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WSRC-TR--90-474-Apps. 3-6

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CLAY CAP TEST SECTION
CONSTRUCTION REPORT
MIXED WASTE MANAGEMENT
FACILITY (MWMF) CLOSURE
SAVANNAH RIVER PLANT

APPENDICES 3 through 6

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February 26, 1988

APPENDIX 3

MRCE Field Data Summaries and Plots Based on Pittsburgh Testing Laboratory's Test Results

Section 3A: Test Panels A1 & A2, Cyprus Tertiary Kaolin

Section 3B: Test Panels B1, B2 & B3, Dixie Tertiary Kaolin

Section 3C: Test Panels C1 & C2, Huber Tertiary Kaolin

Section 3D: Test Panels D1 & D2, Cyprus Cretaceous Kaolin

MRCE File 6524

APPENDIX 3

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APPENDIX 3

Section 3A - Test Panels A1 & A2, Cyprus Tertiary Kaolin

List of Exhibits

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Plate No. A-18	Gradation Curves, Drainage Layers A1 & A2

MWMF CLOSURE, CLAY CAP TE

SUMMARY OF FIELD AND LABORATORY

TEST PANEL A1

DATE	TEST TYPE AND LOCATION	LIFT NO.	SURFACE ELEVATION OF TEST	ATTERBERG LIMITS			% FINES (<#200 SIEVE)	NUCLEAR DENSITY CONE DE RESULTS FIELD γ_d (PCF)
				w _L (%)	w _p (%)	I _p (%)		
10-21-87	N1	1	95.53	61	30	31	94	97.4
"	N2	1	95.39	63	29	34	93	95.8
10-20-87	N3	1	95.39	68	31	37	94	92.9
"	N4	1	95.18	62	29	33	93	94.9
"	S1	1	95.18	65	31	34	94	91.4
"	N1	2	96.05	66	29	37	94	95.7
10-21-87	N2	2	96.02	64	31	33	94	95.7
10-20-87	N3	2	95.75	70	31	39	94	96.4
"	N4	2	95.83	62	30	32	93	97.2
"	S1	2	95.87	69	32	37	94	92.7
"	N1	3	96.51	61	29	32	94	97.9
10-21-87	N2	3	96.49	64	31	33	94	96.1
10-20-87	N3	3	96.28	64	29	35	—	93.8
"	N4	3	96.33	69	30	39	94	94.4
"	S1	3	96.36	68	32	36	94	93.0

ABBREVIATIONS

w_L: Liquid Limit
 w_p: Plastic Limit
 I_p: Plasticity Index
 w_f: Water Content of Fill
 w_{opt}: Optimum Water Content
 w_d: Water Content of One-Point Density Test
 γ_d : Dry Density

TABLE A-1

ST SECTION, SAVANNAH RIVER PLANT

TESTS OF COMPACTED FILL IN TEST PANEL

CLAY TYPE CYPRUS TERTIARY KAOLIN

& SAND DENSITY	DRIED BACK ONE-POINT DENSITY				STANDARD PROCTOR COMPACTION RESULTS		% STANDARD PROCTOR FIELD γ_d MAX. γ_d (%)	$w_f - w_{opt}$ (%)
	γ_d (PCF)	w_d (%)	EST. MAX. γ_d (PCF)	EST. w_{opt} (%)	MAX. γ_d (PCF)	w_{opt} (%)		
26.8	92.1	25.9	92.9	27.8	—	—	105	-1.0
27.3	91.8	26.4	92.3	27.8	—	—	104	-0.5
26.6	87.3	24.6	90.4	28.2	—	—	103	-1.6
27.4	89.8	25.9	91.2	28.4	—	—	104	-1.0
28.4	—	—	—	—	90.7	28.7	101	-0.3
27.6	89.2	26.0	91.4	28.3	—	—	105	-0.7
27.1	89.6	27.2	90.5	28.5	—	—	106	-1.4
27.0	88.5	24.8	90.3	28.4	—	—	107	-1.4
26.2	88.9	25.4	91.0	28.5	—	—	107	-2.3
26.9	—	—	—	—	89.4	29.5	104	-2.6
25.7	87.7	24.7	90.6	28.3	—	—	108	-2.6
26.9	90.5	25.7	91.4	28.4	—	—	105	-1.5
28.4	90.0	25.4	91.4	28.4	—	—	103	0.0
26.6	89.7	24.9	91.4	28.4	—	—	103	-1.8
27.3	—	—	—	—	92.9	27.8	100	-0.5

MWMF CLOSURE, CLAY CAP

SUMMARY OF FIELD AND LABORATORY

TEST PANEL A2

DATE	TEST TYPE AND LOCATION	LIFT NO.	SURFACE ELEVATION OF TEST	ATTERBERG LIMITS			% FINES (<#200 SIEVE)	NUCLEAR DENSITY CONE RESULT FIELD
				w _L (%)	w _p (%)	I _p (%)		γ _d (PCF)
11-5-87	N1	1	96.84	67	32	35	93	89.7
"	N2	1	96.92	72	30	42	93	90.1
"	N3	1	96.87	68	33	35	92	90.7
11-6-87	N4	1	96.57	66	33	33	94	93.3
"	S1	1	96.63	73	32	41	93	92.9
11-5-87	N1	2	97.51	69	31	38	93	89.6
"	N2	2	97.44	71	30	41	91	89.9
"	N3	2	97.33	68	31	37	92	91.0
11-6-87	N4	2	97.27	69	31	38	93	91.1
"	S1	2	97.26	71	32	39	93	88.0
11-5-87	N1	3	97.88	71	31	40	94	90.3
"	N2	3	97.84	72	32	40	94	91.1
"	N3	3	97.74	73	32	41	94	89.5
11-6-87	N4	3	97.66	69	32	37	93	92.3
"	S1	3	97.72	72	34	38	94	91.0

ABBREVIATIONS

w_L: Liquid Limit
 w_p: Plastic Limit
 I_p: Plasticity Index
 w_f: Water Content of Fill
 w_{opt}: Optimum Water Content
 w_d: Water Content of One-Point Density Test
 γ_d: Dry Density

TABLE A-2

EST SECTION, SAVANNAH RIVER PLANT

Y TESTS OF COMPACTED FILL IN TEST PANEL

CLAY TYPE CYPRUS TERTIARY KAOLIN

R Y & SAND ENSITY S	DRIED BACK ONE-POINT DENSITY				STANDARD PROCTOR COMPACTION RESULTS		% STANDARD PROCTOR FIELD γ_d MAX. γ_d (%)	$w_f - w_{opt}$ (%)	
	w_f (%)	γ_d (PCF)	w_d (%)	EST. MAX. γ_d (PCF)	EST. w_{opt} (%)	MAX.			
						γ_d (PCF)			w_{opt} (%)
	30.7	89.1	27.2	90.7	28.7	—	--	99	2.0
	30.9	91.3	27.9	91.4	28.3	—	--	99	2.6
	30.1	88.7	26.2	90.4	28.2	—	--	100	1.9
	29.4	91.5	29.2	92.9	27.8	—	--	100	1.6
	29.0	—	—	—	—	94.6	26.0	98	3.0
	30.5	89.8	27.0	90.5	28.8	—	--	99	1.7
	30.7	89.4	28.0	90.1	29.0	—	--	100	1.7
	30.6	90.3	26.8	91.0	28.6	—	--	100	2.0
	29.8	91.3	28.0	91.4	28.3	—	--	100	1.5
	29.4	—	—	—	—	90.4	29.2	97	1.2
	31.5	90.6	28.1	90.7	28.7	—	--	100	2.8
	30.8	89.6	27.0	90.4	28.2	—	--	101	2.6
	31.9	91.0	28.4	91.1	28.5	—	--	98	3.4
	29.8	90.1	28.5	90.4	29.0	—	--	102	0.8
	30.4	—	—	—	—	91.8	28.2	99	2.2

NOTES

1. Water contents determined on truck delivery samples
2. Water contents rounded off to nearest 1%

LAB. W. 9.

MIXED WASTE MANAGEMENT
FACILITY CLOSURE

SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY: RRR DATE: 9-87

CHRD BY: DATE:

FILE NO.
6524

LAB. NO. OF TRUCK DELIVERIES

PLATE NO.
A-2

CYPRUS TERTIARY KAOLIN

PLATE NO. A-2

SPEEDY #4 Wn %

MIXED WASTE MANAGEMENT
FACILITY CLOSURE
SAVANNAH RIVER PLANT
MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY RBR DATE 1-88
CHKD BY DATE

FILE NO.
6524
PLATE NO.
A-3

LAB Wn vs. SPEEDY #4 Wn
CYPRUS TERTIARY KAOLIN

MICROWAVE W_n %

LEGEND

- MICROWAVE TIME = 12 MINS., 100 GM. SAMPLE
- MICROWAVE TIME = 17 MINS., 200 GM. SAMPLE

NOTE

1. MICROWAVE W_n % MEASURED USING AN EMERSON MODEL 736A AT FULL POWER.

MIXED WASTE MANAGEMENT
FACILITY CLOSURE
SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY RRR DATE 10-87
CHECKED BY DATE

FILE NO.

6524

LAB W_n VS. MICROWAVE W_n

CYPRUS TERTIARY KAOLIN

PLATE NO.
A-4

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE	MUESER RUTLEDGE CONSULTING ENGINEERS		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	708 THIRD AVENUE, NEW YORK, N.Y. 10017		
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.	MADE BY: RBR	DATE: 10-87	FILE NO. 6524
HAMMER DROP (IN.)	12	18	—	CH'D BY:	DATE:	PLATE NO.
HAMMER BLOWS PER LAYER	25	25	TAMPS	COMPACTION DIAGRAM		
NUMBER OF LAYERS	3	5		CYPRUS TERTIARY KAOLIN		
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,500		A-5

SUMMARY OF TEST RESULTS	
TEST SYMBOL	
TEST METHOD	
MAXIMUM DRY DENSITY (P.C.F.)	
OPTIMUM WATER CONTENT (%)	
UNIFIED SOIL CLASSIFICATION	
NATURAL WATER CONTENT (%)	
LIQUID LIMIT	
PLASTIC LIMIT	
SPECIFIC GRAVITY	

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/454	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.		
HAMMER DROP (IN.)	12	18	—	MADE BY: AO DATE: 2-6-88 CIPED BY: RBR DATE: 2-6-88	
HAMMER BLOWS PER LAYER	25	25	TAMPS		
NUMBER OF LAYERS	3	5		COMPACTION DIAGRAM CYPRUS TERTIARY KAOLIN	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,800			
				FILE NO. 6524	PLATE NO. 4-6

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT						
MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, NY 10017						
MADE BY: RBR		DATE: 10-87		FILE NO. 6524		CYPRUS TERTIARY KAOLIN A-7
CHKD BY:		DATE:		GRADATION CURVES		
CYPRUS TERTIARY KAOLIN A-7						

SYMBOL	SAMPLE	WATER CONTENT, %	LIQUID LIMIT	PLASTICITY INDEX	DESCRIPTION OF SAMPLE
○	SHRED #1	—	—	—	SAMPLE OBTAINED ON 10-5-87.
□	SHRED #2	—	—	—	SAMPLE OBTAINED ON 10-5-87.

PLATE NO. 7-5	
---------------	--

SUMMARY

1. 34% WITHIN Wopt 1% RANGE
2. 69% WITHIN Wopt ± 1%
3. 92% WITHIN 1% DAY TO 2% WET OF Wopt 1% RANGE

NOTES

1. LAB Wn VALUES ROUNDED TO NEAREST 1%.
2. TOTAL NUMBER OF LAB Wn VALUES IS 60.
3. LAB Wn VALUES USED WERE OBTAINED FROM ONLY THOSE CONDITIONING AREAS AND LIFT USED IN CONSTRUCTING TEST PANEL AL (CAL:LIET); CA2, LAB, LAY, LIFT, 102)

MIXED WASTE MANAGEMENT
FACILITY CLOSURE
SAVANNAH RIVER PLANT
MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE, NEW YORK, NY 10017

MADE BY: R68 DATE: 10-87
CHECKED BY: DATE:
FILE NO. 6524
LAB Wn IN CONDITIONING
PLATE NO. A-8
AREAS USED FOR PANEL A1

SUMMARY OF TEST RESULTS	
CLAY TYPE	CYPRESS TERTIARY KAOLIN
TEST NO.	A1-S1-2
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	89.4
OPTIMUM WATER CONTENT (%)	29.5
UNIFIED SOIL CLASSIFICATION	CH
NATURAL WATER CONTENT (%)	—
LIQUID LIMIT	69
PLASTIC LIMIT	32
FINES	95

LEGEND

- A NUCLEAR DENSITY TEST
- A: TEST NO.
- △ SAND CONE DENSITY
- ONE POINT STANDARD PROCTOR

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/384	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.		
HAMMER DROP (IN.)	12	18	—	MADE BY: KBR DATE: 10-87 FILE NO. GIVEN BY: DATE: 6524	
HAMMER BLOWS PER LAYER	25	25	TAMPS		
NUMBER OF LAYERS	3	5	—	COMPACTION DIAGRAM TEST PANEL A1: LIFT 2	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,800	—		
				PLAYE NO. A-10

SUMMARY

1. 85% WITHIN 31% ± 1%

31% ± 1%

PERCENTAGE OF TOTAL

NOTES

1. WA, VALUES ROUNDED TO NEAREST 1%.
2. TOTAL NUMBER OF WA VALUES IS 35.
3. WA, VALUES OBTAINED FROM CONDITIONING AREAS CA1, CA2, CA3 AND CAY; LIFTS 1A.

MIXED WASTE MANAGEMENT	
FACILITY CLOSURE	
SAVANNAH RIVER PLANT	
MUESER RUTLEDGE CONSULTING ENGINEERS	
708 THIRD AVENUE, NEW YORK, N.Y. 10017	
MADE BY: RBR	DATE: 12-87
CHKD BY:	DATE:
FILE NO.	PLATE NO.
6524	A-13
Wn IN CONDITIONING AREAS USED FOR PANEL A2

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/454	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING		
HAMMER DROP (IN.)	12	18	—	MADE BY: RBR	DATE: 11-87
HAMMER BLOWS PER LAYER	25	25	TAMPS	FILED BY:	DATE:
NUMBER OF LAYERS	3	5		COMPACTION DIAGRAM	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300		TEST PANEL A2: LIFT 1	
				PLATE NO. A-14

SUMMARY OF TEST RESULTS	
CLAY TYPE	CYPRUS TERTIARY KAOLIN
TEST NO.	A2-91-2
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	90.4
OPTIMUM WATER CONTENT (%)	28.2
UNIFIED SOIL CLASSIFICATION	CH
NATURAL WATER CONTENT (%)	—
LIQUID LIMIT	71
PLASTIC LIMIT	32
% FINES	93

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		MUESER RUTLEDGE CONSULTING ENGINEERS		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		708 THIRD AVENUE, NEW YORK, N.Y. 10017		
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING	LB.	MADE BY: RBR	DATE: 11-87	FILE NO. 6524
HAMMER DROP (IN.)	12	18	—		CH'KD BY:	DATE:	PLATE NO. A-15
HAMMER BLOWS PER LAYER	25	25	TAMPS		COMPACTION DIAGRAM		
NUMBER OF LAYERS	3	3			TEST PANEL A2: LIFT 2		
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	54,800

MMMF CLOSURE, CLAY CAP TEST SECTION
SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE, NEW YORK, NY 10017

FILE NO. 6524
DATE: 10-87

CONTROL POINT ELEVATIONS
TEST PANEL A2

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		MUESER RUTLEDGE CONSULTING ENGINEERS		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		708 THIRD AVENUE, NEW YORK, N.Y. 10017		
HAMMER WEIGHT (LBS.)	5 1/2	10	LB. SPRING		MADE BY: RBR	DATE: 11-87	FILE NO. 6524
HAMMER DROP (IN.)	12	18	—		CHWD BY:	DATE:	PLATE NO. A-16
HAMMER BLOWS PER LAYER	25	25	TAMPS		COMPACTION DIAGRAM		
NUMBER OF LAYERS	3	5			TEST PANEL A2: LIFT 3		
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,800

SYMBOL		SAMPLE	WATER CONTENT - %	LIQUID LIMIT	PLASTICITY INDEX	DESCRIPTION OF SAMPLE
○		TEST PANEL A1	—	—	—	RED-BRN F-M SAND, SM SILT (SM)
□		TEST PANEL A2	—	—	—	RED-BRN M-F SAND, TR SILT (SP-SM)

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT				FILE NO. 6524	
MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017				DATE: 10-87	
MADE BY: FEA				DATE:	
CHECKED BY:				GRADATION CURVES	
				DRAINAGE LAYERS A1 & A2	
				A-18	

PLATE NO. A-18					
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APPENDIX 3

Section 3B - Test Panels B1, B2 & B3, Dixie Tertiary Kaolin

List of Exhibits

Table No. B-1	Summary of Field and Laboratory Tests of Compacted Fill in Test Panel: Test Panel B1, Clay Type-Dixie Tertiary Kaolin
Table No. B-2	Summary of Field and Laboratory Tests of Compacted Fill in Test Panel: Test Panel B2, Clay Type-Dixie Tertiary Kaolin
Table No. B-3	Summary of Field and Laboratory Tests of Compacted Fill in Test Panel: Test Panel B3, Clay Type Dixie Tertiary Kaolin
Plate No. B-1	Plasticity Chart, Dixie Tertiary Kaolin
Plate No. B-2	Lab W_n of Truck Deliveries, Dixie Kaolin: Panels B1 & B2
Plate No. B-3	Lab W_n vs. Speedy #4 W_n , Dixie Tertiary Kaolin
Plate No. B-4	Compaction Diagram, Dixie Tertiary Kaolin: Panels B1 & B2
Plate No. B-5	Compaction Diagram, Dixie Tertiary Kaolin
Plate No. B-6	Gradation Curves, Dixie Tertiary Kaolin
Plate No. B-7	Lab W_n in Conditioning Areas used for Panel B1
Plate No. B-8	Compaction Diagram, Test Panel B1: Lift 1
Plate No. B-9	Compaction Diagram, Test Panel B1: Lift 2
Plate No. B-10	Compaction Diagram, Test Panel B1: Lift 3
Plate No. B-11	Control Point Elevations, Test Panel B1
Plate No. B-12	W_n in Conditioning Areas used for Panel B2
Plate No. B-13	Compaction Diagram, Test Panel B2: Lift 1
Plate No. B-14	Compaction Diagram, Test Panel B2: Lift 2
Plate No. B-15	Compaction Diagram, Test Panel B2: Lift 3
Plate No. B-16	Control Point Elevations, Test Panel B2
Plate No. B-17	Lab W_n of Truck Deliveries, Dixie Kaolin: Panel B3
Plate No. B-18	Compaction Diagram, Dixie Tertiary Kaolin: Panel B3
Plate No. B-19	Gradation Curves, Test Panel B3
Plate No. B-20	W_n in Lifts 1, 2, 3 & 4 in Test Panel B3
Plate No. B-21	Compaction Diagram, Test Panel B3: Lift 1
Plate No. B-22	Compaction Diagram, Test Panel B3: Lift 2
Plate No. B-23	Compaction Diagram, Test Panel B3: Lift 3
Plate No. B-24	Control Point Elevations, Test Panel B3
Plate No. B-25	Gradation Curves, Drainage Layers B1, B2 & B3

MWMF CLOSURE, CLAY CAP

SUMMARY OF FIELD AND LABORATORY

TEST PANEL B1

DATE	TEST TYPE AND LOCATION	LIFT NO.	SURFACE ELEVATION OF TEST	ATTERBERG LIMITS			% FINES (<#200 SIEVE)	NUCLEAR DENSITY CONE RESULT FIELD
				w _L (%)	w _p (%)	I _p (%)		γ _d (PCF)
10-12-87	N1	1	96.43	—	—	—	—	86.2
10-13-87	N2	1	96.43	—	—	—	—	89.0
10-12-87	N4	1	96.21	—	—	—	—	89.9
"	S1	1	96.21	70	30	40	—	91.9
"	N1	2	96.83	—	—	—	—	85.5
10-13-87	N2	2	96.92	—	—	—	—	90.7
10-12-87	N3	2	96.53	—	—	—	—	89.5
"	N3A	2	96.61	—	—	—	—	90.6
"	N4	2	96.35	—	—	—	—	91.5
"	S1	2	96.57	69	32	37	—	92.5
"	N1	3	97.19	—	—	—	—	88.8
10-13-87	N2	3	97.19	—	—	—	—	87.5
10-12-87	N3	3	97.01	—	—	—	—	89.9
"	N4	3	96.98	—	—	—	—	90.4
"	S1	3	97.03	69	31	38	—	89.4

ABBREVIATIONS

w_L: Liquid Limit
 w_p: Plastic Limit
 I_p: Plasticity Index
 w_f: Water Content of Fill
 w_{opt}: Optimum Water Content
 w_d: Water Content of One-Point Density Test
 γ_d: Dry Density

TABLE B-1

EST SECTION, SAVANNAH RIVER PLANT

Y TESTS OF COMPACTED FILL IN TEST PANEL

CLAY TYPE DIXIE TERTIARY KAOLIN

R Y & SAND DENSITY S	DRIED BACK ONE-POINT DENSITY				STANDARD PROCTOR COMPACTION RESULTS		% STANDARD PROCTOR FIELD γ_d MAX. γ_d (%)	$w_f - w_{opt}$ (%)
	γ_d (PCF)	w_d (%)	EST. MAX. γ_d (PCF)	EST. w_{opt} (%)	MAX. γ_d (PCF)	w_{opt} (%)		
			γ_d (PCF)	w_{opt} (%)	γ_d (PCF)	w_{opt} (%)		
31.6	93.5	26.8	93.5	26.9	—	—	92	4.7
29.0	96.6	22.1	97.5	24.2	—	—	91	4.8
29.0	93.0	27.8	93.1	27.2	—	—	97	1.8
29.3	—	—	—	—	90.6	28.5	101	0.8
31.0	92.6	29.3	97.5	24.2	—	—	88	6.8
28.6	93.2	25.5	93.7	26.9	—	—	97	1.7
28.9	94.2	27.2	95.4	25.6	—	—	94	3.3
29.6	93.5	27.9	95.8	25.4	—	—	95	4.2
28.5	94.2	23.1	94.9	26.0	—	—	96	2.5
29.2	—	—	—	—	91.8	26.0	101	3.2
29.7	92.1	27.3	92.3	27.9	—	—	96	1.8
30.7	92.3	27.6	92.3	27.9	—	—	95	2.8
29.0	94.2	27.6	96.8	24.6	—	—	93	4.4
29.2	93.3	23.5	94.4	26.4	—	—	96	2.8
29.5	—	—	—	—	92.8	26.7	96	2.8

TABLE B-1

MWMF CLOSURE, CLAY CAP 7

SUMMARY OF FIELD AND LABORATORY

TEST PANEL B2

DATE	TEST TYPE AND LOCATION	LIFT NO.	SURFACE ELEVATION OF TEST	ATTERBERG LIMITS			% FINES (<#200 SIEVE)	NUCLEAR DENSITY CONE RESULT FIELD
				w _L (%)	w _p (%)	I _p (%)		γ _d (PCF)
10-26-87	N1	1	97.33	68	28	40	98	89.9
"	N2	1	97.06	67	29	38	95	90.7
10-23-87	N3	1	97.10	74	30	44	100	89.7
"	N4	1	97.16	71	29	42	98	89.9
"	S1	1	97.14	70	27	43	—	84.8
10-26-87	N1	2	97.67	65	28	37	96	91.4
"	N2	2	97.38	68	28	40	98	92.9
10-23-87	N3	2	97.53	72	28	44	99	89.8
"	N4	2	97.53	72	30	42	98	90.1
"	S1	2	97.52	67	25	42	98	84.7
10-26-87	S2	2	97.67	65	28	37	96	84.8
"	N1	3	98.18	65	27	38	97	91.9
"	N2	3	98.05	64	29	35	100	92.5
10-23-87	N3	3	98.14	70	27	43	97	91.4
"	N4	3	98.07	74	32	42	98	93.8
"	S1	3	98.11	70	32	38	—	88.8
10-26-87	S2	3	98.18	65	27	38	97	88.7

ABBREVIATIONS

w_L: Liquid Limit
w_p: Plastic Limit
I_p: Plasticity Index
w_f: Water Content of Fill
w_{opt}: Optimum Water Content
w_d: Water Content of One-Point Density Test
γ_d: Dry Density

MUESER RUTLEDGE
FILE #6

TABLE B-2

EST SECTION, SAVANNAH RIVER PLANT

Y TESTS OF COMPACTED FILL IN TEST PANEL

CLAY TYPE DIXIE TERTIARY KAOLIN

R Y & SAND ENSITY S	DRIED BACK ONE-POINT DENSITY				STANDARD PROCTOR COMPACTION RESULTS		% STANDARD PROCTOR FIELD γ_d MAX. γ_d (%)	
	γ_d (PCF)	w_d (%)	EST. MAX. γ_d (PCF)	EST. w_{opt} (%)	MAX. γ_d (PCF)	w_{opt} (%)		
w_f (%)	γ_d (PCF)	w_d (%)	γ_d (PCF)	w_{opt} (%)	γ_d (PCF)	w_{opt} (%)		$w_f - w_{opt}$ (%)
31.3	91.9	28.3	92.1	28.0	—	—	98	3.3
31.4	91.4	29.3	93.0	27.5	—	—	98	3.9
32.8	90.3	26.9	91.0	28.7	—	—	99	4.1
31.9	91.5	28.9	91.7	28.2	—	—	98	3.7
31.5	—	—	—	—	92.6	26.5	92	5.0
30.4	93.4	27.3	94.8	26.0	—	—	96	4.4
29.7	93.2	27.7	95.2	25.8	—	—	98	3.9
32.2	88.7	24.4	91.5	28.4	—	—	98	3.8
31.3	92.2	28.4	94.8	26.0	—	—	95	5.3
32.0	—	—	—	—	93.0	27.5	91	4.5
31.2	93.4	27.3	94.8	26.0	—	—	89	5.2
29.8	93.5	26.9	93.6	27.0	—	—	98	2.8
28.5	92.7	27.9	94.8	26.0	—	—	98	2.5
30.1	92.1	26.0	93.1	27.2	—	—	98	2.9
29.2	92.4	27.0	92.6	27.6	—	—	101	1.6
30.2	—	—	—	—	94.9	26.0	94	4.2
31.2	93.5	26.9	93.6	27.0	—	—	95	4.2

TABLE B-2

MWMF CLOSURE, CLAY CAP 1

SUMMARY OF FIELD AND LABORATORY

TEST PANEL 83

DATE	TEST TYPE AND LOCATION	LIFT NO.	SURFACE ELEVATION OF TEST	ATTERBERG LIMITS			% FINES (<#200 SIEVE)	NUCLEA DENSIT CONE D RESULT FIELD γ_d (PCF)
				w_L (%)	w_p (%)	I_p (%)		
12-7-87	N1	1	97.84	66	34	32	—	96.0
"	N2	1	98.11	72	36	36	—	92.4
12-4-87	N3	1	97.93	72	38	34	—	95.6
12-7-87	N4	1	98.41	74	38	36	—	89.8
"	N4	1A	97.80	74	37	37	—	94.3
12-4-87	S1	1	97.93	69	32	37	—	92.9
12-7-87	N1	2	98.51	75	38	37	—	91.7
"	N2	2	98.47	73	36	37	—	90.6
12-4-87	N3	2	98.46	73	38	35	—	91.5
"	S1	2	98.46	74	39	35	—	93.6
12-7-87	N1	3	98.79	74	39	35	—	91.5
"	N2	3	98.83	73	39	34	—	90.1
12-4-87	N3	3	99.18	74	40	34	—	91.3
12-7-87	N4	3	99.09	75	37	38	—	92.2
12-4-87	S1	3	99.18	73	38	35	—	89.4
"	N5	3	98.94	—	—	—	—	94.0

ABBREVIATIONS

w_L : Liquid Limit
 w_p : Plastic Limit
 I_p : Plasticity Index
 w_f : Water Content of Fill
 w_{opt} : Optimum Water Content
 w_d : Water Content of One-Point Density Test
 γ_d : Dry Density

TABLE B-3

EST SECTION, SAVANNAH RIVER PLANT

TESTS OF COMPACTED FILL IN TEST PANEL

CLAY TYPE DIXIE TERTIARY KAOLIN

W _f & SAND DENSITY S	DRIED BACK ONE-POINT DENSITY				STANDARD PROCTOR COMPACTION RESULTS		% STANDARD PROCTOR FIELD γ_d MAX. γ_d (%)	W _f -W _{opt} (%)
	γ_d (PCF)	W _d (%)	EST. MAX. γ_d (PCF)	EST. W _{opt} (%)	MAX. γ_d (PCF)	W _{opt} (%)		
26.4	96.1	24.4	96.4	24.2	—	—	100	2.2
30.0	92.3	28.3	93.6	26.5	—	—	99	3.5
28.2	94.4	25.6	94.5	25.9	—	—	101	2.3
30.8	91.8	28.7	93.8	26.4	—	—	96	4.4
27.8	92.3	25.7	92.6	27.4	—	—	102	0.4
27.4	—	—	—	—	93.6	26.5	99	0.9
28.8	93.4	26.1	93.5	26.6	—	—	98	2.2
31.3	90.9	29.6	93.6	26.5	—	—	97	4.8
29.9	93.3	26.7	93.3	26.8	—	—	98	3.1
29.2	—	—	—	—	93.2	27.0	100	2.2
29.5	93.2	26.8	93.3	26.9	—	—	98	2.6
29.7	92.3	26.7	92.5	27.5	—	—	97	2.2
28.4	93.1	25.2	93.4	26.8	—	—	98	1.6
29.4	92.9	27.2	92.9	27.2	—	—	99	2.2
28.3	—	—	—	—	96.4	24.2	93	4.1
29.3	93.5	25.6	93.7	26.4	—	—	100	2.9

NOTES

1. Water content determined on truck delivery samples
2. Water content rounded off to nearest 1%.

MIXED WASTE MANAGEMENT

FACILITY CLOSURE

SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, NY 10017

MADE BY: KBB DATE: 4-87

CHD BY: 6524

LAB WA OF TRUCK DELIVERIES

DIXIE KAOLIN: PANELS B1482

PLATE NO. 8-2

SPEEDY #4 Wn %

LAB Wn % = SPEEDY #4 Wn %

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, NY 10017		
MADE BY RBR CHECKED BY	DATE 1-88 DATE	FILE NO. 6524 PLATE NO. B-3
LAB Wn VS. SPEEDY #4 Wn DIXIE TERTIARY KAOLIN

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	10		
HAMMER DROP (IN.)	12	18	—	MADE BY: RER DATE: 4-84 CHECKED BY: DATE:	
HAMMER BLOWS PER LAYER	25	25	TAMPS		
NUMBER OF LAYERS	3	5		COMPACTION DIAGRAM DIXIE TERTIARY KAOLIN: FANUSB: 188	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,800			
				FILE NO. 6524	PLATE NO. 6-4

SUMMARY OF TEST RESULTS	
TEST SYMBOL	
TEST METHOD	
MAXIMUM DRY DENSITY (P.C.F.)	
OPTIMUM WATER CONTENT (%)	
UNIFIED SOIL CLASSIFICATION	
NATURAL WATER CONTENT (%)	
LIQUID LIMIT	
PLASTIC LIMIT	

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.		
HAMMER DROP (IN.)	12	18	—	MADE BY: AD	DATE: 2-8-58
HAMMER BLOWS PER LAYER	25	25	TAMPS	CHECKED BY: RBR	DATE: 2-8-88
NUMBER OF LAYERS	3	5		COMPACTION DIAGRAM	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300		DIXIE TERTIARY KACLIN	
				FILE NO.	6524
				PLATE NO.	B-5

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT			
MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, NY 10017			
MADE BY: KBR		DATE: 10-87	FILE NO: 6524
CHECKED BY:		DATE:	PLATE NO: 8-6
GRADATION CURVES		DIXIE TERTIARY KABLIN	
SYMBOL	SAMPLE	WATER CONTENT - %	LIQUID LIMIT
○	SHRED #3	—	—
□	SHRED #4	—	—
PLATE NO. 9-B			

DESCRIPTION OF SAMPLE

SAMPLE OBTAINED AT 1500 HOURS
ON 9-30-87.

SAMPLE OBTAINED AT 1530 HOURS
ON 9-30-87.

PLASTICITY INDEX

—

—

—

—

—

—

Wopt ± 1%

Wopt %

SUMMARY

1. 39% WITHIN Wopt ± 1% RANGE
2. 69% WITHIN Wopt ± 1%
3. 89% WITHIN 1% DAY TO 2% WET OF Wopt ± 1% RANGE

PERCENTAGE OF TOTAL

LAB Wn %

NOTES

1. LAB Wn % VALUES ROUNDED TO NEAREST 1%.
2. TOTAL NUMBER OF LAB Wn % VALUES IS 66.
3. LAB Wn % VALUES USED WERE OBTAINED FROM ONLY THOSE CONDITIONING AREAS AND LIFTS USED IN CONSTRUCTING TEST PANEL B1. (CB1: LIFTS 142, CB3: LIFTS 142, CB4: LIFTS 142)

MIXED WASTE MANAGEMENT

FACILITY CLOSURE

SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, NY 10017

MADE BY: RBA DATE: 10-87

CHKD BY: BCL DATE:

LAB Wn IN CONDITIONING

REFS USED FOR PANEL B1.

FILE NO.

6524

PLATE NO.

B-7

PLATE NO. B-7

SUMMARY OF TEST RESULTS	
CLAY TYPE	DIXIE TERTIARY KAOLIN
TEST NO.	B1-S1-1
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	90.6
OPTIMUM WATER CONTENT (%)	28.5
UNIFIED SOIL CLASSIFICATION	CH
NATURAL WATER CONTENT (%)	--
LIQUID LIMIT	70
PLASTIC LIMIT	27
	—

LEGEND

- A NUCLEAR DENSITY TEST
- △ A SAND CONE DENSITY TEST
- ONE POINT STANDARD PROCTOR

CURVES OF 100% SATURATION
FOR SPECIFIC GRAVITY
EQUAL TO:

2.75
2.70
2.65
2.60

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	LB. SPRING		
HAMMER DROP (IN.)	12	18	—	MADE BY: RSK	DATE: 10-87
HAMMER BLOWS PER LAYER	25	25	TAMPS	CHIEF BY:	DATE:
NUMBER OF LAYERS	3	5		COMPACTION DIAGRAM	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300		TEST PANEL B1: LIFT 1	
				FILE NO.	6524
				PLATE NO.	B-8

SUMMARY OF TEST RESULTS	
CLAY TYPE	DIXIE TERTIARY KAOLIN
TEST NO.	51
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	91.5
OPTIMUM WATER CONTENT (%)	25.4
UNIFIED SOIL CLASSIFICATION	MH
NATURAL WATER CONTENT (%)	—
LIQUID LIMIT	69
PLASTIC LIMIT	32
	—

LEGEND

- A NUCLEAR DENSITY TEST
- A: TEST NO.
- △ SAND CONE DENSITY TEST
- ONE POINT STANDARD PROCTOR

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE	MUESER RUTLEDGE CONSULTING ENGINEERS	
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.	MADE BY: RER	DATE: 10-87
HAMMER DROP (IN.)	12	18	—	ENGR BY:	DATE:
HAMMER BLOWS PER LAYER	25	25	TAMPS	COMPACTION DIAGRAM	
NUMBER OF LAYERS	3	5	—	TEST PANEL B1: LIFT 2	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300	—	FILE NO. 6524	
				PLATE NO. 8-9

SUMMARY OF TEST RESULTS	
CLAY TYPE	DIXIE TERTIARY KAOLIN
TEST No.	51
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	92.8
OPTIMUM WATER CONTENT (%)	26.7
UNIFIED SOIL CLASSIFICATION	CH
NATURAL WATER CONTENT (%)	—
LIQUID LIMIT	69
PLASTIC LIMIT	31
	—

LEGEND

- A NUCLEAR DENSITY TEST
A: TEST NO.
- △ SAND CONE DENSITY TEST
- ONE POINT STANDARD PROCTOR

CURVES OF 100% SATURATION FOR SPECIFIC GRAVITY EQUAL TO:

- 2.75
- 2.70
- 2.65
- 2.60

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/454	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.		
HAMMER DROP (IN.)	12	18	—	MADE BY: K&K DATE: 10-87 CHECK BY: DATE:	
HAMMER BLOWS PER LAYER	25	25	TAMPS		
NUMBER OF LAYERS	3	5	—	COMPACTION DIAGRAM TEST PANEL B1: LIFT 3	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,800	—		
				FILE NO.	8-10
				6524

MMF CLOSURE, CLAY CAP TEST SECTION
SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, NY 10017

MADE BY: RER DATE: 10-87

CHECKED BY: DATE: 10-87

FILE NO: 6524

CONTROL POINT ELEVATIONS

TEST PANEL B1

PLATE NO. B-11

32.9 ± 1%

SUMMARY

1. 85% WITHIN 32.9 ± 1%

PERCENTAGE OF TOTAL

30 31 32 33 34 35 36

WN%

NOTES

1. WN VALUES ROUNDED TO NEAREST 1%.
2. TOTAL NUMBER OF WN% VALUES IS 39.
3. WN VALUES OBTAINED FROM ONLY THOSE CONDITIONAL AREA AND LIFTS USED IN CONSTRUCTING TEST PANEL B2. (CB, CB2, CB3 + CB4 : LIFTS 1A)

MIXED WASTE MANAGEMENT

FACILITY CLOSURE

SAYANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, NY 10017

MADE BY: KBR DATE: 10-87
 CHECKED BY: DATE:
 FILE NO. 6524
 PLATE NO. 8-12

WN IN CONDITIONING

AREAS USED FOR PANEL B2

SUMMARY OF TEST RESULTS	
CLAY TYPE	DIXIE TERTIARY KAOLIN
TEST NO.	B2-S1-1
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	92.6
OPTIMUM WATER CONTENT (%)	26.5
UNIFIED SOIL CLASSIFICATION	CH
NATURAL WATER CONTENT (%)	—
LIQUID LIMIT	70
PLASTIC LIMIT	27
	—

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/454	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.		
HAMMER DROP (IN.)	12	18	—	MADE BY: RBR DATE: 10-87 ENGR BY: DATE:	
HAMMER BLOWS PER LAYER	25	25	TAMPS		
NUMBER OF LAYERS	3	5	—	COMPACTION DIAGRAM TEST PANEL B2: LIFT 1	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300	—		
				FILE NO.	B-13
				PLATE NO.	B-13

SUMMARY OF TEST RESULTS	
CLAY TYPE	DIXIE TERTIARY KAOLIN
TEST NO.	B2-51-2
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	93.0
OPTIMUM WATER CONTENT (%)	27.5
UNIFIED SOIL CLASSIFICATION	CH
NATURAL WATER CONTENT (%)	—
LIQUID LIMIT	67
PLASTIC LIMIT	25
% FINES	98

LEGEND

- A NUCLEAR DENSITY TEST
- A: TEST NO.
- △ SAND CONE DENSITY TEST
- ONE POINT STANDARD PROCTOR

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.	MADE BY: K&R	DATE: 10-87
HAMMER DROP (IN.)	12	18	—	CH'D BY:	DATE:
HAMMER BLOWS PER LAYER	25	25	TAMPS	COMPACTION DIAGRAM	
NUMBER OF LAYERS	3	3	—	TEST PANEL B2: LIFT 2	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300	—	FILE NO. 6524	PLATE NO. B-14

MIXED WASTE MANAGEMENT
 FACILITY CLOSURE
 SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS
 708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY: RGR	DATE: 10-87	FILE NO. 6524
CHIEF BY:	DATE:	PLATE NO. 8-15
COMPACTION DIAGRAM		
TEST PANEL B2: LIFT 3

LEGEND

- A: ELEV. LIFT A
- B: ELEV. LIFT B
- C: ELEV. LIFT C
- D: ELEV. LIFT D
- E: ELEV. TOP OF SAND

CONTROL POINT ELEVATIONS

CLAY PIT: Dixie Tertiary Kaolin

TEST PANEL B2

SCALE: 1" = 10'

MMF CLOSURE, CLAY CAP TEST SECTION
SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY: RGR	DATE: 10-87	FILE NO: 6524
CHECKED BY:	DATE:	PLATE NO: B-16
CONTROL POINT ELEVATIONS		TEST PANEL B2

Notes

1. Water contents determined on truck delivery samples
2. Water contents rounded off to nearest 1%.

MIXED WASTE MANAGEMENT	
FACILITY CLOSURE	
SAVANNAH RIVER PLANT	
MUESER RUTLEDGE CONSULTING ENGINEERS	
708 THIRD AVENUE, NEW YORK, N.Y. 10017	
MADE BY: KBR	DATE: 12-87
CHECKED BY:	DATE:
LAB NO. OF TRUCK DELIVERIES	FILE NO.
8-17	6524
DIXIE KADLIN: PANEL B3	PLATE NO.
	8-17

SUMMARY OF TEST RESULTS			
CLAY TYPE	DIXIE TERTIARY KAOLIN		
SAMPLE	7	8	
TEST SYMBOL	●	■	
TEST METHOD	SP	SP	
MAXIMUM DRY DENSITY (P.C.F.)	92.6	93.2	
OPTIMUM WATER CONTENT (%)	26.3	25.8	
UNIFIED SOIL CLASSIFICATION	MH	CH-MH	
NATURAL WATER CONTENT (%)	21.9	24.3	
LIQUID LIMIT	67	65	
PLASTIC LIMIT	34	32	
SPECIFIC GRAVITY	—	—	

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.		
HAMMER DROP (IN.)	12	18	—	MADE BY: RBR DATE: 12-87 CHK'D BY: DATE: FILE NO. 6524	
HAMMER BLOWS PER LAYER	25	25	TAMPS		
NUMBER OF LAYERS	3	5		COMPACTION DIAGRAM DIXIE TERTIARY KAOLIN: PANEL B3 B-18	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300

SYMBOL		SAMPLE		DESCRIPTION OF SAMPLE	
○	LIFT 2	1		DIXIE TERTIARY KAOLIN AT W. 9. AFTER ONE PASS OF RECYCLER	
□	LIFT 2	2		DIXIE TERTIARY KAOLIN AT W. 9. AFTER ONE PASS OF RECYCLER	

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, NY 10017	
MADE BY: RBR	DATE: 2-88	FILE NO. 6524	PLATE NO. 8-19
CHECKED BY:	DATE:	GRADATION CURVES TEST PANEL B3	

PLATE NO. 8-19

SUMMARY

1.76% WITHIN 28% + 31%

28% + 31%

PERCENTAGE OF TOTAL

NOTES

1. Wn VALUES ROUNDED TO NEAREST 1%.
2. TOTAL NUMBER OF Wn VALUES IS 48.
3. Wn VALUES OBTAINED FROM LIFTS 1, 2, 3 AND 4.

MIXED WASTE MANAGEMENT

FACILITY CLOSURE

SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, NY 10017

MADE BY: RBR DATE: 12-87
CHECKED BY: DATE: 6-84

Wn IN LIFTS 1, 2, 3 & 4

IN TEST PANEL B3

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE				
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017		
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING	LB.			
HAMMER DROP (IN.)	12	18			COMPACTION DIAGRAM TEST PANEL B3: LIFT 2		
HAMMER BLOWS PER LAYER	25	25	TAMPS				
NUMBER OF LAYERS	3	5			FILE NO.	6524	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300			DATE: 12-87	8-22	
					DATE:	PLATE NO.

SUMMARY OF TEST RESULTS	
CLAY TYPE	DIXIE TERTIARY KAOLIN
TEST NO.	B3-S1-3
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	96.4
OPTIMUM WATER CONTENT (%)	24.2
UNIFIED SOIL CLASSIFICATION	MH
NATURAL WATER CONTENT (%)	—
LIQUID LIMIT	73
PLASTIC LIMIT	38
	—

LEGEND

- A NUCLEAR DENSITY TEST
- △ A: TEST NO.
- △ SAND CONE DENSITY TEST
- ONE POINT STANDARD PROCTOR

CURVES OF 100% SATURATION
FOR SPECIFIC GRAVITY
EQUAL TO:

2.75
2.70
2.65
2.60

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE	MUESER RUTLEDGE CONSULTING ENGINEERS	
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.	MADE BY: RBR	DATE: 12-87
HAMMER DROP (IN.)	12	18	—	CHIEF BY:	DATE:
HAMMER BLOWS PER LAYER	25	25	TAMPS	COMPACTION DIAGRAM	
NUMBER OF LAYERS	3	5		TEST PANEL B3; LIFT 3	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300		FILE NO. 6524	
				PLATE NO. B-23	

MUESER RUTLEDGE CONSULTING ENGINEERS

FOR MWMP Closure

MADE BY RBR

DATE 12-10-87

CHECKED BY _____ DATE _____

SUBJECT

Control Point Elevations, TEST Panel B3.

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT				
MUESER RUTLEDGE CONSULTING ENGINEERS				
708 THIRD AVENUE, NEW YORK, NY 10017				
MADE BY: R&R		DATE: 10-87		FILE NO 652-1
CHECKED BY:		DATE:		PLATE NO.
GRADATION CURVES				
DRAINAGE LAYERS B1, B2 & B3				
B-25				

SYMBOL		SAMPLE	WATER CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	DESCRIPTION OF SAMPLE
○		TEST PANEL B1	—	—	—	RED-BRN F-M SAND, TR SILT (SP-SM)
□		TEST PANEL B2	—	—	—	RED-BRN F-M SAND, TR SILT (SP-SM)
△		TEST PANEL B3	—	—	—	RED-BRN F-M SAND, TR SILT (SP-SM)

PLATE NO. B-25	
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52-B

APPENDIX 3

Section 3C - Test Panels C1 & C2, Huber Tertiary Kaolin

List of Exhibits

Table No. C-1	Summary of Field and Laboratory Tests of Compacted Fill in Test Panel: Test Panel C1, Clay Type-Huber Tertiary Kaolin
Table No. C-2	Summary of Field and Laboratory Tests of Compacted Fill in Test Panel: Test Panel C2, Clay Type-Huber Tertiary Kaolin
Plate No. C-1	Plasticity Chart, Huber Tertiary Kaolin
Plate No. C-2	Lab W_p of Truck Deliveries, Huber Tertiary Kaolin
Plate No. C-3	Lab W_p vs. Speedy #4 W_n , Huber Tertiary Kaolin
Plate No. C-4	Lab W_p vs Microwave W_n , Huber Tertiary Kaolin
Plate No. C-5	Compaction Diagram, Huber Tertiary Kaolin
Plate No. C-6	Compaction Diagram, Huber Tertiary Kaolin
Plate No. C-7	Gradation Curves, Recycled Huber Tertiary Kaolin
Plate No. C-8	Gradation Curves, Huber Tertiary Kaolin
Plate No. C-9	W in Conditioning Areas used for Panel C1
Plate No. C-10	Compaction Diagram, Test Panel C1: Lift 1
Plate No. C-11	Compaction Diagram, Test Panel C1: Lift 2
Plate No. C-12	Compaction Diagram, Test Panel C1: Lift 3
Plate No. C-13	Control Point Elevations, Test Panel C1
Plate No. C-14	W in Conditioning Areas used for Panel C2
Plate No. C-15	Compaction Diagram, Test Panel C2: Lift 1
Plate No. C-16	Compaction Diagram, Test Panel C2: Lift 2
Plate No. C-17	Compaction Diagram, Test Panel C2: Lift 3
Plate No. C-18	Control Point Elevations, Test Panel C2
Plate No. C-19	Gradation Curves, Drainage Layers C1 & C2

SUMMARY OF FIELD AND LABORATORY

TEST PANEL C1

DATE	TEST TYPE AND LOCATION	LIFT NO.	SURFACE ELEVATION OF TEST	ATTEBERG LIMITS			% FINES (<#200 SIEVE)	NUCLEAR DENSITY CONE DI RESULTS FIELD
				w _L (%)	w _P (%)	I _P (%)		γ _d (PCF)
11-18-87	N1	1	96.30	71	33	38	—	97.0
"	N2	1	96.22	72	33	39	—	96.8
11-6-87	N3	1	96.74	67	33	34	94	98.4
11-11-87	N4	1	96.67	67	32	35	94	96.3
11-6-87	S1	1	96.74	70	33	37	94	97.8
11-17-87	N1	2	96.71	68	34	34	—	96.4
11-18-87	N2	2	96.61	67	32	35	—	94.8
11-6-87	N3	2	97.14	67	32	35	94	97.3
11-11-87	N4	2	96.90	68	33	35	94	96.5
11-6-87	S1	2	97.14	69	33	36	95	96.1
11-17-87	N1	3	97.28	67	33	34	—	93.9
11-18-87	N2	3	97.18	68	33	35	—	95.1
11-6-87	N3	3	97.66	73	33	40	94	95.6
11-11-87	N4	3	97.53	65	36	29	—	94.3
11-6-87	S1	3	97.66	69	33	36	94	91.2

ABBREVIATIONS

w_L: Liquid Limit
 w_P: Plastic Limit
 I_P: Plasticity Index
 w_f: Water Content of Fill
 w_{opt}: Optimum Water Content
 w_d: Water Content of One-Point Density Test
 γ_d: Dry Density

TABLE C-1

STATION SECTION, SAVANNAH RIVER PLANT

TESTS OF COMPACTED FILL IN TEST PANEL

CLAY TYPE HUBER TERTIARY KAOLIN

& SAND DENSITY	DRIED BACK ONE-POINT DENSITY				STANDARD PROCTOR COMPACTION RESULTS		% STANDARD PROCTOR FIELD γ_d MAX. γ_d (%)	$w_f - w_{opt}$ (%)
	γ_d (PCF)	w_d (%)	EST. MAX. γ_d (PCF)	EST. w_{opt} (%)	MAX. γ_d (PCF)	w_{opt} (%)		
w_f (%)								
26.1	92.7	23.9	94.0	26.0	-	-	103	0.1
26.2	92.8	24.4	93.6	26.8	-	-	103	-0.6
25.3	92.9	24.6	93.6	26.8	-	-	105	-1.5
26.6	91.6	24.0	93.9	26.2	-	-	103	0.4
25.2	-	-	-	-	92.6	26.5	106	-1.3
26.6	93.3	25.0	93.9	26.2	-	-	103	0.4
26.8	94.1	24.6	94.4	25.8	-	-	100	1.0
26.3	94.3	25.7	94.4	25.8	-	-	103	0.5
26.8	91.2	24.5	92.2	27.2	-	-	105	-0.4
26.1	-	-	-	-	94.1	26.0	102	0.1
28.2	92.8	27.4	93.6	26.6	-	-	100	1.6
28.1	94.0	25.9	94.1	26.0	-	-	101	2.1
27.3	92.1	26.4	92.4	27.0	-	-	103	0.3
26.9	90.8	24.7	92.6	26.5	-	-	102	0.4
26.8	-	-	-	-	93.6	26.6	97	0.2

MWMF CLOSURE, CLAY CAP 1

SUMMARY OF FIELD AND LABORATORY

TEST PANEL C2

DATE	TEST TYPE AND LOCATION	LIFT NO.	SURFACE ELEVATION OF TEST	ATTERBERG LIMITS			% FINES (<#200 SIEVE)	NUCLEA DENSIT CONE D RESULT FIELD
				w _L (%)	w _P (%)	I _P (%)		γ _d (PCF)
11-11-87	N1	1	96.39	70	33	37	94	93.0
"	N2	1	96.49	69	34	35	94	92.9
11-20-87	N3	1	96.70	72	33	39	-	93.3
"	N4	1	96.67	72	33	39	-	91.2
"	S1	1	96.52	70	33	37	-	93.0
11-11-87	N1	2	96.72	68	33	35	95	91.5
"	N2	2	97.13	70	33	37	94	90.9
11-20-87	N3	2	97.08	70	33	37	-	93.0
"	N4	2	97.18	72	31	41	-	91.7
"	S1	2	97.25	70	33	37	-	95.8
11-11-87	N1	3	97.47	68	32	36	95	91.3
"	N2	3	97.59	71	34	37	95	92.6
11-20-87	N3	3	97.65	68	33	35	-	90.9
11-20-87	N4	3	97.60	71	33	38	-	92.0
"	S1	3	97.59	72	32	40	-	89.1

ABBREVIATIONS

w_L: Liquid Limit
w_P: Plastic Limit
I_P: Plasticity Index
w_f: Water Content of Fill
w_{opt}: Optimum Water Content
w_d: Water Content of One-Point Density Test
γ_d: Dry Density

TABLE C-2

EST SECTION, SAVANNAH RIVER PLANT

Y TESTS OF COMPACTED FILL IN TEST PANEL

CLAY TYPE HUBER TERTIARY KAOLIN

R Y & SAND DENSITY S	DRIED BACK ONE-POINT DENSITY				STANDARD PROCTOR COMPACTION RESULTS		% STANDARD PROCTOR FIELD γ_d MAX. γ_d (%)	$w_F - w_{opt}$ (%)
	γ_d (PCF)	w_d (%)	EST. MAX. γ_d (PCF)	EST. w_{opt} (%)	MAX. γ_d (PCF)	w_{opt} (%)		
w_F (%)								
29.8	90.1	23.4	93.7	26.3	-	-	99	3.5
29.7	91.5	26.8	91.7	27.4	-	-	101	2.3
29.7	92.5	26.1	92.7	26.5	-	-	101	3.2
30.2	92.0	27.3	92.0	27.3	-	-	99	2.9
30.4	-	-	-	-	92.2	27.2	101	3.2
29.6	90.2	24.9	91.6	27.2	-	-	100	2.4
30.1	91.7	26.7	91.9	27.2	-	-	99	2.9
28.9	93.0	26.5	93.1	26.6	-	-	100	2.3
30.0	92.0	26.7	92.2	27.2	-	-	99	2.8
28.7	-	-	-	-	91.4	28.0	105	0.7
29.8	89.6	25.4	91.0	27.7	-	-	100	2.1
29.9	92.0	26.9	92.2	27.2	-	-	100	2.7
30.2	93.0	26.7	93.0	26.7	-	-	98	3.5
29.3	91.1	26.3	91.6	27.2	-	-	100	2.1
29.2	-	-	-	-	91.6	27.2	97	2.0

NOTES

1. Water contents determined on truck delivery samples
2. Water contents rounded off to nearest 1%.

MIXED WASTE MANAGEMENT

FACILITY CLOSURE

SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY: FGR DATE: 2-87
CHKD BY: DATE:

FILE NO. 65-4
LABORATORY OF TRUCK DELIVERIES

PLATE NO. C-2
HUBER TERTIARY KAO LIN

SPEEDY #4 Wn %

LAB Wn % = SPEEDY #4 Wn %

LAB Wn %

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017		
MADE BY RBR	DATE 1-88	FILE NO. 6524
CHECKED BY	DATE	PLATE NO. C-3
LAB Wn VS. SPEEDY #4 Wn HUBER TERTIARY KAOLIN		

MICROWAVE W_n %

NOTE

1. MICROWAVE W_n DETERMINED ON A 100 GRAM SAMPLE USING AN EMERSON MODEL 736A AT FULL POWER FOR 12 MINUTES.

MIXED WASTE MANAGEMENT
FACILITY CLOSURE
SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY KBR DATE 11-84
CHKD BY DATE

FILE NO.
6524

LAB W_n VS MICROWAVE W_n

PLATE NO.

HUBER TERTIARY KAO LIN

C-4

SUMMARY OF TEST RESULTS						
CLAY TYPE	HUBER TERTIARY			KADLIN		
SAMPLE	1	2	3	4	5	6
TEST SYMBOL	○	□	△	○	◇	▽
TEST METHOD	SP	SP	SP	SP	SP	SP
MAXIMUM DRY DENSITY (P.C.F.)	94.4	93.2	96.6	92.6	93.7	94.1
OPTIMUM WATER CONTENT (%)	25.8	28.1	24.7	26.0	26.3	26.5
UNIFIED SOIL CLASSIFICATION	CH	CH	CH	CH	CH	CH
NATURAL WATER CONTENT (%)	22.0	20.3	21.4	23.1	22.7	23.8
LIQUID LIMIT	56	61	55	60	62	60
PLASTIC LIMIT	28	29	28	29	30	30
FINES	93	95	93	95	99	95

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE	MUESER RUTLEDGE CONSULTING ENGINEERS		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	708 THIRD AVENUE, NEW YORK, N.Y. 10017		
HAMMER WEIGHT (LBS.)	5 1/2	10	LB. SPRING	MADE BY: RER	DATE: 10-87	FILE NO. 6524
HAMMER DROP (IN.)	12	18	—	CHRD BY:	DATE:	PLATE NO. C-5
HAMMER BLOWS PER LAYER	25	25	TAMPS	COMPACTION DIAGRAM HUBER TERTIARY KADLIN		
NUMBER OF LAYERS	3	5				
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300

SUMMARY OF TEST RESULTS	
TEST SYMBOL	
TEST METHOD	
MAXIMUM DRY DENSITY (P.C.F.)	
OPTIMUM WATER CONTENT (%)	
UNIFIED SOIL CLASSIFICATION	
NATURAL WATER CONTENT (%)	
LIQUID LIMIT	
PLASTIC LIMIT	

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD			
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING			
HAMMER DROP (IN.)	12	18	—		MADE BY: AG	DATE: 2-2-80
HAMMER BLOWS PER LAYER	25	25	TAMPS		CHRD BY: RBR	DATE: 2-9-80
NUMBER OF LAYERS	3	5			COMPACTION DIAGRAM	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300			HUBER TERTIARY KACLIN	FILE NO. 6524
						PLATE NO. C-6

SYMBOL		CLAY PIT	SAMPLE	DESCRIPTION OF SAMPLE
○ □ △		HUBER	5	HUBER TERTIARY KAOLIN AT Wn% AFTER ONE PASS OF RECYCLER.
		"	6	HUBER TERTIARY KAOLIN AT Wn% AFTER TWO PASSES OF RECYCLER
		"	7	HUBER TEATIARY KAOLIN AT Wn% AFTER THREE PASSES OF RECYCLER

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, NY 10017	
MADE BY: KBR	DATE: 12-87	FILE NO. 6524	PLATE NO. C-7
CHRD BY:	DATE:	GRADATION CURVES	RECYCLED HUBER TERTIARY KAOLIN

UNIFIED SOILS CLASSIFICATION		DESCRIPTION OF SAMPLE	
SYMBOL	SAMPLE	DESCRIPTION OF SAMPLE	
○	1	HUBER TERTIARY KARLIN AT W. 1. AFTER ONE PASS OF RECYCLER	
□	2	HUBER TERTIARY KARLIN AT W. 1. AFTER TWO PASSES OF RECYCLER	

MIXED WASTE MANAGEMENT FACILITY CLOSURE		SAVANNAH RIVER PLANT	
MUESER RUTLEDGE CONSULTING ENGINEERS		708 THIRD AVENUE, NEW YORK, NY 10017	
MADE BY: RBR	DATE: 2-88	FILE NO. 6524	PLATE NO. C-8
CHECKED BY:	DATE:	GRADATION CURVES	
HUBER TERTIARY KARLIN		HUBER TERTIARY KARLIN

NOTES

1. W_n VALUES ROUNDED TO NEAREST 1%.
2. TOTAL NUMBER OF W_n VALUES IS 27.
3. W_n VALUES OBTAINED FROM CONDITIONING AREAS C-1, C-2 AND C-3 LISTS 1.

MIXED WASTE MANAGEMENT	
FACILITY CLOSURE	
SAVANNAH RIVER PLANT	
MUESER RUTLEDGE CONSULTING ENGINEERS	
708 THIRD AVENUE, NEW YORK, NY 10017	
MADE BY: RBR	FILE NO. 6524
CHECK BY:	DATE: 11-87
Wn	IN CONDITIONING
AREAS USED FOR PANEL C-1	PLATE NO. C-9

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/404			
HAMMER WEIGHT (LBS.)	5 1/2	10	LB. SPRING			
HAMMER DROP (IN.)	12	18	—			
HAMMER BLOWS PER LAYER	25	25	TAMPS			
NUMBER OF LAYERS	3	5		MADE BY: KBR	DATE: 12-87	FILE NO.
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300		CHCK BY:	DATE:	6524
				COMPACTION DIAGRAM		PLATE NO.
				TEST PANEL C1: LIFT 1		C-10

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		MUESER RUTLEDGE CONSULTING ENGINEERS		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		708 THIRD AVENUE, NEW YORK, N.Y. 10017		
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING LB.		MADE BY: R&K	DATE: 12-87	FILE NO. 6524
HAMMER DROP (IN.)	12	18	—		CHECKED BY:	DATE:	PLATE NO.
HAMMER BLOWS PER LAYER	25	25	TAMPS		COMPACTION DIAGRAM		
NUMBER OF LAYERS	3	5			TEST PANEL C1-LIFT 2		
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300			C-11

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		MUESER RUTLEDGE CONSULTING ENGINEERS		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		708 THIRD AVENUE, NEW YORK, N.Y. 10017		
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING	LB.	MADE BY: RBR	DATE: 12-87	FILE NO. 6524
HAMMER DROP (IN.)	12	18			CHW BY:	DATE:	PLATE NO.
HAMMER BLOWS PER LAYER	25	25	TAMPS		COMPACTION DIAGRAM		
NUMBER OF LAYERS	3	5			TEST PANEL C1: LIFT 3		
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,800			C-12

SUMMARY

1.74% WITHIN 30% ± 1%

NOTES

1. WA VALUES ROUNDED TO NEAREST 1%.
2. TOTAL NUMBER OF WA VALUES IS 27.
3. WA VALUES OBTAINED FROM CONDITIONING AREAS C1, C2 AND C4; LISTS 1A.

MIXED WASTE MANAGEMENT	
FACILITY CLOSURE	
SAVANNAH RIVER PLANT	
MUESER RUTLEDGE CONSULTING ENGINEERS	
708 THIRD AVENUE, NEW YORK, NY 10017	
MADE BY: RBR	DATE: 11-87
CHECKED BY:	DATE:
FILE NO. 6524	
PLATE NO. C-14	
WA IN CONDITIONING	
AREAS USED FOR PANEL C2

SUMMARY OF TEST RESULTS	
CLAY TYPE	HUBER TERTIARY KAOLIN
TEST NO.	C2-S1-1
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	92.2
OPTIMUM WATER CONTENT (%)	27.2
UNIFIED SOIL CLASSIFICATION	CH
NATURAL WATER CONTENT (%)	—
LIQUID LIMIT	70
PLASTIC LIMIT	33
	—

LEGEND

- A NUCLEAR DENSITY TEST
- △ TEST NO.
- △ SAND CONE DENSITY TEST
- ONE POINT STANDARD FACTOR

CURVES OF 100% SATURATION
FOR SPECIFIC GRAVITY
EQUAL TO:

2.75
2.70
2.65
2.60

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		MUESER RUTLEDGE CONSULTING ENGINEERS	
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING	LB.	MADE BY: ABR	DATE: 12-84
HAMMER DROP (IN.)	12	18	—		CH'EN BY:	DATE:
HAMMER BLOWS PER LAYER	25	25	TAMPS		COMPACTION DIAGRAM	
NUMBER OF LAYERS	3	5			TEST PANEL C2: LIFT 1	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300				FILE NO. 6524
						PLATE NO. C-15

SUMMARY OF TEST RESULTS	
CLAY TYPE	HUBER TERTIARY KADLIN
TEST NO.	C2-S1-2
TEST SYMBOL	—
TEST METHOD	SP
MAXIMUM DRY DENSITY (P.C.F.)	91.4
OPTIMUM WATER CONTENT (%)	28.0
UNIFIED SOIL CLASSIFICATION	CH
NATURAL WATER CONTENT (%)	—
LIQUID LIMIT	70
PLASTIC LIMIT	33
	—

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		MUESER RUTLEDGE CONSULTING ENGINEERS		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		708 THIRD AVENUE, NEW YORK, N.Y. 10017		
HAMMER WEIGHT (LBS.)	5 1/2	10	LB. SPRING		MADE BY: R&R	DATE: 12-87	FILE NO. 6524
HAMMER DROP (IN.)	12	18	—		CH'D BY:	DATE:	PLATE NO.
HAMMER BLOWS PER LAYER	25	25	TAMPS		COMPACTION DIAGRAM		
NUMBER OF LAYERS	3	5			TEST PANEL C2: LIFT 2		
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,800			C-16

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		MUESER RUTLEDGE CONSULTING ENGINEERS		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484		708 THIRD AVENUE, NEW YORK, N.Y. 10017		
HAMMER WEIGHT (LBS.)	5 1/2	10	SPRING	LB.	MADE BY: RBA	DATE: 12-87	FILE NO. 6524
HAMMER DROP (IN.)	12	18	—		CHWD BY:	DATE:	PLATE NO.
HAMMER BLOWS PER LAYER	25	25	TAMPS		COMPACTION DIAGRAM		
NUMBER OF LAYERS	3	5			TEST PANEL C2: LIST 3		
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300			C-17

SYMBOL		SAMPLE		WATER CONTENT - %		LIQUID LIMIT		PLASTICITY INDEX		DESCRIPTION OF SAMPLE	
C	TEST PANEL C1	—	—	—	—	—	—	—	—	RED-BRN F-M SAND, TR SILT, C-SAND (SP-SM)	MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT
C	TEST PANEL C2	—	—	—	—	—	—	—	—	RED-BRN F-M SAND, TR SILT (SP-SM)	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, NY 10017 MADE BY: KBA DATE: 10-87 CHKD BY: KBA DATE: 10-87 FILE NO. 6524 PLATE NO. C-19

51-1 NO. 1

APPENDIX 3

Section 3D - Test Panels D1 & D2, Cyprus Cretaceous Kaolin

List of Exhibits

Table No. D-1	Summary of Field and Laboratory Tests of Compacted Fill in Test Panel: Test Panel D1, Clay Type-Cyprus Cretaceous Kaolin
Table No. D-2	Summary of Field and Laboratory Tests of Compacted Fill in Test Panel: Test Panel D2, Clay Type-Cyprus Cretaceous Kaolin
Plate No. D-1	Plasticity Chart, Cyprus Cretaceous Kaolin
Plate No. D-2	Lab W_n of Truck Deliveries, Cyprus Cretaceous Kaolin
Plate No. D-3	Lab W_n vs. Microwave W_n , Cyprus Cretaceous Kaolin
Plate No. D-4	Compaction Diagram, Cyprus Cretaceous Kaolin
Plate No. D-5	Compaction Diagram, Cyprus Cretaceous Kaolin
Plate No. D-6	Gradation Curves, Cyprus Cretaceous Kaolin
Plate No. D-7	Gradation Curves, Cyprus Cretaceous Kaolin
Plate No. D-8	Gradation Curves, Cyprus Cretaceous, Kaolin Pit
Plate No. D-9	Gradation Curves, Cyprus Cretaceous Kaolin, Borrow Pit
Plate No. D-10	Gradation Curves, Cyprus Cretaceous Kaolin, Borrow Pit
Plate No. D-11	Gradation Curves, Cyprus Cretaceous Kaolin
Plate No. D-12	W_n in Conditioning Areas used for Panel D1
Plate No. D-13	Compaction Diagram, Test Panel D1: Lift 1
Plate No. D-14	Compaction Diagram, Test Panel D1: Lift 2
Plate No. D-15	Compaction Diagram, Test Panel D1: Lift 3
Plate No. D-16	Gradation Curves, Cyprus Cretaceous Kaolin Panel D1
Plate No. D-17	Control Point Elevations, Test Panel D1
Plate No. D-18	W_n in Conditioning Area used for Panel D2
Plate No. D-19	Compaction Diagram, Test Panel D2: Lift 1
Plate No. D-20	Compaction Diagram, Test Panel D2: Lift 2
Plate No. D-21	Compaction Diagram, Test Panel D2: Lift 3
Plate No. D-22	Control Point Elevations, Test Panel D2
Plate No. D-23	Gradation Curves, Drainage Layers D1 & D2

MWMF CLOSURE, CLAY CAP T

SUMMARY OF FIELD AND LABORATORY

TEST PANEL D1

DATE	TEST /PE LOCATION	LIFT NO.	SURFACE ELEVATION OF TEST	ATTERBERG LIMITS			% FINES (<#200 SIEVE)	NUCLEA DENSITY CONE RESULTS FIELD γ_d (PCF)
				w _L (%)	w _p (%)	I _p (%)		
11-3-87	N1	1	93.25	50	30	20	76	99.4
"	N2	1	93.21	54	32	22	75	98.1
11-2-87	N3	1	93.62	50	31	19	75	96.9
"	N4	1	93.60	51	30	21	75	97.7
"	S1	1	93.60	54	31	23	76	96.2
11-3-87	N1	2	93.82	50	35	15	75	98.1
"	N2	2	93.77	51	30	21	76	99.4
11-2-87	N3	2	94.21	49	30	19	69	98.3
"	N4	2	94.08	52	30	22	75	96.4
"	S1	2	94.08	51	27	24	75	95.7
11-3-87	N1	3	94.32	51	32	19	73	99.4
"	N2	3	94.28	49	30	19	76	98.4
11-2-87	N3	3	94.79	50	29	21	70	98.0
"	N4	3	94.73	50	32	18	72	99.9
"	S1	3	94.73	56	34	22	76	99.0

ABBREVIATIONS

w_L: Liquid Limit
w_p: Plastic Limit
I_p: Plasticity Index
w_f: Water Content of Fill
w_{opt}: Optimum Water Content
w_d: Water Content of One-Point Density Test
 γ_d : Dry Density

TABLE D-1

EST SECTION, SAVANNAH RIVER PLANT

Y TESTS OF COMPACTED FILL IN TEST PANEL

CLAY TYPE CYPRUS CRETACEOUS KAOLIN

R Y & SAND ENSITY S	DRIED BACK ONE-POINT DENSITY				STANDARD PROCTOR COMPACTION RESULTS		% STANDARD PROCTOR FIELD γ_d MAX. γ_d (%)	$w_f - w_{opt}$ (%)	
	w_f (%)	γ_d (PCF)	w_d (%)	EST. MAX. γ_d (PCF)	EST. w_{opt} (%)	MAX. γ_d (PCF)			w_{opt} (%)
25.2	99.3	23.5	101.6	20.0	—	—	98	5.2	
25.0	99.7	19.5	100.6	21.4	—	—	98	3.6	
25.1	99.7	21.8	100.0	21.3	—	—	97	3.8	
25.0	99.8	22.7	100.4	22.2	—	—	97	2.8	
24.6	—	—	—	—	100.6	20.5	96	4.1	
24.6	99.9	22.7	100.4	22.2	—	—	98	2.4	
24.8	100.4	22.0	100.7	21.3	—	—	99	3.5	
24.0	99.6	22.1	100.0	21.3	—	—	98	2.7	
25.2	99.9	22.7	100.0	21.3	—	—	96	3.9	
24.7	—	—	—	—	100.7	20.0	95	4.7	
24.3	100.0	22.5	100.4	22.2	—	—	99	2.1	
24.7	101.0	21.3	101.2	20.9	—	—	97	3.8	
24.0	100.2	21.8	100.6	20.5	—	—	97	3.5	
23.2	100.7	22.2	101.6	20.0	—	—	98	3.2	
24.4	—	—	—	—	100.4	22.2	99	2.2	

TABLE D-1

SUMMARY OF FIELD AND LABORATORY

TEST PANEL D2

DATE	TEST TYPE AND LOCATION	LIFT NO.	SURFACE ELEVATION OF TEST	ATTERBERG LIMITS			% FINES (<#200 SIEVE)	NUCLEAR DENSITY CONE RESULT FIELD γ_d (PCF)
				w _L (%)	w _P (%)	I _P (%)		
12-8-87	N1	1	93.42	48	30	18	75	97.2
"	N2	1	93.36	57	35	22	74	98.7
11-19-87	N3	1	93.75	54	33	21	75	99.8
"	N4	1	93.56	54	33	21	75	97.8
"	S1	1	93.56	55	35	20	77	97.6
12-8-87	N1	2	94.17	53	32	21	77	98.2
"	N2	2	94.33	60	35	25	77	97.5
11-19-87	N3	2	94.50	48	32	16	73	96.3
11-18-87	N4	2	94.49	49	32	17	72	99.0
"	S1	2	94.49	49	32	17	77	98.7
12-8-87	N1	3	94.95	52	32	20	75	96.9
"	N2	3	94.89	59	37	22	76	99.2
11-19-87	N3	3	95.36	54	34	20	74	97.2
11-18-87	N4	3	95.15	54	32	22	75	97.8
"	S1	3	95.15	48	32	16	88	96.7

ABBREVIATIONS

w_L: Liquid Limit
 w_P: Plastic Limit
 I_P: Plasticity Index
 w_f: Water Content of Fill
 w_{opt}: Optimum Water Content
 w_d: Water Content of One-Point Density Test
 γ_d : Dry Density

TABLE D-2

EST SECTION, SAVANNAH RIVER PLANT

Y TESTS OF COMPACTED FILL IN TEST PANEL

CLAY TYPE CYPRUS CRETACEOUS KAOLIN

R Y & SAND ENSITY S	DRIED BACK ONE-POINT DENSITY				STANDARD PROCTOR COMPACTION RESULTS		% STANDARD PROCTOR FIELD γ_d MAX. γ_d (%)	$w_f - w_{opt}$ (%)
	w_f (%)	γ_d (PCF)	w_d (%)	EST. MAX. γ_d (PCF)	EST. w_{opt} (%)	MAX. γ_d (PCF)	w_{opt} (%)	
22.9	101.9	20.9	102.1	20.2	—	—	95	2.7
22.8	101.8	21.2	102.5	20.5	—	—	96	2.3
22.7	100.8	22.2	101.6	20.0	—	—	98	2.7
23.0	101.6	20.9	101.6	20.0	—	—	96	3.0
23.1	—	—	—	—	102.5	20.5	95	2.6
22.9	100.5	21.9	100.6	21.4	—	—	98	1.5
23.3	100.4	22.0	100.5	21.5	—	—	97	1.8
23.6	101.1	22.1	101.3	21.5	—	—	95	2.1
21.6	101.4	20.3	101.6	20.6	—	—	97	1.0
22.2	—	—	—	—	101.7	20.0	97	2.2
22.1	101.2	20.5	101.3	20.8	—	—	96	1.3
22.8	101.7	20.9	102.0	20.3	—	—	97	2.5
22.6	100.4	21.6	100.5	21.5	—	—	97	1.1
22.1	101.8	20.8	102.0	20.3	—	—	96	1.8
22.0	—	—	—	—	101.3	21.5	95	0.5

TEST SYMBOL	SAMPLE LOCATION
O	BORROW PIT
■	TEST PANEL D1
▲	TEST PANEL D2

GROUP SYMBOL	UNIFIED SOIL CLASSIFICATION FINE GRAINED SOIL GROUPS
OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
ML	ORGANIC CLAYEY SILTS TO VERY FINE SANDS OF SLIGHT PLASTICITY
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY
OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
MH	INORGANIC SILTS AND CLAYEY SILTS
CH	INORGANIC CLAYS OF HIGH PLASTICITY

PLATE NO. D-1

NOTES

1. Water content determined by truck delivery samples
2. Water content rounded off to nearest 1%

MIXED WASTE MANAGEMENT	
FACILITY CLOSURE	
SAVANNAH RIVER PLANT	
MUESER RUTLEDGE CONSULTING ENGINEERS	
708 THIRD AVENUE, NEW YORK, NY 10017	
MADE BY: RER	DATE: 10-87
CHECKED BY:	DATE:
LAB Wt OF TRUCK DELIVERIES	FILE NO. 6524
CYPRUS CRETACEOUS KAOLIN	PLATE NO. D-2

MICROWAVE W_n %

LAB W_n %

NOTE

1. MICROWAVE W_n DETERMINED ON A 100 GRAM WET SAMPLE USING AN EMERSON MODEL 736A AT FULL POWER FOR 12 MINUTES.

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017			
MADE BY RBR	DATE 11-87	FILE NO. 6524	PLATE NO. D-3
CHWD BY	DATE		
LAB W _n VS. MICROWAVE W _n CYRUS CASTALEDS KADLIN

SUMMARY OF TEST RESULTS						
CLAY TYPE	CYPRUS CRETACEOUS KAOLIN					
SAMPLE	1	2	3	4	5	6
TEST SYMBOL	○	□	△	○	◇	▽
TEST METHOD	SP	SP	SP	SP	SP	SP
MAXIMUM DRY DENSITY (P.C.F.)	100.0	104.5	105.7	98.3	101.3	99.2
OPTIMUM WATER CONTENT (%)	21.3	18.5	16.8	23.5	18.8	18.4±
UNIFIED SOIL CLASSIFICATION	CL	ML	SC	ML	ML	ML
NATURAL WATER CONTENT (%)	24.2	22.8	27.6	23.0	22.4	26.8
LIQUID LIMIT	49	39	40	45	46	48
PLASTIC LIMIT	27	26	25	30	29	31
% FINES	70	53	52	67	68	73

DESCRIPTION OF TESTS					MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE			
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/454		MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	10	LB.		
HAMMER DROP (IN.)	12	18	—	SPRING	MADE BY: KEA DATE: 10-87 FILE NO. 6524 CHECKED BY: DATE: PLATE NO. D-4	
HAMMER BLOWS PER LAYER	25	25	—	TAMPS		
NUMBER OF LAYERS	3	3	—		COMPACTION DIAGRAM CYPRUS CRETACEOUS KAOLIN	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,800	—

SUMMARY OF TEST RESULTS	
TEST SYMBOL	
TEST METHOD	
MAXIMUM DRY DENSITY (P.C.F.)	
OPTIMUM WATER CONTENT (%)	
UNIFIED SOIL CLASSIFICATION	
NATURAL WATER CONTENT (%)	
LIQUID LIMIT	
PLASTIC LIMIT	

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	10		
HAMMER DROP (IN.)	12	18	18	MADE BY: AD DATE: 2-10-88 CH'D BY: RBR DATE: 2-10-88	
HAMMER BLOWS PER LAYER	25	25	25		
NUMBER OF LAYERS	3	5	5	COMPACTION DIAGRAM CYPRUS CRETACEOUS KAGLIN D-5	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,300	56,300

SYMBOL		SAMPLE		WATER CONTENT		LIQUID LIMIT		PLASTICITY INDEX		DESCRIPTION OF SAMPLE	
○		PROCTOR #1		24.2		49		22		HARD GRAY SILTY CLAY, SM F-M SAND (CL)	
□		PROCTOR #2		22.8		39		13		HARD GRAY F-M SANDY SILT (ML)	
△		PROCTOR #3		27.6		40		15		GRAY CLAYEY F-M SAND (SC)	

MIXED WASTE MANAGEMENT
FACILITY CLOSURE
SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE, NEW YORK, NY 10017
MADE BY: KBR DATE: 10-87
CHKD BY: DATE:
FILE NO: 6574
GRADATION CURVES
CYPRUS CRETACEOUS KADUN D-6

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT				MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, NY 10017			
MADE BY: RBR				DATE: 2-88			
CHECKED BY:				FILE NO. 6524			
GRADATION CURVES				DATE: 2-88			
BUREAU PIT				PLATE NO. D-10			
UNIFIED SOILS CLASSIFICATION				CLAY OR SILT			
SYMBOL				DESCRIPTION OF SAMPLE			
○				Purple + gray f-m sandy silt (ML)			
□				Purple + gray clayey silt, sm f sand (ML)			
△				Purple + gray f-m sandy silt (ML)			
SAMPLE				WATER CONTENT %			
9				25.0			
10				25.3			
11				25.2			
LIQUID LIMIT				PLASTICITY INDEX			
43				14			
45				15			
48				16			
PLATE NO. D-10

SYMBOL		SAMPLE	DESCRIPTION OF SAMPLE	MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT
○		1	CYPRUS CRETACEOUS KAOLIN AT Wm. AFTER ONE PASSES OF RECYCLER	MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, NY 10017
□		2	CYPRUS CRETACEOUS KAOLIN AT Wm. AFTER TWO PASSES OF RECYCLER	
MADE BY: K&K DATE: 2-88 CHECKED BY: DATE:				FILE NO. 6524
GRADATION CURVES				PLATE NO. D-11

11-4 NO. 11

NOTES

1. Wn, VALUES ROUNDED TO NEAREST 1%
2. TOTAL NUMBER OF Wn VALUES IS 36.
3. Wn VALUES OBTAINED FROM CONDITIONING AREAS CD1, CD2, CD3 AND CD4. LIFTS 1.

MIXED WASTE MANAGEMENT

FACILITY CLOSURE

SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, NY 10017

MADE BY: R&R DATE: 11-87

CHKD BY: DATE: 6-2-4

Wn IN CONDITIONING

AREAS USED FOR PANEL D1

SYMBOL		SAMPLE	WATER CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	DESCRIPTION OF SAMPLE
91 D NO. 14	○	D1-S1-1	—	54	23	PURPLE & GRAY CLAYEY SILT, SM F-M SAND (ML)
	□	D1-S1-2	—	51	24	PURPLE & GRAY CLAYEY SILT, SM F-M SAND (ML)
	IDENTICAL GRADATION AS D1-S1-1	D1-S1-3	—	56	22	PURPLE & GRAY CLAYEY SILT, SM F-M SAND (ML)

UNIFIED SOILS CLASSIFICATION		CLAY OR SILT		FINE SAND		COARSE SAND		GRAVEL		COBBLES	

MIXED WASTE MANAGEMENT FACILITY CLOSURE		SAVANNAH RIVER PLANT	
MUESER RUTLEDGE CONSULTING ENGINEERS		708 THIRD AVENUE, NEW YORK, NY 10017	
MADE BY: RBR		DATE: 2-88	
CHKD BY:		DATE:	
FILE NO.		6524	
GRADATION CURVES		CYPRUS CRETACEOUS KAOOLIN	
PANEL D1		PLATE NO. D-16

MWMF CLOSURE, CLAY CAP TEST SECTION
SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS
 708 THIRD AVENUE, NEW YORK, NY 10017

MADE BY: RGR DATE: 11-87
 CHECKED BY: DATE: 11-87

FILE NO: 6524
 PLATE NO: D-17

MIXED WASTE MANAGEMENT

FACILITY CLOSURE

SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, NY 10017

DATE: 11-87

FILE NO. 6574

DATE: 11-87

PLATE NO. D-18

Wn IN CONDITIONING

AREAS USED FOR PANEL D2

PLATE NO. D-18

DESCRIPTION OF TESTS				MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE		MUESER RUTLEDGE CONSULTING ENGINEERS	
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/404		708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER WEIGHT (LBS.)	5 1/2	10	10		MADE BY: RBR	DATE: 12-84
HAMMER DROP (IN.)	12	18	—		CHKD BY:	DATE:
HAMMER BLOWS PER LAYER	25	25	TAMPS		COMPACTION DIAGRAM	
NUMBER OF LAYERS	3	5			TEST PANEL DZ: LIFT 1	
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,500			FILE NO.	6524
					PLATE NO.	D-19

DESCRIPTION OF TESTS				MIKED WASTE MANAGEMENT	
TEST METHOD	STANDARD PROCTOR	MODIFIED PROCTOR	HARVARD MINIATURE	FACILITY CLOSURE	
VOLUME OF CYLINDER (CU. FT.)	1/30	1/30	1/484	SAVANNAH RIVER PLANT	
HAMMER WEIGHT (LBS.)	5 1/2	10	LB. SPRING	MUESER RUTLEDGE CONSULTING ENGINEERS	
HAMMER DROP (IN.)	12	18		708 THIRD AVENUE, NEW YORK, N.Y. 10017	
HAMMER BLOWS PER LAYER	25	25	TAMPS	MADE BY: KBR	DATE: 12-87
NUMBER OF LAYERS	3	5		CH'D BY:	DATE:
COMPACTION ENERGY (FT. LBS. PER CU. FT.)	12,400	56,800		COMPACTION DIAGRAM	
				TEST PANEL D2; LIFT 3	
				FILE NO.	6524
				PLATE NO.	D-21

PLATE NO. D-22

MIXED WASTE MANAGEMENT FACILITY CLOSURE SAVANNAH RIVER PLANT		MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, NY 10017	
MADE BY: RER		DATE: 10-87	
CHKD BY:		DATE:	
FILE NO.		574	
GRADATION CURVES		DRAINAGE LAYERS D13D2	
PLATE NO. D-23			

SYMBOL	SAMPLE	WATER CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	DESCRIPTION OF SAMPLE
○	TEST PANEL D1	—	—	—	RED-BRN F-M SAND, TR SILT (SP-SM)
□	TEST PANEL D2	—	—	—	RED-BRN F-M SAND, TR SILT (SP-SM)

APPENDIX 4

Pittsburgh Testing Laboratory's
Infiltrometer Plots and Field Data Sheets

From start of Tests through February 15, 1988

Section 4A: Test Panels A1 & A2, Cyprus Tertiary Kaolin

Section 4B: Test Panels B1, B2 & B3 Dixie Tertiary Kaolin

Section 4C: Test Panels C1 & C2 Huber Tertiary Kaolin

Section 4D: Test Panels D1 & D2 Cyprus Cretaceous Kaolin

MRCE File 6524

APPENDIX 4

Appendix 4
Section 4A
Pittsburgh Testing Laboratory's
Infiltrometer Plots and Field Data Sheets
Test Panels A1 & A2, Cyprus Tertiary Kaolin

MRCE File 6524

Appendix 4
Section 4A
Pittsburgh Testing Laboratory's
Infiltrometer Plots and Field Data Sheets
Test Panels A1 & A2, Cyprus Tertiary Kaolin

MRCE File 6524

Post Panel A-1

Page 1 of 1

DATA FORM FOR SDRI TEST

I - Q/(At)

I - Infiltration (cm/sec)

Q - quantity of flow (ml)

t - interval of time (sec)

A - area of inner ring (cm²) 23226

Project: 2830-6643-3100

Inner ring info:

Outer ring info:

Liner thickness (cm):

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
10-22-87	1725			#1 3675	2774	901		71°F	2.0
10-25-87		0830*	230400	#2 3312	2609	1604	3.0 x 10 ⁻⁷	64°F	1.9
10-25-87	0900			#1 3637	2999	638			
10-27-87		0830	171000	#2 3534	2836	698			
10-27-87						1336	3.4 x 10 ⁻⁷	64°F	1.9
10-27-87	0900			#1 3461	3319	142			
10-28-87				#2 3691	3140	551			
10-28-87		0830	84600			693	3.5 x 10 ⁻⁷	64°F	2.0
10-28-87	0900			#1 5511					
10-30-87		1500	108000		2106	1405	5.6 x 10 ⁻⁷	62°F	2.0
10-30-87	1545			#1 3595	12824	771			
11-2-87		0845	234000	#2 3590	2682	908			
11-2-87						1679	3.1 x 10 ⁻⁷	62°F	2.0
11-2-87	0945			#1 3460	2938	522			
11-4-87		0915	171000	#2 3308	2680	628			
11-4-87						1150	2.9 x 10 ⁻⁷	64°F	1.9

* Standard Time

NOTES:

N 41-13" SE-13"

NE 1-8" SW-13"

West Parcel A1

DATA FORM FOR SDRI TEST

Project: 2830-G643-3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I - Q/(AL)

I - Infiltration (cm/sec)
 Q - quantity of flow (ml)
 t - Interval of time (sec)
 A - area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
11-4-87	1000			#1 3461 #2 3537	2874 2545	587 942			
11-7-87		1050	262300			1579	2.3×10^{-7}	62°F	2.0
11-7-87	1225			#1 3621 #2 3533	3074 2954	547 579			
11-9-87		1115	168600			1126	2.9×10^{-7}	62°F	1.9
11-9-87	1200			#1 3658 #2 3606	2038 2682	1620 934			
11-13-87		0925	336300			2544	3.3×10^{-7}	59°F	1.9
11-13-87	1015			#1 3521 #2 3321	3017 1825	504 1496			
11-16-87		1030	260100			2000	3.3×10^{-7}	59°F	1.9
11-16-87	1100			#1 3631 #2 3437	2565 1752	1066 1685			
11-20-87		1415	357300			2751	3.3×10^{-7}	59°F	2.4

Heavy Rain

NOTES:

Post Panel A-1

DATA FORM FOR SDRI TEST

Project: 2830-6643-3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

I - Q (ALL)

I = Infiltration (cm/sec)

Q = quantity of flow (ml)

t = Interval of time (sec)

A = area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q (ml)	I (cm/sec)	Temp. (C)	Water Depth (in)
11-20-87	1530			#1 3892 #2 3671	3057 3560	835 111			
11-23-87		1315	25100			946	1.6x10 ⁻⁷	57°F	2.4
11-23-87	1400			#1 3823 #2 3769	3082 3035	741 134			
11-25-87		1315	170700			7475	3.7x10 ⁻⁷	58°F	2.4
11-25-87	1530			#1 3854 #2 4127	2749 2286	1105 1841			
11-30-87		0930	410400			2946	3.1x10 ⁻⁷	58°F	2.9
11-30-87	1100			#1 3654 #2 3665	2321 2330	1333 1335			
12-4-87		1500	360000			2668	3.2x10 ⁻⁷	54°F	2.7
12-4-87	1600			#1 3626					
12-7-87		1400	252000		1508	2118	3.6x10 ⁻⁷	52°F	2.7
12-7-87	1600			#1 3673					
12-9-87		1100	154800		2366	1307	3.6x10 ⁻⁷	62°/54°F	2.0

Heavy Rain

1cc 404

FOR INFORMATION

NOTES:

Spec Panel A1

DATA FORM FOR SDRI TEST

Project: 2830-G643 3/00

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

$I = Q/(At)$

I = Infiltration (cm/sec)

Q = quantity of flow (ml)

t = interval of time (sec)

A = area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quon. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
12-10-87	1330	0930	324000	#1 3560	1346	2214	2.9×10^{-7}	63°/55°F	2.0
12-14-87	1100	1300	266400	#1 3670	1886	1784	2.9×10^{-7}	52°/53°F	2.1
12-17-87	1500	1130	246600	#1 3600	1666	1934	3.4×10^{-7}	60°/55°F	2.1
12-21-87	1500	0945	153900	#1 3709	2674	1035	2.9×10^{-7}	65°/55°F	2.4
12-23-87	1530	0930	496800	#1 3728	502	3226	2.8×10^{-7}	44°/54°F	2.5
12-29-87	1530	0900	149400	#1 3598	2537	1061	3.1×10^{-7}	38°/53°F	2.5/2.0
12-31-87	1500			#1 3600	1848	1752			
1-6-88		0930	498600	#2 3459	1833	1626	2.9×10^{-7}	34°/48°	2.0
						3378			

1/2 cc air

0 air

1/2 cc air

NOTES:

FOR INFORMATION ONLY

Test Piece A1

DATA FORM FOR SPRI TEST

Project: 2830 G143-3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

I - Q (ALL)

I - Infiltration (cm/sec)

Q - quantity of flow (ml)

t - Interval of time (sec)

A - area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C) <u>Ant</u>	Water Depth (in)
1-12-88	0900			#1 3644	2412	1232			
1-15-88		0930	261000	#2 3740	2805	935			
1-15-88	1330			#1 3631	3077	554			
1-18-88		0930	244800	#2 3725	2336	1389			
1-19-88	0930			#2 3644		1943			
1-22-88		0900	257400		1935	1708			
1-25-88	1430	0930	241200	#2 3633	2204	1229			
1-26-88	1100			#2 3596					
1-29-88		1030	257400		1916	1680			
1-29-88	1500			#2 3719					
2-1-88		0945	240300		2017	1702			
2-3-88	1100			#2 3754					
2-5-88		1100	172800		2885	869			

0.00

0.00

0.00

NOTES:

FOR INFORMATION ONLY

West Panel A1

TENSIONMETER READING - CENTIBARS

DATE	TIME	DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
10-22-87	1730	15	18	22		20	34	23		26	32	26	
10-23-87	0900	14	16	21		26	42	26		34	53	30	
10-23-87	1600	14	18	21		30	43	27		36	56	32	
10-25-87	0820*	8	12	12		23	36	22		35	50	26	
10-26-87	0900	7	12	12		23	34	18		33	48	26	
10-27-87	0820	6	10	10		20	31	18		33	44	25	
10-28-87	0820	4	10	9		19	28	17		32	42	25	
10-29-87	0840	4	10	7		18	26	15		30	40	24	
10-30-87	0840	2	10	7		17	14	13		30	38	24	
11-2-87	0845	0	10	4		15	19	10		27	33	24	
11-3-87	0850	0	10	4		14	19	10		26	32	23	
11-4-87	0915	0	10	4		14	19	10		26	30	24	
11-5-87	0825	0	10	4		14	18	10		24	30	23	
11-6-87	0835	0	10	4		12	16	10		24	28	20	
11-9-87	1120	0	10	3		12	13	8		24	25	19	
11-10-87	1135	0	10	2		12	13	8		22	24	19	
11-11-87	1315	0	10	2		12	13	8		22	22	19	
11-12-87	0930	0	10	2		12	12	7		22	20	19	
11-13-87	0920	0	9	2		12	12	6		22	19	19	
11-16-87	1030	0	10	2		12	8	6		20	17	19	
11-18-87	1145	0	5	2		9	7	6		19	16	19	
11-20-87	1415	0	5	2		9	7	6		19	14	19	
11-20-87	1315	0	5	2		9	7	6		19	11	19	
11-24-87	1300	0	5	2		9	7	6		19	11	19	
11-25-87	1315	0	5	2		9	7	4		19	11	19	
11-30-87	0930	0	5	2		8	7	4		17	10	19	
12-1-87	1000	0	5	2		8	7	4		18	10	19	
12-2-87	1000	0	5	2		8	7	3		18	9	19	
12-3-87	1030	0	5	2		8	4	3		18	7	19	
12-7-87	1400	0	1	0		6	4	3		15	5	14	

PROJECT: 2830-6643-3100
TENSIONMETER TYPE: Soil Moisture 2710

NOTES: * Standard Nine
Installed Pct. 1445 + 1530 10-22-87
Started filling pool at 1550

TENSIONMETER READING - CENTIBARS									
DEPTH - 6"				DEPTH - 12"				DEPTH - 18"	
DATE	TIME	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
12-9-87	1115	0	3	0		6	3	3	
12-11-87	1500	0	3	0		6	5	4	
12-14-87	0930	0	2	0		6	4	3	
12-16-87	1415	0	2	0		6	4	3	
12-17-87	1300	0	2	0		6	4	3	
12-18-87	1500	0	2	0		6	4	3	
12-21-87	1130	0	2	0		5	4	3	
12-23-87	0945	0	2	0		5	4	2	
12-29-87	0930	0	2	0		5	4	2	
12-31-87	0900	0	2	0		5	2	2	
1-4-88	0930	0	2	0		5	3	2	
1-6-88	0930	0	1	0		4	2	1	
1-11-88	0930	0	0	0		4	2	0	
1-13-88	1000	0	2	0		5	3	1	
1-15-88	0930	0	1	0		4	2	0	
1-18-88	0930	0	2	0		4	4	0	
1-22-88	0900	0	2	0		4	4	1	
1-25-88	0930	0	2	0		4	4	2	
1-27-88	1500	0	1	0		4	1	1	
1-29-88	1030	0	0	0		4	1	1	
2-1-88	0945	0	2	0		4	2	1	
2-3-88	1515	0	2	0		6	4	2	
2-5-88	1100	0	1	0		4	2	1	
2-8-88	0930	0	1	0		4	2	1	
2-10-88	1130	0	1	0		4	2	2	
2-15-88	0930	0	2	0		5	3	2	

FOR INFORMATION ONLY

NOTES:

PROJECT- 2830-6643-3100

TENSIONMETER TYPE: Soil Moisture 2710

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL A1

INFIL1A1

OCTOBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL A1

INFIL2A1

NOVEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL A1

INFIL3A1

DECEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL A1

INFIL4A1

JANUARY 1988

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL #1

FOR INFORMATION ONLY

FEBRUARY 1988

INFILSAT

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL A1 6 INCH DEPTH

FOR INFORMATION ONLY
 TMETR1A1

1987

PITTSBURGH TESTING LABORATORY TENSIO METER READINGS TEST PANEL A1 12 INCH DEPTH

1987

FOR INFORMATION METR2A1

PITTSBURGH TESTING LABORATORY TENSIOMETER READINGS TEST PANEL A1 18 INCH DEPTH

FOR INFORMATION ONLY
 METRISA₁

1987

Test Panel A2

DATA FORM FOR SDRI TEST

Project: 2830 G643 3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

I - Q/ALL

I - Infiltration (cm/sec)

Q - quantity of flow (ml)

t - Interval of time (sec)

A - area of inner ring (cm 2) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. A_1 (C) A_2 (C)	Water Depth (in)
12-2-87	1630			#1 3506 #2 3560	3480 3487	26 73		64°F	2.0
12-4-87		1530	169200			99	$.3 \times 10^{-7}$	54°F	2.0
12-4-87	1600			#1 3535 #2 3695	3347 3328	188 367			
12-7-87		1400	252000			555	$.9 \times 10^{-7}$	50°F	1.9
12-7-87	1600			#1 3545 #2 3722	3470 3454	75 268			
12-8-87		1500	82800			343	1.9×10^{-7}	48°F	1.8
12-9-87	1100			#1 3640 #2 3658	3300 3227	340 431			
12-14-87		0930	426600			771	7.8×10^{-8}	63°/50°F	1.8
12-14-87	1100			#1 3662					
12-17-87		1330	268200			362	5.8×10^{-8}	53°/44°F	1.8
12-18-87	1500			#1 3656					
12-23-87		1000	414000			901	9.4×10^{-8}	65°/52°F	2.1

38cc air

12cc air

4cc air

NE 12 1/4"
NW 13 1/2"
SW 13"

Installed 1630 12-2-87

FOR INFORMATION ONLY

Post Panel A2

DATA FORM FOR SDRI TEST

$$I = Q/(At)$$

Project: 2830-G643-3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

I = Infiltration (cm/sec)

Q = quantity of flow (ml)

t = interval of time (sec)

A = area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quant. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C) / (F)	Water Depth (in)
12-23-87	1530	0930	496800	#1 3688	2965	723	6.2×10^{-8}	44°/53°F	2.8
12-29-87									
12-29-87	1530	0900 ^{12:31}		#1 3707				38°/50°	2.0
1-11-88	1500 ^{12:31}	0945	1080400		2341	1366	5.4×10^{-8}	40°/41°	2.3
1-12-88	0900	0930	520200	#2 3737	2912	825	6.8×10^{-8}	49°/41°	2.4
1-18-88									
1-19-88	0930	0930	518400	#2 3977	3359	618	5.1×10^{-8}	43°/48°	2.9
1-25-88									
1-26-88	1100	1100	518400	#2 3833	2961	872	7.2×10^{-8}	73°/48°	2.0
2-1-88									
2-3-88	1100	1000	428400	#2 3765	3483	282	2.8×10^{-8}	41°/47°	2.3
2-8-88									
2-8-88	1430	0930	586800	#2 3799	3200	599	4.4×10^{-8}	55°/45°	2.2
2-15-88									

14 cc air
1 cc air

0 air

0 air

0 air

NOTES:

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL A2

INFIL162

DECEMBER 1987

FOR INFORMATION ONLY

Test Parcel A2

TENSIO METER READING - CENTIBARS													
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
DATE	TIME	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
12-2-87	1630	8	10	9		9	6	9		7	10	8	
12-3-87	1030	4	8	8		11	8	12		14	15	16	
12-7-87	1400	2	7	9		12	11	16		16	19	19	
12-9-87	1100	1	7	8		12	12	15		16	19	19	
12-11-87	1500	0	7	7		9	10	13		14	17	18	
12-14-87	0930	0	4	6		8	10	12		13	17	16	
12-16-87	1415	0	6	8		7	9	12		12	18	17	
12-18-87	1500	0	4	7		7	11	14		13	18	18	
12-21-87	1130	0	2	4		5	9	11		10	17	17	
12-23-87	1000	0	2	3		3	8	8		8	15	14	
12-29-87	0930	0	2	2		5	6	7		7	13	12	
12-31-87	0900	0	2	4		6	8	9		8	14	14	
1-4-88	0930	0	2	4		5	8	10		8	15	14	
1-6-88	0930	0	2	3		5	8	9		8	15	12	
1-11-88	0945	0	0	2		4	8	7		8	15	14	
1-13-88	1000	0	2	2		4	8	6		8	16	14	
1-15-88	0930	0	1	2		4	7	7		7	14	13	
1-18-88	0930	0	2	2		4	7	5		7	15	14	
1-22-88	0900	0	1	0		3	6	3		6	14	12	
1-25-88	0900	0	2	2		4	6	4		6	14	12	
1-29-88	1500	0	2	2		4	6	6		7	14	13	
1-29-88	1030	0	2	2		4	6	5		6	14	12	
2-1-88	1100	0	3	2		5	7	5		7	14	13	
2-3-88	1515	0	3	2		5	7	5		8	15	14	
2-5-88	1100	0	1	0		3	5	2		6	12	11	
2-8-88	1000	0	1	0		4	6	4		6	13	11	
2-10-88	1130	0	3	2		4	6	6		8	14	12	
2-15-88	0930	0	3	2		5	7	7		8	14	14	

NOTES: Installed bet. 1430 - 1500 12-2-87
 Port filled bet. 1515 & 1630 12-2-87

PROJECT: 2830-9643-3100
 TENSIO METER TYPE: Soil Moisture 2710

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL A2

FOR INFORMATION ONLY

JANUARY 1988

INFIL2A2

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL A2

FEBRUARY 1988

INFIL3A2

FOR THE OPERATOR ONLY

APPENDIX 4

SECTION 4B

Pittsburgh Testing Laboratory's
Infiltrrometer Plots and Field Data Sheets

Test Panels B1, B2 & B3, Dixie Tertiary Kaolin

MRCE File 6524

APPENDIX 4

SECTION 4B

Pittsburgh Testing Laboratory's
Infiltrometer Plots and Field Data Sheets

Test Panels B1, B2 & B3, Dixie Tertiary Kaolin

MRCE File 6524

DATA FORM FOR SDRI TEST

Project: 2830-6643-3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I - Q/A/L

I - Infiltration (cm/sec)
 Q - quantity of flow (ml)
 t - interval of time (sec)
 A - area of inner ring (cm²) 23226

Date	Initial Time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quant. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
10-15-87	1640			#1 3464 #2 3289	3103 3123	361 166 527	 4x10 ⁻⁷	 74°F	 2.9 +
10-16-87		0900	57720						
10-16-87	0930			#1 3103 #2 3123	2514 2517	589 606 1195	 3x10 ⁻⁷	 62°F	 2.9
10-18-87		1000	174600						
10-18-87	1000			#1 2514 #2 2517	1864 2399	650 118 768	 4x10 ⁻⁷	 62°F	 2.8
10-19-87		0930	84600						
10-19-87	1100			#1 3393 #2 3439	2155 1856	138 650 1583 118 821 768	 4.8x10 ⁻⁷	 61°F	 2.75
10-22-87	0900		1364 Inner Ring						
10-22-87	0930			3548	2051	1497			
10-23-87		1600	113400						
10-23-87									

NOTES: * NE 12.5
 SE 12.125
 SW 13.0
 NW 13.1

West Lane B1

DATA FORM FOR SDRI TEST

I - Q/(At)

I - Infiltration (cm/sec)

Q - quantity of flow (ml)

t - Interval of time (sec)

A - area of inner ring (cm²) 23226

Project: 2830- G643-3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

Date	Initial Time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
10-23-87	1600	0830	147600	3522	1640	1882	5.5x10 ⁻⁷	62°F	2.7
10-25-87									
10-25-87	0900			3424	1207	2217	5.6x10 ⁻⁷	63°F	2.8
10-27-87		0815	171900						
10-27-87	0900			3385	1099	2286	5.8x10 ⁻⁷	61°F	2.8
10-29-87		0830	171000						
10-29-87	0915			3646	2254	1392	5.6x10 ⁻⁷	63°F	2.8
10-30-87		1500	107100						
10-30-87	1530			#1 3499 #2 3611	2038 2530	1461 1081			
11-2-87		0830	234000			2542	4.7x10 ⁻⁷	63°F	2.8
11-2-87	0930			#1 3328 #2 3322	2171 2873	1157 449			
11-4-87		0900	171000			1606	4.0x10 ⁻⁷	64°F	2.8

* Standard Time

NOTES:

West Panel B1

DATA FORM FOR SDRI TEST

Project: 2830-G643 3100
 inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I - Q/(AL)

I - Infiltration (cm/sec)
 Q - quantity of flow (ml)
 t - interval of time (sec)
 A - area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quen. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
11-4-87	0945			#1 3594	1886	1708			
11-7-87		1045	262800	#2 3415	2876	544 2252	3.7 x 10 ⁻⁷	62°F	2.8
11-7-87	1215			#1 3551	2903	648			
11-9-87		1110	168900	#2 3485	2844	641 1289	3.3 x 10 ⁻⁷	62°F	2.7
11-9-87	1200			#1 3602	2155	1447			
11-13-87		0910	335400	#2 3527	2421	1106 2553	3.3 x 10 ⁻⁷	59°F	2.7
11-13-87	1015			#1 3479	2661	818			
11-16-87		1030	260100	#2 3485	2715	770 1588	2.6 x 10 ⁻⁷	59°F	2.7
11-16-87	1100			#1 3503	2511	992			
11-20-87		1400	356400	#2 3588	2670	918 1910	2.3 x 10 ⁻⁷	59°F	3.3

Heavy Rain

NOTES:

Test Panel B1

Page 4 of 4

DATA FORM FOR SDRI TEST

Project: 2830 G643 3100

inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

$$I = Q/A(t)$$

I = Infiltration (cm/sec)

Q = quantity of flow (ml)

t = Interval of time (sec)

A = area of inner ring (cm²) 23226

Date	Initial Time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C) <i>Temp. (F)</i>	Water Depth (in)
11-10-87	1530			#1 3672	2531	1141			
11-15-87		1315	423900	#2 3727	2641	1086	2.3x10 ⁻⁷	59°F	3.3
11-25-87	1530			#1 3776	2935	841			
11-30-87		0915	409500	#2 3747	2805	942	1.9x10 ⁻⁷	56°F	3.8
11-30-87	1100			#1 3555	2852	903			
12-4-87		1500	360000	#2 3540	2656	884	1.9x10 ⁻⁷	55°F	3.5
12-4-87	1600			#1 3410	2323	1087	1.9x10 ⁻⁷	53°F	3.5
12-7-87		1130	156600	#1 3466	2902	564	1.6x10 ⁻⁷	75°/54°F	3.0
12-7-87	1600			#1 3574	2488	1086	1.4x10 ⁻⁷	63°/55°F	3.0
12-10-87	1330								
12-14-87		0930	324000						

Heavy Rain

acc an

NOTES:

FOR INFORMATION ONLY

West Kane
131

DATA FORM FOR SDRI TEST

Project: 2830-G643-3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

$$I = Q/(At)$$

I = Infiltration (cm/sec)

Q = quantity of flow (ml)

t = Interval of time (sec)

A = area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q. of Flow (ml)	Infiltration (cm/sec)	Temp. (C/F)	Water Depth (in)
12-14-87	1100	1330	268200	#1 3593	2703	890	1.4×10^{-7}	53°/53°F	3.2
12-17-87									
12-18-87	1500			#1 3590					
12-23-87		1015	414900		2355	1235	1.3×10^{-7}	65°/54°F	3.4
12-23-87	1530 *			#1 3612					
12-31-87		0930	669600		1948	1664	1.1×10^{-7}	38°/52°F	3.5/3.0
12-31-87	1500			#1 3474					
1-6-88		0930	498600		1963	1511	1.3×10^{-7}	34°/48°	2.9
1-12-88	0900			#1 3644					
1-18-88		1000	522000		2181	1463	1.2×10^{-7}	44°/45°	3.2
1-19-88	0930			#2 3646					
1-25-88		1000	520200		2511	1135	9.4×10^{-8}	43°/48°	3.6
1-26-88	1130			#1 3716					
2-1-88		1130	518400		2210	1506	1.3×10^{-7}	42°/43°	3.0

NOTES: * Value in bag not turned on from 12-25 to 12-29

FOR INFORMATION ONLY

TENSIONMETER READING - CENTIBARS

DATE	TIME	DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
10-15-87	1500	34	38	37		20	32	32		24	38	32	
10-15-87	1645	46	51	48		26	42	40		27	43	40	
10-16-87	0920	45	58	48		30	52	51		35	52	53	
10-16-87	0930	Repair											
10-16-87	1530	42	51	44		30	52	54		36	56	55	
10-18-87	0930	27	33	30		28	45	48		34	54	56	
10-19-87	0930	22	27	26		26	42	45		32	52	53	
10-20-87	0950	19	22	21		22	38	42		30	50	52	
10-21-87	0930	16	18	18		20	35	38		30	48	52	
10-22-87	0830	10	12	15		16	30	34		27	42	44	
10-23-87	0900	8	10	14		15	29	32		26	41	42	
10-23-87	1600	9	12	14		15	30	32		26	40	42	
10-25-87	0830*	6	10	10		12	26	29		16	40	40	
10-26-87	0900	6	9	8		12	24	28		24	38	37	
10-27-87	0815	6	8	8		12	22	26		24	37	38	
10-28-87	0815	3	7	6		11	22	26		24	37	36	
10-29-87	0830	3	7	4		10	20	24		21	34	34	
10-30-87	0830	3	6	4		10	20	23		21	32	34	
11-2-87	0830	0	6	4		8	17	20		21	32	30	
11-3-87	0840	0	6	4		8	17	20		21	32	30	
11-4-87	0855	0	6	4		6	17	19		21	32	30	
11-5-87	0815	0	6	4		8	17	19		21	32	30	
11-6-87	0830	0	6	0		8	16	18		18	26	28	
11-9-87	1110	0	6	0		5	14	15		18	26	26	
11-10-87	1115	0	6	0		5	14	15		18	26	24	
11-12-87	0930	0	6	0		5	13	13		18	26	24	
11-13-87	0905	0	6	0		5	12	13		18	24	23	
11-16-87	1030	0	6	0		5	11	13		18	24	22	
11-18-87	1145	0	6	0		3	11	13		18	24	22	
11-20-87	1400	0	5	0		3	11	10		16	26	20	

NOTES: Installed between 1300 & 1400 10-15-87

* Standard Time

PROJECT: 1830-6643-3100

TENSIONMETER TYPE: Soil Moisture 2710

Test Panel B1

TENSIONMETER READING - CENTIBARS													
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
DATE	TIME	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
11-23-87	1415	0	6	0		3	9	9		16	24	20	
11-24-87	1300	0	6	0		3	9	9		16	24	18	
11-25-87	1315	0	6	0		3	9	9		16	24	18	
11-30-87	0915	0	6	0		2	9	10		16	24	18	
12-1-87	1000	0	6	0		2	9	10		16	24	18	
12-2-87	1000	0	6	0		2	9	9		16	24	18	
12-3-87	1030	0	6	0		2	9	9		16	24	18	
12-7-87	1230	0	0	0		2	6	7		16	17	16	
12-9-87	1330	0	3	0		0	5	8		15	17	16	
12-11-87	1500	0	2	0		0	8	9		15	18	16	
12-14-87	0930	0	0	0		0	6	6		14	17	15	
12-16-87	1430	0	0	0		0	6	7		14	17	15	
12-18-87	1500	0	0	0		0	6	6		14	17	14	
12-21-87	1130	0	0	0		0	6	6		14	17	15	
12-23-87	1015	0	0	0		0	5	6		13	16	14	
12-24-87	0930	0	0	0		0	6	5		12	16	13	
12-31-87	0930	0	0	0		0	4	5		10	15	13	
1-4-88	0930	0	0	0		0	4	4		10	16	13	
1-6-88	0930	0	0	0		0	4	4		10	15	12	
1-11-88	0945	0	0	0		0	3	4		10	14	12	
1-13-88	1000	0	0	0		0	3	4		10	15	12	
1-15-88	0930	0	0	0		0	2	3		9	14	11	
1-18-88	1000	0	0	0		0	4	4		10	15	12	
1-22-88	0900	0	0	0		0	4	4		10	15	12	
1-25-88	1000	0	0	0		0	4	4		12	15	12	
1-27-88	1500	0	0	0		0	4	4		10	14	12	
1-29-88	1030	0	0	0		0	2	3		9	14	12	
2-1-88	1130	0	0	0		0	4	4		10	14	12	
2-3-88	1530	0	2	0		0	6	6		12	16	14	
2-5-88	1100	0	0	0		0	4	4		10	14	12	
						NOTES:				FOR INFORMATION ONLY			
PROJECT:		2830 - G643 - 3100											
TENSIONMETER TYPE:		Soil Moisture 2710											

NOTES: FOR INFORMATION ONLY

PROJECT: 2830-6643-3100
TENSIONMETER TYPE: Soil Moisture 2710

[illegible]

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B1

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B1

INFIL2B1

NOVEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B1

INFIL3B1

DECEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B1

JANUARY 1988

INFIL4B1

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B1

READINGS $\times 10^{-7}$

FEBRUARY 1988

INFIL5B1

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY TENSIO METER READINGS TEST PANEL B1 6 INCH DEPTH

1987

FOR INFORMATION ONLY
 TMETR1B1

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL B1 6 INCH DEPTH

1987 - 1988

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL B1 12 INCH DEPTH

1987

FOR INFORMATION ONLY

TMETR2B1

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL B1 12 INCH DEPTH

1987 - 1988

FOR INFORMATION ONLY
 TMT2B1P2

PITTSBURGH TESTING LABORATORY TENSIO METER READINGS TEST PANEL B1 18 INCH DEPTH

1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL B1 18 INCH DEPTH

Test Panel B2

DATA FORM FOR SDRI TEST

Project: 2830-6643-3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I - Q/AU

I - Infiltration (cm/sec)
 Q - quantity of flow (ml)
 t - interval of time (sec)
 A - area of inner ring (cm²) 23226

Date	Initial Time (sec)	Final Time (sec)	t Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
10-28-87	1500			#1 3443 #2 3328	2915 2603	528 725 1253		67°F	2.0
10-30-87		1500	86400					64°F	2.0
10-30-87	1540			#1 3470 #2 3515	2546 2494	924 1021			
11-2-87		0840	234000			1945	3.6×10^{-7}	63°F	1.9
11-2-87	0940			#1 3516 #2 3378	2750 2530 2531	766 847			
11-4-87		0905	170700			1613	4.1×10^{-7}	65°F	1.9
11-4-87	0950			#1 3500 #2 3510	1926 2575	1574 915			
11-7-87		1030	261600			2489	4.1×10^{-7}	63°F	1.8
11-7-87	1220			#1 3604 # 3480	2867 2750	737 730			
11-9-87		1115	168900			1467	3.7×10^{-7}	63°F	1.8

NOTES:

Test Panel B.2

DATA FORM FOR SDRI TEST

I - Q/(At)

I - infiltration (cm/sec)
 Q - quantity of flow (ml)
 t - interval of time (sec)
 A - area of inner ring (cm²) 23326

Project: 2830-6643-3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
11-9-87	1200			#1 3464 #2 3633	2618 1528	846 2105 <u>2951</u>	<u>3.8x10⁻⁷</u>	59°F	1.8
11-13-87		0915	335100						
11-13-87	1015			#1 3702 #2 3663	3005 2562	697 1101 <u>1798</u>	<u>3.0x10⁻⁷</u>	59°F	1.8
11-16-87		1030	260100						
11-16-87	1100			#1 3741 #2 3792	2731 2687	1010 1105 <u>2115</u>	<u>2.6x10⁻⁷</u>	59°F	2.3
11-20-85		1405	356700						
11-20-85	1530			#1 3686 #2 3762	2825 2342	861 1420 <u>2281</u>	<u>2.6x10⁻⁷</u>	57°F	2.3
11-25-85		1315	423900						
11-25-87	1530			#1 4031 #2 3971	3115 2900	916 1071 <u>1987</u>	<u>2.1x10⁻⁷</u>	58°F	2.7
11-30-87		0920	409800						

Heavy Rain

Heavy Rain

NOTES:

West Panel B-2

DATA FORM FOR SDRI TEST					I - Q/(AI)				
Project: <u>2830 G643 3100</u> Inner ring info: _____ Outer ring info: _____ Liner thickness (cm): _____					I - Infiltration (cm/sec) Q - quantity of flow (ml) t - interval of time (sec) A - area of inner ring (cm ²) <u>23226</u>				
Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quant. of Flow (ml)	I Infiltration (cm/sec)	Temp. ^{Amb} (C) ^{Boil}	Water Depth (in)
11-30-87	1100			#1 3145	3120	625			
12-4-87		1500	360000	#2 3648	2712	936	1.9x10 ⁻⁷	53°F	1.6
12-4-87	1600			#2 3752					
12-7-87		1330	250100		2690	1062	1.8x10 ⁻⁷	52°F	2.5
12-7-87	1600			#2 3746					
12-9-87		1300	162000		3125	621	1.7x10 ⁻⁷	74°/54°F	2.0
12-10-87	1330			#2 3812					
12-14-87		0930	324000		2710	1102	1.5x10 ⁻⁷	63°/52°F	1.9
12-14-87	1100			#2 3687					
12-17-87		1400	270000		2822	865	1.4x10 ⁻⁷	53°/50°F	2.0
12-18-87	1500			#2 3600					
12-23-87		1030	415800		2339	1261	1.3x10 ⁻⁷	65°/54°F	2.3
12-23-87	1530			#2 3604					
12-29-87		0930	496800		2291	1313	1.1x10 ⁻⁷	44°/55°F	2.5

FOR INFORMATION ONLY

NOTES:

1 cc air

10 cc air

0 air

Test Panel
B2

DATA FORM FOR SDRI TEST

Project: 2830-G643-3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

I - Q/(AI)

I - Infiltration (cm/sec)

Q - quantity of flow (ml)

t - Interval of time (sec)

A = area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Amb. Temp. (C) ¹⁰⁰ F	Water Depth (in)
12-29-87	1530	0930	151200	#2 3689	3085	604	1.7x10 ⁻⁷	38°/52°F	2.5/2.0
12-31-87									
12-31-87	1500	0900	669600	#2 3590	1897	1693	1.1x10 ⁻⁷	30°/46°	2.0
1-8-88									
1-12-88	0900	1000	522000	#2 3787	2503	1284	1.1x10 ⁻⁷	49°/44°	2.1
1-18-88									
1-19-88	0930	1000	520200	#2 3840	2835	1005	8.3x10 ⁻⁸	43°/48°	2.6
1-25-88									
1-26-88	1130	1130	578400	#2 3834	2463	1371	1.1x10 ⁻⁷	72°/49°	2.0
2-1-88									
2-3-88	1100	1000	458400	#2 3807	3123	684	6.9x10 ⁻⁸	41°/46°	2.2
2-8-88									
2-8-88	1430	1000	588600	#2 3729	2558	1171	8.5x10 ⁻⁸	55°/44°	2.1
2-15-88									

19cc air

0 air

0 air

1cc air

0 air

NOTES:

FOR INFORMATION ONLY

Net Pave B2

Page 1 of 1

TENSIO METER READING - CENTIBARS													
DEPTH - 6"					DEPTH - 12"					DEPTH - 18"			
DATE	TIME	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
10-28-87	1200	26	30	34		4	28	31		22	31	30	
10-29-87	0845	20	22	22		4(*)	37	32		24	32	31	
10-30-87	0845	16	17	18		18	26	29		24	32	31	
11-2-87	0840	10	12	10		20	22	23		24	28	29	
11-3-87	0845	10	12	8		20	20	22		23	26	28	
11-4-87	0900	10	12	8		20	20	22		23	26	27	
11-5-87	0820	8	12	7		18	20	20		23	25	26	
11-6-87	0830	7	10	7		18	18	20		22	24	25	
11-9-87	1115	4	8	1		12	15	17		21	15	23	
11-10-87	1120	4	8	1		14	16	17		20	13	23	
11-11-87	1310	2	7	1		14	14	15		20	12	21	
11-12-87	0930	2	6	1		14	12	15		19	10	19	
11-13-87	0915	2	6	0		12	12	15		19	11	19	
11-16-87	1030	0	6	0		11	11	11		19	12	19	
11-18-87	1145	0	6	0		8	9	11		16	14	16	
11-20-87	1405	0	6	0		8	9	10		16	14	16	
11-23-87	1415	0	4	0		8	8	8		16	13	15	
11-24-87	1300	0	4	0		8	8	7		16	13	15	
11-25-87	1315	0	4	0		8	7	7		16	13	15	
11-30-87	0920	0	4	0		8	7	8		15	12	15	
12-1-87	1000	0	4	0		8	6	8		12	14	15	
12-2-87	1000	0	4	0		8	7	8		15	12	15	
12-3-87	1030	0	4	0		6	5	8		15	12	14	
12-7-87	1330	0	4	0		6	3	5		14	12	12	
12-9-87	1330	0	2	0		7	4	5		13	10	11	
12-11-87	1500	0	3	0		7	2	5		13	10	11	
12-14-87	0930	0	2	0		5	2	4		12	10	10	
12-16-87	1430	0	2	0		4	2	4		11	9	10	
12-18-87	1500	0	2	0		5	3	4		12	10	10	
12-21-87	1130	0	2	0		5	3	4		12	10	11	

PROJECT: 2830-6643-3100

TENSIO METER TYPE: Soil Moisture 2710

NOTES: Tensiometers installed Oct. 1530-1600 10-2787
 Poor field FOR INFORMATION ONLY
 (*) Applied

[illegible]

PROJECT: 2830-9643-3100

TENSIONMETER TYPE: Soil Moisture 2710

NOTES:

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B2

INFIL1B2

OCTOBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
REST PANEL B2

INFIL2B2

NOVEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B2

INFIL3B2

DECEMBER 1987

FOR INFORMATION ONLY.

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B2

FOR INFORMATION ONLY

JANUARY 1988

INFIL4B2

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B2

READINGS $\times 10^{-7}$

INFIL5B2

FEBRUARY 1988

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL B2 6 INCH DEPTH

LEGEND
 — GROUP 1
 --- GROUP 2
 — GROUP 3

1987

FOR INFORMATION ONLY ^{ER}1B2

PITTSBURGH TESTING LABORATORY TENSIOMETER READINGS TEST PANEL B2 12 INCH DEPTH

LEGEND

- GROUP 1
- GROUP 2
- GROUP 3

1987

TMETR2B2

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY TENSIO METER READINGS TEST PANEL B2 18 INCH DEPTH

Post Panel B3

DATA FORM FOR SDRI TEST					I - Q (ALL)				
Project: <u>2830- G643 3100</u> Inner ring info: _____ Outer ring info: _____ Liner thickness (cm): _____					I = Infiltration (cm/sec) Q = quantity of flow (ml) t = Interval of time (sec) A = area of inner ring (cm ²) <u>23226</u>				
Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quon. of Flow (ml)	I Infiltration (cm/sec)	Temp (C/F)	Water Depth (in)
1-12-88	1430			#1 4042	2475	1567		50°/39°	2.0
1-18-88		1000	502200	#2 3935	2236	1699	2.8x10 ⁻⁷	49°/44°	2.2
1-19-88	0930			#1 3738	2369	1369			
1-25-88		1000	570200	#2 3834	1979	1855			
1-26-88	1130			#1 3801		3224	2.7x10 ⁻⁷	43°/48°	2.6
1-29-88		1030	255600		2123	1678	2.8x10 ⁻⁷	53°/44°	2.0
1-29-88	1500			#1 3837	2239	1598	2.7x10 ⁻⁷	42°/50°	2.0
2-3-88	1100			#1 3857					
2-8-88		1130	433800		2145	1712	1.7x10 ⁻⁷	41°/48°	2.1
2-8-88	1430			#1 3780					
2-11-88		1430	259200		2703	1077	1.8x10 ⁻⁷	51°/49°	2.1

2000
1000

0000

0000

0000

NOTES:

FOR INFORMATION ONLY

Post Panel B3

Page 1 of 1

TENSIO METER READING - CENTIBARS												
DATE	TIME	DEPTH - 6"				DEPTH - 12"				DEPTH - 18"		
		GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3
12-31-87	1100	46	38	42		48	25	30		46	37	20
1-4-88	0930	4	1	18		28	18	23		32	28	24
1-6-88	0945	3	2	12		22	13	18		29	26	22
1-11-88	1030	0	0	0		15	8	13		24	22	20
1-12-88	1430	2	5	(14)		16	9	0		18	22	20
1-13-88	1000	2	4	16		14	8	0		15	22	20
1-15-88	0930	2	4	14		13	6	0		14	21	20
1-18-88	1000	2	5	15		13	7	0		13	22	20
1-22-88	0900	2	4	14		11	6	0		12	18	19
1-25-88	1000	1	4	14		10	4	0		11	17	18
1-27-88	1500	0	2	12		8	3	0		9	16	17
1-29-88	1030	0	2	12		8	2	0		8	16	17
2-1-88	1400	0	5	14		9	5	0		9	17	18
2-3-88	1030	0	5	14		9	5	0		10	17	18
2-5-88	1130	0	3	12		6	2	0		7	14	16
2-8-88	1115	0	2	12		5	2	0		6	14	15
2-10-88	1130	0	3	12		5	2	0		6	13	16
2-15-88	1015	0	3	11		5	2	0		7	13	16

PROJECT: 2830-6643-3100
TENSIO METER TYPE: Soil Moisture 2810

NOTES: Tensiometers set bet. 1500 & 1530 12-30-87
Dga not free until after installed - broke 2 tops
Read & then re-filled 12-31-87
FOR INFO

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B3

INFIL2B3

FEBRUARY 1988

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL B3

READINGS x 10⁻⁷

INFIL1B3

JANUARY 1988

FOR INFORMATION ONLY

APPENDIX 4

SECTION 4C

Pittsburgh Testing Laboratory's
Infiltrometer Plots and Field Data Sheets
Test Panels C1 & C2, Huber Tertiary Kaolin

MRCE File 6524

APPENDIX 4

SECTION 4C

Pittsburgh Testing Laboratory's
Infiltrometer Plots and Field Data Sheets
Test Panels C1 & C2, Huber Tertiary Kaolin

MRCE File 6524

Test Panel C-1

DATA FORM FOR SDRI TEST

Project: 2830-G643-3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I - Q/(At)

I - Infiltration (cm/sec)
 Q - quantity of flow (ml)
 t - interval of time (sec)
 A - area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
11-16-87	1730			#1 3524 #2 3235	2797 2756	127 499		130°F	8.0
11-18-87		0915	143100			1206	3.6×10^{-7}	65°F	8.7
11-18-87	0930			#1 3745 #2 3442	2488 2355	1257 1087			
11-20-87		1430	190800			2344	5.3×10^{-7}	64°F	8.7
11-20-87	1530			#1 3747 #2 3657	2093 2316	1854 1341			
11-23-87		1300	250200			3195	5.5×10^{-7}	59°F	8.6
11-23-87	1430			#1 3669 #2 3946	2748 2906	921 1040			
11-25-87		1345	170100			1961	5.0×10^{-7}	61°F	8.6
11-25-87	1545			#1 4053 #2 4142	2327 1675	1726 2467			
11-30-87		0940	410100			4193	4.4×10^{-7}	60°F	9.0

Heavy Rain

Heavy Rain

NOTES: N/E 13"
 NW 13.5"
 SW 13"
 SE 13.5"

Test Panel C1

DATA FORM FOR SPRI TEST

Project: 2830 G643 3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I - Q (All)

I - Infiltration (cm/sec)
 Q - quantity of flow (ml)
 t - interval of time (sec)
 A - area of inner ring (cm²) 23226

Date	Initial Time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C) <u>60</u>	Water Depth (in)
11-30-87	1100			#1 3550 #2 3635	2713 2722	837 913			
12-2-87		1030	171000			1750	4.4 x 10 ⁻⁷	54°F	9.0
12-2-87	1115			#1 3556 #2 3476	2588 2542	968 934			
12-4-87		1500	360000			1902	2.3 x 10 ⁻⁷	55°F	9.0
12-4-87	1600			#1 3595 #2 3502	2100 2428	1445 1074			
12-7-87		1130	243000			2569	4.6 x 10 ⁻⁷	53°F	9.0
12-9-87	1600			#1 3566 #2 3678	2884 2611	682 1067			
12-9-87		1330	163800			1749	4.6 x 10 ⁻⁷	74°/55°F	8.0
12-10-87	1330			#1 3676 #2 3624	1734 2298	1942 1326			
12-14-87		1000	325800			3268	4.3 x 10 ⁻⁷	63°/56°F	7.9

6 cc air

NOTES:

FOR INFORMATION ONLY

Test Panel
C1

Page 3 of 3

DATA FORM FOR SDRI TEST

Project: 2830 G643 3100
Inner ring info: _____
Outer ring info: _____
Liner thickness (cm): _____

I - Q/A/L

I = Infiltration (cm/sec)
Q = quantity of flow (ml)
t = Interval of time (sec)
A = area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp (C) <u>For</u>	Water Depth (in)
12-14-87	1100			#1 3648 #2 3632	1958 2502	1690 1130			
12-17-87		1400	370000			2820	4.5×10^{-7}	63°/52°F	8.0
12-18-87	1500			#1 3527 #2 3587	1960 2352	1567 1235			
12-21-87		1400	255600			2802	4.7×10^{-7}	60°/55°F	8.0
12-21-87	1500			#1 3536 #2 3714	2730 2968	806 746			
12-23-87		1045	157500			1552	4.2×10^{-7}	65°/54°F	8.2
12-23-87	1530			#1 3695 #2 3748	1494 1184	2201 2564			
12-29-87		1000	498600			4765	4.1×10^{-7}	44°/54°F	8.6
12-29-87	1530			#1 3619 #2 3648	2752 2915	867 733			
12-31-87		1000	153000			1600	4.5×10^{-7}	38°/51°F	8.6/8.0

FOR INFORMATION ONLY

NOTES:

1 cc air

0 air

0 air

Test Form C1

DATA FORM FOR SDRI TEST

Project: 2830 G643-3100

Inner ring info:

Outer ring info:

Liner thickness (cm):

I - Q/ALL

I = Infiltration (cm/sec)

Q = quantity of flow (ml)

t = Interval of time (sec)

A = area of inner ring (cm²) 23226

Date	Initial Time (sec)	Final Time (sec)	t Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
12-31-87	1500			#1 3599 #2 3672	2232 2274	1367 1398		<u>20/40</u>	
1-4-88		0930	325800			2765	3.7×10^{-7}	430/500	9.0
1-4-88	1030			#1 3482 #2 3539	2290 1980	1192 1559	?		
1-6-88		0900	167400			2751	7.1×10^{-7}	300/470	8.0
1-12-88	0900			#1 3738 #2 3683	2985 2488	753 1195			
1-15-88		1000	262800			1948	3.2×10^{-7}	300/420	8.0
1-15-88	1330			#1 3765 #2 3752	2925 2803	840 949			
1-18-88		1100	250200			1789	3.1×10^{-7}	490/440	8.2
1-19-88	0930			#1 3864					
1-22-88		0930	259200		2397	1467	2.4×10^{-7}	370/490	8.7
1-22-88	1430			#1 3589					
1-25-88		1000	243000		2199	1390	2.5×10^{-7}	430/470	8.8

0 air

0 air

NOTES:

FOR INFORMATION ONLY

West Lane C1

DATA FORM FOR SDR TEST

Project: 2830-5643-3100

inner ring info:

Outer ring info:

Liner thickness (cm) :-

L-Q(A)

I = infiltration (cm/sec)

Q - quantity of flow (ml)

t = interval of time (sec)

A - area of inner ring (cfr 2) 23226

[illegible]

NOTES:

REPORT

West Panel C-1

TENSIO METER READING - CENTIBARS													
DEPTH - 6"					DEPTH - 12"				DEPTH - 18"				
DATE	TIME	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
11-16-87	1720	53	58	41		58	54	44		36	(4)	22	
11-18-87	1400	Replaced all Tensiometers											
11-18-87	1400	44	54	37		68	70	53		74	50	57	
11-19-87	0845	38	50	32		68	70	52		79	55	59	
11-20-87	1430	34	41	28		60	66	48		79	56	55	
11-23-87	1300	20	27	19		49	43	39		70	50	47	
11-24-87	1300	19	22	19		46	49	35		66	48	45	
11-25-87	1345	18	20	17		46	48	34		63	45	43	
11-30-87	0946	12	14	14		42	36	28		51	32	35	
12-1-87	1015	12	14	12		32	34	25		48	31	33	
12-2-87	1015	8	12	12		28	32	24		47	29	33	
12-3-87	1030	8	12	10		29	30	24		45	28	30	
12-7-87	1130	5	8	8		23	23	20		38	20	26	
12-9-87	1400	5	9	8		21	19	18		36	16	23	
12-11-87	1500	5	8	8		20	17	17		34	14	24	
12-14-87	1000	4	7	6		18	11	16		30	(9)	20	
12-16-87	1430	3	6	6		16	8	14		28	6	20	
12-18-87	1500	2	6	4		16	7	14		26	4	18	
12-21-87	1400	2	7	6		14	7	14		25	0	18	
12-23-87	1045	2	6	6		13	6	12		23	0	16	
12-29-87	1000	2	5	4		10	4	10		18	0	13	
12-31-87	1000	0	5	3		9	4	9		17	0	11	
1-4-88	0930	0	4	3		8	4	8		15	0	10	
1-6-88	0930	0	4	1		7	2	7		13	0	10	
1-11-88	1000	0	6	0		6	2	6		12	0	7	
1-13-88	1000	0	4	1		6	3	6		11	0	7	
1-15-88	1000	0	3	0		4	2	4		10	0	5	
1-18-88	1100	0	4	2		6	4	6		11	0	6	
1-22-88	0930	0	4	1		5	4	6		10	0	4	
1-25-88	1000	0	3	1		5	4	5		10	0	5	

PROJECT: 2830-6643-3100

TENSIO METER TYPE: Soil Moisture 3710

NOTES: Installed at 3:30-4:00 PM 11-16-87
 18" in Group #2 not for calibration
 18" in Group #3 set at 17" *refilled*

[illegible]

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL C1

INFIL C1

NOVEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL C1

INFIL2C1

DECEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL C1

INFIL3C1

JANUARY 1988

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL C1

INFIL4C1

FEBRUARY 1988

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL C1 6 INCH DEPTH

1987 - 1988

PITTSBURGH TESTING LABORATORY TENSIO METER READINGS TEST PANEL C1 12 INCH DEPTH

FOR INFORMATION ONLY

1987 - 1988

TMETR2C1

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL C1 18 INCH DEPTH

1987 - 1988

FOR INFORMATION ONLY
TME3C1

Pest Panel C2

Page 1 of 1

DATA FORM FOR SDRI TEST					I - Q (ALL)				
Project: <u>2830 - G643 3100</u> Inner ring info: _____ Outer ring info: _____ Liner thickness (cm): _____					I = Infiltration (cm/sec) Q = quantity of flow (ml) t = Interval of time (sec) A = area of inner ring (cm ²) <u>23226</u>				
Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quen. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
11-23-87	0900			#1 3540 #2 3569	2906 3038	634 531		54°F	8.0
11-25-87		1400	190800			1165	2.6 x 10 ⁻⁷	58°F	8.0
11-25-87	1545			#1 4120 #2 4172	3338 3176	782 996			
11-30-87		0945	410400			1778	1.9 x 10 ⁻⁷	56°F	8.5
11-30-87	1100			#1 3500 #2 3575	2837 2870	663 705			
12-4-87		1500	360000			1368	1.6 x 10 ⁻⁷	53°F	8.5
12-4-87	1600			#1 3544 #2 3430	3115 2988	429 442			
12-7-87		1130	243000			871	1.5 x 10 ⁻⁷	47°F	8.4
12-7-87	1600			#1 3548 #2 3531	3307 3121	241 410			
12-9-87		1400	165600			651	1.7 x 10 ⁻⁷	74°/52°F	8.0

Heavy Rain

29cc air

FOR INFORMATION ONLY

Pore fluid Sat. 1330 # 1430 11-19-87

NOTES: NE 13"
SE 12 3/4"
SW 12 1/2"

Test Panel C2

DATA FORM FOR SDRI TEST					I - Q/(AΔt)				
Project: <u>2830- G643- 3100</u> Inner ring info: _____ Outer ring info: _____ Liner thickness (cm): _____					I = Infiltration (cm/sec) Q = quantity of flow (ml) t = interval of time (sec) A = area of inner ring (cm ²) <u>13226</u>				
Date	Initial Time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C) / (F)	Water Depth (in)
12-10-87	1330	1000	325800	#1 3840	2922	918	1.2 x 10 ⁻⁷	63°/53°F	7.9
12-14-87	1100	1430	271800	#1 3548	2845	703	1.1 x 10 ⁻⁷	63°/50°F	8.0
12-17-87	1500	1100	417600	#1 3379	2288	1111	1.1 x 10 ⁻⁷	65°/54°F	8.4
12-23-87	1530	1000	498600	#1 3615	2457	1158	1.0 x 10 ⁻⁷	44°/55°F	8.6
12-29-87	1530	1000	153000	#1 3630	3230	400	1.1 x 10 ⁻⁷	38°/52°F	8.6/8.2
1-11-88	1500	1000	889200	#1 3636	1728	1908	.9 x 10 ⁻⁷	40°/42°	8.5
1-12-88	0900	1100	525600	#1 3713	2550	1163	1.0 x 10 ⁻⁷	49°/45°	8.4

1 cc air
2 cc air
2 cc air
0 air
10 cc air

FOR INFORMATION ONLY

NOTES:

1-GRAD

Project: 2830-6643-3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I = infiltration (cm/sec)
 Q = quantity of flow (ml)
 t = interval of time (sec)
 A = area of inner ring (cm²)

[illegible]

SECTION

Test Panel C2

TENSIONMETER READING - CENTIBARS									
DATE	TIME	DEPTH - 6"				DEPTH - 12"			
		GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
11-19-87	1446	18	14	15		27	22	24	
11-23-87	0900	12	9	12		25	21	24	
11-24-87	1300	11	9	11		23	21	23	
11-25-87	1400	11	9	11		21	20	20	
11-30-87	0945	8	7	5		7	16	17	
12-1-87	1015	8	6	6		7	16	17	
12-2-87	1045	7	4	5		6	15	13	
12-3-87	1030	6	3	4		7	15	13	
12-7-87	1130	4	1	0		7	13	10	
12-9-87	1400	4	2	2		9	12	10	
12-11-87	1500	5	2	4		8	11	8	
12-14-87	1000	3	0	1		7	10	7	
12-16-87	1430	2	0	1		6	9	6	
12-18-87	1500	2	0	0		6	10	6	
12-21-87	1400	2	0	0		6	8	6	
12-23-87	1100	2	0	0		6	7	6	
12-24-87	1000	1	0	0		4	6	5	
12-31-87	1000	0	0	0		4	6	5	
1-4-88	0930	0	0	0		4	5	5	
1-6-88	0930	0	0	0		4	4	4	
1-11-88	1000	0	0	0		4	3	4	
1-13-88	1000	0	0	0		4	3	5	
1-15-88	1000	0	0	0		3	2	4	
1-18-88	1100	0	0	0		4	3	5	
1-22-88	0930	0	0	0		3	3	4	
1-25-88	1000	0	0	0		4	3	4	
1-27-88	1500	0	0	0		4	3	4	
1-29-88	1030	0	0	0		3	3	4	
2-1-88	1430	0	0	0		5	4	5	
2-3-88	1530	1	0	0		4	4	6	

PROJECT: 2830-9643-3100	NOTES: Installed bet. 1300 & 1330 11-19-87
TENSIONMETER TYPE: Soil Moisture 2710	FOR INFORMATION ONLY

Test Panel C2

[illegible]

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL C2

INFIL1C2

NOVEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL C2

INFIL2C2

DECEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL C2

READINGS $\times 10^{-7}$

JANUARY 1988

INFIL3C2

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL C2

READINGS $\times 10^{-7}$

FOR INFORMATION ONLY

FEBRUARY 1988

INFIL4C2

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL C2 6 INCH DEPTH

1987 - 1988

FOR INFORMATION ONLY
 TMETR1C2

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL C2 12 INCH DEPTH

1987 - 1988

FOR INFORMATION ONLY

TMETR2C2

PITTSBURGH TESTING LABORATORY TENSIO METER READINGS TEST PANEL C2 18 INCH DEPTH

FOR INFORMATION ONLY
 JUNE 1988

APPENDIX 4

SECTION 4D

Pittsburgh Testing Laboratory's
Infiltrometer Plots and Field Data Sheets

Test Panels D1 & D2, Cyprus Cretaceous Kaolin

APPENDIX 4

SECTION 4D

Pittsburgh Testing Laboratory's
Infiltrometer Plots and Field Data Sheets

Test Panels D1 & D2, Cyprus Cretaceous Kaolin

Post Panel D1

DATA FORM FOR SDRI TEST

Project: 2830-G643-3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I - Q/(AI)

I = Infiltration (cm/sec)
 Q = Quantity of flow (ml)
 t = Interval of time (sec)
 A = Area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quen. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
11-7-87	1300			#1 3578 #2 3579	<u>Pool drained</u>		11-8-87		
11-12-87	1645			#1 3522 #2 3637	2488 1341	1034 2296 3330		70°F	3.0
11-13-87		1515	81000				17.7x10 ⁻⁷	57°F	2.9
11-13-87	1530			#1 3617 #2 3704	1880 1780	1737 1924			
11-14-87		1545	87300			3661	18.1x10 ⁻⁷	52°F	2.85
11-14-87	1615			#1 3862 #2 3746	1261 770	2601 2976 5577			
11-16-87		0845	145800				16.5x10 ⁻⁷	57°F	2.8
11-16-87	0915			#1 3561 #2 3836	2826 1516	735 2320 3055			
11-17-87		0840	84900				15.5x10 ⁻⁷	58°F	2.8
11-17-87	0900			#1 3349 #2 3836	1691 2434	1658 1402			
11-18-87		0900	86400			3060	15.2x10 ⁻⁷	57°F	3.5

NOTES: 11-7 NW 12" 11-12 NW- 12 1/4"
 SW 13 3/4" SW- 13 1/4"
 SE 14" SE- 14 1/2"
 NE 13 3/4" NE 13 1/2"

Installed 11-7-87 Bet. 1300-1430
 Reinstalled 11-12-87 1645

Heavy Rain

4th Panel D1

DATA FORM FOR SDRI TEST

I = Q/(At)

I = Infiltration (cm/sec)

Q = quantity of flow (ml)

t = Interval of time (sec)

A = area of inner ring (cm²) 23226

Project: 2830-6643-3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

Date	Initial Time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
11-18-87	0930			#1 3690 #2 3482	2732 1694	958 1788			
11-19-87		0845	83700			2746	14.1x10 ⁻⁷	58°F	3.6
11-19-87	0930			#1 3578 #2 3674	2382 1516	1196 1516			
11-20-87		1420	105600			3354	13.7x10 ⁻⁷	57°F	3.5
11-23-87	0845			#1 3666 #2 3742	1539 2914	828227 242788			
11-24-87		1300	105300			2955	12.1x10 ⁻⁷	51°F	3.4
11-24-87	1400			#1 3531 #2 3760	2783 2083	148 1677			
11-25-87		1530	91800			2425	11.4x10 ⁻⁷	53°F	3.43.9
11-30-87	1100			#1 3535 #2 3605	2722 2455	813 1150			
12-1-87		1015	83700			1963	10.1x10 ⁻⁷	54°F	3.9

Heavy Rain

NOTES:

Test Panel D1

DATA FORM FOR SDRI TEST

Project: 2830-G643-3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

I - Q/(AI)

I = infiltration (cm/sec)

Q = quantity of flow (ml)

t = interval of time (sec)

A = area of inner ring (cm²) 23326

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C) ¹⁰⁰ F	Water Depth (in)
12-1-87	1045			#1 3513 #2 3685	2645 2545	868 1140			
12-2-87		1045	86400			2008	10.0 x 10 ⁻⁷	52°F	3.7
12-2-87	1115			#1 3599 #2 3671	1866 1671	1733 2000			
12-4-87		0830	162900			3733	9.9 x 10 ⁻⁷	49°F	3.8
12-4-87	0900			#1 3634 #2 3746	2015 1369	1619 2377			
12-6-87		1130	181800			3996	9.5 x 10 ⁻⁷	49°F	3.8
12-6-87	1230			#1 3618 #2 3685	3005 2531	613 1154			
12-7-87		1130	82800			1767	9.2 x 10 ⁻⁷	48°F	3.8
12-7-87	1600			#1 3628 #2 3577	2254 1840	1374 1737			
12-9-87		0930	149400			3111	9.0 x 10 ⁻⁷	70/50°F	3.7/3.0

0 air

FOR INFORMATION ONLY

NOTES:

West Keweenaw
D.

DATA FORM FOR SPRI IFCI

Project: 2830 G643 3100
 inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

1-2-2-2

i = infiltration (cm/sec)
 Q = quantity of flow (ml)
 t = interval of time (sec)
 A = area of inner ring (cm²) 23226

Date	Initial Time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	i Infiltration (cm/sec)	Temp. (C) (F)	Water Depth (in)
12-10-87	1330			#1 3702 #2 3680	2886 2855	816 825			
12-11-87		1330	86400			1641	8.2×10^{-7}	58°/53°F	3.0
12-14-87	1130			#1 3535 #2 3670	2049 1862	1486 1808			
12-16-87		1430	183600			3294	7.7×10^{-7}	45°/50°F	3.2
12-16-87	1500			#1 3600 #2 3632	2808 2886	792 746			
12-17-87		1430	84600			1538	7.8×10^{-7}	63°/48°F	3.1
12-18-87	1500			#1 3597 #2 3658	1870 1259	1727 2399			
12-21-87		0930	239400			4126	7.4×10^{-7}	60°/52°F	3.1
12-21-87	1500			#1 3500 #2 3848	2046 2727	1454 1121			
12-23-87		1115	159300			3575	7.0×10^{-7}	65°/52°F	3.4

0 air

0 air

DATE INDIAN 12/23/87

NOTES:

4th Panel

D1

DATA FORM FOR SDRI TEST

Project: 2830-6643 3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I - Q (ALL)

i = Infiltration (cm/sec)
 Q = quantity of flow (ml)
 t = Interval of time (sec)
 A = area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	i Infiltration (cm/sec)	Temp (C) / (F)	Water Depth (in)
12-24-87	1515			#1 3565 #2 3472	2212 2405	1353 1067			
12-31-87		1030	155700			2420	6.7 x 10 ⁻⁷	38°/100°F	3.6/3.0
12-31-87	1500			#1 3624 #2 3800	1410 1172	2219 2628			
1-4-88		0930	325800			4847	6.4 x 10 ⁻⁷	250°/480°F	4.0/3.0
1-4-88	1030			#1 3557 #2 3610	1382 1151	2175 2459			
1-6-88		0900	167400			4634	11.9 x 10 ⁻⁷	340°/420°F	3.0
1-12-88	0900			#1 3776 #2 3762	2328 1795	1448 1967			
1-15-88		1000	262800			3415	5.6 x 10 ⁻⁷	300°/400°F	2.9
1-15-88	1330			#1 3683 #2 3848	1961 2322	1722 1526			
1-18-88		1130	252000			3248	5.5 x 10 ⁻⁷	400°/430°F	3.0

CAVE

NO air

NOTES:

Next Page D1

DATA FORM FOR SDRI TEST					I - Q (ALL)				
Project: <u>2830-6643-3100</u> inner ring info: _____ Outer ring info: _____ Liner thickness (cm): _____					I - Infiltration (cm/sec) Q - quantity of flow (ml) t - Interval of time (sec) A - area of inner ring (cm ²) <u>23226</u>				
Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C) <u>over</u>	Water Depth (in)
1-19-88	0930			#1 3711	2595	1116			
1-22-88		0930	259200	#2 3755	1548	3323	5.5×10^{-7}	370/410	3.6
1-22-88	1430			#1 3707	1941	1766			
				#2 3672	2460	1212			
1-25-88		1030	244800			2978	5.2×10^{-7}	430/450	3.7
1-26-88	1000			#1 3768	2371	1397			
				#2 3806	1790	2016			
1-29-88		1100	262800			3413	5.6×10^{-7}	520/400	2.5
1-29-88	1500			#1 3837	2413	1424			
				#2 3891	2004	1887			
2-1-88		1500	259200			3311	5.5×10^{-7}	720/480	2.5
2-3-88	1100			#1 3836	2928	908			
				#2 3978	2766	1212			
2-5-88		1130	174600			2120	5.2×10^{-7}	520/510	3.7

FOR RECORD ONLY

NOTES:

L-GAL

Inner tag info: _____

Out ring info: _____

Liner thickness (cm): _____

 i = infiltration (cm/sec)

Q - quantity of flow (ml)

t - interval of time (sec)

A = area of inner ring (cm²) 23226

[illegible]

5310M

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PART I
1901

Next Page D-1

TENSIO METER READING - CENTIBARS													
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
DATE	TIME	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
11-7-87	1300	40	35	34		67	60	59		62	77	68	
11-12-87	1645	33	28	26		42	38	39		49	53	43	
11-13-87	1530	23	18	18		38	34	34		36	47	40	
11-14-87	1615	18	16	18		36	32	33		34	46	38	
11-16-87	0915	16	14	14		31	28	28		30	40	33	
11-17-87	0840	15	14	14		30	27	27		30	38	33	
11-18-87	0900	14	12	12		28	24	25		26	36	29	
11-19-87	0840	12	12	12		26	23	24		24	34	28	
11-20-87	1430	12	9	12		25	21	22		24	30	26	
11-23-87	0845	7	8	9		19	18	19		18	26	20	
11-24-87	1300	7	7	9		19	17	20		18	26	20	
11-25-87	1400	7	7	9		19	17	20		15	25	20	
11-30-87	1100	7	7	10		16	15	20		12	22	18	
12-1-87	1010	7	6	6		16	14	13		12	22	14	
12-2-87	1045	5	6	6		13	14	13		10	18	14	
12-3-87	1030	5	5	6		13	14	13		10	18	12	
12-7-87	1130	2	4	4		11	10	9		6	15	9	
12-9-87	0930	2	4	4		11	10	10		5	16	9	
12-11-87	1330	3	5	4		10	10	10		5	14	8	
12-14-87	1130	2	4	2		10	10	8		4	14	7	
12-16-87	1430	2	2	2		10	10	7		2	11	5	
12-18-87	1500	0	2	2		8	8	6		2	12	4	
12-21-87	0930	2	3	3		8	8	6		2	11	5	
12-23-87	1115	1	2	2		7	7	5		1	10	4	
12-24-87	1515	0	2	2		6	6	5		0	9	3	
12-31-87	1030	0	1	0		5	5	3		0	8	2	
1-4-88	0930	0	1	1		5	5	4		0	9	2	
1-6-88	0945	0	0	0		4	4	3		0	8	2	
1-11-88	0930	0	0	1		3	3	2		0	6	0	
1-13-88	1000	0	0	0		4	4	3		0	7	1	

PROJECT: 2830-G643-3100

TENSIO METER TYPE: Soil Moisture 2710

NOTES: Installed 1st 1500-1530 11-5-87

Pool filled 1st 1300-1500 11-6-87

Pensometers repaired 11-24-87

[illegible]

PROJECT: 2830-9643-3100
TENSIONMETER TYPE: Soil Moisture 2710

NOTES:

 

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL D1

INFILID1

NOVEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL D1

INFIL2D1

DECEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL D1

READINGS $\times 10^{-7}$

INFIL3D1

JANUARY 1988

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL D1

READINGS $\times 10^{-7}$

FEBRUARY 1968

INFIL4D1

203
INFIL4D1
FEBRUARY 1968

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL D1 6 INCH DEPTH

1987 - 1988

FOR INFORMATION ONLY
 TMETR1D1

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL D1 12 INCH DEPTH

1987 - 1988

FOR INFORMATION ONLY
 TMEIR2D1

PITTSBURGH TESTING LABORATORY TENSIONMETER READINGS TEST PANEL D1 18 INCH DEPTH

LEGEND
 — GROUP 1
 - - - GROUP 2
 . . . GROUP 3

1987 - 1988

West Panel D2

DATA FORM FOR SDRI TEST

Project: 2830-6643-3100
 Inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I - Q/(ALL)

I - infiltration (cm/sec)
 Q - quantity of flow (ml)
 t - interval of time (sec)
 A - area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	t Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C) <u>for</u>	Water Depth (in)
12-3-87	1630			#1 3533 #2 3661	1151 789	2382 2872		65°F	2.0
12-4-87		0830	57600			5254	39.3x10 ⁻⁷	52°F	1.9
12-4-87	0900			#1 3713 #2 3717	2878 2830	845 887			
12-4-87		1500	21600			1782	35.5x10 ⁻⁷	52°F	1.9
12-6-87	1230			#1 3536 #2 3682	1547 1149	1989 2533			
12-7-87		0900	73800			4522	26.4x10 ⁻⁷	48°F	1.7
12-7-87	1100			#1 3602 #2 3578	1387 1217	2215 2361			
12-8-87		0830	77400			4576	25.5x10 ⁻⁷	48°F	1.6
12-8-87	0930			#1 3578 #2 3580	1246 878	2332 2702			
12-9-87		0930	86400			5034	25.1x10 ⁻⁷	70°/50°F	1.6

5cc air

12-3-87

1515 & 1615

NOTES: Pool filled bet. 1515 & 1615
 SE 12 1/2"

FOR INFORMATION ONLY

West Point
D2

DATA FORM FOR SDRI TEST

Project: 2830 G643-3100
Inner ring info: _____
Outer ring info: _____
Liner thickness (cm): _____

I - Q (ALL)

I = Infiltration (cm/sec)
Q = quantity of flow (ml)
t = interval of time (sec)
A = area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp (°C/°F)	Water Depth (in)
12-10-87	1330			#1 3767 #2 3787	1771 1337	1996 3450 4446	22.2 x 10 ⁻⁷	58°/55°F	1.6
12-11-87		1330	86400						
12-14-87	1130			#1 3682 #2 3596	1693 1676	1989 1920			
12-15-87		0930	79200			3909	21.3 x 10 ⁻⁷	64°/58°F	1.4
12-16-87	1500			#1 3560 #2 3609	2004 1348	1556 2261 3817			
12-17-87		1500	86400				19.0 x 10 ⁻⁷	53°/48°F	1.4
12-17-87	1530			#1 3574 #2 3575	1578 1854	1996 1661			
12-18-87		1530	86400			3657	18.2 x 10 ⁻⁷	55°/48°F	1.4
12-21-87	1500			#1 3600 #2 3500	1965 1952	1635 1548			
12-22-87		1400	82800			3183	16.6 x 10 ⁻⁷	70°/54°F	1.6

2 cc air

NOTES:

FOR INFORMATION ONLY

West Rand Dr

DATA FORM FOR SDRI TEST

Project: 2830 9643 3100

Inner ring info: _____

Outer ring info: _____

Liner thickness (cm): _____

I - Q/(At)

I = Infiltration (cm/sec)

Q = quantity of flow (ml)

t = interval of time (sec)

A = area of inner ring (cm²) 23226

Date	Initial time (sec)	Final Time (sec)	Interval of Time (sec)	Initial Wt. of Bag (grams)	Final Wt. of Bag (grams)	Q Quan. of Flow (ml)	I Infiltration (cm/sec)	Temp. (C)	Water Depth (in)
1-19-88	0930			#1 3664 #2 3821	877 746	2781 3075			
1-22-88		0930	259200			5862	9.7×10^{-7}	370/50°	3.0
1-22-88	1430			#1 3845 #2 3890	1418 1016	2427 2894			
1-25-88		1030	244800			5301	2.3×10^{-7}	430/48°	3.0
1-26-88	0900			#1 3725 #2 3852	1134 928	2591 2924			
1-29-88		1100	260400			5515	8.9×10^{-7}	530/44°	2.0
1-29-88	1500			#1 3948 #2 3863	1231 1307	2717 2556			
2-1-88		1500	259200			5273	8.8×10^{-7}	420/50°	2.0
2-3-88	1100			#1 3850 #2 3853	2443 1937	1407 1916			
2-5-88		1130	174600			3323	8.2×10^{-7}	520/53°	2.3

NOTES:

2830 9643 3100

0.00

L-GLU

Project: 2830 9643-3100
 inner ring info: _____
 Outer ring info: _____
 Liner thickness (cm): _____

I = infiltration (cm/sec)
 Q = quantity of flow (ml)
 t = interval of time (sec)
 A = area of inner ring (cm²)

A - area of inner ring (cm²) 13226

[illegible]

SECTION:

0 all

Next Panel D2

Page 1 of 1

TENSIO METER READING - CENTIBARS													
DEPTH - 6"					DEPTH - 12"				DEPTH - 18"				
DATE	TIME	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.	GROUP 1	GROUP 2	GROUP 3	AVG.
12-4-87	0900	Refilled due											
12-6-87	1230	42	39	40		(X)	(X)	(X)		(X)	(X)	(X)	
12-7-87	1100	35	29	36		(X)	(X)	(X)		(X)	(X)	(X)	
12-8-87	0930	30	25	33		81	(X)	68		(X)	(X)	(X)	
12-9-87	0430	27	20	28		73	(6)	62		(100)	80	34	
12-11-87	1330	22	18	26		58	1	53		46	66	78	
12-14-87	1130	17	12	18		45	0	40		77	48	10	
12-16-87	1500	13	8	13		36	(4)	31		(66)	38	(50)	
12-17-87	1445	12	8	12		34	0	30		62	34	50	
12-18-87	1530	11	8	12		31	0	28		58	31	47	
12-21-87	1500	10	7	11		27	0	24		50	26	42	
12-23-87	1130	9	6	9		22	0	22		46	21	37	
12-24-87	1515	7	4	8		18	0	17		36	14	28	
12-31-87	1030	5	4	6		16	0	15		33	11	25	
1-4-88	1030	4	2	5		13	0	13		30	9	22	
1-6-88	0945	3	2	4		11	0	11		28	7	20	
1-11-88	1030	2	0	3		10	0	10		25	1	18	
1-13-88	1000	2	2	4		9	0	10		24	6	17	
1-15-88	1000	1	0	2		8	0	9		23	4	16	
1-18-88	1130	2	2	4		8	0	10		24	5	16	
1-22-88	0930	2	2	3		7	0	9		22	3	15	
1-25-88	1030	2	2	4		7	0	9		21	4	15	
1-27-88	1500	1	0	2		6	0	8		20	2	14	
1-29-88	1100	0	0	2		5	0	7		20	2	12	
2-1-88	1500	4	3	5		8	1	10		22	4	15	
2-3-88	1530	2	3	5		8	0	10		22	4	14	
2-5-88	1130	1	0	1		6	0	6		20	1	11	
2-8-88	1030	0	0	2		4	0	6		18	0	10	
2-10-88	1145	1	1	3		6	0	7		19	2	11	
2-15-88	1100	2	2	3		6	0	7		19	2	11	

PROJECT: 2830-6643-3100

TENSIO METER TYPE: Soil Moisture 2710

NOTES: Installed 1st 1430, 1500 12-3-87
 18" Group I Set at 17"
 18" Group II Set at 15 1/2"
 0 Rejected

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL D2

INFIL1D2

DECEMBER 1987

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL D2

JANUARY 1988

INFIL2D2

FOR INFORMATION ONLY

PITTSBURGH TESTING LABORATORY
INFILTRATION READINGS
TEST PANEL D2

READINGS $\times 10^{-7}$

INFIL3D2

FEBRUARY 1968

FOR INFORMATION ONLY

APPENDIX 5

- MRCE Calculations for Determining Number of
Passes of Water Truck to Adjust Field Water Contents
- MRCE Production Estimate for Conditioning Dixie Tertiary Kaolin
- MRCE Cost Estimate for Compaction of Dixie Tertiary Kaolin

MRCE File 6524

APPENDIX 5

APPENDIX 5

- MRCE Calculations for Determining Number of
Passes of Water Truck to Adjust Field Water Contents
- MRCE Production Estimate for Conditioning Dixie Tertiary Kaolin
- MRCE Cost Estimate for Compaction of Dixie Tertiary Kaolin

MRCE File 6524

APPENDIX 5

SUBJECT Determining No. of Passes of Water Trucks to Adjust Field W.C.

Dixie Clay: Test Panel B3

Average Wn% for Latest Truck Samples

Excluding two very low values likely obtained on dried out clay and one very high value:

$$\text{Avg Wn\%} = 24.3\%$$

Target Water Content

Based upon 10 Proctors completed to date on Dixie clay:

$$\text{Target Wn\%} = 28-29\%$$

Drying Losses

Assume no water lost to drying.

Amount of Water Required for 1% Water Content Increase

1) Assume $\gamma_r = 95 \text{ pcf}$

$$0.243 = \frac{W_w}{95 - W_w}$$

$$23.1 = 1.243 W_w$$

$$W_w = 18.6 \text{ lbs}$$

$$\text{For 1\% increase: } \Delta W_w = \frac{18.6}{24.3} = 0.76 \text{ lbs}$$

Height of water required for 1% increase

$$H_{req} = \frac{0.76}{62.4} = 0.0122 \text{ ft}$$

2) Assume $\gamma_r = 90 \text{ pcf}$

$$0.243 = \frac{W_w}{90 - W_w}$$

$$21.9 = 1.243 W_w$$

$$W_w = 17.6$$

$$\text{For 1\% increase: } \Delta W_w = \frac{17.6}{24.3} = 0.72 \text{ lbs}$$

$$H_{req} = \frac{0.72}{62.4} = 0.0117 \text{ ft}$$

FORM 3

FOR MWMF Closure

SUBJECT

Characteristics of Water Truck

Width of Spray Bar = 8'

Number of holes in spray bar = 45

Flow from 4 holes measured at $\frac{3 \text{ gallons}}{7 \text{ seconds}} = 0.43 \text{ gpr}$ Total Flow Rate = $(0.43) \left(\frac{45 \text{ holes}}{4 \text{ holes}} \right) = 4.8 \text{ gpr} \approx 5 \text{ gpr} = 0.67 \frac{\text{ft}^3}{\text{sec}}$

Area of clay covered by water spray in 1 second depends on speed of truck which depends on gear.

2nd Gear Speed = $200' / 37 \text{ sec} = 5.4 \text{ fps}$ 3rd Gear Speed = $200' / 23 \text{ sec} = 8.7 \text{ fps}$ 2nd Gear

Area of clay covered by water spray in 1 second:

$$A = (8)(5.4) = 43 \text{ ft}^2/\text{sec}$$

Assuming height of water is uniform over entire area sprayed:

$$H = \frac{0.67 \text{ ft}^3/\text{sec}}{43 \text{ ft}^2/\text{sec}} = 0.0156 \text{ ft}$$

3rd Gear

Area of clay covered by water spray in 1 second:

$$A = (8)(8.7) = 69.6 \text{ ft}^2/\text{sec}$$

Assuming height of water is uniform over entire area sprayed:

$$H = \frac{0.67}{69.6} = 0.0096 \text{ ft}$$

FORM 3

FOR MWMP Closure

SUBJECT

Water Truck2nd gearIn 1 second: $H = 0.0156 \text{ ft}$ 3rd gearIn 1 second: $H = 0.0096 \text{ ft}$ Number of Passes Required for 1% Increase, 12" lift1) 2nd geara) For $\gamma_T = 95 \text{ pcf}$

$$N = \frac{H_{req}}{H} = \frac{0.0122}{0.0156} = 0.78$$

b) For $\gamma_T = 90 \text{ pcf}$

$$N = \frac{0.0117}{0.0156} = 0.75$$

2) 3rd geara) For $\gamma_T = 95 \text{ pcf}$

$$N = \frac{H_{req}}{H} = \frac{0.0122}{0.0096} = 1.27$$

b) For $\gamma_T = 90 \text{ pcf}$

$$N = \frac{0.0117}{0.0096} = 1.22$$

Lift Height to be conditioned = 8"

Therefore multiply above number of passes by $8/12 = 0.67$ 1) 2nd gear

a) $N = (0.78)(0.67) = 0.52$

b) $N = (0.75)(0.67) = 0.50$

} Avg = 0.51

2) 3rd gear

a) $N = (0.67)(1.27) = 0.85$

b) $N = (0.67)(1.22) = 0.82$

} Avg = 0.84

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET NO. 4 OF 4

FILE 6524

MADE BY RBR DATE 11-24-87

CHECKED BY DATE

FORM 3

FOR MWME Closure

SUBJECT

1) 2nd Gear

Each pass increases $W_n\%$ by $\frac{1}{0.57} = 2\%$

2) 3rd Gear

Each pass increases $W_n\%$ by $\frac{1}{0.84} = 1.2\%$

Procedures to Reach Target $W_n\% = 28-29\%$

Initial $W_n\% = 24.3\%$

1) 1 pass in 2nd, 2 passes in 3rd

$$24.3 + 2 + (2)(1.2) = 28.7\%$$

2) 2 passes in 2nd, 1 pass in 3rd

$$24.3 + 2(2) + 1.2 = 29.5\%$$

3) 2 passes in 2nd

$$24.3 + (2)(2) = 28.3\%$$

4) 4 passes in 3rd

$$24.3 + (4)(1.2) = 29.1\%$$

Procedure to Use

1 Pass in 2nd Gear

2 Passes in 3rd Gear

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET No. Summary Of

FILE 6524

MADE BY RBA DATE 12-5-87

CHECKED BY _____ DATE _____

FORM 3

FOR MWMF Closure

SUBJECT Production Estimate for Conditioning Dixie Kaolin

Summary of Estimated Production Rates Based on Panel B3

Clay Vendor	Average Final Water Content %	Production Rates In Cubic Yards Per 8 Hour Day		
		One Recycler	Two Recyclers	Three Recyclers
Dixie	28	630	1260	1890
	29	520	1040	1560
	29.6 (Panel B3)	485	970	1455
	30	445	890	1335
	31	385	770	1155

Notes

1. Estimator based on data determined for Panel B3.
2. Panel B3 was constructed with lifts at average final water contents of 28.1%, 28.7%, 30.5% and 31.0%.

SUBJECT Production Rate for Dixie Clay Based on Panel B3

General Construction Procedure for Panel B3

1. Stockpiled raw clay by pushing truck deliveries into pile.
2. Transported raw clay with pan to panel area and placed a 9" loose lift over sand pad using grader.
3. Broke down raw clay in place with one pass of recycler.
4. Added water with water truck and recycled clay to condition clay to target water content range (28% - 31%).
5. Compacted conditioned clay with 12 pass of CAT8WB.
6. Graded top of compacted surface level and placed next lift of raw clay on top of it to a height of 6" to 7".
7. Recycled raw clay and about 2" of conditioned clay from previous lift to break down new lift for water application.
8. Repeated steps 4, 5, 6 and 7 until four lifts had been completed.
9. Sealed surface with vibratory smooth drum roller.

In Place Volume of Compacted Clay in Panel B3

Average dimensions of completed panel B3 measured 110' in length, 45' in width and 2.2' in height.

$$\text{Volume} = 110 \times 45 \times 2.2 = 10890 \text{ ft}^3$$

$$\text{Volume} = \frac{10890}{27} = 403 \text{ yd}^3$$

403 cubic yards

Factors Controlling Production Rate

In production operation placement of raw clay, grading of raw clay, conditioning of raw clay and compaction of conditioned clay would be going on simultaneously. Based upon field observations, the operation which controls production is the conditioning of the raw clay. Therefore, estimated production rate will be determined from conditioning rate observed for Panel B3.

SUBJECT _____

Time Lost During Conditioning Due to U-Turns

Based upon field observations for panel B3, the recycler lost an average of 45 seconds (0.75 minutes) per U-turn. The recycler makes 4 U-turns per complete pass over the entire panel surface.

For production work, assume an area measuring 45' in width and 200' in length would be conditioned at one time. The time lost due to U-turns on this larger area as compared to panel B3 would be equal to:

$$100\% - \frac{\text{Length of Panel B3}}{\text{Length for Production}} \times 100\%$$

$$100\% - \frac{110}{200} \times 100\%$$

$$100\% - 55\% = 45\%$$

$$\text{Time Lost} = (0.45)(0.75) = 0.35 \text{ minutes}$$

To extrapolate the total time required to recycle the clay in panel B3 to a production job, the total time must be reduced by 0.35 minutes per recycler pass over the panel surface. This is required because a larger working area in production would require fewer U-turns for the recycler thus less total time spent on the recycling.

The total time required to condition the clay used in constructing panel B3 will be obtained by a summation of the total time required to condition each individual lift during construction.

The times used in this estimate were determined by DuPont and any reductions of measured time were agreed upon by DuPont and the writers.

FORM 3

FOR _____

SUBJECT _____

Lift 1

1. Recycled raw clay to a depth of 7" for two passes.

Total Time = 50 minutes

However, for subsequent lifts the recycler was adjusted to run slower and with the gate lower, thereby breaking the clay down in only one pass.

For the purposes of this estimate, use the average time required in subsequent lifts to recycle the raw clay as that is the preferred method.

Use Total Time = 35 minutes

Time lost to U-turns = $(0.35)(4) \approx 2$ minutes

Production Time = $35 - 2 = 33$ minutes

2. Recycled clay after first pass of water truck to depths of 3" and 7".

Total Time = 20 minutes

Time lost to U-turns = $(0.35)(8) = 3$ minutes

Production Time = $20 - 3 = 17$ minutes

3. Recycled clay after second pass of water truck to depths of 3", 3", 7" and 7". Du Pont says second pass at 3" depth was not necessary. So reduce total time by 7 minutes. Recycler was having difficulty with slipping off side of parcel which caused delay of about 5 minutes. Therefore reduce total time by this amount also.

Total Time = 70 minutes

Time lost to misc. causes = $7 + 5 = 12$ minutes

Time lost to U-turns = $(0.35)(3)(4) = 4$ minutes

Production Time = $70 - 12 - 4 = 54$ minutes

Total Production Time = $33 + 17 + 54 = \underline{\underline{104 \text{ minutes}}}$

Average Final Water Content = 28.7%

FORM 3

FOR _____

SUBJECT _____

Lift 2

1. Recycled raw clay to a depth of 9" for one pass.

Total Time = 38 minutes

Time Lost to U-turns = $(4)(0.35) = 2$ minutes

Production Time = $38 - 2 = 36$ minutes

2. Recycled clay after first pass of water truck to depths of 3" and 9".

Total Time = 30 minutes

Time Lost due to U-turn = $(8)(0.35) = 3$ minutes

Production Time = $30 - 3 = 27$ minutes

3. Recycled clay after second pass of water truck to depths of 3", 3", 9" and 9". Du Pont says second 3" pass was unnecessary. (7 minutes)

Total Time = 60 minutes

Unnecessary Recycling of 3" = 7 minutes

Time Lost to U-turns = $(3)(4)(0.35) = 4$ minutes

Production Time = $60 - 7 - 4 = 49$ minutes

Total Production Time = $36 + 27 + 49 = \underline{\underline{112 \text{ minutes}}}$

Average Final Water Content = 31%

FORM 3

FOR

SUBJECT

Lift 3

1. Recycled raw clay to a depth of 8" for one pass.

Total Time = 33 minutes

Time Lost to U-turns = $(0.35)(4) = 2$ minutes

Production Time = $33 - 2 = 31$ minutes

2. Recycled clay after first pass of water truck to depths of 3" and 8". Refueling Time = 10 minutes

Total Time = $45 - 10 = 35$ minutes

Time Lost to U-turns = $(8)(0.35) = 3$ minutes

Production Time = $35 - 3 = 32$ minutes

3. Recycled clay after second pass of water truck to depths of 3", 8" and 8".

Total Time = 57 minutes

Time Lost to U-turns = $(12)(0.35) = 4$ minutes

Production Time = $57 - 4 = 53$ minutes

Total Production Time = $31 + 32 + 53 = \underline{\underline{116}}$ minutes

Final Average Water Content = 30.5%

SUBJECT _____

Life 4

1. Recycled raw clay to a depth of 9" for one pass.

Total Time = 32 minutes

Time Lost to U-turns = $(0.35)(4) = 2$ minutes

Production Time = $32 - 2 = 30$ minutes

2. Recycled clay after first pass of water truck to depths of 3', 9" and 9".

Total Time = 47 minutes

Time Lost to U-turns = $(12)(0.35) = 4$ minutes

Production Time = $47 - 4 = 43$ minutes

Total Production Time = $30 + 43 = \underline{\underline{73}}$ minutes

Final Average Water Content = 28.1%

FORM 3

FOR _____

SUBJECT

Total Production Time for All Four Lifts

<u>Lift</u>	<u>Production Time (Minutes)</u>	<u>Final Wt %</u>
1	104	28.7
2	112	31.0
3	116	30.5
4	73	28.1

A review of the data shown above indicates a general trend of increasing production time with increasing final wt % which is to be expected as more recycling time is required to mix the water in.

The time required for lift 1 is higher for its final wt % relative to the other lifts because all lifts subsequent to lift 1 are mixed with 2 inches of conditioned clay from the lift below them during the initial recycling pass. This mixing of clay at natural water content (24%) with conditioned clay (28%-31%) serves to increase the initial water content of the clay by about 1.2% even prior to any water application. Therefore less water is required to be added to the lift after lift 1 and subsequently less recycling time is required.

For the production job, the influence of the relatively higher conditioning time required for lift 1 will be less than it is for panel B3 since the production job will consist of about 6 lifts as compared to the 4 lifts here.

Attached on the following sheet is a plot of Conditioning Time per Lift versus Final water content developed for panel B3.

As the plot shows, lift 1 required 22 minutes more conditioning time than would a lift above it conditioned to the same water content. To adjust the production rate estimate for the full size job for the weighting of lift 1 in B3 reduce the total time required for all four lifts by

$$\frac{6-4}{6} \times 22 \text{ min} = 7 \text{ minutes}$$

MADE BY ROB DATE 12-5-87
CHECKED BY _____ DATE _____

FORM 3

FOR _____

SUBJECT _____

Panel B3

FORM 3

FOR _____

SUBJECT _____

Total Production Time

$$\text{Total} = 104 + 112 + 116 + 73 - 7 = 398 \text{ minutes}$$

Production Rate for Final Wt. = 28% - 31%

$$\text{Volume Compacted} = 403 \text{ cubic yards}$$

$$\text{Production Time} = 398 \text{ minutes}$$

$$\text{Per Recycler: Production Rate} = \frac{403}{398} = 1.013 \text{ yd}^3/\text{min}$$

$$\text{Production Rate} = 485 \text{ cubic yards per 8 hr day}$$

<u>Number of Recyclers</u>	<u>Production Rate Per 8 Hour Day</u>
----------------------------	---------------------------------------

1	485 cubic yards
2	970 cubic yards
3	1455 cubic yards

The production rates shown above were developed for a panel containing lifts with average final water contents varying from 28.1% to 31%. This represents the likely range of acceptable water contents for Dixie clay.

If the production full size job is constructed at water contents close to 28% the production rates will be higher than those shown above. If it is all constructed at water contents close to 31% the production rates will be lower than those shown.

An estimate of production rates at other final water contents is shown on the next sheet.

FORM 3

FOR _____

SUBJECT

Adjustment for Time for First Lift

First lift requires $\frac{104}{82} = 1.27$ times the production time

as subsequent lifts above it conditioned to the same water content.

To estimate production rates for various water contents the line representing the average of time vs. water shown on sheet 8 will be used

Water Content %	(A) Time per Lift (Except Lift 1) minutes	$1.27 \times (A)$ Time for Lift 1 minutes	$3 \times (A) + 1.27 \times (A)$ Total Production Time per Recycler minutes
28	72	91	307
29	87	110	371
30	102	130	436
31	118	150	504

Water Content %	Volume yd ³	Total Time Per Recycler minutes	Production Rate Per 8 Hr. Day per Recycler cubic yards
28	403	307	630
29	"	371	520
30	"	436	445
31	"	504	385

SUBJECT Cost Estimate for Compaction of Dixie Kaolin

Cost Estimate (Based on Test Panel B3)

The following cost estimate for labor and equipment is based on manpower and equipment requirements suggested by DuPont. The estimate assumes the work is being performed by a private contractor.

<u>Equipment</u>	<u>Cost Per Month</u>	<u>Quantity</u>	<u>Total Cost</u>
Bulldozer	6000	2	12000
Pan	9400	2	18800
Recycler	6000	6	36000
Water Truck	6000	2	12000
Grader	5000	2	10000
CAT 815 B	5200	2	10400
Vibratory Roller	3000	1	3000
Fuel Truck	3000	1	3000
Fuel	1200 per day	20 days	24000
			\$ 129200

Approximately 22 working days per month.
Assume 2 days per month lost due to bad weather.

$$\text{Equipment Cost per Working Day} = \frac{129200}{20} = \$6460$$

<u>Labor</u>	<u>Cost Per Day</u>	<u>Quantity</u>	<u>Total Cost</u>
Supervisor	250	1	250
Foreman	200	1	200
Operators	175	17	2975
Laborers	120	4	480
Mechanic	175	1	175
			\$ 4080

$$\text{Equipment + Labor Costs Per Day} = 6460 + 4080 = \$10540$$

FORM 3

FOR MWMF Closure

SUBJECT

Estimated Production Rate = 500 yd³ Placed Per Day
Per Recycler

Using 6 Recyclers: Production Rate = (6)(500) = 3000 yd³

$$\text{Cost Per Cubic Yard} = \frac{10540}{3000} = \$ 3.50$$

Estimated cost for placing clay cap excluding overhead,
profit and material costs is about:

\$ 3.50 per cubic yard

APPENDIX 6

- List of Construction Equipment
- Photographs of Major Construction Equipment
Plates PH-1 to PH-5
- Representative Photographs of Clay Conditioning,
Compaction, and Testing
Plates PH-6 to PH-25

MRCE File 6524

APPENDIX 6

LIST OF CONSTRUCTION EQUIPMENT

Caterpillar 623E Scraper
Caterpillar 140G Motor Grader
Caterpillar D7G Bulldozer
International 530 and Clark 75C Loaders
Gleason Shredder
BROS LSPRM - 8A Recycler
Magnum 5000 Gallon Water Truck
Caterpillar 815B Tamping Compactor
Rex 3-50A Pactor Open Ring Wheel Compactor
Ingersoll-Rand SPA-56 Vibratory Drum Compactor
JCB 1700 Backhoe

PHOTO NO. 1 Caterpillar 623E Scraper.

PHOTO NO. 2 Caterpillar 140G Motor Grader.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-1

PHOTO NO. 3 Magnum 5000 Gallon Water Truck.

PHOTO NO. 4 Gleason Shredder.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-2

PHOTO NO. 5 BROS LSPRM-8A Recycler.

PHOTO NO. 6 Recycler Teeth. Length of teeth = 6"+.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-3

PHOTO NO. 7 Rex 3-50A Pactor Open Ring Wheel Compactor.

PHOTO NO. 8 Rear view of Pactor; note 16 inch gap between rings in front wheel.

WWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-4

PHOTO NO. 9 Caterpillar CAT 815B Tamping Compactor.

PHOTO NO. 10 Ingersoll-Rand SPA-56 Vibratory Drum Compactor.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-5

PHOTO NO. 11, 10-29-87; Panel A2: Pactor compacting Lift 1.
($w_f = 30.3\%$)

PHOTO NO. 12, 10-29-87; Panel A2: Lift 1 ($w_f = 30.3\%$) after 6 passes with Pactor. Average ring penetration = 6 inches.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-6

PHOTO NO. 13, 10-29-87: Panel A2: Top of Lift 4 ($w_f = 31\% \pm$) after 9 passes with Pactor. Average ring penetration = 3 inches.

PHOTO NO. 14, 10-29-87: Panel A2: Lift 4 ($w_f = 31\% \pm$) after 9 passes with Pactor and 12 passes with CAT 815B. Average penetration = 6 inches.

MWME CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524.

PLATE PH-7

PHOTO NO. 15, 10-22-87: Panel B2: Lift 2 ($w_f = 30.9\%$) after 6 passes with CAT 815B. Average penetration=6 inches.

PHOTO NO. 16, 10-23-87: Panel B2: Shear surface 1 inch below top of Lift 2 ($w_f = 30.9\%$).

NWME CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524.

PLATE PH-8

PHOTO NO. 17, 10-23-87: Panel B2: PTL performing in-place nuclear density test B2-N1-3.

PHOTO NO. 13, 10-23-87: Panel B2: Pressing Tube for Sample 2U in Boring B1U.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-9

PHOTO NO. 19, 10-23-87: Panel B2: Wetting top of panel prior to covering with tarp. Limits of outside ring of infiltrometer marked with blue paint. Blue arrows indicate alignment of in-place density tests and borings.

PHOTO NO. 20, 10-22-87: Panel A1: Excavating trench for outside ring of infiltrometer with ditch-witch.

MWME CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

PHOTO NO. 21, 10-15-87: Panel B1: Trench for out-site ring of infiltrometer.

PHOTO NO. 22, 10-15-87: Panel B1: Excavating trench for inner ring of infiltrometer with chain saw.

WMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

PHOTO NO. 23, 10-27-87: Panel B2: Installing inside ring of infiltrometer in grouted trench. Note grouted trench for outside ring.

PHOTO NO. 24, 10-22-87: Panel A1: Filling inside ring of infiltrometer with water.

CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

FILE #6524,

PLATE PH-12

PHOTO NO. 25, 10-22-87: Panel A1: Drilling hole for tensiometer.

PHOTO NO. 26, 10-22-87: Panel A1: Sand berm to stabilize outside walls of infiltrrometer.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524.

PLATE PH-13

PHOTO NO. 27, 11-04-87: Panel C1: Scarifying top of Lift 1
($w_f = 26.1\%$) prior to compaction.

PHOTO NO. 28, 11-04-87: Panel C1: CAT 815B compacting Lift 3 ($w_f = 27.6\%$) at Station 40. Average penetration = 5 inches.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-14

PHOTO NO. 29, 11-04-87: Panel C1: Lift 3 ($w_f = 27.6\%$) after 12 passes with CAT 815B. Average penetration = 5 inches. Note survey control point marker at right.

PHOTO NO. 30, 11-04-87: Panel C1: Rolling top of panel with vibratory smooth drum compactor.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS

FILE #6524,

PLATE PH-15

PHOTO NO. 31, 11-09-87: Panel C1: Uncompacted areas located 1 inch above top of Lift 2 ($w_f = 26.6\%$).

PHOTO NO. 32, 11-18-87: Panel C1: Boring B2U, Sample 2U. Note no mixing at sand-clay interface

MWME CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-16

PHOTO NO. 33, 11-09-87: Panel C2: CAT 815B compacting Lift 3.
($w_f = 29.8\%$)

PHOTO NO. 34, 11-09-87; Panel C2: Lift 3 ($w_f = 29.8\%$) after 12 passes
with CAT 815B. Average penetration = 6
inches.

WWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524.

PLATE PH-17

PHOTO NO. 35, 11-11-87; Panel C2: Sidewall of test pit at location N1.

PHOTO NO. 36, 11-11-87; Panel C2: Sand-clay interface in test pit at location N1. Note lack of mixing.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-18

PHOTO NO. 37, 10-30-87; Panel D1: CAT 815B compacting Lift 3.
($w_f = 24.1\%$)

PHOTO NO. 38, 10-30-87; Panel D1: Top of Lift 3 ($w_f = 24.1\%$) after
scarifying prior to compaction.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-19

PHOTO NO. 39, 11-02-87; Panel D1: Excavating Lift 2 ($w_f = 24.7\%$) at location N4.

PHOTO NO. 40, 11-03-87; Panel D1: Excavation for Boring B3U, sample 2U. Note sand at bottom of sample.

NWMP CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-20

PHOTO NO. 41, 11-18-87 Panel B3: Truck delivery of Dixie Tertiary Kaolin ($w_n = 24.3\%$)

PHOTO NO. 42, 12-02-87; Panel B3: Dixie clay at natural water content ($w_n = 24.3\%$) in Lift 4 after one pass with recycler.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

PHOTO NO. 43, 12-01-87; Panel B3: Wetting clay during conditioning operations for Lift 2.

PHOTO NO. 44, 11-30-87; Panel B3: Lift 1 conditioned clay ($w_f=28.9\%$) prior to compaction.

MWMT CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-22

PHOTO NO. 45, 12-02-87: Panel B3: CAT 815B compacting Lift 3.
($w_f = 29.3\%$). Clay at left has been compacted with 6 passes.

PHOTO NO. 46, 12-02-87; Panel B3: Lift 3 ($w_f = 29.3\%$) compactor foot-
prints after 12 passes with CAT 815B.
Average penetration = 5 inches.

MWMF CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

MUESER RUTLEDGE CONSULTING ENGINEERS FILE #6524,

PLATE PH-23

PHOTO NO. 47, 12-01-87; Panel B3: Surface of Lift 2 ($w_f = 30.0\%$)
after filling in of compactor footprints by
motor grader.

PHOTO NO. 48, 12-01-87; Panel B3: Scraper and motor grader spreading
loose Lift 3 at natural water content
($w_n = 24.3\%$).

HWMP CLOSURE, CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

PHOTO NO. 49, 12-04-87: Panel B5: Smooth surface created by
recycler during conditioning operations
for Lift 3.

PHOTO NO. 50, 12-04-87: Sidewall of test pit
at location N3. Note
sand-clay interface at
bottom.

CLAY CAP TEST SECTION, SAVANNAH RIVER PLANT

END

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