DOE/OR/22012--79

STANDARD REPORT FORM

STATIC RENEWAL TESTS USING ANODONTA IMBECILLIS (FRESHWATER MUSSELS)

Test Title: Anodonta imbecillis QA Test 1, Clinch River - Environmental Restoration Program (CR-ERP)

Principle Investigator: Damien J. Simbeck

Starting Date: July 21, 1993

Ending Date: July 30, 1993

1.0 EXECUTIVE SUMMARY

Toxicity testing of split whole sediment samples using juvenile freshwater mussels (Anodonta imbecillis) was conducted by TVA and CR-ERP personnel as part of the CR-ERP biomonitoring study of Clinch River sediments to provide a quality assurance mechanism for test organism quality and overall performance of the test. [1] In addition, testing included procedures comparing daily renewal versus non-renewal of test sediments.

Testing of sediment samples collected July 15 from Poplar Creek Miles 6.0 and 5.1 was conducted from July 21-30, 1993. Results from this test showed no toxicity (survival effects) to fresh-water mussels during a 9-day exposure to the sediments. Side by side testing of sediments with daily sediment renewal and no sediment renewal showed no differences between methods. This may be due to the absence of toxicity in both samples and may not reflect true differences between the two methods for toxic sediment.

2.0 SAMPLE COLLECTION/TREATMENTS

2.1 Test Sample Identification (Chemical/Effluent/Elutriate, etc.): The samples used for biomonitoring were whole sediments collected from Poplar Creek Miles 6.0 and 5.1.

2.2 Control and/or Dilution Sediment: Poplar Creek Mile (PCM) 6.0.

2.3 Sample Dates and Times: July 15, 1993

2.4 Sampling Method: Samples were collected by TVA Field Engineering personnel. An Eckman dredge was used to obtain the upper fine sediments (5-10 cm) at each location. Sediment samples from numerous dredge collections were composited in a large container, then split into two samples. One set of samples was sent to TVA's Aquatic Research Laboratory (ARL) at the Browns Ferry Nuclear Plant site near Athens, Alabama, and the other to ORNL for comparative testing.

DISCLAIMER

2.5 Sample Storage/Handling: All samples were stored in a refrigerator at 4°C ± 1°C prior to and during the test.

2.6 Sample Transport: All samples were placed in coolers on ice and shipped to ARL by TVA mail.

2.7 Sample Pretreatment: Samples were mixed thoroughly on July 20 with a stainless steel spoon. Sufficient 50 percent sample (V:V from each station) was prepared to last throughout the testing period. Eight crystallizing dishes per treatment were set up by adding 25 mL of sediment and 100 mL moderately hard water to each dish. The dishes were placed in the test incubator 24-hr prior to test initiation to allow settling and temperature equilibration.

2.7.1 Renewed Sediment Test: Samples were mixed each day. Four crystallizing dishes per treatment were set up each day, 24-hr prior to renewal. The dishes were placed in the test incubator to allow settling and temperature equilibration.

2.7.2 Non-renewed Sediment Test: No additional pretreatment was needed following the initial set-up on July 20.

2.8 Test Treatments: Three treatments, PCM 6.0 (Control), PCM 5.1-100% and PCM 5.1-50% (diluted with PCM 6.0 sediment), were tested using two procedures. One series had daily sediment renewal while the other series had no sediment renewal throughout the test. 100 µm filtered non-toxic sediment (approximately 800 mg/L dry weight) from the same source used for culture maintenance was also included as a laboratory reference. Moderately hard reconstituted water served as overlying water for all sediment treatments.

3.0 TEST ORGANISMS/CULTURING CONDITIONS

3.1 Species: Anodonta imbecillis, freshwater mussel

3.2 Source: In vitro culture, July 5 and 6-July 12 and 13, 1993, TVA Aquatic Research Laboratory. The gravid adult from which glochidia were extracted was obtained from Taylor's Catfish ponds, Town Creek, Alabama, on June 22, 1993. Adults were maintained in a 40-L aquarium with approximately 5 L non-toxic sediment from Taylor's ponds and 20 L Tennessee River water. Water was changed at least once per week with bloomed phytoplankton water and sediment was changed monthly.

3.3 Culture medium: Mussel culture medium used to transform larvae (glochidia) into juveniles consisted of a 2:1 mixture of cell culture medium (MEM) and 0.22 µm filtered catfish plasma. Antibiotics and antimycotics were added in small concentrations to prevent bacterial and fungal contamination. [3]

3.4 Temperature of Culture: 24°C ± 1°C

3.5 Culture water: After transformation of larval mussels, the free-living juveniles were placed in 100 µm filtered TR water with bloomed indigenous algae (phytoplankton). Non-toxic sediment (100 µm filtered) were added to provide additional food and substrate for healthy growth of the juvenile mussels. [4]

3.6 Temperature of Culture: 24°C ± 1°C

3.7 General Maintenance: Cultures were maintained in 1000-mL Nalgene® trays in 24-h dark incubators for 6-10 days after transformation. Cultures were fed 10 mL/L bloomed phytoplankton concentrate daily. Water and sediment were changed a minimum of once every two days. Health and survival of the culture were checked by microscopic examination of animals when culture water was changed.

3.8 Food Preparation:

3.8.1 Phytoplankton preparation: Phytoplankton was bloomed in 20-L glass aquaria 4-7 days (until dark green). Blooms were initiated by adding concentrated solids from ARL channel water to filtered (100 µm) TR water. Algal nutrients used for Selenastrum cultures were added (1 mL/L) to boost algal blooms. [5] Blooms were centrifuged to concentrate the algal cells into a dark green suspension, obtaining about 0.5 L per aquarium. Prepared phytoplankton concentrate was refrigerated until used.

3.8.2 YCT and Selenastrum preparation: YCT is made according to methods modified from EPA/600/4-89/001 with tropical fish food substituted for trout chow and alfalfa substituted for Cerophyll. [6] The alga Selenastrum capricornutum concentrated to 30 x 10^6 cells/mL is also fed as part of the test diet.

3.9 Sediment preparation: Whole, non-toxic sediment from Taylor's Catfish ponds, Town Creek, Alabama, was filtered through a 100-µm nylon mesh filter. Filtered sediment was stored at 4°C until used.

4.0 TEST METHODS

4.1 Mussels, Anodonta imbecillis, Survival Test, TVA Test Method, SOP-22, solid phase protocol. [5]

4.2 Modification/Deviations to SOP-22:

4.2.1 Mussels were fed 3 mL/L YCT and 3mL/L Selenastrum daily instead of concentrated phytoplankton.

4.2.2 Sediment was placed into dishes 24 hr before use and placed in the incubator to allow settling and temperature equilibration.

4.3 Date/Time Test Initiated: July 21, 1993/0900 CDT

4.4 Date/Time Test Terminated: July 30, 1993/0935 CDT

4.5 Age of test organisms: 8-9 days old

4.6 Test Chamber: 50 mm-diameter glass cylinder (75 mm tall) with 100-µm nylon mesh bottom, placed in 250-mL crystallizing dish

4.7 Volume per Chamber: 100 mL water, 25 mL sediment

4.8 Number of organisms per replicate: 10

4.9 Number of Replicates per Treatment: 4

4.10 Dilution Sediment: PCM 6.0

4.11 Test Control: PCM 6.0

4.12 Overlying Water: Moderately hard synthetic water

4.13 Test Temperature: 24°C ± 1

4.14 Photoperiod: 24-h dark

4.15 Renewal Period: 24-h

4.16 Renewal Method

4.16.1 Renewed Sediment Test: Each test cylinder was removed from its crystallizing dish and placed in a petri dish containing moderately hard reconstituted water for microscopic examination. The cylinder was then placed into a crystallizing dish which had been set up the previous day (See Section 2.7.1). Overlying water (60 mL/replicate) was then saved for chemical analyses.

4.16.2 Non-renewed Sediment Test: Following removal of 60 mL of the overlying water for chemical analyses, each test cylinder was placed in a petri dish for microscopic examination. After examination, the cylinder was returned to the same crystallizing dish, and 60 mL fresh water was poured into the test vessel through the test cylinder.

4.17 Feeding Regime During Test: Following renewal, 0.45 mL each of YCT and Selenastrum were added to each test chamber.

4.18 Physical and Chemical Parameters Measured: Parameters measured daily ("initial") on fresh test solutions included only temperature. Parameters measured daily ("initial") on overlying and reference waters (following addition of silt and algae) were temperature (temperature adjusted to equal "final" temperature before renewal), DO, pH, conductivity, alkalinity and hardness.

"Final" measurements of temperature, DO, pH, conductivity, alkalinity, hardness and total ammonia were measured in a combination of overlying waters (60 mL/replicate/day) from all replicates per treatment following renewal. The test solutions (50 mL) were preserved with 1:4 H_2SO_4 and refrigerated until sent to TVA's Environmental Chemistry Laboratory in Chattanooga, Tennessee, for analysis using the automated alkaline phenate methodology.

4.19 Test Endpoint Determination:

4.19.1 Survival: Test animals were counted as dead when microscopic examination revealed valves gaped open and no observable internal movement or an empty shell.

4.20 Statistics: Revised statistical procedures contained in the fourth edition of EPA's acute toxicity methods require a decision process for testing statistical assumptions before selecting a specific statistical test to determine toxicity endpoints. [7] The decision process followed for testing survival effects is shown in Section 6.2.1. Statistical significance of results was determined following procedures for comparing single treatments versus control. Based on tests for normally distributed data and homogeneous variances, the statistical test used for endpoint determination was the T-Test.

5.0 QUALITY ASSURANCE

5.1 Toxicity Test Methods: All phases of the study including, but not limited to, sample collection, handling and storage; glassware preparation; test organism culturing/acquisition and acclimation; test organism handling during test; and maintaining appropriate test conditions were conducted according to the protocol as described in this report, the ARL Quality Assurance Plan and SOP Manual, and EPA/600/4-89/001. [5][7] Any known deviations were noted during the study and are reported herein.

5.2 Physical and Chemical Methods

5.2.1 Reagents, Titrants, Buffers, etc.: All chemicals were certified products used before expiration dates (where applicable). All ARL chemicals are recorded in a bound Laboratory Chemical Logbook and specific chemicals used were documented on a chemical record sheet contained in the study notebook.

5.2.2 Instruments: All identification, service, and calibration information pertaining to ARL laboratory instruments is contained in bound Laboratory Instrument Logbooks and specific instruments used were documented on an instrument record sheet, along with daily calibration record sheets, contained in the study notebook.

5.2.3 Temperature was measured using mercury thermometers. The instrument was standardized and inspected with readings made according to TVA procedure DS-42.11. [2]

5.2.4 Dissolved oxygen was measured using a YSI Model 57 oxygen meter. The instrument was standardized (using the Winkler method) and readings were taken according to TVA procedures DS-43.6 and DS-42.4, respectively. [2]

5.2.5 The pH was measured using an Orion Model SA250 meter equipped with an Orion Ross combination electrode. The instrument was standardized and readings were made according to TVA procedures DS-43.7 and DS-42.8, respectively. [2]

5.2.6 Conductance was measured using a YSI Model 32 SCT meter. The instrument was standardized and readings were taken according to TVA procedures DS-43.3 and DS-42.3, respectively. [2]

5.2.7 Alkalinity was measured by titration of 100 mL samples with 0.02 N H_2SO_4 to an end point of 4.5 according to TVA procedure DS-42.1. [2]

5.2.8 Hardness was determined by titration of 50 mL samples with EDTA to a colorimetric endpoint using an indicator (Instructions provided by Reagent Manufacturer [Calgon]), Schwarzenbach Method.

5.2.9 Total residual chlorine was determined using the DPD Titrimetric Method according to TVA procedure DS-42.9, Rev. 0. [2]

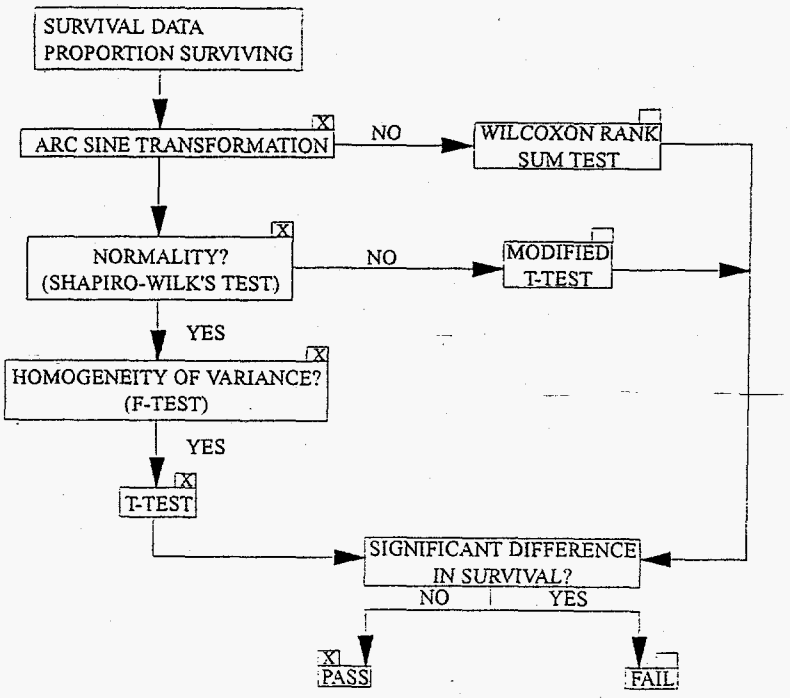
6.0 RESULTS

6.1 Summary of Results: Nine day exposure of juvenile freshwater mussels, Anodonta imbecillis, to whole sediments from Poplar Creek showed no toxicity at PCM 6.0 (100 percent) or PCM 5.1 (100 percent and 50 percent). Side by side testing of sediments with daily sediment renewal and no sediment renewal showed no differences between methods.

6.2 Results, Survival Data:

6.2.1 Statistical Decision Process for Determining Toxicity Endpoints for 9-Day Exposure of the Juvenile Mussel, Anodonta imbecillis, to Test Sediments, July 21-30, 1993.

DETERMINATION OF PASS OR FAIL FROM A
SINGLE-TREATMENT-CONCENTRATION ACUTE TOXICITY TEST



6.2.2 Daily Percent Survival Summary for Anodonta imbecillis, Whole Sediment QA Test 1, CR-ERP, July 21-30, 1993.

Treatment	Total Daily % Survival								
	1	2	3	4	5	6	7	8	9
PCM 6.0-Renewal	100	100	100	100	100	100	100	100	100
PCM 5.1-100% Renewal	100	100	100	98	98	98	98	98	98
PCM 5.1-50% Renewal	100	100	100	100	100	100	100	100	100
PCM 6.0-Static	100	100	100	100	100	100	100	100	100
PCM 5.1-100% Static	100	100	100	100	100	100	100	100	100
PCM 5.1-50% Static	100	100	100	98	98	98	98	98	98
Taylor's Silt Refer.	98	98	98	98	98	98	98	98	98

6.2.3 Nine-day Percent Survival Summary for Anodonta imbecillis, Whole Sediment QA Test 1, CR-ERP, July 21-30, 1993.

Mussel Survival Data (% Survival)

Treatment	Replicate 1	2	3	4	5	6	7	8	9	10	Mean	S
PCM 6.0-Renewal	100	100	100	100							100	
PCM 5.1-100% Renewal	100	90	100	100							98	
PCM 5.1-50% Renewal	100	100	100	100							100	
PCM 6.0-Static	100	100	100	100							100	
PCM 5.1-100% Static	100	100	100	100							100	
PCM 5.1-50% Static	100	100	90	100							98	
Taylor's Silt Refer.	100	100	100	90							98	

S-Significant based on T-Test

6.3 Water chemistry summary for Anodonta imbecillis, Whole Sediment QA Test 1, CR-ERP, July 21-30, 1993.

6.3.1 Test Temperature: 23.9°C (23.2°-24.6°C)

6.3.2 See: Appendix A Water Chemistry Mean Values and Ranges for Anodonta imbecillis, Whole Sediment QA Test 1, CR-ERP, July 21-30, 1993.

7.0 CONCLUSION

Testing of sediment samples collected July 15 from Poplar Creek Miles 6.0 and 5.1 was conducted from July 21-30, 1993. Results from this test showed no toxicity (survival effects) to fresh-water mussels during a 9-day exposure to the sediments. Side by side testing of sediments with daily sediment renewal and no sediment renewal showed no differences between methods. This may be due to the absence of toxicity in both samples and may not reflect true differences between the two methods for toxic sediment.

8.0 REFERENCES

1. Phipps, T. L., and L. A. Kszos, Statement of Work to Provide Assistance to Staff of the Clinch River-Environmental Restoration Program (CR-ERP) and to Evaluate Toxicity Tests of Water and Sediment Conducted by CR-ERP Staff, Environmental Sciences Division, Biomonitoring Group, Oak Ridge National Laboratory (April 1993).
2. Field Operations Natural Resource Engineering Procedures Manual, Vol. 1, Division of Natural Resource Operations, Tennessee Valley Authority.
3. Isom, B. G., and R. G. Hudson, "In Vitro Culture of Parasitic Freshwater Mussel Glochidia," The Nautilus, Vol. 96, No. 4, 1982, pp. 147-151.
4. Hudson, R. G., and B. G. Isom, "Rearing Juveniles of the Freshwater Mussels (Unionidae) in a Laboratory Setting," The Nautilus, Vol. 98, No. 4, 1984, pp. 129-135.
5. Aquatic Research Laboratory Quality Assurance Program and Standard Operating Procedures Manual, Division of Water Resources, Tennessee Valley Authority (October 1992).
6. Weber, C. I., W. H. Peltier, T. J. Norberg-King, W. B. Horning, F. A. Kessler, J. R. Menkdick, T. W. Neiheisel, P. A. Lewis, D. J. Klemm, Q. H. Pickering, F. L. Robinson, J. M. Lazorchak, L. J. Wymer, and R. W. Freyberg. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. EPA/600/4-89/001 (March 1989) and EPA/600/4-89/001a (September 1989).
7. Weber, C. I. (ed.), Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, EPA/600/4-90/027 (September 1991).

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Appendix A

Water Chemistry Mean Values and Ranges for Anadonta imbecillis,
Whole Sediment QA Test 1, CR-ERP, July 21-30, 1993

Source	Temperature	Dissolved Oxygen		pH		Conductivity		Alk		Hardness		Ammonia
	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Final
	(°C)	(mg/L)	(mg/L)	(S.U.)	(S.U.)	(µmhos)	(µmhos)	*	*	*	*	(mg/L)
PCM 6.0 Renewal	23.6 (23.2-24.1)	-	7.2 (6.9-8.2)	-	7.6 (7.6-7.7)	-	367 (353-385)	-	61 (55-68)	-	113.2 (100.9-119.7)	0.012 (0.008-0.015)
PCM 5.1-100% Renewal	24.0 (23.7-24.3)	-	6.9 (6.7-7.7)	-	7.7 (7.7-7.8)	-	382 (373-394)	-	83 (73-92)	-	119.3 (116.3-123.1)	0.043 (0.025-0.059)
PCM 5.1-50% Renewal	23.7 (23.3-24.5)	-	6.9 (6.6-7.8)	-	7.7 (7.6-7.7)	-	373 (361-393)	-	68 (59-73)	-	115.3 (109.4-119.7)	0.025 (0.012-0.032)
PCM 6.0 Static	24.1 (23.8-24.6)	-	7.2 (6.9-7.8)	-	7.7 (7.6-7.8)	-	368 (357-379)	-	58 (53-64)	-	102.4 (99.2-109.4)	<0.002 (<0.001-0.006)
PCM 5.1-100% Static	23.9 (23.4-24.4)	-	7.2 (6.9-7.8)	-	7.7 (7.7-7.8)	-	378 (362-390)	-	63 (60-70)	-	107.7 (102.6-114.6)	<0.004 (<0.001-0.027)
PCM 5.1-50% Static	24.1 (23.8-24.6)	-	7.2 (6.9-7.8)	-	7.7 (7.7-7.7)	-	376 (360-395)	-	60 (56-65)	-	105.5 (100.9-119.7)	<0.002 (<0.001-0.012)
Taylor's Silt Refer.	24.1 (23.6-24.5)	8.0 (7.9-8.1)	7.9 (7.7-8.0)	7.8 (7.8-7.9)	8.0 (7.9-8.1)	335 (328-344)	356 (341-370)	61 (57-64)	64 (60-69)	93.9 (90.6-97.5)	99.6 (95.8-106.0)	0.010 (0.002-0.021)
Moderately Hard Water	-	8.1 (8.0-8.2)	-	8.3 (8.1-8.3)	-	336 (328-347)	-	61 (60-65)	-	94.1 (92.3-95.8)	-	-

* mg/L as $CaCO_3$

PLARC501-1722

ATTACHMENT I

CHAIN OF CUSTODY RECORD - ORIGINAL

J. Stockinger → B. Ferry
* COC scals

FIELD CHAIN OF CUSTODY

* to Browns Ferry anal. lab

CLINCH RIVER ER PROJECT	SAMPLING DATE: 15 Jul 93	FIELD COC ID: 0715933	PAGE 1 OF 1
TASK: 53	MATRIX: Sediment	KIT CONTAINER ID:	
TEAM LEADER: J. Stockinger (TVA)	SAMPLING TEAM: Mark Love		
FIELD CUSTODIAN: J. Stockinger			

SAMPLE ID	SAMPLING LOCATION	SAMPLE TYPE	CONTAINER TYPE	CONTAINER VOLUME	ANALYSIS	SAMPLING DEVICE	COLLECTION SOP	REMARKS
5009	PCM 5.1	SP	HDPE	4.3 L	toxicity	Eckman	—	Split from 5003
5011	PCM 6	↓	↓	↓	↓	↓	—	Split from 5004

CONTAINER TYPES:

SAMPLE TYPES: *RB* - Rinse Blank; *FB* - Field Blank; *SPK* - Spike; *TB* - Trip Blank; *FLD* - Field Sample; *FD* - Field Duplicate; *SP* - Split; *CP* - Composite; *VCP* - Vertical Composit

ANALYSIS TYPES: *RAD* - Rads; *MET* - Metals; *ORG* - Organics; *INO* - Inorganics; *PHY* - Physical; *PW* - Pore Water

RELINQUISHED BY:	DATE:	TIME:	RELINQUISHED BY:	DATE:	TIME:
[signature]	7-15-93	10:30			
RECEIVED BY: [signature]	DATE: 7-16-93	TIME: 06:30	RECEIVED BY:	DATE:	TIME:

DOCUMENT ID:

ATTACHMENT II

TOXICITY TEST BENCH SHEETS AND STATISTICAL ANALYSES

ARL ACUTE TOXICITY TEST (MUSSEL) MASTER CHECKLIST Study: CR-ERL QA Test 1 Jul 93

Date Issued: 7-20 To: DJS From: DJS

1. Test organism availability: T.L.*DJS C.U.† ___ Date 7/12+13/93

2. Sample Collection Coordination: Date 7/19/93 By DJS With L. Grassa

3. Glassware availability: T.L. DJS Tech ___ Date 7/19/93

4. Silt/Phytoplankton availabilty: Silt- By NA Date NA
Phytoplankton- By NA Date NA

5. Glassware prep. complete: Date 7/19/93 By DJS

6. Data Sheet prep. complete: Date 7/19/93 By DJS

7. Test organism availability verification: T.L. DJS

8. Test Initiation: Date/Time 7/21/93; 0900

9. Test Renewal:

		Day#: 0	1	2	3	4	5	6	7	8	9
Meter Calib.	T.L.	DJS	DJS	DJS	DJS	DJS	DJS	DJS	DJS	___	___
	T.M.‡	NA	NA	DH	DH	DH	DH	DH	DH	___	___
Log Samples	T.L.	DJS	NA	___	___	___	___	___	___	2	N/A
	T.M.	NA	NA	___	___	___	___	___	___	2	N/A
Storage Temp. (ASI)		3.6	4.4	4.3	4.5	4.8	4.3	5.0	4.3		
(No ASI)		3.7	4.3	4.4	4.4	4.9	4.8	5.0	4.8	___	N/A
Initial Chem.	T.L.	DJS	DJS	DJS	DJS	DJS	DJS	DJS	DJS	SPP	N/A
	T.M.	GKK	NA	TS	TS	TS	TS	NA	TS	TS	N/A
Renewal/Counts	T.L.	DJS	DJS	DJS	DJS	DJS	DJS	DJS	DJS	N/A	___
	T.M.	SPP	SPP	NA	NA	NA	NA	SPP	SPP	SPP	___
Final Chem.	T.L.	N/A	DJS	DJS	DJS	DJS	DJS	DJS	DJS	SPP	DJS
	T.M.	N/A	DH	TS	TS	TS	TS	NA	TS	TS DH	___
Meter Recal.	T.L.	NA	DJS	DJS	DJS	DJS	DJS	DJS	DJS	DH	___
	T.M.	NA	DH	TS	DH	DH	DH	DH	DH	DH	___
Paperwork	T.L.	DJS	DJS	DJS	DJS	DJS	DJS	DJS	DJS	___	___
reviewed	T.M.	NA	NA	NA	NA	NA	NA	NA	NA	___	___

10. Test Termination: Date/Time 7-30-93/0935

12. Run Stats: Date 8-5-93 By CLR

13. Report Prep.: Date 8-18-93 By DJS

14. Report Final: Date 8-26 (JM) 8-27 By JM Approved: DCW

*Team Leader †Culture Unit ‡Team Member

PLARC501-1513

MUSSEL TEST RECORD SHEET
Anodonta imbecillis

Project CR-ERP QA Test 1 July 1993

Beginning Date/Time 07/21/93 1090 0

Ending Date/Time 07/30/93 1093 5 0901

Personnel Simbeck, Posey

Mussels placed in test vessels: Date 07/19/93 Time 0900-1100

Mussels per test vessel: 10

Test Teatments:

1	PCM 6.0 Control (Change-out)	11	
2	PCM 5.1 100% (Change-out)	12	
3	PCM 5.1 50% (Change-out)	13	
4	PCM 6.0 Control (Static)	14	
5	PCM 5.1 100% (Static)	15	
6	PCM 5.1 50% (Static)	16	
7	Taylor's Silt (Reference)	17	
8		18	
9		19	
10		20	

Control/Dilution Water: Fish Medium #'s 1401, 1402 1407 1410

Source ARL Prepared Date Collected/Prepared [illegible]

CULTURE HISTORY:

Culture ID	Date Started	Date Transformed
93-U	07/05/93	07/12/93
93-V	07/06/93	07/13/93
93-W	07/06/93	07/13/93

YCT prepared thawed: 7-6-93

Solomon prepared: 7-20-93

FOOD/SUBSTRATE PREPARATION:

Phytoplankton Started	Phytoplankton Concentrated
07/05/93	07/13/93
07/10/93	07/14-15/93

Silt Collected: Date/Location 07/09/93 / Taylor's Lower Pond

Silt Filtered (Date) 07/13/93 Silt Weighed (Date) 07/14/93

Volume Weighed 5 mL

	Wt. of pan	Wt. of pan and silt	Wt. of silt
Replicate 1	1.01769 mg	2.03727 mg	1.01958 mg
Replicate 2	1.03718 mg	2.06697 mg	1.02979 mg
Replicate 3	1.05961 mg	2.10102 mg	1.04141 mg

$\bar{X}$ = 1.0302

Average dry weight 0.206 mg/mL

PLARC501-130(5)

4 mL = 824 mg

TREATMENT: PCM 6.0 A/B (Change-out)

	DAY:	0	1	2	3	4	5	6	7	8	9
	DATE:	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30
Rep 1:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 2:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 3:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 4:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0

TREATMENT: PCM 5.1 100% A/B (Change-out)

	DAY:	0	1	2	3	4	5	6	7	8	9
	DATE:	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30
Rep 1:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 2:	# Alive	10	10	10	10	9	9	9	9	9	9
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	1	1	1	1	1	1
Rep 3:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 4:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0

TREATMENT: PCM 5.1 50% A/B (Change-out)

	DAY:	0	1	2	3	4	5	6	7	8	9
	DATE:	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30
Rep 1:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 2:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 3:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 4:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0

TREATMENT: PCM 6.0 C (Static)

	DAY:	0	1	2	3	4	5	6	7	8	9
	DATE:	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30
Rep 1:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 2:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 3:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 4:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0

TREATMENT: PCM 5.1 100% C (Static)

	DAY:	0	1	2	3	4	5	6	7	8	9
	DATE:	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30
Rep 1:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 2:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 3:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 4:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0

TREATMENT: PCM 5.1 50% C (Static)

	DAY:	0	1	2	3	4	5	6	7	8	9
	DATE:	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30
Rep 1:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 2:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 3:	# Alive	10	10	10	10	9	9	9	9	9	9
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	1	1	1	1	1	1
Rep 4:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0

TREATMENT: Taylor's Silt (Reference)

	DAY:	0	1	2	3	4	5	6	7	8	9
	DATE:	7/21	7/22	7/23	7/24	7/25	7/26	7/27	7/28	7/29	7/30
Rep 1:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 2:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 3:	# Alive	10	10	10	10	10	10	10	10	10	10
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	0	0	0	0	0	0	0	0	0
Rep 4:	# Alive	10	9	9	9	9	9	9	9	9	9
	# Stressed	0	0	0	0	0	0	0	0	0	0
	# Dead	0	1	1	1	1	1	1	1	1	1

TREATMENT: _____

	DAY:	0	1	2	3	4	5	6	7	8	9
	DATE:										
Rep 1:	# Alive										
	# Stressed										
	# Dead										
Rep 2:	# Alive										
	# Stressed										
	# Dead										
Rep 3:	# Alive										
	# Stressed										
	# Dead										
Rep 4:	# Alive										
	# Stressed										
	# Dead										

TTEST PROCEDURE

Variable: RESP

TRT	N	Mean	Std Dev	Std Error
PCM5.1 RENEWAL10	4	1.37127353	0.08148517	0.04074258
PCM6.0 RENEWAL	4	1.41201611	0.00000000	0.00000000

Variances	T	DF	Prob>|T|
Unequal	-1.0000	3.0	0.3910
Equal	-1.0000	6.0	0.3559

not sig. Can do as 93

NOTE: All values are the same for one CLASS level.

TEST FOR NORMAL DISTRIBUTION

8:29 Sunday, August 4, 1991

---------- STUDY=CRERP QA 1 ST_DATE=072193 PARM=MI2S ----------

UNIVARIATE PROCEDURE

Variable=CENTER

Moments

N	8	Sum Wgts	8
Mean	0	Sum	0
Std Dev	0.053345	Variance	0.002846
Skewness	-2.0367	Kurtosis	4.9
USS	0.019919	CSS	0.019919
CV	.	Std Mean	0.01886
T:Mean=0	0	Prob>|T|	1.0000
Sgn Rank	1	Prob>|S|	1.0000
Num ^= 0	4		
W:Normal	0.705561	Prob<W	0.0030

Quantiles(Def=5)

100% Max	0.040743	99%	0.040743
75% Q3	0.040743	95%	0.040743
50% Med	0	90%	0.040743
25% Q1	0	10%	-0.12223
0% Min	-0.12223	5%	-0.12223
		1%	-0.12223
Range	0.16297		
Q3-Q1	0.040743		
Mode	0		

Extremes

Lowest	Obs	Highest	Obs
-0.12223(	12)	0(	3)
0(	4)	0(	4)
0(	3)	0.040743(	11)
0(	2)	0.040743(	13)
0(	1)	0.040743(	14)

Missing Value	.
Count	12
% Count/Nobs	60.00

TEST FOR NORMAL DISTRIBUTION

8:29 Sunday, August 4, 1991

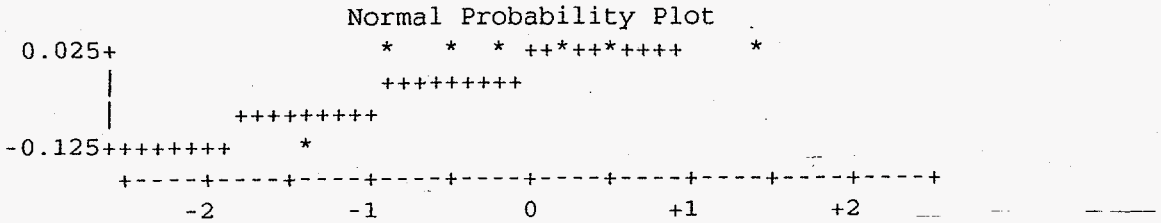
---------- STUDY=CRERP QA 1 ST_DATE=072193 PARM=MI2S ----------

UNIVARIATE PROCEDURE

Variable=CENTER

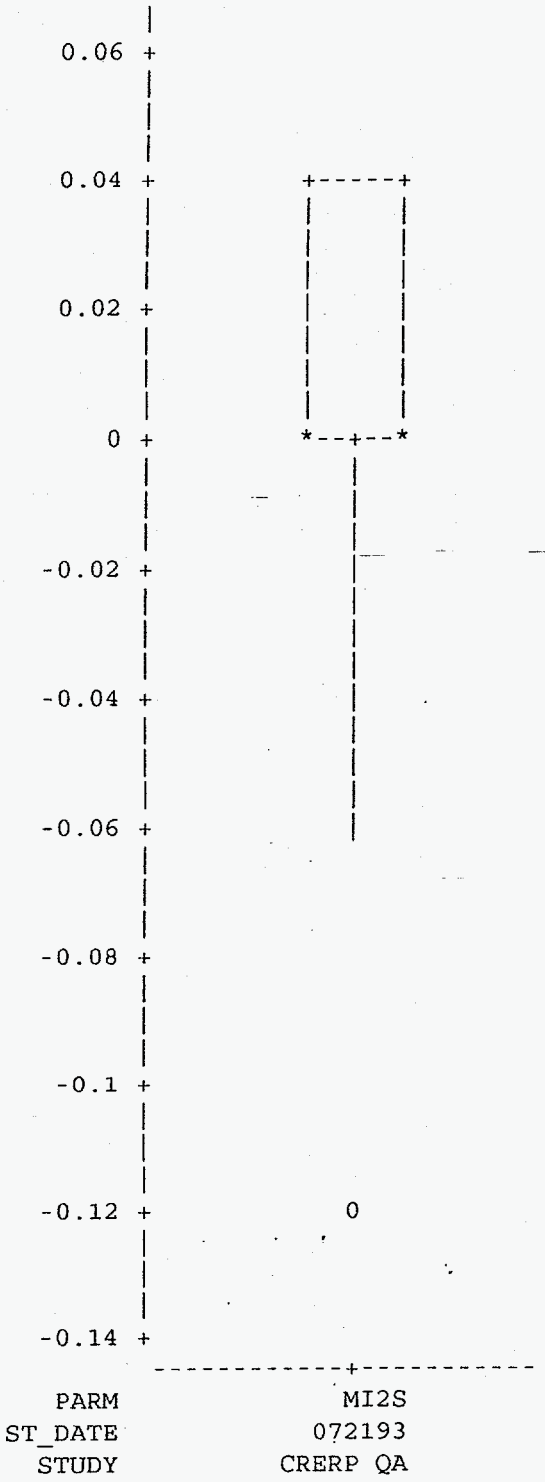
Stem	Leaf	#	Boxplot
0	0000444	7	+--+--+
-0			
-0			
-1	2	1	0

Multiply Stem.Leaf by 10**-1



UNIVARIATE PROCEDURE
Schematic Plots

Variable=CENTER

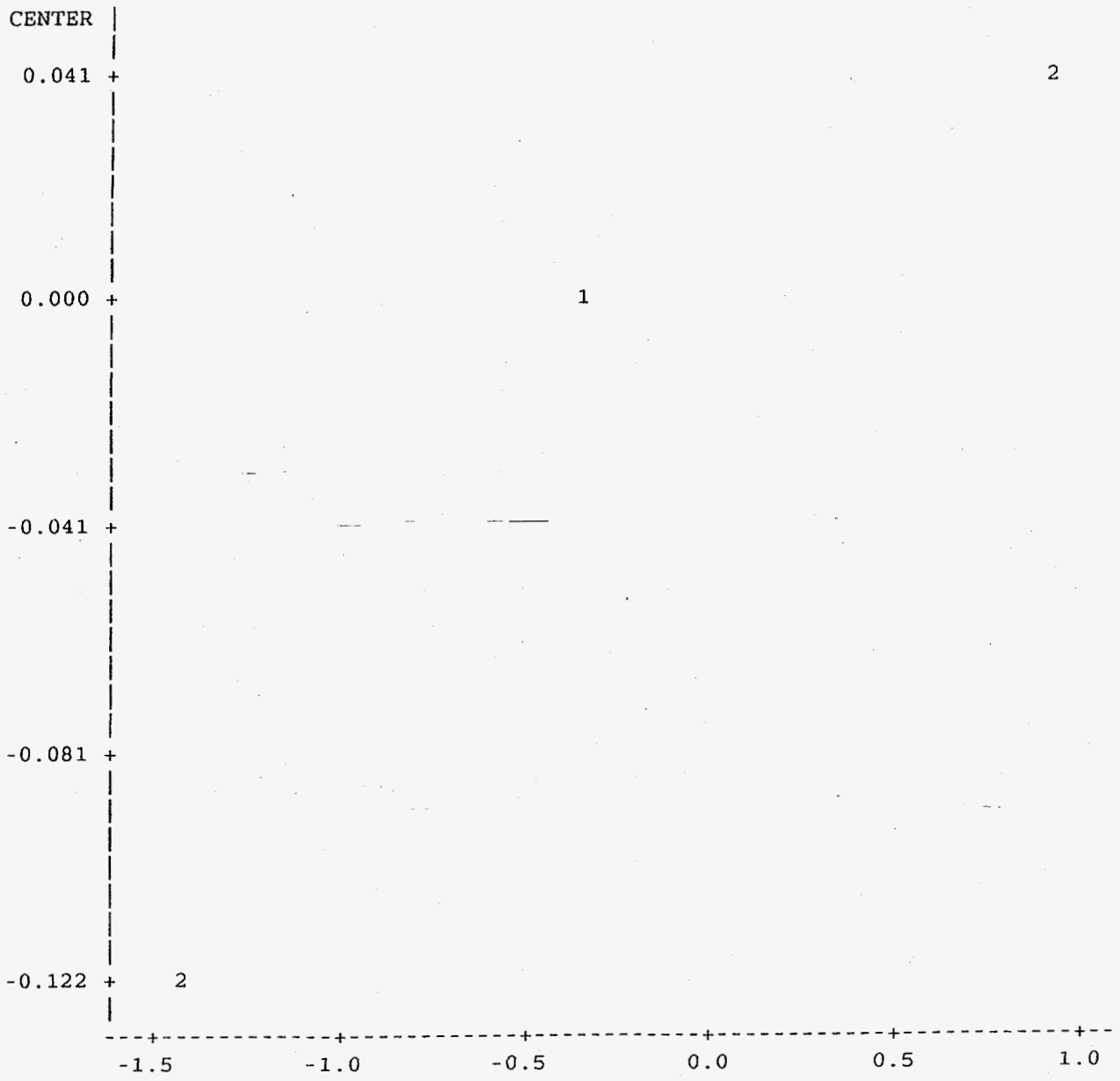


TEST FOR NORMAL DISTRIBUTION

8:29 Sunday, August 4, 1991

---------- STUDY=CRERP QA 1 ST_DATE=072193 PARM=MI2S ----------

Plot of CENTER*RANKIT. Symbol is value of TRT_NO.



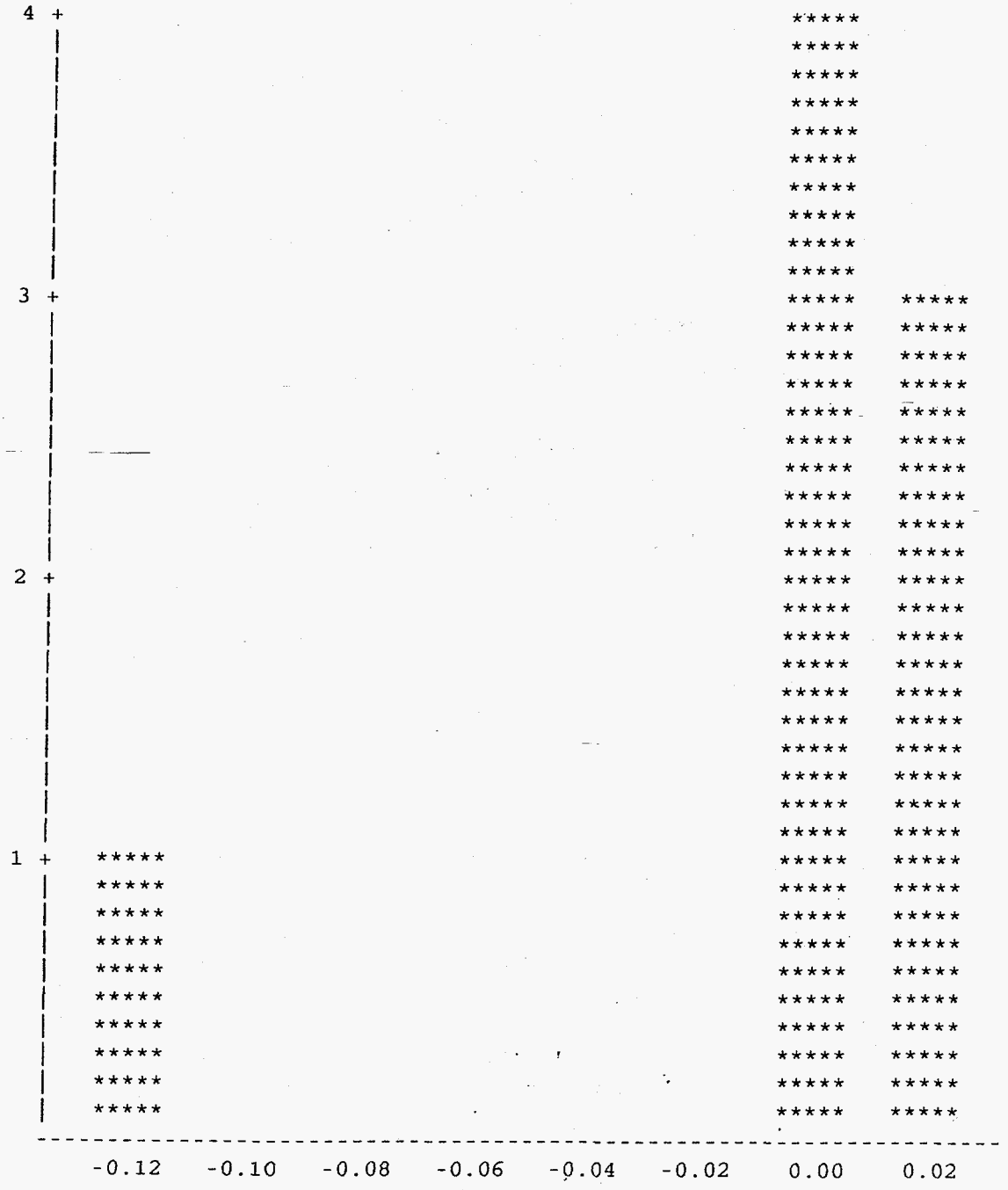
NOTE: 12 obs had missing values. 5 obs hidden.

TEST FOR NORMAL DISTRIBUTION

8:29 Sunday, August 4, 1991

---------- STUDY=CRERP QA 1 ST_DATE=072193 PARM=MI2S ----------

FREQUENCY OF CENTER



VARIANCE EQUAL TO ZERO FOR ONE OR MORE TREATMENTS
BARTLETT'S TEST CAN NOT BE CALCULATED

LEVENE'S TEST WILL BE USED

---------- STUDY=CRERP QA 1 ST_DATE=072193 PARM=MI2S ----------

General Linear Models Procedure
Class Level Information

Class	Levels	Values
TRT	2	PCM5.1 RENEWAL10 PCM6.0 RENEWAL

Number of observations in by group = 20

NOTE: Due to missing values, only 8 observations can be used in this analysis.

---------- STUDY=CRERP QA 1 ST_DATE=072193 PARM=MI2S ----------

General Linear Models Procedure

Dependent Variable: ABS_VAL

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	0.00746981	0.00746981	9.00	0.0240
Error	6	0.00497987	0.00082998		
Corrected Total	7	0.01244969			

R-Square	C.V.	Root MSE	ABS_VAL Mean
0.600000	94.28090	0.028809	0.03055694

Source	DF	Type I SS	Mean Square	F Value	Pr > F
TRT	1	0.00746981	0.00746981	9.00	0.0240

Source	DF	Type III SS	Mean Square	F Value	Pr > F
TRT	1	0.00746981	0.00746981	9.00	0.0240

MUSSEL CULTURE RECORD SHEET

Year: 1993

Species: Anadonta imbecillis Culture I.D.: 93-V

Start Date: 7-5-93

Change-out Dates: 1)_____ 2)_____ 3)_____ 4)_____
5)_____ 6)_____ 7)_____ 8)_____

Set-up:
MEM-Fish plasma: Dishes #1 - #13 MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 1:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 2:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 3:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 4:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 5:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 6:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 7:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 8:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Development:

MEM-Fish-plasma:

Day 1)_____ Day 2)_____
Day 3) look good! Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

MEM-Rabbit serum:

Day 1)_____ Day 2)_____
Day 3)_____ Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

Eagle's-Fish plasma:

Day 1)_____ Day 2)_____
Day 3)_____ Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

Eagle's-Rabbit serum:

Day 1)_____ Day 2)_____
Day 3)_____ Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

Transformation:

Placement into River water:

DATE	DISHES	OUTCOME
7-12-93	All	~95% transformation
		used for Cd-ERF QA test 1

PERCENT TRANSFORMATION:

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

Percent Survival:

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MUSSEL CULTURE RECORD SHEET

Year: 1993

Species: A. cuneata Culture I.D.: 93-V

Start Date: 7-6-93

Change-out Dates: 1)_____ 2)_____ 3)_____ 4)_____
5)_____ 6)_____ 7)_____ 8)_____

Set-up:
MEM-Fish plasma: Dishes VI - VII MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 1:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 2:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 3:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 4:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 5:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 6:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 7:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 8:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Development:

MEM-Fish-plasma:

Day 1)_____ Day 2)_____
Day 3) look good! Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

MEM-Rabbit serum:

Day 1)_____ Day 2)_____
Day 3)_____ Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

Eagle's-Fish plasma:

Day 1)_____ Day 2)_____
Day 3)_____ Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

Eagle's-Rabbit serum:

Day 1)_____ Day 2)_____
Day 3)_____ Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

Transformation:

Placement into River water:

DATE	DISHES	OUTCOME
7.13.93	All	~80% transformation used for
		Cd-exp WA Test I

PERCENT TRANSFORMATION:

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

Percent Survival:

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MUSSEL CULTURE RECORD SHEET

Year: 1993

Species: N. imbecillis Culture I.D.: 93-W

Start Date: 7-6-93

Change-out Dates: 1)_____ 2)_____ 3)_____ 4)_____
5)_____ 6)_____ 7)_____ 8)_____

Set-up:
MEM-Fish plasma: Dishes 1 - 11 MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 1:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 2:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 3:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 4:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 5:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 6:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 7:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Change-out 8:
MEM-Fish plasma: Dishes_____-_____ MEM-Rabbit serum: Dishes_____-_____
Eagle's-Fish plasma: Dishes_____-_____ Eagle's-Rabbit serum: Dishes_____-_____

Development:

MEM-Fish-plasma:

Day 1)_____ Day 2)_____
Day 3) look good! Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

MEM-Rabbit serum:

Day 1)_____ Day 2)_____
Day 3)_____ Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

Eagle's-Fish plasma:

Day 1)_____ Day 2)_____
Day 3)_____ Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

Eagle's-Rabbit serum:

Day 1)_____ Day 2)_____
Day 3)_____ Day 4)_____
Day 5)_____ Day 6)_____
Day 7)_____ Day 8)_____
Day 9)_____ Day10)_____
Day11)_____ Day12)_____
Day13)_____ Day14)_____
Day15)_____ Day16)_____
Day17)_____ Day18)_____
Day19)_____ Day20)_____
Day21)_____ Day22)_____
Day23)_____ Day24)_____

Transformation:

Placement into River water:

DATE	DISHES	OUTCOME
7-13-93	All	~70% transformation used for
		CR-ERL QA test I

PERCENT TRANSFORMATION:

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

Percent Survival:

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

MEM-Fish plasma: Date counted__________By_____Percent__________
MEM-Rabbit serum: Date counted__________By_____Percent__________
Eagle's-Fish plasma: Date counted__________By_____Percent__________
Eagle's-Rabbit serum: Date counted__________By_____Percent__________

INITIAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-21-93

TREATMENT	F-Med 1401	M6.0	M5.1 100%	M5.1 50%	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature A C	24.6	23.7	23.5	23.4	23.7	23.7	23.6	24.6
D.O. (before air)	8.2							
(after air)								
(w/silt/algae)								8.0
pH (before air)	8.3							
(after air)								
(w/silt/algae)								7.9
(Aeration time)								
Conductivity	333							331
Hardness	5.5							5.5
x 17.1	94.1							94.1
Alkalinity	6.0							5.7
x 10	60							57
Chlorine								
Ammonia								

NOTES:

INITIAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-22-93

TREATMENT	F-Med 1403	M6.0	M5.1 100%	M5.1 50%	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature	24.3	24.5	24.7	24.7	~~24.5~~			24.6
D.O. (before air)	8.1							
(after air)								
(w/silt/algae)								8.1
pH (before air)	8.3							
(after air)								
(w/silt/algae)								7.8
(Aeration time)								
Conductivity	331							330
Hardness	5.4							5.3
x 17.1	92.3							90.6
Alkalinity	6.0							6.0
x 10	60							60
Chlorine								
Ammonia								

NOTES:

INITIAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-23-93

TREATMENT	F-Med 1403	M6.0	M5.1 100%	M5.1 50%	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature	24.8	24.4	24.5	24.7	—	—	—	24.5
D.O. (before air)	8.0							
(after air)								
(w/silt/algae)								8.0
pH (before air)	8.2							
(after air)								
(w/silt/algae)								7.8
(Aeration time)								
Conductivity	331							329
Hardness	5.7	—						5.4
x 17.1								92.3
Alkalinity								5.8
x 10								58
Chlorine								
Ammonia								

NOTES:

(PLARC501-130)

INITIAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-24-93

TREATMENT	F-Med 1403	M6.0	M5.1 100%	M5.1 50%	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature	24.5	24.5	24.8	24.9	—	—	—	24.3
D.O. (before air)	8.1							
(after air)								
(w/silt/algae)								8.0
pH (before air)	8.2							
(after air)								
(w/silt/algae)								7.8
(Aeration time)								
Conductivity	331							328
Hardness								5.4
x 17.1								92.3
Alkalinity								5.8
x 10								58
Chlorine								
Ammonia								

NOTES:

INITIAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7/25/93

TREATMENT	F-Med 1403	M6.0	M5.1 100%	M5.1 50%	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature	24.7	24.9	24.7	24.7	—	—	—	24.4
D.O. (before air)	8.2							
(after air)								
(w/silt/algae)			—					8.1
pH (before air)	8.3			—	—	—		
(after air)								
(w/silt/algae)								7.8
(Aeration time)								
Conductivity	328							328
Hardness								55
x 17.1								94.1
Alkalinity								58
x 10								58
Chlorine								
Ammonia								

NOTES:

INITIAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7/26/93

TREATMENT	F-Med 1407	M6.0	M5.1 100%	M5.1 50%	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature	24.8	23.6	23.8	23.9	—	—	—	24.6
D.O. (before air)	8.2							
(after air)								
(w/silt/algae)								7.9
pH (before air)	8.3	—						
(after air)								
(w/silt/algae)								7.9
(Aeration time)								
Conductivity	344							344
Hardness	5.6							5.5
x 17.1	95.8							94.1
Alkalinity	6.5							6.4
x 10	65							64
Chlorine								
Ammonia								

NOTES:

INITIAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-27-93

TREATMENT	F-Med 1407	M6.0	M5.1 100%	M5.1 50%	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature	24.8	24.7	24.7	24.9				24.7
D.O. (before air)	8.0							
(after air)								
(w/silt/algae)								8.0
pH (before air)	8.3							
(after air)								
(w/silt/algae)								7.9
(Aeration time)								
Conductivity	347							314
Hardness								5.6
x 17.1								95.8
Alkalinity								6.4
x 10								64
Chlorine								
Ammonia								

NOTES:

INITIAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-28-93

TREATMENT	F-Med 1407	M6.0	M5.1 100%	M5.1 50%	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature	24.8	24.8	24.5	24.7	-	-	-	24.5
D.O. (before air)	8.2							
(after air)								
(w/silt/algae)								7.9
pH (before air)	8.3							
(after air)								
(w/silt/algae)								7.8
(Aeration time)								
Conductivity	344							344
Hardness							-	5.5
x 17.1								94.1
Alkalinity								6.4
x 10								64
Chlorine								
Ammonia								

NOTES:

INITIAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-29-93

TREATMENT	F-Med 1410	M6.0	M5.1 100%	M5.1 50%	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature	24.6	24.1 ~~23.8~~	24.4	24.2	-	-	-	24.2
D.O. (before air)	8.2							
(after air)								
(w/silt/algae)								8.0
pH (before air)	8.1							
(after air)								
(w/silt/algae)								7.8
(Aeration time)								
Conductivity	339							336
Hardness	5.5			-				5.7
x 17.1	94.1							97.5
Alkalinity	6.0							6.2
x 10	60							62
Chlorine								
Ammonia								

NOTES:

FINAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-22-93 Replicate: ~~1~~ 1

TREATMENT	M6.0	M5.1A 100%B	M5.1A 50% B	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt	
Temperature	23.3	23.9	23.4	23.9	23.4	23.8	24.2	
D.O.	6.9	6.9	6.9	6.9	6.9	6.4	7.9	
pH	7.6	7.7	7.7	7.6	7.7	7.7	8.1	
Conductivity	374	391	393	358	378	395	362	
Hardness	7.0	6.8	7.0	6.4	6.7	7.0	6.0	
x 17.1	119.7	116.3	119.7	109.4	114.6	119.7	102.6	
Alkalinity	5.5	7.3	5.9	*	7.0	6.1	6.3	
x 10	55	73	59	-	70	61	63	
Chlorine								
Ammonia	0.008	0.025	0.012	0.006	0.027	0.012	0.021	

NOTES: * 5.3 mL titrated with endpoint pH = 4.3. Not enough sample to retitrate.

FINAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-23-93 Replicate: 2

TREATMENT	M6.0A	M5.1A 100%B	M5.1A 50% B	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt	
Temperature	23.7	24.3	24.5	24.2	24.4	24.2	24.5	
D.O.	7.0	6.8	6.8	7.0	6.9	7.0	7.9	
pH	7.6	7.8	7.7	7.7	7.7	7.7	8.0	
Conductivity	356	374	361	368	362	370	357	
Hardness	6.4	6.9	6.6	6.0	6.3	6.0	5.8	
x 17.1	109.4	118.0	112.9	102.6	107.7	102.6	99.2	
Alkalinity	5.9	8.1	6.9	5.3	6.0	5.6	6.3	
x 10	59	81	69	53	60	56	63	
Chlorine								
Ammonia	0.011	0.037	0.028	0.001	0.002	0.001	0.009	

NOTES:

FINAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-24-93 Replicate: 3

TREATMENT	M6.0	M5.1A 100%B	M5.1A 50% B	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt
Temperature	23.8	23.9	23.3	24.0	23.5	24.0	24.0
D.O.	8.2	7.7	7.8	7.8	7.8	7.8	8.0
pH	7.6	7.8	7.7	7.7	7.8	7.7	8.0
Conductivity	353	374	369	~~352~~ 357 TCS	365	360	343
Hardness	6.7	7.0	6.9	5.8	6.3	5.9	5.6
x 17.1 TCS	~~353~~ 114.6	374 119.7	~~369~~ 118.0	99.2	107.7	100.9	95.8
Alkalinity	6.3	8.4	7.3	5.5	6.0	5.7	6.0
x 10	63	84	73	55	60	57	60
Chlorine							
Ammonia	0.012	0.059	~~0.059~~ 0.028 TCS	<0.001	0.001	<0.001	0.010

NOTES:

FINAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7/25/93 Replicate: 4

TREATMENT	M6.0 A	M5.1A 100%B	M5.1A 50% B	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt	
Temperature	23.4	23.7	23.4	24.6	24.4	24.2	24.2	
D.O.	7.4	7.2	7.1	7.4	7.3	7.4	8.0	
pH	7.6	7.8	7.7	7.7	7.7	7.7	8.0	
Conductivity	356	317	368	365	370	378	341	
Hardness	6.5	7.0	6.8	5.8	6.1	6.1	5.7	
x 17.1	111.2	119.7	116.3	99.2	104.3	104.3	97.5	
Alkalinity	6.0	8.4	7.2	5.5	6.0	5.8	6.0	
x 10	60	84	72	55	60	58	60	
Chlorine								
Ammonia	0.013	0.054	0.029	0.001	0.001	0.001	0.011	

NOTES:

FINAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7/26/93 Replicate: 1

TREATMENT	M6.0	M5.1A 100%B	M5.1A 50% B	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt	
Temperature	23.5	24.3	23.4	24.3	24.3	24.6	24.0	
D.O.	7.1	6.9	7.0	7.2	7.1	7.2	7.9	
pH	7.6	7.7	7.7	7.7	7.7	7.7	7.9	
Conductivity	360	373	372	379	378	378	349	
Hardness	6.7	6.8	6.8	6.1	6.2	6.1	5.6	
x 17.1	114.6	116.3	116.3	104.3	106.0	104.3	95.8	
Alkalinity	6.0	8.5	7.1	5.6	6.0	5.7	6.1	
x 10	60	85	71	56	60	57	61	
Chlorine								
Ammonia	0.012	0.049	0.031	0.001	0.001	0.001	0.012	

NOTES:

FINAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-27-93 Replicate: 2

TREATMENT	M6.0	M5.1A 100%B	M5.1A 50% B	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt	
Temperature	23.7	24.2	24.0	24.1	24.1	24.3	24.2	
D.O.	7.0	6.7	6.7	7.0	7.0	7.0	7.7	
pH	7.6	7.7	7.7	7.7	7.7	7.7	8.0	
Conductivity	373	387	377	375	388	384	362	
Hardness	5.9	7.1	6.9	6.1	6.4	6.4	5.9	
x 17.1	100.9	121.4	118.0	104.3	109.4	109.4	100.9	
Alkalinity	5.6	7.7	6.5	5.8	6.2	6.0	6.6	
x 10	56	77	65	58	62	60	66	
Chlorine								
Ammonia	0.010	0.032	0.022	0.001	0.001	0.001	0.012	

NOTES:

FINAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-28-93 Replicate: 3

TREATMENT	M6.0 A	M5.1A 100%B	M5.1A 50% B	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt	
Temperature	23.2	24.0	24.1	23.8	24.1	24.0	24.3	
D.O.	7.0	6.8	6.8	7.2	7.2	7.2	7.8	
pH	7.6	7.7	7.7	7.7	7.7	7.7	8.0	
Conductivity	385	393	367	370	390	374	361	
Hardness	6.9	7.0	6.6	5.8	6.3	6.0	59	
x 17.1	118.0	119.7	112.9	99.2	107.7	102.6	100.9	
Alkalinity	6.8	8.8	7.0	6.1	6.5	6.3	6.7	
x 10	68	88	70	61	65	63	67	
Chlorine								
Ammonia	0.013	0.045	0.032	0.001	0.001	<0.001	0.009	

NOTES:

(PLARC501-130)

FINAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-29-93 Replicate: 1

TREATMENT	M6.0 A	M5.1A 100%B	M5.1A 50% B	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt	
Temperature	23.9	23.8	23.8	23.8	23.8	23.8	23.8	
D.O.	6.9	6.8	6.8	7.3	7.3	7.3	7.8	
pH	7.7	7.7	7.7	7.8	7.7	7.7	8.0	
Conductivity	363	394	383	370 ~~382~~	382	376	362	
Hardness	6.6	7.0	6.7	5.9	6.0	6.0	5.7	
x 17.1	112.9	119.7	114.6	100.9	102.6	102.6	97.5	
Alkalinity	6.1	9.2	7.1	6.4	6.6	6.5	6.9	
x 10	61	92	71	64	66	65	69	
Chlorine								
Ammonia	0.011	0.045	0.026	0.001	0.001	0.001	0.004	

NOTES:

(PLARC501-130)

FINAL CHEMISTRY

Project: CR-ERP QA Test 1 July 1993 Personnel: Simbeck

Beginning Date: July 21, 1993 Posey

Ending Date: July 30, 1993

Date: 7-30-93 Replicate: 1

TREATMENT	M6.0	M5.1A 100%B	M5.1A 50% B	M6.0C	M5.1C 100%	M5.1C 50%	Taylr Silt	
Temperature	24.1	24.0	23.8	23.8	23.5	23.9	23.6	
D.O.	7.1	6.7	6.6	7.1	7.2	7.2	7.8	
pH	7.6	7.7	7.6	7.7	7.7	7.7	8.0	
Conductivity	380	376	6363	369	390	371	370	
Hardness	6.9	7.2	6.4	6.0	6.4	6.0	6.2	
x 17.1	118.0	123.1	109.4	102.6	109.4	102.6	106.0	
Alkalinity	6.4	8.2	6.6	6.4	6.5	6.4	6.8	
x 10	64	82	66	64	65	64	68	
Chlorine								
Ammonia	0.015	0.039	0.019	0.001	<0.001	<0.001	0.002	

NOTES:

C R - E R P - QA1 -- July 21-30, 1993 -- I N I T I A L A N D F I N A L C H E M I S T R Y

I N I T I A L C H E M I S T R Y

PCM 6.0-A CONTROL

DAY	TEMP	DO	pH	COND	HARD	ALK	CHLORINE
0	23.7	-	-	-	-	-	--
1	24.5	-	-	-	-	-	--
2	24.4	-	-	-	-	-	--
3	24.5	-	-	-	-	-	--
4	24.9	-	-	-	-	-	--
5	23.6	-	-	-	-	-	--
6	24.7	-	-	-	-	-	--
7	24.8	-	-	-	-	-	--
8	24.1	-	-	-	-	-	--
MEAN	24.4	0.0	0.0	0	0.0	0	--
MIN	23.6	0.0	0.0	0	0.0	0	--
MAX	24.9	0.0	0.0	0	0.0	0	--

TAYLOR'S SILT

DAY	TEMP	DO	pH	COND	HARD	ALK	CHLORI
0	24.6	8.0	7.9	331	94.1	57	-
1	24.6	8.1	7.8	330	90.6	60	-
2	24.5	8.0	7.8	329	92.3	58	-
3	24.3	8.0	7.8	328	92.3	58	-
4	24.4	8.1	7.8	328	94.1	58	-
5	24.6	7.9	7.9	344	94.1	64	-
6	24.7	8.0	7.9	344	95.8	64	-
7	24.5	7.9	7.8	344	94.1	64	-
8	24.2	8.0	7.8	336	97.5	62	-
MEAN	24.5	8.0	7.8	335	93.9	61	--
MIN	24.2	7.9	7.8	328	90.6	57	--
MAX	24.7	8.1	7.9	344	97.5	64	--

PCM 5.1 100-A

DAY	TEMP	DO	pH	COND	HARD	ALK	CHLORINE
0	23.5	-	-	-	-	-	-
1	24.7	-	-	-	-	-	-
2	24.5	-	-	-	-	-	-
3	24.8	-	-	-	-	-	-
4	24.7	-	-	-	-	-	-
5	23.8	-	-	-	-	-	-
6	24.7	-	-	-	-	-	-
7	24.5	-	-	-	-	-	-
8	24.4	-	-	-	-	-	-
MEAN	24.4	0.0	0.0	0	0.0	0	--
MIN	23.5	0.0	0.0	0	0.0	0	--
MAX	24.8	0.0	0.0	0	0.0	0	--

FISH MEDIUM

DAY	TEMP	DO	pH	COND	HARD	ALK	CHLORI
0	24.6	8.2	8.3	333	94.1	60	-
1	24.3	8.1	8.3	331	92.3	60	-
2	24.8	8.0	8.2	331	-	-	-
3	24.5	8.1	8.2	331	-	-	-
4	24.7	8.2	8.3	328	-	-	-
5	24.8	8.2	8.3	344	95.8	65	-
6	24.8	8.0	8.3	347	-	-	-
7	24.8	8.2	8.3	344	-	-	-
8	24.6	8.2	8.1	339	94.1	60	-
MEAN	24.7	8.1	8.3	336	94.1	61	--
MIN	24.3	8.0	8.1	328	92.3	60	--
MAX	24.8	8.2	8.3	347	95.8	65	--

PCM 5.1 50-A

DAY	TEMP	DO	pH	COND	HARD	ALK	CHLORINE
0	23.4	-	-	-	-	-	-
1	24.7	-	-	-	-	-	-
2	24.7	-	-	-	-	-	-
3	24.9	-	-	-	-	-	-
4	24.7	-	-	-	-	-	-
5	23.9	-	-	-	-	-	-
6	24.9	-	-	-	-	-	-
7	24.7	-	-	-	-	-	-
8	24.2	-	-	-	-	-	-
MEAN	24.5	0.0	0.0	0	0.0	0	--
MIN	23.4	0.0	0.0	0	0.0	0	--
MAX	24.9	0.0	0.0	0	0.0	0	--

FINAL CHEMISTRY

PCM 6.0-A CONTROL

DAY	TEMP	DO	pH	COND	HARD	ALK	AMMONIA
1	23.3	6.9	7.6	374	119.7	55	0.008
2	23.7	7.0	7.6	356	109.4	59	0.011
3	23.8	8.2	7.6	353	114.6	63	0.012
4	23.4	7.4	7.6	356	111.2	60	0.013
5	23.5	7.1	7.6	360	114.6	60	0.012
6	23.7	7.0	7.6	373	100.9	56	0.010
7	23.2	7.0	7.6	385	118.0	68	0.013
8	23.9	6.9	7.7	363	112.9	61	0.011
9	24.1	7.1	7.6	380	118.0	64	0.015
MEAN	23.6	7.2	7.6	367	113.2	61	0.012
MIN	23.2	6.9	7.6	353	100.9	55	0.008
MAX	24.1	8.2	7.7	385	119.7	68	0.015

PCM 6.0-C CONTROL

DAY	TEMP	DO	pH	COND	HARD	ALK	AMMONIA
1	23.9	6.9	7.6	358	109.4	-	0.006
2	24.2	7.0	7.7	368	102.6	53	0.001
3	24.0	7.8	7.7	357	99.2	55	(0.001
4	24.6	7.4	7.7	365	99.2	55	0.001
5	24.3	7.2	7.7	379	104.3	56	0.001
6	24.1	7.0	7.7	375	104.3	58	0.001
7	23.8	7.2	7.7	370	99.2	61	0.001
8	23.8	7.3	7.8	370	100.9	64	0.001
9	23.8	7.1	7.7	369	102.6	64	0.001
MEAN	24.1	7.2	7.7	368	102.4	58	(0.002
MIN	23.8	6.9	7.6	357	99.2	53	(0.001
MAX	24.6	7.8	7.8	379	109.4	64	0.006

PCM 5.1 100-A

DAY	TEMP	DO	pH	COND	HARD	ALK	AMMONIA
1	23.9	6.9	7.7	391	116.3	73	0.025
2	24.3	6.8	7.8	374	118.0	81	0.037
3	23.9	7.7	7.8	374	119.7	84	0.059
4	23.7	7.2	7.8	377	119.7	84	0.054
5	24.3	6.9	7.7	373	116.3	85	0.049
6	24.2	6.7	7.7	387	121.4	77	0.032
7	24.0	6.8	7.7	393	119.7	88	0.045
8	23.8	6.8	7.7	394	119.7	92	0.045
9	24.0	6.7	7.7	376	123.1	82	0.039
MEAN	24.0	6.9	7.7	382	119.3	83	0.043
MIN	23.7	6.7	7.7	373	116.3	73	0.025
MAX	24.3	7.7	7.8	394	123.1	92	0.059

PCM 5.1 100-C

DAY	TEMP	DO	pH	COND	HARD	ALK	AMMONIA
1	23.4	6.9	7.7	378	114.6	70	0.027
2	24.4	6.9	7.7	362	107.7	60	0.002
3	23.5	7.8	7.8	365	107.7	60	0.001
4	24.4	7.3	7.7	370	104.3	60	0.001
5	24.3	7.1	7.7	378	106.0	60	0.001
6	24.1	7.0	7.7	388	109.4	62	0.001
7	24.1	7.2	7.7	390	107.7	65	0.001
8	23.8	7.3	7.7	382	102.6	66	0.001
9	23.5	7.2	7.7	390	109.4	65	(0.001
MEAN	23.9	7.2	7.7	378	107.7	63	(0.004
MIN	23.4	6.9	7.7	362	102.6	60	(0.001
MAX	24.4	7.8	7.8	390	114.6	70	0.027

PCM 5.1 50-A

DAY	TEMP	DO	pH	COND	HARD	ALK	AMMONIA
1	23.4	6.9	7.7	393	119.7	59	0.012
2	24.5	6.8	7.7	361	112.9	69	0.028
3	23.3	7.8	7.7	369	118.0	73	0.028
4	23.4	7.1	7.7	368	116.3	72	0.029
5	23.4	7.0	7.7	372	116.3	71	0.031
6	24.0	6.7	7.7	377	118.0	65	0.022
7	24.1	6.8	7.7	367	112.9	70	0.032
8	23.8	6.8	7.7	383	114.6	71	0.026
9	23.8	6.6	7.6	363	109.4	66	0.019
MEAN	23.7	6.9	7.7	373	115.3	68	0.025
MIN	23.3	6.6	7.6	361	109.4	59	0.012
MAX	24.5	7.8	7.7	393	119.7	73	0.032

PCM 5.1 50-C

DAY	TEMP	DO	pH	COND	HARD	ALK	AMMONIA
1	23.8	6.9	7.7	395	119.7	61	0.012
2	24.2	7.0	7.7	370	102.6	56	0.001
3	24.0	7.8	7.7	360	100.9	57	(0.001
4	24.2	7.4	7.7	378	104.3	58	0.001
5	24.6	7.2	7.7	378	104.3	57	0.001
6	24.3	7.0	7.7	384	109.4	60	0.001
7	24.0	7.2	7.7	374	102.6	63	(0.001
8	23.8	7.3	7.7	376	102.6	65	0.001
9	23.9	7.2	7.7	371	102.6	64	0.001
MEAN	24.1	7.2	7.7	376	105.5	60	(0.002
MIN	23.8	6.9	7.7	360	100.9	56	(0.001
MAX	24.6	7.8	7.7	395	119.7	65	0.012

TAYLOR'S SILT

DAY	TEMP	DO	pH	COND	HARD	ALK	AMMONIA
1	24.2	7.9	8.1	362	102.6	63	0.021
2	24.5	7.9	8.0	357	99.2	63	0.009
3	24.0	8.0	8.0	343	95.8	60	0.010
4	24.2	8.0	8.0	341	97.5	60	0.011
5	24.0	7.9	7.9	349	95.8	61	0.012
6	24.2	7.7	8.0	362	100.9	66	0.012
7	24.3	7.8	8.0	361	100.9	67	0.009
8	23.8	7.8	8.0	362	97.5	69	0.004
9	23.6	7.8	8.0	370	106.0	68	0.002
MEAN	24.1	7.9	8.0	356	99.6	64	0.010
MIN	23.6	7.7	7.9	341	95.8	60	0.002
MAX	24.5	8.0	8.1	370	106.0	69	0.021

Test Temperature: 23.9

MIN 23.2
MAX 24.6

Reviewed by: DJS 8-20-93

Project Instrument Record Sheet

Project Study CR-ERP Model DA Test I

Beginning Date 7-22-93

Ending Date 7-30-93

DO Meter

Model YSI Model 57
TVA Tag 557713
Calibration Date 4-28-93

pH Meter(s)

Model Orion Research Model SA250
TVA Tag SN 8147
Calibration Date 4-30-93

Model Orion Research Model 407A
TVA Tag 557674
Calibration Date 4-14-93

Conductivity Meter

Model YSI Model 32
TVA Tag 543389
Calibration Date 2-3-93

Thermometer(s)

Model ERTCO ~~4575~~
TVA Tag M-148
Calibration Date 12/8/92

Model ERTCO
TVA Tag M-253
Calibration Date 2-8-92

PROJECT REAGENT RECORD SHEET

Project/Study: CR-ERP QA Mussel Test
Personnel: Simbeck, Jozy

Beginning Date: 7-23-93
Ending Date: 7-30-93

WINKLER TITRATION METHOD

Alkaline-Iodide-Azide:
Brand Fisher
Lot # 910062-24
Exp. 3-93

Manganous Sulfate:
Brand Fisher
Lot # 910067-24
Exp. 4-93

Sodium Thiosulfate:
Brand Ricca
Lot # 11267
Exp. 4-94

Sulfuric Acid:
Brand Fisher
Lot # 554507
Exp. NA

Thyodene:
Brand Fisher
Lot # 912254
Exp. NA

pH BUFFER SOLUTIONS

pH 4:
Brand Spectrum
Lot # HA150
Exp. 9-93

pH 7:
Brand Mallinckrodt
Lot # 0048KIAN
Exp. 6-94

pH 10:
Brand Mallinckrodt
Lot # 0049KIKJ
Exp. 12-63

pH ____:
Brand ____
Lot # ____
Exp. ____

CONDUCTIVITY STANDARD SOLUTIONS

200 µmhos:
Brand Biopharm
Lot # 5302C
Exp. 11-94

720 µmhos:
Brand Biopharm
Lot # EDS2A
Exp. 5-94

____ µmhos:
Brand ____
Lot # ____
Exp. ____

ALKALINITY TITRATION

Sulfuric Acid Solution N/50:
Brand Mallinckrodt
Lot # 11366
Exp. NA

HARDNESS TITRATION

Hardness Titrating Solution:
Brand Calgon
Lot # R20377D0
Exp. NA

Hardness Indicator:
Brand Calgon
Lot # 01E98
Exp. NA

Hardness Buffer Solution:
Brand Calgon
Lot # 26C6B
Exp. NA

CHLORINE TITRATION

DPD Powder Pillows:
Brand Hach
Lot # 03Cm
Exp. NA

Potassium Iodide:
Brand Fisher
Lot # 863484A
Exp. NA

FAS:
Brand Ricca
Lot # E235
Exp. 8-20-93

AQUATIC RESEARCH LABORATORY SAMPLE RECORD SHEET

SITE: DOE Clinch River Project

PROJECT: CR-ERP

PROJECT LEADER: Damien Simbeck

#	SHIPPED BY/VIA/DATE/TIME:	#	RECEIVED BY/DATE/TIME:
1.	J Stockberger / TVA mail / 7-15-93 / 11:30	1.	D Haraway / 7-16-93 / 0633
2.		2.	
3.		3.	

SAMPLE COLLECTION

#	Sample Date	Sample Time	Sample Identification	Sample Type	Number of Samples	Collected By	Sample Temp.
1	7-15-93		5009 PCM 5.1	Sediment	1 4L	J Stockberger	2.5°C
~~2~~ 1	7-15-93		5011 PCM 1.0	Sediment	1 4L	J Stockberger	2.1°C

NOTES:

ATTACHMENT III

AMMONIA ANALYSIS REQUEST AND RESULTS

TVA 991 (ACD-4-82)

REQUEST FOR AND REPORT OF ANALYSIS

Date submitted 7-26-93 Laboratory No.

Date wanted

Date reported Charge to account No. 4210-011200-85555

GENERAL DESCRIPTION: Ammonia (CR-ERP test samples) from 7-22-93

Consignor's Number	Specific Description for Each Sample P. 1
RO water	pH = 5.8 @ 24°C 50 ml sample preserved w/ 0.2 mL 1:4 H_2SO_4
Taylor's Silt	pH = 8.1 " "
PCM 6.0-A	pH = 7.6 " "
PCM 5.1 100-A	pH = 7.7 " "
PCM 5.1 50-A	pH = 7.7 " "
PCM 6.0-C	pH = 7.6 " "
PCM 5.1 100-C	pH = 7.7 " "
PCM 5.1 50-C	pH = 7.7 " "
Remarks, method, etc.: Same as Vital Signs samples	

ANALYZE FOR

Lab. No.	Consignor's Number									

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TVA 991 (ACD-4-82)

REQUEST FOR AND REPORT OF ANALYSIS

Date submitted 7-26-93 Laboratory No.

Date wanted

Date reported Charge to account No. 4210-011200-85555

GENERAL DESCRIPTION: Ammonia (CR-ERP test samples) from 7-23-93

Consignor's Number	Specific Description for Each Sample p. 2
RO water	pH = 5.8 @ 24°C 50mL sample preserved w/0.2 mL 1:4 H_2SO_4
Taylor's Silt	pH = 8.0 " "
PCM 6.0-A	pH = 7.6 " "
PCM 5.1 100-A	pH = 7.8 " "
PCM 5.1 50-A	pH = 7.7 " "
PCM 6.0-C	pH = 7.7 " "
PCM 5.1 100-C	pH = 7.7 " "
PCM 5.1 50-C	pH = 7.7 " "

Remarks, method, etc.:

ANALYZE FOR

Lab. No.	Consignor's Number									

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TVA 991 (ACD-4-82)

REQUEST FOR AND REPORT OF ANALYSIS

Date submitted 7-26-93 Laboratory No.

Date wanted

Date reported Charge to account No. 4210 011200 - 85555

GENERAL DESCRIPTION: Ammonia (CR-ERP test samples) from 7-24-93

Consignor's Number	Specific Description for Each Sample p.3
RO Blank	pH = 6.2 @ 24°C 50mL sample preserved w/ 0.2 mL 1:4 H_2SO_4
Taylor's 5.11	pH = 8.0 " "
PCM 6.0-A	pH = 7.6 " "
PCM 5.1 100-A	pH = 7.8 " "
PCM 5.1 50-A	pH = 7.7 " "
PCM 6.0-C	pH = 7.7 " "
PCM 5.1 100-C	pH = 7.8 " "
PCM 5.1 50-C	pH = 7.7 " "

Remarks, method, etc.:

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TVA 991 (ACD-4-82)

REQUEST FOR AND REPORT OF ANALYSIS

Date submitted 7-26-93 Laboratory No.

Date wanted

Date reported Charge to account No. 4210-011200-85555

GENERAL DESCRIPTION: Ammonia (CR-ERP test Samples) from 7-25-93

Consignor's Number	Specific Description for Each Sample p. 4
RO Blank	pH = 5.7 @ 24°C 50 mL Sample preserved w/0.2 mL 1M H_2SO_4
Taylor's S.H	pH = 8.0 " "
PCM 6.0-A	pH = 7.6 " "
PCM 5.1 100-A	pH = 7.8 " "
PCM 5.1 50-A	pH = 7.7 " "
PCM 6.0-C	pH = 7.7 " "
PCM 5.1 100-C	pH = 7.7 " "
PCM 5.1 50-C	pH = 7.7 " "
Remarks, method, etc.:	

ANALYZE FOR

Lab. No.	Consignor's Number									

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TVA 991 (ACD-4-82)

REQUEST FOR AND REPORT OF ANALYSIS

Date submitted 7-26-93 Laboratory No.

Date wanted

Date reported Charge to account No. 4210-011200-25555,

GENERAL DESCRIPTION: Ammonia (CR-ERP test Samples) from 7-26-93

Consignor's Number	Specific Description for Each Sample p. 5
RO Blank	pH = 5.6 @ 24°C 50 mL sample preserved w/ 0.2 mL 1:1 H_2SO_4
Taylors 5:4	pH = 7.9 " "
PCM 6.0-A	pH = 7.6 " "
PCM 5.1 100-A	pH = 7.7 " "
PCM 5.1 50-A	pH = 7.7 " "
PCM 6.0-C	pH = 7.7 " "
PCM 5.1 100-C	pH = 7.7 " "
PCM 5.1 50-C	pH = 7.7 " "

Remarks, method, etc.:

ANALYZE FOR

Lab. No.	Consignor's Number									

Requested by Damien J Simbeck

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Lab Sample Number :93/07744 Project Leader :Larry O Hill

Sample ID Information :ARL RO WATER
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930722
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=5.8; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.05	mg/L
00619	Calc Union NH3 in Water	< 0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.061	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	< 0.01	mg/L

S'INFO	: TAYLOR'S SILT	SAMPLE	: 93/07745
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07745 Project Leader :Larry O. Hill

Sample ID information :TAYLOR'S SILT
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930722
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=8.1; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.24	mg/L
00619	Calc UnIon NH3 in Water	0.021	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	0.29	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.01	mg/L

TVA Environmental Chemistry	Chattanooga, Tennessee
08/07/93 FINAL DATA REPORT	11:37
	Page 1

S'INFO	: PCM 6.0-A	SAMPLE	: 93/07746
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07746 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930722
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.24	mg/L
00619	Calc Union NH3 in Water	0.008	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.29	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.56	mg/L

TVA Environmental Chemistry	Chattanooga, Tennessee
08/07/93 FINAL DATA REPORT	11:37
Page 1	

S'INFO	: PCM 5.1 100-A	SAMPLE	: 93/07747
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07747 Project Leader :Larry D Hill

Sample ID Information :PCM 5.1 100-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930722
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.60	mg/L
00619	Calc Union NH3 in Water	0.025	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.73	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.59	mg/L

TVA Environmental Chemistry	Chattanooga, Tennessee
08/07/93	FINAL DATA REPORT 11:37

S'INFO : PCM 5.1 50-A
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR

SAMPLE : 93/07748
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : @LOH

Lab Sample Number 93/07748 Project Leader :Larry D Hill

Sample ID Information :PCM 5.1 50-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930722
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.30	mg/L
00619	Calc UnIon NH3 in Water	0.012	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.37	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.60	mg/L

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S'INFO	: PCM 6.0-C	SAMPLE	: 93/07749
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7 LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07749 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930722
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARL.DJS
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.18	mg/L
00619	Calc UnIon NH3 in Water	0.006	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.22	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.54	mg/L

S'INFO : PCM 5.1 100-C
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/07750
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : @LOH

Lab Sample Number :93/07750 Project Leader :Larry O Hill

Sample ID information :PCM 5.1 100-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930722
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.66	mg/L
00619	Calc Union NH3 in Water	0.027	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.81	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.55	mg/L

S'INFO	: PCM 5.1 50-C	SAMPLE	: 93/07751
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07751 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930722
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.30	mg/L
00619	Calc Union NH3 in Water	0.012	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.37	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.63	mg/L

S'INFO : PCM 5.1 50-C PRECISION
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/07752
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : @LOH

Lab Sample Number :93/07752 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-C PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930722
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.30	mg/L
00619	Calc Union NH3 in Water	0.012	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.37	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.63	mg/L

S'INFO	: ARL RO WATER	SAMPLE	: 93/07753
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07753 Project Leader :Larry O. Hill

Sample ID Information :ARL RO WATER
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930723
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=5.8; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc Union NH3 in Water	< 0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	< 0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	< 0.01	mg/L

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S'INFO	: TAYLOR'S SILT	SAMPLE	: 93/07754
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07754 Project Leader :Larry O. Hill

Sample ID Information :TAYLOR'S SILT
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930723
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=8.0; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.15	mg/L
00619	Calc UnIon NH3 in Water	0.009	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.18	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.01	mg/L

S'INFO	: PCM 6.0-A	SAMPLE	: 93/07755
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07755 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930723
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.34	mg/L
00619	Calc UnIon NH3 in Water	0.011	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.41	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.34	mg/L

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S'INFO	: PCM 5.1 100-A	SAMPLE	: 93/07756
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07756 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930723
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.8; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.76	mg/L
00619	Calc Union NH3 in Water	0.037	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.93	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.20	mg/L

S'INFO	: PCM 5.1 50-A	SAMPLE	: 93/07757
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07757 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930723
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDIS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.69	mg/L
00619	Calc Union NH3 in Water	0.028	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.84	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.26	mg/L

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S'INFO	: PCM 5.1 50-A PRECISION	SAMPLE	: 93/07758
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/07/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07758 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-A PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930723
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.69	mg/L
00619	Calc UnIon NH3 in Water	0.028	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	0.84	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.26	mg/L

S'INFO : PCM 6.0-C
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/07759
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : @LOH

Lab Sample Number :93/07759 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930723
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.03	mg/L
00619	Calc Union NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.037	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.38	mg/L

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S'INFO	: PCM 5.1 100-C	SAMPLE	: 93/07760
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07760 Project Leader :Larry D. Hill

Sample ID Information :PCM 5.1 100-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930723
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt_IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.05	mg/L
00619	Calc UnIon NH3 in Water	0.002	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.061	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.62	mg/L

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S'INFO	: PCM 5.1 50-C	SAMPLE	: 93/07761
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07761 Project Leader :Larry O Hill

Sample ID Information :PCM 5.1 50-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930723
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.38	mg/L

S'INFO	: ARL RO-WATER	SAMPLE	: 93/07762
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07762 Project Leader :Larry O Hill

Sample ID Information :ARL RO-WATER
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S
Sample collection date :930724
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=6.2; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc UnIon NH3 in Water	< 0.001	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	< 0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	< 0.01	mg/L

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S'INFO	: TAYLOR'S SILT	SAMPLE	: 93/07763
S'CNT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 09/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07763 Project Leader :Larry D. Hill

Sample ID Information :TAYLOR'S SILT
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930724
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=2.0; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.16	mg/L
00619	Calc Union NH3 in Water	0.010	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.20	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.02	mg/L

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S'INFO	: TAYLOR'S SILT PRECISION	SAMPLE	: 93/07764
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: ARL

Lab Sample Number :93/07764 Project Leader :Larry D. Hill

Sample ID Information :TAYLOR'S SILT PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930724
Sample login date :930727 Sample received by lab 930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=8.0; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.17	mg/L
00619	Calc Union NH3 in Water	0.011	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.21	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.02	mg/L

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S'INFO	: PCM 6.0-A	SAMPLE	: 93/07765
S'CMT	: CR-ERP	LOGDATE	930727
S'TYPE	: WATER	DUEDATE	08/03/93
ACT'NUMD	: 4210-011200-85555,7.LOHAR	P'LEAD	@LOH

Lab Sample Number :93/07765 Project Leader :Larry O Hill

Sample ID Information :PCM 6.0-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930724
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	Units
00610	Ammonia Nitrogen	0.39	mg/L
00619	Calc Union NH3 in Water	0.012	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	0.46	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.31	mg/L

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S'INFO	: PCM 5.1 100-A	SAMPLE	: 93/07766
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 09/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: BLOM

Lab Sample Number : 93/07766 Project Leader : Larry O. Hill

Sample ID Information :PCM 5.1 100-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930724
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :APL:PH=7.8; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	1.2	mg/L
00619	Calc Unfon NH3 in Water	0.059	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	1.5	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.18	mg/L

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S'INFO : PCH 5.1 100-A PRECISION
S'CMT : CR-EFF
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93-07767
LOGDATE : 930727
DUEDATE : 08/07/93
P'LEAD : MLOH

Lab Sample Number :93/07767 Project Leader :Larry D Hill

Sample ID information :PCH 5.1 100-A PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D J S
Sample collection date :930724
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :APL:PH=7.8; TEMP=24

Alt IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	1.2	mg/L
00612	Calc Union NH3 in Water	0.059	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	1.5	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.19	mg/L

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S'INFO : PCM 5.1 50-A
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/07768
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : @LOH

Lab Sample Number :93/07768 Project Leader :Larry D. Hill

Sample ID Information :PCM 5.1 50-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930724
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.68	mg/L
00619	Calc Union NH3 in Water	0.028	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	0.83	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.25	mg/L

S'INFO	: PCM 6 0-C	SAMPLE	: 93/07769
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07769 Project Leader :Larry O Hill

Sample ID Information :PCM 6 0-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930724
Sample login date :930727 Sample received by lab 930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc Union NH3 in Water	< 0.001	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	< 0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.26	mg/L

S'INFO : PCM 5.1 100-C
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/07770
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : @LOH

Lab Sample Number :93/07770 Project Leader :Larry D. Hill

Sample ID Information :PCM 5.1 100-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930724
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.8; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.38	mg/L

S'INFO : PCM 5.1 50-C
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/07771
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : @LOH

Lab Sample Number : 93/07771 Project Leader : Larry O. Hill

Sample ID Information : PCM 5.1 50-C
Sample comments : CR-ERP
Sample type/matrix : WATER
Sample collected by : D.J.S.
Sample collection date : 930724
Sample login date : 930727 Sample received by lab : 930727
Sample account number : 4210-011200-85555,7.LOHARLDJS
Laboratory comments : ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.01	mg/L
00619	Calc Union NH3 in Water	< 0.001	mg NH4/l
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.012	mg NH3/l
00630	Nitrate-Nitrite Nitrogen	0.26	mg/L

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S'INFO	: ARL RO WATER	SAMPLE	: 93/07772
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07772 Project Leader :Larry O. Hill

Sample ID Information :ARL RO WATER
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930725
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc Union NH3 in Water	< 0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	< 0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	< 0.01	mg/L

S'INFO : TAYLOR'S SILT
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7 LOHAR

SAMPLE 93/07773
LOGDATE 930727
DUEDATE 08/03/93
P'LEAD @LOH

Lab Sample Number :93/07773 Project Leader :Larry O Hill

Sample ID Information :TAYLOR'S SILT
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930725
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLD15
Laboratory comments :ARL:PH=8.0; TEMP=24

Alt. ID©	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.18	mg/L
00619	Calc Union NH3 in Water	0.011	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.22	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.03	mg/L

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S'INFO	: PCM 6.0-A	SAMPLE	: 93/07774
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07774 Project Leader :Larry D Hill

Sample ID Information :PCM 6.0-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J S.
Sample collection date :930725
Sample login date :930727 Sample received by lab 930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.42	mg/L
00619	Calc Union NH3 in Water	0.013	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	0.51	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.35	mg/L

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S'INFO : PCM 6.0-A PRECISION
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7 LOHAR
SAMPLE : 93/07775
LOGDATE : 930727
DUEDATE : 09/03/93
P'LEAD : BLOH

Lab Sample Number :93/07775 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-A PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930725
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.42	mg/L
00619	Calc Union NH3 in Water	0.013	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.51	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.35	mg/L

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S'INFO : PCM 5 1 100-A
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/07776
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : @LOH

Lab Sample Number :93/07776 Project Leader :Larry D Hill

Sample ID Information :PCM 5.1 100-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930725
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.8; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	1.1	mg/L
00619	Calc Union NH3 in Water	0.054	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	1.3	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.23	mg/L

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S'INFO	: PCM 5.1 50-A	SAMPLE	: 93/07777
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07777 Project Leader :Larry O Hill

Sample ID information :PCM 5.1 50-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930725
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.70	mg/L
00619	Calc Union NH3 in Water	0.029	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.85	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.25	mg/L

S'INFO : PCM 6.0-C
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7 LOHAR
SAMPLE : 93/07778
LOGDATE : 930727
DUEDATE : 08/07/93
P'LEAD : @LOH

Lab Sample Number :93/07778 Project Leader :Larry O Hill

Sample ID Information :PCM 6.0-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930725
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.03	mg/L
00619	Calc Union NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.037	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.30	mg/L

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S'INFO	: PCM 100-C	SAMPLE	: 93/07779
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07779 Project Leader :Larry O Hill

Sample ID Information :PCM 100-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930725
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result		units
00610	Ammonia Nitrogen	0.02		mg/L
00619	Calc Union NH3 in Water	0.001		mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024		mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.38		mg/L

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S'INFO	: PCM 50-C	SAMPLE	: 93/07780
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07780 Project Leader :Larry D Hill

Sample ID Information :PCM 50-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930725
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen ———	0.02	mg/L
00619	Calc Union NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.31	mg/L

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S'INFO	: ARL RO WATER	SAMPLE	: 93/07781
S'CNT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07781 Project Leader :Larry O. Hill

Sample ID Information :ARL RO WATER
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :O.J.S.
Sample collection date :930726
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLD35
Laboratory comments :ARL:PH=5.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc Union NH3 in Water	< 0.001	mg NH3/L
NH3NH4'D	Calc NH3+NH4-NH3 Water	< 0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	< 0.01	mg/L

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S'INFO	: TAYLOR'S SILT	SAMPLE	: 93/07782
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 09/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: BLOH

Lab Sample Number :93/07782 Project Leader :Larry D Hill

Sample ID Information :TAYLOR'S SILT
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930726
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.9; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.21	mg/L
00619	Calc Union NH3 in Water	0.012	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.26	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.05	mg/L

S'INFO : PCM 6 0 A
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR

SAMPLE : 93/07783
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : @LOH

Lab Sample Number : 93/07783 Project Leader : Larry D. Hill

Sample ID Information : PCM 6 0 A
Sample comments : CR-ERP
Sample type/matrix : WATER
Sample collected by : D.J.S.
Sample collection date : 930726
Sample login date : 930727 Sample received in lab : 930727
Sample account number : 4210-011200-85555,7.LOHARLDJS
Laboratory comments : ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.38	mg/L
00619	Calc Union NH3 in Water	0.012	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.46	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.38	mg/L

S'INFO : PCM 5.1 100-A
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-95555,7.LOHAR
SAMPLE : 93'07784
LOGDATE : 93'727
DUEDATE : 08'03/93
P'LEAD : @LOU

Lab Sample Number :93/07784 Project Leader :Larry D. Hill

Sample ID Information :PCM 5.1 100-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930726
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	1.2	mg/L
00619	Calc Union NH3 in Water	0.049	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	1.5	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.22	mg/L

S'INFO	: PCM 5.1 50-A	SAMPLE	: 93/07785
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7 LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07785 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-A -
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930726
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7, TEMP=24

Alt IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.76	mg/L
00619	Calc Union NH3 in Water	0.031	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.93	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.28	mg/L

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S'INFO	: PCM 6.0-C	SAMPLE	: 93/07786
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 08/03/93
ACT'NUMB	: 4210-011200-85555,7 LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07786 Project Leader :Larry D. Hill

Sample ID Information :PCM 6.0-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930726
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLOTS
Laboratory comments :ARL:PH=7.7: TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc Union NH3 in Water	0.001	mg NH3/L
NH3NH4'U	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.36	mg/L

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S'INFO	: PCM 5 1 100-C	SAMPLE	: 93/07787
S'CMT	: CR-ERP	LOGDATE	: 930727
S'TYPE	: WATER	DUEDATE	: 09/03/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/07787 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930726
Sample login date :930727 Sample received by lab :930727
Sample account number :4210-011200-85555,7.LOHARLOJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.03	mg/L
00619	Calc Union NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.037	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.41	mg/L

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S'INFO : PCM 5.1 100-C PRECISION
S'CNT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR

SAMPLE : 93/07788
LOGDATE : 930727
DUEDATE : 08/03/93
P'LEAD : BLUH

Lab Sample Number : 93/07788 Project Leader : Larry O. Hill

Sample ID Information : PCM 5.1 100-C PRECISION
Sample comments : CR-ERP
Sample type/matrix : WATER
Sample collected by : D.J.S.
Sample collection date : 930726
Sample login date : 930727 Sample received by lab : 930727
Sample account number : 4210-011200-85555.7.LOHARLOJS
Laboratory comments : ARL:PH=7.7; TEMP=24

Alt IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.03	mg/L
00619	Calc Union NH3 in Water	0.001	mg NH3/l
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.037	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.41	mg/L

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SYSTEM	PCH S 1 [illegible]	SAMPLE	[illegible]
SYSID	CR ERP	LOGDATE	930727
SYSTYPE	WATER	DUEDATE	[illegible]
ACTNUMB	4210-011200-85555.7.LOHARLDI	PYLEAD	[illegible]

Lab Sample Number: 93-[illegible]799 Project Leader: [illegible]

Sample ID Information: PCH S 1 50-C
Sample comments: CR-ERP
Sample type/matrix: WATER
Sample collected by: D.J.S.
Sample collection date: 930726
Sample login date: 930727 Sample received by lab: 930727
Sample account number: 4210-011200-85555.7.LOHARLDI
Laboratory comments: ARL:PH=7.7: TEMP=24

Alt ID	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc Union NH3 in Water	0.001	mg NH3/L
NH3NH4'0	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.36	mg/L

TVA 991 (ACD-4-82)

REQUEST FOR AND REPORT OF ANALYSIS

Date submitted 8-2-93

Laboratory No.

Date wanted

Date reported

Charge to account No. 4210-011200-85555

GENERAL DESCRIPTION: Ammonia (CR-ERP test samples) from 7-27-93

Consignor's Number	Specific Description for Each Sample p. 1
RO Water	pH = 5.6 @24°C 50 mL Sample preserved w/0.2 mL 1:4 H_2SO_4
Taylor's Silt	pH = 8.0 " "
PCM 6.0-A	pH = 7.6 " "
PCM 5.1 100-A	pH = 7.7 " "
PCM 5.1 50-A	pH = 7.7 " "
PCM 6.0-C	pH = 7.7 " "
PCM 5.1 100-C	pH = 7.7 " "
PCM 5.1 50-C	pH = 7.7 " "

Remarks, method, etc.:

ANALYZE FOR

Lab. No.	Consignor's Number									

93 AUG 3

Requested by Damien J. Simbeck

Notebook page

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Request approved by [signature] 729-4549

Laboratory

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TVA 991 (ACD-4-82)

REQUEST FOR AND REPORT OF ANALYSIS

Date submitted 8-2-93 Laboratory No.

Date wanted

Date reported Charge to account No. 4210-011200-85555 ,7

GENERAL DESCRIPTION: Ammonia (CR-ERL Test Samples) from 7-28-93

Consignor's Number	Specific Description for Each Sample p. 2
RO water	pH = 5.6 @ 24°C 50mL Sample preserved w/ 0.2mL 1:4 H_2SO_4
Taylors Silt	pH = 8.0 " "
PCM 6.0-A	pH = 7.6 " "
PCM 5.1 100-A	pH = 7.7 " "
PCM 5.1 50-A	pH = 7.7 " "
PCM 6.0-C	pH = 7.7 " "
PCM 5.1 100-C	pH = 7.7 " "
PCM 6.1 50C	pH = 7.7 " "

Remarks, method, etc.: Note: preserved w/ 0.02 mL Acid on 7/28. 0.18 mL added on 7/29

ANALYZE FOR

Lab. No.	Consignor's Number									

LABORATORY STANDARD

8-3-93

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Request approved by Dan J Sinbeck 729-4587 Laboratory

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TVA 991 (ACD-4-82)

REQUEST FOR AND REPORT OF ANALYSIS

Date submitted 8-2-93 Laboratory No.

Date wanted

Date reported Charge to account No. 4210-011200-85555 ,7

GENERAL DESCRIPTION: Ammonia (CR-ERP test samples) from 7-29-93

Consignor's Number	Specific Description for Each Sample p. 3
RO Water	pH = 5.6 @24°C 50mL Samples preserved w/0.2 mL 1:1 H_2SO_4
Taylor's 5:1+	pH = 8.0 " "
PCM 6.0-A	pH = 7.7 " "
PCM 5.1 100-A	pH = 7.7 " "
PCM 5.1 50-A	pH = 7.7 " "
PCM 6.0-C	pH = 7.8 " "
PCM 5.1 100-C	pH = 7.7 " "
PCM 5.1 50-C	pH = 7.7 " "
Remarks, method, etc.:	

ANALYZE FOR

Lab. No.	Consignor's Number									

Requested by Damien J. Simbeck

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Request approved by Damien J. Simbeck 729-4549

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REQUEST FOR AND REPORT OF ANALYSIS

Date submitted 8-2-93 Laboratory No. ____

Date wanted ____

Date reported ____ Charge to account No. 4210-011200-85555 ,7

GENERAL DESCRIPTION: Ammonia (CLERP test samples) from 7-30-93

Consignor's Number	Specific Description for Each Sample p. 4
RO water	pH = 5.7 @24°C 50 mL Sample preserved w/0.2 mL 1:4 H_2SO_4
Taylors Silt	pH = 8.0 " "
PCM 6.0-A	pH = 7.6 " "
PCM 5.1 100-A	pH = 7.7 " "
PCM 5.1 50-A	pH = 7.6 " "
PCM 6.0-C	pH = 7.7 " "
PCM 5.1 100-C	pH = 7.7 " "
PCM 5.1 50-C	pH = 7.7 " "

Remarks, method, etc.: ____

ANALYZE FOR

Lab. No.	Consignor's Number									

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S'INFO	: ARL RO WATER	SAMPLE	: 93/08339
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08339 Project Leader :Larry O. Hill

Sample ID Information :ARL RO WATER
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930727
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=5.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc UnIon NH3 in Water	< 0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	< 0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	< 0.01	mg/L

S'INFO	: TAYLOR'S SILT	SAMPLE	: 93/08340
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08340 Project Leader :Larry O. Hill

Sample ID Information :TAYLOR'S SILT
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930727
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=8.0; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.20	mg/L
00619	Calc UnIon NH3 in Water	0.012	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.24	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.08	mg/L

S'INFO	: PCM 6.0-A	SAMPLE	: 93/08341
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08341 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930727
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.31	mg/L
00619	Calc UnIon NH3 in Water	0.010	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.38	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.57	mg/L

S'INFO	: PCM 5.1 100-A	SAMPLE	: 93/08342
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08342 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930727
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.77	mg/L
00619	Calc UnIon NH3 in Water	0.032	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.94	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.58	mg/L

S'INFO	: PCM 5.1 50-A	SAMPLE	: 93/08343
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08343 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930727
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.54	mg/L
00619	Calc UnIon NH3 in Water	0.022	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.66	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.48	mg/L

S'INFO	: PCM 6.0-C	SAMPLE	: 93/08344
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08344 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930727
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.32	mg/L

S'INFO	: PCM 5.1 100-C	SAMPLE	: 93/08345
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08345 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930727
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.37	mg/L

S'INFO : PCM 5.1 50-C
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/08346
LOGDATE : 930803
DUEDATE : 08/10/93
P'LEAD : @LOH

Lab Sample Number :93/08346 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930727
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.34	mg/L

S'INFO : PCM 5.1 50-C PRECISION
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/08347
LOGDATE : 930803
DUEDATE : 08/10/93
P'LEAD : @LOH

Lab Sample Number :93/08347 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-C PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930727
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.34	mg/L

S'INFO	: ARL RO WATER	SAMPLE	: 93/08348
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08348 Project Leader :Larry O. Hill

Sample ID Information :ARL RO WATER
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930728
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=5.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc UnIon NH3 in Water	< 0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	< 0.01	mg/L

S'INFO	: TAYLOR'S SILT	SAMPLE	: 93/08349
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08349 Project Leader :Larry O. Hill

Sample ID Information :TAYLOR'S SILT
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930728
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=8.0; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.15	mg/L
00619	Calc UnIon NH3 in Water	0.009	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.18	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.13	mg/L

S'INFO	: PCM 6.0-A	SAMPLE	: 93/08350
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08350 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930728
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.40	mg/L
00619	Calc UnIon NH3 in Water	0.013	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.49	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.41	mg/L

S'INFO	: PCM 5.1 100-A	SAMPLE	: 93/08351
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08351 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930728
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	1.1	mg/L
00619	Calc UnIon NH3 in Water	0.045	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	1.3	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.29	mg/L

S'INFO	: PCM 5.1 50-A	SAMPLE	: 93/08352
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08352 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930728
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.77	mg/L
00619	Calc UnIon NH3 in Water	0.032	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.94	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.33	mg/L

S'INFO	: PCM 5.1 50-A PRECISION	SAMPLE	: 93/08353
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08353 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-A PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930728
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.76	mg/L
00619	Calc UnIon NH3 in Water	0.031	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.93	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.33	mg/L

S'INFO : PCM 6.0-C
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/08354
LOGDATE : 930803
DUEDATE : 08/10/93
P'LEAD : @LOH

Lab Sample Number :93/08354 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930728
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.32	mg/L

S'INFO	: PCM 5.1 100-C	SAMPLE	: 93/08355
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08355 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930728
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.38	mg/L

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S'INFO	: PCM 5.1 50-C	SAMPLE	: 93/08356
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08356 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930728
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc UnIon NH3 in Water	< 0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	< 0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.32	mg/L

S'INFO	: ARL RO WATER	SAMPLE	: 93/08357
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08357 Project Leader :Larry O. Hill

Sample ID Information :ARL RO WATER
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=5.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc UnIon NH3 in Water	< 0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	< 0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	< 0.01	mg/L

S'INFO	: TAYLOR'S SILT	SAMPLE	: 93/08358
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08358 Project Leader :Larry O. Hill

Sample ID Information :TAYLOR'S SILT
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=8.0; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.06	mg/L
00619	Calc UnIon NH3 in Water	0.004	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.073	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.20	mg/L

S'INFO	: TAYLOR'S SILT-PRECISION	SAMPLE	: 93/08359
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08359 Project Leader :Larry O. Hill

Sample ID Information :TAYLOR'S SILT-PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=8.0; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.06	mg/L
00619	Calc UnIon NH3 in Water	0.004	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.073	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.20	mg/L

S'INFO	: PCM 6.0-A	SAMPLE	: 93/08360
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08360 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.26	mg/L
00619	Calc UnIon NH3 in Water	0.011	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.32	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.51	mg/L

S'INFO	: PCM 5.1 100-A	SAMPLE	: 93/08361
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08361 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	1.1	mg/L
00619	Calc UnIon NH3 in Water	0.045	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	1.3	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.35	mg/L

S'INFO	: PCM 5.1 100-A PRECISION	SAMPLE	: 93/08362
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08362 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-A PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	1.1	mg/L
00619	Calc UnIon NH3 in Water	0.045	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	1.3	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.35	mg/L

S'INFO	: PCM 5.1 50-A	SAMPLE	: 93/08363
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08363 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.64	mg/L
00619	Calc UnIon NH3 in Water	0.026	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.78	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.43	mg/L

S'INFO	: PCM 6.0-C	SAMPLE	: 93/08364
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08364 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.8; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.03	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.037	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.32	mg/L

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S'INFO	: PCM 5.1 100-C	SAMPLE	: 93/08365
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08365 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.03	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.037	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.39	mg/L

S'INFO	: PCM 5.1 50-C	SAMPLE	: 93/08366
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08366 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930729
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.02	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.024	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.32	mg/L

S'INFO	: ARL RO WATER	SAMPLE	: 93/08367
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08367 Project Leader :Larry O. Hill

Sample ID Information :ARL RO WATER
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930730
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=5.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	< 0.01	mg/L
00619	Calc UnIon NH3 in Water	< 0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	< 0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	< 0.01	mg/L

S'INFO	: TAYLOR'S SILT	SAMPLE	: 93/08368
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08368 Project Leader :Larry O. Hill

Sample ID Information :TAYLOR'S SILT
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930730
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=8.0; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.03	mg/L
00619	Calc UnIon NH3 in Water	0.002	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.037	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.24	mg/L

S'INFO	: PCM 6.0-A	SAMPLE	: 93/08369
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08369 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930730
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Method of Analysis :NH3-N SUSPECT! LIKELY INTERFERENCES
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.46 *	mg/L
00619	Calc UnIon NH3 in Water	0.015	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.56	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.65	mg/L

S'INFO	: PCM 6.0-A PRECISION	SAMPLE	: 93/08370
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08370 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-A PRECISION
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930730
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Method of Analysis :NH3-N SUSPECT! LIKELY INTERFERENCES
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.46 *	mg/L
00619	Calc UnIon NH3 in Water	0.015	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.56	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.65	mg/L

S'INFO	: PCM 5.1 100-A	SAMPLE	: 93/08371
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08371 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930730
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.96	mg/L
00619	Calc UnIon NH3 in Water	0.039	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	1.2	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.74	mg/L

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S'INFO	: PCM 5.1 50-A	SAMPLE	: 93/08372
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08372 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-A
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930730
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.6; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.59	mg/L
00619	Calc UnIon NH3 in Water	0.019	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.72	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.58	mg/L

S'INFO	: PCM 6.0-C	SAMPLE	: 93/08373
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08373 Project Leader :Larry O. Hill

Sample ID Information :PCM 6.0-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930730
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.03	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.037	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.37	mg/L

S'INFO : PCM 5.1 100-C
S'CMT : CR-ERP
S'TYPE : WATER
ACT'NUMB : 4210-011200-85555,7.LOHAR
SAMPLE : 93/08374
LOGDATE : 930803
DUEDATE : 08/10/93
P'LEAD : @LOH

Lab Sample Number :93/08374 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 100-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930730
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.01	mg/L
00619	Calc UnIon NH3 in Water	< 0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.012	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.45	mg/L

S'INFO	: PCM 5.1 50-C	SAMPLE	: 93/08375
S'CMT	: CR-ERP	LOGDATE	: 930803
S'TYPE	: WATER	DUEDATE	: 08/10/93
ACT'NUMB	: 4210-011200-85555,7.LOHAR	P'LEAD	: @LOH

Lab Sample Number :93/08375 Project Leader :Larry O. Hill

Sample ID Information :PCM 5.1 50-C
Sample comments :CR-ERP
Sample type/matrix :WATER
Sample collected by :D.J.S.
Sample collection date :930730
Sample login date :930803 Sample received by lab :930803
Sample account number :4210-011200-85555,7.LOHARLDJS
Laboratory comments :ARL:PH=7.7; TEMP=24

Alt. IDC	Analysis Performed	result	units
00610	Ammonia Nitrogen	0.03	mg/L
00619	Calc UnIon NH3 in Water	0.001	mg NH3/L
NH3NH4'W	Calc NH3+NH4-NH3 Water	0.037	mg NH3/L
00630	Nitrate-Nitrite Nitrogen	0.39	mg/L