BIOLOGICAL MONITORING REPORT FOR NL INDUSTRIES SUPERFUND SITE IN PEDRICKTOWN, NEW JERSEY – YEAR 2004

-- Volume II --

Prepared for:

Pedricktown Site Group
% Leed Environmental, Inc.
Van Reed Office Plaza
2209 Quarry Drive, Suite C-35
Reading, PA 19609

Prepared by:

CDR Environmental Specialists, Inc.
Suite 1103
6001 N. Ocean Drive
Hollywood, Florida 33019-4618

June 2005

280071

INTRODUCTION

This volume (Volume II) of the 2004 biological monitoring report for the NL Industries Superfund Site in Pedricktown, New Jersey, consists of three appendices that contain the laboratory reports that constitute the basis of the main report (Volume I).

These appendices sequentially address: 1) chemical analyses; 2) macrobenthos analyses; and 3) toxicological analyses.

CDR Appendix

CHEMICAL ANALYSES

SEVERN TRENT STL

STL Mobile 900 Lakeside Drive - Mobile AL 36693 Telephone:(251) 666-6633 Fax:(251) 666-6696

Analytical Report

For: Mr. Curt Rose
CDR Environmental Specialists, Inc.
6001 N. Ocean Drive - Unit 1103
Hollywood, FL 33019-4618
CC:

Order Number: M437247
SDG Number:
Client Project ID:
Project: Pedricktown
Report Date: 09/27/2004
Sampled By: Client
Sample Received Date: 09/21/2004
Requisition Number:
Purchase Order:

9/28/04

Dale Darley, Project Manager
ddarley@stl-inc.com

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

SEVERN TRENT STL

STL Mobile 900 Lakeside Drive - Mobile AL 36693 Telephone:(251) 666-6633 Fax:(251) 666-6696

Sample Summary

Order: M437247
Date Received: 09/21/2004

Client: CDR Environmental Specialists, Inc.
Project: Pedricktown

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
1	M437247*1	Liquid	09/20/2004 11:10
2	M437247*2	Liquid	09/20/2004 11:30
3	M437247*3	Liquid	09/20/2004 11:20
4	M437247*4	Liquid	09/20/2004 11:40
5	M437247*5	Liquid	09/20/2004 10:34
6	M437247*6	Liquid	09/20/2004 10:30
7	M437247*7	Liquid	09/20/2004 10:10
8	M437247*8	Liquid	09/20/2004 10:00
9	M437247*9	Liquid	09/20/2004 09:40
10	M437247*10	Liquid	09/20/2004 09:25
11	M437247*11	Liquid	09/20/2004 10:45
12	M437247*12	Liquid	09/20/2004 11:00

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37247-1	1	Liquid	09/21/04	09/20/04 11:10	
37247-2	2	Liquid	09/21/04	09/20/04 11:30	
37247-3	3	Liquid	09/21/04	09/20/04 11:20	
37247-4	4	Liquid	09/21/04	09/20/04 11:40	
37247-5	5	Liquid	09/21/04	09/20/04 10:34	

Parameter	Units	Lab Sample IDs 37247-1	37247-2	37247-3	37247-4	37247-5
Suspended Solids (160.2)						
Suspended Solids	mg/l	36	21	8.0	9.0	9.0
Analysis Date		09/21/04	09/21/04	09/21/04	09/21/04	09/21/04
Analysis Time		16:10	16:10	16:10	16:10	16:10
Analyst		BK	BK	BK	BK	BK
Lead (6010B)						
Lead	mg/l	0.036	0.027	0.013	0.0083	<0.0050
Analysis Date		09/22/04	09/22/04	09/22/04	09/22/04	09/22/04
Analysis Time		18:30	18:30	18:30	18:30	18:30
Analyst		NR	NR	NR	NR	NR
Lead (Dissolved) (6010)						
Lead (Dissolved)	mg/l	0.017	0.012	0.0052	<0.0050	<0.0050
Analysis Date		09/22/04	09/22/04	09/22/04	09/22/04	09/22/04
Analysis Time		20:35	20:35	20:35	20:35	20:35
Analyst		NR	NR	NR	NR	NR
Hardness as CaCO3 (SM2340B)						
Hardness as CaCO3	mg/l	64	84	100	130	140
Analysis Date		09/22/04	09/22/04	09/22/04	09/22/04	09/22/04
Analysis Time		18:30	18:30	18:30	18:30	18:30
Analyst		NR	NR	NR	NR	NR

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37247-6	6	Liquid	09/21/04	09/20/04 10:30	
37247-7	7	Liquid	09/21/04	09/20/04 10:10	
37247-8	8	Liquid	09/21/04	09/20/04 10:00	
37247-9	9	Liquid	09/21/04	09/20/04 09:40	
37247-10	10	Liquid	09/21/04	09/20/04 09:25	

Parameter	Units	Lab Sample IDs 37247-6	37247-7	37247-8	37247-9	37247-10
Suspended Solids (160.2)						
Suspended Solids	mg/l	13	7.0	22	16	19
Analysis Date		09/21/04	09/21/04	09/21/04	09/21/04	09/21/04
Analysis Time		16:10	16:10	16:10	16:10	16:10
Analyst		BK	BK	BK	BK	BK
Lead (6010B)						
Lead	mg/l	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Analysis Date		09/22/04	09/22/04	09/22/04	09/22/04	09/22/04
Analysis Time		18:30	18:30	18:30	18:30	18:30
Analyst		NR	NR	NR	NR	NR
Lead (Dissolved) (6010)						
Lead (Dissolved)	mg/l	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Analysis Date		09/22/04	09/22/04	09/23/04	09/23/04	09/23/04
Analysis Time		20:35	20:35	15:13	15:13	15:13
Analyst		NR	NR	NR	NR	NR
Hardness as CaCO3 (SM2340B)						
Hardness as CaCO3	mg/l	130	120	110	79	74
Analysis Date		09/22/04	09/22/04	09/22/04	09/22/04	09/22/04
Analysis Time		18:30	18:30	18:30	18:30	18:30
Analyst		NR	NR	NR	NR	NR

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37247-11	11	Liquid	09/21/04	09/20/04 10:45	
37247-12	12	Liquid	09/21/04	09/20/04 11:00	

Parameter	Units	Lab Sample IDs 37247-11	37247-12
Suspended Solids (160.2)			
Suspended Solids	mg/l	21	19
Analysis Date		09/21/04	09/21/04
Analysis Time		16:10	16:10
Analyst		BK	BK
Lead (6010B)			
Lead	mg/l	<0.0050	<0.0050
Analysis Date		09/22/04	09/22/04
Analysis Time		18:30	18:30
Analyst		NR	NR
Lead (Dissolved) (6010)			
Lead (Dissolved)	mg/l	<0.0050	<0.0050
Analysis Date		09/23/04	09/23/04
Analysis Time		15:13	15:13
Analyst		NR	NR
Hardness as CaCO3 (SM2340B)			
Hardness as CaCO3	mg/l	180	65
Analysis Date		09/22/04	09/22/04
Analysis Time		18:30	18:30
Analyst		NR	NR

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37247-13	Method Blank	Liquid	09/21/04		
37247-14	Lab Control Standard % Recovery	Liquid	09/21/04		
37247-15	Precision (%RPD) of LCS/LCSD	Liquid	09/21/04		

Parameter	Units	Lab Sample IDs 37247-13	37247-14	37247-15
Suspended Solids (160.2)				
Suspended Solids	mg/l	<2.0	103 %	1.9 %
Analysis Date		09/21/04	09/21/04	
Analysis Time		16:10	16:10	
Analyst		BK	BK	
Lead (6010B)				
Lead	mg/l	<0.0050	96 %	1.0 %
Analysis Date		09/22/04	09/22/04	
Analysis Time		18:30	18:30	
Analyst		NR	NR	
Hardness as CaCO3 (SM2340B)				
Hardness as CaCO3	mg/l	<3.3	94 %	1.1 %
Analysis Date		09/22/04	09/22/04	
Analysis Time		18:30	18:30	
Analyst		NR	NR	

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Order Number: M437247

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

Serial Number 10320

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN TRENT **STL**

✓ STL Mobile
900 Lakeside Drive
Mobile, AL 36693

Website: www.stl-inc.com
Phone: (251) 666-6633
Fax: (251) 666-6696

○ Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: Pedricktown	PROJECT NO.	PROJECT LOCATION (STATE): NJ
SAMPLER'S SIGNATURE: [signature]	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM	CLIENT PHONE: 954-927-1165	CLIENT FAX
CLIENT NAME: Curt Rose	CLIENT E-MAIL: clrose@gowdoway.com	
CLIENT ADDRESS		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ✓

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	Total lead; hardness	Dissolved lead	TSS	REMARKS
9/20/04	~~1110~~ ~~925~~	1	G	✓				1	1	1	36 bottles
	~~1130~~ ~~940~~	2									
	~~1138~~ ~~1000~~	3									
	1140	4									
	1034	5									
	1030	6									
	1010	7									
	1000	8									
	940	9									
	925	10									
	1045	11									
	1100	12									

NUMBER OF CONTAINERS SUBMITTED

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	9/20/04	1500						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
Federal Express								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL MOBILE LOG NO.	LABORATORY REMARKS
Erik Pedgett	9.21.04	1140	YES ○ NO ○		M43247	5.0°C

STL 8240 700 (12/02)

SEVERN TRENT STL

STL Mobile 900 Lakeside Drive - Mobile AL 36693 Telephone:(251) 666-6633 Fax:(251) 666-6696

Analytical Report

For: Mr. Curt Rose
CDR Environmental Specialists, Inc.
6001 N. Ocean Drive - Unit 1103
Hollywood, FL 33019-4618
CC:

Order Number: M437337
SDG Number:
Client Project ID:
Project: Pedricktown
Report Date: 10/06/2004
Sampled By: Client
Sample Received Date: 09/23/2004
Requisition Number:
Purchase Order:

10/8/04

Dale Darley, Project Manager
ddarley@stl-inc.com

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STL Mobile 900 Lakeside Drive - Mobile AL 36693 Telephone:(251) 666-6633 Fax:(251) 666-6696

Sample Summary

Order: M437337
Date Received: 09/23/2004

Client: CDR Environmental Specialists, Inc.
Project: Pedricktown

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
1	M437337*1	Solid	09/20/2004 00:00
2	M437337*2	Solid	09/20/2004 00:00
3	M437337*3	Solid	09/20/2004 00:00
4	M437337*4	Solid	09/20/2004 00:00
5	M437337*5	Solid	09/21/2004 00:00
6	M437337*6	Solid	09/21/2004 00:00
7	M437337*7	Solid	09/21/2004 00:00
8	M437337*8	Solid	09/21/2004 00:00
9	M437337*9	Solid	09/21/2004 00:00
10	M437337*10	Solid	09/21/2004 00:00
11	M437337*11	Solid	09/21/2004 00:00
12	M437337*12	Solid	09/20/2004 00:00
2-RP	M437337*13	Solid	09/20/2004 00:00
2-EM	M437337*14	Solid	09/20/2004 00:00
2-C	M437337*15	Solid	09/20/2004 00:00
3-EM	M437337*16	Solid	09/20/2004 00:00
3-C	M437337*17	Solid	09/20/2004 00:00
3-BSS	M437337*18	Solid	09/20/2004 00:00
4-C	M437337*19	Solid	09/20/2004 00:00
4-BB	M437337*20	Solid	09/20/2004 00:00
4-P	M437337*21	Solid	09/20/2004 00:00
5-BSS	M437337*22	Solid	09/20/2004 00:00
5-BG	M437337*23	Solid	09/20/2004 00:00
6-P	M437337*24	Solid	09/20/2004 00:00
6-C	M437337*25	Solid	09/20/2004 00:00
7-P	M437337*26	Solid	09/20/2004 00:00
7-BSS	M437337*27	Solid	09/20/2004 00:00
7-RP	M437337*28	Solid	09/20/2004 00:00
7-C	M437337*29	Solid	09/20/2004 00:00
7-BB	M437337*30	Solid	09/20/2004 00:00
8-RP	M437337*31	Solid	09/20/2004 00:00
8-C	M437337*32	Solid	09/20/2004 00:00
9-P	M437337*33	Solid	09/20/2004 00:00
9-BSS	M437337*34	Solid	09/20/2004 00:00
10-P	M437337*35	Solid	09/20/2004 00:00
10-S	M437337*36	Solid	09/20/2004 00:00
11-EM	M437337*37	Solid	09/20/2004 00:00
11-BSS	M437337*38	Solid	09/20/2004 00:00
12-MC	M437337*39	Solid	09/20/2004 00:00
12-WP	M437337*40	Solid	09/20/2004 00:00

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-1	1	Solid	09/23/04	09/20/04 00:00	
37337-2	2	Solid	09/23/04	09/20/04 00:00	
37337-3	3	Solid	09/23/04	09/20/04 00:00	
37337-4	4	Solid	09/23/04	09/20/04 00:00	
37337-5	5	Solid	09/23/04	09/21/04 00:00	

Parameter	Units	Lab Sample IDs 37337-1	37337-2	37337-3	37337-4	37337-5
Total Organic Carbon (9060)						
Total Organic Carbon	mg/kg dw	58000	180000	280000	130000	29000
Percent Solids		22	15	17	50	27
Analysis Date		09/29/04	09/29/04	09/29/04	09/29/04	09/29/04
Analysis Time		13:19	13:29	18:23	13:52	14:02
Analyst		KB	KB	KB	KB	KB
Lead (6010B)						
Lead	mg/kg dw	1400	860	180	190	73
Percent Solids		22	15	17	50	27
Analysis Date		10/01/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		03:12	21:18	21:18	21:18	21:18
Analyst		NR	NR	NR	NR	NR
pH (9045)						
pH	units	6.4	6.7	5.8	6.2	6.7
Percent Solids		22	15	17	50	27
Analysis Date		09/29/04	09/29/04	09/29/04	09/29/04	09/29/04
Analysis Time		16:55	16:55	16:55	16:55	16:55
Analyst		MPG	MPG	MPG	MPG	MPG

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-1	1	Solid	09/23/04	09/20/04 00:00	
37337-2	2	Solid	09/23/04	09/20/04 00:00	
37337-3	3	Solid	09/23/04	09/20/04 00:00	
37337-4	4	Solid	09/23/04	09/20/04 00:00	
37337-5	5	Solid	09/23/04	09/21/04 00:00	

Parameter	Units	Lab Sample IDs 37337-1	37337-2	37337-3	37337-4	37337-5
Particle Size Distribution (STL)						
Particle Size Distribution		*	*	*	*	*
Percent Solids		22	15	17	50	27

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-6	6	Solid	09/23/04	09/21/04 00:00	
37337-7	7	Solid	09/23/04	09/21/04 00:00	
37337-8	8	Solid	09/23/04	09/21/04 00:00	
37337-9	9	Solid	09/23/04	09/21/04 00:00	
37337-10	10	Solid	09/23/04	09/21/04 00:00	

Parameter	Units	Lab Sample IDs 37337-6	37337-7	37337-8	37337-9	37337-10
Total Organic Carbon (9060)						
Total Organic Carbon	mg/kg dw	4400	12000	4500	44000	7500
Percent Solids		61	41	74	39	71
Analysis Date		09/29/04	09/29/04	09/29/04	09/29/04	09/29/04
Analysis Time		14:12	14:23	14:51	15:02	15:12
Analyst		KB	KB	KB	KB	KB
Lead (6010B)						
Lead	mg/kg dw	31	98	20	81	27
Percent Solids		61	41	74	39	71
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		21:18	21:18	21:18	21:18	21:18
Analyst		NR	NR	NR	NR	NR
pH (9045)						
pH	units	6.7	6.5	7.0	6.2	6.4
Percent Solids		61	41	74	39	71
Analysis Date		09/29/04	09/29/04	09/29/04	09/29/04	09/29/04
Analysis Time		16:55	16:55	16:55	16:55	16:55
Analyst		MPG	MPG	MPG	MPG	MPG

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-6	6	Solid	09/23/04	09/21/04 00:00	
37337-7	7	Solid	09/23/04	09/21/04 00:00	
37337-8	8	Solid	09/23/04	09/21/04 00:00	
37337-9	9	Solid	09/23/04	09/21/04 00:00	
37337-10	10	Solid	09/23/04	09/21/04 00:00	

Parameter	Units	Lab Sample IDs 37337-6	37337-7	37337-8	37337-9	37337-10
Particle Size Distribution (STL)						
Particle Size Distribution		*	*	*	*	*
Percent Solids		61	41	74	39	71

SEVERN TRENT STL

STL Mobile 900 Lakeside Drive - Mobile AL 36693 Telephone:(251) 666-6633 Fax:(251) 666-6696

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-11	11	Solid	09/23/04	09/21/04 00:00	
37337-12	12	Solid	09/23/04	09/20/04 00:00	

Parameter	Units	Lab Sample IDs 37337-11	37337-12
Total Organic Carbon (9060)			
Total Organic Carbon	mg/kg dw	24000	38000
Percent Solids		36	41
Analysis Date		09/29/04	09/29/04
Analysis Time		15:23	15:33
Analyst		KB	KB
Lead (6010B)			
Lead	mg/kg dw	24	62
Percent Solids		36	41
Analysis Date		09/28/04	09/28/04
Analysis Time		21:18	21:18
Analyst		NR	NR
pH (9045)			
pH	units	6.6	6.2
Percent Solids		36	41
Analysis Date		09/29/04	09/29/04
Analysis Time		16:55	16:55
Analyst		MPG	MPG
Particle Size Distribution (STL)			
Particle Size Distribution		*	*
Percent Solids		36	41

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-13	2-RP	Solid	09/23/04	09/20/04 00:00	
37337-14	2-EM	Solid	09/23/04	09/20/04 00:00	
37337-15	2-C	Solid	09/23/04	09/20/04 00:00	
37337-16	3-EM	Solid	09/23/04	09/20/04 00:00	
37337-17	3-C	Solid	09/23/04	09/20/04 00:00	

Parameter	Units	Lab Sample IDs 37337-13	37337-14	37337-15	37337-16	37337-17
Lead (6010B)						
Lead	mg/kg dw	5.4	4.4	19	5.2	7.2
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		21:18	21:18	21:18	21:18	21:18
Analyst		NR	NR	NR	NR	NR
Total Solids (160.3)						
Total Solids	%	23 %	24 %	22 %	24 %	18 %
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		09:00	09:00	09:00	09:00	09:00
Analyst		KD	KD	KD	KD	KD

SEVERN TRENT STL

STL Mobile 900 Lakeside Drive - Mobile AL 36693 Telephone:(251) 666-6633 Fax:(251) 666-6696

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-18	3-BSS	Solid	09/23/04	09/20/04 00:00	
37337-19	4-C	Solid	09/23/04	09/20/04 00:00	
37337-20	4-BB	Solid	09/23/04	09/20/04 00:00	
37337-21	4-P	Solid	09/23/04	09/20/04 00:00	
37337-22	5-BSS	Solid	09/23/04	09/20/04 00:00	

Parameter	Units	Lab Sample IDs 37337-18	37337-19	37337-20	37337-21	37337-22
Lead (6010B)						
Lead	mg/kg dw	3.9	3.0	4.7	1.0	0.59
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		21:18	21:18	21:18	21:18	21:18
Analyst		NR	NR	NR	NR	NR
Total Solids (160.3)						
Total Solids	%	27 %	26 %	21 %	38 %	27 %
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		09:00	09:00	09:00	09:00	09:00
Analyst		KD	KD	KD	KD	KD

SEVERN TRENT STL

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-23	5-BG	Solid	09/23/04	09/20/04 00:00	
37337-24	6-P	Solid	09/23/04	09/20/04 00:00	
37337-25	6-C	Solid	09/23/04	09/20/04 00:00	
37337-26	7-P	Solid	09/23/04	09/20/04 00:00	
37337-27	7-BSS	Solid	09/23/04	09/20/04 00:00	

Parameter	Units	Lab Sample IDs 37337-23	37337-24	37337-25	37337-26	37337-27
Lead (6010B)						
Lead	mg/kg dw	0.62	1.8	1.7	<0.50	0.58
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		21:18	21:18	21:18	21:18	21:18
Analyst		NR	NR	NR	NR	NR
Total Solids (160.3)						
Total Solids	%	26 %	29 %	19 %	29 %	27 %
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		09:00	09:00	09:00	09:00	09:00
Analyst		KD	KD	KD	KD	KD

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-28	7-RP	Solid	09/23/04	09/20/04 00:00	
37337-29	7-C	Solid	09/23/04	09/20/04 00:00	
37337-30	7-BB	Solid	09/23/04	09/20/04 00:00	
37337-31	8-RP	Solid	09/23/04	09/20/04 00:00	
37337-32	8-C	Solid	09/23/04	09/20/04 00:00	

Parameter	Units	Lab Sample IDs 37337-28	37337-29	37337-30	37337-31	37337-32
Lead (6010B)						
Lead	mg/kg dw	0.50	4.4	0.81	2.2	1.0
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		21:18	21:18	21:18	21:18	21:18
Analyst		NR	NR	NR	NR	NR
Total Solids (160.3)						
Total Solids	%	22 %	22 %	22 %	22 %	21 %
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		09:00	09:00	09:00	09:00	09:00
Analyst		KD	KD	KD	KD	KD

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-33	9-P	Solid	09/23/04	09/20/04 00:00	
37337-34	9-BSS	Solid	09/23/04	09/20/04 00:00	
37337-35	10-P	Solid	09/23/04	09/20/04 00:00	
37337-36	10-S	Solid	09/23/04	09/20/04 00:00	
37337-37	11-EM	Solid	09/23/04	09/20/04 00:00	

Parameter	Units	Lab Sample IDs 37337-33	37337-34	37337-35	37337-36	37337-37
Lead (6010B)						
Lead	mg/kg dw	0.72	0.83	<0.50	<0.50	1.1
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		21:18	21:18	21:18	21:18	21:18
Analyst		NR	NR	NR	NR	NR
Total Solids (160.3)						
Total Solids	%	27 %	28 %	29 %	23 %	24 %
Analysis Date		09/28/04	09/28/04	09/28/04	09/28/04	09/28/04
Analysis Time		09:00	09:00	09:00	09:00	09:00
Analyst		KD	KD	KD	KD	KD

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Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-38	11-BSS	Solid	09/23/04	09/20/04 00:00	
37337-39	12-MC	Solid	09/23/04	09/20/04 00:00	
37337-40	12-WP	Solid	09/23/04	09/20/04 00:00	

Parameter	Units	Lab Sample IDs 37337-38	37337-39	37337-40
Lead (6010B)				
Lead	mg/kg dw	0.57	0.75	0.96
Analysis Date		09/28/04	09/28/04	09/28/04
Analysis Time		21:18	21:18	21:18
Analyst		NR	NR	NR
Total Solids (160.3)				
Total Solids	%	28 %	26 %	24 %
Analysis Date		09/28/04	09/28/04	09/28/04
Analysis Time		09:00	09:00	09:00
Analyst		KD	KD	KD

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STL Mobile 900 Lakeside Drive - Mobile AL 36693 Telephone:(251) 666-6633 Fax:(251) 666-6696

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
37337-41	Method Blank	Solid	09/23/04		
37337-42	Lab Control Standard % Recovery	Solid	09/23/04		
37337-43	Precision (%RPD) of LCS/LCSD	Solid	09/23/04		

Parameter	Units	Lab Sample IDs 37337-41	37337-42	37337-43
Total Organic Carbon (9060)				
Total Organic Carbon	mg/kg dw	<1000	96 %	0.26 %
Analysis Date		09/29/04	09/29/04	
Analysis Time		12:44	12:52	
Analyst		KB	KB	
Lead (6010B)				
Lead	mg/kg dw	<0.50	90 %	2.2 %
Analysis Date		09/28/04	09/28/04	
Analysis Time		21:18	21:18	
Analyst		NR	NR	

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Order Number: M437337

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

* Subcontracted to STL Burlington. See attached report.

SEVERN TRENT STL

STL Burlington
208 South Park Drive, Suite 1
Colchester, VT 05446

Tel: 802 655 1203 Fax: 802 655 1248
www.stl-inc.com

October 1, 2004

Mr. Dale Darley
Severn Trent Laboratories
900 Lakeside Drive
Mobile, AL 36693

Re: Laboratory Project No.: 24023
Case: 24023 ETR: 102619

Dear Mr. Darley:

Enclosed are the analytical results for samples received by STL Burlington on September 24, 2004. This report is sequentially numbered starting with page 0001 and ending with page 0015.

Laboratory ID numbers were designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 09/24/04 ETR No: 102619		
588248	1	09/20/04	Solid
588249	2	09/20/04	Solid
588250	3	09/20/04	Solid
588251	4	09/20/04	Solid
588252	5	09/21/04	Solid
588253	6	09/21/04	Solid
588254	7	09/21/04	Solid
588255	8	09/21/04	Solid
588256	9	09/21/04	Solid
588257	10	09/21/04	Solid
588258	11	09/21/04	Solid
588259	12	09/20/04	Solid

ASTM Method D422 Modified (sieve only):
No exceptions to the method prescribed quality control criteria were observed during the analyses of the samples in this delivery group.

Client specified matrix spike/matrix spike duplicate samples were not analyzed or requested with the above samples. However, routine method quality control analyses were performed.

I certify that this package is in compliance with the NELAC requirements, both technically and for completeness, for other than the conditions detailed above. The release of the data contained in this hardcopy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

If there are any questions regarding this test report, please contact Ron Pentkowski at (802) 655-1203

Sincerely,

Ron Pentkowski for

Michael F. Wheeler, Ph.D.
Laboratory Director

Enclosure

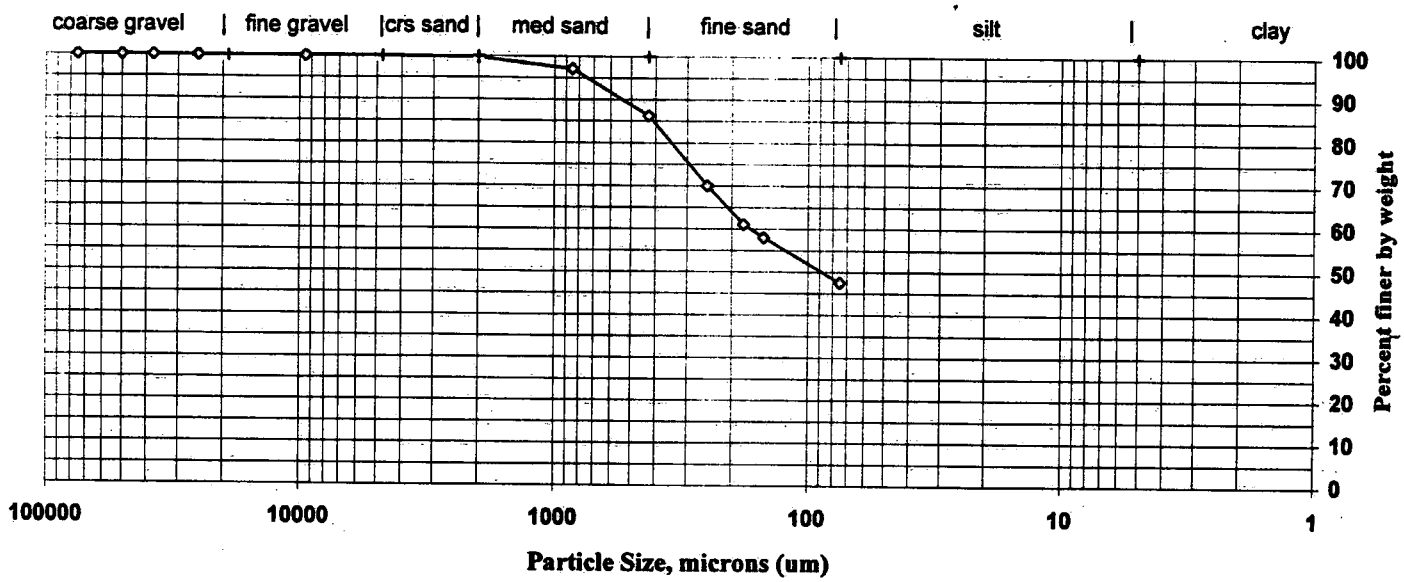
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	**Project No.:**	24023	**ETR(s) #:**	102619
Client Code:	STLALM	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	24-Sep-04	**Start Date:**	1-Sep-04	**End Date:**	1-Oct-04

Lab ID: 588248 **Sample ID:** 1

Percent Solids:	25.3%		**Maximum Particle Size:**	Crs sand
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	angular
Non-soil mass:	4.8%		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.7	0.3
#20	850	97.1	2.6
#40	425	86.2	10.9
#60	250	70.1	16.1
#80	180	61.0	9.0
#100	150	58.0	3.1
#200	75	47.5	10.5
Hydrometer	0.0	0.0	47.5
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	52.5
Coarse Sand	0.3
Medium Sand	13.5
Fine Sand	38.7
Fines	47.5

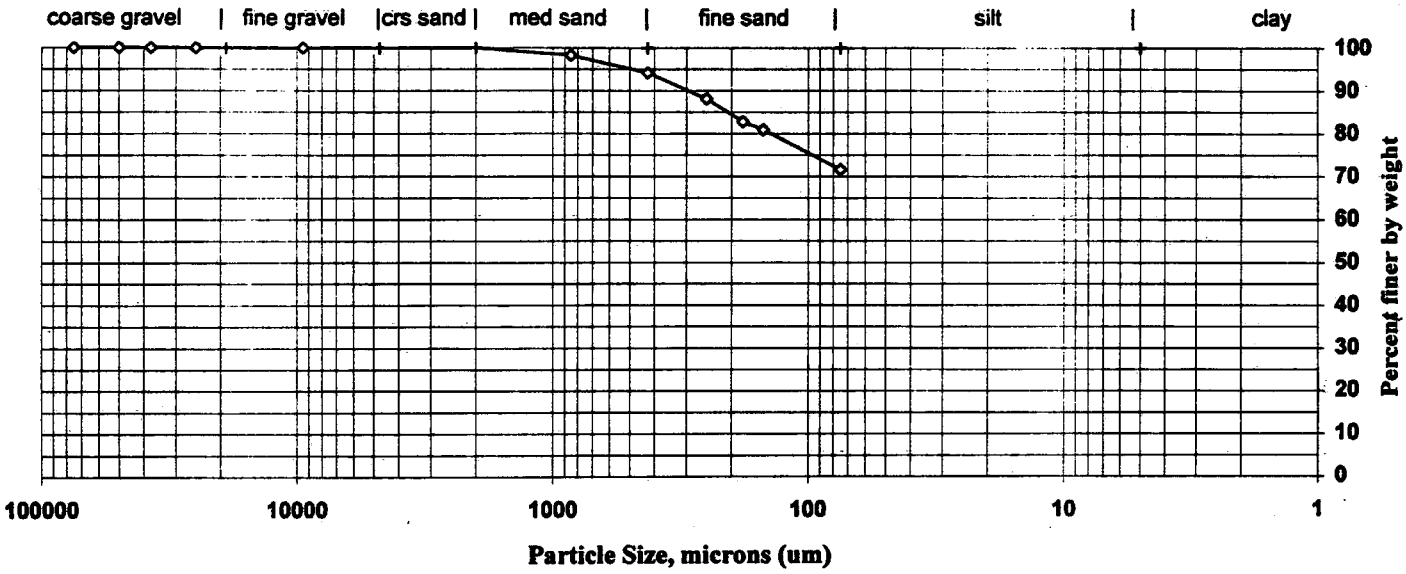
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	Project No.:	24023	ETR(s) #:	102619
Client Code:	STLALM	Job No.:	N/A	SDG(s):	N/A
Date Received:	24-Sep-04	Start Date:	1-Sep-04	End Date:	1-Oct-04

Lab ID: 588249 **Sample ID:** 2

Percent Solids:	14.9%		Maximum Particle Size:	Med sand
Specific Gravity:	2.65	(assumed)	Shape (> #10):	N/A
Non-soil mass:	8.4%		Hardness (> #10):	N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	98.2	1.8
#40	425	94.2	4.1
#60	250	88.1	6.1
#80	180	82.8	5.3
#100	150	80.9	1.9
#200	75	71.6	9.2
Hydrometer	0.0	0.0	71.6
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	28.4
Coarse Sand	0.0
Medium Sand	5.8
Fine Sand	22.6
Fines	71.6

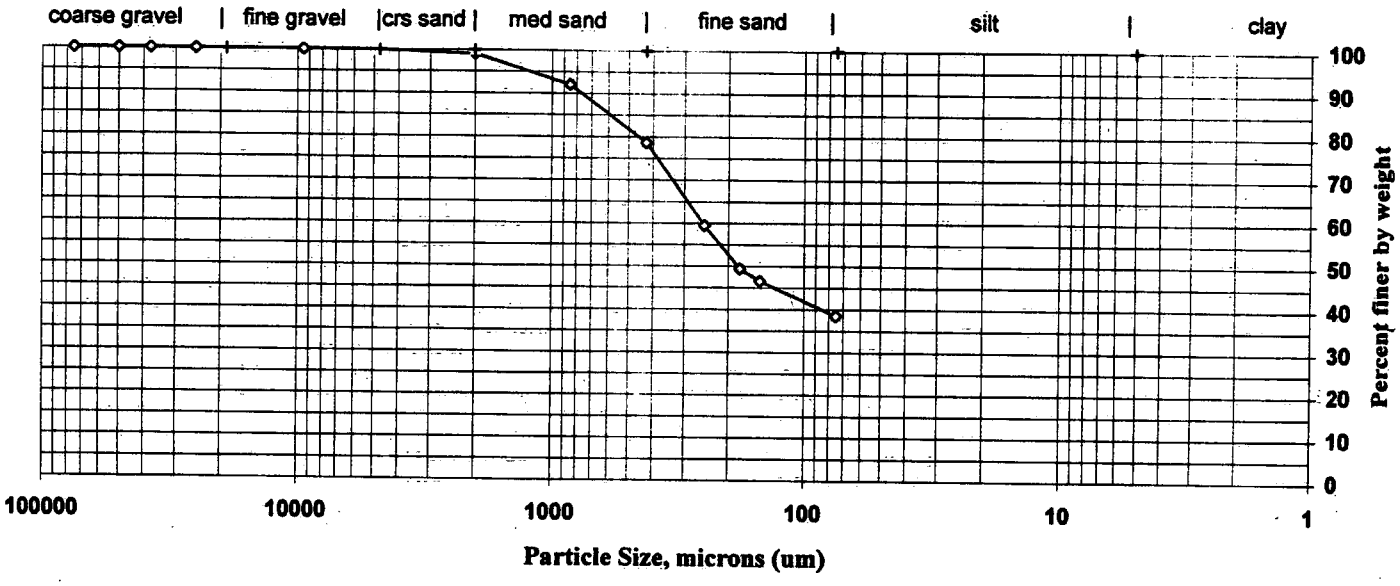
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	Project No.:	24023	ETR(s) #:	102619
Client Code:	STLALM	Job No.:	N/A	SDG(s):	N/A
Date Received:	24-Sep-04	Start Date:	1-Sep-04	End Date:	1-Oct-04

Lab ID: 588250 **Sample ID:** 3

Percent Solids:	19.9%	Maximum Particle Size:	Crs sand
Specific Gravity:	2.65 (assumed)	Shape (> #10):	angular
Non-soil mass:	4.7%	Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.1	0.9
#20	850	92.0	7.1
#40	425	78.6	13.4
#60	250	59.5	19.1
#80	180	49.4	10.1
#100	150	46.6	2.8
#200	75	38.6	8.0
Hydrometer	0.0	0.0	38.6
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	61.4
Coarse Sand	0.9
Medium Sand	20.5
Fine Sand	40.0
Fines	38.6

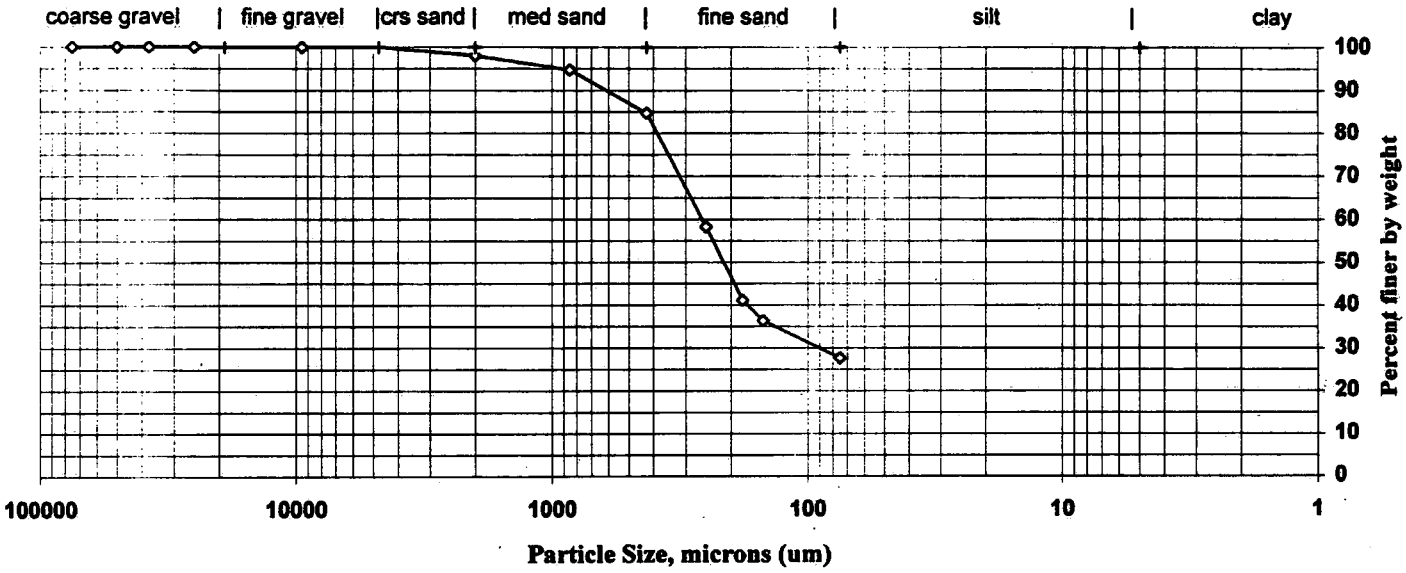
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	Project No.:	24023	ETR(s) #:	102619
Client Code:	STLALM	Job No.:	N/A	SDG(s):	N/A
Date Received:	24-Sep-04	Start Date:	1-Sep-04	End Date:	1-Oct-04

Lab ID: 588251 **Sample ID:** 4

Percent Solids:	38.1%		Maximum Particle Size:	Crs sand
Specific Gravity:	2.65	(assumed)	Shape (> #10):	angular
Non-soil mass:	6.2%		Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	98.0	2.0
#20	850	94.7	3.3
#40	425	84.7	10.0
#60	250	58.3	26.5
#80	180	41.1	17.2
#100	150	36.4	4.7
#200	75	27.7	8.7
Hydrometer	0.0	0.0	27.7
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	72.3
Coarse Sand	2.0
Medium Sand	13.3
Fine Sand	57.1
Fines	27.7

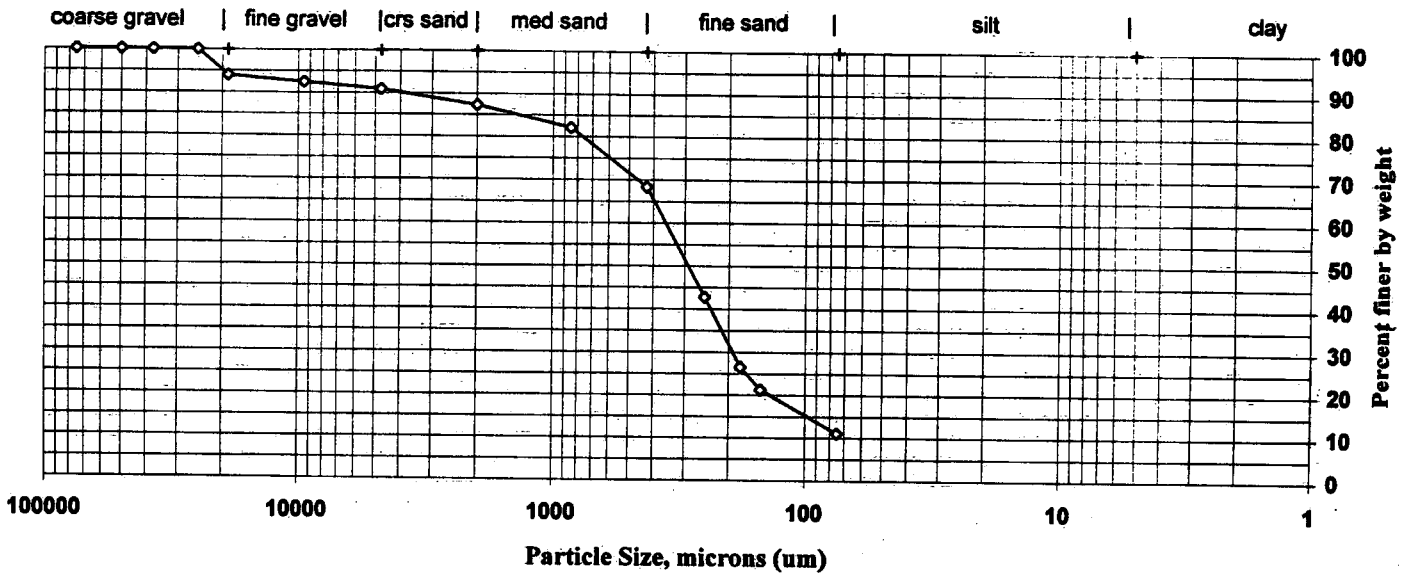
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	Project No.:	24023	ETR(s) #:	102619
Client Code:	STLALM	Job No.:	N/A	SDG(s):	N/A
Date Received:	24-Sep-04	Start Date:	1-Sep-04	End Date:	1-Oct-04

Lab ID: 588252 **Sample ID:** 5

Percent Solids:	48.7%		Maximum Particle Size:	25 mm
Specific Gravity:	2.65	(assumed)	Shape (> #10):	angular
Non-soil mass:	2.2%		Hardness (> #10):	brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	94.0	6.0
3/8 inch	9500	92.5	1.5
#4	4750	90.9	1.6
#10	2000	87.2	3.7
#20	850	82.1	5.1
#40	425	68.3	13.7
#60	250	42.7	25.6
#80	180	26.6	16.2
#100	150	21.3	5.3
#200	75	11.0	10.3
Hydrometer	0.0	0.0	11.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	9.1
Sand	79.9
Coarse Sand	3.7
Medium Sand	18.9
Fine Sand	57.3
Fines	11.0

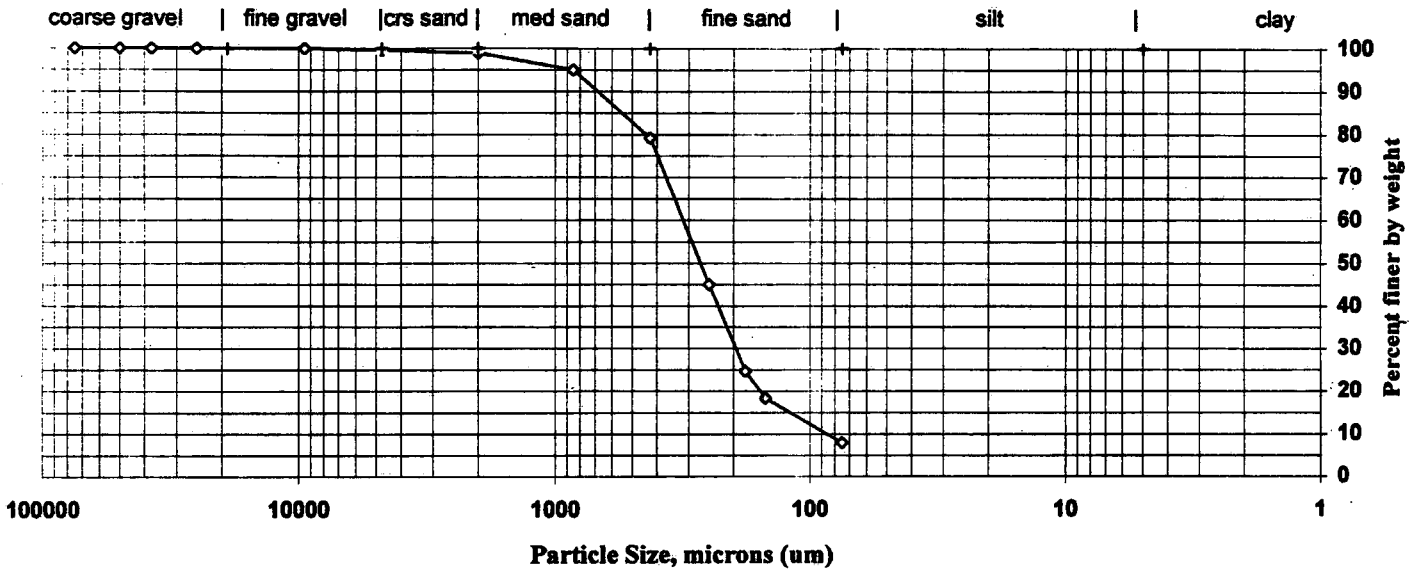
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	**Project No.:**	24023	**ETR(s) #:**	102619
Client Code:	STLALM	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	24-Sep-04	**Start Date:**	1-Sep-04	**End Date:**	1-Oct-04

Lab ID: 588253 **Sample ID:** 6

Percent Solids:	69.0%		**Maximum Particle Size:**	9.5 mm
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	angular
Non-soil mass:	0.6%		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.6	0.4
#10	2000	99.0	0.6
#20	850	95.0	4.0
#40	425	79.2	15.8
#60	250	45.0	34.2
#80	180	24.7	20.3
#100	150	18.4	6.3
#200	75	8.0	10.4
Hydrometer	0.0	0.0	8.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.4
Sand	91.6
Coarse Sand	0.6
Medium Sand	19.8
Fine Sand	71.2
Fines	8.0

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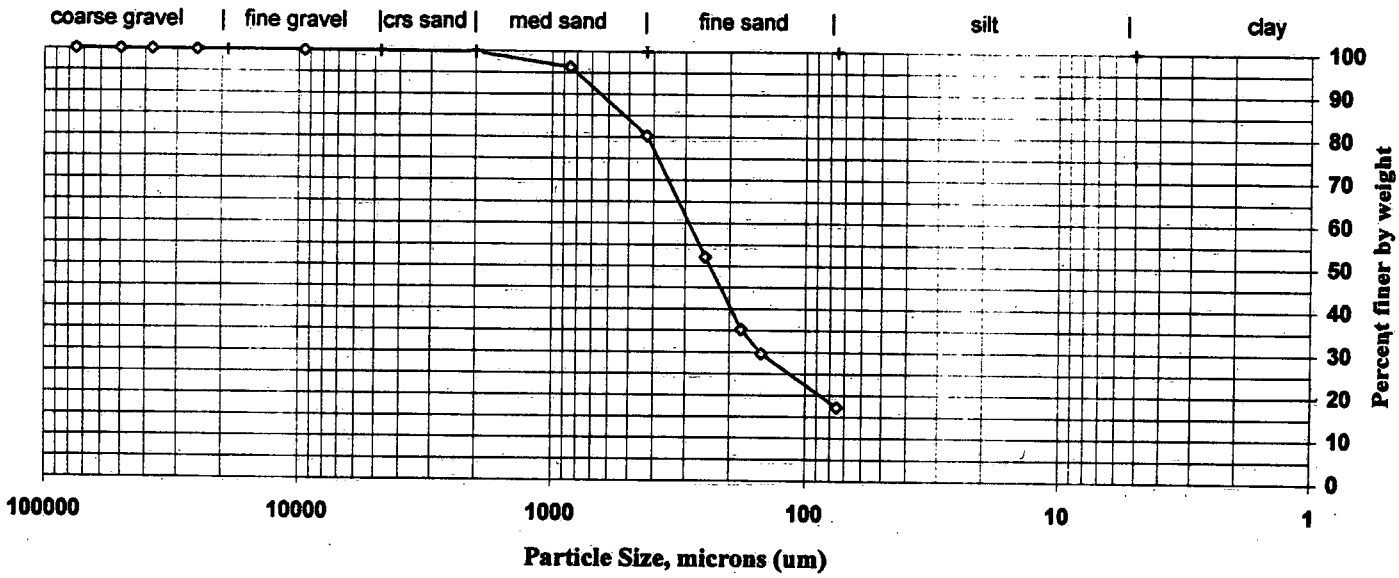
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	Project No.:	24023	ETR(s) #:	102619
Client Code:	STLALM	Job No.:	N/A	SDG(s):	N/A
Date Received:	24-Sep-04	Start Date:	1-Sep-04	End Date:	1-Oct-04

Lab ID: 588254 Sample ID: 7

Percent Solids:	66.9%		Maximum Particle Size:	Crs sand
Specific Gravity:	2.65	(assumed)	Shape (> #10):	angular
Non-soil mass:	0.3%		Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.8	0.2
#20	850	96.3	3.4
#40	425	80.3	16.1
#60	250	52.1	28.2
#80	180	35.2	16.9
#100	150	29.7	5.5
#200	75	17.3	12.4
Hydrometer	0.0	0.0	17.3
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	82.7
Coarse Sand	0.2
Medium Sand	19.5
Fine Sand	63.0
Fines	17.3

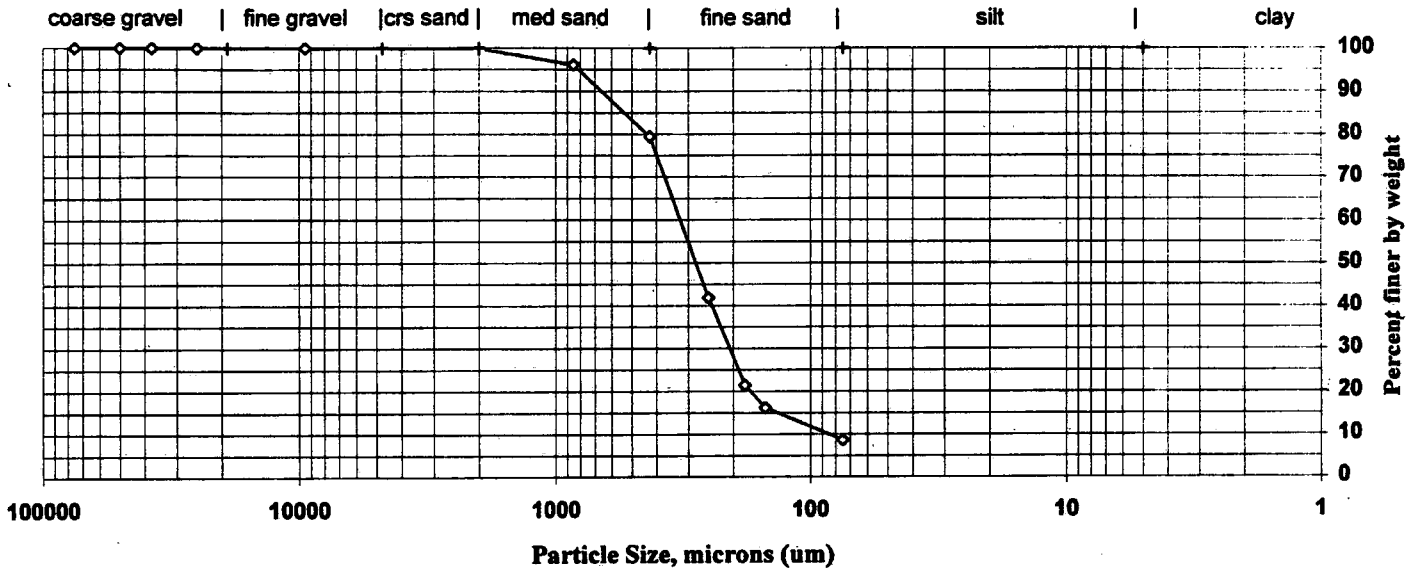
Particle Size of Soils by ASTM D422

Sample preparation method: **D2217**

Client:	STLALM	**Project No.:**	24023	**ETR(s) #:**	102619
Client Code:	STLALM	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	24-Sep-04	**Start Date:**	1-Sep-04	**End Date:**	1-Oct-04

Lab ID: 588255 **Sample ID:** 8

Percent Solids:	77.2%		**Maximum Particle Size:**	9.5 mm
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	angular
Non-soil mass:	N/A		**Hardness (> #10):**	brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.9	0.1
#10	2000	99.9	0.0
#20	850	96.1	3.8
#40	425	79.5	16.6
#60	250	41.9	37.6
#80	180	21.4	20.5
#100	150	16.2	5.2
#200	75	8.6	7.5
Hydrometer	0.0	0.0	8.6
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.1
Sand	91.3
Coarse Sand	0.0
Medium Sand	20.4
Fine Sand	70.8
Fines	8.6

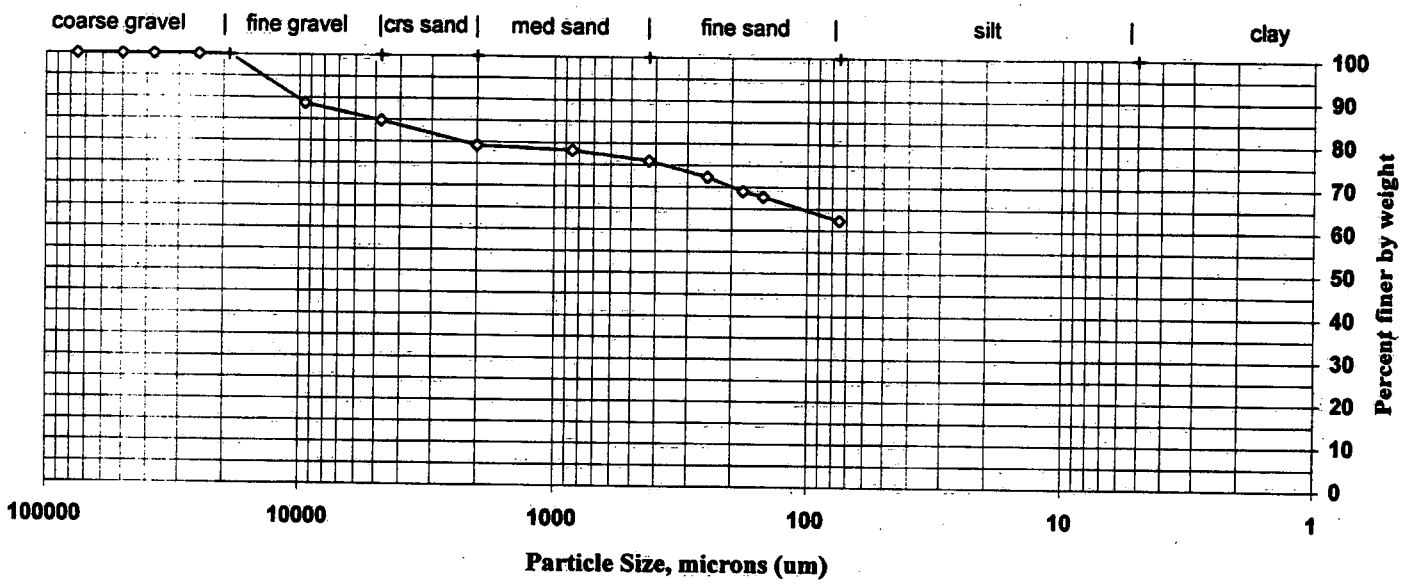
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	Project No.:	24023	ETR(s) #:	102619
Client Code:	STLALM	Job No.:	N/A	SDG(s):	N/A
Date Received:	24-Sep-04	Start Date:	1-Sep-04	End Date:	1-Oct-04

Lab ID: 588256 **Sample ID:** 9

Percent Solids:	38.9%		Maximum Particle Size:	19 mm
Specific Gravity:	2.65	(assumed)	Shape (> #10):	angular
Non-soil mass:	1.4%		Hardness (> #10):	brittle



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	88.7	11.3
#4	4750	84.8	3.9
#10	2000	79.2	5.6
#20	850	78.3	0.9
#40	425	75.9	2.3
#60	250	72.3	3.6
#80	180	69.1	3.2
#100	150	67.8	1.3
#200	75	62.4	5.4
Hydrometer	0.0	0.0	62.4
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	15.2
Sand	22.4
Coarse Sand	5.6
Medium Sand	3.3
Fine Sand	13.5
Fines	62.4

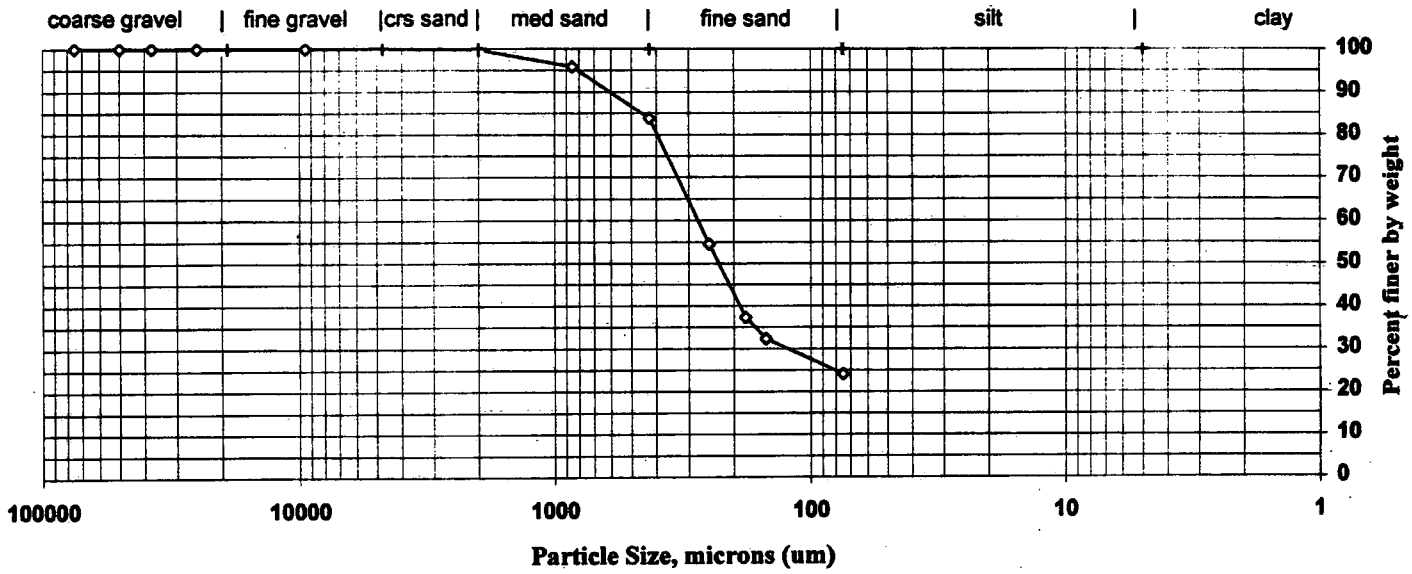
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	**Project No.:**	24023	**ETR(s) #:**	102619
Client Code:	STLALM	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	24-Sep-04	**Start Date:**	1-Sep-04	**End Date:**	1-Oct-04

Lab ID: 588257 **Sample ID:** 10

Percent Solids:	72.7%		**Maximum Particle Size:**	Crs sand
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	angular
Non-soil mass:	0.2%		**Hardness (> #10):**	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.7	0.3
#20	850	95.9	3.9
#40	425	83.8	12.1
#60	250	54.5	29.2
#80	180	37.2	17.3
#100	150	32.3	5.0
#200	75	24.1	8.2
Hydrometer	0.0	0.0	24.1
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	75.9
Coarse Sand	0.3
Medium Sand	16.0
Fine Sand	59.7
Fines	24.1

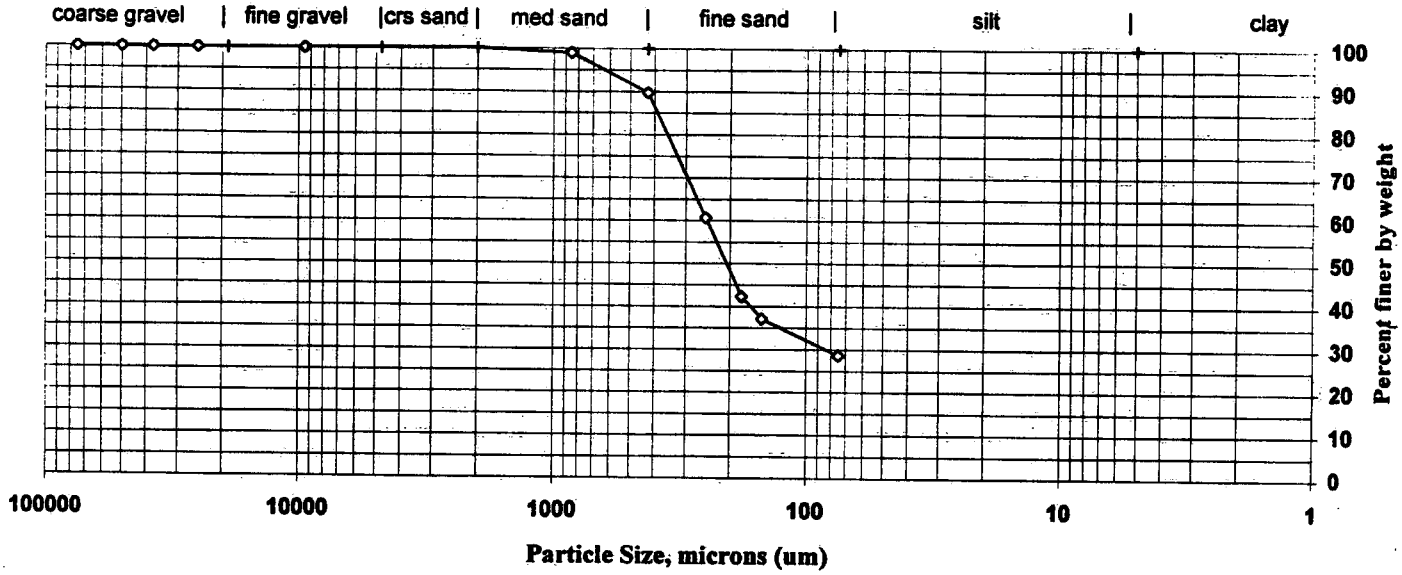
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	Project No.:	24023	ETR(s) #:	102619
Client Code:	STLALM	Job No.:	N/A	SDG(s):	N/A
Date Received:	24-Sep-04	Start Date:	1-Sep-04	End Date:	1-Oct-04

Lab ID: 588258 **Sample ID:** 11

Percent Solids:	40.5%		Maximum Particle Size:	Med sand
Specific Gravity:	2.65	(assumed)	Shape (> #10):	angular
Non-soil mass:	4.6%		Hardness (> #10):	hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.0	1.0
#40	425	89.8	9.2
#60	250	60.7	29.1
#80	180	42.3	18.4
#100	150	37.1	5.2
#200	75	28.7	8.5
Hydrometer	0.0	0.0	28.7
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	71.3
Coarse Sand	0.0
Medium Sand	10.2
Fine Sand	61.1
Fines	28.7

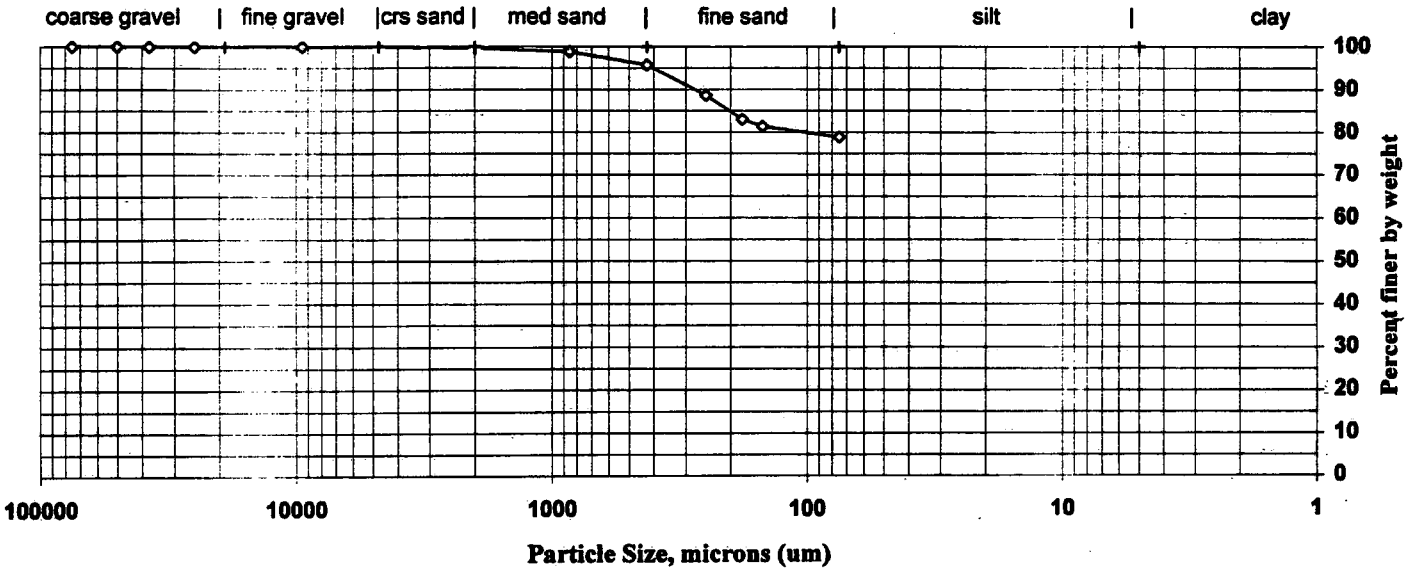
Particle Size of Soils by ASTM D422

Sample preparation method: D2217

Client:	STLALM	**Project No.:**	24023	**ETR(s) #:**	102619
Client Code:	STLALM	**Job No.:**	N/A	**SDG(s):**	N/A
Date Received:	24-Sep-04	**Start Date:**	1-Sep-04	**End Date:**	1-Oct-04

Lab ID: 588259 **Sample ID:** 12

Percent Solids:	70.8%		**Maximum Particle Size:**	9.5 mm
Specific Gravity:	2.65	(assumed)	**Shape (> #10):**	N/A
Non-soil mass:	0.4%		**Hardness (> #10):**	N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.7	0.3
#20	850	98.9	0.8
#40	425	95.8	3.1
#60	250	88.6	7.2
#80	180	82.9	5.7
#100	150	81.3	1.6
#200	75	78.8	2.5
Hydrometer	0.0	0.0	78.8
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
|	0.0	0.0	0.0
V	0.0	0.0	0.0

Soil Classification	Percent of Total Sample
Gravel	0.0
Sand	21.1
Coarse Sand	0.3
Medium Sand	3.9
Fine Sand	17.0
Fines	78.8

Serial Number 10321

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN TRENT **STL**

STL Mobile
900 Lakeside Drive
Mobile, AL 36693

Website: www.stl-inc.com
Phone: (251) 666-6633
Fax: (251) 666-6696

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: Peducktown	PROJECT NO.	PROJECT LOCATION (STATE): NC	PAGE 1 OF
SAMPLER'S SIGNATURE: [signature]	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ✓
CLIENT (SITE) PM	CLIENT PHONE: 954-927-1165	CLIENT FAX	DATE DUE
CLIENT NAME: CDR	CLIENT E-MAIL: clrose@gowdbway.com		EXPEDITED REPORT DELIVERY (SURCHARGE)
CLIENT ADDRESS			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION: Sediment	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	Total lead + Solids content	TOC + pH	Grain size	REMARKS
9/20/04		1	G		✓			1	1	1	Dale Dadry is Project Manager
		2									
		3									
		4									
9/21/04		5									
		6									
		7									
		8									
		9									
		10									
		11									
9/20/04		12									

NUMBER OF CONTAINERS SUBMITTED

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	9/22/04	1600						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
Federal Express								

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL MOBILE LOG NO.	LABORATORY REMARKS
[signature]	9/23/04	1235	YES ○ NO ○		M43733	3.9°C

SILICA ONLY

STL8240-700 (12/02)

Serial Number 17515

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

SEVERN TRENT **STL**

○ **STL Mobile**
900 Lakeside Drive
Mobile, AL 36693

Website: www.stl-inc.com
Phone: (251) 666-6633
Fax: (251) 666-6696

○ Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: Pecatonica	PROJECT NO.	PROJECT LOCATION (STATE)	PAGE 2 OF 2
SAMPLER'S SIGNATURE	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ○
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX	DATE DUE _____
CLIENT NAME: CDR	CLIENT E-MAIL		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS			DATE DUE _____
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

REQUIRED ANALYSIS: Total lead; Total solids content

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	Total lead	Total solids content	REMARKS
9/20/04		2-RP; 2-EM; 2C	1+		✓			↓	↓	Total of 28 samples to be analyzed (each sample may contain 1 or more Fish)
		3-EM; 3-C; 3-BSS								
		4-C; 4-BB; 4-P								
		5-BSS; 5-BG								
		6-P; 6-C								
		7-P; 7-BSS; 7-RP; 7-C; 7-BB								
		8-RP; 8-C								
		9-P; 9-BSS								
		10-P; 10-S								Dale Dorty is Project Manager
		11-EM; 11-BSS								
		12-MC; 12-WP								
9/22/04										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	STL MOBILE LOG NO.	LABORATORY REMARKS
Qsbell	9/23/04	13:35	YES ○ NO ○		M3837	3.9°C

CDR Appendix

MACROBENTHOS ANALYSES

TAXONOMIC SPECIES LIST

Client: Curt Rose
Project: CDR Environmental 2004
Location:

Project Date: 10/01/2004

Total Number of Taxa: 58

- ANNELIDA
  - CLASS HIRUDINEA
    - Order PHARYNGOBDELLIDA
      - FAMILY ERPOBDELLIDAE
        - Mooreobdella tetragon
    - Order RHYNCHOBDELLIDA
      - FAMILY GLOSSIPHONIIDAE
        - Placobdella papillifera
  - CLASS OLIGOCHAETA
    - Order TUBIFICIDA
      - FAMILY ENCHYTRAEIDAE
        - Enchytraeidae (LPIL)
      - FAMILY NAIDIDAE
        - Naididae (LPIL)
        - Pristina (LPIL)
      - FAMILY TUBIFICIDAE
        - Tubificidae (LPIL)
        - Limnodrilus hoffmeisteri
        - Limnodrilus profundicola
        - Quistadrilus multisetosus
- ARTHROPODA
  - CLASS ARACHNIDA
    - Order ACARI
      - FAMILY ARRENURIDAE
        - Arrenurus (LPIL)
      - FAMILY HYGROBATIDAE
        - Hygrobatidae (LPIL)
  - CLASS INSECTA
    - Order DIPTERA
      - FAMILY CERATOPOGONIDAE
        - Ceratopogonidae (LPIL)
      - FAMILY CHIRONOMIDAE
        - Chironomidae (LPIL)
      - FAMILY CHIRONOMIDAE
        - Apsectrotanypus johnsoni
      - FAMILY CHIRONOMIDAE
        - Chironomus (LPIL)
        - Clinotanypus (LPIL)
        - Cricotopus orthocladius group
        - Cryptochironomus (LPIL)
        - Dicrotendipes (LPIL)
        - Microtendipes (LPIL)
        - Paratanytarsus (LPIL)

Polypedilum (LPIL)
Polypedilum halterale group
Polypedilum scalaenum group
Polypedilum tritum
Procladius (LPIL)
Psectrotanypus (LPIL)
Rheotanytarsus (LPIL)
Tanypus (LPIL)
Tanytarsus (LPIL)
Tribelos (LPIL)
Order EPHEMEROPTERA
Ephemeroptera (LPIL)
FAMILY CAENIDAE
Caenis (LPIL)
Order HEMIPTERA
FAMILY CORIXIDAE
Corixidae (LPIL)
Order MEGALOPTERA
FAMILY SIALIDAE
Sialis (LPIL)
Order ODONATA
Odonata (LPIL)
FAMILY COENAGRIONIDAE
Enallagma (LPIL)
FAMILY LIBELLULIDAE
Libellulidae (LPIL)
Libellula (LPIL)
Order TRICHOPTERA
FAMILY LEPTOCERIDAE
Oecetis inconspicua complex
FAMILY PHRYGANEIDAE
Oligostomis (LPIL)

CLASS MALACOSTRACA
Order AMPHIPODA
FAMILY CRANGONYCTIDAE
Crangonyx (LPIL)
FAMILY GAMMARIDAE
Gammarus fasciatus
Order CUMACEA
FAMILY NANNASTACIDAE
Almyracuma proximoculi
Order DECAPODA
FAMILY CAMBARIDAE
Cambaridae (LPIL)
Order ISOPODA
FAMILY ANTHURIDAE
Cyathura polita
FAMILY ASELLIDAE
Caecidotea (LPIL)

CLASS OSTRACODA
Order PODOCOPIDA
FAMILY CANDONIDAE
Candona (LPIL)

MOLLUSCA
- CLASS BIVALVIA
  - Order VENEROIDA
    - FAMILY CORBICULIDAE
      - Corbicula fluminea
    - FAMILY SPHAERIIDAE
      - Sphaeriidae (LPIL)
      - Pisidium (LPIL)
      - Sphaerium (LPIL)
- CLASS GASTROPODA
  - Gastropoda (LPIL)
  - Order BASOMMATOPHORA
    - FAMILY ANCYLIDAE
      - Ancylidae (LPIL)
    - FAMILY PHYSIDAE
      - Physidae (LPIL)
    - FAMILY PLANORBIDAE
      - Planorbidae (LPIL)
      - Menetus (LPIL)

PLATYHELMINTHES
- CLASS TURBELLARIA
  - Order TRICLADIDA
    - FAMILY PLANARIIDAE
      - Dugesia (LPIL)

SUMMARY OF COMMUNITY PARAMETERS

Client: Curt Rose
Project: CDR Environmental 10/2004
Sample Date: ~~Oct.2004~~ Sept. 20-21, 2004 CDR

Location:
Habitat: Estuarine

FAUNAL PARAMETERS (in all cases)

Station	Date (m/d/y)	Total No. Taxa	Mean No. of Taxa per Repl.	No. of Taxa per Repl. (Std Dev)	Total No. Individuals	Mean Density (nos/m2)	Density (Std Dev)	H' Shannon (log e)	d Diversity (log 2)	1/S Simpson Diversity	J' Pielou Evenness	D Margalef Richness	e Equitability
1 (1-3)	10/1/04	7	3.0	1.7	22	318.7	109.7	1.73	2.49	5.92	0.89	1.94	1.12
2 (1-3)	10/1/04	10	6.0	2.6	66	956.7	626.8	1.92	2.77	5.59	0.83	2.15	0.95
3 (1-3)	10/1/04	19	11.0	1.7	304	4406.0	5230.1	1.22	1.76	1.82	0.41	3.15	0.24
4 (1-3)	10/1/04	22	12.0	2.6	193	2797.3	1376.5	2.03	2.93	4.03	0.66	3.99	0.49
5 (1-3)	10/1/04	25	15.0	1.7	461	6681.0	389.4	1.97	2.84	5.05	0.61	3.91	0.40
6 (1-3)	10/1/04	10	6.0	1.0	390	5652.0	2479.7	1.37	1.97	3.46	0.59	1.51	0.54
7 (1-3)	10/1/04	15	8.3	3.8	436	6318.7	2638.8	0.88	1.27	1.63	0.33	2.30	0.22
8 (1-3)	10/1/04	7	4.0	1.7	145	2101.7	2324.7	0.77	1.12	1.52	0.40	1.21	0.41
9 (1-3)	10/1/04	11	5.7	2.1	2098	30406.0	22574.2	1.06	1.53	2.50	0.44	1.31	0.35
10 (1-3)	10/1/04	22	15.0	3.6	1264	18319.0	8355.3	2.05	2.96	4.56	0.66	2.94	0.50
11 (1-3)	10/1/04	7	5.7	1.2	170	2463.7	1497.1	1.57	2.27	4.13	0.81	1.17	0.95
12 (1-3)	10/1/04	13	7.0	2.0	215	3116.0	1941.8	1.17	1.69	1.92	0.46	2.23	0.34

Station Data Summary Report
Station 1 (1-3)

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 001
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Arthropoda									
Insecta									
Diptera									
Chironomidae									
Apsectrotanypus johnsoni	0	0	2	87	2	87	4	18.2	58
Chironomidae									
Chironomidae (LPIL)	0	0	0	0	1	43	1	4.5	14
Clinotanypus (LPIL)	0	0	2	87	0	0	2	9.1	29
Polypedilum (LPIL)	0	0	2	87	0	0	2	9.1	29
Tribelos (LPIL)	0	0	4	174	1	43	5	22.7	72
Ostracoda									
Podocopida									
Candonidae									
Candona (LPIL)	7	304	0	0	0	0	7	31.8	101
Mollusca									
Bivalvia									
Veneroida									
Sphaeriidae									
Sphaeriidae (LPIL)	0	0	0	0	1	43	1	4.5	14

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 1 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 001
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	7	1	4	4	3	1.7
Total Individuals	22	7	10	5	7.3	2.5
Density (nos/sq.m.)		304	435	217	319	109.7

FAUNAL INDICES			
Species Diversity (Shannon; log base e)	H'	=	1.73
Species Diversity (Shannon; log base 2)	d	=	2.49
Species Diversity (Shannon; log base 10)	H	=	0.75
Species Diversity (Simpson; 1/S)	1/S	=	5.92
Species Evenness (Pielou)	J'	=	0.89
Species Richness (Margalef)	D	=	1.94
Equitability Index (Lloyd & Ghelardi)	e	=	1.12

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Mollusca	1	14.2	1	4.5
Arthropoda	6	85.7	21	95.4
TOTALS	**7**		**22**	

Station Data Summary Report
Station 2 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 002
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Arthropoda									
Insecta									
Diptera									
Chironomidae									
Chironomidae (LPIL)	4	174	3	130	2	87	9	13.6	130
Clinotanypus (LPIL)	2	87	13	565	8	348	23	34.8	333
Procladius (LPIL)	0	0	2	87	4	174	6	9.1	87
Psectrotanypus (LPIL)	1	43	0	0	0	0	1	1.5	14
Tribelos (LPIL)	0	0	3	130	0	0	3	4.5	43
Odonata									
Odonata (LPIL)	0	0	1	43	0	0	1	1.5	14
Trichoptera									
Phryganeidae									
Oligostomis (LPIL)	1	43	1	43	0	0	2	3	29
Malacostraca									
Amphipoda									
Crangonyctidae									
Crangonyx (LPIL)	0	0	4	174	0	0	4	6.1	58
Isopoda									
Asellidae									
Caecidotea (LPIL)	2	87	9	391	0	0	11	16.7	159
Ostracoda									
Podocopida									
Candonidae									
Candona (LPIL)	0	0	2	87	4	174	6	9.1	87

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 2 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 002
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	10	5	9	4	6	2.6
Total Individuals	66	10	38	18	22	14.4
Density (nos/sq.m.)		435	1652	783	957	626.8

FAUNAL INDICES			
Species Diversity (Shannon; log base e)	H'	=	1.92
Species Diversity (Shannon; log base 2)	d	=	2.77
Species Diversity (Shannon; log base 10)	H	=	0.83
Species Diversity (Simpson; 1/S)	1/S	=	5.59
Species Evenness (Pielou)	J'	=	0.83
Species Richness (Margalef)	D	=	2.15
Equitability Index (Lloyd & Ghelardi)	e	=	0.95

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Arthropoda	10	100	66	100
TOTALS	**10**		**66**	

Station Data Summary Report
Station 3 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 003
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Hirudinea									
Rhynchobdellida									
Glossiphoniidae									
Placobdella papillifera	1	43	0	0	0	0	1	0.3	14
Oligochaeta									
Tubificida									
Enchytraeidae									
Enchytraeidae (LPIL)	0	0	3	130	1	43	4	1.3	58
Naididae									
Naididae (LPIL)	0	0	1	43	1	43	2	0.7	29
Tubificidae									
Quistadrilus multisetosus	0	0	4	174	7	304	11	3.6	159
Tubificidae (LPIL)	5	217	1	43	0	0	6	2	87
Arthropoda									
Arachnida									
Acari									
Arrenuridae									
Arrenurus (LPIL)	0	0	0	0	1	43	1	0.3	14
Insecta									
Diptera									
Chironomidae									
Chironomidae (LPIL)	5	217	4	174	3	130	12	3.9	174
Chironomus (LPIL)	0	0	1	43	3	130	4	1.3	58
Clinotanypus (LPIL)	2	87	2	87	8	348	12	3.9	174
Dicrotendipes (LPIL)	0	0	0	0	1	43	1	0.3	14
Tanytarsus (LPIL)	0	0	0	0	1	43	1	0.3	14
Tribelos (LPIL)	5	217	8	348	1	43	14	4.6	203

Station Data Summary Report
Station 3 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 003
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Hemiptera									
Corixidae									
Corixidae (LPIL)	1	43	0	0	0	0	1	0.3	14
Megaloptera									
Sialidae									
Sialis (LPIL)	2	87	0	0	0	0	2	0.7	29
Odonata									
Coenagrionidae									
Enallagma (LPIL)	0	0	1	43	0	0	1	0.3	14
Libellulidae									
Libellula (LPIL)	1	43	0	0	0	0	1	0.3	14
Malacostraca									
Amphipoda									
Gammaridae									
Gammarus fasciatus	0	0	4	174	1	43	5	1.6	72
Isopoda									
Asellidae									
Caecidotea (LPIL)	3	130	210	9130	11	478	224	73.7	3246
Mollusca									
Gastropoda									
Basommatophora									
Planorbidae									
Menetus (LPIL)	0	0	1	43	0	0	1	0.3	14

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 3 (1-3)
Page 3

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 003
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	19	9	12	12	11	1.7
Total Individuals	304	25	240	39	101.3	120.3
Density (nos/sq.m.)		1087	10435	1696	4406	5230.1

FAUNAL INDICES			
Species Diversity (Shannon; log base e)	H'	=	1.22
Species Diversity (Shannon; log base 2)	d	=	1.76
Species Diversity (Shannon; log base 10)	H	=	0.53
Species Diversity (Simpson; 1/S)	1/S	=	1.82
Species Evenness (Pielou)	J'	=	0.41
Species Richness (Margalef)	D	=	3.15
Equitability Index (Lloyd & Ghelardi)	e	=	0.24

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Annelida	5	26.3	24	7.8
Mollusca	1	5.2	1	0.3
Arthropoda	13	68.4	279	91.7
TOTALS	**19**		**304**	

Station Data Summary Report
Station 4 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 004
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Oligochaeta									
Tubificida									
Naididae									
Pristina (LPIL)	0	0	0	0	1	43	1	0.5	14
Tubificidae									
Limnodrilus hoffmeisteri	1	43	0	0	6	261	7	3.6	101
Tubificidae (LPIL)	21	913	13	565	57	2478	91	47.2	1319
Arthropoda									
Insecta									
Diptera									
Ceratopogonidae									
Ceratopogonidae (LPIL)	1	43	0	0	0	0	1	0.5	14
Chironomidae									
Chironomidae (LPIL)	0	0	6	261	3	130	9	4.7	130
Chironomus (LPIL)	0	0	0	0	3	130	3	1.6	43
Clinotanypus (LPIL)	3	130	3	130	4	174	10	5.2	145
Cryptochironomus (LPIL)	0	0	0	0	1	43	1	0.5	14
Dicrotendipes (LPIL)	0	0	2	87	1	43	3	1.6	43
Paratanytarsus (LPIL)	0	0	0	0	1	43	1	0.5	14
Procladius (LPIL)	1	43	0	0	0	0	1	0.5	14
Tanytarsus (LPIL)	0	0	0	0	2	87	2	1	29
Tribelos (LPIL)	1	43	3	130	1	43	5	2.6	72
Ephemeroptera									
Ephemeroptera (LPIL)	0	0	1	43	0	0	1	0.5	14
Caenidae									
Caenis (LPIL)	1	43	10	435	2	87	13	6.7	188

Station Data Summary Report
Station 4 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 004
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Megaloptera									
Sialidae									
Sialis (LPIL)	1	43	9	391	0	0	10	5.2	145
Odonata									
Odonata (LPIL)	0	0	1	43	0	0	1	0.5	14
Malacostraca									
Amphipoda									
Gammaridae									
Gammarus fasciatus	0	0	11	478	11	478	22	11.4	319
Isopoda									
Asellidae									
Caecidotea (LPIL)	1	43	7	304	0	0	8	4.1	116
Mollusca									
Bivalvia									
Veneroida									
Sphaeriidae									
Sphaeriidae (LPIL)	0	0	1	43	0	0	1	0.5	14
Gastropoda									
Basommatophora									
Ancylidae									
Ancylidae (LPIL)	0	0	0	0	1	43	1	0.5	14
Platyhelminthes									
Turbellaria									
Tricladida									
Planariidae									
Dugesia (LPIL)	0	0	1	43	0	0	1	0.5	14

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 4 (1-3)
Page 3

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 004
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	22	9	13	14	12	2.6
Total Individuals	193	31	68	94	64.3	31.7
Density (nos/sq.m.)		1348	2957	4087	2797	1376.5

FAUNAL INDICES

Species Diversity (Shannon; log base e)	H'	=	2.03
Species Diversity (Shannon; log base 2)	d	=	2.93
Species Diversity (Shannon; log base 10)	H	=	0.88
Species Diversity (Simpson; 1/S)	1/S	=	4.03
Species Evenness (Pielou)	J'	=	0.66
Species Richness (Margalef)	D	=	3.99
Equitability Index (Lloyd & Ghelardi)	e	=	0.49

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Platyhelminthes	1	4.5	1	0.5
Annelida	3	13.6	99	51.2
Mollusca	2	9	2	1
Arthropoda	16	72.7	91	47.1
TOTALS	**22**		**193**	

Station Data Summary Report
Station 5 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 005
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Oligochaeta									
Tubificida									
Naididae									
Pristina (LPIL)	0	0	0	0	2	87	2	0.4	29
Tubificidae									
Limnodrilus hoffmeisteri	4	174	3	130	1	43	8	1.7	116
Tubificidae (LPIL)	32	1391	47	2043	8	348	87	18.9	1261
Arthropoda									
Insecta									
Diptera									
Ceratopogonidae									
Ceratopogonidae (LPIL)	1	43	1	43	1	43	3	0.7	43
Chironomidae									
Chironomidae (LPIL)	1	43	4	174	2	87	7	1.5	101
Clinotanypus (LPIL)	10	435	16	696	8	348	34	7.4	493
Dicrotendipes (LPIL)	1	43	0	0	4	174	5	1.1	72
Paratanytarsus (LPIL)	1	43	0	0	0	0	1	0.2	14
Procladius (LPIL)	0	0	3	130	2	87	5	1.1	72
Tanypus (LPIL)	0	0	2	87	1	43	3	0.7	43
Ephemeroptera									
Caenidae									
Caenis (LPIL)	25	1087	49	2130	49	2130	123	26.7	1782
Megaloptera									
Sialidae									
Sialis (LPIL)	12	522	8	348	10	435	30	6.5	435

Station Data Summary Report
Station 5 (1-3)

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 005
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Odonata									
Odonata (LPIL)	0	0	1	43	0	0	1	0.2	14
Coenagrionidae									
Enallagma (LPIL)	0	0	0	0	1	43	1	0.2	14
Libellulidae									
Libellulidae (LPIL)	0	0	0	0	1	43	1	0.2	14
Malacostraca									
Amphipoda									
Gammaridae									
Gammarus fasciatus	72	3130	4	174	56	2435	132	28.6	1913
Decapoda									
Cambaridae									
Cambaridae (LPIL)	0	0	0	0	1	43	1	0.2	14
Isopoda									
Asellidae									
Caecidotea (LPIL)	2	87	0	0	0	0	2	0.4	29
Mollusca									
Bivalvia									
Veneroida									
Sphaeriidae									
Pisidium (LPIL)	0	0	8	348	0	0	8	1.7	116
Sphaeriidae (LPIL)	1	43	0	0	0	0	1	0.2	14
Gastropoda									
Gastropoda (LPIL)	1	43	0	0	0	0	1	0.2	14
Basommatophora									
Physidae									
Physidae (LPIL)	0	0	1	43	1	43	2	0.4	29

Station Data Summary Report
Station 5 (1-3)

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 005
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Planorbidae									
Menetus (LPIL)	1	43	0	0	0	0	1	0.2	14
Planorbidae (LPIL)	0	0	1	43	0	0	1	0.2	14
Platyhelminthes									
Turbellaria									
Tricladida									
Planariidae									
Dugesia (LPIL)	0	0	0	0	1	43	1	0.2	14

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 5 (1-3)
Page 4

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 005
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	25	14	14	17	15	1.7
Total Individuals	461	164	148	149	153.7	9
Density (nos/sq.m.)		7130	6435	6478	6681	389.4

FAUNAL INDICES			
Species Diversity (Shannon; log base e)	H'	=	1.97
Species Diversity (Shannon; log base 2)	d	=	2.84
Species Diversity (Shannon; log base 10)	H	=	0.85
Species Diversity (Simpson; 1/S)	1/S	=	5.05
Species Evenness (Pielou)	J'	=	0.61
Species Richness (Margalef)	D	=	3.91
Equitability Index (Lloyd & Ghelardi)	e	=	0.4

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Platyhelminthes	1	4	1	0.2
Annelida	3	12	97	21
Mollusca	6	24	14	3
Arthropoda	15	60	349	75.7
TOTALS	**25**		**461**	

Station Data Summary Report
Station 6 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 006
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Hirudinea									
Pharyngobdellida									
Erpobdellidae									
Mooreobdella tetragon	1	43	0	0	0	0	1	0.3	14
Oligochaeta									
Tubificida									
Naididae									
Naididae (LPIL)	0	0	0	0	1	43	1	0.3	14
Tubificidae									
Limnodrilus hoffmeisteri	11	478	90	3913	6	261	107	27.4	1551
Tubificidae (LPIL)	67	2913	12	522	38	1652	117	30	1696
Arthropoda									
Insecta									
Diptera									
Chironomidae									
Clinotanypus (LPIL)	11	478	8	348	0	0	19	4.9	275
Microtendipes (LPIL)	0	0	2	87	0	0	2	0.5	29
Procladius (LPIL)	1	43	0	0	0	0	1	0.3	14
Ephemeroptera									
Caenidae									
Caenis (LPIL)	1	43	2	87	0	0	3	0.8	43
Malacostraca									
Amphipoda									
Gammaridae									
Gammarus fasciatus	47	2043	68	2957	22	957	137	35.1	1986

Station Data Summary Report
Station 6 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 006
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Platyhelminthes									
Turbellaria									
Tricladida									
Planariidae									
Dugesia (LPIL)	0	0	0	0	2	87	2	0.5	29

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 6 (1-3)

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 006
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	10	7	6	5	6	1
Total Individuals	390	139	182	69	130	57
Density (nos/sq.m.)		6043	7913	3000	5652	2479.7

FAUNAL INDICES			
Species Diversity (Shannon; log base e)	H'	=	1.37
Species Diversity (Shannon; log base 2)	d	=	1.97
Species Diversity (Shannon; log base 10)	H	=	0.59
Species Diversity (Simpson; 1/S)	1/S	=	3.46
Species Evenness (Pielou)	J'	=	0.59
Species Richness (Margalef)	D	=	1.51
Equitability Index (Lloyd & Ghelardi)	e	=	0.54

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Platyhelminthes	1	10	2	0.5
Annelida	4	40	226	57.9
Arthropoda	5	50	162	41.5
TOTALS	**10**		**390**	

Station Data Summary Report
Station 7 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 007
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Hirudinea									
Pharyngobdellida									
Erpobdellidae									
Mooreobdella tetragon	0	0	0	0	2	87	2	0.5	29
Oligochaeta									
Tubificida									
Tubificidae									
Limnodrilus hoffmeisteri	16	696	0	0	6	261	22	5	319
Tubificidae (LPIL)	157	6826	130	5652	49	2130	336	77.1	4869
Arthropoda									
Insecta									
Diptera									
Chironomidae									
Chironomidae (LPIL)	0	0	1	43	1	43	2	0.5	29
Chironomus (LPIL)	0	0	1	43	0	0	1	0.2	14
Clinotanypus (LPIL)	0	0	1	43	2	87	3	0.7	43
Cricotopus orthocladius group	0	0	1	43	0	0	1	0.2	14
Cryptochironomus (LPIL)	1	43	1	43	0	0	2	0.5	29
Dicrotendipes (LPIL)	0	0	1	43	0	0	1	0.2	14
Polypedilum (LPIL)	0	0	0	0	1	43	1	0.2	14
Procladius (LPIL)	0	0	1	43	1	43	2	0.5	29
Ephemeroptera									
Caenidae									
Caenis (LPIL)	0	0	2	87	0	0	2	0.5	29
Trichoptera									
Leptoceridae									
Oecetis inconspicua complex	0	0	1	43	1	43	2	0.5	29

Station Data Summary Report
Station 7 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 007
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Malacostraca									
Amphipoda									
Gammaridae									
Gammarus fasciatus	19	826	26	1130	12	522	57	13.1	826
Mollusca									
Bivalvia									
Veneroida									
Sphaeriidae									
Pisidium (LPIL)	0	0	0	0	2	87	2	0.5	29

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 7 (1-3)
Page 3

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 007
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	15	4	11	10	8.333333333	3.8
Total Individuals	436	193	166	77	145.3	60.7
Density (nos/sq.m.)		8391	7217	3348	6319	2638.8

FAUNAL INDICES			
Species Diversity (Shannon; log base e)	H'	=	0.88
Species Diversity (Shannon; log base 2)	d	=	1.27
Species Diversity (Shannon; log base 10)	H	=	0.38
Species Diversity (Simpson; 1/S)	1/S	=	1.63
Species Evenness (Pielou)	J'	=	0.33
Species Richness (Margalef)	D	=	2.3
Equitability Index (Lloyd & Ghelardi)	e	=	0.22

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Annelida	3	20	360	82.5
Mollusca	1	6.6	2	0.4
Arthropoda	11	73.3	74	16.9
TOTALS	**15**		**436**	

Station Data Summary Report
Station 8 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 008
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Oligochaeta									
Tubificida									
Tubificidae									
Limnodrilus hoffmeisteri	0	0	1	43	0	0	1	0.7	14
Limnodrilus profundicola	6	261	0	0	1	43	7	4.8	101
Tubificidae (LPIL)	88	3826	10	435	19	826	117	80.7	1696
Arthropoda									
Insecta									
Diptera									
Chironomidae									
Chironomidae (LPIL)	10	435	2	87	0	0	12	8.3	174
Polypedilum (LPIL)	4	174	0	0	0	0	4	2.8	58
Polypedilum scalaenum group	0	0	1	43	0	0	1	0.7	14
Mollusca									
Bivalvia									
Veneroida									
Sphaeriidae									
Sphaeriidae (LPIL)	2	87	1	43	0	0	3	2.1	43

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 8 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 008
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	7	5	5	2	4	1.7
Total Individuals	145	110	15	20	48.3	53.5
Density (nos/sq.m.)		4783	652	870	2102	2324.7

FAUNAL INDICES

Species Diversity (Shannon; log base e)	H'	=	0.77
Species Diversity (Shannon; log base 2)	d	=	1.12
Species Diversity (Shannon; log base 10)	H	=	0.34
Species Diversity (Simpson; 1/S)	1/S	=	1.52
Species Evenness (Pielou)	J'	=	0.4
Species Richness (Margalef)	D	=	1.21
Equitability Index (Lloyd & Ghelardi)	e	=	0.41

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Annelida	3	42.8	125	86.2
Mollusca	1	14.2	3	2
Arthropoda	3	42.8	17	11.7
TOTALS	**7**		**145**	

Station Data Summary Report
Station 9 (1-3)

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 009
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Oligochaeta									
Tubificida									
Naididae									
Naididae (LPIL)	0	0	0	0	12	522	12	0.6	174
Tubificidae									
Limnodrilus hoffmeisteri	30	1304	160	6957	66	2870	256	12.2	3710
Limnodrilus profundicola	0	0	0	0	2	87	2	0.1	29
Tubificidae (LPIL)	130	5652	744	32348	202	8783	1076	51.3	15594
Arthropoda									
Arachnida									
Acari									
Hygrobatidae									
Hygrobatidae (LPIL)	0	0	0	0	2	87	2	0.1	29
Insecta									
Diptera									
Chironomidae									
Chironomus (LPIL)	0	0	0	0	2	87	2	0.1	29
Cricotopus orthocladius group	0	0	0	0	2	87	2	0.1	29
Dicrotendipes (LPIL)	2	87	0	0	0	0	2	0.1	29
Polypedilum (LPIL)	0	0	8	348	0	0	8	0.4	116
Malacostraca									
Amphipoda									
Gammaridae									
Gammarus fasciatus	172	7478	382	16609	180	7826	734	35	10638
Isopoda									
Asellidae									
Caecidotea (LPIL)	2	87	0	0	0	0	2	0.1	29

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 9 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 009
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	11	5	4	8	5.666666667	2.1
Total Individuals	2098	336	1294	468	699.3	519.2
Density (nos/sq.m.)		14609	56261	20348	30406	22574.2

FAUNAL INDICES			
Species Diversity (Shannon; log base e)	H'	=	1.06
Species Diversity (Shannon; log base 2)	d	=	1.53
Species Diversity (Shannon; log base 10)	H	=	0.46
Species Diversity (Simpson; 1/S)	1/S	=	2.5
Species Evenness (Pielou)	J'	=	0.44
Species Richness (Margalef)	D	=	1.31
Equitability Index (Lloyd & Ghelardi)	e	=	0.35

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Annelida	4	36.3	1346	64.1
Arthropoda	7	63.6	752	35.8
TOTALS	**11**		**2098**	

Station Data Summary Report
Station 10 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 010
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Oligochaeta									
Tubificida									
Naididae									
Naididae (LPIL)	18	783	4	174	28	1217	50	4	725
Tubificidae									
Limnodrilus hoffmeisteri	6	261	8	348	12	522	26	2.1	377
Tubificidae (LPIL)	166	7217	84	3652	252	10957	502	39.7	7275
Arthropoda									
Insecta									
Diptera									
Ceratopogonidae									
Ceratopogonidae (LPIL)	2	87	4	174	0	0	6	0.5	87
Chironomidae									
Chironomidae (LPIL)	32	1391	16	696	36	1565	84	6.6	1217
Chironomus (LPIL)	2	87	0	0	20	870	22	1.7	319
Cryptochironomus (LPIL)	8	348	4	174	12	522	24	1.9	348
Dicrotendipes (LPIL)	6	261	0	0	0	0	6	0.5	87
Paratanytarsus (LPIL)	2	87	0	0	0	0	2	0.2	29
Polypedilum (LPIL)	22	957	12	522	32	1391	66	5.2	957
Polypedilum halterale group	34	1478	76	3304	168	7304	278	22	4029
Polypedilum tritum	4	174	0	0	0	0	4	0.3	58
Procladius (LPIL)	4	174	8	348	20	870	32	2.5	464
Rheotanytarsus (LPIL)	40	1739	0	0	4	174	44	3.5	638
Malacostraca									
Amphipoda									
Gammaridae									
Gammarus fasciatus	0	0	24	1043	8	348	32	2.5	464

Station Data Summary Report
Station 10 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 010
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Cumacea									
Nannastacidae									
Almyracuma proximoculi	0	0	0	0	4	174	4	0.3	58
Isopoda									
Anthuridae									
Cyathura polita	0	0	8	348	0	0	8	0.6	116
Mollusca									
Bivalvia									
Veneroida									
Corbiculidae									
Corbicula fluminea	4	174	0	0	4	174	8	0.6	116
Sphaeriidae									
Pisidium (LPIL)	10	435	0	0	4	174	14	1.1	203
Sphaerium (LPIL)	26	1130	0	0	20	870	46	3.6	667
Gastropoda									
Gastropoda (LPIL)	0	0	0	0	4	174	4	0.3	58
Basommatophora									
Planorbidae									
Planorbidae (LPIL)	2	87	0	0	0	0	2	0.2	29

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 10 (1-3)
Page 3

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 010
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	22	18	11	16	15	3.6
Total Individuals	1264	388	248	628	421.3	192.2
Density (nos/sq.m.)		16870	10783	27304	18319	8355.3

FAUNAL INDICES			
Species Diversity (Shannon; log base e)	H'	=	2.05
Species Diversity (Shannon; log base 2)	d	=	2.96
Species Diversity (Shannon; log base 10)	H	=	0.89
Species Diversity (Simpson; 1/S)	1/S	=	4.56
Species Evenness (Pielou)	J'	=	0.66
Species Richness (Margalef)	D	=	2.94
Equitability Index (Lloyd & Ghelardi)	e	=	0.5

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Annelida	3	13.6	578	45.7
Mollusca	5	22.7	74	5.8
Arthropoda	14	63.6	612	48.4
TOTALS	**22**		**1264**	

Station Data Summary Report
Station 11 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 011
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Oligochaeta									
Tubificida									
Naididae									
Naididae (LPIL)	2	87	0	0	0	0	2	1.2	29
Tubificidae									
Limnodrilus hoffmeisteri	6	261	2	87	16	696	24	14.1	348
Tubificidae (LPIL)	12	522	12	522	28	1217	52	30.6	754
Arthropoda									
Insecta									
Diptera									
Chironomidae									
Chironomidae (LPIL)	2	87	2	87	8	348	12	7.1	174
Chironomus (LPIL)	10	435	4	174	4	174	18	10.6	261
Clinotanypus (LPIL)	6	261	12	522	40	1739	58	34.1	841
Mollusca									
Bivalvia									
Veneroida									
Sphaeriidae									
Sphaeriidae (LPIL)	4	174	0	0	0	0	4	2.4	58

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 11 (1-3)

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 011
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	7	7	5	5	5.666666667	1.2
Total Individuals	170	42	32	96	56.7	34.4
Density (nos/sq.m.)		1826	1391	4174	2464	1497.1

FAUNAL INDICES			
Species Diversity (Shannon; log base e)	H'	=	1.57
Species Diversity (Shannon; log base 2)	d	=	2.27
Species Diversity (Shannon; log base 10)	H	=	0.68
Species Diversity (Simpson; 1/S)	1/S	=	4.13
Species Evenness (Pielou)	J'	=	0.81
Species Richness (Margalef)	D	=	1.17
Equitability Index (Lloyd & Ghelardi)	e	=	0.95

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Annelida	3	42.8	78	45.8
Mollusca	1	14.2	4	2.3
Arthropoda	3	42.8	88	51.7
TOTALS	**7**		**170**	

Station Data Summary Report
Station 12 (1-3)
Page 1

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 012
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Annelida									
Oligochaeta									
Tubificida									
Naididae									
Naididae (LPIL)	2	87	0	0	0	0	2	0.9	29
Tubificidae									
Limnodrilus hoffmeisteri	12	522	7	304	3	130	22	10.2	319
Tubificidae (LPIL)	88	3826	49	2130	16	696	153	71.2	2217
Arthropoda									
Insecta									
Diptera									
Chironomidae									
Chironomidae (LPIL)	0	0	1	43	0	0	1	0.5	14
Chironomus (LPIL)	8	348	2	87	1	43	11	5.1	159
Cryptochironomus (LPIL)	0	0	2	87	0	0	2	0.9	29
Polypedilum halterale group	0	0	2	87	0	0	2	0.9	29
Malacostraca									
Amphipoda									
Gammaridae									
Gammarus fasciatus	0	0	10	435	0	0	10	4.7	145
Isopoda									
Anthuridae									
Cyathura polita	0	0	1	43	3	130	4	1.9	58
Mollusca									
Bivalvia									
Veneroida									
Corbiculidae									
Corbicula fluminea	1	43	0	0	2	87	3	1.4	43

Station Data Summary Report
Station 12 (1-3)
Page 2

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 012
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

TAXON	Rep 1		Rep 2		Rep 3		Station		
	Count	Density	Count	Density	Count	Density	Total	Percent	Mean Density
Sphaeriidae									
Pisidium (LPIL)	2	87	0	0	0	0	2	0.9	29
Sphaeriidae (LPIL)	0	0	2	87	0	0	2	0.9	29
Sphaerium (LPIL)	1	43	0	0	0	0	1	0.5	14

Note: LPIL designates the LOWEST PRACTICAL IDENTIFICATION LEVEL

Station Data Summary Report
Station 12 (1-3)
Page 3

Client: Curt Rose
Project: CDR Environmental 2004
Location:
Sample Date: 10/1/04

BVA Station: 012
Sample Type: Macrofauna
Replicates: 3
Sample Area: 0.0230

DATA SUMMARY

FAUNAL PARAMETERS	Station	Rep 1	Rep 2	Rep 3	Mean	Std Dev
Total Taxa	13	7	9	5	7	2
Total Individuals	215	114	76	25	71.7	44.7
Density (nos/sq.m.)		4957	3304	1087	3116	1941.8

FAUNAL INDICES

Species Diversity (Shannon; log base e)	H'	=	1.17
Species Diversity (Shannon; log base 2)	d	=	1.69
Species Diversity (Shannon; log base 10)	H	=	0.51
Species Diversity (Simpson; 1/S)	1/S	=	1.92
Species Evenness (Pielou)	J'	=	0.46
Species Richness (Margalef)	D	=	2.23
Equitability Index (Lloyd & Ghelardi)	e	=	0.34

MAJOR TAXONOMIC GROUPS	Total No. Taxa	Taxa % Total	Total No. Individuals	Individuals % Total
Annelida	3	23	177	82.3
Mollusca	4	30.7	8	3.7
Arthropoda	6	46.1	30	13.9
TOTALS	**13**		**215**	

CHAIN OF CUSTODY RECORD

B Y A. VITT & AS A S, INC
ONMENTAL SEARC NSULTING
Cage Hill Rd Mob abama 365
34 633-6100 Fax 3-6738

Client Name | Group # | Due

Report to:
Client: CDR Environmental Spec
Address:
Contact: Curt Rose
Phone: 954-927-1165
Fax: 954-927-2119

Bill to: Same

P.O. Number

Project Name/Number: Pedrickton

Sampled By: Curt Rose / Don Mcalt

Analytical Results & Method

Lab use only:
Custody Seal used ☐ yes ☐ no
Intact ☐ yes ☐ no
Temperature °C

Numerical abundance to lowest practical term

Matrix[1]	Date	Time (2400)	comp	grab	Sample Description	Preservatives	No Containers	Remarks:	Lab ID
S	9/20	04		✓	1-1	10% HF	1		1
					1-2		2		
					1-3		1		
					2-1		2		
					2-2		2		
					2-3		2		
					3-1		1		
					3-2		1		
					3-3		2		
					4-1		1		
					4-2		1		
					4-3		1		

Turn Around Time: ☐ 24-48 hrs. ☐ 3 days ☐ 1 week ☒ Standard ☐ Other

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Note: Sampling device was Ekman grab sampler (150x150 mm)

By submitting these samples, you agree to the terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = soil, SD = solid, L = liquid, SL = sludge

We cannot accept verbal changes. Please fax written changes to (334) 633-8738.

WHITE: CLIENT FINAL REPORT — CANARY: LABORATORY — PINK: CLIENT

No. 2901
Sep. 22. 2004 3:42PM

CHAIN OF CUSTODY RECORD

B Y A. VITT & AS A S, INC
ONMENTAL SEARCH INSULTING
tage Hill Road • Mob abama 366
34 633-0100 • Fax (3 3-0738

Client Name | Group # | Due D

Report to:
Client: CDR Environmental Spec
Address:
Contact: Curt Rose
Phone: 954-927-1165
Fax: 954-927-2119

Bill to:
Same

P.O. Number
Project Name/Number: Pedrickstown

Sampled By: Curt Rose / Don Mastt

Analysis Requested & Method

Lab use only:
Custody Seal used ☐ yes ☐ no
Intact ☐ yes ☐ no
Temperature °C

Numerical abundance to lowest practical taxon

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	Preservatives	No Containers	Remarks:	Lab ID
S	9/26	104		✓	S-1	10% v/v	1		1
					S-2		1		
					S-3		1		
					6-1		1		
					6-2		1		
					6-3		1		
					7-1		1		
					7-2		1		
					7-3		1		
					8-1		2		
					8-2		2		
					8-3		2		

Turn Around Time: ☐ 24-48 hrs. ☐ 3 days ☐ 1 week ☒ Standard ☐ Other

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Note:

By submitting these samples, you agree to the terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = soil, SD = solid, L = liquid, SL = sludge

We cannot accept verbal changes. Please fax written changes to (334) 633-0738.

WHITE: CLIENT FINAL REPORT — CANARY: LABORATORY — PINK: CLIENT

CHAIN OF CUSTODY RECORD

Y A. VITT & AS A S, INC
ONMENTAL SEARCH ULTING
Cage Hill Road • Mob abama 365
334 633-6100 • Fax 6 -6738

Client Name | Group # | Due D

Report to:
Client: CDR Environmental Spec
Address:
Contact: Curt Rose
Phone: 954-927-1165
Fax: 954-927-2119

Bill to: Same

Analy l R ts & Meth

Lab use only:
Custody Seal used ☐ ye ☐ no
In tact ☐ ye ☐ no
Temperature °C

P.O. Number

Project Name/Number: Pedrickton

Sampled By: Curt Rose / Don Marlt

Numerical abundance to lowest practical term

Matrix[1]	Date	Time (2400)	comp	grab	Sample Description	Preservatives	No Containers	Remarks:	Lab ID
S		9/21	04	✓	9-1	10% F	1		
					9-2		1		
					9-3		1		
					10-1		1		
					10-2		1		
					10-3		1		
					11-1		1		
					11-2		1		
					11-3		1		
		9/20	04		12-1		1		
					12-2		1		
					12-3		1		

Turn Around Time: ☐ 24-48 hrs. ☐ 3 days ☐ 1 week ☒ Standard ☐ Other

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Note:

By submitting these samples, you agree to the terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = soil, SD = solid, L = liquid, SL = sludge

We cannot accept verbal changes. Please fax written changes to (334) 633-6738.

WHITE: CLIENT FINAL REPORT — CANARY: LABORATORY — PINK: CLIENT

CDR Appendix

TOXICOLOGICAL ANALYSES

RESULTS OF SEDIMENT TESTS CONDUCTED FOR CDR ENVIRONMENTAL SPECIALISTS USING SAMPLES FROM PEDRICKTOWN, NEW JERSY

Prepared for:

Mr. Curt Rose
CDR Environmental Specialists
6001 N. Ocean Drive
Suite 1103
Hollywood, Florida 33019

Prepared by:

The SeaCrest Group, LLC
1341 Cannon Street
Louisville, Colorado 80027-1455
(303) 661-9324

December 22, 2004

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INTRODUCTION

Procedures have been established as a means to monitor the potential effects of contamination on aquatic systems. These test procedures can provide a measure of the impact on mortality, reproduction, and growth in acute and chronic exposures. The present report details the results of acute tests on two species of aquatic invertebrates, *Hyallela azteca* and *Chironomus tentans,* from sediments collected from sites near Pedricktown, New Jersey.

MATERIALS AND METHODS

Sample Collection

Grab samples of sediment were collected at twelve sites from September 20th to September 21st of 2004. These samples were placed in clean, plastic containers. The samples were shipped in two separate coolers by Federal Express on September 22nd of 2004 for overnight delivery to the SeaCrest lab. They arrived at 11:00 am on September 23rd of 2004. After delivery, the sediment samples were refrigerated at 4°C when not in use. The Chain of Custody forms documenting sample collection and transfer times is included in Appendix 1.

Dilution Water

Moderately hard laboratory reconstituted water was used as the overlying water for the sediment. Reconstituted water was prepared by mixing sodium bicarbonate, calcium sulfate, magnesium sulfate, and potassium chloride in deionized water

Test Organisms

CDR

The tests were conducted with a freshwater invertebrate, the amphipod *Hyalella azteca,* and the midge, *Chironomus tentans*. The amphipods used in the sediment tests were between ~~eight and ten~~ seven and nine days old as prescribed by the test procedures. The chironomids used in the test were between the second and third instar of development.

Both batches of organisms were tested in reference toxicant tests using potassium chloride to insure their health and test acceptability.

Test Procedures October CDR

The tests followed the procedures outlined in USEPA (1994)[3]. The *Hyalella* tests were started on ~~November~~ 4th of 2004 with the addition of water over the sediments. Animals were added to the test containers on the next day. The tests ran for ten days, ending on ~~November~~ October 15th of 2004. CDR

The *Chironomid* tests were started on November 29th of 2004, when the water was first placed over the sediments. Animals were added to the test containers on the next day and ran for ten days, ending on ~~November~~ December 10th of 2004. CDR

The sediments did not require sieving but were thoroughly stirred and all large particles (i.e. branches, stones) were removed manually. Each of the sediments was visually inspected for indigenous organisms but none were observed. All sample sediments were treated in the same manner in regards to processing and addition to the test containers.

Test containers were 300 ml glass jars to which 100 ml of the homogenized sediments were added. To this was added 175 ml of reconstituted water. The sediments were tested at the 100% concentration only. Eight replicates were used for each sediment sample. Two sets of controls were run for the twelve sediment samples. The control set used clean, uncontaminated sediment created with medium-to-fine grain sand mixed with a small amount of organic material (decaying leaves) and potting soil.

The water over the sediments was changed twice daily. The test containers were monitored for temperature and dissolved oxygen, before and after a daily water change. Water used for the change-outs was held in the incubator at test temperature. The containers for the reconstituted water were refilled immediately after each change-out so that the water would be at test temperature by the next change-out. The data sheets documenting the batch preparation and water quality checks are located in Appendix 2.

Test animals were fed once a day. All *Hyalella* test chambers received 1 ml of YCT/Flake solution. All Chironomid test chambers received 1.5 ml of TetraMin^R flake food in an aqueous suspension (the equivalent of 4.0 mg of dry solids) once a day. Observations of mortality and/or effects were made at water change-out.

The water over each sediment sample was measured for pH, hardness, alkalinity, conductivity, and ammonia at the beginning and at the end of the tests. The data sheets containing the daily readings of temperature and dissolved oxygen, and the water quality readings taken at the beginning and end of both tests, are located in Appendix 6. The tests were held at a temperature of 23 $\pm$ 1°C in an incubator with a programmed day cycle of 16 hours light and 8 hours dark. The daily temperature readings for the incubator are located in Appendix C. The temperature readings for the incubator were higher than those recorded in the tests themselves (as seen on the test data sheets), however, the incubator readings show consistency and adjustments to the temperatures in the incubators were made, as needed.

Dissolved oxygen levels were maintained above 2.5 mg/L, as per the sediment toxicity test guidelines. All sediments in both tests were aerated from the beginning of the tests due to low initial dissolved oxygen levels.

At the end of the *Hyalella* test, water was pulled from each replicate of each sediment test and composited by test sediment for final water quality readings. The water was poured from the samples into a clean plastic pan and searched thoroughly for live animals. Then the sediment was added to the pans and thoroughly searched. Diligent effort was made to account for every test organism, either by retrieving them live or finding a body. Live organisms were euthanized

and placed in a drying oven at 95°C overnight. The *Hyalella* were weighed on a four-place analytical balance to determine average dry weights. The data sheets containing the dry weight determinations and the number of surviving *Hyalella* per replicate for each sample are located in Appendix 8.

The Chironomid tests were run following the amphipod tests. The Chironomid tests were run for 10 days, following the EPA guideline requirements for acute Chironomid sediment testing. The Chironomid tests were terminated in the same manner as the amphipod tests. The chironomids were dried overnight in a 95°C oven and weighed on a four-place analytical balance to obtain the average dry weight. Following drying the replicates were ashed for two hours in a muffle furnace at 550°C. This allowed the somatic growth of the chironomids to be accurately determined by separating the tissue weight from the weight of sediment particles contained in the gut. The data sheets containing all weight determinations: dry weight and ash-free dry weight determinations per replicate and per individual; and the number of surviving chironomids per replicate for each sample are located in Appendix 9.

SUMMARY

Hyalella azteca Test

The amphipod test was run with all twelve collected sediments. Two control sediments, using clean sand mixed with leave litter and potting soil, was run along with the sediments. Daily comment sheets for the test are located in Appendix 7. Table 1 summarizes test results.

Table 1. Test results for the *Hyalella azteca* sediment exposures.

SAMPLE	Survival Range (%)	Average Survival (%)	Weight Range (mg)	Average Weight (mg)
Control-13	70-100	87.50	0.09-0.17	0.13
Control-14	70-100	86.25	0.08-0.20	0.14
1	0-40	7.50	0.00-0.08	0.02
2	0-40	16.25	0.00-0.17	0.08
3	40-60	51.25	0.05-0.15	0.10
4	0-50	21.25	0.00-0.13	0.07
5	20-40	27.50	0.07-0.20	0.13
6	50-90	65.00	0.06-0.13	0.10
7	30-70	50.00	0.07-0.17	0.10
8	0-60	33.75	0.00-0.10	0.05
9	50-100	73.75	0.06-0.14	0.10
10	10-60	31.25	0.05-0.25	0.13
11	0-30	13.75	0.00-0.10	0.04
12	60-100	75.00	0.08-0.17	0.12
Beginning of Test	NA	NA	0.11	0.11

Chironomus tentans Test

The midge test was run with all twelve collected sediments. Two control sediments, using clean sand mixed with leave litter and potting soil, was run along with the sediments. Daily comment sheets for the test are located in Appendix 7. Table 2 summarizes test results.

Table 2. Test results for the *Chironomus tentans* sediment exposures.

SAMPLE	Survival Range (%)	Average Survival (%)	Ash Free Weight Range (mg)	Ash Free Average Weight (mg)
Control-13	60-100	86.25	0.88-2.50	1.79
Control-14	70-100	78.75	0.87-2.51	1.60
1	60-80	66.25	0.63-1.16	0.91
2	50-100	73.75	0.76-1.00	0.83
3	90-100	98.75	0.58-0.96	0.69
4	20-100	60.00	0.96-1.70	1.05
5	10-50	35.00	0.65-2.10	1.40
6	50-70	62.50	0.50-2.12	1.24
7	50-80	63.75	0.83-1.10	0.95
8	40-100	73.75	0.80-1.52	1.08
9	50-100	73.75	0.38-1.04	0.79
10	60-100	76.25	0.87-1.17	1.00
11	10-50	25.00	0.46-1.45	1.00
12	50-100	78.75	0.80-1.42	1.15
Pre-treatment	NA	NA	0.18	0.18

REFERENCE TOXICANT TEST RESULTS

Hyalella azteca

The test organism history sheets from the supplier (Aquatic BioSystems, Inc., Ft. Collins, CO) are located in Appendix 4. The chironomid and the amphipod animal batches used in the sediment tests were tested in reference toxicant tests with KCl (the toxicant recommended in the guidelines) to determine their health and test acceptability. The *Hyalella* test was conducted from November 6th of 2004. The test consisted of ten replicates per concentration, one organism per replicate. The test beakers contained water and a small piece of Nitex^R screen placed over the bottom of each beaker. The test was a static, non-renewal; meaning the water was not changed daily. The animals were fed 0.1 ml of YCT on days 0 and 2. The test concentrations run were 500, 250, 125, 62.5, and 31.25 mg/L KCl. The LC50 created was 347.30 mg/L KCl using the Probit statistical method. This method produced results within the limits of the round robin test results from the guidelines, which found an average LC50 of 289 mg/L KCl, with a

range of 232-372 mg/L KCl. There was no information in the guidelines as to what statistical method was used in order to produce the results in the round robin tests.

Chironomus tentans

The chironomid reference toxicity test was conducted on November 30th of 2004 and was run to coincide with the chironomid sediment test. The test was conducted the same as the *Hyalella* test except that the test beakers contained a thin layer of sand across the bottom of the beaker instead of Nitex[R] screen and the animals were fed 0.25 mL of the Tetramin[R] (4 g/L stock) on days 0 and 2. The test concentrations run were 10, 5, 2.5, 1.25, and 0.625 g/L KCl. The LC50 was determined to be 5.0 g/L KCl. This is within the range of 1.25-6.83 g/L KCl presented in the USEPA guideline document. The bench sheets for the reference toxicant tests are located in Appendix 5.

REFERENCES

1. **APHA/AWWA/WEF.** 1998. *Standard Methods for the Examination of Water and Wastewater.* 20th Edition. American Public Health Association, Washington, D.C.
2. **Hach Chemical Company.** 2002. *Hach Water Analysis Handbook.* Hach Chemical Company, Loveland, Colorado. 1260pp.
3. **USEPA.** 1994. *Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates.* EPA-600-R-94-024.

Appendix 1 – Chain of Custody Form

The SeaCrest Group
An Environmental Services Company

1341 Cannon Street • Louisville, Colorado 80027
303-661-9324 • FAX 303-661-9325

Chain of Custody Record

(enclose with each shipping container)

Purchase Order Number: _____

Project Number (lab use only): 304274 #1-12

Client: Curt Rose
Program/Site: Pedricktown
Contact: _____
Phone: 954-927-1165
Address: _____

Collected by: _____

	Sample Identification (Effluent, Receiving, Sediment, list other)	Date Sampled	Time	Sample Type (composite, grab)	Acute: Cerio	Acute: FH Minnow	Acute: Accelerated	Chronic: Cerio	Chronic: FH Minnow	Chronic: Accelerated	TRE	Other	These fields may be used for field test results				Total Units	Total Volume
1	1	9/20/04		Grab	Phase 1-3 Toxicity Tests												1	1gal
2	2	↓		↓	(Acute amphipod; acute Midge, chronic amphipod tests)												↓	↓
3	3					↓				↓					↓			
4	4	↓																
5	5	9/21/04																
6	6	↓																
7	7																	
8	8																	
9	9 10																	
10	11 12	↓ 9/20/04		↓		↓				↓					↓		↓	↓

Comments and special testing instructions:
Run 2 negative controls and 1 positive control for each phase of tests

Relinquished by: Curt Rose
Representing: CDR Environmental
To Whom: Fossil Expln
Date/Time: 9/22/04/1600

Relinquished by: _____
Representing: _____
To Whom: _____
Date/Time: _____

Next recipient: _____
Relinquished by: _____
Rec'd by: [signature]
Date/Time: 092304-1100

WHITE COPY: Accompanies samples

CANARY COPY: [illegible]

The SeaCrest Group
Louisville, CO

Sample Receipt Form

Form #: 42
Effective: November 200[illegible]

Project #: 304274
Date: 092304

Sample #: 1-12
Initials: SP

Samples Were:

1. Shipped Hand Delivered Messengered (circle one)
   Notes:

2. Airbill Present Y N NA
   Notes:

3. Chilled to Ship Ambient Chilled (circle one)
   Notes:
   Ice Blue Ice (circle one)

4. Cooler Received Broken or Leaking Y N NA
   Notes:

5. Sample Received Broken or Leaking Y N NA
   Notes:

6. Received Within Holding Times Y N
   Notes:

7. Aeration necessary Y N NA
   Notes:

8. Sample Received at Temperature between 0-6° C. Y N NA
   Notes: Seds received on Ice

9. Description of Sample (Color, Odor, and/or Presence of Particulate Matter):
   eff: NA

   rec'g

	DO	Temp	pH	Cl
Eff	—	—	—	—
Rec'g				

Aeration

Time	DO	pH

COC Tape Was:

1. Present on Outer Package Y N
2. Unbroken on Outer Package Y N NA
3. Present on Sample Y N
4. Unbroken on Sample Y N NA

COC Record Was:

1. Present Upon Receipt of Sample Y N

Appendix 2 – Water Batches Used for the *Chironomus tentants* and *Hyalella azteca* Tests

04-024	100L	006	50L	9.0	144	0.6	9.0	7.2	112304	RPM

Note: mLs of $NaSeO_4$ are from stocks.

The SeaCoast Group
Louisville, CO

Invertebrate Recirculating System Water Analysis

Page #:
Form #: 27b
Effective: January 2003

Batch #	Hardness*	Alkalinity*	Conductivity†	Ammonia^x	Nitrites^x	Notes	Date	Initials
04-001	90	56	281	<0.1	<0.1		~~AD~~ 1.15	AD
04-002	99	69	299				1.29	SP
04-003	89	70	306	<0.08	<0.1		2.11.04	AW
04-004	91	67	274				2.26.04	SP
04-005	~~83~~ 83	70	274	<0.09	<0.1		3.12.04	AW
04-006	100	61	351				3.25.04	SP
04.007	90	70	313	<0.05	<0.1		4.8.04	SP
04.008	88	63	332				4.22.04	AW
04.009	99	66	342	<0.05	<0.1		5.6.04	SP
04.010	99	63					5.19.04	
04-011	85	66	~~394~~ 311	<0.08	<0.1		6.1.04	AW
04-012	92	60	325				6.15.04	AW
04-013	90	61	312	<0.06	<0.1		6.26.04	SP
04-014	86	69	308				7.8.04	SP
04-015	84	70	313	<0.06	<0.1		7.22.04	SP
04-016	90	67	324				8.5.04	
04-017	89	66	304	<0.05	<0.1		8.19.04	SP
04-018	84	62	309				9.3.04	SP
04-019	86	66	311	<0.06	<0.1		9.22.04	SP
04-020	81	70	297				9.28.04	SP
04-021	80	71	290	<0.01	<0.1		10.12.04	SP
04-022	89	64	290				10.26.04	SP
04-023	81	60	303	<0.01	NO DETECT		11.08.04	SP
04-024	100	102	275				112304	RPM

* Measured in milligrams/liter (mg/L) as $CaCO_3$ — hardness=80-100

† Measured in micromhos/centimeter (µmhos/cm) — alkalinity=60-70

^x Measured in milligrams/liter (mg/L) and tested every other batch

Appendix 3 – Daily Temperature Readings of the Incubator during the *Chironomus tentants* and *Hyalella azteca* Test

The SeaCrest Group
Louisville, CO

Incubator 1 Temperature Record

Page #:
Form #: 77a
Effective: January 2004

Incubator #: 1	
Incubator Make: Dept. of Ag	Incubator Model: PC678
Acceptable Temperature Range: 24-26°C	Acceptable Light Range: 50-100 foot candles
NIST Correction:	Date of NIST Correction:
Date: Initials:	Light Meter Reading Top:
Light Meter Reading Middle:	Light Meter Reading Bottom:

Date	Temperature	Initials	Maintenance	Notes
10·27·04	25	RPM		
10·28·04	24.8	RPM		
10·29·04	25.7	RPM		
10·30·04	25.4	RPM		
63104	25.0	SP		
110104	25.4	SP	Replaced bulb #2	
110204	25.6	SP		
110304	25.2	RPM		
110404	25.2	SP		
110504	25.6	RPM		
110604	25.9	RPM		
110704	25.8	SP		
110804	26.0	SP		
110904	26.0	RPM		
111004	26.0	RPM		
111104	25.4	RPM		
111204	25.5	RPM		
111304	25.5	RPM		
111404	25.5	SP		
111504	25.4	SP		
111604	24.7	RPM		
111704	26.2	RPM		
111804	25.4	RPM		
111904	24.9	RPM		
112004	25.0	RPM		
112104	26.0	SP	replaced bulb #1	
112204	26.0	SP		
112304	25.0	RPM		
112404	25.0	RPM		
112504	24.9	SP		

The SeaCrest Group
Louisville, CO

Incubator 1 Temperature Record

Page #:
Form #: 77a
Effective: January 2004

Incubator #: 1	
Incubator Make: Dept. of Ag	Incubator Model: PC678
Acceptable Temperature Range: 24-26°C	Acceptable Light Range: 50-100 foot candles
NIST Correction:	Date of NIST Correction:
Date: Initials:	Light Meter Reading Top:
Light Meter Reading Middle:	Light Meter Reading Bottom:

Date	Temperature	Initials	Maintenance	Notes
112604	25.1	SP		
112704	26.0	SP		
112804	25.7	SP		
112904	25.7	SP		
113004	25.9	SP		
120104	25.9	RPM		
120204	26.0	RPM		
120304	26.0	RPM		
120404	26.0	RPM		
120504	25.9	SP	Replaced bulbs #3,4	
120604	26.0	SP		
120704	25.9	RPM		
120804	25.9	RPM		
120904	25.7	SP		
121004	25.8	RPM		
121104	26.1	RPM		
121204	25.8	SP		
121304	25.2	SP		
121404	25.8	RPM		
121504	26.0	SP		
121604	26.0	SP		
121704	25.9	RPM		
121804	25.8	RPM		
121904	25.8	SP		
122004	26.0	SP	Replaced bulb #2	
122104	25.4	RPM		

The SeaCrest Group
Louisville, CO

Drying Oven Temperature Record

Page #:
Form #: 77h
Effective: January 2003

Drying Oven:	1			
Make:	American Scientific		Model:	
Acceptable Temperature Range:			90-110°C	
NIST Correction:			Date of NIST Correction:	
Date	Temperature	Initials	Maintenance	Notes
10·15·04	110	SP		
10-16-04	110	RPM		
10·17·04	110	SP		
10·18·04	96	SP		
10·19·04	90°	RPM		
10·20·04	90	SP		
10·21·04	110	SP		
10·22·04	103°	RPM		
10·23·04	104	RPM		
10·24·04	100	SP		
10·25·04	110	SP		
10·26·04	90	RPM		
10·27-04	90	RPM		
10·28-04	110	RPM		
10·29-04	110	RPM		
10·30·04	109	RPM		
103104	106	SP		
110104	110	SP		
110204	89	SP		
110304	91	RPM		
110404	112	SP	Turned down	
110504	115	RPM	TURNED DOWN	
110604	109	RPM		
110704	110	SP		
110804	110	SP		
110904	90	RPM		
111004	90	RPM		
111104	110	RPM		
111204	90	RPM		
111304	110	RPM		
111404	110	SP		
111504	109	SP		

The SeaCrest Group
Louisville, CO

Drying Oven Temperature Record

Page #:
Form #: 77h
Effective: January 2003

Drying Oven:	1			
Make:	American Scientific		Model:	
Acceptable Temperature Range:			90-110°C	
NIST Correction:			Date of NIST Correction:	
Date	Temperature	Initials	Maintenance	Notes
11.16.04	92°	RPM		
11.17.04	91°	RPM		
111804	110	RPM		
111904	110°	RPM		
112004	110	RPM		
112104	102	SP		
112204	95	SP		
112304	90	RPM		
112404	90	RPM		
112504	110	SP		
112604	110	SP		
112704	110	SP		
112804	110	SP		
112904	109	SP		
113004	94	SP		
120104	100	RPM		
120204	100	RPM		
120304	110	RPM		
120404	110	RPM		
120504	110	SP		
120604	110	SP		
120704	110	RPM		
120804	110	RPM		
120904	108	SP		
121004	110	RPM		
121104	110°	RPM		
121204	108	SP		
121304	109	SP		
121404	90	RPM		
121504	91	SP		
121604	90	SP		
121704	105	RPM		

Appendix 4 – Test Organism Supplier History Sheets

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

AQUATIC BIO SYSTEMS ABS INC.

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

received
10.5.04 - SP

ORGANISM HISTORY

DATE: 10/4/04

SPECIES: Hyalella azteca

AGE: 6-8 day

LIFE STAGE: Juvenile

HATCH DATE: Variable

BEGAN FEEDING: Immediately

FOOD: Flake slurry

DO_i: 6.8
Temp: 23.7
pH_i: 7.7
DO_f: 6.8
pH_f: 7.8

Water Chemistry Record:

	Current	Range
TEMPERATURE:	23°C	22-25°C
SALINITY/CONDUCTIVITY:	–	–
TOTAL HARDNESS (as $CaCO_3$):	198 mg/l	154-232 mg/l
TOTAL ALKALINITY (as $CaCO_3$):	70 mg/l	50-95 mg/l
pH:	7.80	6.94-7.80

Comments:

Facility Supervisor

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-251

ORGANISM HISTORY

#113004 ABSChir

DO$_i$ - 3.9
pH - 7.1
temp - 21.5
DO$_f$ - 4.4

DATE: 11/30/04

SPECIES: Chironomus tentans

AGE: Deposited on 11/18/04

LIFE STAGE: Second Instar 11/29/04

HATCH DATE: Emergent date 12/12/04

BEGAN FEEDING: Immediately

FOOD: Selenastrum, Flake slurry

Water Chemistry Record:	Current	Range
TEMPERATURE:	23°C	23-26°C
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as $CaCO_3$):	102 mg/l	74-170 mg/l
TOTAL ALKALINITY (as $CaCO_3$):	55 mg/l	50-105 mg/l
pH:	7.88	7.51-8.25

Comments:

Facility Supervisor

Appendix 5 – Reference Toxicant Test Bench Sheets

LC_{50} = 341.5 ppb

The SeaCrest Group
Louisville, CO

Sediment Organism Reftox Benchsheet

Form #: 108
Effective: October 2002

Purpose: Hyallela a. Salt Used: 500 mg/L Date Made: 101604
Dilution Series: 50% Template #: 8 Dilution Water: MH-04-020
Name, age & source: Hyalella a., 7-3 day old, ABS Test Start: 101604-1245 Test End: 101004-1210
Test Conditions:

	0	24	48	72	96
(C)					
0					
					D
DO	6.8				
Temp	23.3	23.2	22.3	23.4	24.0
pH	7.9				8.2
Cond	302				315
(1)					
6%					
					D
31.125 ppb					
DO	6.8				
Temp	23.3	23.2	22.4	23.3	24.0
pH					8.2
Cond	321				340
(2)					
12.5%					
					D
62.5 ppb					
DO	6.8				
Temp	23.3	23.4	22.4	23.4	23.9
pH	7.9				8.1
Cond	384				396
Initials	SP	SP	RPM	SP	SP

	0	1	2	3	4
(3)					
25%					
				D	
125 ppb					
					D
DO	7.0				
Temp	23.3	23.3	22.5	23.5	23.9
pH	7.9				8.1
Cond	477				488
(4)					
50%					
		D			
250 ppb					D
				D	
			D		
DO	7.0				
Temp	23.2	23.4	22.4	23.1	23.9
pH	7.8				8.0
Cond	653				660
(5)				D	
100%					D
			D		
500 ppb			D		
				D	
					D
					D
DO	7.1				
Temp	23.1	23.4			
pH	6.4				
Cond	1008				
food	0.1 mL		0.1 mL		

	Reftox1	Reftox2	Recon #1	Recon #2
Hardness			80	
Alkalinity			71	
Chlorine				
Ammonia				

1. Exposure Chamber
Total Capacity: 30 ml
Test Solution Surface Area: cm²
Test Solution Volume: 15 ml
Water Depth (constant): cm
(cyclic): to cm

3. Aeration
Slow:
Med:
Fast:

2. Feeding Schedule
Not fed:
Fed Irregularly: 0 & 48 hours
Fed Daily:
Food Used: 0.1 mL Flake Slurry

4. Screened Animal Enclosers
Not Used: X Used: cm diameter

5. Condition/appearance of surviving organisms at end of test (i.e., alive but immobile; loss of orientation; erratic movement; etc.):

6. Comments:

********** Version 2.5 **********

Results calculated using the Summary Method.

****

Sponsor	:	CURT ROSE
Species	:	HYALLELA AZTECA
Study Number	:	304274
Dates of test	:	10-06-04 to 10-10-04
Test Material	:	KCL
Concentration Units	:	PPB
Report run by	:	AD
Date of report	:	10-25-2004

****

REFTOX - 96 HOUR

****

Concentration (PPB)	Number Exposed	Number Dead	Percent Dead	Corrected Number Dead	Corrected Percent Dead
500.0	10	7	70.0	7	70.0
250.0	10	4	40.0	3	30.0
125.0	10	2	20.0	1	10.0
62.5	10	1	10.0	0	0.0
31.3	10	1	10.0	0	0.0
Control	10	1	10.0	0	0.0

****

Method	W	LC50	95% Confidence Limits Lower	Upper	Slope
Results NOT corrected for Spontaneous Mortality					
Binomial		314.10	62.50	0.00	--N/A--
Moving Average	*	307.91	154.63	3335.22	--N/A--
Probit		310.50	176.65	1253.03	1.63
Logit		309.35	173.38	1216.46	2.77
Results corrected for Spontaneous Mortality					
Binomial		353.55	125.00	0.00	--N/A--
Moving Average	*	353.55	229.29	1120.96	--N/A--
Probit		347.27	241.83	662.17	3.25
Logit		359.64	217.46	1032.41	3.65

Note -- In order to produce this summary report, no warning or diag-

The SeaCrest Group
Louisville, CO

Sediment Organism Reftox Benchsheet

LC50 = 5.0 g/L

Form #: 108
Effective: October 2002

Purpose: Chiron Reftox Salt Used: KCl (10 g/L) Date Made: 113004
Dilution Series: 50% Template #: 7 Dilution Water: MH Recon
Name, age & source: Chiron ~ 10 day old - ABS Test Start: 113004 - 1000 Test End: 120404 - 1100
Test Conditions:

	0	24	48	72	96
(C)					
0					
DO	7.0	6.4	6.4	6.3	6.2
Temp	23.5	22.5	22.7	22.5	23.0
pH	8.0	7.8	7.9	8.0	8.1
Cond	305				
(1)					
0.625					
					0
DO	7.1	6.3	6.3	6.0	6.1
Temp	23.5	22.5	22.8	22.4	23.0
pH	7.9	7.7	7.8	7.9	8.0
Cond	1143				
(2)					
1.25					
DO	7.1	6.5	6.5	6.3	6.2
Temp	23.4	22.5	22.7	22.4	23.1
pH	8.0	7.5	7.6	7.6	7.8
Cond	2011				
Initials	SP	SP	SP	SP	SP

	0	1	2	3	4
(3)					
2.5		0	—	—	—
DO	6.7	6.7	6.8	6.7	6.7
Temp	23.5	22.5	22.8	22.5	23.1
pH	7.8	7.7	7.8	7.9	7.9
Cond	3660				
(4)					
5.0		0	—	—	—
		0	—	—	—
			0	—	—
				0	—
				0	—
DO	6.9	6.8	6.5	6.3	6.5
Temp	23.5	22.6	22.8	22.6	23.0
pH	7.9	7.4	7.6	7.7	7.7
Cond	6960				
(5)					
10.0		0	—	—	—
		0	—	—	—
		0	—	—	—
				0	—
		0	—	—	—
			0	—	—
		0	—	—	—
		0	—	—	—
		0	—	—	—
		0	—	—	—
DO	6.5	6.0	6.2	6.5	
Temp	23.4	22.5	22.7	22.6	
pH	8.0	6.5	6.9	7.1	
Cond	12360				
food	0.25		0.25		

	Reftox1	Reftox2	Recon #1	Recon #2
Hardness				
Alkalinity				
Chlorine				
Ammonia				

1. Exposure Chamber
Total Capacity: 30 ml
Test Solution Surface Area: cm^2
Test Solution Volume: 15 ml
Water Depth (constant): cm
(cyclic): to cm

3. Aeration
Slow:
Med:
Fast:

2. Feeding Schedule
Not fed:
Fed Daily:
Fed Irregularly: 0 & 48 hours
Food Used:

4. Screened Animal Enclosers
Not Used: X
Used: cm diameter

5. Condition/appearance of surviving organisms at end of test (i.e., alive but immobile; loss of orientation; erratic movement; etc.):

6. Comments:

********** version 2.5 **********

Results calculated using the Binomial Method.

****

Sponsor	:	CURT ROSE
Species	:	CHIRONOMID TENTANS
Study Number	:	REFTOX - SED.
Dates of test	:	11-30-04 to 12-04-04
Test Material	:	KCL/RECON
Concentration Units	:	G/L
Report run by	:	AD
Date of report	:	12-21-2004

****

96 HOUR ACUTE

****

Concentration (G/L)	Number Exposed	Number Dead	Percent Dead
10.0	10	10	100.0
5.0	10	5	50.0
2.5	10	1	10.0
1.3	10	0	0.0
0.6	10	1	10.0
Control	10	0	0.0

****

Concentration (G/L)	Binomial Probability (%)
10.0	0.098
5.0	62.207
2.5	0.977
1.3	0.098
0.6	0.977

****

Note -- The Binomial test shows that 2.5 and 10 G/L can be used as statistically sound conservative 95 % confidence limits because the actual confidence level associated with these limits is greater than 95 %.

Note -- 5 G/L can be used as an aproximate LC50 for this set of data.

********** End Of Report **********

Appendix 6 – Daily Instrument Readings

Daily Temperature, Dissolved Oxygen and Beginning/Ending Water Quality Readings for *Chironomus tentants* and *Hyalella azteca* Tests

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-01
H_2O: MH REGW
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	A		B		E		F		G		C	
DO	5.8		5.7		6.9	5.6	5.7	6.3	6.8	5.8	7.1	6.6
Temp °C	22.7		22.6		22.0	22.3	22.0	22.4	22.3	23.2	22.0	23.0

pH	6.9
alkalinity	53
hardness	125
ammonia	1.44
conductivity	403

	3				4				5			
Day	Fr				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	D		H		A		G		B		F	
DO	7.0	5.8	4.7	4.4	7.1	7.2	6.7	7.1	7.0	6.3	6.3	6.2
Temp °C	22.2	22.7	22.5	22.9	22.0	23.1	22.0	23.3	22.1	22.0	22.0	22.0

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	E		C		D		G		A		E	
DO	5.6	5.8	6.3	6.1	6.6	3.0*	6.0	2.9*	6.3	5.9	5.1	6.1
Temp °C	22.6	24.0	24.0	23.8	23.2	23.9	23.7	24.0	22.1	23.6	22.7	23.8

*DO low due to H_2O changeout mixing up seds slightly. Aeration immediately after to bring DO back up.

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	B		C		A		E	
DO	6.5	5.5	6.7	6.2		4.5		5.8
Temp °C	23.1	23.9	23.4	23.0		22.8		22.9

pH	7.2
alkalinity	71
hardness	55
ammonia	1.53
conductivity	421

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-02
H_2O: MH RECON
Sample Date: 072104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	A		B		H		G		C		E	
DO	2.5	/	3.4	/	5.9	4.1	6.0	5.4	2.8	6.0	6.5	6.3
Temp °C	22.7		22.7		22.3	22.1	22.3	22.1	23.6	22.3	23.5	22.1

pH	6.9
alkalinity	49
hardness	112
ammonia	9.07
conductivity	414

	3				4				5			
Day	F				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	D		H		A		G		B		H	
DO	6.0	5.8	6.3	5.3	7.2	6.6	6.7	7.1	7.0	7.1	7.2	6.4
Temp °C	22.3	23.0	22.0	22.9	22.1	23.3	22.0	23.0	22.0	22.0	22.1	22.0

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	C		E		D		G		A		E	
DO	4.7	4.8	6.1	5.5	6.1	*2.8	6.2	3.2*	6.1	6.7	5.7	6.6
Temp °C	22.6	24.0	22.8	24.0	23.5	24.0	23.3	24.0	22.5	23.5	22.8	23.4

*do low due to H_2O changeout mixing seals slightly. aeration immediately after to bring do back up.

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	B		C		A		E	
DO	3.1	3.3	6.1	5.1	/	5.6	/	6.8
Temp °C	23.9	23.7	23.8	23.9	/	22.6	/	22.8

pH	6.9
alkalinity	55
hardness	131
ammonia	10.0
conductivity	421

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-03
H_2O: MH REC
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	A		B		D		F		C		E	
DO	4.0		3.5		6.4	5.5	6.0	5.2	6.0	5.9	5.5	5.8
Temp °C	22.6		22.7		22.5	22.5	22.4	22.0	22.6	22.3	23.2	22.5
pH	1.9											
alkalinity	218											
hardness	122											
ammonia	0.973											
conductivity	429											

	3				4				5			
Day	F				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	D		H		A		G		B		C	
DO	6.0	5.7	7.0	6.3	6.8	7.5	7.4	7.1	7.6	6.7	6.3	6.2
Temp °C	22.7	22.7	22.1	22.2	22.1	23.0	22.2	23.3	22.1	22.0	22.1	22.0

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	F		E		D		G		A		E	
DO	5.9	5.6	4.7	4.4	5.6	4.0	5.0	4.0	6.6	6.4	6.8	6.4
Temp °C	23.3	23.8	24.0	24.0	24.0	24.0	24.0	23.9	22.8	23.6	22.9	23.4

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	B		C		A		E	
DO	4.8	4.3	5.6	4.4		5.9		6.7
Temp °C	23.4	23.7	23.7	23.9		23.1		22.7
pH								7.2
alkalinity								50
hardness								136
ammonia								0.998
conductivity								440

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-04
H_2O: MH RECON
Sample Date: 092404
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	# 0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	C		A		C		F		B		G	
DO	3.9	/	4.0	/	5.9	5.9	5.8	5.9	6.5	5.0	6.2	5.7
Temp °C	22.0	/	22.0	/	24.0	23.2	23.5	23.3	22.3	22.0	22.0	22.0
pH	7.8											
alkalinity	63											
hardness	130											
ammonia	2.20											
conductivity	481											

* AERATION beginning

	3				4				5			
Day	F				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	D		H		A		B		G		E	
DO	6.4	6.9	6.9	7.0	6.9	6.2	7.1	6.7	6.8	6.1	6.8	5.2
Temp °C	22.3	23.1	22.1	23.2	22.1	22.3	22.7	22.1	22.0	22.1	22.1	22.1

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	C		F		D		H		G		E	
DO	6.3	4.6	6.5	4.5	5.5	5.2	5.9	5.4	7.4	6.9	6.9	6.6
Temp °C	23.0	23.8	22.9	23.8	24.0	23.5	24.0	23.8	23.1	23.0	22.0	23.1

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	A		B		E		G	
DO	6.3	4.4	6.3	5.8	/	6.8	/	6.7
Temp °C	22.9	23.6	23.0	23.5	/	22.3	/	22.5

pH	7.7
alkalinity	75
hardness	135
ammonia	2.89
conductivity	460

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-05
H_2O: MH REGION
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	* 0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	A		B		G		H		D		E	
DO	4.6		3.8		2.5	4.7	5.3	5.6	6.0	5.7	4.2	4.6
Temp °C	22.1		22.0		22.3	22.8	22.9	22.3	22.0	22.0	22.1	22.2

pH	6.9
alkalinity	84
hardness	142
ammonia	4.03
conductivity	533

* Aeration beginning

	3				4				5			
Day	W F				Sat.				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	C		F		A		B		H		F	
DO	6.5	7.1	6.8	6.9	6.9	6.5	5.4	5.6	7.0	6.2	6.8	5.0
Temp °C	22.2	22.1	22.4	23.2	22.2	22.0	22.7	22.5	22.1	22.1	22.0	22.1

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	D		E		G		C		A		B	
DO	6.0	4.2	6.2	5.5	5.8	6.1	5.3	6.1	7.1	6.8	7.2	6.9
Temp °C	23.8	23.7	23.4	23.6	23.8	23.2	23.5	23.3	23.1	23.0	22.2	23.0

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	F		H		F		G	
DO	6.0	5.7	5.1	5.7		6.8		6.9
Temp °C	23.7	23.8	23.8	23.9		22.7		22.9

pH	7.9
alkalinity	90
hardness	145
ammonia	4.89
conductivity	470

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-06
H_2O: MH Reconi
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	* 0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	E		F		G		A		B		H	
DO	4.3	/	4.6	/	5.6	5.3	5.4	5.8	3.3*	4.0	4.1	4.4
Temp °C	22.3	/	22.2	/	23.7	22.8	24.0	23.0	22.0	22.1	22.0	22.0

pH 7.4	~~6.8~~
alkalinity	88
hardness	166
ammonia	3.20
conductivity	603

* Aeration beginning

* aeration increased

	3				4				5			
Day	F				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	C		D		A		B		E		G	
DO	6.4	6.8	5.9	6.2	5.9	5.5	6.7	6.2	6.0	5.6	6.7	5.1
Temp °C	22.3	23.1	22.4	23.4	22.2	22.5	22.3	22.1	22.1	22.1	22.0	22.2

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	F		H		E		C		A		C	
DO	5.6	4.5	5.1	5.0	5.4	6.1	5.6	6.1	6.5	5.9	6.8	6.6
Temp °C	23.2	23.8	23.9	23.6	23.8	23.0	23.7	23.3	23.1	23.0	23.2	23.0

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	B		D		F		G	
DO	5.6	5.8	5.9	6.2	/	5.3	/	5.7
Temp °C	23.9	23.7	23.4	23.6	/	22.8	/	22.5

pH	7.9
alkalinity	92
hardness	181
ammonia	4.15
conductivity	485

st Group
..e, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-07
H_2O: MH RECON
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	A		E		B		G		C		F	
DO	/	3.6	/	2.7	5.0	5.0	5.2	5.1	7.1	6.3	6.7	6.4
Temp °C	/	22.8	/	22.7	23.3	22.5	23.9	22.4	22.1	23.1	22.0	23.9

pH	7.3
alkalinity	~~109~~ EE ~~SE~~ (92)
hardness	~~190~~ EE ~~SE~~ (154)
ammonia	~~.374~~ EE ~~SE~~ (1.76)
conductivity	541

	3				4				5			
Day	Fr				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	D		E		B		A		H		C	
DO	6.7	6.6	6.7	6.6	5.5	6.7	6.4	5.6	5.4	4.8	6.1	5.4
Temp °C	22.3	22.1	22.1	22.3	22.0	22.1	22.1	22.1	22.0	22.2	22.5	22.2

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	F		G		C		D		E		F	
DO	6.3	4.4	6.3	4.6	5.2	5.6	6.1	5.9	6.9	6.4	6.7	6.3
Temp °C	22.0	23.8	22.1	23.6	23.0	23.4	22.8	23.5	22.9	23.6	23.6	23.6

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	B		C		A		H	
DO	6.1	6.7	6.5	6.1	/	5.4	/	6.1
Temp °C	22.2	22.5	22.5	22.7	/	22.6	/	22.7

pH	7.4
alkalinity	98
hardness	165
ammonia	1.81
conductivity	453

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-08
H_2O: MH RECON
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	A		E		B		G		C		F	
DO		6.8		6.7	4.0	5.2	4.4	5.0	6.4	6.1	6.5	5.9
Temp °C		22.7		22.8	23.2	22.3	23.1	22.1	22.1	23.1	22.3	23.0

pH	7.2
alkalinity	65
hardness	157
ammonia	.000
conductivity	508

	3				4				5			
Day	Fr				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	D		E		B		A		H		C	
DO	6.5	6.8	6.7	6.6	6.6	6.5	6.5	6.3	6.3	6.1	6.2	5.7
Temp °C	22.1	22.4	22.2	22.7	22.1	22.3	22.3	22.1	22.0	22.2	22.1	22.2

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	F		G		C		D		E		F	
DO	5.7	4.7	6.0	4.4	5.6	5.6	5.9	5.8	6.6	6.3	3.5	4.4
Temp °C	22.0	23.2	22.1	23.4	22.9	22.9	22.9	23.1	23.7	23.6	23.9	23.9

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	B		C		A		H	
DO	5.1	5.6	6.2	6.5		5.9		6.1
Temp °C	22.6	22.6	22.9	22.7		22.4		22.6

pH	7.8
alkalinity	62
hardness	170
ammonia	0.019
conductivity	468

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
H_2O: MH Regon
Test Setup: 100404
Test Conditions:
Site: Pedricktown
Sample Date: 092104
Hyalella introduced: 100504
Species Info: Hyalella a.
Lab #: 304274-09
Test End:

	0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	A		E		B		G		C		F	
DO	4.4		4.9		3.2	4.3	3.3	5.0	6.6	6.3	6.5	6.2
Temp °C	22.7		22.9		23.2	22.1	23.3	22.2	22.0	24.0	22.4	23.9
pH	7.1											
alkalinity	77											
hardness	152											
ammonia	2.73											
conductivity	573											

	3				4				5			
Day	Fr				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	D		E		B		A		H		C	
DO	6.2	6.2	6.3	6.1	6.7	6.3	6.7	6.5	5.7	5.3	6.3	6.0
Temp °C	22.1	22.3	22.0	22.3	22.3	22.2	22.1	22.2	22.2	22.2	22.1	22.0

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	F		G		C		D		E		F	
DO	5.7	4.3	6.0	4.7	5.6	5.3	6.0	5.5	6.4	6.0	6.4	6.1
Temp °C	22.8	23.9	22.3	23.8	23.0	23.9	23.0	23.0	23.7	23.3	23.3	23.2

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	B		C		A		H	
DO	5.5	6.3	6.4	5.9	6.6		5.9	
Temp °C	23.0	23.0	22.7	22.9	22.0		22.9	

pH	7.7
alkalinity	57
hardness	194
ammonia	2.91
conductivity	458

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-10
H_2O: MH REGON
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	a		e		b		d		F		H	
DO	5.5	5.7	5.9	5.3	5.2	5.9	5.3	5.6	5.7	6.5	6.3	6.6
Temp °C	23.0	22.8	22.7	22.9	23.9	22.1	24.0	22.4	22.1	22.0	22.3	22.1

pH	7.4
alkalinity	64
hardness	~~157~~ 132
ammonia	1.23
conductivity	515

	3				4				5			
Day	F				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	B		G		A		F		e		C	
DO	6.0	6.1	5.9	5.7	6.7	6.4	7.2	6.9	6.1	6.3	6.3	6.1
Temp °C	23.0	22.3	23.2	23.0	22.2	23.2	22.1	23.0	23.1	23.0	23.3	23.0

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	D		H		B		G		A		C	
DO	6.1	5.9	6.5	6.0	5.9	6.0	6.8	6.1	6.7	5.3	5.7	5.4
Temp °C	23.0	23.2	23.7	23.3	22.1	22.0	22.3	22.4	22.5	23.5	22.4	23.1

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	F		C		B		E	
DO	5.9	6.0	6.5	6.4		6.3		6.3
Temp °C	23.9	22.6	23.4	22.0		22.7		22.7

pH	7.75
alkalinity	54
hardness	177
ammonia	0.841
conductivity	425

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-11
H_2O: MH RECON
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	a		e		b		d		F		h	
DO	5.9	~~22~~ *	5.5	*	5.7	5.7	5.9	5.7	6.2	6.5	6.7	6.7
Temp °C	23.2	22.7	23.2	22.9	24.0	22.5	24.0	22.6	22.2	22.0	22.7	22.1

pH	7.6
alkalinity	81
hardness	171
ammonia	1.53
conductivity	540

	3				4				5			
Day	F				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	C		G		A		B		F		E	
DO	6.0	5.9	6.4	6.1	7.3	6.8	7.2	6.9	5.8	6.0	6.9	6.5
Temp °C	23.1	22.3	23.2	22.2	22.1	22.9	22.3	23.1	23.1	23.2	22.8	23.0

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	C		H		D		G		B		E	
DO	6.1	5.9	6.5	6.0	6.9	5.7	6.5	6.4	5.3	4.0	6.6	4.0
Temp °C	22.9	23.6	23.4	23.5	22.3	22.4	22.7	22.6	23.3	23.5	23.1	23.6

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	F		G		A		H	
DO	5.9	5.2	6.3	5.8		6.1		6.0
Temp °C	23.9	23.2	23.5	23.7		22.0		22.0

pH	7.7
alkalinity	77
hardness	165
ammonia	1.54
conductivity	451

*- DO BELOW PERMISSABLE LEVEL, AERATION COMMENCED.

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-12
H_2O: MH RECON
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	a		e		b		d		F		H	
DO	6.1	6.0	6.1	5.9	5.7	5.9	5.8	5.6	6.0	6.2	6.1	6.4
Temp °C	23.3	23.0	22.8	23.1	23.8	22.6	23.9	22.5	22.4	22.5	22.6	22.6

pH	7.3
alkalinity	48
hardness	132
ammonia	5.30
conductivity	531

	3				4				5			
Day	Fr				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	B		G		A		C		D		E	
DO	5.4	6.4	4.9	6.6	7.0	6.8	7.2	6.9	6.4	6.5	5.7	6.1
Temp °C	22.8	22.6	23.1	22.4	22.1	22.8	22.1	23.0	22.9	23.0	23.5	23.4

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	F		C		B		H		A		E	
DO	5.8	5.9	6.5	5.5	6.7	6.0	6.7	6.5	6.0	5.3	5.6	5.1
Temp °C	24.0	23.9	23.6	23.8	23.4	22.3	23.4	22.1	23.2	23.7	23.0	23.5

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	F		G		D		H	
DO	5.7	5.5	6.5	6.2		6.1		6.2
Temp °C	23.5	23.9	23.1	23.4		22.5		22.8

pH	7.7
alkalinity	50
hardness	152
ammonia	4.15
conductivity	436

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: Fredrickstown
Lab #: 304274-13
H_2O: MH-Recon
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	* 0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	C		G		A		B		E		H	
DO	5.3	5.8	5.3	5.6	5.9	5.8	5.6	6.2	6.0	6.5	7.1	6.0
Temp °C	22.8	22.3	23.0	22.2	22.3	22.3	22.2	22.1	22.3	22.5	22.4	22.5
pH	7.8											
alkalinity	109											
hardness	190											
ammonia	.374											
conductivity	557											

* Aeration began on all Reps / Seds

	3				4				5			
Day	F				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	B		G		D		F		C		B	
DO	6.3	6.6	6.0	6.9	7.2	6.0	7.4	6.5	6.8	6.3	6.9	6.4
Temp °C	22.0	22.0	22.1	22.7	22.2	23.0	22.2	22.0	22.0	22.4	22.1	22.5

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	A		E		D		H		F		G	
DO	5.5	6.0	5.9	6.2	6.3	5.6	6.4	6.0	6.9	6.2	6.8	6.1
Temp °C	22.1	23.1	22.2	23.2	23.5	23.4	23.5	23.5	23.5	23.0	22.7	22.3

	9				10			
Day	Th				F			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	C		A		D		F	
DO	6.2		7.1			5.9		5.8
Temp °C	23.5		23.9			23.4		23.0

pH	8.1
alkalinity	121
hardness	203
ammonia	1.89
conductivity	536

The SeaCrest Group
Louisville, CO

10-day Hyalella Benchsheet

Form #: 110a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-14
H_2O: MH RECON
Sample Date: 092104
Species Info: Hyalella a.
Test Setup: 100404
Hyalella introduced: 100504
Test End:
Test Conditions:

	* 0				1				2			
Day	Tu				W				Th			
Date	100504				100604				100704			
a/b rep	a		b		a		b		a		b	
rep	A		E		D		F		E		H	
DO	5.9	5.8	5.7	5.8	5.6	4.5	5.0	5.4	4.9	5.0	3.8	4.5
Temp °C	22.4	22.2	22.1	22.3	22.5	22.3	22.2	22.4	22.4	22.5	22.4	22.6

pH	7.3
alkalinity	101
hardness	172
ammonia	.500
conductivity	539

* Aeration began on all Seds/reps

	3				4				5			
Day	Fr				Sat				Sun			
Date	100804				100904				101004			
a/b rep	a		b		a		b		a		b	
rep	B		G		D		F		A		H	
DO	6.5	5.9	5.9	5.5	4.6	6.6	6.0	6.9	5.9	6.3	6.8	6.4
Temp °C	22.3	22.6	22.1	22.6	22.2	23.0	22.0	22.9	22.0	22.3	22.1	22.4

	6				7				8			
Day	M				Tu				W			
Date	101104				101204				101304			
a/b rep	a		b		a		b		a		b	
rep	D		G		D		H		A		F	
DO	5.7	6.1	5.8	6.0	5.4	5.7	5.8	5.9	4.9	5.1	7.4	6.6
Temp °C	22.1	23.0	22.2	23.1	23.6	23.6	23.8	22.5	22.9	23.1	22.6	23.0

	9				10			
Day	Th				Fr			
Date	101404				101504			
a/b rep	a		b		a		b	
rep	B		H		E		G	
DO	6.8	6.5	6.8	6.6	/	5.9	/	5.9
Temp °C	23.0	23.8	22.8	23.9	/	23.3	/	23.1

pH	7.9
alkalinity	111
hardness	183
ammonia	.655
conductivity	542

The SeaCrest Group
Louisville, CO

10-day Chironomid Benchsheet

Form #: 107a
Effective: November 2002

Client: JR
Site: Pedricktown
Lab #: 304274-1
H_2O: Hard Recon
Sample Date: 112104
Species Info: chiron. t.
Test Setup: 112904
Chironomid introduced: 113004
Test End:
Test Conditions: Aeration beginning Day 8

	0				1				2			
Day	Tues				WEDS				Thurs			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	A		B		C		D		E		F	
DO	2.0	4.3	1.3	4.2	6.5	6.6	7.0	6.7	6.9	6.7	6.0	6.4
Temp °C	22.2	22.0	22.3	22.0	22.5	22.0	22.1	22.2	22.7	22.5	23.5	23.6
pH	6.3											
alkalinity	59											
hardness	142											
ammonia	0.531											
conductivity	535											

	3				4				5			
Day	Friday				Sat				Sun			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		H		B		D		A		C	
DO	7.1	7.2	7.0	6.9	6.7	7.2	6.9	7.1	7.0	6.6	6.7	6.9
Temp °C	22.7	22.1	22.5	22.0	22.6	22.5	22.1	22.0	22.1	22.2	22.1	22.4

	6				7				8			
Day	MON				TUES				WEDS			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	F		G		E		H		B		C	
DO	7.5	6.9	7.8	7.4	7.2	7.4	7.0	7.5	7.3	7.2	6.9	7.1
Temp °C	23.0	22.3	23.1	22.1	22.8	22.7	22.5	22.5	22.3	22.3	22.7	22.6

	9				10			
Day	THURS				FRIDAY			
Date	~~A~~ 120904 ~~D~~				121004			
a/b rep	a		b		a		b	
rep	A		D		B		C	
DO	7.4	7.2	7.3	7.2	7.2		6.9	
Temp °C	22.6	22.2	22.8	22.2	22.9		23.1	

pH	6.5
alkalinity	15
hardness	209
ammonia	0.341
conductivity	436

The SeaCrest Group
Louisville, CO

10-day Chironomid Benchsheet

Form #: 107a
Effective: November 2002

Client: CDR
Site: Pedricktown
Lab #: 304274-2
H_2O: Hard Recon
Sample Date: 09210 4
Species Info: Chiron. t.
Test Setup: 112904
Chironomid introduced: 113004
Test End:
Test Conditions: Aeration begun DAY 0

	0				1				2			
Day	Tues				WEDS				Thurs			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	A		B		C		D		E		F	
DO	2.2	4.7	1.4	4.4	6.4	6.4	5.3	5.10	6.6	6.6	6.7	6.6
Temp °C	22.4	22.0	22.3	22.0	22.5	22.4	23.9	23.5	23.6	23.4	23.4	23.2

pH	6.5
alkalinity	75
hardness	121
ammonia	1.83
conductivity	416

	3				4				5			
Day	Friday				SAT				Sun			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		H		B		D		A		C	
DO	4.6	5.1	7.3	6.8	5.9	6.1	6.5	6.9	7.3	6.6	6.5	6.7
Temp °C	22.1	22.4	22.4	22.3	23.1	23.3	22.9	23.1	22.0	22.3	22.1	22.5

	6				7				8			
Day	MON				TUES				WED			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	F		G		E		H		B		C	
DO	7.1	7.1	7.2	7.3	7.4	7.4	7.5	7.6	7.3	7.2	7.2	7.3
Temp °C	22.1	22.0	22.4	22.1	22.2	22.4	22.1	22.3	22.2	22.3	22.3	22.5

	9				10			
Day	THURS				FRIDAY			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	A		D		B		C	
DO	5.8	7.0	6.9	7.4	5.9		6.6	
Temp °C	23.2	22.1	22.9	22.0	22.7		23.0	

pH	6.8
alkalinity	13
hardness	174
ammonia	5.69
conductivity	425

The SeaCrest Group
Louisville, CO

10-day Chironomid Benchsheet

Form #: 107a
Effective: November 2002

Client: CDR
Site: Pedrittown
Lab #: 304274-3
H_2O: Hard recon
Sample Date: 092104
Species Info: Chiron. t.
Test Setup: 112904
Chironomid introduced: 113004
Test End:
Test Conditions: Aeration begin Day 0

	0				1				2			
Day	Tues				Weds				Thurs			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	A		B		C		D		E		F	
DO	5.6	6.0	5.5	5.9	6.6	6.9	6.5	6.0	6.0	6.5	6.5	6.7
Temp °C	22.4	22.2	22.5	22.3	22.0	22.1	22.9	22.3	23.5	23.5	22.5	22.7

pH	6.3
alkalinity	66
hardness	139
ammonia	1.34
conductivity	421

	3				4				5			
Day	Friday				Sat				Sun			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		H		B		D		F		C	
DO	6.9	7.3	6.8	7.0	6.2	6.5	6.4	6.7	6.7	6.2	6.6	6.7
Temp °C	22.9	22.1	23.1	22.1	22.6	22.9	23.2	23.5	22.1	22.3	22.0	22.2

	6				7				8			
Day	Mon				Tues				Weds			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	E		G		A		H		B		C	
DO	6.5	7.1	6.3	7.0	7.4	7.5	7.6	7.7	6.8	6.9	6.3	6.7
Temp °C	22.5	22.3	22.7	22.4	22.1	22.2	22.0	22.2	22.1	22.4	22.2	22.5

	9				10	
Day	Thurs				Friday	
Date	120904				121004	
a/b rep	a		b		a	b
rep	A		D		B	C
DO	5.3	6.4	7.5	7.6	5.3	6.5
Temp °C	22.1	22.0	22.0	22.0	22.7	22.9

pH	
alkalinity	11
hardness	193
ammonia	0.229
conductivity	429

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Form #: 107a
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Client CDR
Site PEDRICKTOWN
Lab # 304274-4
H_2O HARD RECON
Sample Date 092104
Species Info Chiron. t.
Test Setup 112904
Chironomid introduced 113004
Test End
Test Conditions Aeration started day 0.

	0				1				2			
Day	Tues				Wed.				THURS			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	D		E		C		F		G		H	
DO	1.7	1.9	2.5	2.4	4.0	5.2	6.8	7.1	6.6	5.9	6.8	6.3
Temp °C	23.7	22.7	23.6	22.8	23.3	22.6	23.1	22.4	23.3	22.9	23.9	22.9

pH	6.6
alkalinity	56
hardness	154
ammonia	0.313
conductivity	408

	3				4				5			
Day	Fri.				SAT				SUN			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	A		B		D		F		C		E	
DO	6.5	6.3	6.1	5.8	6.3	6.4	6.1	6.2	6.7	6.7	7.2	7.0
Temp °C	23.6	23.0	23.8	23.2	22.4	22.6	23.1	23.3	23.2	22.2	23.3	22.1

	6				7				8			
Day	MON				TUES				WEDNESDAY			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	H		A		G		B		A		B	
DO	6.6	6.5	6.6	6.8	7.6	7.4	6.9	6.9	6.6	6.4	6.9	6.6
Temp °C	23.1	23.5	23.0	23.2	23.8	23.1	23.7	22.9	23.6	23.3	23.4	23.4

	9				10			
Day	THURSDAY				Friday			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	C		D		E		F	
DO	6.6	6.6	6.9	6.6	6.1	/	7.1	/
Temp °C	23.3	22.5	23.0	22.8	22.0	/	22.3	/

pH	7.5
alkalinity	32
hardness	176
ammonia	0.82
conductivity	419

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10-day Chironomid Benchsheet

Form #: 107a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-5
H_2O: HARD RECON
Sample Date: 092104
Species Info:
Test Setup: 112904
Chironomid introduced: 113004
Test End:
Test Conditions: Aeration started day 0

	0				1				2			
Day	TUES				Wed				THURS			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	D		E		C		F		G		H	
DO	1.9	2.2	1.7	2.3	6.9	7.3	4.3	6.1	6.8	7.1	6.8	6.9
Temp °C	23.9	22.1	23.8	22.2	23.5	22.5	23.6	22.3	23.1	22.8	23.6	22.8
pH	6.7											
alkalinity	78											
hardness	157											
ammonia	0.393											
conductivity	413											

	3				4				5			
Day	FRI				SAT				SUN			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	A		B		D		F		C		E	
DO	5.5	5.9	6.4	6.7	6.1	6.4	5.9	6.3	6.5	6.9	7.0	7.0
Temp °C	23.4	23.2	27.4	23.1	22.1	22.3	22.4	22.6	23.9	22.4	23.7	22.6

	6				7				8			
Day	MON				TUES				WEDNESDAY			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	H		A		B		G		A		B	
DO	6.9	6.6	5.9	6.4	7.0	7.0	7.2	7.2	6.8	6.6	7.0	6.9
Temp °C	23.2	23.4	23.1	23.4	23.9	23.2	24.0	23.3	23.3	23.1	23.5	23.5

	9				10			
Day	THURSDAY				Friday			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	a		D		C		F	
DO	7.0	6.5	7.1	6.6	7.2	/	7.2	/
Temp °C	22.9	23.1	23.2	22.0	22.2	/	22.3	/

pH	7.3
alkalinity	30
hardness	223
ammonia	0.226
conductivity	425

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10-day Chironomid Benchsheet

Form #: 107a
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Client CDR
Site PEDRICKTOWN
Lab # 304274-6
H_2O HARD RECON
Sample Date 092104
Species Info
Test Setup 112904
Chironomid introduced 113004
Test End
Test Conditions Aeration started day 0

	0				1				2			
Day	TUES				Wed.				THURS			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	D		E		C		F		G		H	
DO	2.9	3.2	3.2	3.3	6.5	7.5	7.6	8.0	6.6	7.4	6.8	7.3
Temp °C	23.9	22.4	23.9	22.2	23.8	22.3	23.8	22.2	23.6	22.9	23.0	23.1

pH	6.6
alkalinity	99
hardness	152
ammonia	0.433
conductivity	470

	3				4				5			
Day	FR.				SAT				SUN			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	A		B		D		F		C		E	
DO	6.5	7.3	6.5	7.2	6.3	7.0	6.7	7.1	6.9	7.0	7.8	7.3
Temp °C	23.8	23.2	23.7	23.1	23.2	23.0	23.4	23.3	23.7	22.3	23.8	22.5

	6				7				8			
Day	MON				TUES				WEDNESDAY			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	A		H.		B		G		A		B	
DO	6.8	6.6	6.6	6.6	6.5	7.0	7.3	7.5	6.7	6.2	7.2	6.6
Temp °C	23.2	23.5	23.0	23.2	23.9	23.3	23.9	23.3	23.1	23.1	23.4	22.8

	9				10			
Day	Thursday				Friday			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	C		D		E		F	
DO	6.8	6.7	7.0	6.7	4.2	/	4.5	/
Temp °C	22.5	22.9	23.1	22.6	22.4	/	22.5	/

pH	7.3
alkalinity	57
hardness	192
ammonia	0.177
conductivity	465

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Form #: 107a
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Client CDR
Site PEDRICKTOWN
Lab # 304274-7
H_2O HARD RECON
Sample Date 092104
Species Info Chiron. t
Test Setup 112904
Chironomid introduced 113004
Test End
Test Conditions Aeration started 11/30/04

	0				1				2			
Day	TUES				WEDS				Thurs			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	D		E		A		B		C		F	
DO	1.1	3.1	0.9	4.5	3.5	5.2	5.6	6.9	6.5	6.7	6.6	6.7
Temp °C	23.0	22.1	23.5	22.2	23.4	22.2	22.1	22.1	24.0	23.5	23.5	23.7
pH	6.8											
alkalinity	88											
hardness	166											
ammonia	0.116											
conductivity	469											

	3				4				5			
Day	FRI				SATURDAY				SUN			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		H		a		b		C		D	
DO	6.7	6.9	6.7	6.9	6.7	7.1	6.6	6.8	6.2	6.4	6.8	6.5
Temp °C	22.4	22.5	22.5	22.6	23.2	23.5	23.9	23.3	24.0	22.2	23.9	22.3

	6				7				8			
Day	MON				TUES				Wed			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	E		H		G		F		A		B	
DO	6.7	6.5	6.0	6.8	4.6	6.9	6.4	6.8	5.3	6.3	6.9	7.1
Temp °C	24.0	23.2	23.9	23.6	23.4	24.0	24.0	23.4	22.4	22.2	22.5	22.3

	9				10			
Day	Thurs				FRI			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	G		H		A		B	
DO	6.7	6.9	6.0	6.0	6.3		6.5	
Temp °C	22.1	22.3	23.4	22.2	22.3		22.6	

pH	7.0
alkalinity	55
hardness	188
ammonia	0.202
conductivity	468

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Form #: 107a
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Client CDR
Site PEDRICKTOWN
Lab # 304274-8
H_2O HARD RECON
Sample Date 092104
Species Info Chiron. t.
Test Setup 112904
Chironomid introduced 113004
Test End
Test Conditions Aeration started 11/30/04

	0				1				2			
Day	TUES				WEDS				Thurs			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	D		E		A		B		C		F	
DO	7.6	7.6	7.6	7.7	4.3	6.7	5.1	7.2	7.0	6.9	6.6	6.7
Temp °C	23.4	22.2	23.5	22.1	23.5	22.2	22.1	22.2	22.8	22.9	23.5	23.7
pH	7.1											
alkalinity	103											
hardness	170											
ammonia	0.341											
conductivity	407											

	3				4				5			
Day	Fri				SATURDAY				SUN			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		H		a		b		C		D	
DO	6.5	6.9	5.3	6.8	5.9	6.9	6.5	7.0	6.9	6.9	7.2	7.1
Temp °C	23.5	23.4	23.9	23.6	23.5	23.3	23.8	23.3	23.8	22.4	23.7	22.4

	6				7				8			
Day	MON				TUES				Wed			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	E		H		F		G		A		B	
DO	6.4	6.6	6.3	6.4	4.1	6.1	6.3	6.5	6.0	6.7	6.5	6.6
Temp °C	23.7	23.1	24.0	23.5	23.5	23.4	23.7	24.0	23.9	22.6	24.0	22.7

	9				10			
Day	Thurs				FRI			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	G		H		A		B	
DO	5.4	6.2	2.7	5.0	6.2		6.5	
Temp °C	22.1	22.4	23.1	22.3	23.1		22.8	

pH	7.0
alkalinity	65
hardness	186
ammonia	0.209
conductivity	411

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Client CDR
Site PEDRICKTOWN
Lab # 304274-9
H_2O HARD RECON
Sample Date 092104
Species Info Ch.sun.t.
Test Setup 112904
Chironomid introduced 113004
Test End
Test Conditions Aeration started 11/30/04

	0				1				2			
Day	TUES				WEDS				Thurs			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	D		E		A		B		C		F	
DO	6.2	7.2	6.3	7.4	6.3	7.4	6.7	7.5	5.0	6.5	6.5	7.0
Temp °C	23.6	22.0	23.8	22.1	22.8	22.3	23.2	22.2	24.0	23.7	23.9	23.7

pH	6.4
alkalinity	88
hardness	157
ammonia	0.484
conductivity	478

	3				4				5			
Day	FRI				SATURDAY				SUN			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		H		a		b		C		E	
DO	4.0	5.9	5.7	6.5	5.5	7.1	6.3	7.2	5.7	6.1	7.0	6.8
Temp °C	22.9	23.7	23.8	23.5	23.2	23.4	23.1	23.1	23.6	22.5	23.6	22.5

	6				7				8			
Day	MON				TUES				Wed			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	H		F		D		G		A		B	
DO	6.0	6.4	6.2	6.5	7.0	7.2	6.4	7.4	5.0	6.0	5.9	6.7
Temp °C	24.0	23.1	23.8	22.9	23.1	23.3	23.4	23.7	24.0	23.1	23.9	23.1

	9				10			
Day	Thurs				Friday			
Date	120904							
a/b rep	a		b		a		b	
rep	G		H		A		C	
DO	5.4	6.6	5.9	6.6	6.1	/	5.8	/
Temp °C	23.5	22.3	23.5	22.3	23.0		22.7	

pH	6.6
alkalinity	18
hardness	172
ammonia	0.213
conductivity	489

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10-day Chironomid Benchsheet

Form #: 107a
Effective: November 2002

Client CDR
Site FREDRICKTOWN
Lab # 304274-10
H_2O HARD RECON
Sample Date 092104
Species Info Chirow t.
Test Setup 112904
Chironomid introduced 113004
Test End
Test Conditions Aeration started Day 0

	0				1				2			
Day	Tues				WED				THURS			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	a		b		C		D		E		F	
DO	3.9	5.3	3.5	4.9	6.6	6.6	6.9	6.8	7.8	7.2	8.0	7.3
Temp °C	22.3	22.1	22.4	22.0	24.0	23.1	23.8	23.2	22.4	22.1	22.3	22.1

pH	6.8
alkalinity	54
hardness	177
ammonia	0.841
conductivity	402

	3				4				5			
Day	FRIDAY				SATURDAY				SUN			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		H		a		b		C		D	
DO	6.9	6.9	7.0	7.0	6.9	7.0	7.0	7.2	6.8	6.9	7.1	6.9
Temp °C	23.9	22.4	23.7	22.5	23.0	23.5	22.8	23.6	24.0	22.2	23.9	22.3

	6				7				8			
Day	MON				TUESDAY				WED			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	E		F		G		H		A		E	
DO	7.2	7.3	7.4	7.3	6.9	7.0	7.0	6.9	6.9	6.4	6.7	6.5
Temp °C	23.0	22.3	22.9	22.1	23.2	22.8	23.0	23.1	22.8	23.1	22.9	23.3

	9				10			
Day	Thur				FRI			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	C		H		G		E	
DO	6.4	6.5	4.8	5.5	7.1		6.5	
Temp °C	22.1	22.3	22.0	22.1	22.0		22.5	

pH	7.5
alkalinity	56
hardness	167
ammonia	0.208
conductivity	505

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Form #: 107a
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Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-11
H_2O: HARD RECON
Sample Date: 092104
Species Info: chiron t.
Test Setup: 112404
Chironomid introduced: 113004
Test End:
Test Conditions: Aeration started day 0

	0				1				2			
Day	TUES				WED				THURS			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	a		b		c		D		E		F	
DO	0.4	1.4	0.2	0.4	6.3	6.5	6.5	6.7	6.8	6.8	7.4	6.9
Temp °C	22.6	22.2	22.5	22.1	23.9	23.3	23.0	23.5	23.0	22.3	22.7	22.1
pH	6.9											
alkalinity	77											
hardness	165											
ammonia	1.54											
conductivity	436											

	3				4				5			
Day	FRIDAY				SATURDAY				SUN			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		H		a		b		C		D	
DO	6.8	7.0	6.9	6.8	6.7	6.9	7.1	6.7	6.5	6.4	4.7	5.7
Temp °C	23.1	22.4	23.9	22.1	23.3	23.4	23.2	23.1	23.5	22.2	23.4	22.3

	6				7				8			
Day	MON.				TUESDAY				WED			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	E		F		G		H		B		C	
DO	6.6	7.0	7.2	7.2	6.9	6.8	6.8	7.0	6.5	6.7	4.1	5.2
Temp °C	23.5	22.5	23.4	22.5	23.2	23.1	23.5	23.5	22.5	23.0	22.1	23.2

	9				10			
Day	Thur				FRI			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	A		F		E		D	
DO	5.8	6.3	6.0	6.1	5.8		5.9	
Temp °C	22.1	22.4	22.2	22.5	22.2		22.5	

pH	7.4
alkalinity	67
hardness	165
ammonia	0.047
conductivity	489

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10-day Chironomid Benchsheet

Form #: 107a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-12
H_2O: HARD RECON
Sample Date: 092104
Species Info: Chiron. t.
Test Setup: 112904
Chironomid introduced: 113004
Test End:
Test Conditions: Aeration started Day 0

	0				1				2			
Day	TUES				WED				THURS			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	a		b		c		D		E		F	
DO	5.4	6.1	5.6	6.2	6.0	6.6	6.3	6.8	7.2	7.0	7.9	7.4
Temp °C	22.4	22.5	22.1	22.3	23.7	23.2	23.9	23.0	23.2	22.1	22.9	22.0

pH	6.9
alkalinity	50
hardness	152
ammonia	~~4.15~~ 2.25
conductivity	415

	3				4				5			
Day	FRIDAY				SATURDAY				SUN			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		H		a		b		C		D	
DO	6.7	7.0	6.8	7.0	6.8	6.7	6.8	7.1	6.9	6.6	7.3	6.9
Temp °C	23.6	23.2	23.9	23.7	23.4	23.2	22.9	23.6	23.4	22.4	23.2	22.2

	6				7				8			
Day	MON				TUESDAY				WED			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	E		F		G		H		C		E	
DO	6.2	6.6	7.0	7.1	6.6	6.9	6.6	6.8	6.4	6.6	5.6	6.0
Temp °C	23.9	22.6	23.8	22.4	22.9	23.1	23.1	23.0	23.1	23.4	22.9	23.1

	9				10			
Day	Thur				FRI			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	B		F		A		F	
DO	5.8	6.5	6.1	6.2	6.1		6.2	
Temp °C	22.3	22.1	23.0	22.7	22.5		22.3	

pH	7.2
alkalinity	25
hardness	124
ammonia	0.201
conductivity	470

The SeaCrest Group
Louisville, CO

10-day Chironomid Benchsheet

Form #: 107a
Effective: November 2002

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-13
H_2O: Hard Recon
Sample Date: 092104
Species Info: Chiron. t
Test Setup: 112904
Chironomid introduced: 113004
Test End:
Test Conditions: Aeration beginning Day Ø

	0				1				2			
Day	Tu				Weds				Thurs			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	A		B		C		D		E		F	
DO	0.4	1.1	2.3	3.0	6.8	7.3	6.4	7.4	6.0	6.3	6.7	6.9
Temp °C	22.2	24.3	22.0	22.4	22.3	23.2	22.5	23.2	23.6	22.2	22.2	22.1
pH	7.0											
alkalinity	110											
hardness	184											
ammonia	6.86											
conductivity	579											

	3				4				5			
Day	Fri				Sat				Sun			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		A		B		D		G		C	
DO	6.9	7.0	6.9	6.8	6.7	7.1	6.9	7.2	7.2	7.0	7.5	6.8
Temp °C	23.1	23.4	23.9	23.1	22.6	22.8	22.1	23.3	22.6	22.0	22.8	22.0

	6				7				8			
Day	Mon				Tues				Weds			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	H		E		A		F		B		C	
DO	6.7	7.0	7.1	6.9	7.5	7.8	7.9	8.2	7.2	7.1	5.9	6.8
Temp °C	22.0	22.5	22.0	22.1	22.0	22.8	22.0	22.7	22.3	22.3	19.9	22.2

	9				10			
Day	Thurs				Fri			
Date	120904				121004			
a/b rep	a		b		a		b	
rep	G		H		A		B	
DO	7.1	6.9	7.1	6.8	6.5		4.9	
Temp °C	22.0	22.5	22.1	22.6	22.3		22.2	

pH	7.2
alkalinity	60
hardness	193
ammonia	4.43
conductivity	540

The SeaCrest Group
Louisville, CO

10-day Chironomid Benchsheet

Form #: 107a
Effective: November 2002

Client: CDR
Site: Pedricktown
Lab #: 304274-14
H_2O: Hard Recon
Sample Date: 092104
Species Info: Chiron. t.
Test Setup: 112904
Chironomid introduced: 113004
Test End:
Test Conditions: Aeration beginning Day Ø

	0				1				2			
Day	Tu				Weds				Thurs			
Date	113004				120104				120204			
a/b rep	a		b		a		b		a		b	
rep	C		A		B		E		F		G	
DO	1.1	3.0	3.1	3.2	7.0	7.1	5.3	7.3	6.5	6.7	6.5	6.9
Temp °C	22.4	22.4	22.2	22.5	22.2	23.6	22.5	23.4	22.1	22.2	22.3	22.4
pH	7.0											
alkalinity	130											
hardness	143											
ammonia	3.20											
conductivity	571											

	3				4				5			
Day	Fri				Sat				Sun			
Date	120304				120404				120504			
a/b rep	a		b		a		b		a		b	
rep	G		A		B		D		E		G	
DO	6.9	7.1	6.1	7.0	6.7	6.9	7.0	7.3	5.4	6.0	7.6	6.9
Temp °C	23.8	23.6	23.1	23.2	23.6	23.8	23.6	23.8	22.3	22.0	22.0	22.2

	6				7				8			
Day	Mon				Tues				Weds			
Date	120604				120704				120804			
a/b rep	a		b		a		b		a		b	
rep	H		C		D		F		B		C	
DO	6.8	7.0	7.0	6.8	7.5	7.6	7.8	7.9	7.1	7.2	7.6	7.3
Temp °C	22.2	22.1	22.3	22.5	22.1	22.5	22.0	22.5	19.5	22.1	20.0	22.2

	9				10			
Day	120904				Fri			
Date	Thurs				121004			
a/b rep	a		b		a		b	
rep	G		H		A		D	
DO	7.0	7.2	6.7	7.0	6.8		7.0	
Temp °C	22.4	22.7	22.4	22.8	22.0		22.3	

pH	7.1
alkalinity	56
hardness	217
ammonia	2.63
conductivity	527

Appendix 8 – Number Surviving and Dry Weight Determinations Per Replicate for the *Hyalella azteca* Test

Date: 11/10/04						
Species: *Hyallela azteca*						
Facility: SeaCrest Group						
Test: 10 Day						
					Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sediment # 1	a	4	1.1622	1.1625	0.3000	0.08
	b	0				
	c	0				
	d	1	1.1682	1.1682	0.0100	0.01
	e	1	1.1437	1.1437	0.0300	0.03
	f	0				
	g	0				
	h	0				
					Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sediment # 2	a	3	1.1407	1.1410	0.30	0.10
	b	4	1.1401	1.1404	0.30	0.08
	c	0				
	d	0				
	e	2	1.1415	1.1418	0.30	0.15
	f	1	1.1501	1.1502	0.10	0.10
	g	0				
	h	3	1.1320	1.1325	0.50	0.17
					Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sediment # 3	a	6	1.1320	1.1328	0.80	0.13
	b	6	1.1729	1.1736	0.70	0.12
	c	4	1.1420	1.1426	0.60	0.15
	d	5	1.1564	1.1568	0.40	0.08
	e	6	1.1477	1.1480	0.30	0.05
	f	4	1.1524	1.1527	0.30	0.07
	g	6	1.1204	1.1211	0.70	0.12
	h	4	1.1403	1.1406	0.30	0.07

Date: 11/10/04
Species: *Hyallela azteca*
Facility: SeaCrest Group
Test: 10 Day

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual
Sediment # 4	a	1	1.1400	1.1401	0.10	0.10
	b	0				
	c	5	1.1136	1.1142	0.64	0.13
	d	1	1.1360	1.1361	0.10	0.10
	e	4	1.1418	1.1420	0.20	0.05
	f	3	1.1448	1.1451	0.30	0.10
	g	1	1.1275	1.1275	0.02	0.02
	h	2	1.1642	1.1643	0.10	0.05

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual
Sediment # 5	a	2	1.1679	1.1683	0.40	0.20
	b	3	1.1439	1.1442	0.30	0.10
	c	3	1.1311	1.1315	0.40	0.13
	d	3	1.1385	1.1389	0.40	0.13
	e	2	1.1521	1.1524	0.30	0.15
	f	4	1.1345	1.1348	0.30	0.07
	g	2	1.1385	1.1387	0.20	0.10
	h	3	1.1476	1.1480	0.40	0.13

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual
Sediment # 6	a	9	1.1526	1.1538	1.2	0.13
	b	7	1.1580	1.1588	0.8	0.11
	c	5	1.1528	1.1532	0.4	0.08
	d	6	1.1621	1.1626	0.5	0.08
	e	7	1.1451	1.1456	0.5	0.07
	f	5	1.1459	1.1465	0.6	0.12
	g	7	1.1615	1.1619	0.4	0.06
	h	6	1.1499	1.1507	0.8	0.13

Date: 11/10/04						
Species: *Hyallela azteca*						
Facility: SeaCrest Group						
Test: 10 Day						
					Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sediment # 7	a	7	1.1449	1.1458	0.90	0.13
	b	6	1.1480	1.1486	0.60	0.10
	c	6	1.1375	1.1380	0.50	0.08
	d	4	1.1666	1.1669	0.30	0.07
	e	3	1.1428	1.1431	0.30	0.10
	f	6	1.1450	1.1455	0.50	0.08
	g	5	1.1489	1.1494	0.50	0.10
	h	3	1.1504	1.1509	0.50	0.17
					Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sediment # 8	a	2	1.1480	1.1481	0.10	0.05
	b	3	1.1622	1.1625	0.30	0.10
	c	6	1.1405	1.1408	0.30	0.05
	d	6	1.1478	1.1480	0.20	0.03
	e	2	1.1539	1.1540	0.10	0.05
	f	2	1.1423	1.1424	0.10	0.05
	g	0				
	h	6	1.1384	1.1388	0.40	0.07
					Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sediment # 9	a	6	1.1458	1.1465	0.70	0.12
	b	9	1.1384	1.1391	0.70	0.08
	c	8	1.1561	1.1566	0.50	0.06
	d	5	1.1320	1.1327	0.70	0.14
	e	7	1.1433	1.1437	0.40	0.06
	f	6	1.1428	1.1434	0.60	0.10
	g	10	1.1500	1.1512	1.20	0.12
	h	8	1.1296	1.1302	0.60	0.08

Date: 11/10/04
Species: *Hyallela azteca*
Facility: SeaCrest Group
Test: 10 Day

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual
Sediment # 10	a	2	1.1558	1.1560	0.20	0.10
	b	3	1.1416	1.1420	0.40	0.13
	c	5	1.1381	1.1386	0.50	0.10
	d	4	1.1499	1.1509	1.00	0.25
	e	2	1.1322	1.1323	0.10	0.05
	f	6	1.1449	1.1456	0.70	0.12
	g	1	1.1391	1.1392	0.10	0.10
	h	2	1.1282	1.1285	0.30	0.15

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual
Sediment # 11	a	0				
	b	1	1.1408	1.1408	0.02	0.02
	c	2	1.1459	1.1460	0.10	0.05
	d	1	1.1411	1.1412	0.06	0.06
	e	2	1.1630	1.1632	0.15	0.07
	f	3	1.1359	1.1362	0.30	0.10
	g	0				
	h	2	1.1377	1.1378	0.09	0.05

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual
Sediment # 12	a	10	1.1336	1.1348	1.20	0.12
	b	8	1.1540	1.1548	0.80	0.10
	c	7	1.1215	1.1224	0.90	0.13
	d	8	1.1216	1.1229	1.30	0.16
	e	6	1.1586	1.1593	0.70	0.12
	f	6	1.1320	1.1325	0.50	0.08
	g	7	1.1330	1.1338	0.80	0.11
	h	8	1.1704	1.1718	1.40	0.17

Date: 11/10/04

Species: *Hyallela azteca*

Facility: SeaCrest Group

Test: 10 Day

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual
Sediment # 13	a	8	1.1419	1.1429	1.00	0.13
Control 1	b	10	1.1353	1.1362	0.90	0.09
	c	8	1.1321	1.1330	0.90	0.11
	d	9	1.1486	1.1499	1.30	0.14
	e	8	1.1585	1.1599	1.40	0.17
	f	7	1.1446	1.1457	1.10	0.16
	g	10	1.1488	1.1497	0.90	0.09
	h	10	1.1401	1.1413	1.20	0.12

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual
Sediment # 14	a	9	1.1543	1.1555	1.20	0.13
Control 2	b	8	1.1666	1.1678	1.20	0.15
	c	10	1.1597	1.1610	1.30	0.13
	d	8	1.1456	1.1466	1.00	0.13
	e	7	1.1337	1.1348	1.10	0.16
	f	10	1.1494	1.1502	0.80	0.08
	g	10	1.1358	1.1369	1.10	0.11
	h	7	1.1498	1.1512	1.40	0.20

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual
Pre-Treated	X	40	1.1505	1.1547	4.20	0.11

Appendix 9 – Number Surviving and Ash-free Dry Weight Determinations Per Replicate for the *Chironomus tentants* Test

Date: 12/16/04
Species: *Chironomus tentans*
Facility: SeaCrest Group
Test: 10 Day

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 1	a	6	1.1548	1.1611	6.30	1.05	1.1559	5.20	0.87
	b	6	1.1585	1.1659	7.40	1.23	1.1595	6.40	1.07
	c	6	1.1346	1.1410	6.40	1.07	1.1356	5.40	0.90
	d	7	1.1342	1.1439	9.70	1.39	1.1358	8.10	1.16
	e	6	1.1563	1.1628	6.50	1.08	1.1572	5.60	0.93
	f	7	1.1381	1.1435	5.40	0.77	1.1391	4.40	0.63
	g	8	1.1404	1.1482	7.80	0.98	1.1405	7.70	0.96
	h	7	1.1520	1.1589	6.90	0.99	1.1536	5.30	0.76

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 2	a	6	1.1508	1.1573	6.50	1.08	1.1513	6.00	1.00
	b	8	1.1533	1.1608	7.50	0.94	1.1541	6.70	0.84
	c	5	1.1457	1.1502	4.50	0.90	1.1457	4.50	0.90
	d	7	1.1272	1.1331	5.90	0.84	1.1278	5.30	0.76
	e	10	1.1230	1.1319	8.90	0.89	1.1243	7.60	0.76
	f	8	1.1237	1.1302	6.50	0.81	1.1247	5.50	0.69
	g	8	1.1317	1.1390	7.30	0.91	1.1328	6.20	0.77
	h	7	1.1526	1.1598	7.20	1.03	1.1533	6.50	0.93

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 3	a	10	1.1553	1.1651	9.80	0.98	1.1555	9.60	0.96
	b	9	1.1520	1.1589	6.90	0.77	1.1522	6.70	0.74
	c	10	1.1477	1.1564	8.70	0.87	1.1483	8.10	0.81
	d	10	1.1586	1.1652	6.60	0.66	1.1594	5.80	0.58
	e	10	1.1538	1.1598	6.00	0.60	1.1539	5.90	0.59
	f	10	1.1362	1.1436	7.40	0.74	1.1378	5.80	0.58
	g	10	1.1422	1.1490	6.80	0.68	1.1429	6.10	0.61
	h	10	1.1527	1.1598	7.10	0.71	1.1530	6.80	0.68

Date: 12/16/04
Species: *Chironomus tentans*
Facility: SeaCrest Group
Test: 10 Day

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 4	a	2	1.1555	1.1591	3.60	1.80	1.1557	3.40	1.70
	b	4	1.1604	1.1648	4.40	1.10	1.1604	4.40	1.10
	c	3	1.1396	1.1438	4.20	1.40	1.1399	3.90	1.30
	d	7	1.1516	1.1615	9.90	1.41	1.1526	8.90	1.27
	e	7	1.1645	1.1739	9.40	1.34	1.1657	8.20	1.17
	f	9	1.1460	1.1572	11.20	1.24	1.1476	9.60	1.07
	g	10	1.1523	1.1636	11.30	1.13	1.1540	9.60	0.96
	h	6	1.1503	1.1582	7.90	1.32	1.1515	6.70	1.12

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 5	a	4	1.1603	1.1630	2.70	0.67	1.1604	2.60	0.65
	b	5	1.1520	1.1625	10.50	2.10	1.1543	8.20	1.64
	c	5	1.1544	1.1609	6.50	1.30	1.1554	5.50	1.10
	d	3	1.1546	1.1588	4.20	1.40	1.1557	3.10	1.03
	e	4	1.1531	1.1587	5.60	1.40	1.1543	4.40	1.10
	f	3	1.1585	1.1664	7.90	2.63	1.1615	4.90	1.63
	g	1	1.1503	1.1525	2.20	2.20	1.1504	2.10	2.10
	h	3	1.1498	1.1559	6.10	2.03	1.1506	5.30	1.77

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 6	a	7	1.1407	1.1548	14.1	2.01	1.1460	8.80	1.26
	b	6	1.1491	1.1651	16	2.67	1.1574	7.70	1.28
	c	7	1.1481	1.1616	13.5	1.93	1.1522	9.40	1.34
	d	5	1.1586	1.1636	5	1.00	1.1610	2.60	0.52
	e	5	1.1506	1.1644	13.8	2.76	1.1538	10.60	2.12
	f	6	1.1563	1.1678	11.5	1.92	1.1596	8.20	1.37
	g	7	1.1554	1.1648	9.4	1.34	1.1613	3.50	0.50
	h	7	1.1532	1.1681	14.9	2.13	1.1574	10.70	1.53

Date: 12/16/04
Species: *Chironomus tentans*
Facility: SeaCrest Group
Test: 10 Day

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 7	a	7	1.1457	1.1547	9.00	1.29	1.1489	5.80	0.83
	b	7	1.1223	1.1327	10.40	1.49	1.1268	5.90	0.84
	c	7	1.1225	1.1334	10.90	1.56	1.1265	6.90	0.99
	d	5	1.1437	1.1491	5.40	1.08	1.1441	5.00	1.00
	e	5	1.1541	1.1614	7.30	1.46	1.1561	5.30	1.06
	f	5	1.1533	1.1596	6.30	1.26	1.1541	5.50	1.10
	g	7	1.1401	1.1496	9.50	1.36	1.1436	6.00	0.86
	h	8	1.1456	1.1567	11.10	1.39	1.1492	7.50	0.94

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 8	a	8	1.1475	1.1632	15.70	1.96	1.1555	7.70	0.96
	b	4	1.1248	1.1370	12.20	3.05	1.1312	5.80	1.45
	c	6	1.1424	1.1490	6.60	1.10	1.1442	4.80	0.80
	d	7	1.1402	1.1552	15.00	2.14	1.1477	7.50	1.07
	e	5	1.1371	1.1540	16.90	3.38	1.1464	7.60	1.52
	f	9	1.1343	1.1488	14.50	1.61	1.1407	8.10	0.90
	g	10	1.1509	1.1669	16.00	1.60	1.1566	10.30	1.03
	h	10	1.1539	1.1877	33.80	3.38	1.1789	8.80	0.88

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 9	a	5	1.1525	1.1604	7.90	1.58	1.1552	5.20	1.04
	b	8	1.1583	1.1702	11.90	1.49	1.1636	6.60	0.82
	c	6	1.1400	1.1460	6.00	1.00	1.1437	2.30	0.38
	d	7	1.1321	1.1427	10.60	1.51	1.1367	6.00	0.86
	e	6	1.1574	1.1640	6.60	1.10	1.1588	5.20	0.87
	f	8	1.1608	1.1708	10.00	1.25	1.1651	5.70	0.71
	g	9	1.1303	1.1460	15.70	1.74	1.1373	8.70	0.97
	h	10	1.1444	1.1549	10.50	1.05	1.1484	6.50	0.65

Date:12/16/04
Species:*Chironomus tentans*
Facility: SeaCrest Group
Test: 10 Day

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 10	a	9	1.1454	1.1580	12.60	1.40	1.1495	8.50	0.94
	b	7	1.1556	1.1727	17.10	2.44	1.1645	8.20	1.17
	c	7	1.1414	1.1525	11.10	1.59	1.1448	7.70	1.10
	d	6	1.1376	1.1471	9.50	1.58	1.1391	8.00	1.33
	e	6	1.1547	1.1715	16.80	2.80	1.1663	5.20	0.87
	f	10	1.1280	1.1433	15.30	1.53	1.1365	6.80	0.68
	g	10	1.1397	1.1742	34.50	3.45	1.1639	10.30	1.03
	h	6	1.1376	1.1477	10.10	1.68	1.1425	5.20	0.87

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 11	a	5	1.1351	1.1445	9.40	1.88	1.1422	2.30	0.46
	b	2	1.1397	1.1433	3.60	1.80	1.1409	2.40	1.20
	c	2	1.1498	1.1528	3.00	1.50	1.1499	2.90	1.45
	d	3	1.1534	1.1594	6.00	2.00	1.1566	2.80	0.93
	e	1	1.1495	1.1503	0.80	0.80	1.1498	0.50	0.50
	f	2	1.1386	1.1405	1.90	0.95	1.1378	2.70	1.35
	g	3	1.1462	1.1506	4.40	1.47	1.1490	1.60	0.53
	h	2	1.1522	1.1546	2.40	1.20	1.1520	2.60	1.30

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 12	a	10	1.1482	1.1668	18.60	1.86	1.1571	9.70	0.97
	b	10	1.1479	1.1712	23.30	2.33	1.1607	10.50	1.05
	c	6	1.1531	1.1637	10.60	1.77	1.1560	7.70	1.28
	d	8	1.1372	1.1530	15.80	1.98	1.1466	6.40	0.80
	e	5	1.1500	1.1571	7.10	1.42	1.1511	6.00	1.20
	f	10	1.1355	1.1642	28.70	2.87	1.1500	14.20	1.42
	g	9	1.1537	1.1743	20.60	2.29	1.1650	9.30	1.03
	h	5	1.1249	1.1320	7.10	1.42	1.1249	7.10	1.42

Date: 12/16/04
Species: *Chironomus tentans*
Facility: SeaCrest Group
Test: 10 Day

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 13 CONTROL 1	a	8	1.1233	1.1437	20.40	2.55	1.1305	13.20	1.65
	b	10	1.1388	1.1673	28.50	2.85	1.1500	17.30	1.73
	c	9	1.1445	1.1806	36.10	4.01	1.1604	20.20	2.24
	d	9	1.1547	1.1669	12.20	1.36	1.1590	7.90	0.88
	e	10	1.1403	1.1663	26.00	2.60	1.1507	15.60	1.56
	f	10	1.1310	1.1628	31.80	3.18	1.1422	20.60	2.06
	g	6	1.1537	1.1702	16.50	2.75	1.1601	10.10	1.68
	h	7	1.1387	1.1685	29.80	4.26	1.1510	17.50	2.50

Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
Sediment # 14 CONTROL 2	a	9	1.1417	1.1621	20.40	2.27	1.1487	13.40	1.49
	b	8	1.1362	1.1690	32.80	4.10	1.1489	20.10	2.51
	c	7	1.1425	1.1599	17.40	2.49	1.1467	13.20	1.89
	d	7	1.1565	1.1670	10.50	1.50	1.1607	6.30	0.90
	e	7	1.1463	1.1541	7.80	1.11	1.1480	6.10	0.87
	f	8	1.1532	1.1750	21.80	2.73	1.1601	14.90	1.86
	g	10	1.1546	1.1762	21.60	2.16	1.1585	17.70	1.77
	h	7	1.1569	1.1708	13.90	1.99	1.1604	10.40	1.49

Pre-Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Dry Weight(mg) Total	Dry Weight(mg) Individual	Pan + Ash(g)	Ash Free Dry Wt.(mg) Total	Ash Free Dry Wt.(mg) Individual
	X	20	1.1258	1.1298	4.00	0.20	1.1262	3.60	0.18

RESULTS OF CHRONIC SEDIMENT TESTS CONDUCTED FOR CDR ENVIRONMENTAL SPECIALISTS USING SAMPLES FROM PEDRICKTOWN, NEW JERSEY

Prepared for:

Mr. Curt Rose
CDR Environmental Specialists
6001 N. Ocean Drive
Suite 1103
Hollywood, Florida 33019

Prepared by:

The SeaCrest Group, LLC
1341 Cannon Street
Louisville, Colorado 80027-1455
(303) 661-9324

April 19, 2005

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INTRODUCTION

Procedures have been established as a means to monitor the potential effects of contamination on aquatic systems. These test procedures can provide a measure of the impact on mortality, reproduction, and growth in acute and chronic exposures. The present report details the results of chronic testing on an aquatic invertebrate, *Hyallela azteca,* from sediments collected from sites near Pedricktown, New Jersey.

MATERIALS AND METHODS

Sample Collection

Grab samples of sediment were collected at twelve sites from September 20, 2004 to September 21, 2004. These samples were placed in clean, plastic containers. Federal Express shipped the samples in two separate coolers on September 22, 2004 for overnight delivery to the SeaCrest lab. They arrived at 11:00 am on September 23, 2004. After delivery, the sediment samples were refrigerated at 4°C when not in use. The Chain of Custody forms documenting sample collection and transfer times is included in Appendix 1.

Dilution Water

Moderately hard laboratory reconstituted water was used as the overlying water for the sediment. Reconstituted water was prepared by mixing sodium bicarbonate, calcium sulfate, magnesium sulfate, and potassium chloride in deionized water

Test Organisms

The tests were conducted with a freshwater invertebrate, the amphipod *Hyalella azteca.* The amphipods used in the sediment tests were between ~~eight and ten~~ seven and nine days old as prescribed by the test procedures. Organisms were tested in a reference toxicant test using potassium chloride to insure their health and test acceptability.

Test Procedures

The tests followed the procedures outlined in USEPA (1994)[3]. The *Hyalella* tests were started on February 23, 2005 with the addition of water over the sediments. Animals were added to the test containers on the next day. The tests ran for ~~48~~ 42-days, ending on April 6, 2005.

The sediments did not require sieving but were thoroughly stirred and all large particles (i.e. branches, stones) were removed manually. Each of the sediments was visually inspected for indigenous organisms but none were observed. All sample sediments were treated in the same manner in regards to processing and addition to the test containers.

Test containers were 300 ml glass jars to which 100 ml of the homogenized sediments were added. To this was added 175 ml of reconstituted water. The sediments were tested at the 100% concentration only. Twelve replicates were used for each sediment sample. One set of controls was run for the twelve sediment samples. The control set used clean, uncontaminated

sediment created with medium-to-fine grain sand mixed with a small amount of organic material (decaying leaves) and potting soil.

The water over the sediments was changed twice daily. The test containers were monitored for temperature and dissolved oxygen, before and after a daily water change. Water used for the change-outs was held in the incubator at test temperature. The containers for the reconstituted water were refilled immediately after each change-out so that the water would be at test temperature by the next change-out. The data sheets documenting the batch preparation and water quality checks are located in Appendix 2.

Test animals were fed once a day. All *Hyalella* test chambers received 1 ml of YCT/Flake solution. Observations of mortality and/or effects were made at water change-out.

The water over each sediment sample was measured for pH, hardness, alkalinity, conductivity, and ammonia at the beginning and at the end of the tests. The data sheets containing the daily readings of temperature and dissolved oxygen, and the water quality readings taken at the beginning and end of both tests, are located in Appendix 6. The tests were held at a temperature of 23 $\pm$ 1°C in an incubator with a programmed day cycle of 16 hours light and 8 hours dark. The daily temperature readings for the incubator are located in Appendix 3. The temperature readings for the incubator were higher than those recorded in the tests themselves (as seen on the test data sheets), however, the incubator readings show consistency and adjustments to the temperatures in the incubators were made, as needed.

Dissolved oxygen levels were maintained above 2.5 mg/L, as per the sediment toxicity test guidelines. All sediments were aerated from the beginning of the tests due to low initial dissolved oxygen levels.

At the end of the 28-day survival and growth period of the *Hyalella a.* test, water was pulled from each replicate of each sediment test and composited by test sediment for the final 28-day water quality readings. Then four of the replicate test containers from each sediment were sieved with a #40-mesh sieve to remove surviving amphipods for growth determination. Surviving amphipods were euthanized and placed in a drying oven at 90°C overnight. The *Hyalella a.* was weighed on a four-place analytical balance to determine average dry weights.

The remaining eight test container replicates from each of the sediments were also sieved for living organisms. The surviving amphipods in each sediment test container were placed in 300 ml water-only test containers and filled with 200 ml of overlying water and a 5cm x 5cm piece of 280 um aperture Nitex screen. From day 29-35 test containers were observed and test waters were measured with the same methods as the previous 28 days. Waters were changed out daily and each container was feed 1-1.5 ml of a YCT/flake food solution.

Reproduction of amphipods was measured on day 35 and day 42 by removing and counting the adults and young in each test container. On day 35, the adults were returned to the

same water-only containers, fed, and observed until day 42. Adult amphipods surviving on day 42 were counted, preserved, sexed, dried, and then weighed to determine the final endpoints of this testing procedure. Composite water samples were also collected for a final water-only chemical analysis. The data sheets containing the dry weight determinations and the number of surviving *Hyalella a.* per replicate (day 28 and day 42), and the reproduction for each sample (day 35 and day 42) are located in Appendix 8.

SUMMARY

Hyalella azteca Test

The amphipod test was run with all twelve collected sediments. One-control sediments, using clean sand mixed with leave litter and potting soil, was run along with the sediments. Daily comment sheets for the test are located in Appendix 7. Table 1 summarizes test results from four replicates per sediment taken on day 28.

Table 1. Test results for the *Hyalella azteca* from four replicate sediment exposures at 28 days.

SAMPLE	Survival Range (%)	Average Survival (%)	Weight Range (mg)	Average Weight (mg)
Control-13	100	100.00	0.35-0.49	0.42
1	40-50	42.50	0.14-0.22	0.17
2	10-40	17.50	0.20-0.40	0.28
3	30-50	42.50	0.00-0.16	0.10
4	80-90	82.50	0.19-0.23	0.21
5	80-100	95.00	0.27-0.37	0.31
6	80-100	95.00	0.35-0.68	0.49
7	0-10	2.50	0.00-0.10	0.03
8	0-10	2.50	0.00-0.10	0.03
9	80-100	87.50	0.27-0.37	0.32
10	50-70	62.50	0.24-0.30	0.28
11	60-80	70.00	0.20-0.37	0.26
12	30-100	52.50	0.24-0.37	0.30
Beginning of Test	NA	NA	1.80 (60 species)	0.03

REFERENCE TOXICANT TEST RESULTS

Hyalella azteca

The test organism history sheets from the supplier (Aquatic BioSystems, Inc., Ft. Collins, CO) are located in Appendix 4. The amphipod animal batches used in the sediment tests were

tested in reference toxicant tests with KCl (the toxicant recommended in the guidelines) to determine their health and test acceptability. The *Hyalella a.* test was conducted from February 23, 2005 to February 27, 2005. The test consisted of ten replicates per concentration, one organism per replicate. The test beakers contained water and a small piece of Nitex[R] screen placed over the bottom of each beaker. The test was a static, non-renewal; meaning the water was not changed daily. The animals were fed 0.1 ml of YCT on days 0 and 2. The test concentrations run were 500, 250, 125, 62.5, and 31.25 mg/L KCl. The LC50 created was 255.73 mg/L KCl using the Probit statistical method. This method produced results within the limits of the round robin test results from the guidelines, which found an average LC50 of 289 mg/L KCl, with a range of 232-372 mg/L KCl. There was no information in the guidelines as to what statistical method was used in order to produce the results in the round robin tests. These results are located in Appendix 5.

REFERENCES

1. **APHA/AWWA/WEF.** 1998. *Standard Methods for the Examination of Water and Wastewater.* 20th Edition. American Public Health Association, Washington, D.C.

2. **Hach Chemical Company.** 2002. *Hach Water Analysis Handbook.* Hach Chemical Company, Loveland, Colorado. 1260pp.

3. **USEPA.** 1994. *Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates.* EPA-600-R-94-024.

Appendix 1 – Chain of Custody Form

The SeaCrest Group
An Environmental Services Company
1341 Cannon Street • Louisville, Colorado 80027
303-661-9324 • FAX 303-661-9325

Chain of Custody Record

(enclose with each shipping container)

Purchase Order Number: _____

Project Number (lab use only): 304274 #1-12

Client: Curt Rose Contact: _____ Address: _____
Program/Site: Pedricktown Phone: 954-927-1165

Collected by: _____

	Sample Identification (Effluent, Receiving, Sediment, list other)	Date Sampled	Time	Sample Type (composite, grab)	Acute: Cerio	Acute: FH Minnow	Acute: Accelerated	Chronic: Cerio	Chronic: FH Minnow	Chronic: Accelerated	TRE	Other	These fields may be used for field test results			Total Units	Total Volume
1	1	9/20/04		Grab	Phase 1-3 Toxicity Tests											1	1 gal
2	2	↓		↓	(Acute amphipod; acute Midge, chronic amphipod tests)											↓	↓
3	3					↓				↓				↓			
4	4	↓															
5	5	9/21/04															
6	6	↓															
7	7																
8	8																
9	9 10																
10	11 12	↓ 9/20/04		↓		↓				↓				↓		↓	↓

Comments and special testing instructions:
Run 2 negative controls and 1 positive control for each phase of tests

Relinquished by: Curt Rose Representing: CDR Environmental To Whom: Fraxel Express Date/Time: 9/22/04 / 1600
Relinquished by: _____ Representing: _____ To Whom: _____ Date/Time: _____
Next recipient: _____ Relinquished by: _____ Rec'd by: [signature] Date/Time: 092304 - 1105

WHITE COPY: Accompanies sample CA[redacted] CO[redacted]ller

The SeaCrest Group
Louisville, CO

Sample Receipt Form

Form #: 42
Effective: November 2003

Project #: 304274
Date: 092304
Samples Were:

Sample #: 1-12
Initials: SP

1. Shipped Hand Delivered Messengered (circle one)
   Notes:

2. Airbill Present Y N NA
   Notes:

3. Chilled to Ship Ambient Chilled (circle one)
   Notes:
   Ice Blue Ice (circle one)

4. Cooler Received Broken or Leaking Y N NA
   Notes:

5. Sample Received Broken or Leaking Y N NA
   Notes:

6. Received Within Holding Times Y N
   Notes:

7. Aeration necessary Y N NA
   Notes:

8. Sample Received at Temperature between 0-6° C. Y N NA
   Notes: SEDS received on Ice

9. Description of Sample (Color, Odor, and/or Presence of Particulate Matter):
   eff: NA

   rec'g

	DO	Temp	pH	Cl
Eff	—	—	—	—
Rec'g				

Aeration

Time	DO	pH

COC Tape Was:

1. Present on Outer Package Y N
2. Unbroken on Outer Package Y N NA
3. Present on Sample Y N
4. Unbroken on Sample Y N NA

COC Record Was:

1. Present Upon Receipt of Sample Y N

Appendix 2 – Water Batches Used for the *Hyalella azteca* Test

The SeaCrest Group
Louisville, CO

Vertebrate Reconstituted Freshwater Preparation Log

Page #: 1
Form #: 26a
Effective: January 2003

Batch #	Water quantity	Grams $CaSO_4$	Grams $NaHCO_3$	Grams KCl	Grams $MgSO_4$	Date	Initials	Hardness*	Alkalinity*	Conductivity‡	Date	Initials
05-001	50 GAL	11.4	18.25	0.76	11.4	010305	[illegible]	89	61	302	010405	[illegible]
05-002	50gal	11.4	18.25	0.76	11.4	011005	[illegible]	97	66	307	011105	[illegible]
05-003	50gal	11.4	18.25	0.76	11.4	011605	[illegible]	99	67	301	011605	[illegible]
05-004	50 gal	11.4	18.25	0.76	11.4	012005	[illegible]	94	65	285	012105	[illegible]
~~05-005~~								~~94~~	~~65~~	~~285~~	~~012305~~	~~[illegible]~~
05-005	50gal	11.4	18.25	0.76	11.4	012905	[illegible]	99	64	306	013005	[illegible]
05007	50gal	11.4	18.25	0.76	11.4	020205	[illegible]	90	65	296	020305	[illegible]
05008	50gal	11.4	18.25	0.76	11.4	020705	[illegible]	96	66	301	020805	[illegible]
05009	50gal	11.4	18.25	0.76	11.4	021205	[illegible]	99	66	323	021305	[illegible]
05010	50gal	11.4	18.25	0.76	11.4	021705	[illegible]	92	65	306	021805	[illegible]
05011	50gal	11.4	18.25	0.76	11.4	022305	[illegible]	92	65	274	022405	[illegible]
05012	50gal	11.4	18.25	0.76	11.4	022605	[illegible]	89	65	263	022705	[illegible]
05013	50gal	11.4	18.25	0.76	11.4	030100	[illegible]	96	69	277	030205	[illegible]
05014	50gal	11.4	18.25	0.76	11.4	030605	[illegible]	92	64	270	030905	[illegible]
05015	50gal	11.4	18.25	0.76	11.4	031205	[illegible]	88	60	265	031205	[illegible]
05016	50gal	11.4	18.25	0.76	11.4	031705	[illegible]	87	59	325	031305	[illegible]
05017	50gal	11.4	18.25	0.76	11.4	032105	[illegible]	93	63	315	031805	[illegible]
05018	50gal	11.4	18.25	0.76	11.4	032605	[illegible]	95	62	302	032205	[illegible]
05019	50gal	11.4	18.25	0.76	11.4	033105	[illegible]	93	60	280	032705	[illegible]
05020	50gal	11.4	18.25	0.76	11.4	040505	[illegible]	96	69	311	040605	[illegible]
05021	50gal	11.4	18.25	0.76	11.4	041305	[illegible]	96	63	311	041405	[illegible]
								99	69	321		

* Measured in milligrams/liter (mg/L) as $CaCO_3$
‡ Measured in micromhos/centimeter (µmhos/cm)

hardness=80-100
alkalinity=60-70

Appendix 3 – Daily Temperature Readings of the Incubator during the *Hyalella azteca* Test

The SeaCrest Group
Louisville, CO

Incubator 1 Temperature Record

Form #: 77a
Effective: January 2004

Incubator #: 1	
Incubator Make: Dept. of Ag	Incubator Model: PC678
Acceptable Temperature Range: 24-26°C	Acceptable Light Range: 50-100 foot candles
NIST Correction:	Date of NIST Correction:
Date: Initials:	Light Meter Reading Top:
Light Meter Reading Middle:	Light Meter Reading Bottom:

Date	Temperature	Initials	Maintenance	Notes
022005	25.0	AD		
022105	25.0	AD		
022205	25.3	AD		
022305	25.3	AD		
022405	25.0	RPM		
022505	24.5	RPM		
022605	25.3	AD		
022705	25.0	AD		
022805	24.4	AD		
030105	24.8	RPM		
030205	25.0	RPM		
030305	24.4	AD		
030405	24.1	RPM		
030505	24.1	RPM		
030605	24.3	AD		
030705	25.1	AD		
030805	24.8	RPM		
030905	24.7	RPM		
031005	25.2	RPM	TURNED UP, TESTS GETTING LOW	
031105	25.1	RPM		
031205	25.1	RPM		
031305	24.8	AD		
031405	24.3	AD		
031505	24.7	RPM		
031605	25.1	RPM		
031705	25.1	RPM		
031805	25.0	RPM		
032005	25.0	AD		
032105	25.1	AD		
032205	25.2	AD		

The SeaCrest Group
Louisville, CO

Incubator 1 Temperature Record

Page #:
Form #: 77a
Effective: January 2004

Incubator #: 1	
Incubator Make: Dept. of Ag	Incubator Model: PC678
Acceptable Temperature Range: 24-26°C	Acceptable Light Range: 50-100 foot candles
NIST Correction:	Date of NIST Correction:
Date: Initials:	Light Meter Reading Top:
Light Meter Reading Middle:	Light Meter Reading Bottom:

Date	Temperature	Initials	Maintenance	Notes
032305	25.1	RPM		
032405	25.2	RPM		
032505	25.1	RPM		
032605	25.2	AH		
032705	25.3	AH		
032805	24.9	AH		
032905	25.2	RPM		
033005	25.2	RPM		△ BULB #1
033105	25.3	AH		
040105	25.2	HG		
040205	25.3	HG		
040305	25.2	AH		
040405	24.9	RPM		
040505	24.8	HG		
040605	25.7	HG		
040705	25.4	HG		
040805	25.9	HG		
040905	25.2	HG		
041005	25.2	RPM		
041105	25.3	RPM		
041205	25.5	RPM		
041305	25.2	RPM		
041405	25.0	RPM		
041505	25.5	HG		
041605	25.1	HG		
041705	25.3	RPM		
041805	25.5	RPM		
041905	~~24.1~~ 25.1 RPM	RPM		

The SeaCrest Group
Louisville, CO

Drying Oven Temperature Record

Page #: 3
Form #: 77h
Effective: January 2003

Drying Oven:	1			
Make:	American Scientific		Model:	
Acceptable Temperature Range:			90-110°C	
NIST Correction:			Date of NIST Correction:	
Date	Temperature	Initials	Maintenance	Notes
022205	92°	AD		
022305	101°	AD		
022405	110	RPM		
022505	110	RPM		
022605	113	AD		
022705	114	AD	turned down	
022805	109	AD		
022905	94°	RPM		
030205	98	RPM		
030305	96	RPM		
030405	95	RPM		
030505	106	AD		
030605	107	AD		
030705	89	AD	turned up	
030805	90	RPM		
030905	90	RPM		
031005	105	RPM		
031105	109	RPM		
031205	110	RPM		
031306	114	AD	turned down	
031405	109	AD		
031505	108	RPM		
031605	105	RPM		
031705	107	RPM		
031805	110	RPM		
031905	113	AD	Turned down	
032005	112	AD		
032105	85	AD	Turned up	
032205	90	AD		
032305	100	RPM		
032405	108	RPM		
032505	103	RPM		

The SeaCrest Group
Louisville, CO

Drying Oven Temperature Record

Page #: 4
Form #: 77h
Effective: January 2003

Drying Oven: 1				
Make: American Scientific			Model:	
Acceptable Temperature Range:			90-110°C	
NIST Correction:			Date of NIST Correction:	
Date	Temperature	Initials	Maintenance	Notes
032705	101	AA		
032805	114	AA		turned down
032905	92	RPM		
033005	62	RPM		* LOW SETTING FOR SEDS
033105	61	AA		
040105	104	HG		
040205	102	HG		
040305	91	AA		
040405	90	RPM		
040505	86	HG		
040605	92	HG		
040705	112	HG		turned down
040805	104	HG		
040905	102	HG		
041005	105	RPM		
041105	109	RPM		
041205	90	RPM		
041305	90	RPM		TURNED UP
041405	70°	RPM		LOW TEMP FOR SEDS
041505	63	HG		
041605	48	HG		
041705	65	RPM		
041805	73	RPM		TURNED UP, SEDS COMPLETE
041905	85	RPM		TURNED ↑

Appendix 4 – Test Organism Supplier History Sheets

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax:970/484-2514

received
2/23/05 AB

ORGANISM HISTORY

	DO	pH
$\bar{x}$	6.8	7.8

DATE: 2/23/05

SPECIES: Hyalella azteca

AGE: 6-8 day

LIFE STAGE: Juvenile

HATCH DATE: Variable

BEGAN FEEDING: Immediately

FOOD: Flake slurry

Water Chemistry Record:	Current	Range
TEMPERATURE:	23°C	22-25°C
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as $CaCO_3$):	162 mg/l	82-216 mg/l
TOTAL ALKALINITY (as $CaCO_3$):	55 mg/l	50-95 mg/l
pH:	7.46	7.02-7.90

Comments:

Facility Supervisor

Appendix 5 – Reference Toxicant Test Bench Sheets

The SeaCrest Group
Louisville, CO

Sediment Organism Reftox Benchsheet

Form #: 108
Effective: October 2002

LC50 = 255.73

Purpose: SED. REFTOX Salt Used: KCl Date Made: 022305
Dilution Series: 50% Template #: 7 Dilution Water: MH RECON
Name, age & source: Hyalella a. - ABS022305 Test Start: 022305 (1200) Test End: 022705 (1210)
Test Conditions:

	0	24	48	72	96
(C)					
0					
DO	6.3	4.9	4.4	4.0	4.1
Temp	23.8	23.9	23.0	23.2	23.5
pH	7.9	7.1	7.1	7.1	7.2
Cond	319				
(1)					
31.25 mg/L					
DO	6.3	4.9	4.2	3.9	3.8
Temp	23.4	23.9	23.0	23.3	23.9
pH	8.0	7.1	7.1	7.1	7.2
Cond	376				
(2)					
62.5 mg/L					
DO	6.2	4.7	4.1	3.8	3.8
Temp	23.3	23.8	23.0	23.1	23.6
pH	8.0	7.1	7.1	7.1	7.3
Cond	427				
Initials	AD	SB	SP	[illegible]	[illegible]

	0	1	2	3	4
(3)					
125 mg/L					
DO	6.2	4.8	4.0	3.6	3.4
Temp	23.4	23.8	23.1	23.2	23.4
pH	7.9	7.2	7.1	7.1	7.3
Cond	545				
(4)					
250 mg/L					
DO	6.3				
Temp	23.3	4.9	4.1	3.8	4.0
pH	8.0	23.8	23.0	23.1	23.4
Cond	757	7.1	7.1	7.1	7.2
(5)					
500 mg/L					
DO	6.2	4.6	4.1	3.8	
Temp	23.3	23.8	23.0	23.2	
pH	8.0	7.0	7.1	7.1	
Cond	1218				
food	0.1 mL		0.1 mL		

	Reftox1	Reftox2	Recon #1	Recon #2
Hardness				
Alkalinity				
Chlorine				
Ammonia				

1. Exposure Chamber
Total Capacity: 30 ml
Test Solution Surface Area: cm²
Test Solution Volume: 15 ml
Water Depth (constant): cm
(cyclic): to cm

3. Aeration
Slow:
Med:
Fast:

2. Feeding Schedule
Not fed:
Fed Irregularly: 0 & 48 hours
Fed Daily:
Food Used:

4. Screened Animal Enclosers
Not Used: X
Used: cm diameter

5. Condition/appearance of surviving organisms at end of test (i.e., alive but immobile; loss of orientation; erratic movement; etc.):

6. Comments:

0cpiNLQ 12cpi« 2X#½ ?xxxÞ>Hôx±6X@í{þX@±±±±±±± ± ± Þ
?dddÞ?ÒÒd±6X@é{þX@±±±±±±± ± ± G Ò_9ÒŸ9<Ét<ïtÕ6 ÒN9
ÒÅRÒõLtÉ>ÓK tŸŠÆƒNbÒç3úD+âÈXÈVÈTÈZçfN^ÒMHÒÙGÒ eÒq£Í]^Y[XûSQR£:Ø<ÜtÒ
(Š"Ò/î Æ<âsÒv9BŠ¶Òî<ÚuŠòÒD:Ò 9ZY[ûQÒ6:Ò«8YûPVƒê"THE SEACREST GROUP

********** Version 2.5 **********

Results calculated using the Summary Method.

****

Sponsor	:			[redacted]
Species	:			[redacted]
Study Number	:			304274
Dates of test	:	02-23-05	to	02-27-05
Test Material	:			KCL
Concentration Units	:			MG/L
Report run by	:			SP
Date of report	:			04-19-2005

****

****

Concentration (MG/L)	Number Exposed	Number Dead	Percent Dead	Corrected Number Dead	Corrected Percent Dead
500.0	10	9	90.0	9	90.0
250.0	10	4	40.0	3	30.0
125.0	10	3	30.0	2	20.0
62.5	10	2	20.0	1	10.0
31.3	10	1	10.0	0	0.0
Control	10	1	10.0	0	0.0

****

Method	W	LC50	95% Confidence Limits Lower	Upper	Slope
Results NOT corrected for Spontaneous Mortality					
Binomial		283.66	31.25	500.00	--N/A--
Moving Average	*	219.21	132.50	467.36	--N/A--
Probit		202.47	122.43	431.77	1.85
Logit		221.53	126.83	903.72	2.89
Results corrected for Spontaneous Mortality					
Binomial		310.40	62.50	500.00	--N/A--
Moving Average	*	283.16	189.26	490.64	--N/A--
Probit		255.73	173.75	443.08	2.75
Logit		276.06	168.49	909.96	3.75

Note -- In order to produce this summary report, no warning or diag-

Appendix 6 – Daily Instrument Readings

Daily Temperature, Dissolved Oxygen and Beginning/Ending Water Quality Readings for *Hyalella azteca* Test

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR | Site: PED | Lab #: 304274(1)
H_2O: MH recon | Sample Date: | Species Info: ABS 022305 (H. azteca)
Test Setup: 022205 | Hyalella introduced: 022305 | Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	Wed	Thurs		FRIDAY		SAT		SUN		MON	
Date	2/23	022405		022505		022605		022705		022805	
rep	A	B		C		D		E		F	
DO	3.94	—	—	6.4	6.7	—	—	—	—	6.4	6.6
Temp °C	23.4	22.0	22.3	23.0	23.2	23.5	23.6	22.1	22.8	22.5	23.6
pH	6.3	—	—	7.6	7.6	—	—	—	—	7.7	7.2
conductivity	271	—	—			—	—	—	—	363	369
alkalinity	35	+ Aeration hooked up (2/23, AD)									
hardness	85										
ammonia	1.67										

	6		7		8		9		10		11	
Day	TUESDAY		WED		Thurs		FRI		SAT		SUN	
Date	030105		030205		030305		030405		030505		030605	
rep	G		H		I		J		K		L	
DO	—	—	6.9	6.8	—	—	6.4	6.6	—	—	—	—
Temp °C	22.5	23.1	23.4	23.9	—	—	22.7	23.1	22.8	22.9	22.6	23.0
pH	—	—	7.9	7.9	22.1	23.4	~~8.7~~ 7.8	7.5	—	—	—	—
conductivity	—	—	—	—	—	—	—	—	—	—	—	—

	12		13		14		15		16		17	
Day	Monday		Tues		Wed		THURS		FRIDAY		SATURDAY	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	5.9	6.1	—	—	5.1	5.7	—	—	6.0	6.8	—	—
Temp °C	22.4	22.9	22.6	23.4	22.1	24.5	23.4	23.8	22.6	22.4	22.9	23.4
pH	7.4	7.3	—	—	7.3	7.8	—	—	7.5	7.8	—	—
conductivity	285	278	—	—	—	—	—	—	—	—	—	—

	18		19		20		21		22		23	
Day	Sun		mon		TUES		WED		TH		FRI	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO	—	—	6.3	6.5	—	—	6.8	6.6	—	—	6.0	6.7
Temp °C	23.1	22.1	22.6	23.1	22.9	23.6	22.7	23.5	22.9	23.4	22.6	23.3
pH	—	—	8.0	7.8	—	—	8.2	7.9	—	—	7.4	7.9
conductivity	—	—	353	312	—	—	—	—	—	—	—	—

	24		25		26		27		28
Day	031905		032005		032105		032205		032305
Date	SAT		Sun		mon		Tues		Wed
rep	A		B		C		D		A
DO	—	—	—	—	6.2	6.7	—	—	6.1
Temp °C	22.7	22.4	23.2	23.6	22.1	22.5	23.2	23.6	23.0
pH	—	—	—	—	7.6	7.9	—	—	7.7
conductivity	—	—	—	—	310	295	—	—	320
alkalinity									75
hardness									112
ammonia									26.001

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 304274-1

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	032405	032405		032505		032605		SUN		Mon	
Date	WED	THURS		FRI		SAT		032705		032805	
rep	A	E		G		I		L		K	
DO	7.2	—		5.8	6.7	—		—		4.7	6.1
Temp °C	24.7	23.7	23.5	23.6	23.9	23.5	23.9	24.0	23.9	23.8	22.5
pH	8.0	—		7.7	8.0	—		—		7.3	7.7
conductivity	312	—		—		—		—		338	324
alkalinity											
hardness											
ammonia											

	34		35	36		37		38		39	
Day	TUES		WED	THURS		FRI		SAT		SUN	
Date	032905		033005	033105		040105		040205		040305	
rep	L		K	E		G		J		L	
DO	—		—	—		5.4	6.6	—		—	
Temp °C	25.3	24.6	24.3	23.2	23.7	22.4	23.0	22.1	22.7	23.0	23.5
pH	—		—	—		7.5	7.8	—		—	
conductivity	—		—	—		—		—		—	

	40		41		42
Day	MON		TUES		WED
Date	040405		040505		040605
rep	K		E		I
DO	4.5	6.2	—		4.5
Temp °C	23.5	23.9	21.2	22.6	7.28
pH	7.5	7.8	—		229
conductivity	329	325	—		328
alkalinity					65
hardness					93
ammonia					1.84

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR
Site: PED
Lab #: 304274 (2)
H_2O: MH recon
Sample Date:
Species Info: ABS022305 (Hy. azteca)
Test Setup: 022205
Hyalella introduced: 022305
Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	Wed	Thurs		FRIDAY		SAT		SUN		Monday	
Date	2/23	022405		022505		022605		022705		022805	
rep	A	B		C		D		E		F	
DO	3.8+	—	—	6.7	6.7	—	—	—	—	6.6	6.8
Temp °C	23.1	23.2	22.5	23.1	23.0	23.4	23.3	22.1	23.0	22.5	24.0
pH	6.4	—	—	7.7	7.6	—	—	—	—	7.6	7.1
conductivity	336	—	—			—	—	—	—	385	375
alkalinity	43	*Added aeration 2/23 (AB)									
hardness	43										
ammonia	14.9										

	6		7		8		9		10		11	
Day	TUESDAY		WED		Thurs		FRI		SAT		SUN	
Date	030105		030205		030305		030405		030505		030605	
rep	G		H		I		J		K		L	
DO	—	—	6.4	6.2	—	—	6.3	6.0	—	—	—	—
Temp °C	22.7	23.0	23.8	23.9	22.6	23.8	22.5	22.7	23.1	23.4	23.0	23.2
pH	—	—	7.6	7.6	—	—	7.6	7.6	—	—	—	—
conductivity	—	—	—	—	—	—			—	—	—	—

	12		13		14		15		16		17	
Day	Monday		Tues		Wed		THURS		FRIDAY		SATURDAY	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	5.8	6.1	—	—	4.7	5.4	—	—	5.6	6.3	—	—
Temp °C	22.3	23.1	23.1	23.9	22.3	24.5	23.6	23.9	23.4	23.7	23.2	23.6
pH	7.4	7.3	—	—	6.8	7.4	—	—	7.3	7.6	—	—
conductivity	368	335	—	—	—	—	—	—	—	—	—	—

	18		19		20		21		22		23	
Day	Sun		mon		TUES		WED		THURS		FRIDAY	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO	—	—	6.1	6.2	—	—	6.7	6.4	—	—	6.5	6.9
Temp °C	23.1	22.4	22.2	23.0	22.9	23.5	22.6	23.2	22.7	23.0	22.5	23.2
pH	—	—	7.8	8.0	—	—	7.8	8.0	—	—	7.8	7.9
conductivity	—	—	297	344	—	—	—	—	—	—	—	—

	24		25		26		27		28
Day	SAT		Sun		Mon		Tues		Wed
Date	031905		032005		032105		032205		032305
rep	A		B		C		D		A
DO	—	—	—	—	22.3	22.8	—	—	6.3
Temp °C	22.7	22.6	23.2	23.1	23.4	22.6	24.0	23.6	23.7
pH	—	—	—	—	7.8	8.1	—	—	7.1
conductivity	—	—	—	—	324	311	—	—	326
alkalinity									51
hardness									55
ammonia									<0.001

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 304274-2

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	032305	032405		032505		032605		SUN		Mon	
Date	WED	Thurs		Fri.		Sat		032705		032805	
rep	A	E		F		G		L		K	
DO	7.2	—		6.1	6.9	—		—		4.1	5.9
Temp °C	24.7	23.2	23.7	23.5	23.9	23.2	23.0	24.0	23.8	23.9	23.6
pH	8.0	—		7.9	7.9	—		—		7.3	7.7
conductivity	312	—		—		—		—		331	322
alkalinity											
hardness											
ammonia											

	34		35	36		37		38		39	
Day	Tues		Wed	Thurs		Fri		Sat		SUN	
Date	032905		033005	033105		040105		040205		040305	
rep	L		[illegible]	E		F		J		L	
DO	—		[illegible]	—		5.2	6.1	—		—	
Temp °C	24.7	24.3	[illegible]	23.4	23.7	22.1	22.4	22.0	22.9	23.1	23.6
pH	—		[illegible]	—		7.5	7.3	—		—	
conductivity	—		[illegible]	—		—		—		—	

	40		41		42
Day	MON		TUES		Wed
Date	040405		040505		040605
rep	K		E		G
DO	4.7	6.2	—		4.6
Temp °C	23.2	23.9	24.4	22.5	23.0
pH	7.7	7.8	—		7.2
conductivity	329	325	—		325
alkalinity					63
hardness					87
ammonia					12.7

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR
Site: PEDRICK
Lab #: 304274-03
H_2O: MH recon
Sample Date:
Species Info:
Test Setup:
Hyalella introduced: 022305
Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	THURS		FRIDAY		SAT		SUN		MONDAY	
Date	022305	022405		022505		022605		022705		022805	
rep	G	A		B		C		D		E	
DO	4.3			6.5	6.3					6.1	6.6
Temp °C	24.7	23.0	24.0	22.8	22.4	22.6	22.3	22.8	22.7	23.2	22.8
pH	6.5			7.7	7.7					7.3	7.4
conductivity	271									360	372
alkalinity	44										
hardness	84										
ammonia	0.036										

	6		7		8		9		10		11	
Day	TUES		WEDNESDAY		Thursday		FRIDAY		SATURDAY		SUNDAY	
Date	030105		030205		03		030405		030505		030605	
rep	F		G		H		I		J		K	
DO			6.2	5.9			6.0	6.8				
Temp °C	23.5	23.2	24.5	24.5	22.1	23.1	22.9	23.7	22.4	23.5	22.8	23.2
pH			7.7	7.7			7.8	7.8				
conductivity												

	12		13		14		15		16		17	
Day	Monday		TUES		WEDNESDAY		THURS		FRIDAY		SATURD	
Date	030705		030805		030905		031005		031105		031205	
rep	L		A		B		C		D		E	
DO	6.7	6.7			6.4	6.8			6.5	6.8	6.7	6.8
Temp °C	22.4	23.8	23.0	23.9	23.1	23.8	23.3	23.0	22.9	23.6	22.9	23.4
pH	7.8	7.4			7.4	7.8			7.0	7.5	7.2	7.8
conductivity	406	314										

	18		19		20		21		22		23	
Day	SUN		MON		TUES		WED		THURS		FRIDAY	
Date	031305		031405		031505		031605		031705		031805	
rep	F		G		H		I		J		K	
DO			6.8	7.0			6.8	7.0			6.7	6.9
Temp °C	22.8	23.5	22.0	22.7	22.6	23.5	23.7	23.9	23.0	23.6	22.8	23.4
pH			7.5	7.5			7.8	7.7			7.5	7.8
conductivity			374	334								

	24		25		26		27		28
Day	SAT		SUN		MON		TUES		WED
Date	031905		032005		032105		032205		0323
rep	L		A		C		D		A
DO					6.5	6.8			6.3
Temp °C	23.1	22.7	23.5	22.9	22.1	23.1	23.4	22.9	23.6
pH					7.4	7.4			7.5
conductivity					318	317			325
alkalinity									57
hardness									78
ammonia									<0.001

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 304274-03

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	Wed	Thurs		Fri		Sat		SUN		Mon	
Date	032305	032405		032505		032605		032705		032805	
rep	E	E		F		G		L		K	
DO	7.2	—		5.4	6.7	—		—		5.0	6.2
Temp °C	27.6	23.4	23.7	23.3	23.4	23.7	23.6	23.9	23.6	23.9	23.2
pH	8.0	—		7.7	8.0	—		—		7.3	7.7
conductivity	301	—		—		—		—		329	311
alkalinity											
hardness											
ammonia											

	34		35		36		37		38		39	
Day	Tues		Wed		Thurs		Fri		Sat		SUN	
Date	032905		033005		033105		040105		040205		040305	
rep	L		K		E		F		J		L	
DO	—		3.0	7.4	—		5.2	6.1	—		—	
Temp °C	24.6	24.3	24.0	23.5	23.2	24.0	22.1	22.6	22.0	22.9	23.3	23.9
pH	—		7.4	8.0	—		7.5	7.8	—		—	
conductivity	—		355	321	—		—		—		—	

	40		41		42
Day	MON		TUES		
Date	040405		040505		
rep	K		E		F
DO	4.6	6.1	—		4.4
Temp °C	23.3	23.9	24.6	22.5	23.4
pH	7.7	7.8	—		7.3
conductivity	330	325	—		324
alkalinity					58
hardness					98
ammonia					0.045

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR
Site: Pednck
Lab #: 304274-04
H_2O: MH recon
Sample Date:
Species Info: H. azteca
Test Setup: 022205
Hyalella introduced: 022305
Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	THURS		FRIDAY		SATURDAY		SUNDAY		MONDAY	
Date	022305	022405		022505		022605		022705		022805	
rep	G	A		D		C		D		E	
DO	3.0			6.4	6.3					6.4	6.5
Temp °C	24.9	23.2	23.8	24.0	23.7	23.6	23.5	22.6	22.9	23.4	22.5
pH	6.6			7.6	7.5					7.5	7.3
conductivity	286									377	352
alkalinity	46										
hardness	111										
ammonia	0.0398										

	6		7		8		9		10		11	
Day	TUESDAY		WEDNESDAY		THURS		FRIDAY		SAT		SUN	
Date	030105		030205		030305		030405		030505		030605	
rep	F		G		H		I		J		K	
DO			6.2	5.9			6.1	6.8				
Temp °C	22.8	23.5	24.6	24.5	22.4	23.4	22.8	23.6	23.2	23.8	22.4	22.9
pH			7.8	7.7			7.6	7.8				
conductivity												

	12		13		14		15		16		17	
Day	Mon		TUES		WED		Thurs		FRIDAY		SATURDAY	
Date	030705		030805		030805		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	6.8	6.7			6.3	6.9			6.0	6.8		
Temp °C	22.8	24.0	23.4	23.8	23.2	23.8	23.0	23.3	23.3	23.6	22.9	23.5
pH	7.7	7.4			7.3	7.8			7.0	7.8		
conductivity	447	322										

	18		19		20		21		22		23	
Day	SUN		MON		TUES		WED		THURS		FRIDAY	
Date	031305		031405		031505		031605		031705		031805	
rep	H		G		I		J		K		L	
DO			7.2	7.1			6.4	6.9			6.3	6.9
Temp °C	23.2	23.5	22.9	24.0	23.1	23.6	23.8	24.0	22.8	23.7	22.7	23.4
pH			7.6	7.8			7.6	7.8			7.5	7.8
conductivity			314	300								

	24		25		26		27		28
Day	Sat		Sun		mon		Tues		Wed
Date	031405		032009		032105		032205		032305
rep	A		B		C		D		A
DO					6.5	6.8			6.4
Temp °C	23.4	23.6	23.1	22.6	22.3	23.1	23.5	23.1	23.1
pH					7.7	7.9			8.0
conductivity					315	346			371
alkalinity									51
hardness									102
ammonia									<0.001

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 304274-04
H_2O _____
Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	Wed	Thurs		Fri		Sat		Sun		Monday	
Date	032305	032405		032506		032605		032705		032805	
rep	E	C		F		G		H		I	
DO	7.2	—		8.7	6.9	—		—		4.5	6.3
Temp °C	24.6	23.7	23.9	23.4	23.9	23.6	23.8	24.0	23.8	22.8	23.9
pH	8.0	—		7.7	8.0	—		—		7.4	7.6
conductivity	302	—		—		—		—		326	334
alkalinity											
hardness											
ammonia											

	34		35		36		37		38		39	
Day	TUES		[illegible]		THURS		FRIDAY		SAT		Sun	
Date	032905		[illegible]		033105		040105		040205		040305	
rep	J		[illegible]		T		J		I		K	
DO	5.1	6.5	[illegible]	[illegible]	—		5.0	6.9	—		—	
Temp °C	23.7	24.5	[illegible]	[illegible]	23.3	23.1	23.6	24.2	23.1	24.2	23.8	24.0
pH	—		[illegible]	[illegible]	—		7.4	8.0	—		—	
conductivity	—		[illegible]		—		—		—		—	

	40		41		42
Day	Monday		Tues		(Wed)
Date	040405		040505		040603
rep	L		F		E
DO	5.2	6.9	—		4.1
Temp °C	23.3	24.0	23.9	22.7	23.7
pH	7.1	8.0	—		7.5
conductivity			—		329
alkalinity					92
hardness					109
ammonia					0.032

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-5
H_2O: MH recon
Sample Date:
Species Info: Hyalella azteca (A35)
Test Setup: 2.22.05
Hyalella introduced: 2.23.05
Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	THURS		FRI		SAT		SUN		MON	
Date	022305	022405		022505		022605		022705		022805	
rep	A	B		C		D		E		F	
DO	5.3	—	—	6.3	6.6	—	—	—	—	5.8	6.2
Temp °C	23.6	22.8	22.0	22.1	22.5	22.2	22.6	22.1	22.6	22.5	23.4
pH	7.2	—	—	7.7	7.7	—	—	—	—	7.6	7.4
conductivity	309	—	—	—	—	—	—	—	—	432	399
alkalinity	80										
hardness	105										
ammonia	0.902										

	6		7		8		9		10		11	
Day	TUES		WED		THURS		FRI		SAT		SUN	
Date	030105		030205		030305		030405		030505		030605	
rep	G		H		I		J		K		L	
DO	—	—	6.9	6.7	—	—	6.5	6.9	—	—	—	—
Temp °C	22.7	23.3	22.7	22.9	22.0	22.6	22.6	22.5	22.8	23.2	22.5	22.8
pH	—	—	8.0	7.9	—	—	7.9	7.9	—	—	—	—
conductivity	—	—	—	—	—	—	—	—	—	—	—	—

	12		13		14		15		16		17	
Day	MON		TUES		WED		THURS		FRI		SAT	
Date	030705		030805		030905		031005					
rep	A		B		C		D		E		F	
DO	5.6	6.2	—	—	5.9	6.7	—	—	6.1	6.2	—	—
Temp °C	23.0	23.1	23.1	23.2	23.2	23.0	22.7	22.6	22.6	22.8	22.6	22.3
pH	7.7	7.8	—	—	7.6	7.1	—	—	7.7	7.9	—	—
conductivity	408	337	—	—	—	—	—	—	—	—	—	—

	18		19		20		21		22		23	
Day	SUN		MON		TUES		WED		THURS		FRI	
Date	031305		031405									
rep	G		H		I		J		K		L	
DO	—	—	6.2	7.3	—	—	6.3	6.8	—	—	6.5	6.9
Temp °C	22.7	23.3	22.3	23.1	22.5	23.1	22.3	22.4	22.4	22.9	22.8	22.4
pH	—	—	7.7	7.8	—	—	7.7	7.8	—	—	7.8	7.9
conductivity	—	—	413	354	—	—	—	—	—	—	—	—

	24		25		26		27		28
Day	SAT		SUN		MON		TUES		WED
Date	031905		032005		032105		032205		032305
rep	A		B		C		K		A
DO	—	—	—	—	6.8	6.9	—	—	6.3
Temp °C	23.0	22.6	23.1	22.4	22.8	22.6	23.0	22.7	22.9
pH	—	—	—	—	8.1	8.0	—	—	8.3
conductivity	—	—	—	—	331	284	—	—	367
alkalinity									68
hardness									103
ammonia									<0.001

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 304274-5

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	Wed	Thurs		Fri		Sat		Sun		Monday	
Date	0323	0324		032505		032605		032705		032805	
rep	~~E~~	E		F		G		H		I	
DO	~~6.7~~ →	6.9	6.7	3.4	6.9	—		—		4.2	6.0
Temp °C	~~22.7~~ →	22.1	22.6	23.6	23.9	23.4	23.7	24.0	23.7	23.5	23.6
pH	~~8.3~~ →	8.3	8.0	7.8	8.0	—		—		7.4	7.5
conductivity	~~351~~ →	351	311	—		—		—		329	324
alkalinity											
hardness											
ammonia											

*EE AV

	34		35		36		37		38		39	
Day	TUESDAY		[illegible]		THURS		FRIDAY		SAT		SUN	
Date	032905		[illegible]		033105		040105		040205		040305	
rep	J		[illegible]		I		J		I		K	
DO	—		[illegible]		—		4.9	7.0	—		—	
Temp °C	23.1	23.3	[illegible]		23.8	23.3	23.6	24.7	23.2	24.1	~~23.9~~	~~23.6~~
pH	—		[illegible]		—		7.4	8.0	—		—	
conductivity	—		[illegible]		—		—		—		—	

EE AV

	40		41		42
Day	MONDAY		TUES		Wed
Date	040405		040505		040605
rep	L		M		N
DO	4.6	6.7	—		3.8
Temp °C	23.2	24.2	24.0	22.6	24.4
pH	7.3	7.9	—		7.5
conductivity			—		332
alkalinity					58
hardness					101
ammonia					0.966

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR
Site: PEDRICKTOWN
Lab #: 304274-6
H_2O: MH recon
Sample Date:
Species Info: Hyalella azteca
Test Setup: 022205
Hyalella introduced: 022305
Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	THURS		FRI		SAT		SUN		Mon	
Date	022305	022405		022505		022605		022705		022805	
rep	A	B		C		D		E		F	
DO	4.4	—	—	6.7	6.7	—	—	—	—	5.6	6.3
Temp °C	23.4	22.0	21.7	23.0	23.1	22.2	22.8	22.0	22.9	22.1	24.0
pH	7.0	—	—	8.0	7.9	—	—	—	—	7.9	7.3
conductivity	377	—	—	—	—	—	—	—	—	544	386
alkalinity	64										
hardness	94										
ammonia	0.576										

	6		7		8		9		10		11	
Day	Tues		Wed		THURS		Fri		SAT		Sun	
Date	030105		030205		030305		030405		030505		030605	
rep	G		H		I		J		K		L	
DO	—	—	6.6	6.3	—	—	6.3	6.3	—	—	—	—
Temp °C	22.4	22.7	23.1	23.0	22.2	22.8	23.1	23.0	23.2	23.0	22.1	23.1
pH	—	—	8.0	7.9	—	—	7.9	7.9	—	—	—	—
conductivity	—	—	—	—	—	—			—	—	—	—

	12		13		14		15		16		17	
Day	Mon		Tues		WED		Thurs		FRI		SAT	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	5.1	5.9	—	—	5.4	5.9	—	—	5.7	5.9	—	—
Temp °C	22.8	23.0	23.2	23.0	23.1	23.3	22.5		23.0	23.2	22.6	23.0
pH	7.9	7.4	—	—	7.8	7.9	—	—	7.8	7.9	—	—
conductivity	465	371	—	—	—	—	—	—	—	—	—	—

	18		19		20		21		22		23	
Day	SUN		MON		Tues		wed		Thurs		Fri	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO	—	—	7.2	7.1	—	—	6.5	6.6	—	—	6.3	6.2
Temp °C	23.1	23.4	23.4	24.0	23.4	23.2	23.0	22.7	23.1	23.4	23.3	23.4
pH	—	—	8.4	8.2	—	—	7.9	8.0	—	—	7.9	8.1
conductivity	—	—	403	~~[illegible]~~	—	—	—	—	—	—	—	—

	24		25		26		27		28
Day	SAT		Sun		mon		Tues		WED
Date	031905		032005		032105		032205		0323
rep	A		B		C		H		B
DO	—	—	—	—	6.9	7.0	—	—	6.5
Temp °C	22.8	23.0	22.1	22.5	22.6	23.1	23.2	23.1	24.8
pH	—	—	—	—	8.3	8.2	—	—	7.9
conductivity	—	—	—	—	570	462	—	—	550
alkalinity									69
hardness									109
ammonia									<0.001

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 304274-6

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	Wed	Thurs		FRI.		SAT		SUN		mon.	
Date	3.23	0324		032505		032605		032705		032805	
rep	~~E~~	E		F		G		H		I	
DO	~~6.9~~	6.9	6.8	5.7	6.7	—		—		4.4	5.9
Temp °C	~~22.5~~	22.3	22.0	23.1	23.6	23.4	23.7	24.0	23.8	23.7	23.9
pH	~~8.1~~ →	8.1	8.0	7.9	8.1	—		—		7.5	7.6
conductivity	~~366~~ →	366	310	—		—		—		334	339
alkalinity											
hardness											
ammonia											

	34		35		36		37		38		39	
Day	TUESDAY				THURS		FRIDAY		SAT		Sun	
Date	032905				033105		040105		040205		040305	
rep	J				I		J		E		F	
DO	—				—		4.9	6.9	—		—	
Temp °C	23.9	24.2			23.9	23.4	23.8	24.3	23.2	24.1	24.0	23.5
pH	—				—		7.4	8.0	—		—	
conductivity	—				—		—		—		—	

	40		41		42
Day	MONDAY		TUES		Wed
Date	040405		040505		040605
rep	G		F		E
DO	4.7	6.8	—		4.1
Temp °C	22.8	23.9	24.2	22.7	24.4
pH	7.3	7.8	—		7.6
conductivity			—		329
alkalinity					66
hardness					95
ammonia					0.725

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR
Site: PED.
Lab #: 304274-7
H_2O: MH recon
Sample Date:
Species Info: ABS 022305 (H. azteca)
Test Setup: 022805
Hyalella introduced: 022305
Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	THURSDAY		FRIDAY		SATURDAY		SUNDAY		MONDAY	
Date	2/23	2/24		2/25		2/26		2/27		022805	
rep	A	B		C		D		E		F	
DO	4.9	—	—	6.0	6.9	—	—	—	—	4.7	5.8
Temp °C	23.0	23.5	24.2	22.6	23.2	23.2	23.4	22.6	23.4	23.6	23.9
pH	6.8	—	—	7.9	7.7	—	—	—	—	7.6	7.7
conductivity	415	—	—			—	—	—	—	348	324
alkalinity	71										
hardness	106										
ammonia	2.26										

	6		7		8		9		10		11	
Day	Tuesday		WEDNESDAY		THURS		FRIDAY		SATURDAY		SUNDAY	
Date	030105		030205		030305		030405		030505		030605	
rep	G		H		I		J		K		L	
DO	—	—	6.2	6.9	—	—	6.0	6.8	—	—	—	—
Temp °C	23.0	23.6	22.7	23.6	23.2	23.8	23.6	23.5	22.2	23.1	23.0	23.3
pH	—	—	7.5	7.8	—	—	7.6	7.8	—	—	—	—
conductivity	—	—	—	—	—	—	—	—	—	—	—	—

	12		13		14		15		16		17	
Day	Monday		TUES		WED		Thurs		FRIDAY		SATURDAY	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	5.7	6.1	—	—	6.2	6.8	—	—	6.0	6.8	—	—
Temp °C	23.7	23.4	22.6	23.5	23.1	23.7	23.7	25.6	23.2	23.6	22.8	23.5
pH	7.3	7.8	—	—	7.4	7.8	—	—	7.0	7.7	—	—
conductivity	356	353	—	—	—	—	—	—	—	—	—	—

	18		19		20		21		22		23	
Day	Sun		Mon		TUES		WED		THURS		FRIDAY	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO	—	—	5.1	6.1	—	—	5.5	6.6	—	—	6.0	6.8
Temp °C	23.2	22.4	22.3	22.5	22.9	23.7	22.7	23.2	22.8	23.1	23.0	23.4
pH	—	—	7.8	7.7	—	—	7.5	7.8	—	—	7.5	7.6
conductivity	—	—	395	382	—	—	—	—	—	—	—	—

	24		25		26		27		28
Day	Sun		Sun		Mon		Tues		Wed
Date	031905		032005		032105		032205		032305
rep	A		B		C				A
DO	—	—	—	—	5.2	6.2	—	—	6.0
Temp °C	23.1	22.7	22.9	23.8	22.3	23.8	23.6	23.7	23.2
pH	—	—	—	—	7.7	7.6	—	—	8.1
conductivity	—	—	—	—	372	353	—	—	400
alkalinity									93
hardness									154
ammonia									0.02

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 304274-7

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	032805	Thurs		Fri		Sat		Sun		MON	
Date	WED	032405		032505		032605		032705		032805	
rep	A	H		F		G		H		E	
DO	7.2	—		6.1	7.1	—		—		4.4	6.60
Temp °C	24.6	24.3	23.7	24.0	23.6	23.6	23.8	22.8	23.8	23.1	22.7
pH	8.0	—		7.8	8.0	—		—		7.5	7.8
conductivity	315	—		—		—		—		327	330
alkalinity											
hardness											
ammonia											

	34		35		36		37		38		39	
Day	TUES		[illegible]		THURS		FRIDAY		SATURDAY		Sun	
Date	032905		[illegible]		033105		040105		040205		040305	
rep	F		[illegible]		G		E	K	H		E	
DO	7.9	—	[illegible]		—		5.6	6.8	—		—	
Temp °C	23.9	22.9	[illegible]		23.6	23.8	23.0	24.8	23.1	24.0	23.6	24.0
pH	—	—	[illegible]		—		7.3	8.0	—		—	
conductivity	—	—	[illegible]		—		—		—		—	

	40		41		42
Day	MONDAY		TUES		Wed
Date	040405		040505		040605
rep	K		E		E
DO	5.5	6.9	—		5.0
Temp °C	23.2	24.3	24.3	24.8	22.6
pH	7.4	7.8	—		7.2
conductivity	323	325	—		283
alkalinity					69
hardness					89
ammonia					2.99

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR
Site: PED.
Lab #: 304274-8
H_2O: MH Creek
Sample Date:
Species Info: ABS022305 (H. azteca)
Test Setup: 022205
Hyalella introduced: 022305
Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	THURSDAY		FRIDAY		SATURDAY		SUNDAY		MONDAY	
Date	2/23	2/24		2/25		2/26		2/27		022805	
rep	A	B		C		D		E		F	
DO	5.2			6.2	6.0					6.4	5.8
Temp °C	23.2	23.4	24.5	22.4	22.9	23.2	23.5	22.8	23.6	22.5	23.9
pH	7.1			7.0	7.7					8.0	7.8
conductivity	327									333	311
alkalinity	70										
hardness	89										
ammonia	0.104										

	6		7		8		9		10		11	
Day	Tuesday		WED		THURS		FRIDAY		SATURDAY		SUNDAY	
Date	030105		030205		030305		030405		030505		030605	
rep	G		H		I		J		K		L	
DO			6.0	7.0			6.1	6.9				
Temp °C	23.5	23.4	22.7	23.5	23.3	23.6	22.9	23.7	23.2	23.9	23.6	23.8
pH			7.9	7.8			7.9	7.8				
conductivity												

	12		13		14		15		16		17	
Day	Mon		TUES		WED		THURS		FRIDAY		SAT	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	6.3	6.5			6.2	6.9			6.4	6.8		
Temp °C	23.8	23.9	23.0	23.6	23.3	23.9	23.4	23.5	22.0	23.7	22.9	23.4
pH	7.8	7.9			7.4	7.8			7.5	7.8		
conductivity	410	340										

	18		19		20		21		22		23	
Day	Sun		mon		TUES		WED		THURS		FRIDAY	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO			6.7	6.5			6.4	6.8	6.0	6.7		
Temp °C	23.5	22.4	22.2	23.0	23.1	23.5	22.7	23.4	22.8	23.4	23.2	23.4
pH			8.1	7.9			7.8	7.9	7.5	7.8		
conductivity			343	326								

	24		25		26		27		28
Day	SAT		Sun		mon		Tues		wed
Date	031905		032005		032105		032205		032305
rep	A		B		C		D		A
DO					6.3	6.9			7.4
Temp °C	23.1	22.7	23.2	23.9	22.6	22.4	24.0	23.9	23.7
pH					7.6	7.7			
conductivity					334	315			378
alkalinity									68
hardness									115
ammonia									0.004

6.1

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 30174-8

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	WED	Thurs		Fri		SAT		Sun		MON	
Date	032305	032405		032505		032605		032705		032805	
rep	A	E		F		G		H		I	
DO	7.3	6.0	—	5.1	6.9	—	—	—	—	4.6	6.7
Temp °C	24.7	23.6	23.6	23.7	23.4	23.4	23.7	22.9	23.2	23.7	22.4
pH	8.1	—	—	7.7	7.9	—	—	—	—	7.6	7.9
conductivity	310	—	—			—	—	—	—	329	322
alkalinity											
hardness											
ammonia											

	34		35		36		37		38		39	
Day	Tues		[illegible]		THURS		FRIDAY		SAT		Sun	
Date	032905		[illegible]		033105		040105		040205		040305	
rep	J		[illegible]		G		I	K	J		K	
DO	—	—	[illegible]	[illegible]	—	—	5.2	6.8	—	—	—	—
Temp °C	23.7	22.6	[illegible]	[illegible]	24.0	24.2	23.5	24.4	23.4	24.6	23.1	24.0
pH	—	—	[illegible]	[illegible]	—	—	7.4	8.0	—	—	—	—
conductivity	—	—	[illegible]	[illegible]	—	—	—		—		—	—

	40		41		42
Day	MONDAY		Tues		Wed
Date	040405		040505		040605
rep	L		F		G
DO	5.3	6.5	—		4.6
Temp °C	23.1	23.9	24.3	24.9	23.1
pH	7.6	7.8	—		7.3
conductivity	325	318	—		324
alkalinity					71
hardness					87
ammonia					0.182

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR Site: PEDRICK. Lab #: 304274-9
H_2O: Sample Date: Species Info:
Test Setup: Hyalella introduced: 022305 Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	Thurs		FRIDAY		SAT		Sun		MONDAY	
Date	022305	022405		022505		022605		022705		022805	
rep	A	B		C		D		E		F	
DO	4.1	—	—	6.1	6.8	—	—	—	—	6.6	6.3
Temp °C	23.2	23.3	22.7	22.8	22.9	22.8	22.9	23.6	23.9	22.1	22.9
pH	6.9	—	—	7.6	7.7	—	—	—	—	7.7	7.7
conductivity	310	—	—	—	—	—	—	—	—	433	375
alkalinity	65										
hardness	95										
ammonia	1.20										

	6		7		8		9		10		11	
Day	Tues		Wed		THURS		FRIDAY		SATURDAY		Sunday	
Date	030105		030205		030305		030405		030505		030605	
rep	H		G		I		J		K		L	
DO	—	—	6.1	6.7	—	—	6.1	6.8	—	—	—	—
Temp °C	22.0	22.0	22.4	22.2	22.0	22.4	22.6	23.4	22.8	23.3	23.3	22.9
pH	—	—	7.5	7.8	—	—	7.6	7.8	—	—	—	—
conductivity	—	—	—	—	—	—	—	—	—	—	—	—

	12		13		14		15		16		17	
Day	Monday		Tues		Wed		Thurs		Fri.		SAT	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	6.2	6.9	—	—	6.1	6.4	—	—	6.2	6.5	—	—
Temp °C	22.8	23.0	23.1	23.4	22.7	22.9	22.3	22.5	22.4	22.7	22.5	22.7
pH	7.5	7.9	—	—	7.8	7.9	—	—	7.7	7.9	—	—
conductivity	325	389	—	—	—	—	—	—	—	—	—	—

	18		19		20		21		22		23	
Day	SUN		MON		Tues		Weds		Thurs		FRI	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO	—	—	6.4	6.7	—	—	6.3	6.5	—	—	6.2	6.4
Temp °C	22.3	22.9	22.0	22.6	22.3	22.5	22.1	22.7	22.6	22.9	23.1	22.7
pH	—	—	7.7	7.8	—	—	7.7	7.9	—	—	7.7	7.8
conductivity	—	—	495	412	—	—	—	—	—	—	—	—

	24		25		26		27		28
Day	SAT		Sun		mon		Tues		Wed
Date	031905		032005		032105		032205		032305
rep	A		B		C		J		A
DO	—	—	—	—	6.2	6.6	—	—	6.3
Temp °C	22.1	22.7	22.9	23.2	22.7	23.8	22.8	23.1	22.7
pH	—	—	—	—	8.2	8.0	—	—	8.0
conductivity	—	—	—	—	360	445	—	—	352
alkalinity									80
hardness									157
ammonia									<0.01

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 304274-9

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	WED	Thurs		Fri		SAT		Sun		MON	
Date	032305	032405		032505		032605		032705		032805	
rep	~~D~~	~~B~~ E		F		G		H		F	
DO	7.2	—		5.9	6.2	—		—		4.4	6.5
Temp °C	24.7	22.9	23.1	23.3	22.5	22.9	23.6	23.1	23.6	23.8	22.3
pH	8.0	—		7.7	7.9	—		—		7.5	7.9
conductivity	312	—		325	315	—		—		330	330
alkalinity											
hardness											
ammonia											

	34		35	36		37		38		39	
Day	Tues		[illegible]	THURS		FRIDAY		SAT		Sun	
Date	032905		[illegible]	033105		040105		040205		040305	
rep	J		[illegible]	G		~~I~~ K		H		I	
DO	—		[illegible]	—		5.2	7.8	—		—	
Temp °C	23.8	22.7	[illegible]	24.1	24.2	23.8	24.6	24.1	24.7	23.6	23.4
pH	—		[illegible]	—		7.3	7.9	—		—	
conductivity	—		[illegible]	—		—		—		—	

	40		41		42
Day	MONDAY		TUES		Wed
Date	040405		040505		040605
rep	J		F		F
DO	4.9	6.9	—		4.0
Temp °C	22.8	23.8	24.2	24.7	23.4
pH	7.5	7.8	—		7.2
conductivity	326	320	—		326
alkalinity					70
hardness					93
ammonia					1.75

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR
Site: PEDRICK.
Lab #: 304274-10
H_2O: MH recon
Sample Date:
Species Info: Hyalella azteca
Test Setup: 022205
Hyalella introduced: 022305
Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	THURS		FRIDAY		SAT		SUN		MON	
Date	022305	022405		022505		022605		022705		022805	
rep	A	B		C		D		E		F	
DO	4.0	—	—	6.3	6.9	—	—	—	—	6.8	6.7
Temp °C	23.4	23.0	22.2	23.0	22.8	22.1	22.6	24.0	24.2	22.5	23.5
pH	7.0	—	—	6.8	7.7	—	—	—	—	8.0	7.9
conductivity	273	—	—			—	—	—	—	318	307
alkalinity	57										
hardness	68										
ammonia	0.09										

	6		7		8		9		10		11	
Day	Tues		Wed		THURS		FRI		SAT		Sunday	
Date	030105		030205		030305		030405		030505		030605	
rep	H		G		I		J		K		L	
DO	—	—	6.7	7.0	—	—	6.9	6.9	—	—	—	—
Temp °C	21.7	22.0	22.4	22.3	22.1	22.5	22.3	22.4	22.4	22.6	22.5	23.1
pH	—	—	7.7	7.6	—	—	7.7	7.6	—	—	—	—
conductivity	—	—	—	—	—	—	—	—	—	—	—	—

	12		13		14		15		16		17	
Day	Monday		Tues		WED		thurs		FRI		SAT	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	6.1	6.2	—	—	6.0	6.3	—	—	6.1	6.2	—	—
Temp °C	22.5	22.9	22.2	22.8	22.6	22.8	23.4		22.5	22.3	22.7	22.9
pH	7.5	7.9	—	—	7.8	7.9	—	—	7.7	7.9	—	—
conductivity	318	308	—	—	—	—	—	—	—	—	—	—

	18		19		20		21		22		23	
Day	SUN		MON		Tues		Wed		Thurs		FRI	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO	—	—	7.1	7.3	—	—	6.5	6.9	—	—	6.4	6.7
Temp °C	22.2	23.0	22.1	22.9	22.3	22.5	22.1	22.7	22.2	22.7	23.2	22.7
pH	—	—	8.0	8.0	—	—	7.9	8.0	—	—	8.0	8.0
conductivity	—	—	~~446~~ 319	335	—	—	—	—	—	—	—	—

	24		25		26		27		28
Day	SAT		Sun		Mon		Tues		Wed
Date	031905		032005		032105		032205		032305
rep	A		B		C		K		B
DO	—	—	—	—	6.1	6.3	—	—	6.7
Temp °C	22.7	23.1	23.1	23.6	22.9	23.9	23.2	23.1	23.3
pH	—	—	—	—	8.2	8.2	—	—	8.2
conductivity	—	—	—	—	360	367	—	—	353
alkalinity									62
hardness									100
ammonia									<0.05

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 3241274-10

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	WED	THUS		FRI		SAT		SUN		MON	
Date	032303	032405		032505		032605		032705		032805	
rep	E	E		G		H		I		J	
DO	7.1	—		5.6	6.8	—		—		4.1	6.6
Temp °C	24.6	24.2	23.7	24.3	23.6	24.5	24.2	23.1	24.0	23.9	23.0
pH	8.1	—		7.6	8.0	—		—		7.4	7.8
conductivity	805	—				—		—		331	321
alkalinity											
hardness											
ammonia											

	34		35	36		37		38		39	
Day	TUES		[illegible]	THURS		FRI		SAT		SUN	
Date	032905		[illegible]	033105		040105		040205		040305	
rep	K		[illegible]	E		F		J		L	
DO	—		[illegible]	—		6.1	6.0	—		—	
Temp °C	23.9	24.0	[illegible]	23.7	24.1	23.0	23.7	22.0	23.9	23.1	23.7
pH	—		[illegible]	—		7.3	7.3	—		—	
conductivity	—		[illegible]	—		—		—		—	

	40		41		42
Day	MON		TUES		WED
Date	040405		040505		040605
rep	K		E		F
DO	4.1	6.2	—		3.6
Temp °C	24.7	24.1	23.5	24.4	24.4
pH	7.6	7.8	—		7.5
conductivity	325	326	—		338
alkalinity					75
hardness					88
ammonia					0.115

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR
Site: PEDRICK.
Lab #: 50-1274-11
H_2O: MH recon
Sample Date:
Species Info: Hyalella azteca (ABS)
Test Setup: 022205
Hyalella introduced: 022305
Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	THURS		FRI		SAT		SUN		MON	
Date	022305	022405		022505		022605		022705		022805	
rep	A	B		C		D		E		F	
DO	4.0	—	—	6.0	6.1	—	—	—	—	6.6	6.3
Temp °C	22.8	22.1	22.0	24.2	23.9	23.8	23.7	22.7	23.6	23.3	23.5
pH	6.9	—	—	7.1	7.7	—	—	—	—	7.8	7.8
conductivity	337	—	—	—	—	—	—	—	—	319	299
alkalinity	72										
hardness	85										
ammonia	0.209										

	6		7		8		9		10		11	
Day	TUES		WED		THURS		FRI		SATURDAY		SUN	
Date	030105		030205		030305		030405		030505		030605	
rep	G		H		I		J		K		L	
DO	—	—	6.0	6.8	—	—	6.1	6.3	—	—	—	—
Temp °C	23.6	22.6	23.1	23.8	23.2	23.5	23.5	23.1	22.4	23.5	24.0	23.4
pH	—	—	7.4	7.8	—	—	7.6	7.7	—	—	—	—
conductivity	—	—	—	—	—	—	—	—	—	—	—	—

	12		13		14		15		16		17	
Day	Mon		Tues		Wed		THURS		FRI		SAT	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	6.1	6.2	—	—	5.9	6.1	—	—	6.2	6.4	—	—
Temp °C	22.8	23.2	23.1	22.4	22.3	23.7	22.0	23.3	22.4	22.9	22.3	22.2
pH	7.9	7.9	—	—	7.3	7.5	—	—	7.4	7.7	—	—
conductivity	370	350	—	—	—	—	—	—	—	—	—	—

	18		19		20		21		22		23	
Day	Sun		mon		TUES		WED		THURS		FRIDAY	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO	6.1	6.3	5.9	6.3	—	—	6.0	6.7	—	—	6.1	6.8
Temp °C	23.4	22.9	22.0	23.1	22.6	23.3	23.0	23.5	22.9	23.7	23.1	23.5
pH	—	—	7.6	7.7	—	—	7.5	7.8	—	—	7.5	7.9
conductivity	—	—	329	318	—	—	—	—	—	—	—	—

	24		25		26		27		28
Day	SAT		SUN		MON		TUES		WED
Date	031905		032005		032105		032205		0323
rep	A		C		K		E		D
DO	—	—	—	—	6.2	6.1	—	—	6.0
Temp °C	23.0	22.9	23.1	22.8	23.0	23.2	23.3	23.1	23.4
pH	—	—	—	—	7.4	7.6	—	—	7.7
conductivity	—	—	—	—	325	322	—	—	390
alkalinity									57
hardness									110
ammonia									0.100

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 304274-11

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	WED	THURS		FRI		SAT		SUN		MON	
Date	032305	032405		032505		032605		032705		032805	
rep	E	E		E		H		I		J	
DO	7.2	—	—	5.1	6.5	—	—	—	—	4.0	6.4
Temp °C	24.5	24.6	23.9	24.0	23.8	24.4	24.1	23.6	23.1	24.0	23.1
pH	8.0	—	—	7.7	7.9	—	—	—	—	7.4	7.8
conductivity	321	—	—	—	—	—	—	—	—	331	322
alkalinity											
hardness											
ammonia											

	34		35		36		37		38		39	
Day	TUES				THURS		FRI		SAT		SUN	
Date	032905				033105		040105		040205		040305	
rep	K				F		G		J		L	
DO	—	—			—	—	5.1	6.0	—	—	—	—
Temp °C	23.5	24.0			24.1	24.2	22.0	22.9	21.9	22.7	22.9	23.5
pH	—	—			—	—	7.5	7.9	—	—	—	—
conductivity	—	—			—	—	—	—	—	—	—	—

	40		41		42
Day	MON		TUES		WED
Date	040405		040505		040605
rep	K		E		J
DO	4.0	DEAD	—	—	3.9
Temp °C	24.4		23.9	24.1	24.3
pH	7.4		—	—	7.5
conductivity	323		—	—	328
alkalinity					74
hardness					93
ammonia					0.651

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client: CDR | Site: Pedric | Lab #: 304274-12
H_2O: MH recon | Sample Date: | Species Info: Hyalella azteca (ABS)
Test Setup: 022205 | Hyalella introduced: 022305 | Test End:
Test Conditions: 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	THURS		Fri		Sat		Sun		M	
Date	022305	022405		022505		022605		022705		022505	
rep	A	B		C		D		E		F	
DO	4.6	—	—	6.2	6.1	—	—	—	—	4.5	5.2
Temp °C	23.1	23.4	22.2	22.2	22.9	24.1	23.9	23.3	23.4	23.3	234
pH	6.9	—	—	7.5	7.4	—	—	—	—	7.3	7.5
conductivity	308	—	—	—	—	—	—	—	—	344	320
alkalinity	62										
hardness	74										
ammonia	4.23										

	6		7		8		9		10		11	
Day	Tues		Wed		THURS		Fri		SATURDAY		SUN	
Date	030105				030305		030405		030505		030605	
rep	G		H		I		J		K		L	
DO	—	—	5.0	5.9	—	—	5.3	5.5	—	—	—	—
Temp °C	23.9	22.9	22.8	23.7	23.0	23.7	23.5	23.0	22.4	23.6	22.8	22.5
pH	—	—	7.2	7.6	—	—	7.3	7.5	—	—	—	—
conductivity	—	—	—	—	—	—			—	—	—	—

	12		13		14		15		16		17	
Day	Monday		Tues		Wed		THURS		FRI		SAT	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	6.4	5.9	—	—	5.2	5.1	—	—	5.8	5.9	—	—
Temp °C	23.1	23.8	23.2	23.8	23.4	23.5	22.4	23.7	23.3	23.4	23.1	23.0
pH	7.6	7.4	—	—	7.9	7.6	—	—	7.7	7.8	—	—
conductivity	440	385	—	—	—	—	—	—	—	—	—	—

	18		19		20		21		22		23	
Day	Sun		Mon		TUES		WED		THUR		FRID	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO	6.2	5.8	6.3	6.4	—	—	6.3	6.6	6.0	6.7	6.1	6.9
Temp °C	23.0	22.6	22.1	23.4	22.5	22.8	22.7	23.5	23.0	23.5	22.8	23.4
pH	—	—	7.6	7.5	—	—	7.5	7.8	7.6	7.9	7.5	7.8
conductivity	—	—	352	315	—	—	—	—	—	—	—	—

	24		25		26		27		28
Day	Sat		Sun		Mon		Tues		Wed
Date	031905		032005		032105		032205		032305
rep	A		H		C		E		A
DO	—	—	—	—	5.6	6.8	—	—	6.4
Temp °C	22.7	22.5	22.7	22.9	22.6	23.3	23.3	22.3	22.9
pH	—	—	—	—	7.4	7.6	—	—	7.8
conductivity	—	—	—	—	336	338	—	—	332
alkalinity									52
hardness									108
ammonia									<0.01

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # 324274-12

H_2O _____

Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33	
Day	032305	032405		032505		032605		032705		MON	
Date	WED	THURS		FRIDAY		SATURDAY		Sun		032805	
rep	E	F		G		H		I		J	
DO	7.3	5.8	6.7	—		5.0	6.8	—		4.1	6.5
Temp °C	24.7	23.4	23.9	24.2	24.7	23.8	24.2	24.0	23.2	23.9	23.1
pH	8.1	7.7	7.9	—		7.8	8.0	—		7.4	7.8
conductivity	301	—		—		—		—		332	324
alkalinity											
hardness											
ammonia											

	34		35		36		37		38		39	
Day	TUES		[illegible]		Thurs		FRI		SAT		Sun	
Date	032905		[illegible]		033105		040105		040205		040305	
rep	K		[illegible]		F		G		J		K	
DO	—		[illegible]		—		5.0	6.0	—		—	
Temp °C	24.0	22.7	[illegible]		23.7	23.9	22.1	22.6	21.9	22.9	~~23.1~~	~~23.9~~
pH	—		[illegible]		—		7.4	7.7	—		—	
conductivity	—		[illegible]		—		—		—		—	

EL AD

23.0 23.8

	40		41		42
Day	~~04~~ MN		TUES		WED
Date	040405		040505		040605
rep	K		F		G
DO	4.2	6.1	—		4.0
Temp °C	24.5	25.0	23.6	24.2	24.4
pH	7.6	7.9	—		7.5
conductivity	330	325	—		326
alkalinity					76
hardness					138
ammonia					5.11

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

CONTROL

Client CDR Site PEDRICKTOWN Lab # 304274-13
H_2O MII recon Sample Date Species Info Hyalella azteca (ABS)
Test Setup 022205 Hyalella introduced 022205 Test End
Test Conditions 12 reps with sediment & H_2O, DO & pH MWF, conductivity M

Sediment Phase

	0	1		2		3		4		5	
Day	WED	Thurs		Fri		Sat		SUN		Monday	
Date	022305	022405		022505		022605		022705		022805	
rep	A	B		L		C		H		E	
DO	6.0	—	—	6.0	6.2	—		—		6.1	7.0
Temp °C	24.8	25.1	23.6	24.0	23.1	23.9	23.6	23.6	22.7	23.9	23.2
pH	7.8	—	—	8.0	7.9	—		—		7.8	7.7
conductivity	941	—	—			—		—		1108	734
alkalinity	66										
hardness	79										
ammonia	0.280										

	6		7		8		9		10		11	
Day	Tues		Wed		Thurs		Fri		Sat		Sun	
Date	030105		030205		030305		030405		030505		030605	
rep	F		G		H		I		J		K	
DO	—		6.9	6.4	—		6.8	6.9	—		—	
Temp °C	23.8	23.6	23.8	23.1	23.9	23.6	24.0	23.0	22.8	23.7	23.8	22.5
pH	—		8.3	7.5	—		8.3	8.2	—		—	
conductivity	—		—		—		—	—	—		—	

	12		13		14		15		16		17	
Day	Mon		Tues		Wed		Thursday		Friday		Sat	
Date	030705		030805		030905		031005		031105		031205	
rep	A		B		C		D		E		F	
DO	6.0	6.2	5.9	6.2	5.6	6.4	—		6.2	6.4	—	
Temp °C	23.9	23.0	22.4	22.6	22.6	23.1	23.8	22.9	23.6	23.3	23.9	23.7
pH	8.4	7.9	—		8.2	7.8	—		8.1	7.9	—	
conductivity	931	612	—		—		—		—		—	

	18		19		20		21		22		23	
Day	SUN		MON		Tues		Wed		Thurs		Fri	
Date	031305		031405		031505		031605		031705		031805	
rep	G		H		I		J		K		L	
DO	—		6.0	6.6	—		6.2	6.4	—		6.3	6.5
Temp °C	23.9	23.2	24.0	23.9	22.3	22.9	23.3	23.0	22.3	22.4	23.2	22.8
pH	—		8.1	8.1	—		8.0	7.9	—		8.1	8.0
conductivity	—		606	467	—		—		—		—	

	24		25		26		27		28
Day	Sat		Sun		Mon		Tues		Wed
Date	031905		032005		032105		032205		032301
rep	A		B		C		D		A
DO	—		—		6.8	7.0	—		6.5
Temp °C	23.1	22.6	23.2	22.4	23.9	24.0	23.6	22.9	23.2
pH	—		—		8.3	8.3	—		7.7
conductivity	—		—		617	410	—		650
alkalinity									62
hardness									140
ammonia									<0.001

The SeaCrest Group
Louisville, CO

42-day Hyalella Benchsheet

Form #: 111a
Effective: February 2004

Client _____ Site _____ Lab # _____
H_2O _____
Test Conditions 8 reps H_2O only, DO & pH MWF, conductivity M

Reproduction Phase

	28	29		30		31		32		33		
Day	Wed	Thurs		Fri		Sat		Sun		Mon		
Date	032305	032405		032505		032605		032705		032805		
rep	~~A~~ E	~~A~~ E		F		G		H		I		
DO	7.2	—		5.5	6.7	—		—		5.1	6.9	
Temp °C	24.5	24.2	23.7	24.5	24.1	24.5	24.2			23.1	~~7.6~~	22.6
pH	8.0	—		7.8	8.0	—		—		7.5	7.6	
conductivity	311	—		—		—		—		321	334	
alkalinity												
hardness												
ammonia												

	34		35		36		37		38		39	
Day	Tues		[illegible]		THURS		Fri.		Sat		SUN	
Date	032905		[illegible]		033105		040105		040205		040305	
rep	L		[illegible]		I		J		K		L	
DO	—		[illegible]		—		5.5	6.3	—		—	
Temp °C	24.6	24.9	[illegible]		23.0	24.3	21.2	23.0	21.3	22.9	22.9	23.5
pH	—		[illegible]		—		7.3	8.0	—		—	
conductivity	—		—		—		—		—		—	

	40		41		42
Day	MONDAY		Tues		Wed
Date	040405		040505		040605
rep	E		F		G
DO	5.2	6.8	—		4.0
Temp °C	22.2	23.4	24.4	25.3	22.6
pH	7.7	8.0	—		7.1
conductivity			—		326
alkalinity					71
hardness					108
ammonia					0.315

Appendix 8 – Number Surviving and Dry Weight Determinations Per Replicate for the *Hyalella azteca* Test

Date: 04/18/2005
Species: *Hyallela azteca*
Facility: SeaCrest Group
Test: 42 Day

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 13	a	10	1.1464	1.1499	3.50	0.35								
CONTROL	b	10	1.1648	1.1697	4.90	0.49								
	c	10	1.1551	1.1587	3.60	0.36								
	d	10	1.1389	1.1435	4.60	0.46								
	e	10					7	0	6	2	1.1488	1.1499	1.10	0.18
	f	10					10	6	8	3	1.1541	1.1576	3.50	0.44
	g	10					6	0	5	4	1.1509	1.1517	0.80	0.16
	h	10					2	0	2	0	1.1505	1.1509	0.40	0.20
	i	10					7	0	6	3	1.1449	1.1466	1.70	0.28
	j	10					7	6	6	4	1.1394	1.1414	2.00	0.33
	k	10					7	0	7	1	1.1258	1.1279	2.10	0.30
	l	10					2	0	2	1	1.1416	1.1419	0.30	0.15

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)							
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 1	a	4	1.155	1.1559	0.90	0.22								
	b	4	1.1408	1.1415	0.70	0.17								
	c	5	1.1523	1.153	0.70	0.14								
	d	4	1.151	1.1516	0.60	0.15								
	e	7					4	0	2	1	1.1542	1.1545	0.30	0.15
	f	2					2	0	0	0				
	g	6					4	2	3	3	1.1425	1.1436	1.10	0.37
	h	1					1	0	0	0				
	i	5					5	0	4	2	1.1395	1.1402	0.70	0.18
	j	3					1	1	0	0				
	k	4					2	0	1	1	1.1631	1.1632	0.10	0.10
	l	6					2	0	1	1	1.1552	1.1555	0.30	0.30

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 2	a	1	1.1513	1.1517	0.40	0.40								
	b	1	1.1337	1.1340	0.30	0.30								
	c	4	1.1622	1.1631	0.90	0.23								
	d	1	1.1621	1.1623	0.20	0.20								
	e	2					2	1	2	2	1.1552	1.1555	0.30	0.15
	f	3					3	1	2	2	1.1533	1.1536	0.30	0.15
	g	3					3	0	3	0	1.1554	1.1558	0.40	0.13
	h	4					1	0	0	0				
	i	3					3	0	3	0	1.1433	1.1437	0.40	0.13
	j	3					3	0	2	2	1.1594	1.1604	1.00	0.50
	k	10					4	1	4	3	1.1459	1.1471	1.20	0.30
	l	1					1	1	1	1	1.1568	1.1571	0.30	0.30

Date: 04/18/2005
Species: *Hyallela azteca*
Facility: SeaCrest Group
Test: 42 Day

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 3	a	4	1.1714	1.1719	0.50	0.12								
	b	6	1.1604	1.1612	0.80	0.13								
	c	0												
	d	7	1.1431	1.1442	1.10	0.16								
	e	4					1	1	1	0	1.1547	1.1549	0.20	0.20
	f	6					5	2	5	3	1.1530	1.1542	1.20	0.24
	g	5					3	1	2	0	1.1513	1.1519	0.60	0.30
	h	7					4	2	3	1	1.1423	1.1430	0.70	0.23
	i	5					2	0	1	1	1.1591	1.1594	0.30	0.30
	j	8					4	0	3	2	1.1588	1.1595	0.70	0.23
	k	6					3	1	3	2	1.1463	1.1473	1.00	0.33
	l	9					6	4	3	1	1.1447	1.1455	0.80	0.27

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 4	a	8	1.1643	1.1660	1.70	0.21								
	b	8	1.1508	1.1523	1.50	0.19								
	c	8	1.1347	1.1362	1.50	0.19								
	d	9	1.1602	1.1623	2.10	0.23								
	e	10					9	3	7	0	1.1425	1.1439	1.40	0.20
	f	9					7	2	4	0	1.1609	1.1624	1.50	0.38
	g	7					5	6	2	0	1.16	1.1604	0.40	0.20
	h	8					8	0	5	0	1.1450	1.1460	1.00	0.20
	i	10					8	0	4	0	1.1637	1.1649	1.20	0.30
	j	7					6	3	5	0	1.1442	1.1456	1.40	0.28
	k	7					6	3	6	0	1.1577	1.1590	1.30	0.22
	l	6					3	0	2	0	1.1489	1.1493	0.40	0.20

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 5	a	8	1.1552	1.1576	2.40	0.3								
	b	10	1.1573	1.161	3.70	0.37								
	c	10	1.1490	1.1521	3.10	0.31								
	d	10	1.1502	1.1529	2.70	0.27								
	e	9					7	0	7	0	1.1506	1.1529	2.30	0.33
	f	9					9	0	9	3	1.1453	1.1479	2.60	0.29
	g	9					9	0	5	0	1.1446	1.1467	2.10	0.42
	h	10					10	1	9	0	1.1536	1.1556	2.00	0.22
	i	9					8	6	8	0	1.1496	1.1521	2.50	0.31
	j	10					10	3	10	0	1.1484	1.1517	3.30	0.33
	k	9					8	3	6	0	1.1468	1.1493	2.50	0.42
	l	10					8	0	7	0	1.1461	1.1475	1.40	0.20

Date: 04/18/2005
Species: *Hyalella azteca*
Facility: SeaCrest Group
Test: 42 Day

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 6	a	8	1.1608	1.1636	2.80	0.35								
	b	10	1.15	1.1547	4.70	0.47								
	c	10	1.1597	1.1643	4.60	0.46								
	d	10	1.1588	1.1656	6.80	0.68								
	e	9					9	13	9	0	1.1429	1.1471	4.20	0.47
	f	10					10	2	10	4	1.1490	1.1520	3.00	0.30
	g	10					10	2	10	10	1.1434	1.1469	3.50	0.35
	h	10					10	0	9	0	1.1535	1.1560	2.50	0.28
	i	10					9	0	9	0	1.1532	1.1564	3.20	0.36
	j	8					8	4	8	0	1.1627	1.1552	2.50	0.31
	k	10					10	0	10	0	1.1482	1.1521	3.90	0.39
	l	10					9	12	7	0	1.1580	1.1602	2.20	0.31

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 7	a	0												
	b	1	1.1643	1.1544	0.10	0.10								
	c	0												
	d	0												
	e	4					3	0	3	0	1.1526	1.1533	0.70	0.23
	f	5					5	0	5	0	1.1373	1.1382	0.90	0.18
	g	2					1	0	1	0	1.1378	1.1381	0.30	0.30
	h	10					9	0	8	2	1.1504	1.1523	1.90	0.24
	i	0					0	0	0	0				
	j	0					0	0	0	0				
	k	3					1	0	1	0	1.1659	1.1660	0.10	0.10
	l	1					1	0	1	0	1.1462	1.1464	0.20	0.20

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 8	a	0												
	b	*												
	c	0												
	d	1	1.1616	1.1617	0.10	0.10								
	e	0												
	f	10					4	0	4	0	1.1401	1.1404	0.30	0.08
	g	1					1	0	1	0	1.1464	1.1466	0.20	0.20
	h	7					4	0	3	0	1.1643	1.1646	0.30	0.10
	i	0					0	0	0	0				
	j	2					2	0	2	0	1.1678	1.1681	0.30	0.15
	k	2					1	0	1	0	1.1440	1.1442	0.20	0.20
* rep failure	l	10					9	0	8	0	1.1588	1.1598	1.00	0.12

Date: 04/18/2005
Species: *Hyallela azteca*
Facility: SeaCrest Group
Test: 42 Day

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 9	a	10	1.1439	1.1471	3.20	0.32								
	b	8	1.1418	1.144	2.20	0.27								
	c	8	1.1443	1.1469	2.60	0.32								
	d	9	1.1542	1.1575	3.30	0.37								
	e	10					10	5	9	7	1.1455	1.1484	2.90	0.32
	f	10					10	5	10	5	1.1641	1.1682	4.10	0.41
	g	10					8	3	8	0	1.1469	1.1508	3.90	0.49
	h	10					8	2	8	0	1.1615	1.1638	2.30	0.38
	i	8					6	0	6	0	1.1528	1.1550	2.20	0.37
	j	10					8	15	8	10	1.1431	1.1462	3.10	0.39
	k	8					7	5	7	0	1.1409	1.1435	2.60	0.37
	l	8					6	10	6	0	1.1455	1.1471	1.60	0.27

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 10	a	6	1.1499	1.1517	1.80	0.30								
	b	7	1.1467	1.1487	2.00	0.29								
	c	7	1.1511	1.1528	1.70	0.24								
	d	5	1.1580	1.1595	1.50	0.30								
	e	8					5	0	3	0	1.1616	1.1625	0.90	0.30
	f	10					10	0	6	0	1.1462	1.1479	1.70	0.28
	g	10					7	0	4	0	1.1489	1.1500	1.10	0.27
	h	5					5	0	2	0	1.1419	1.1426	0.70	0.35
	i	10					7	0	2	0	1.1476	1.1484	0.80	0.40
	j	10					9	0	2	0	1.1676	1.1681	0.50	0.25
	k	6					6	0	4	0	1.1502	1.1511	0.90	0.23
	l	10					10	0	9	0	1.1404	1.1427	2.30	0.26

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 11	a	7	1.1626	1.1643	1.70	0.24								
	b	8	1.1593	1.1609	1.60	0.20								
	c	6	1.1610	1.1632	2.20	0.37								
	d	7	1.1552	1.1567	1.50	0.21								
	e	6					4	0	3	0	1.1580	1.1589	0.90	0.30
	f	6					1	0	0					
	g	5					2	0	0					
	h	2					0	0	0					
	i	6					5	0	4	0	1.1685	1.1673	0.80	0.20
	j	6					4	0	3	0	1.1400	1.1407	0.70	0.23
	k	4					3	0	0					
	l	4					4	0	0					

Date: 04/18/2005
Species: *Hyalela azteca*
Facility: SeaCrest Group
Test: 42 Day

		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Sed. # 12	a	4	1.1478	1.1489	1.10	0.28								
	b	4	1.1513	1.1525	1.20	0.30								
	c	3	1.1506	1.1517	1.10	0.37								
	d	10	1.1548	1.1572	2.40	0.24								
	e	5					0	0						
	f	6					4	0	3	0	1.1372	1.1385	1.30	0.43
	g	7					5	0	1	0	1.1485	1.1487	0.20	0.20
	h	3					2	0	2	0	1.1486	1.1495	0.90	0.45
	i	5					3	0	2	0	1.1484	1.1496	1.20	0.60
	j	7					7	3	6	0	1.1384	1.1404	2.00	0.33
	k	8					8	2	8	0	1.1404	1.1424	2.00	0.25
	l	9					8	0	4	0	1.1428	1.1436	0.80	0.20
		28 Day Results(growth only, 4 reps)					35 Day Results(survival/reproduction)		42 Day Results(survival/reproduction/growth)					
					Dry Weight(mg)								Dry Weight(mg)	
Treatment	Rep	Surviving	Pan Weight(g)	Pan + Larvae(g)	Total	Individual	Surviving	young/female	Surviving	Young/Female	Pan Weight(g)	Pan + Larvae(g)	Total	Individual
Pre-weight	xx	60	1.1699	1.1717	1.80	0.03	xx	xx	xx	xx	xx	xx	xx	xx