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KENTEC
GROUNDWATER ASSESSMENT
ONSITE PEEDEE AQUIFER ADDENDUM

Prepared for

E.I. du Pont de Nemours Co., Inc.

CH2M HILL

July 1991

INTRODUCTION

CH2M HILL conducted three phases of a groundwater assessment of the Du Pont Kentec facility near Kinston, North Carolina starting in November 1986. These three phases of the groundwater assessment were summarized in the Kentec Groundwater Assessment submitted to the North Carolina Division of Environmental Management (DEM) in April, 1991. Du Pont was limited to installing monitoring wells only within their property boundary. Therefore, the assessment focused on the onsite shallow groundwater contamination with a limited amount of data for onsite deeper groundwaters.

The purpose of this report is to present the additional data that CH2M HILL has collected. However, this data report cannot fully address the extent of contamination nor even the potential for contamination offsite since Du Pont was denied permission to install monitoring wells and sample groundwater from offsite landowners property. In specific, this report presents the results of the investigation of the Peedee aquifer groundwater within the Kentec property boundary.

The remainder of this data report is presented in four sections: field investigation, hydrogeologic data, chemical results, and recommendations. Supporting details are included as appendices.

FIELD INVESTIGATIONS

As recommended in the Kentec Groundwater Assessment, April 1991, CH2M HILL installed four monitoring wells within the Peedee aquifer between January 21, 1991 and February 5, 1991. These wells were installed to determine if low concentrations of 1,4-dioxane detected in an inactive water supply well (PW1) had migrated to the property boundary within the Peedee aquifer. Monitoring wells MW10C, MW11C, and MW17C were installed to a depth of 100 feet. Monitoring well MW11B was installed to a depth of 60 feet. Locations of these monitoring wells are given in Figure 1. These monitoring wells were installed in a manner similar to the deeper monitoring wells installed and discussed in the Kentec Groundwater Assessment report. Boring logs and well completion information are given in Appendix A.

CH2M HILL performed in-situ measurements of hydraulic conductivity in February 1991 in monitoring wells MW10C, MW11C, and MW17C. Shelby tube samples were collected and analyzed for laboratory vertical permeabilities. These results are presented in Appendix B.

Groundwater samples were collected from the four new monitoring wells and the four existing Peedee aquifer monitoring wells (MW4B, MW7B, MW10B, and MW14B) between February 19 and 20, 1991. Three residential water wells (RW1, RW5, and RW6) where permission was granted, were also sampled. Samples were shipped via overnight air express and volatile organic compounds were analyzed in each of the samples by the CH2M HILL laboratory. Table 1 presents the constituents analyzed in each sample.

HYDROGEOLOGIC DATA

Water level measurements were taken from each of the Peedee aquifer monitoring wells and the shallow aquifer monitoring wells that were paired with them. These results are presented in Table 2. These results indicate that groundwater flow within the Peedee aquifer is similar to the description given in the Kentec Groundwater Assessment report. The direction of groundwater flow within the Peedee aquifer is to the south/southwest.

High downward vertical flow gradients (0.1 to 0.05) were observed between shallow aquifer wells and 50-foot deep monitoring wells at most locations. However, downward vertical flow gradients between wells at 50-foot and 100-foot depths were negligible.

CHEMICAL RESULTS

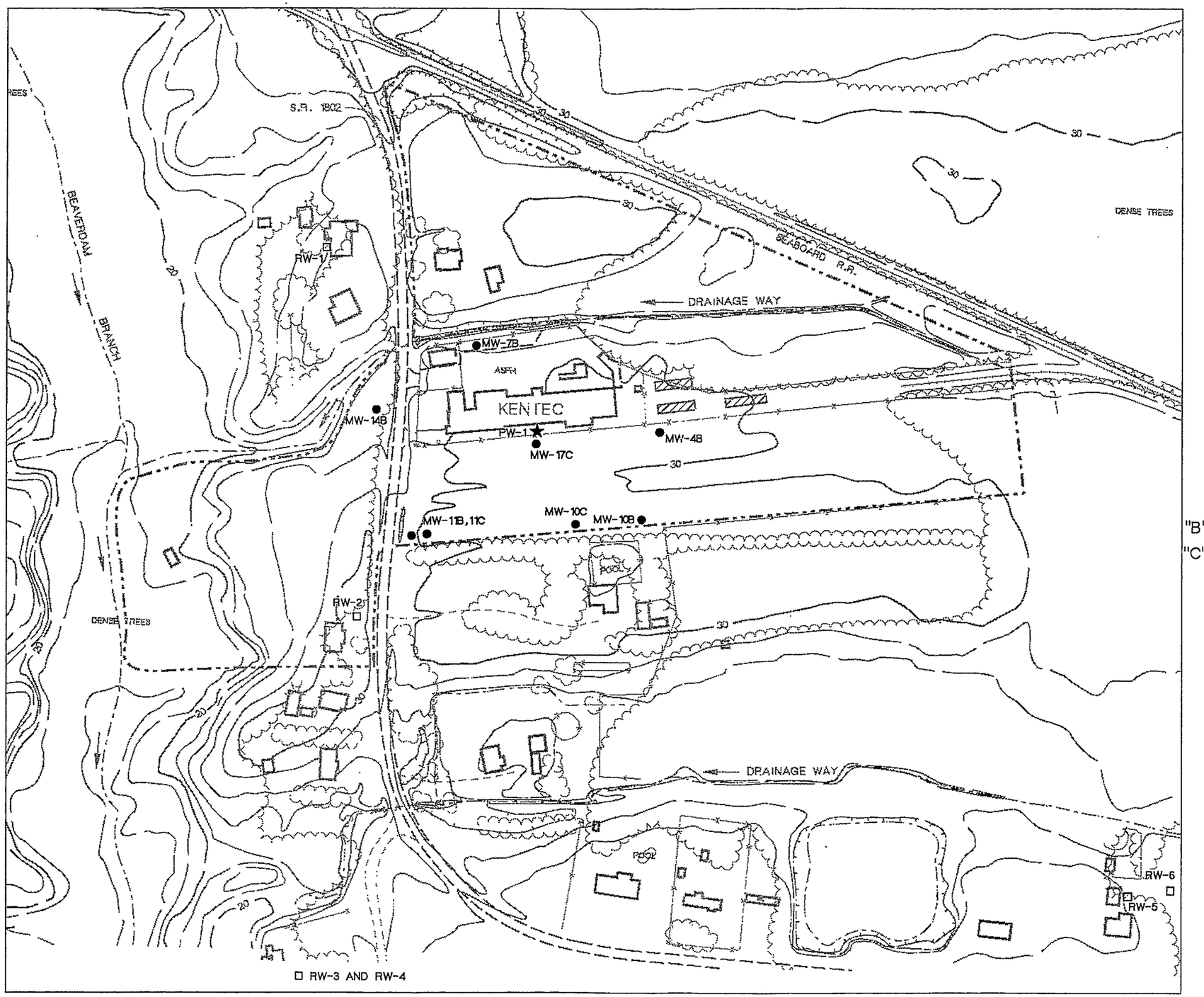
Groundwater samples were collected and analyzed from all of the Peedee aquifer monitoring wells and three residential wells. The chemical analytical results and field parameters measured for this round of sampling are presented in Appendix C. The only compounds found above the analytical detection limit were methylene chloride and acetone. These compounds are common laboratory contaminants likely introduced as a result of routine laboratory handling.

These data, along with the Kentec Groundwater Assessment report results, indicate that there is no detectable contamination within the Peedee aquifer. No 1,4-dioxane was detected in monitoring well MW17C, located near the abandoned production well PW1. It had previously been found within PW1 during two of the three rounds that PW1 was sampled.

No contamination has been found in any of the six residential wells that were sampled. All of these wells are believed to have been installed within the Peedee aquifer.

RECOMMENDATIONS

In order to complete the assessment of the horizontal and vertical extent of groundwater contamination, groundwater samples would need to be collected offsite and analyzed. A series of shallow aquifer and Peedee aquifer monitoring wells should be installed downgradient of the Kentec property. These wells should be sampled and analyzed for 1,4-dioxane, 1,1-dichloroethane, and 1,1-dichloroethylene. However, until permission to install and sample the wells is received from appropriate offsite landowners, such wells cannot be installed.



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LEGEND

- ● PEEDEE AQUIFER MONITORING WELLS
- □ RESIDENTIAL WELL
- ★ PRODUCTION WELL (ABANDONED)

"B" WELLS ARE SCREENED AT APPROXIMATELY 50'
"C" WELLS ARE SCREENED AT APPROXIMATELY 100'

NOTE: BASE MAP COMPILED FROM AERIAL PHOTOGRAPHY FLOWN ON 2/10/89.

0 100 200 300
SCALE: 1"=200'

Figure 1 PEEDEE AQUIFER GROUNDWATER MONITORING SYSTEM
Du Pont Kentec Facility

CH2M HILL

Table 1 CHEMICAL CONSTITUENTS ANALYZED	
Volatile Organic Compounds (EPA Method 624)	
Acetone	1,2-Dichloropropane
Benzene	1,2-Dichlorobenzene
Bromodichloromethane	1,4-Dioxane
Bromoform	Methylene Chloride
Bromomethane	Styrene
2-Butanone	1,1,2,2-Tetrachloroethane
Carbon Disulfide	Tetrachloroethylene
Carbon Tetrachloride	Toluene
Chlorobenzene	trans-1,3-Dichloropropene
Chloroethane	1,1,1-Trichloroethane
2-Chloroethylvinylether	1,1,2-Trichloroethane
Chloroform	Trichloroethene
Chloromethane	Trichlorofluoromethane
cis-1,3-Dichloropropene	Vinyl Acetate
Dibromochloromethane	Vinyl Chloride
1,1-Dichloroethane	Xylenes (total)
1,2-Dichloroethylene (total)	
Other Organics	
Triethylene Glycol	

WDCR554/024.51

Table 2 WATER-LEVEL ELEVATIONS (in feet above mean sea level)			
Monitoring Well	Elevation of Measuring Point	Elevation of Potentiometric Surface	
		2/18/91	4/9/91
MW4A	33.00	26.37	27.12
MW4B	33.23	21.75	22.65
MW7A	30.18	23.49	23.51
MW7B	30.53	21.74	22.66
MW10A	33.10	26.23	26.87
MW10B	32.43	20.92	21.81
MW10C	33.17	20.95	21.88
MW11A	32.82	25.93	26.37
MW11B	33.11	21.15	22.06
MW11C	32.79	20.62	21.57
MW14A	28.48	23.10	22.11
MW14B	27.33	21.45	22.38
MW17C	33.14	21.11	22.04
"A" well is screened in the shallow aquifer, "B" and "C" wells are screened in the Peedee aquifer at approximately 50 and 100 feet, respectively.			

WDCR554/025.51

Appendix A
DRILLING AND MONITORING WELL INSTALLATION

Table A1
DuPONT-KENTEC MONITORING WELL CONFIGURATIONS

Well	Ground Elevation	Depth to Top of Bentonite	Depth to Top of Sand	Depth to Top of Screen	Depth to Bottom of Screen	Length of Screened Interval	Depth to Bottom of Surface Casing	Total Borehole Depth
MW10B	30.6	36'6"	42'7'	45'	55'	10'	13'6"	57'
MW10C	30.9	72'	79'	83'	93'	10'	15'	102'
MW11B	30.5	34'	46'	48'6"	58'6"	10'	15'6"	60'
MW11C	30.2	77'	84'	87'	97'	10'	15'	102'
MW17C	30.5	76'	84'	89'	99'	10'	13'	102'

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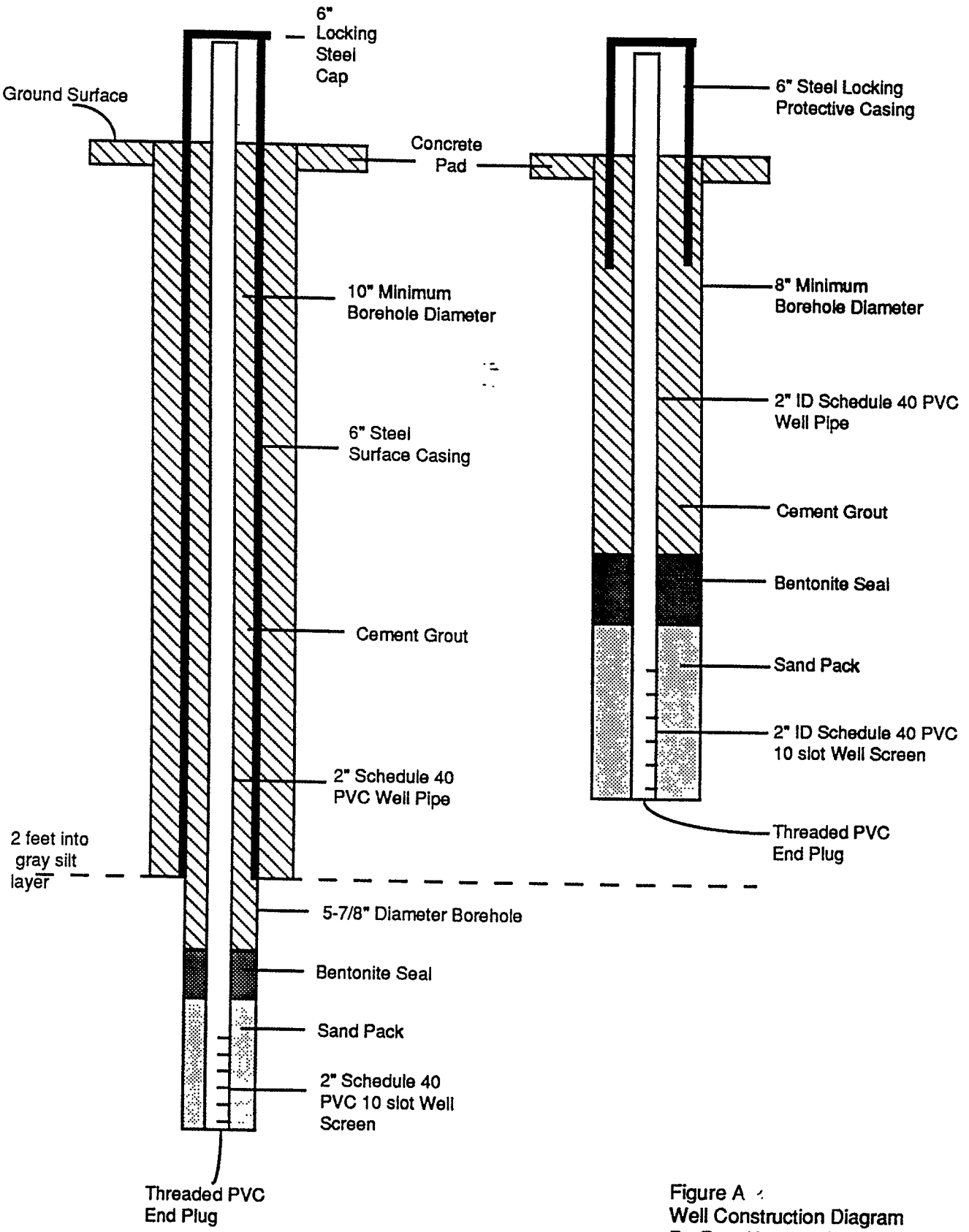


Figure A
Well Construction Diagram
Du Pont Kentec Plant

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW10C | SHEET: 1 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~32 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.2' on 2/21/91 START: 1/23/91 FINISH: 1/31/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
					FOR SOIL DESCRIPTION FROM 0-10' SEE BORING LOG MW10A. FOR SOIL DESCRIPTION FROM 15-60' SEE BORING LOG MW10B.		AIR MONITORING (AM): HNU AND EXPLOSIMETER. READINGS ARE BACKGROUND OF THE SPLIT SPOON AND THE BREATHING ZONE UNLESS OTHERWISE NOTED.
5							
10							
	13-15	S1	1.5	6-8-8-14 (16)	SILT W/ SAND, ML, MEDIUM DARK GRAY (N4), STIFF TO V. STIFF, DRY, SAND IS M-VC.		TOP OF THE SILT LAYER IS AT 13' AS DETERMINED BY THE COLOR CHANGE OF THE DRILLING MUD. SET 15' OF 8" STEEL CASING FROM 0-15' (2' INTO THE SILT LAYER). NOTE: ON 1/24 A HYDROSTATIC PRESSURE TEST WAS CONDUCTED ON THE 8" CASING.
15							
20							RIG CHATTER FROM 17 TO 17.5'.

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW10C | SHEET: 2 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~32 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.2' on 2/21/91 START: 1/23/91 FINISH: 1/31/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
25	25-27	SH-1	1.0	-			
30							
35							
40							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW10C | SHEET: 3 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~32 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.2' on 2/21/91 START: 1/23/91 FINISH: 1/31/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
45							
50							
55							
60							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW10C | SHEET: 4 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~32 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.2' on 2/21/91 START: 1/23/91 FINISH: 1/31/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	60-62	S2	1.0	29-28-32 100/5" (60)	WELL GRADED SAND, SW, DUSKY YELLOW GREEN (10GY3/2), MOIST, SAND IS M-C., GLAUCONITIC, SUBROUNDED TO ROUNDED		DRILLER NOTES HARDER DRILLING BETWEEN 55 AND 60'. DRILLING MUD BECAME THICKER. PROBABLY A CLAY LAYER BETWEEN 55 AND 60'.
65	65-67	S3	1.2	20-40-50 -50/5" (90)	SAME AS S2, WET		
70	70-72	S4	0.8	29-100/6	SAME		DRILLER THINS THE MUD.
75	75-77	S5	0.8	100/6'	SAME		
80							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW10C | SHEET: 5 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~32 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.2' on 2/21/91 START: 1/23/91 FINISH: 1/31/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	80-82	S6	1.2	24-84-50/2"	SIMILAR TO ABOVE W/ SLIGHTLY HIGHER CLAY CONTENT		
85	85-87	S7	1.0	44-40-50/3"	SIMILAR TO ABOVE W/ SLIGHTLY HIGHER CLAY CONTENT AND SHELLS		
90	90-92	S8	0	100/5"	NO RECOVERY		RIG CHATTER 90-92' PROBABLY IN THE GRAVEL LAYER.
95	95-97	S9	0.4	72-100/2	WELL GRADED SAND, SW, OLIVE GRAY (5Y3/2), WET, SAND IS M-C.		SOME "TRASH" IN THE SPOON OF GRAVEL AND SHELLS, PROBABLY FROM THE GRAVEL LAYER.
100							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW10C | SHEET: 6 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~32 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.2' on 2/21/91 START: 1/23/91 FINISH: 1/31/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	100-102	S10	1.0	32-100/6	SAME AS S9		WELL CONSTRUCTION INFO
							102' TOTAL DEPTH
							0-15' 8" SURFACE CASING
							83-93' 20 SLOT 4" SCH 40
							PVC SCREEN
							91.5-93' NATURAL PACK
							79-91.5' #1 MORIE SAND
							PACK (4-100 LBS BAGS)
105							72-79' BENTONITE SLURRY
							0-72' CEMENT GROUT

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW11B | SHEET: 1 of 3

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 11.9' on 2/21/91 START: 1/21/91 FINISH: 1/29/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
					FOR SOIL DESCRIPTION FROM 0-10' SEE BORING LOG MW11A. FOR SOIL DESCRIPTION FROM 15-60' SEE BORING LOG MW11C.		AIR MONITORING (AM): HNU AND EXPLOSIMETER. READINGS ARE BACKGROUND OF SPLIT SPOONS AND THE BREATHING ZONE UNLESS OTHERWISE NOTED.
5							
10							
	13-15	S1	1	2-4-4-5 (8)	0-6" LEAN CLAY W/ SAND, CL, MODERATE YELLOW BROWN (10R5/4), FIRM TO STIFF, MOIST 6-12" LEAN CLAY W/ SAND, CL, MEDIUM GRAY (N5), FIRM TO STIFF, DRY, SAND IS C.		
15							SET 16' OF 8" STEEL SURFACE CASING (+1 TO 15') THEN PUSHED THE CASING 0.5' DOWN INTO THE LOW PERMEABLE UNIT. NOTE: ON 1/24 A HYDROSTATIC PRESSURE TEST WAS COMPLETED ON THE 8" CASING.
20							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW11B | SHEET: 2 of 3

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 11.9' on 2/21/91 START: 1/21/91 FINISH: 1/29/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
25								
30								
35								
40								

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW11B | SHEET: 3 of 3

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 11.9' on 2/21/91 START: 1/21/91 FINISH: 1/29/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
45							
50							
55							WELL CONSTRUCTION INFO 60' TOTAL DEPTH 0-15.5' 8" SURFACE CASING 48.5-58.5' 20 SLOT 4" SCH 40 PVC SCREEN 46-58' #1 MORIE SAND PACK (6-100 LBS BAGS) 34-46' BENTONITE SLURRY 0-34' CEMENT GROUT
60							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW11C | SHEET: 1 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.1' on 2/21/91 START: 1/22/91 FINISH: 1/29/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
					FOR SOIL DESCRIPTION FROM 0-15' SEE BORING LOG MW11A AND MW11B.		AIR MONITORING (AM): HNU AND EXPLOSIMETER. READINGS ARE BACKGROUND OF THE SPLIT SPOON AND THE BREATHING ZONE UNLESS OTHERWISE NOTED.
5							
10							
15							SET 15' OF 8" STEEL CASING FROM 0-15' (2' INTO THE SILT LAYER). NOTE: ON 1/24 A HYDROSTATIC PRESSURE TEST WAS CONDUCTED ON THE 8" CASING.
	18-20	S1	0.7	22-100/4	SILTY SAND, SM, MEDIUM GRAY (N5), V. DENSE, MOIST, SAND IS M-C.		CIRCULATION LOSS AT 16'. CUTTINGS WERE C. SAND AND FINE GRAVEL.
20							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW11C | SHEET: 2 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.1' on 2/21/91 START: 1/22/91 FINISH: 1/29/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
23-25	S2	2.0	14-10-18-23 (28)	SILT W/ SAND, ML, MEDIUM GRAY (N5), V. STIFF, DRY, SAND IS F. AND GLAUCONITIC			
25							
28-30	SH-1	1.0	-				COULD ONLY PUSH THE SHELBY TUBE 1.0'
30							
33-35	S3	2.0	8-14-22-20 (36)	SAME AS S2			
35							
38-40	S4	2.0	16-18-23-23 (41)	SIMILAR TO S2. DRY W/ INTERLAYERED F. SAND, CLAY, AND SILT SEAMS. THESE SEAMS ARE NO MORE THAN 2" THICK			
40							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW11C | SHEET: 3 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.2' on 2/21/91 START: 1/22/91 FINISH: 1/29/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	43-45	S5	2.0	10-17-23-34 (40)	SIMILAR TO ABOVE W/ A 10" FINE SANDY CLAY SEAM ABOVE 3" OF M. GLAUCONITIC SAND		
45							
	48-50	S6	1.2	4-5-8-11 (13)	0-5" SAME AS ABOVE 5-14" SILTY SAND, SM, DARK GREENISH GRAY (5GY4/1), MEDIUM, WET, SAND IS M-C., GLAUCONITIC, MICACEOUS, AND SOME SHELLS		
50							
	53-55	S7	1.1	50-100/3	SAME AS S6 5-14"		
55							
	58-60	S8	1.0	50-100/3	SAME AS ABOVE, V. GLAUCONITIC		
60							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW11C | SHEET: 4 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.1' on 2/21/91 START: 1/22/91 FINISH: 1/29/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
63-65		S9	1.2	34-50-80-100/3 (130)	SIMILAR TO ABOVE S6 5-14", LESS SILT		
65							
68-70		S10	0.4	23-56-100/3"	SAME		
70							
73-75		S11	0.5	28-70-50/2"	SAME		
75							STOPPED AT 75' ON 1/25/91 STARTED AT 75' ON 1/26/91
78-80		S12	2.0	32-66-50/3"	0-14" POORLY GRADED SAND, SP, OLIVE GRAY (5Y3/2), WET, SAND IS F-M., GLAUCONITIC W/ TRACE SHELLS 14-24" SAME AS S6 5-14", SILTY SAND, SM, OLIVE GRAY (5Y3/2), WET, GLAUCONITIC SAND W/ TRACE SHELLS		
80							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW11C | SHEET: 5 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.2' on 2/21/91 START: 1/22/91 FINISH: 1/29/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
85	83-85	S13	1.8	56-100/6	0-8" SILT W/ SAND, ML, OLIVE GRAY (5Y3/2), SL. MOIST, SAND IS F. AND GLAUCONITIC 8-22" SILT, ML, OLIVE GRAY (5Y3/2), SL. MOIST, GLAUCONITIC AND SOME SHELLS		
90	88-90	S14	1.2	30-65--50/2"	SILTY SAND, SM, OLIVE GRAY (5Y3/2), WET, GLAUCONITIC W/ SHELLS SAND IS F-C.		
95	93-95	S15	0.5	100/3"	POORLY GRADED GRAVEL W/ SAND AND SILT, GP-GM, OLIVE GRAY (5Y3/2), WET, SAND IS C-VC., GRAVEL IS VF., MICACEOUS, GLAUCONITIC, AND SHELLY, SAND AND GRAVEL ARE ROUNDED TO SUBANGULAR.		ROUGH DRILLING ACTION, SOME LOSS OF CIRCULATION.
100							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW11C | SHEET: 6 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.1' on 2/21/91 START: 1/22/91 FINISH: 1/29/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	100-102	S16	0.8	20-100/4	SAME AS S15 SL. MORE SILT		WELL CONSTRUCTION INFO 102' TOTAL DEPTH 0-15' 8" SURFACE CASING 87-97' 20 SLOT 4" SCH 40 PVC SCREEN 84-97' #1 MORIE SAND PACK (5-100 LBS BAGS) 77-84' BENTONITE SLURRY 0-77' CEMENT GROUT
105							

SBLSYM 06/14/88

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW17C | SHEET: 1 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.1' on 2/21/91 START: 1/23/91 FINISH: 2/5/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
								AIR MONITORING (AM): HNU AND EXPLOSIMETER. READINGS ARE BACKGROUND OF THE SPLIT SPOON AND THE BREATHING ZONE UNLESS OTHERWISE NOTED.
5								
10								COLOR CHANGE IN THE DRILLING MUD AT 10'
	11-13	S1	1.8	6-12-10-16 (22)	SILT W/ SAND, ML, MEDIUM DARK GRAY (N4), V. STIFF, DRY, SAND IS M-C.			
								SET 13' OF 8" STEEL CASING FROM 0-13' (2 TO 3' INTO THE SILT LAYER). NOTE: ON 1/24 A HYDROSTATIC PRESSURE TEST WAS CONDUCTED ON THE 8" CASING.
15	15-17	S2	1.7	9-11-20-20 (31)	WELL GRADED SAND W/ CLAY, SW-SC, GRAYISH OLIVE (10Y4/2), WET, DENSE, SAND IS C. AND ROUNDED.			
								SAMPLE S2 HNU 2PPM
20								

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW17C | SHEET: 2 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.1' on 2/21/91 START: 1/23/91 FINISH: 2/5/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	20-22	S3	1.9	6-12-14-12 (26)	SILT W/ SAND, ML, GRAYISH OLIVE (10Y4/2), V. STIFF, DRY, SAND IS F-M.		SAMPLE S3 HNU IS 3 PPM
25	25-27	S4	2.0	10-15-19-29 (34)	WELL GRADED SAND W/ SILT, SW-SM, GRAYISH OLIVE (10Y4/2), DENSE, MOIST, SAND IS F-M, GLAUCONITIC AND MICACEOUS		SAMPLE S4 HNU IS 2.5 PPM
30	30-32	SH-1	1.5	-			
35	35-37	S5	1.9	12-22-35-40 (57)	0-12" SAME AS S4 12-23" VARVED CLAY AND SAND, DRY, SAND IS FINE AND GLAUCONITIC		SAMPLE S5 HNU IS 1.8 PPM DRILLER CHANGES MUD
40							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW17C | SHEET: 3 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC
ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.
DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7
WATER LEVEL AND DATE: 12.1' on 2/21/91 START: 1/23/91 FINISH: 2/5/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	40-42	S6	2.0	12-13-18-19 (31)	SILT W/ SAND, ML, OLIVE GRAY (5Y3/2), HARD, DRY, SAND IS F. AND IS IN THIN SEAMS		SAMPLE S6 HNU IS 1.8 PPM
45	45-47	S7	2.0	13-19-35-42 (54)	0-10" SAME AS ABOVE 10-24" POORLY GRADED SAND W/ SILT, SP-SM, OLIVE GRAY (5Y3/2), WET, SAND IS M-C. GLAUCONITIC W/ SHELLS AND SOME F. GRAVEL		
50	50-52	S8	1.9	13-25-42-52 (67)	SAME AS S7 10-24"		HYDRAULIC LINE ON DRILL RIG RUPTURES AFTER OBTAINING S8. STOP DRILLING ON 1/31/91. CONTINUE DRILLING ON 2/4/91 AFTER MOVING THE RIG OFF THE BOREHOLE AND DECONNING EVERYTHING AND CHANGING THE DRILLING MUD.
55	55-57	S9	1.2	16-48-56-70 (104)	POORLY GRADED SAND W/ SILT, SP-SM, GRAYISH OLIVE GRAY (5GY3/2), WET, SAND IS M-C., GLAUCONITIC, SOME SHELLS		SAMPLE S9 HNU IS 2 PPM, NO ODOR PRESENT. NOTE: SOME PAINTERS WERE WORKING ~100' UPWIND OF OUR LOCATION ON 2/4 AND 2/5.
60							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW17C | SHEET: 4 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.1' on 2/21/91 START: 1/23/91 FINISH: 2/5/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	60-62	S10	1.0	21-41-58/4" (99)	SAME AS S9		SAMPLE S10 HNU IS 3 PPM
65	65-67	S11	1.3	13-40-62-50/2 (102)	SAME W/ VC. SAND SEAMS FROM 0-4"		SAMPLE S11 HNU IS 3 PPM
70	70-72	S12	1.0	20-37-100/5"	SAME AS ABOVE W/O VC. SAND		SOME CIRCULATION LOSS SAMPLE S12 HNU IS 2 PPM
75	75-77	S13	0.9	20-30-65-50/3 (95)	SAME		SAMPLE S13 HNU IS 1 PPM
80							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW17C | SHEET: 5 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC
LOCATION: LENOIR CO., NC
ELEVATION: ~30 FT MSL
DRILLING CONTRACTOR: HARDIN-HUBER INC.
DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7
WATER LEVEL AND DATE: 12.1' on 2/21/91 START: 1/23/91 FINISH: 2/5/91 LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	80-82	S14	1.5	18-45-100/5" (N)	SIMILAR TO ABOVE, SAND IS F-M. W/ SL. HIGHER SILT PERCENTAGE		SAMPLE S14 HNU IS 2.5 PPM
85	85-87	S15	1.5	25-35-50-50/2 (85)	SIMILAR TO ABOVE, MORE SHELLS, LESS GLAUCONITE		SAMPLE S15 HNU IS 2.5 PPM
90	90-92	S16	1.5	26-49-70/6" (119)	0-4" SHELLY F. GRAVEL, SIMILAR TO ABOVE 4-18" SAME AS ABOVE		STOP AT 92' ON 2/4/91 BEGIN AT 92' ON 2/5/91 PROBLEMS W/ THE HNU READINGS ON THE MORNING OF 2/5 DUE TO THE HIGH HUMIDTY
95	95-97	S17	0.5	30-100/6	WELL GRADED SAND, SW, GRAYISH OLIVE (10Y4/2), WET, SAND IS F-M. WELL ROUNDED, LESS GLAUCONITE		CIRCULATION LOSS AT 97'
100							

CH2M HILL

PROJECT NUMBER: ATL22398.F0 | BORING NO.: MW17C | SHEET: 6 of 6

SOIL BORING LOG

PROJECT: DUPONT KENTEC | LOCATION: LENOIR CO., NC

ELEVATION: ~30 FT MSL | DRILLING CONTRACTOR: HARDIN-HUBER INC.

DRILLING METHOD AND EQUIPMENT: 12" AND 8" MUD ROTARY W/A FAILING F-7

WATER LEVEL AND DATE: 12.1 FT on 2/21/9 | START: 1/23/91 | FINISH: 2/5/91 | LOGGER: A. BRYDA

DEPTH BELOW SURFACE	DEPTH INTERVAL	TYPE AND NUMBER	RECOVERY	STD. PEN. TEST 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TEST AND INSTRUMENTATION
	100-102	S18	0.3	100/3"	SAME		WELL CONSTRUCTION INFO 102' TOTAL DEPTH 0-13' 8" SURFACE CASING 89-99' 20 SLOT 4" SCH 40 PVC SCREEN 84-99' #1 MORIE SAND PACK (6-100 LBS BAGS) 76-84' BENTONITE SLURRY 0-76' CEMENT GROUT
105							

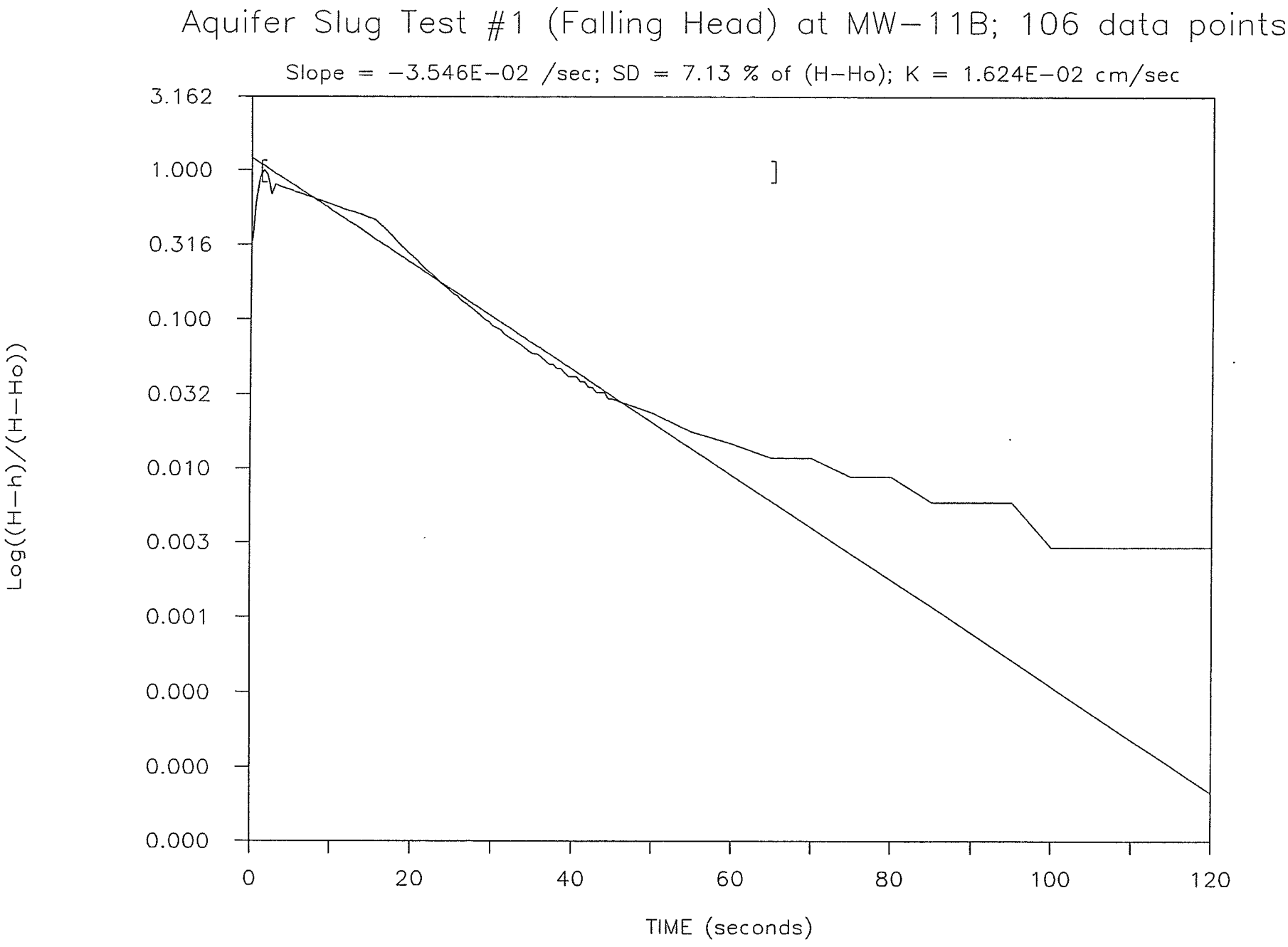
SBLSYM 06/14/88

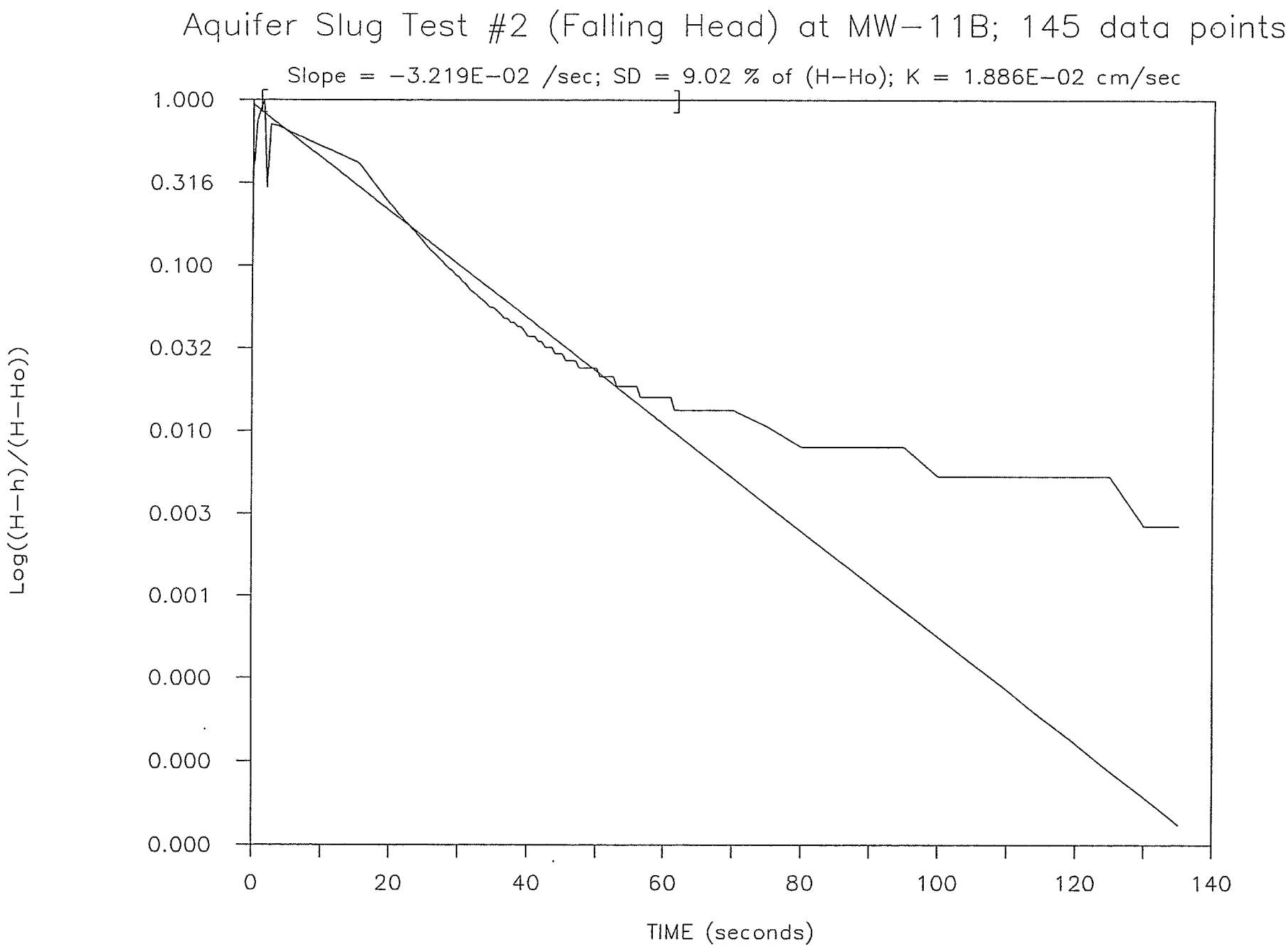
Appendix B
IN SITU HYDRAULIC CONDUCTIVITY TESTING

Table B1 RESULTS OF SHELBY TUBE ANALYSES			
Well	**Depth of Sample (ft)**	**Elevation of Sample (ft. MSL)**	**Vertical Hydraulic Conductivity (ft/day)**
MW10C	25-27	3.9 to 5.9	6
MW11C	28-30	0.2 to 2.2	5
MW17	30-32	-1.5 to 0.5	0.9

Table B2 IN SITU HYDRAULIC CONDUCTIVITY "SLUG" TEST RESULTS	
Monitoring Well	**Hydraulic Conductivity (ft/day)**
MW11B	40
MW11C	24
MW17	22

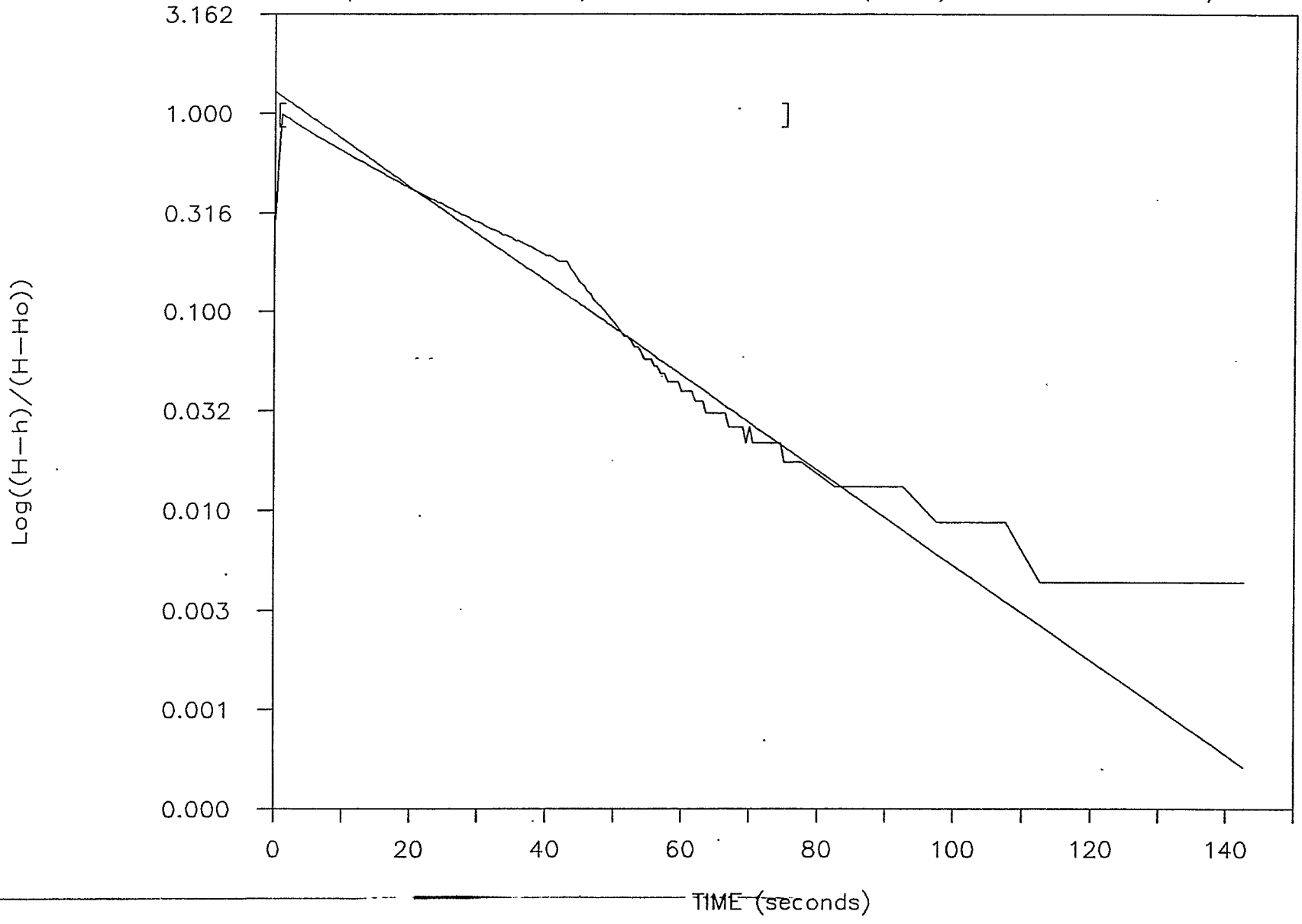
WDCR554/028.51

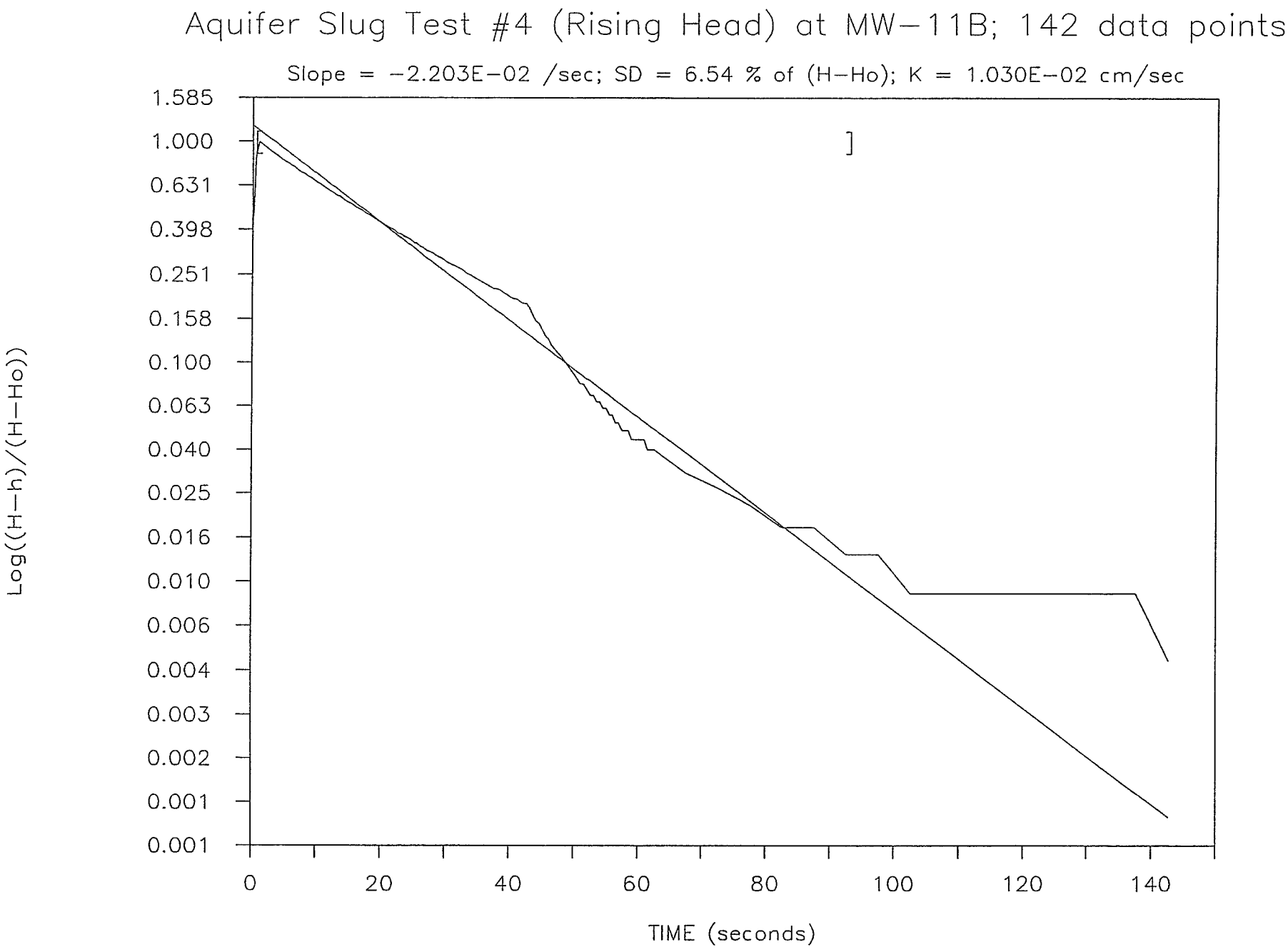

Aquifer Slug Test #1 (Falling Head) at MW-11B; 106 data points
Slope = -3.546E-02 /sec; SD = 7.13 % of (H-Ho); K = 1.624E-02 cm/sec
3.162
1.000
0.316
0.100
0.032
0.010
0.003
0.001
0.000
0.000
0.000
Log((H-h)/(H-Ho))
0
20
40
60
80
100
120
TIME (seconds)

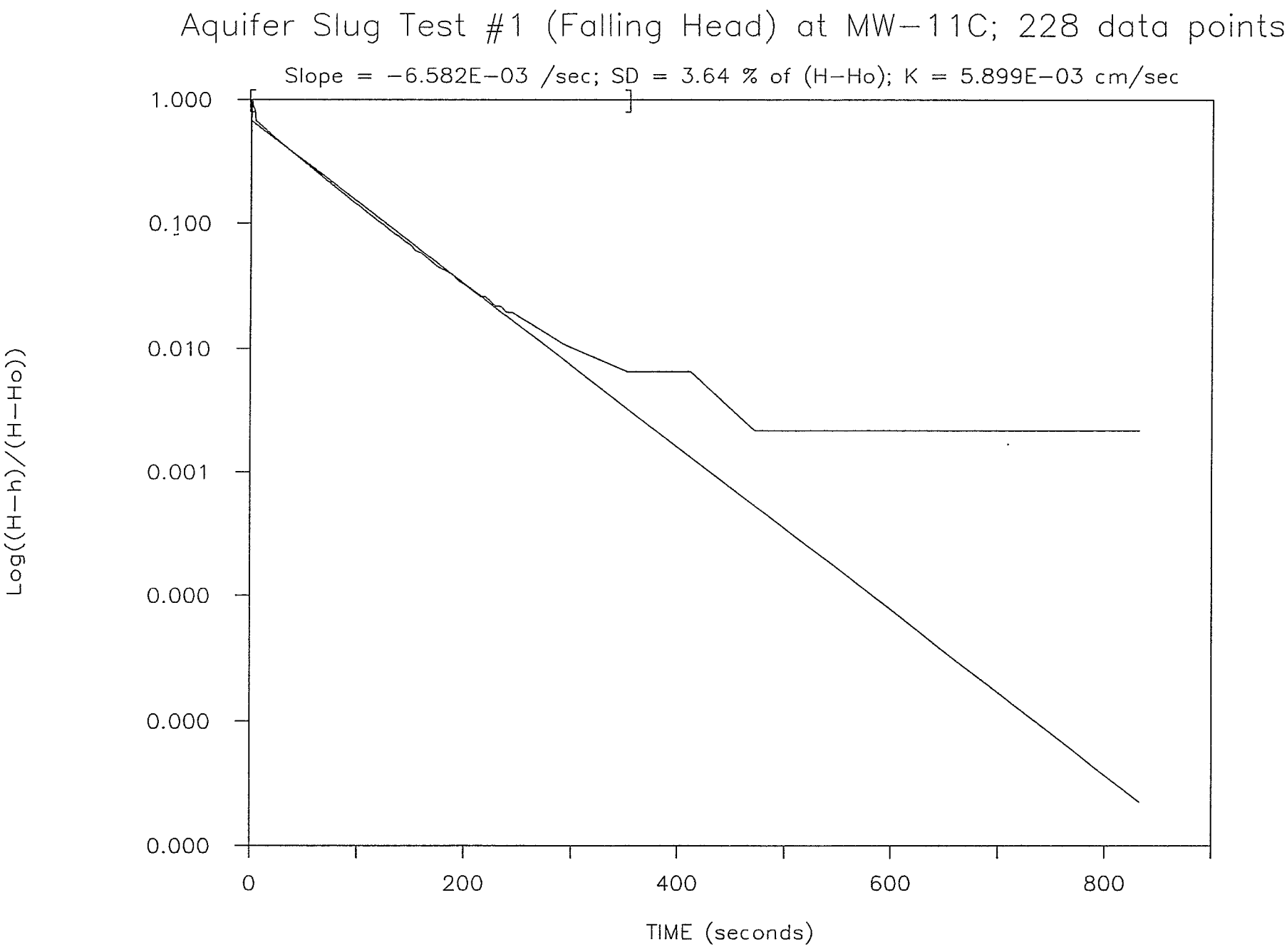

Aquifer Slug Test #2 (Falling Head) at MW-11B; 145 data points
Slope = -3.219E-02 /sec; SD = 9.02 % of (H-Ho); K = 1.886E-02 cm/sec
1.000
0.316
0.100
0.032
0.010
0.003
0.001
0.000
0.000
0.000
Log((H-h)/(H-Ho))
0
20
40
60
80
100
120
140
TIME (seconds)

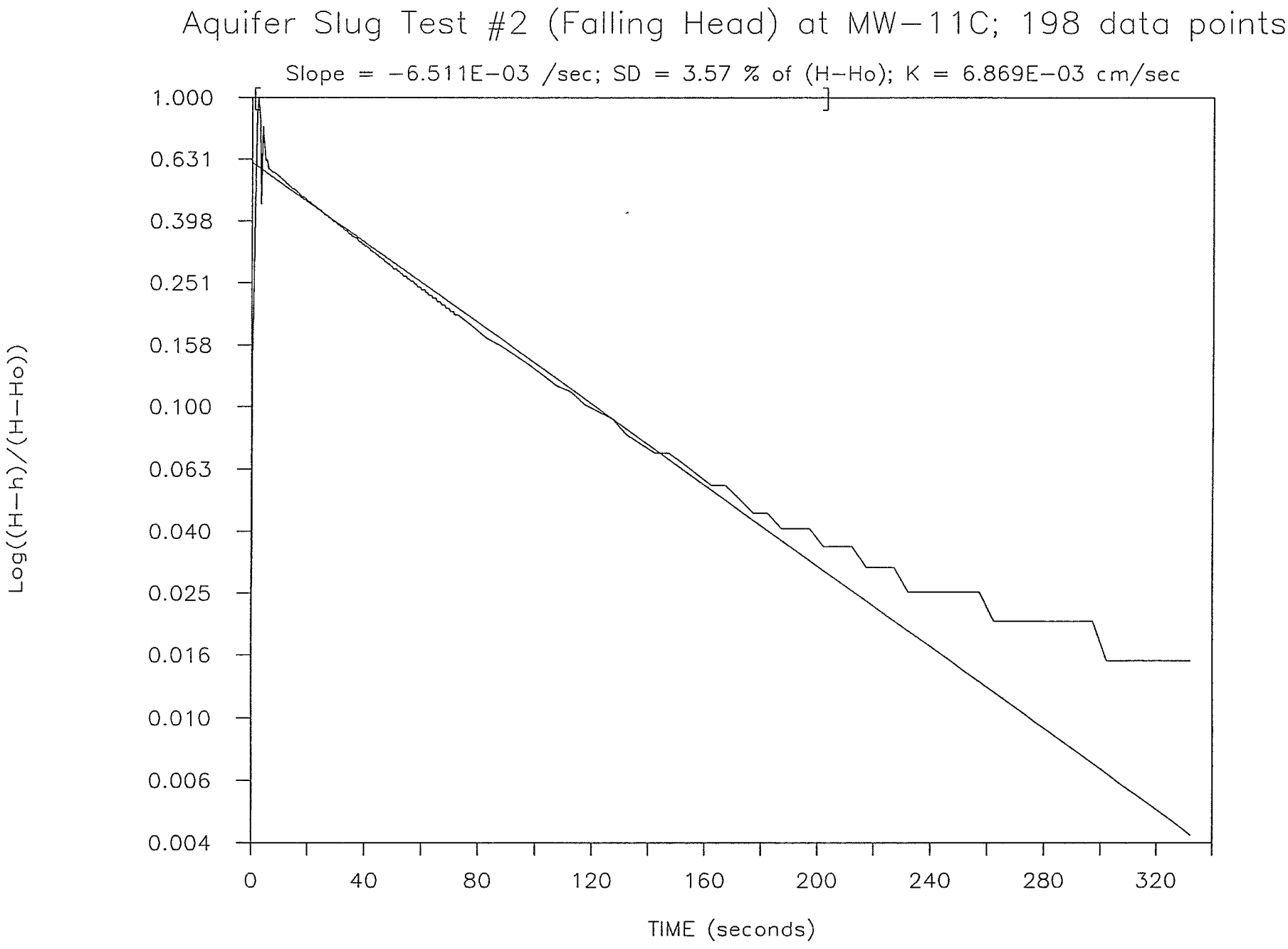
Aquifer Slug Test #3 (Rising Head) at MW-11B; 169 data points

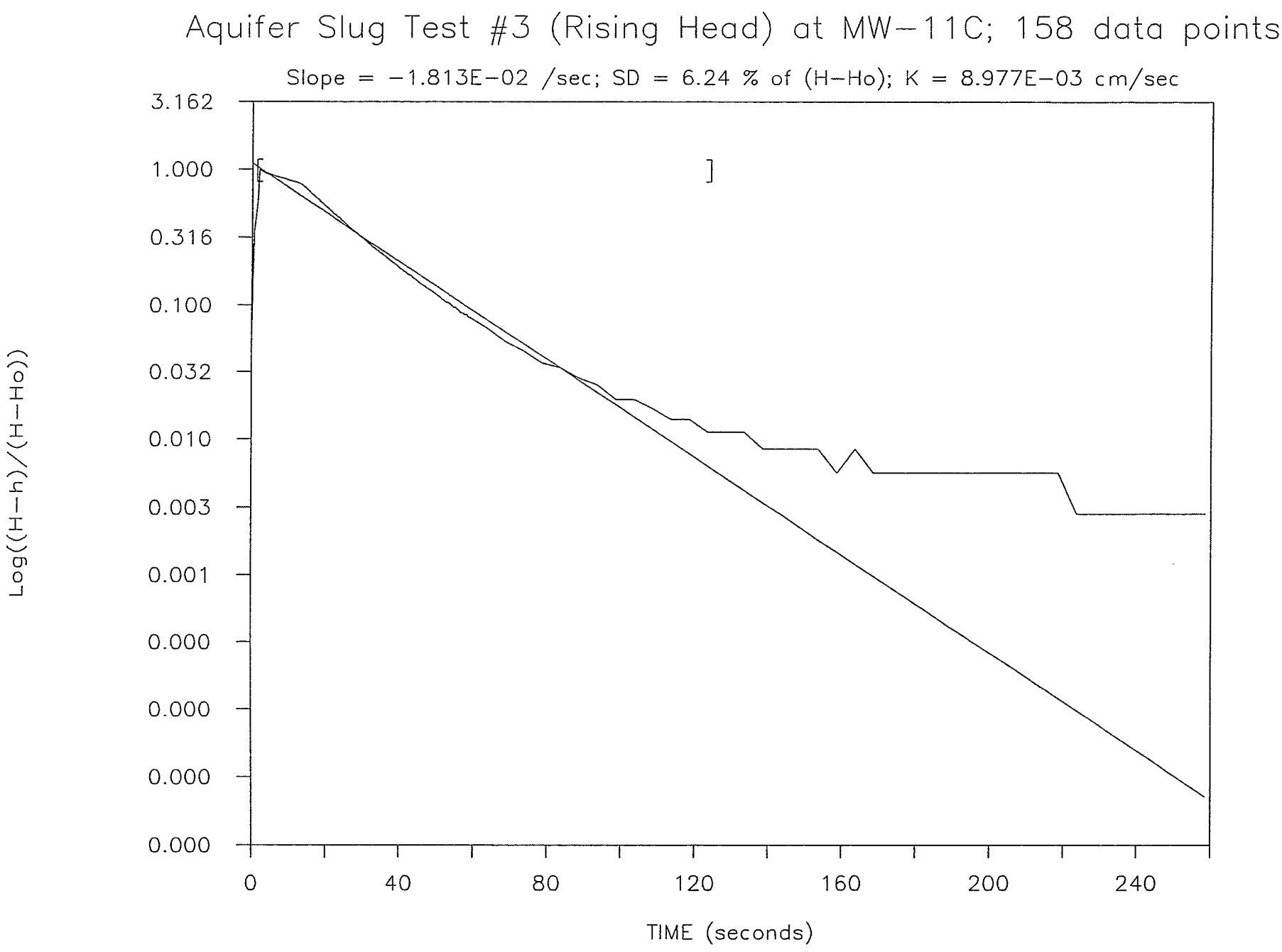
Slope = -2.385E-02 /sec; SD = 7.33 % of (H-Ho); K = 1.039E-02 cm/sec

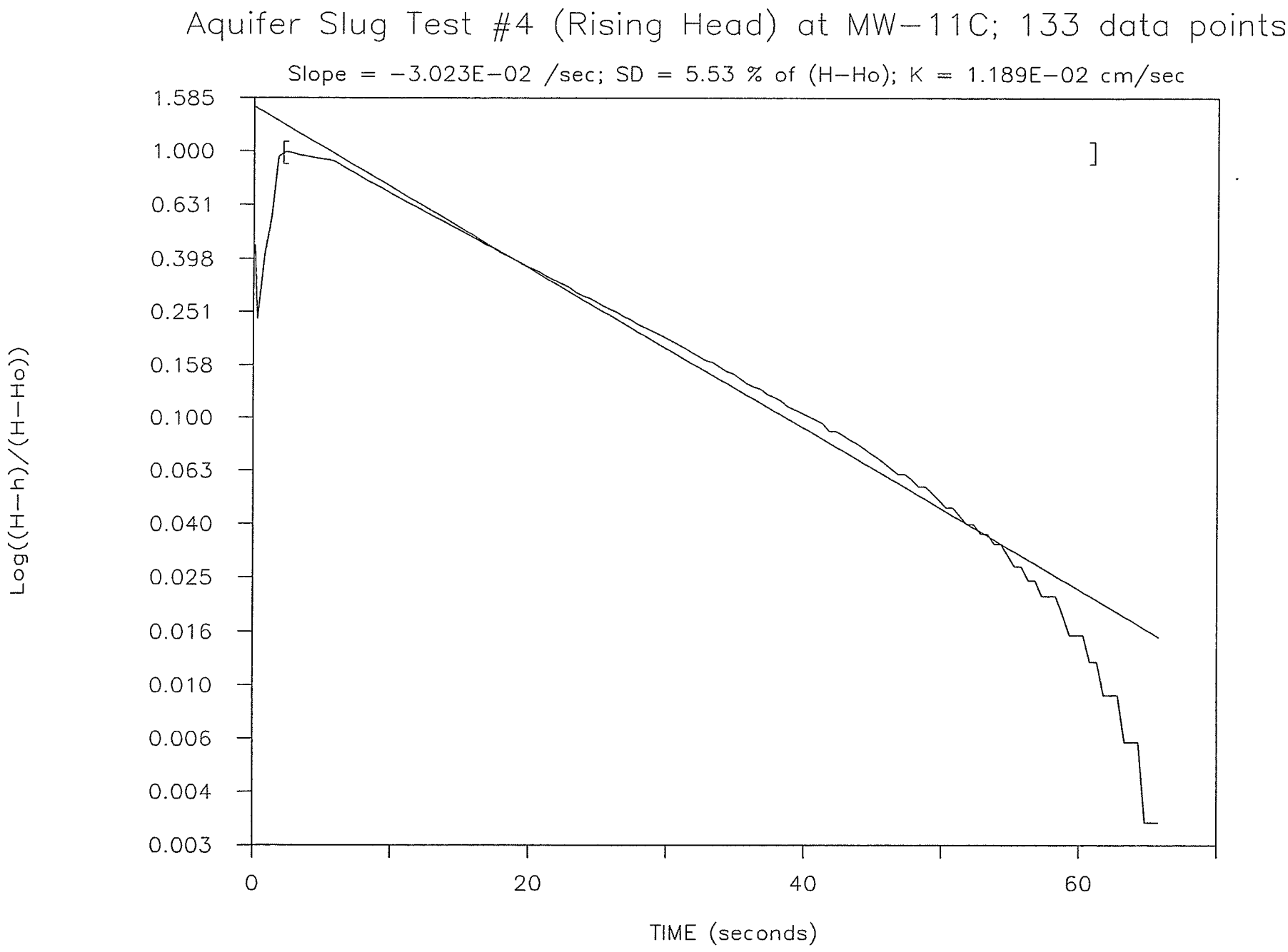


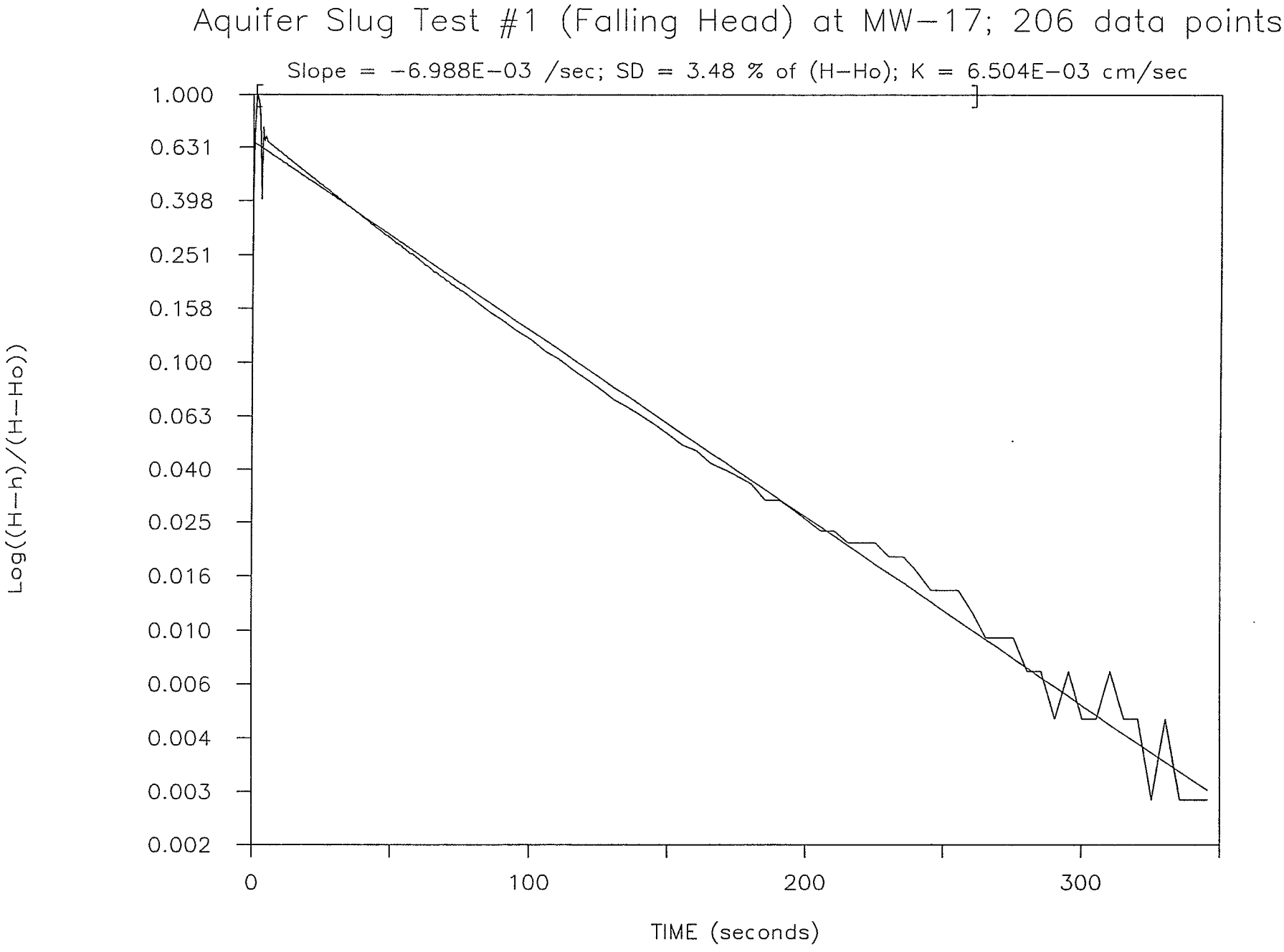

Aquifer Slug Test #4 (Rising Head) at MW-11B; 142 data points
Slope = -2.203E-02 /sec; SD = 6.54 % of (H-Ho); K = 1.030E-02 cm/sec
1.585
1.000
0.631
0.398
0.251
0.158
0.100
0.063
0.040
0.025
0.016
0.010
0.006
0.004
0.003
0.002
0.001
0.001
0
20
40
60
80
100
120
140
TIME (seconds)
Log((H-h)/(H-Ho))

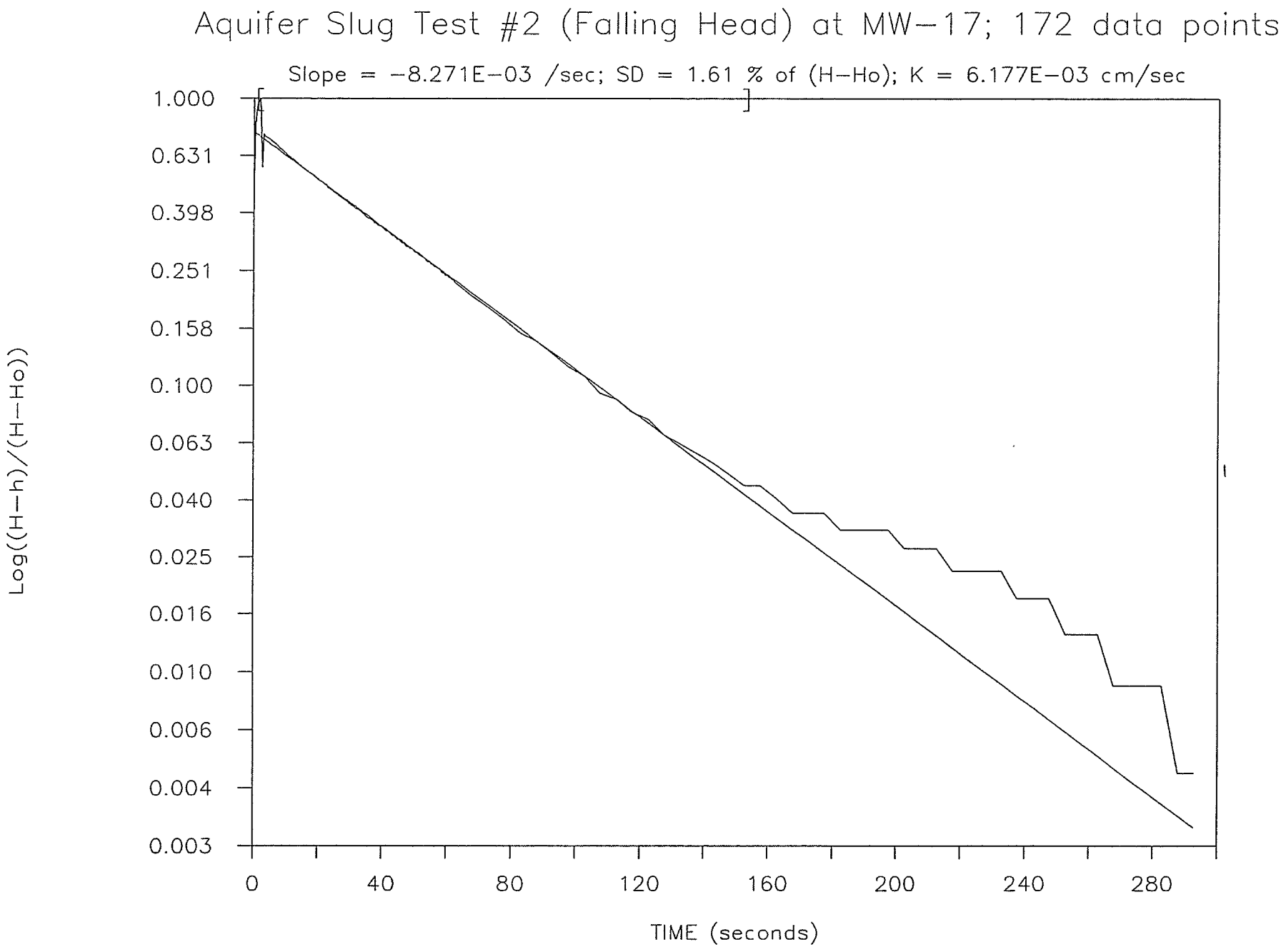

Aquifer Slug Test #1 (Falling Head) at MW-11C; 228 data points
Slope = -6.582E-03 /sec; SD = 3.64 % of (H-Ho); K = 5.899E-03 cm/sec
1.000
0.100
0.010
0.001
0.000
0.000
0.000
Log((H-h)/(H-Ho))
0
200
400
600
800
TIME (seconds)

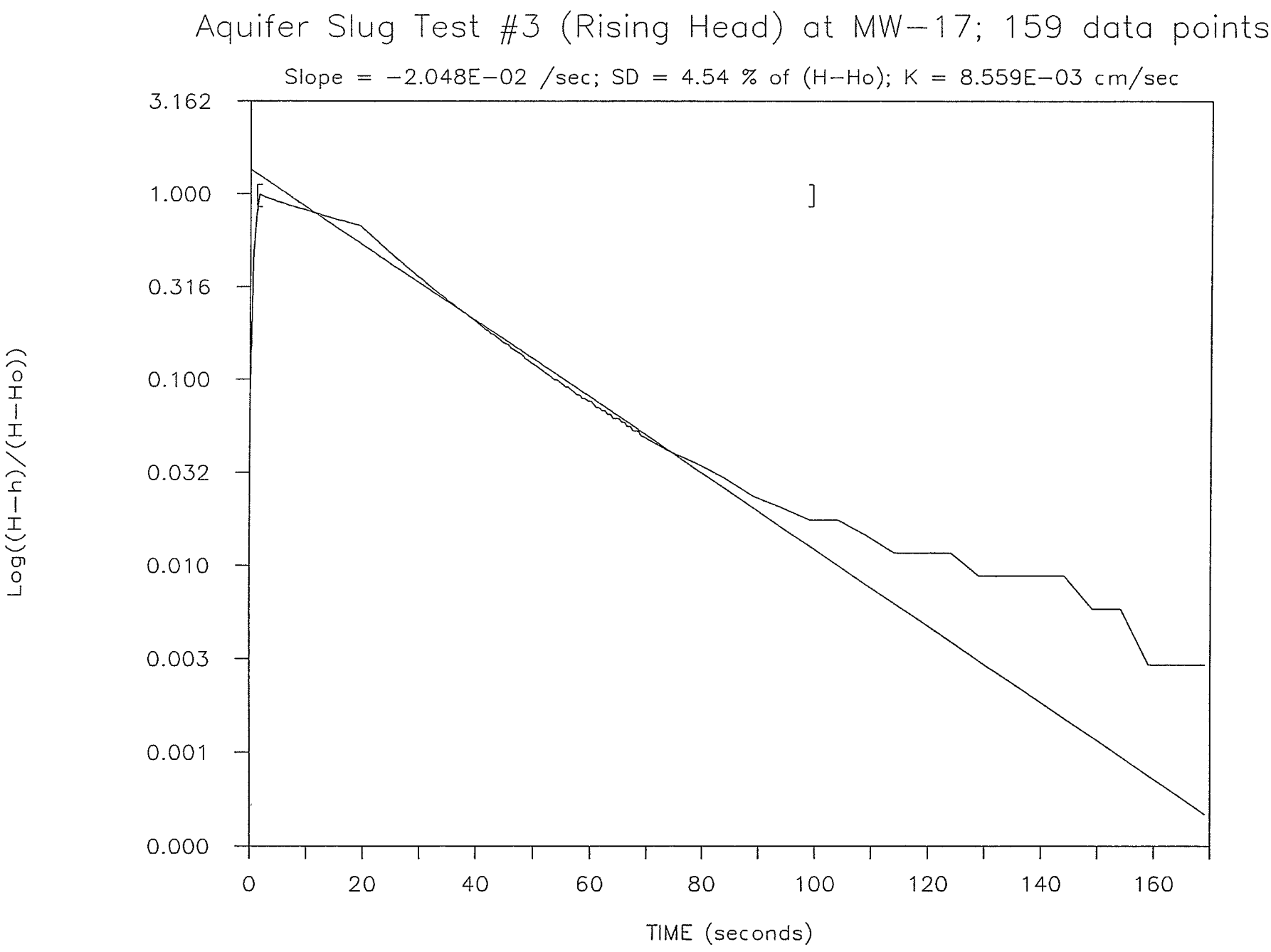

Aquifer Slug Test #2 (Falling Head) at MW-11C; 198 data points
Slope = -6.511E-03 /sec; SD = 3.57 % of (H-Ho); K = 6.869E-03 cm/sec
1.000
0.631
0.398
0.251
0.158
0.100
0.063
0.040
0.025
0.016
0.010
0.006
0.004
Log((H-h)/(H-Ho))
0
40
80
120
160
200
240
280
320
TIME (seconds)

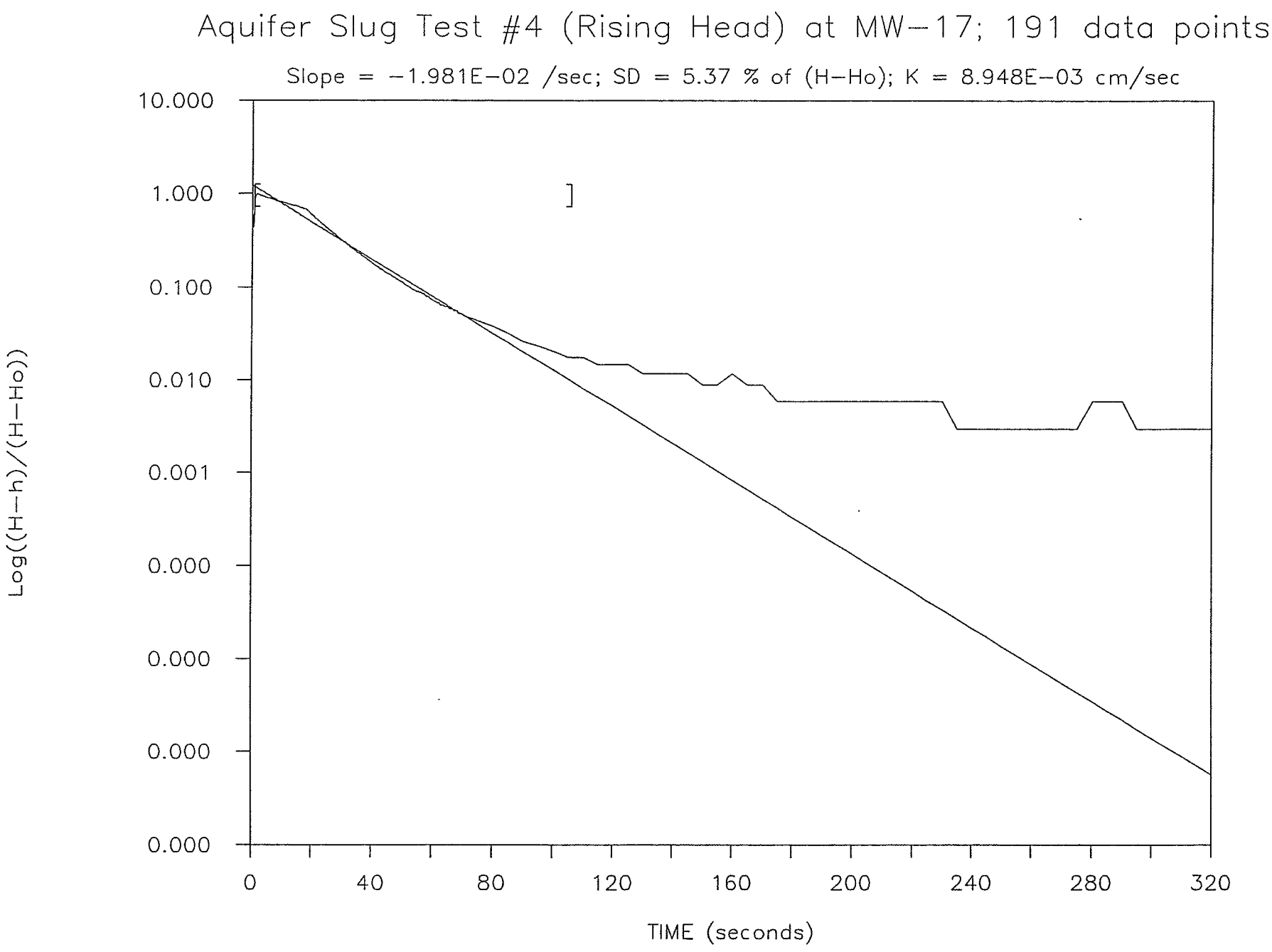

Aquifer Slug Test #3 (Rising Head) at MW-11C; 158 data points
Slope = -1.813E-02 /sec; SD = 6.24 % of (H-Ho); K = 8.977E-03 cm/sec
3.162
1.000
0.316
0.100
0.032
0.010
0.003
0.001
0.000
0.000
0.000
0.000
Log((H-h)/(H-Ho))
0
40
80
120
160
200
240
TIME (seconds)


Aquifer Slug Test #4 (Rising Head) at MW-11C; 133 data points
Slope = -3.023E-02 /sec; SD = 5.53 % of (H-Ho); K = 1.189E-02 cm/sec
1.585
1.000
0.631
0.398
0.251
0.158
0.100
0.063
0.040
0.025
0.016
0.010
0.006
0.004
0.003
Log((H-h)/(H-Ho))
0
20
40
60
TIME (seconds)


Aquifer Slug Test #1 (Falling Head) at MW-17; 206 data points
Slope = -6.988E-03 /sec; SD = 3.48 % of (H-Ho); K = 6.504E-03 cm/sec
1.000
0.631
0.398
0.251
0.158
0.100
0.063
0.040
0.025
0.016
0.010
0.006
0.004
0.003
0.002
Log((H-h)/(H-Ho))
0
100
200
300
TIME (seconds)


Aquifer Slug Test #2 (Falling Head) at MW-17; 172 data points
Slope = -8.271E-03 /sec; SD = 1.61 % of (H-Ho); K = 6.177E-03 cm/sec
1.000
0.631
0.398
0.251
0.158
0.100
0.063
0.040
0.025
0.016
0.010
0.006
0.004
0.003
Log((H-h)/(H-Ho))
0
40
80
120
160
200
240
280
TIME (seconds)


Aquifer Slug Test #3 (Rising Head) at MW-17; 159 data points
Slope = -2.048E-02 /sec; SD = 4.54 % of (H-Ho); K = 8.559E-03 cm/sec
3.162
1.000
0.316
0.100
0.032
0.010
0.003
0.001
0.000
Log((H-h)/(H-Ho))
0
20
40
60
80
100
120
140
160
TIME (seconds)


Aquifer Slug Test #4 (Rising Head) at MW-17; 191 data points
Slope = -1.981E-02 /sec; SD = 5.37 % of (H-Ho); K = 8.948E-03 cm/sec
10.000
1.000
0.100
0.010
0.001
0.000
0.000
0.000
0.000
Log((H-h)/(H-Ho))
0
40
80
120
160
200
240
280
320
TIME (seconds)

Appendix C
SAMPLING

Table C1 FINAL FIELD PARAMETERS FROM FEBRUARY, 1991 SAMPLES			
Station Number	**pH**	**Conductivity umhos/cm**	**Temperature (°C)**
MW4B	7.1	246	18.4
MW7B	7.6	240	17.9
MW10B	8.4	234	18.0
MW10C	7.8	288	19.4
MW11B	7.5	260	17.6
MW11C	7.4	275	18.9
MW14B	7.8	245	17.8
MW17	8.0	290	19.0
RW-1 (Corbet)	8.1	325	19.0
RW-2 (Jones)	7.9	338	19.1
RW-3 (Singleton)	8.0	280	18.6

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17890002
Client Sample ID: MW-4B

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 03/01/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	6	B
67-64-1	Acetone	14	B
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	BU
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U
	Toluene-d8 - SS	97	
	1,4-Bromofluorobenzene - SS	101	
	1,2-Dichloroethane-d4 - SS	108	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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205.271.1444

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	17890002	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-4B	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL	CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1 U		
	Propylene glycol - SS	51		

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

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000019

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	
Lab Sample ID:	17890001	Sample Matrix:	WATER	Date Analyzed:	03/01/91
Client Sample ID:	MW-7B	Percent Moisture:		Dilution Factor:	1.0

VOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	10	U	71-43-2	Benzene	5	U
74-83-9	Bromomethane	10	U	10061-02-6	trans-1,3-Dichloropropene	5	U
75-01-4	Vinyl Chloride	10	U	110-75-8	2-Chloroethylvinylether	10	U
75-00-3	Chloroethane	10	U	75-25-2	Bromoform	5	U
75-09-2	Methylene Chloride	6	B	591-78-6	2-Hexanone	10	U
67-64-1	Acetone	4	BJ	108-10-1	4-Methyl-2-Pentanone	10	U
75-15-0	Carbon Disulfide	5	U	127-18-4	Tetrachloroethene	5	U
75-69-4	Trichlorofluoromethane	5	U	79-34-5	1,1,2,2-Tetrachloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U	108-88-3	Toluene	5	BU
75-34-3	1,1-Dichloroethane	5	U	108-90-7	Chlorobenzene	5	U
540-59-0	1,2-Dichloroethene (total)	5	U	100-41-4	Ethylbenzene	5	U
67-66-3	Chloroform	5	U	100-42-5	Styrene	5	U
107-06-2	1,2-Dichloroethane	5	U	1330-20-7	Xylenes (total)	5	U
78-93-3	2-Butanone	10	U	541-73-1	1,3-Dichlorobenzene	5	U
71-55-6	1,1,1-Trichloroethane	5	U	106-46-7	1,4-Dichlorobenzene	5	U
56-23-5	Carbon Tetrachloride	5	U	95-50-1	1,2-Dichlorobenzene	5	U
108-05-4	Vinyl Acetate	10	U	109-99-9	Tetrahydrofuran	5	U
75-27-4	Bromodichloromethane	5	U	123-91-1	1,4-Dioxane	50	U
78-87-5	1,2-Dichloropropane	5	U	107-02-8	Acrolein	100	U
10061-01-5	cis-1,3-Dichloropropene	5	U	107-13-1	Acrylonitrile	100	U
79-01-6	Trichloroethene	5	U		---		
124-48-1	Dibromochloromethane	5	U		Toluene-d8 - SS	100	
79-00-5	1,1,2-Trichloroethane	5	U		1,4-Bromofluorobenzene - SS	101	
					1,2-Dichloroethane-d4 - SS	106	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	17890001	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-7B	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL		CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1	U		
	Propylene glycol - SS	50			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

Form I

JMS

000018

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	
Lab Sample ID:	17878004	Sample Matrix:	WATER	Date Analyzed:	02/28/91
Client Sample ID:	MW-10B	Percent Moisture:		Dilution Factor:	1.0

VOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	10	U	71-43-2	Benzene	5	U
74-83-9	Bromomethane	10	U	10061-02-6	trans-1,3-Dichloropropene	5	U
75-01-4	Vinyl Chloride	10	U	110-75-8	2-Chloroethylvinylether	10	U
75-00-3	Chloroethane	10	U	75-25-2	Bromoform	5	U
75-09-2	Methylene Chloride	10	B	591-78-6	2-Hexanone	10	U
67-64-1	Acetone	5	BJ	108-10-1	4-Methyl-2-Pentanone	10	U
75-15-0	Carbon Disulfide	5	U	127-18-4	Tetrachloroethene	5	U
75-69-4	Trichlorofluoromethane	5	U	79-34-5	1,1,2,2-Tetrachloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U	108-88-3	Toluene	1	J
75-34-3	1,1-Dichloroethane	5	U	108-90-7	Chlorobenzene	5	U
540-59-0	1,2-Dichloroethene (total)	5	U	100-41-4	Ethylbenzene	5	U
67-66-3	Chloroform	5	U	100-42-5	Styrene	5	U
107-06-2	1,2-Dichloroethane	5	U	1330-20-7	Xylenes (total)	5	U
78-93-3	2-Butanone	10	U	541-73-1	1,3-Dichlorobenzene	5	U
71-55-6	1,1,1-Trichloroethane	5	U	106-46-7	1,4-Dichlorobenzene	5	U
56-23-5	Carbon Tetrachloride	5	U	95-50-1	1,2-Dichlorobenzene	5	U
108-05-4	Vinyl Acetate	10	U	109-99-9	Tetrahydrofuran	5	U
75-27-4	Bromodichloromethane	5	U	123-91-1	1,4-Dioxane	50	U
78-87-5	1,2-Dichloropropane	5	U	107-02-8	Acrolein	100	U
10061-01-5	cis-1,3-Dichloropropene	5	U	107-13-1	Acrylonitrile	100	U
79-01-6	Trichloroethene	5	U				
124-48-1	Dibromochloromethane	5	U		Toluene-d8 - SS	98	
79-00-5	1,1,2-Trichloroethane	5	U		1,4-Bromofluorobenzene - SS	103	
					1,2-Dichloroethane-d4 - SS	104	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

000006

Rox

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/05/91
Lab Sample ID:	17878004	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-10B	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL	CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1 U		
	Propylene glycol - SS	54		

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

Form I

000014

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	
Lab Sample ID:	17890003	Sample Matrix:	WATER	Date Analyzed:	03/03/91
Client Sample ID:	MW-10C	Percent Moisture:		Dilution Factor:	1.0

VOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	10	U	71-43-2	Benzene	5	U
74-83-9	Bromomethane	10	U	10061-02-6	trans-1,3-Dichloropropene	5	U
75-01-4	Vinyl Chloride	10	U	110-75-8	2-Chloroethylvinylether	10	U
75-00-3	Chloroethane	10	U	75-25-2	Bromoform	5	U
75-09-2	Methylene Chloride	2	J	591-78-6	2-Hexanone	10	U
67-64-1	Acetone	3	BJ	108-10-1	4-Methyl-2-Pentanone	10	U
75-15-0	Carbon Disulfide	5	U	127-18-4	Tetrachloroethene	5	U
75-69-4	Trichlorofluoromethane	5	U	79-34-5	1,1,2,2-Tetrachloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U	108-88-3	Toluene	5	U
75-34-3	1,1-Dichloroethane	5	U	108-90-7	Chlorobenzene	5	U
540-59-0	1,2-Dichloroethene (total)	5	U	100-41-4	Ethylbenzene	5	U
67-66-3	Chloroform	5	U	100-42-5	Styrene	5	U
107-06-2	1,2-Dichloroethane	5	U	1330-20-7	Xylenes (total)	5	U
78-93-3	2-Butanone	10	U	541-73-1	1,3-Dichlorobenzene	5	U
71-55-6	1,1,1-Trichloroethane	5	U	106-46-7	1,4-Dichlorobenzene	5	U
56-23-5	Carbon Tetrachloride	5	U	95-50-1	1,2-Dichlorobenzene	5	U
108-05-4	Vinyl Acetate	10	U	109-99-9	Tetrahydrofuran	5	U
75-27-4	Bromodichloromethane	5	U	123-91-1	1,4-Dioxane	50	U
78-87-5	1,2-Dichloropropane	5	U	107-02-8	Acrolein	100	U
10061-01-5	cis-1,3-Dichloropropene	5	U	107-13-1	Acrylonitrile	100	U
79-01-6	Trichloroethene	5	U				
124-48-1	Dibromochloromethane	5	U		Toluene-d8 - SS	98	
79-00-5	1,1,2-Trichloroethane	5	U		1,4-Bromofluorobenzene - SS	102	
					1,2-Dichloroethane-d4 - SS	108	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	17890003	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-10C	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL		CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1	U		
	Propylene glycol - SS	43			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

Form I

JWS

000020

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17878001
Client Sample ID: MW-11B

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted:
Date Analyzed: 02/28/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	6	BJ
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U
	Toluene-d8 - SS	98	
	1,4-Bromofluorobenzene - SS	104	
	1,2-Dichloroethane-d4 - SS	106	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/05/91
Lab Sample ID:	17878001	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-11B	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL		CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1	U		
	Propylene glycol - SS	54			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17878002
Client Sample ID: MW-11C

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 02/28/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	10	U	71-43-2	Benzene	5	U
74-83-9	Bromomethane	10	U	10061-02-6	trans-1,3-Dichloropropene	5	U
75-01-4	Vinyl Chloride	10	U	110-75-8	2-Chloroethylvinylether	10	U
75-00-3	Chloroethane	10	U	75-25-2	Bromoform	5	U
75-09-2	Methylene Chloride	2	BJ	591-78-6	2-Hexanone	10	U
67-64-1	Acetone	5	BJ	108-10-1	4-Methyl-2-Pentanone	10	U
75-15-0	Carbon Disulfide	5	U	127-18-4	Tetrachloroethene	5	U
75-69-4	Trichlorofluoromethane	5	U	79-34-5	1,1,2,2-Tetrachloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U	108-88-3	Toluene	5	U
75-34-3	1,1-Dichloroethane	5	U	108-90-7	Chlorobenzene	5	U
540-59-0	1,2-Dichloroethene (total)	5	U	100-41-4	Ethylbenzene	5	U
67-66-3	Chloroform	5	U	100-42-5	Styrene	5	U
107-06-2	1,2-Dichloroethane	5	U	1330-20-7	Xylenes (total)	5	U
78-93-3	2-Butanone	10	U	541-73-1	1,3-Dichlorobenzene	5	U
71-55-6	1,1,1-Trichloroethane	5	U	106-46-7	1,4-Dichlorobenzene	5	U
56-23-5	Carbon Tetrachloride	5	U	95-50-1	1,2-Dichlorobenzene	5	U
108-05-4	Vinyl Acetate	10	U	109-99-9	Tetrahydrofuran	5	U
75-27-4	Bromodichloromethane	5	U	123-91-1	1,4-Dioxane	50	U
78-87-5	1,2-Dichloropropane	5	U	107-02-8	Acrolein	100	U
10061-01-5	cis-1,3-Dichloropropene	5	U	107-13-1	Acrylonitrile	100	U
79-01-6	Trichloroethene	5	U				
124-48-1	Dibromochloromethane	5	U		Toluene-d8 - SS	97	
79-00-5	1,1,2-Trichloroethane	5	U		1,4-Bromofluorobenzene - SS	102	
					1,2-Dichloroethane-d4 - SS	105	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/05/91
Lab Sample ID:	17878002	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-11C	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL	CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1 U		
	Propylene glycol - SS	57		

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

Form I

CH2M HILL
Quality Analytical Laboratories
2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116
205.271.1444

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	
Lab Sample ID:	17878003	Sample Matrix:	WATER	Date Analyzed:	02/28/91
Client Sample ID:	MW-14B	Percent Moisture:		Dilution Factor:	1.0

VOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	10	U	71-43-2	Benzene	5	U
74-83-9	Bromomethane	10	U	10061-02-6	trans-1,3-Dichloropropene	5	U
75-01-4	Vinyl Chloride	10	U	110-75-8	2-Chloroethylvinylether	10	U
75-00-3	Chloroethane	10	U	75-25-2	Bromoform	5	U
75-09-2	Methylene Chloride	3	BJ	591-78-6	2-Hexanone	10	U
67-64-1	Acetone	6	BJ	108-10-1	4-Methyl-2-Pentanone	10	U
75-15-0	Carbon Disulfide	5	U	127-18-4	Tetrachloroethene	5	U
75-69-4	Trichlorofluoromethane	5	U	79-34-5	1,1,2,2-Tetrachloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U	108-88-3	Toluene	5	U
75-34-3	1,1-Dichloroethane	5	U	108-90-7	Chlorobenzene	5	U
540-59-0	1,2-Dichloroethene (total)	5	U	100-41-4	Ethylbenzene	5	U
67-66-3	Chloroform	5	U	100-42-5	Styrene	5	U
107-06-2	1,2-Dichloroethane	5	U	1330-20-7	Xylenes (total)	5	U
78-93-3	2-Butanone	10	U	541-73-1	1,3-Dichlorobenzene	5	U
71-55-6	1,1,1-Trichloroethane	5	U	106-46-7	1,4-Dichlorobenzene	5	U
56-23-5	Carbon Tetrachloride	5	U	95-50-1	1,2-Dichlorobenzene	5	U
108-05-4	Vinyl Acetate	10	U	109-99-9	Tetrahydrofuran	5	U
75-27-4	Bromodichloromethane	5	U	123-91-1	1,4-Dioxane	50	U
78-87-5	1,2-Dichloropropane	5	U	107-02-8	Acrolein	100	U
10061-01-5	cis-1,3-Dichloropropene	5	U	107-13-1	Acrylonitrile	100	U
79-01-6	Trichloroethene	5	U				
124-48-1	Dibromochloromethane	5	U		Toluene-d8 - SS	98	
79-00-5	1,1,2-Trichloroethane	5	U		1,4-Bromofluorobenzene - SS	105	
					1,2-Dichloroethane-d4 - SS	105	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/05/91
Lab Sample ID:	17878003	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-14B	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL	CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1 U		
	Propylene glycol - SS	39		

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

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000013

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Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	
Lab Sample ID:	17890004	Sample Matrix:	WATER	Date Analyzed:	03/03/91
Client Sample ID:	MW-17C	Percent Moisture:		Dilution Factor:	1.0

VOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	10	U	71-43-2	Benzene	5	U
74-83-9	Bromomethane	10	U	10061-02-6	trans-1,3-Dichloropropene	5	U
75-01-4	Vinyl Chloride	10	U	110-75-8	2-Chloroethylvinylether	10	U
75-00-3	Chloroethane	10	U	75-25-2	Bromoform	5	U
75-09-2	Methylene Chloride	8		591-78-6	2-Hexanone	10	U
67-64-1	Acetone	6	BJ	108-10-1	4-Methyl-2-Pentanone	10	U
75-15-0	Carbon Disulfide	5	U	127-18-4	Tetrachloroethene	5	U
75-69-4	Trichlorofluoromethane	5	U	79-34-5	1,1,2,2-Tetrachloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U	108-88-3	Toluene	5	U
75-34-3	1,1-Dichloroethane	5	U	108-90-7	Chlorobenzene	5	U
540-59-0	1,2-Dichloroethene (total)	5	U	100-41-4	Ethylbenzene	5	U
67-66-3	Chloroform	5	U	100-42-5	Styrene	5	U
107-06-2	1,2-Dichloroethane	5	U	1330-20-7	Xylenes (total)	5	U
78-93-3	2-Butanone	10	U	541-73-1	1,3-Dichlorobenzene	5	U
71-55-6	1,1,1-Trichloroethane	5	U	106-46-7	1,4-Dichlorobenzene	5	U
56-23-5	Carbon Tetrachloride	5	U	95-50-1	1,2-Dichlorobenzene	5	U
108-05-4	Vinyl Acetate	10	U	109-99-9	Tetrahydrofuran	5	U
75-27-4	Bromodichloromethane	5	U	123-91-1	1,4-Dioxane	50	U
78-87-5	1,2-Dichloropropane	5	U	107-02-8	Acrolein	100	U
10061-01-5	cis-1,3-Dichloropropene	5	U	107-13-1	Acrylonitrile	100	U
79-01-6	Trichloroethene	5	U				
124-48-1	Dibromochloromethane	5	U		Toluene-d8 - SS	96	
79-00-5	1,1,2-Trichloroethane	5	U		1,4-Bromofluorobenzene - SS	101	
					1,2-Dichloroethane-d4 - SS	110	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	17890004	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-17C	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL	CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1 U		
	Propylene glycol - SS	45		

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

Form I

JWS

000021

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17890005
Client Sample ID: MW-17B (17C Dup)

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted:
Date Analyzed: 03/03/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	
67-64-1	Acetone	5	BJ
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U
	Toluene-d8 - SS	95	
	1,4-Bromofluorobenzene - SS	102	
	1,2-Dichloroethane-d4 - SS	107	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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CH2M HILL
Quality Analytical Laboratories
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	17890005	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-17B (17C Dup)	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL		CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1	U		
	Propylene glycol - SS	55			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

Form I

JWS

000022

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17890007
Client Sample ID: JONES - RW5

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 03/03/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	7	
67-64-1	Acetone	6	BJ
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U
	Toluene-d8 - SS	96	
	1,4-Bromofluorobenzene - SS	101	
	1,2-Dichloroethane-d4 - SS	107	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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CH2M HILL
Quality Analytical Laboratories
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	17890007	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	JONES - RW5	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL		CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1	U		
	Propylene glycol - SS	46			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

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JWS

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	
Lab Sample ID:	17890008	Sample Matrix:	WATER	Date Analyzed:	03/03/91
Client Sample ID:	SINGLETON - RWG	Percent Moisture:		Dilution Factor:	1.0

VOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	10	U	71-43-2	Benzene	5	U
74-83-9	Bromomethane	10	U	10061-02-6	trans-1,3-Dichloropropene	5	U
75-01-4	Vinyl Chloride	10	U	110-75-8	2-Chloroethylvinylether	10	U
75-00-3	Chloroethane	10	U	75-25-2	Bromoform	5	U
75-09-2	Methylene Chloride	8		591-78-6	2-Hexanone	10	U
67-64-1	Acetone	4	BJ	108-10-1	4-Methyl-2-Pentanone	10	U
75-15-0	Carbon Disulfide	5	U	127-18-4	Tetrachloroethene	5	U
75-69-4	Trichlorofluoromethane	5	U	79-34-5	1,1,2,2-Tetrachloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U	108-88-3	Toluene	5	U
75-34-3	1,1-Dichloroethane	5	U	108-90-7	Chlorobenzene	5	U
540-59-0	1,2-Dichloroethene (total)	5	U	100-41-4	Ethylbenzene	5	U
67-66-3	Chloroform	5	U	100-42-5	Styrene	5	U
107-06-2	1,2-Dichloroethane	5	U	1330-20-7	Xylenes (total)	5	U
78-93-3	2-Butanone	10	U	541-73-1	1,3-Dichlorobenzene	5	U
71-55-6	1,1,1-Trichloroethane	5	U	106-46-7	1,4-Dichlorobenzene	5	U
56-23-5	Carbon Tetrachloride	5	U	95-50-1	1,2-Dichlorobenzene	5	U
108-05-4	Vinyl Acetate	10	U	109-99-9	Tetrahydrofuran	5	U
75-27-4	Bromodichloromethane	5	U	123-91-1	1,4-Dioxane	50	U
78-87-5	1,2-Dichloropropane	5	U	107-02-8	Acrolein	100	U
10061-01-5	cis-1,3-Dichloropropene	5	U	107-13-1	Acrylonitrile	100	U
79-01-6	Trichloroethene	5	U				
124-48-1	Dibromochloromethane	5	U		Toluene-d8 - SS	96	
79-00-5	1,1,2-Trichloroethane	5	U		1,4-Bromofluorobenzene - SS	102	
					1,2-Dichloroethane-d4 - SS	106	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	17890008	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	SINGLETON -RWG	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL	CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1 U		
	Propylene glycol - SS	55		

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17890009
Client Sample ID: CORBET -RW1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 03/03/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	4	BJ
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U
	Toluene-d8 - SS	96	
	1,4-Bromofluorobenzene - SS	101	
	1,2-Dichloroethane-d4 - SS	108	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	17890009	Sample Matrix:	WATER	Date Analyzed:	03/07/91
Client Sample ID:	CORBET - RW1	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL	CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1 U		
	Propylene glycol - SS	57		

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

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000026

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Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17890006
Client Sample ID: MW-17 EQ BLK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 03/03/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	
67-64-1	Acetone	32	B
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U
	Toluene-d8 - SS	95	
	1,4-Bromofluorobenzene - SS	101	
	1,2-Dichloroethane-d4 - SS	104	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

hsc

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	17890006	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	MW-17 EQ BLANK	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL		CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1	U		
	Propylene glycol - SS	44			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

Form I

JMS

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17878005
Client Sample ID: TB-1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 02/28/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	9	BJ
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U
	Toluene-d8 - SS	102	
	1,4-Bromofluorobenzene - SS	106	
	1,2-Dichloroethane-d4 - SS	100	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17890011
Client Sample ID: TB-2

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 03/03/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	
67-64-1	Acetone	9	BJ
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U

	Toluene-d8 - SS	97	
	1,4-Bromofluorobenzene - SS	102	
	1,2-Dichloroethane-d4 - SS	108	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/05/91
Lab Sample ID:	W03051B1	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL		CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1	U		
	Propylene glycol - SS	47			

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: X03011B1
Client Sample ID: QC BLANK W

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 03/01/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	14	B
67-64-1	Acetone	5	BJ
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	2	BJ
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U
	Toluene-d8 - SS	100	
	1,4-Bromofluorobenzene - SS	100	
	1,2-Dichloroethane-d4 - SS	105	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	
Lab Sample ID:	X03031B1	Sample Matrix:	WATER	Date Analyzed:	03/03/91
Client Sample ID:	QC BLANK W 2	Percent Moisture:		Dilution Factor:	1.0

VOLATILE COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
74-87-3	Chloromethane	10	U	71-43-2	Benzene	5	U
74-83-9	Bromomethane	10	U	10061-02-6	trans-1,3-Dichloropropene	5	U
75-01-4	Vinyl Chloride	10	U	110-75-8	2-Chloroethylvinylether	10	U
75-00-3	Chloroethane	10	U	75-25-2	Bromoform	5	U
75-09-2	Methylene Chloride	5	U	591-78-6	2-Hexanone	10	U
67-64-1	Acetone	4	BJ	108-10-1	4-Methyl-2-Pentanone	10	U
75-15-0	Carbon Disulfide	5	U	127-18-4	Tetrachloroethene	5	U
75-69-4	Trichlorofluoromethane	5	U	79-34-5	1,1,2,2-Tetrachloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U	108-88-3	Toluene	5	U
75-34-3	1,1-Dichloroethane	5	U	108-90-7	Chlorobenzene	5	U
540-59-0	1,2-Dichloroethene (total)	5	U	100-41-4	Ethylbenzene	5	U
67-66-3	Chloroform	5	U	100-42-5	Styrene	5	U
107-06-2	1,2-Dichloroethane	5	U	1330-20-7	Xylenes (total)	5	U
78-93-3	2-Butanone	10	U	541-73-1	1,3-Dichlorobenzene	5	U
71-55-6	1,1,1-Trichloroethane	5	U	106-46-7	1,4-Dichlorobenzene	5	U
56-23-5	Carbon Tetrachloride	5	U	95-50-1	1,2-Dichlorobenzene	5	U
108-05-4	Vinyl Acetate	10	U	109-99-9	Tetrahydrofuran	5	U
75-27-4	Bromodichloromethane	5	U	123-91-1	1,4-Dioxane	50	U
78-87-5	1,2-Dichloropropane	5	U	107-02-8	Acrolein	100	U
10061-01-5	cis-1,3-Dichloropropene	5	U	107-13-1	Acrylonitrile	100	U
79-01-6	Trichloroethene	5	U				
124-48-1	Dibromochloromethane	5	U		Toluene-d8 - SS	98	
79-00-5	1,1,2-Trichloroethane	5	U		1,4-Bromofluorobenzene - SS	102	
					1,2-Dichloroethane-d4 - SS	110	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/06/91
Lab Sample ID:	W03061B1	Sample Matrix:	WATER	Date Analyzed:	03/06/91
Client Sample ID:	QC BLANK	Percent Moisture:		Dilution Factor:	1.0

GLYCOL COMPOUNDS

CAS Number		ug/mL	CAS Number	ug/mL
112-27-6	Triethylene glycol. . .	1 U		
	Propylene glycol - SS	58		

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate standard reported as percent recovery

Form I

000027

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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: X02281B1
Client Sample ID: QC BLANK W

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted:
Date Analyzed: 02/28/91
Dilution Factor: 1.0

VOLATILE COMPOUNDS

CAS Number		ug/L	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	BJ
67-64-1	Acetone	5	BJ
75-15-0	Carbon Disulfide	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U

CAS Number		ug/L	
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
591-78-6	2-Hexanone	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylenes (total)	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
109-99-9	Tetrahydrofuran	5	U
123-91-1	1,4-Dioxane	50	U
107-02-8	Acrolein	100	U
107-13-1	Acrylonitrile	100	U
	Toluene-d8 - SS	98	
	1,4-Bromofluorobenzene - SS	102	
	1,2-Dichloroethane-d4 - SS	102	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

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