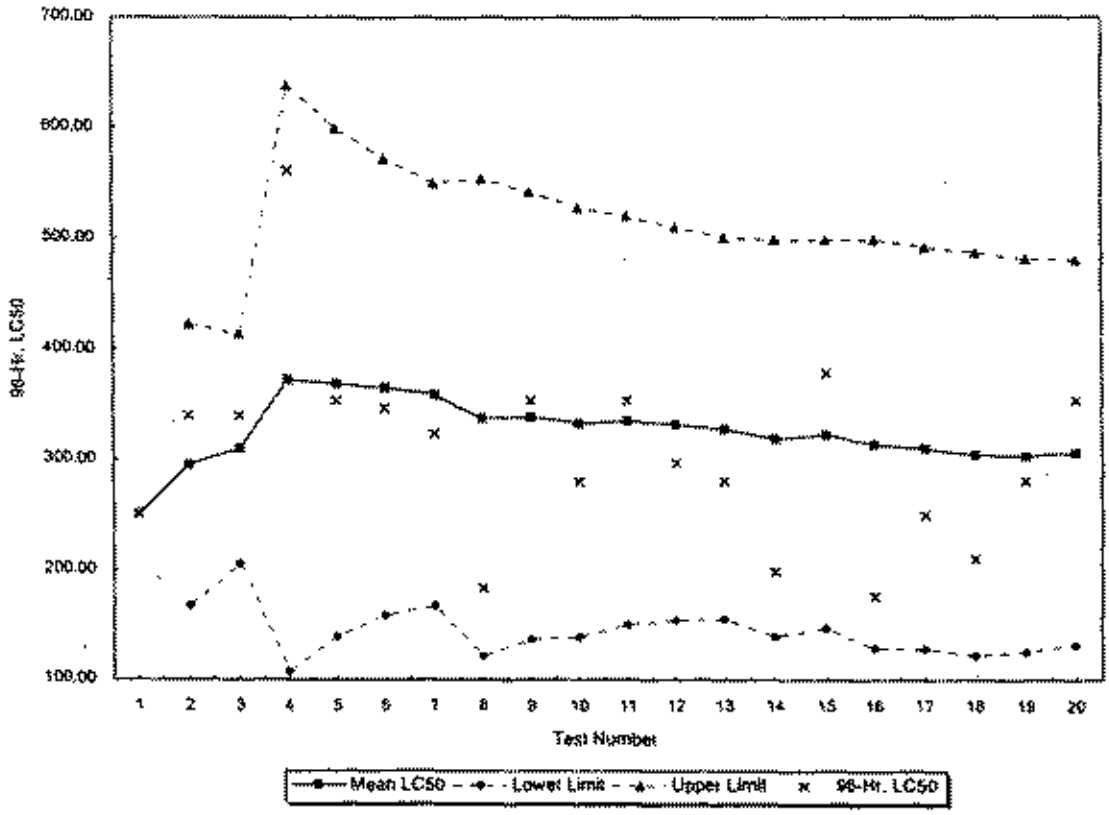
Date (1999)	Time of A.M. Renewal	Time of P.M. Renewal	Initials
6/26	09:00	1900	JJG, [illegible]
6/27	08:00	1900	JJG, [illegible]
6/28	08:00	1900	JJG, [illegible]
6/29	09:00	1900	[illegible] [illegible]
6/30	0730 11:30	1930	[illegible] JJG [illegible]
7/1	0855	1830	[illegible] [illegible]
7/2	08:30 18:00 for chronic	18:30	JJG JJG
7/3	08:30	19:00	JJG JJG
7/4	08:45	18:30	JJG JJG
7/5	08:45	19:00	JJG JJG
7/6	08:00	20:00	JJG JJG
7/7	08:00	1900	JJG [illegible]
7/8	09:00	18:45	[illegible] JJG JJG
7/9	08:00	19:00	[illegible] [illegible]
7/10	900	1900	SA SA
7/11	9:00	1845	CC SA
7/12	8:00	1930	CC [illegible]
7/13	08:30	1900	JJG SA
7/14	09:00	1900	[illegible] SA
7/15	9:00	19:00	CC JJG
7/16	9:00	1900	CC SAT
7/17	09:00	08:30 pm	JJG JJG
7/18	09:00	1900	J CCM
7/19	08:30	19:30	[illegible] JJG
7/20	08:00	19:00	[illegible] SAT
7/21	8:30	19:00	CC JJG
7/22	07:30	1830	JJG SAT
7/23	08:30	19:30	JJG JJG
7/24	08:00	1900	JJG SAT
7/25	09:00	1915	JJG [illegible]
7/26	08:30	19:30	JJG JJG
7/28	08:00	19:00	[illegible] JJG
7/29	08:30	1900	JJG [illegible] SAT
7/30	08:30	19:00	JJG SAT
7/31	09:00	19:00	JJG JJG

Manual Renewal for *C. tentans / H. azteca*

Date (1999)	Time of A.M. Renewal	Time of P.M. Renewal	Initials
8/1	09:00	19:00	JJG
8/2	08:30	19:00	JJG
8/3	07:30	19:00	JJG SAT
8/4	09:30	19:30	JJG JJG
8/5	08:55	19:00	SAT
8/6	08:30		JJG
8/7	09:30	2030	
8/8	09:45	1915	
8/9	0830	19:00	JJG
8/10	08:30	20:00	JJG
8/11	0930	19:00	SAT
8/12	0930	19:00	SAT SAT
8/13	08:00	22:00	JJG SAT
8/14	09:30	19:00	JJG Ryan
8/15	09:30	19:00	JJG JJG
8/16	08:30	19:00	JM JJG
8/17	08:30	20:00	JM SAT
8/18	08:30		JM
8/19			
8/20			
8/21			
8/22			
8/23			
8/24			
8/25			
8/26			
8/27			
8/28			
8/29			
8/30			
8/31			

APPENDIX D

CLICK TO CONTINUE

Reference Toxicant Control Chart
Hyalella azteca
in Potassium chloride (mg/L)

Test Number	Test Date	Organism Age (Days)	96-Hr. LC50	Mean LC50	Lower Limit	Upper Limit	Organism Source
1	12/20/97	10	250.000	250.00			Env. Consult & Testing
2	04/15/98	8	340.198	295.10	167.54	422.66	Env. Consult & Testing
3	04/17/98	10	340.198	310.13	205.98	414.28	Env. Consult & Testing
4	08/04/98	14	561.231	372.91	107.80	638.02	Env. Consult & Testing
5	06/22/98	10	353.553	369.04	138.79	599.28	Env. Consult & Testing
6	09/13/98	11	347.163	365.39	158.68	572.10	Env. Consult & Testing
7	10/26/98	12	324.210	359.51	168.26	550.76	Env. Consult & Testing
8	11/13/98	10	183.717	337.53	121.20	553.87	Env. Consult & Testing
9	02/19/99	9	353.553	339.31	136.57	541.96	Env. Consult & Testing
10	05/13/99	8	280.616	333.44	138.81	528.07	Env. Consult & Testing
11	06/21/99	12	353.553	335.27	150.23	520.31	Env. Consult & Testing
12	06/25/99	14	297.302	332.11	154.32	509.89	Env. Consult & Testing
13	06/28/99	10	280.616	328.15	155.55	500.74	Env. Consult & Testing
14	07/02/99	7	195.425	318.88	139.14	498.62	Env. Consult & Testing
15	07/07/99	8	378.929	322.88	146.93	498.84	Env. Consult & Testing
16	07/07/99	7	176.777	313.75	128.73	498.77	Aquatic Research Organisms
17	09/13/99	11	250.000	310.00	128.21	491.80	Aquatic Research Organisms
18	10/08/99	9	210.224	304.46	121.93	486.99	Aquatic Research Organisms
19	10/23/99	13	280.616	303.20	125.48	480.93	Aquatic Research Organisms
20	10/23/99	9	353.553	305.72	131.28	480.17	Aquatic Research Organisms