2-404.12

20130-RP-0001

869

TEST PAD PROGRAM FINAL REPORT

ON-SITE DISPOSAL FACILITY

INFORMATION ONLY

REVISION 0
JUNE 1997
VOLUME III

United States Department of Energy
Fernald Environmental Management Project
Fernald, Ohio

prepared by

GEOSYNTEC CONSULTANTS
1100 Lake Hearn Drive, NE, Suite 200
Atlanta, Georgia 30342

under

Fluor Daniel Fernald
Subcontract 95PS005028

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TEST PAD PROGRAM FINAL REPORT

ON-SITE DISPOSAL FACILITY

REVISION 0
JUNE 1997
VOLUME III

United States Department of Energy
Fernald Environmental Management Project
Fernald, Ohio

APPENDIX E

APPENDIX E

NUCLEAR GAUGE STANDARD COUNT LOG AND FIELD MOISTURE/DENSITY TEST LOG

NUCLEAR GAUGE STANDARD COUNT LOG

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

NUCLEAR GAUGE STANDARD COUNT LOG

(ASTM D 2922 & ASTM D 3017)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION

DATE: 03 day JUNE month 1996 year

NUCLEAR GAUGE MODEL: 3440

SERIAL NO.: 20202

DATE ARRIVED ON SITE: 8 MAY '96

DATE DEPART SITE: 4 JULY '96

DATE (day/mo)	MOISTURE COUNT	DENSITY COUNT	PASS/ FAIL	QA ID
03 JUNE	694	2774	P	NM
05 JUNE	703	2792	P	NM
06 JUNE	705	2770	P	NM
13 JUNE	695	2727	P	NM
14 JUNE	691	2738	P	NM
15 JUNE	695	2720	P	NM
16 JUNE	699	2706	P	NM
17 JUNE	702	2711	P	NM
20 JUNE	695	2724	P	CS
21 JUNE	701	2741	P	MP
22 JUNE	694	2737	P	CS
23 JUNE	690	2725	P	MP
25 JUNE	700	2720	P	MP
26 JUNE	688	2742	P	MP
27 JUNE	697	2709	P	NM
28 JUNE	692	2727	P	NM
29 JUNE	698	2735	P	NM

DATE (day/mo)	MOISTURE COUNT	DENSITY COUNT	PASS/ FAIL	QA ID

000001

©GEOSYNTEC CONSULTANTS FILE NO. 2-19-NGS

SHEET NO. 1 OF 1

FIELD MOISTURE/DENSITY TEST LOG

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 06 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ (CIRCLE ONE) LIFT THICKNESS (LOOSE / COMPACTED) 6"

% COMPACTION: 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C (CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: Ø

TEST NO.	TEST LOCATION TEST PAD 1 SUB.	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
960606-1	LANE 1 SO. RAMP	6"	22.1	98.9	19.5	129.0	107.9	109	P			NM
2	LANE 2	6"	↓	↓	20.9	125.9	103.3	104	P			NM
3	LANE 2 NO. RAMP	6"	↓	↓	23.6	120.7	97.7	99	P			NM

000006

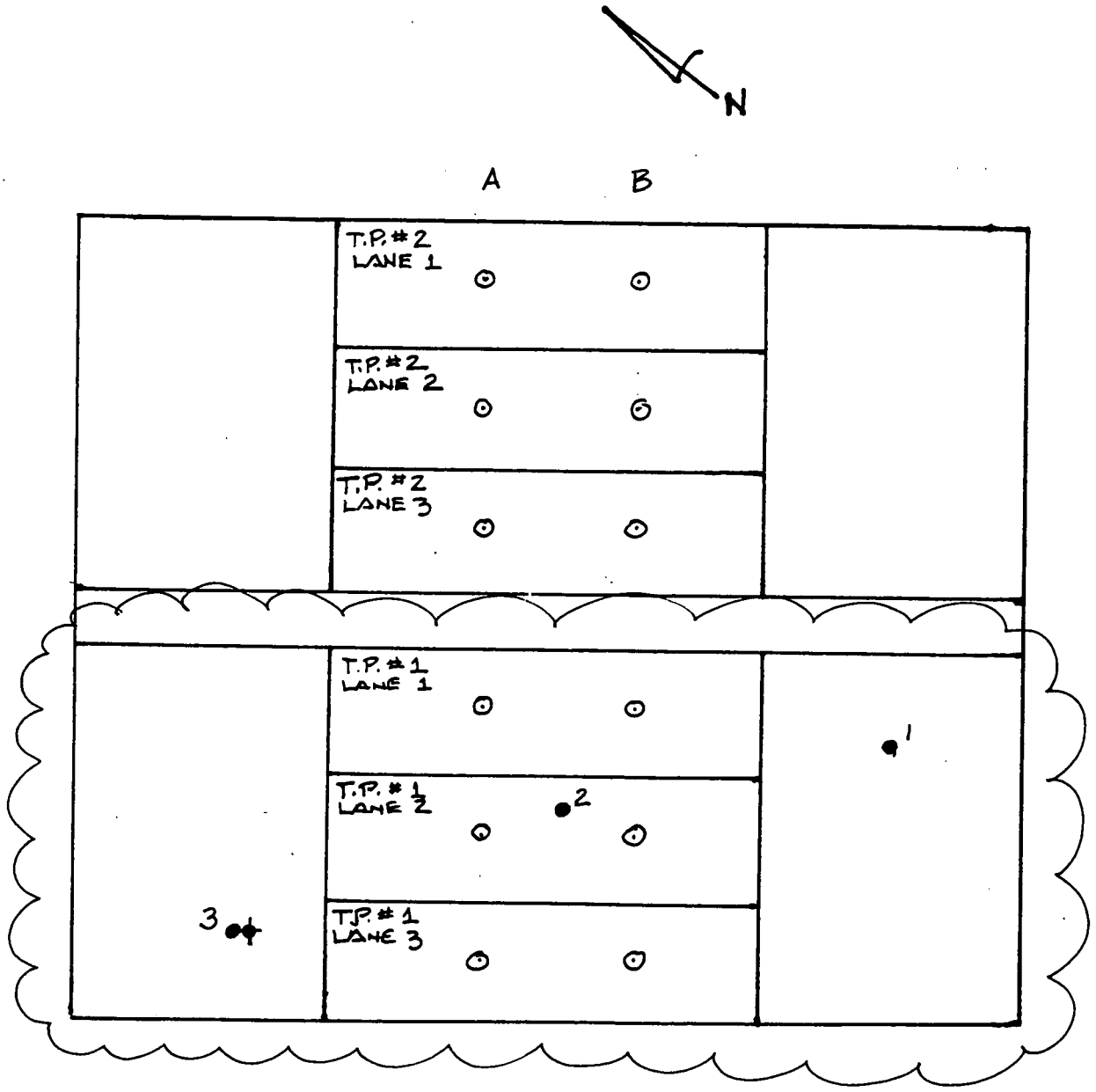
698

GEOSYNTEC CONSULTANTS FILE NO.: 2-20-FNM

/JM SHEET NO. 1 OF 2

Written by: N. MEEKINS Date: 96 / 06 / 06 (YY MM DD) Reviewed by: _____ Date: __ / __ / __ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS

● FIELD NUCLEAR MOISTURE/DENSITY TEST

✦ SAND CONE DENSITY TEST

TEST PAD NO. 1 – SUBGRADE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ (CIRCLE ONE) LIFT THICKNESS (LOOSE / COMPACTED): 6"

% COMPACTION: 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C _____ (CIRCLE ONE)

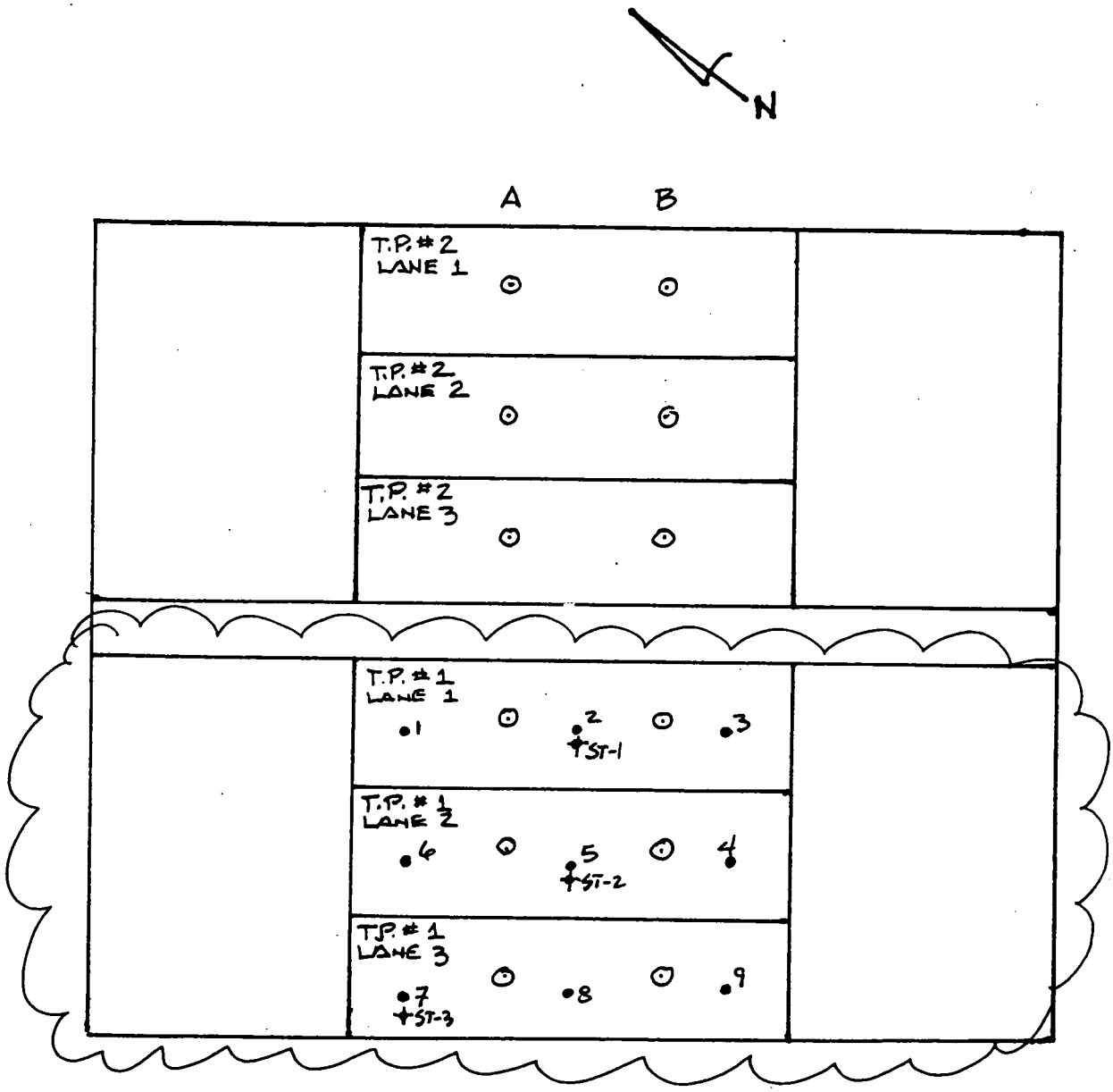
NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION TEST PAD 1	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
961306.1	LANE 1 EAST	6" L-1	22.8	99.2	24.5	123.2	99.0 NM	100	P			NM
2	LANE 1 CTR	6" L-1			24.0	123.7	99.8	101	P			NM
3	LANE 1 EAST	6" L-1			25.1	124.3	99.4	100	P			NM
4	LANE 2 EAST	6" L-1			21.6	127.2	104.6	106	P			NM
5	LANE 2 CTR	6" L-1			23.2	124.1	100.7	102	P			NM
6	LANE 2 WEST	6" L-1			25.1	122.1	97.6	98	P			NM
7	LANE 3 WEST	6" L-1			24.9	123.0	98.5	99	P			NM
8	LANE 3 CTR	6" L-1			21.3	127.1	104.7	106	P			NM
9	LANE 3 EAST	6" L-1			20.7	126.8	105.0	106	P			NM
	LANE 1 AVG.				24.5	123.7	99.4	100	P			NM
	LANE 2 AVG.				23.3	124.5	101.0	102	P			NM
	LANE 3 AVG.				22.3	125.6	102.7	104	P			NM

NM

Written by: N. MEEKINS Date: 96/06/13 (YY/MM/DD) Reviewed by: _____ Date: __/__/__ (YY/MM/DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 1

• FDT'S

+ SHELBY TUBE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 14 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / (CLAY) / OTHER: _____ LIFT THICKNESS (LOOSE / (COMPACTED)) 6"

% COMPACTION: 95 MOISTURE RANGE: WINDOW ASTM D 698: A (B) C (CIRCLE ONE) / ASTM D 1557: A B C

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: 0

TEST NO.	TEST LOCATION TEST PAD 1	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
96.06.14-1	LANE 3 EAST	6" L-2	20.5	106.8	23.4	124.4	100.7	94		F		NM
2	LANE 3 CTR. (ST-1/6)	6" L-2			23.2	124.0	100.7	94		F		NM
3	Lane 3 west	6" L-2			21.8	123.6	101.5	95	P			NM
4	LANE 2 west	6" L-2			22.3	124.0	101.4	95	P			NM
5	Lane 2 ctr	6" L-2			22.4	123.9	101.2	95	P			NM
6	Lane 2 East (ST-1/5)	6" L-2			21.5	124.8	102.7	96	P			NM
7	Lane 1 East	6" L-2			23.0	124.0	100.8	94		F		NM
8	Lane 1 ctr	6" L-2			20.9	126.1	104.3	98	P			NM
9	Lane 1 west (ST-1/4)	6" L-2			22.4	125.5	102.5	96	P			NM
	LANE 1 AVG.				22.1	125.2	102.5	96	P			NM
	LANE 2 AVG				22.1	124.2	101.7	95	P			NM
	LANE 3 AVG				22.8	124.0	101.0	95	P			NM

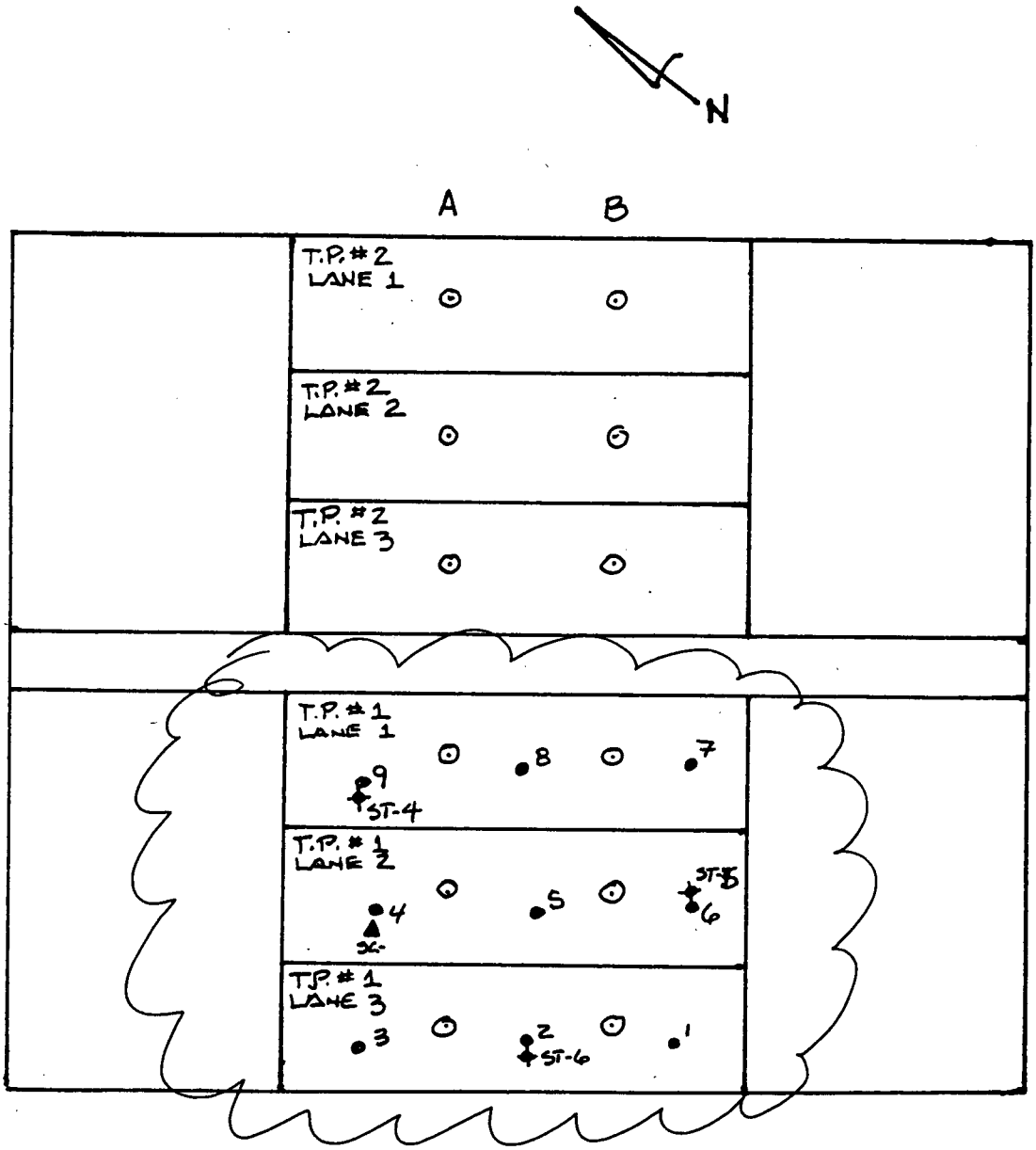
000010

GEO SYNTEC CONSULTANTS FILE NO.: 2-20-FNM

/NM SHEET NO. 1 OF 2

Written by: N. MEEKINS Date: 96/06/14 (YY/MM/DD) Reviewed by: _____ Date: __/__/__ (YY/MM/DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 2

● FDT'S

✦ SHELBY TUBES

▲ SAND CONE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: 6E3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ (CIRCLE ONE) LIFT THICKNESS (LOOSE/COMPACTED): 6"

% COMPACTION: 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C (CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION TEST PAD 1	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
961506-1	Lane 1 west ST-7	6" L-3	18.0	110.3	20.8	126.5	104.7	95	P			NM
2	Lane 1 ctr	6" L-3			21.4	125.0	103.0	93		F		NM
3	Lane 1 EAST	6" L-3			19.5	127.3	106.5	97	P			NM
4	Lane 2 East ST-8	6" L-3			19.4	127.5	106.8	97	P			NM
5	Lane 2 ctr	6" L-3			23.8	125.0	101.0	92		F		NM
6	Lane 2 WEST	6" L-3			18.3	127.5	107.7	98	P			NM
7	Lane 3 West ST-9	6" L-3			19.2	127.9	107.3	97	P			NM
8	Lane 3 ctr	6" L-3			19.9	128.5	107.2	97	P			NM
9	Lane 3 East	6" L-3			20.3	125.9	104.7	95	P			NM
	LANE 1 AVG.				20.6	126.3	104.7	95	P			NM
	LANE 2 AVG.				20.5	126.7	105.1	95	P			NM
	LANE 3 AVG.				19.8	127.4	106.3	96	P			NM

NM

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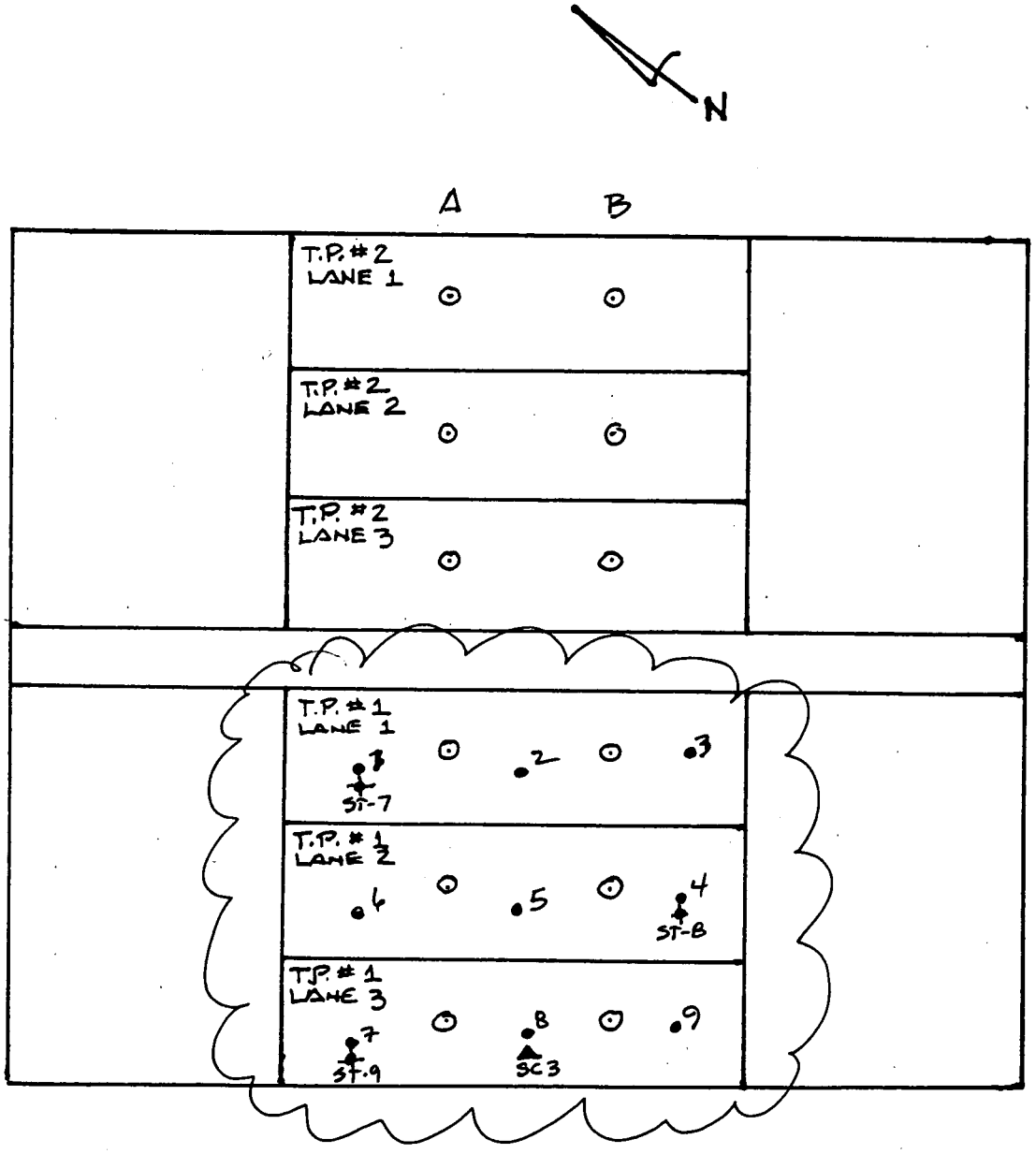
000012

Written by: N. MEEKINS Date: 96/06/15 (YY/MM/DD) Reviewed by: _____ Date: __/__/__ (YY/MM/DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 3

- ● FDT'S
- ✦ SHELBY TUBE
- ▲ SAND CONE

GEOSYNTEC CONSULTANTS

FERMCO Fernald Environmental Restoration Management Corporation

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: 6E3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 16 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / (CLAY) / OTHER: _____ (CIRCLE ONE) LIFT THICKNESS (LOOSE / (COMPACTED)): 6"

% COMPACTION: 95 MOISTURE RANGE: WINDOW ASTM D 698: A (B) C / ASTM D 1557: A B C (CIRCLE ONE)

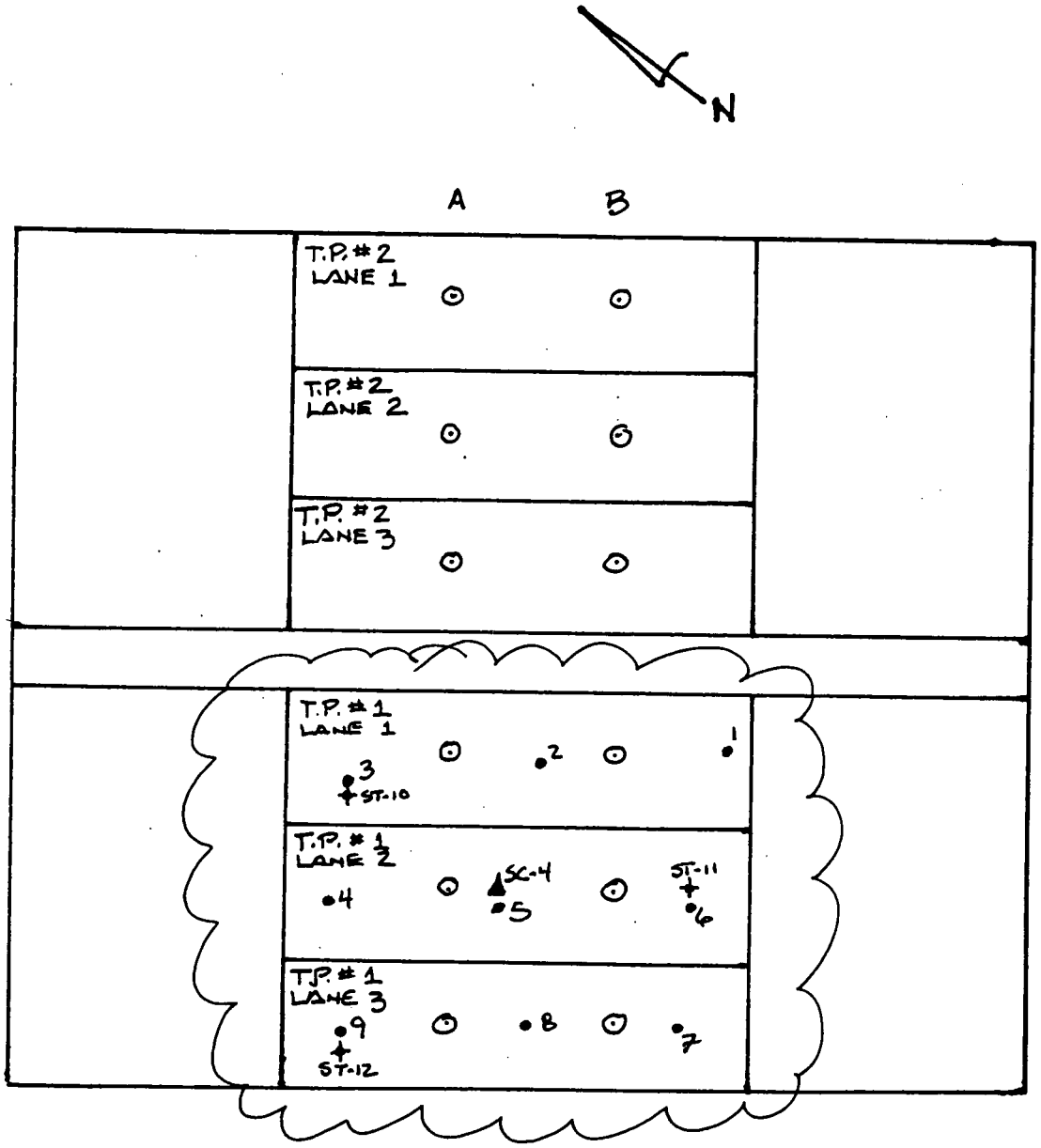
NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION TEST PAD 1	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
961606-1	LANE 1 EAST	6" L-4	18.0	110.3	18.0	133.5 NM ~~127.2~~	113.1	103	P			NM
2	LANE 1 CTR.	6" L-4			18.5	132.9 NM ~~126.6~~	112.2	102	P			NM
3	LANE 1 WEST	6" L-4			19.3	131.4	110.1	100	P			NM
4	LANE 2 WEST	6" L-4			21.9	128.9	105.7	96	P			NM
5	LANE 2 CTR.	6" L-4			19.8	129.5	108.1	98	P			NM
6	LANE 2 EAST	6" L-4			17.7	132.8	112.8	102	P			NM
7	LANE 3 EAST	6" L-4			20.9	130.5	107.9	98	P			NM
8	LANE 3 CTR.	6" L-4			20.5	130.9	108.6	98	P			NM
9	LANE 3 WEST	6" L-4			20.6	131.4	109.0	99	P			NM
	LANE 1 AVG				18.6	132.6	111.8	101	P			NM
	LANE 2 AVG				19.8	130.4	108.8	99	P			NM
	LANE 3 AVG				20.7	130.9	108.5	98	P			NM

000014

Written by: N. MEEKINS Date: 96 / 06 / 16 (YY MM DD) Reviewed by: _____ Date: __ / __ / __ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 4

- • FDT'S
- + SHELBY TUBES
- ▲ SAND CONE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO. GE3900 TASK NO.: 5.3

DESCRIPTION: TEST POD CONSTRUCTION DATE: 20 day June month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ (CIRCLE ONE) LIFT THICKNESS (LOOSE/COMPACTED): 6"

% COMPACTION: 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C (CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962006-1	LANE 1 EAST	6" / L-5	~~18.0~~ 17.0 CS	110.5	19.6	127.4	106.5	95.6	P			CS
962006-2	LANE 1 CTR	6" / L-5			17.4	129.8	110.5	99.1	P			CS
962006-3	LANE 1 WEST	6" / L-5			18.1	129.1	109.3	98.1	P			CS
-4	LANE 2 WEST	6" / L-5			19.6	126.6	105.8	94.9	~~P~~	F	7 (P)	CS
-5	LANE 2 CTR	6" / L-5			18.3	128.8	108.9	97.7	P			CS
-6	LANE 2 EAST	6" / L-5			17.3	130.3	111.1	99.6	P			CS
-7	LANE 2 WEST	6" / L-5			19.1	127.4	107.0	95.9	P			CS
-8	LANE 3 WEST	6" / L-5			17.9	129.8	110.1	98.7	P			CS
-9	LANE 3 CTR	6" / L-5			17.4	131.5	112.0	100.5	P			CS
-10	LANE 3 EAST	6" / L-5			16.4	130.9	112.4	100.8	P			CS
-11	LANE 3 EAST	6" / L-5			17.3	131.4	111.9	100.4	P			CS
	LANE 1 AVG.				18.4	128.6	108.6	97	P			NM
	LANE 2 AVG.				18.2	128.8	109.0	98	P			NM
	LANE 3 AVG.				17.3	130.9	111.6	100	P			NM

©GEOSYNTEC CONSULTANTS FILE NO.: 2-20-FNM

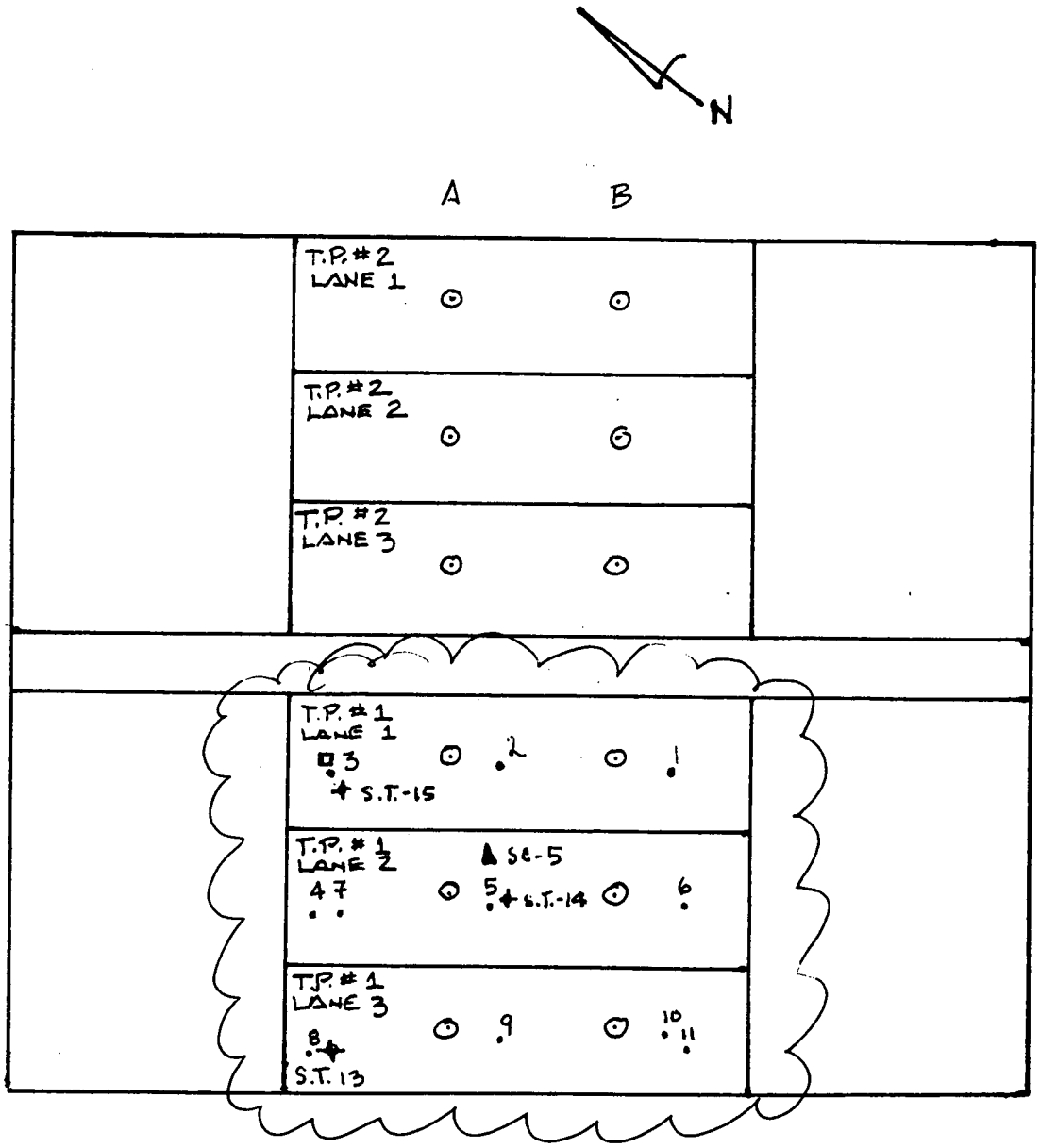
/NM

SHEET NO. 1 OF 2

000016

Written by: C SCOTT Date: 96 / 06 / 20 (YY MM DD) Reviewed by: Date: / / (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 5

- • FDT'S
- ✦ SHELBY TUBES
- ▲ SAND CONE
- □ Bonding Check between Lifts

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: DATE: 21 day 06 month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED): 6"
(CIRCLE ONE)

% COMPACTION: 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C
(CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962106-1	LANE 3 EAST	6" / L5	18.0	111.5	17.7	130.3	110.7	99.3	P			CS
-2	LANE 3 CTR	6" / L5	17.0	↓	19.8	122.4	106.4	95.4	P			CS
-3	LANE 3 WEST	6" / L5	↓	↓	18.5	129.0	108.9	97.6	P			CS
	LANE 3 AVG				18.7	128.9	108.6	97	P			NM

©GEO SYNTEC CONSULTANTS FILE NO.: 2-20-FNM

/NM

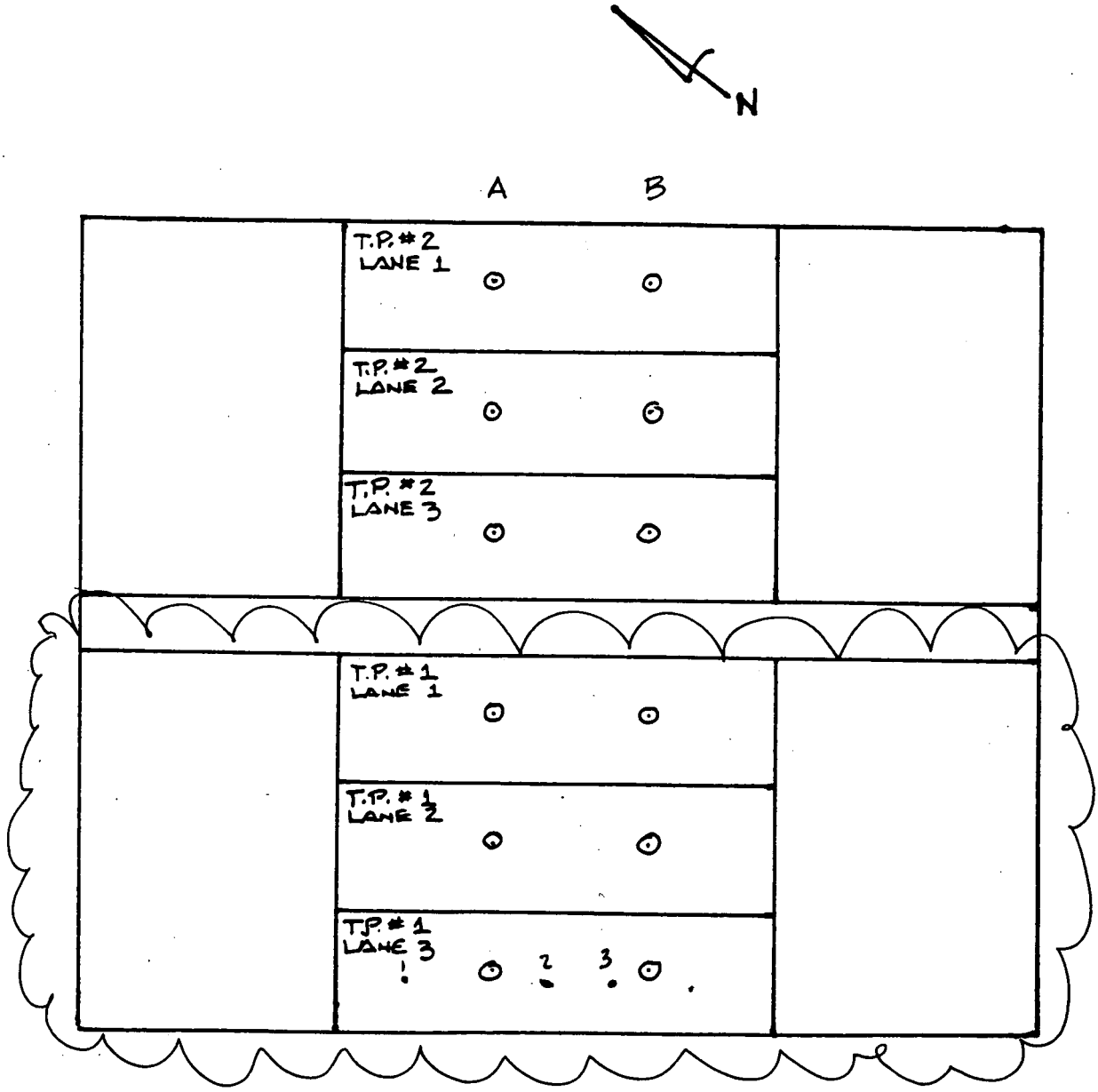
SHEET NO. 1 OF 2

000018

GEOSYNTEC CONSULTANTS

Written by: Chris Scott Date: 96 / 06 / 24 (YY MM DD) Reviewed by: _____ Date: __/__/__ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 5

(Retest LANE THREE)

• FDT'S

9475
20.0

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: DATE: 21 day 06 month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED): 6"
(CIRCLE ONE)

% COMPACTION: 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C
(CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962106-4	LANE 1 E	6"/L-6	17.0	111.5	19.2	128.5	107.0	96.7	P			CS
SC-6 -5	LANE 1 CTR	6"/L-6			19.1	129.3	108.5	97.3	P			CS
-6	LANE 1 W	6"/L-6			18.9	129.6	109.0	97.8	P			CS
-7	LANE 2 W	6"/L-6			19.4	127.9	107.1	96.0	P			CS
-8	LANE 2 CTR	6"/L-6			18.2	129.2	109.3	98.1	P			CS
-9	LANE 2 E	6"/L-6			18.4	128.9	108.9	97.6	P			CS
-10	LANE 3 E	6"/L-6			19.7	128.8	107.6	96.5	P			CS
-11	LANE 3 CTR	6"/L-6			20.0	127.6	106.3	95.4	P			CS
12	LANE 3 W	6"/L-6			19.4	128.5	107.7	96.6	P			CS
	LANE 1 AVG				19.1	129.1	108.4	97	P			NM
	LANE 2 AVG				18.7	128.7	108.4	97	P			NM
	LANE 3 AVG				19.7	128.3	107.2	96	P			NM

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©GEOSYNTEC CONSULTANTS FILE NO.: 2-20-FNM

NM

SHEET NO. 1 OF 2

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

DAILY FIELD REPORT

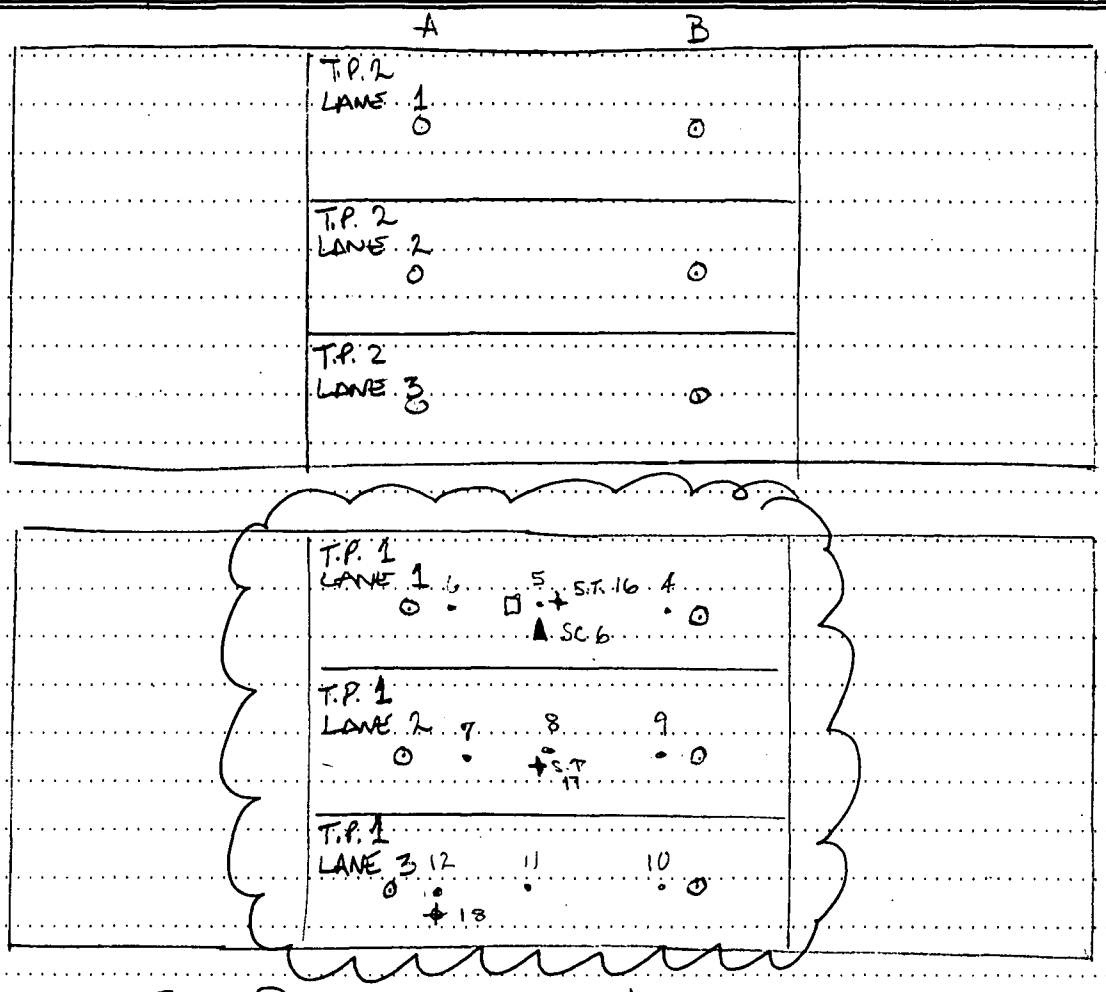
PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM DATE: 21 day JUNE month 1996 year

CONTRACTOR:

WEATHER: SUNNY WARM



TEST PAD TEST LOCATIONS

LIFT 6

- • FDTs
- + SHELBYS
- ▲ SAND CONE
- □

000021

COPY TO: PER: HRS:

©GEO SYNTEC CONSULTANTS FILE NO. 1-04-DFR

SHEET NO. 2 OF 2

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 22 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ~~OT~~ NW 14 PLACE MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED): —

% COMPACTION: _____ MOISTURE RANGE: _____ ASTM D 698: A B C / ASTM D 1557: A B C (CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962206-1	LANE-1 EAST (UH-01 In place material standing water removed)	6" / NATIVE	22.8	99.2	23.7	122.9	99.4	100.2	P			CS
-2	LANE-2 CTR	6" / NATIVE	↓	↓	27.2	120.8	94.9	95.7	P			CS
-3	LANE 3 WEST	6" / NATIVE	↓	↓	17.2	130.4	111.3	112.2	P			CS

000022

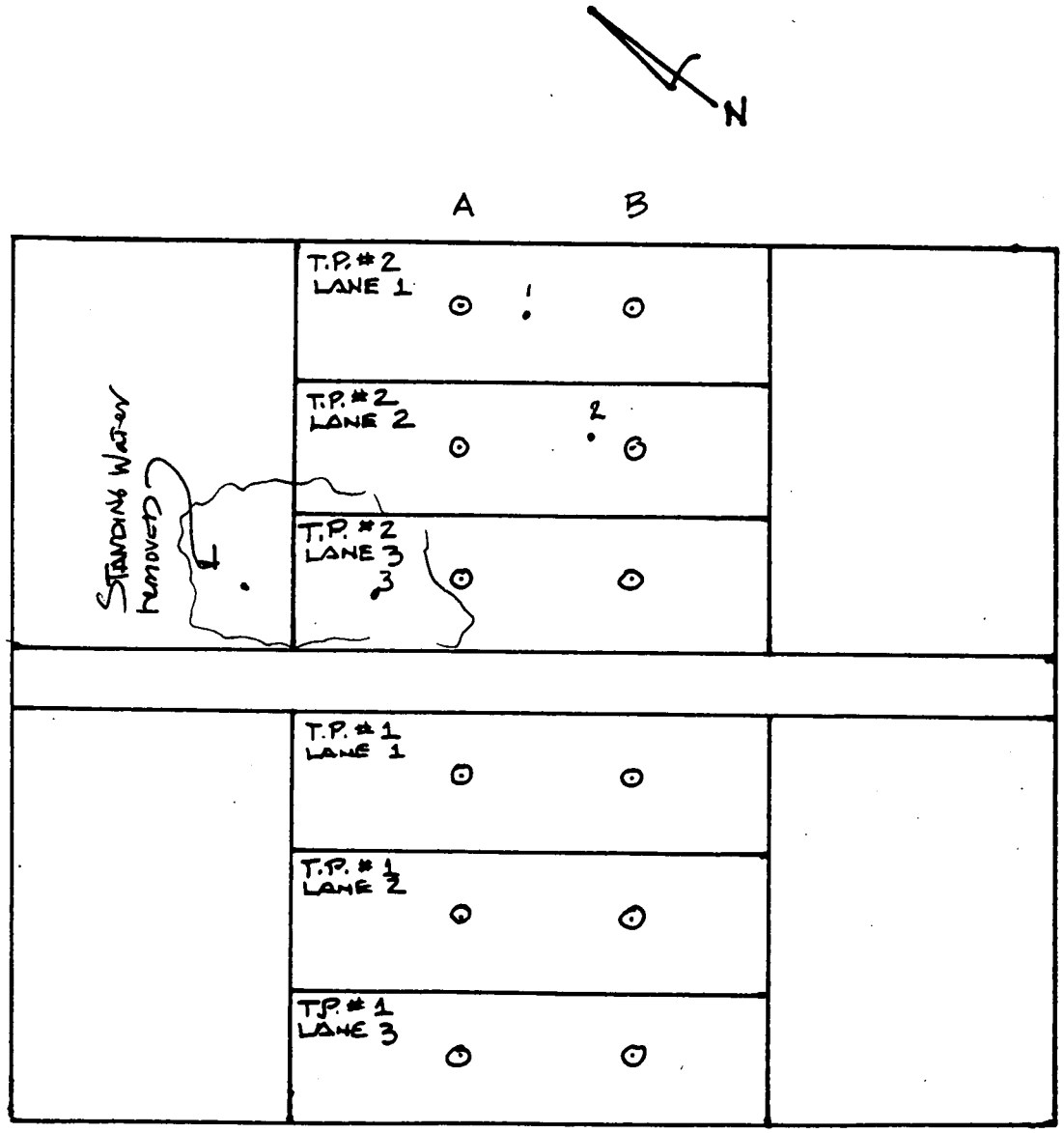
GEO SYNTEC CONSULTANTS FILE NO.: 2-20-FNM /jm SHEET NO. 1 OF 2

GeoSyntec Consultants

Page ___ of ___

Written by: Chris Scott Date: 96 / 06 / 22 (YY MM DD) Reviewed by: ___ Date: ___ / ___ / ___ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS NATIVE SURFACE (in place material)

• FDT'S

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 23 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: BORROW PIT MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE NM / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED): N/A

% COMPACTION: ≥ 95% MOISTURE RANGE: PERM. WINDOW ASTM D 698: A B C (CIRCLE ONE) / ASTM D 1557: A B C

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: —

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962306-1	TEST PAD #2, LANE 2, FOUNDATION *	6"/FOUNDATION *	17.0	111.5	17.1	130.9	111.8	100.3	P			MP
962306-2	TEST PAD #2, LANE 1 CTR FOUNDATION	6"/FOUNDATION	17.0	111.5	18.1	126.2	106.9	95.9	P			MP
962306-3	TEST PAD #2, LANE 2 W, FOUNDATION	6"/FOUNDATION	17.0	111.5	17.0	131.9	112.8	101.2	P			MP
962306-4	TEST PAD #2, LANE 3 E, FOUNDATION	6"/FOUNDATION	17.0	111.5	16.2	136.4	117.3	105.2	P			MP

000024

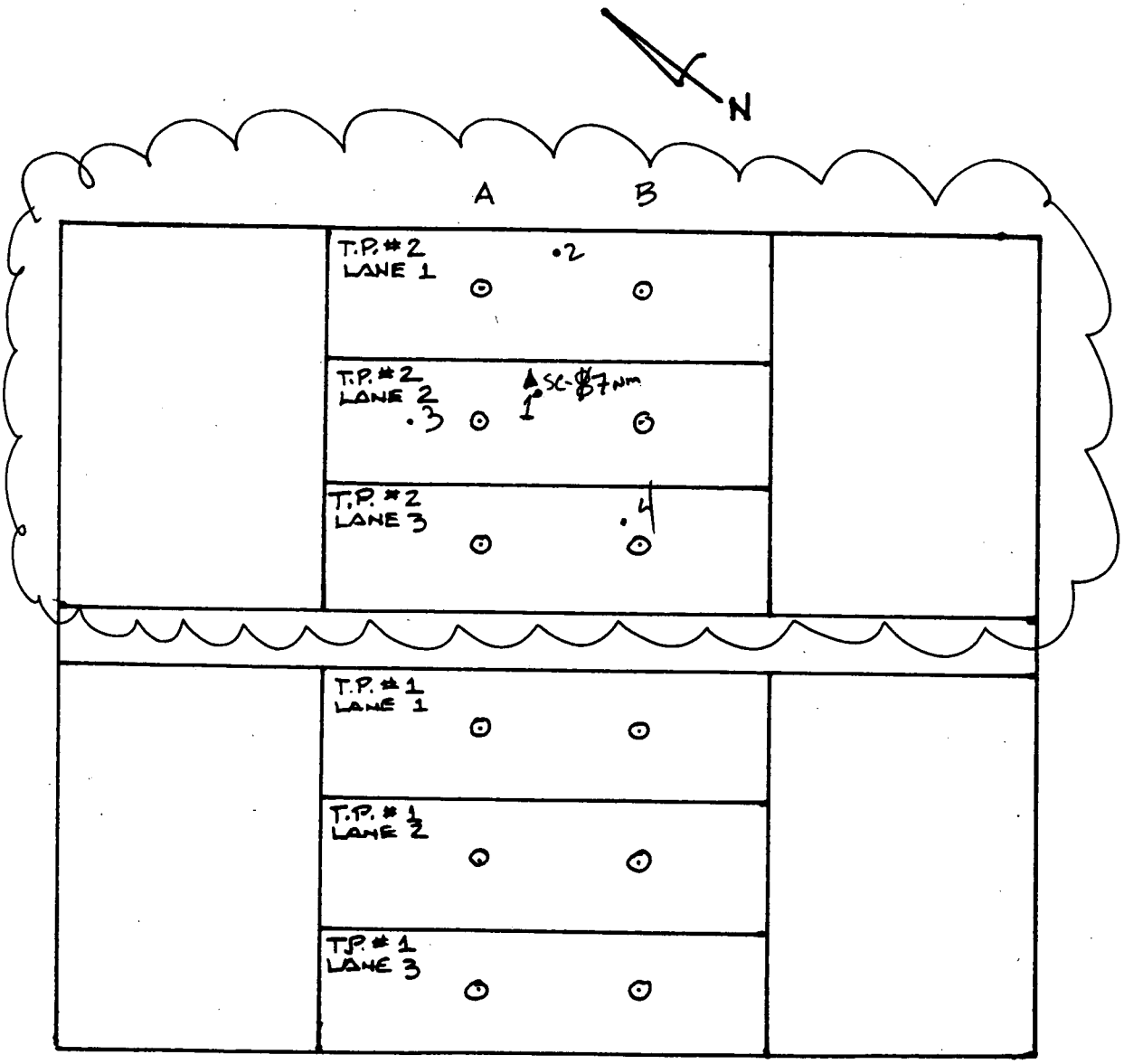
608

GEO SYNTEC CONSULTANTS FILE NO.: 2-20-FNM * FOR CALIBRATION PURPOSE ONLY. MATERIAL NOT COMPACTED /NM SHEET NO. 1 OF 2

GEOSYNTEC CONSULTANTS

Written by: MANUEL PALAU Date: 96/06/23 (YY/MM/DD) Reviewed by: _____ Date: __/__/__ (YY/MM/DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS FOUNDATION*

* FOR CALIBRATION PURPOSE ONLY. MATERIAL IS NOT COMPACTED

- ● FDT'S
- ▲ SAND CONE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 25 day June month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED): —

% COMPACTION: ≥ 95 MOISTURE RANGE: WINDOW ASTM D 698: (CIRCLE ONE) A B C / ASTM D 1557: A B C

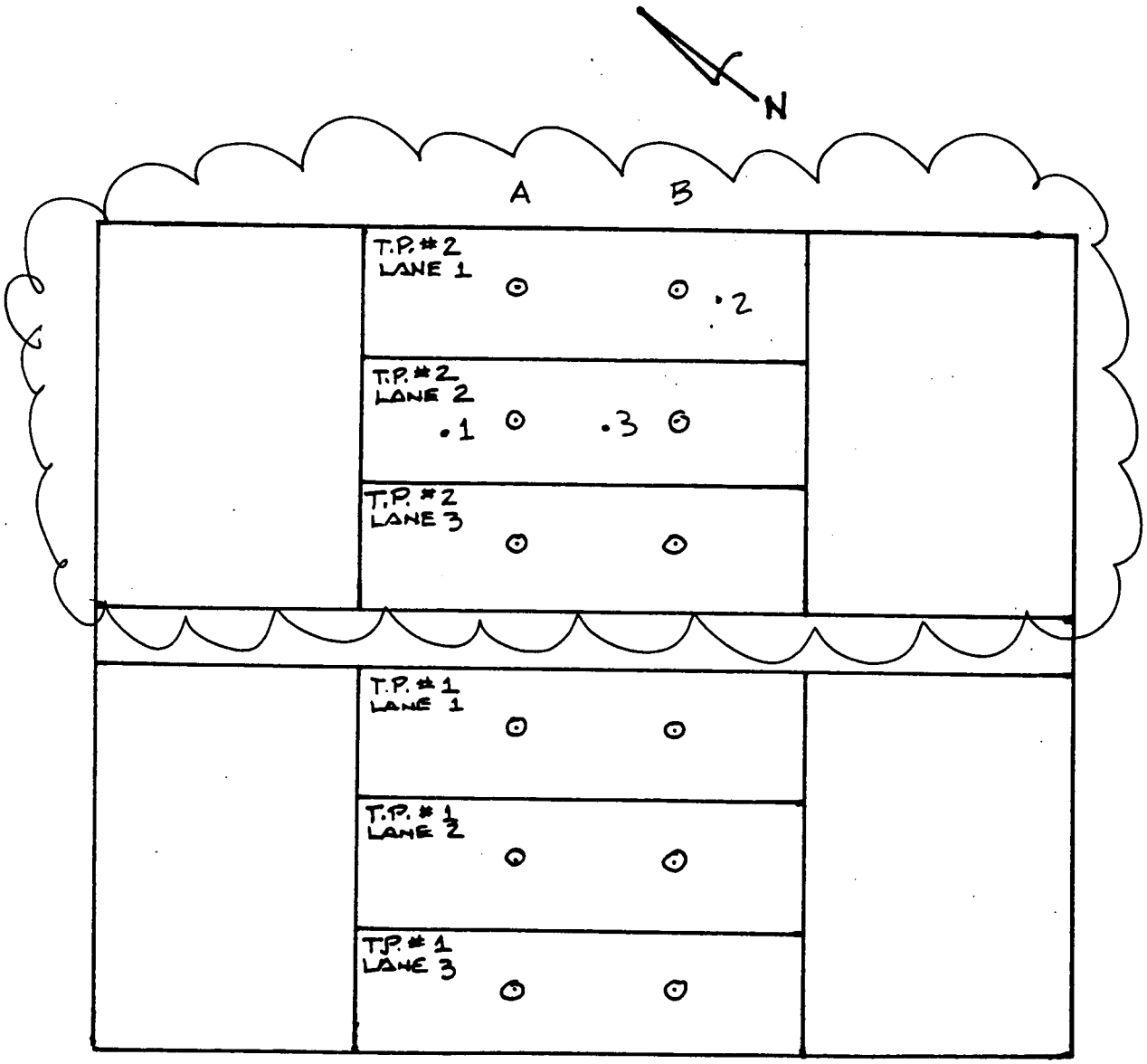
NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS		FIELD TEST RESULTS						RETEST NO.	QA ID
			OMC (%)	MAX DRY UNIT WT (PCF)	FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL		
962506-1	TEST PAD #2, LANE 2 E	6"/SUBGRADE	11.6	124.2	11.1	136.6	122.9	99.0	P			MP
962506-2	TEST PAD #2, LANE 1 W	6"/SUBGRADE	11.6	124.2	14.5	136.3	119.1	95.9	P			MP
962506-3	TEST PAD #2, LANE 2 CTR	6"/SUBGRADE	11.6	124.2	13.0	137.4	121.7	98.0	P			MP

GEOSYNTEC CONSULTANTS

Written by: Manuel Palau Date: 96 / 06 / 25 (YY MM DD) Reviewed by: _____ Date: __/__/__ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS SUBGRADE COMPACTION TEST

• FDT'S

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 26 day June month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ (CIRCLE ONE) LIFT THICKNESS (LOOSE/COMPACTED) 6"

% COMPACTION: ≥ 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C (CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
9626606-1	TEST PAD #2, LANE 1 E	6"/LIFT 1	11.6	124.2	13.5	136.6	120.3	96.9	P			MP
9626606-2*	TEST PAD #2, LANE 1 CTR	6"/LIFT 1	11.6	124.2	12.5	140.7	125.0	100.7	P			MP
9626606-3	TEST PAD #2, LANE 1 W	6"/LIFT 1	11.6	124.2	13.2	139.5	123.2	99.2	P			MP
9626606-4	TEST PAD #2, LANE 2 W	6"/LIFT 1	11.6	124.2	10.8	142.5	128.6	103.5		F	9626606-10	MP
9626606-5	TEST PAD #2, LANE 2 CTR	6"/LIFT 1	11.6	124.2	11.6	139.8	125.3	100.9		F	9626606-11	MP
9626606-6	TEST PAD #2, LANE 2 E	6"/LIFT 1	11.6	124.2	12.6	139.4	123.7	99.6	P		RE-WORKED	MP
9626606-7	TEST PAD #2, LANE 3 E	6"/LIFT 1	11.6	124.2	12.5	139.0	123.5	99.4		F	REWORKED	MP
9626606-8	TEST PAD #2, LANE 3 CTR	6"/LIFT 1	11.6	124.2	12.6	139.1	123.6	99.5	P		REWORKED	MP
9626606-9	TEST PAD #2, LANE 3 W	6"/LIFT 1	11.6	124.2	12.3	138.6	123.4	99.4		F	REWORKED	MP
9626606-10	TEST PAD #2, LANE 2 W	6"/LIFT 1	11.6	124.2	11.9	139.4	124.5	100.3		F	REWORKED	MP
9626606-11	TEST PAD #2, LANE 2 CTR	6"/LIFT 1	11.6	124.2	12.1	139.0	124.0	99.8		F	REWORKED	MP
9626606-12	TEST PAD #2, LANE 2 CTR	6"/LIFT 1	11.6	124.2	15.9	133.9	115.5	93.0		F	REWORKED	MP
9626606-13	TEST PAD #2, LANE 2 E	6"/LIFT 1	11.6	124.2	16.3	133.4	114.7	92.4		F	REWORKED	MP

* SC-1 LOCATION

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SHEET NO. 1 OF 3

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 26 day June month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE / COMPACTED): 6"

% COMPACTION: ≥ 95 MOISTURE RANGE: WINDOW ASTM D 698 (CIRCLE ONE) A B C / ASTM D 1557: A B C

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962606-14	TEST PAD #2, LANE 2 W	6" / LIFT 1	11.6	124.2	13.6	139.0	122.4	98.5	P			MP
962606-15	TEST PAD #2, LANE 3 W	6" / LIFT 1	11.6	124.2	14.6	134.0	117.0	94.2	P			MP
962606-16	TEST PAD #2, LANE 3 CTR	6" / LIFT 1	11.6	124.2	13.0	138.4	122.5	98.6	P			MP
962606-17	TEST PAD #2, LANE 3 E	6" / LIFT 1	11.6	124.2	14.1	136.7	119.8	98.4	P			MP
962606-18	TEST PAD #2, LANE 2 E	6" / LIFT 1	11.6	124.2	13.0	139.4	123.4	99.3	P			MP
962606-19	TEST PAD #2, LANE 2 CTR	6" / LIFT 1	11.6	124.2	14.0	136.8	120.0	96.6	P			MP
962606-20	TEST PAD #2, LANE 2 W	6" / LIFT 1	11.6	124.2	12.7	139.6	123.9	99.7	P			MP
	LANE 1 AVG				13.1	138.9	122.8	99	P			NM
	LANE 2 AVG				13.3	138.7	122.4	99	P			NM
	LANE 3 AVG				13.9	136.4	119.8	96	P			NM

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SHEET NO. 2 OF 3

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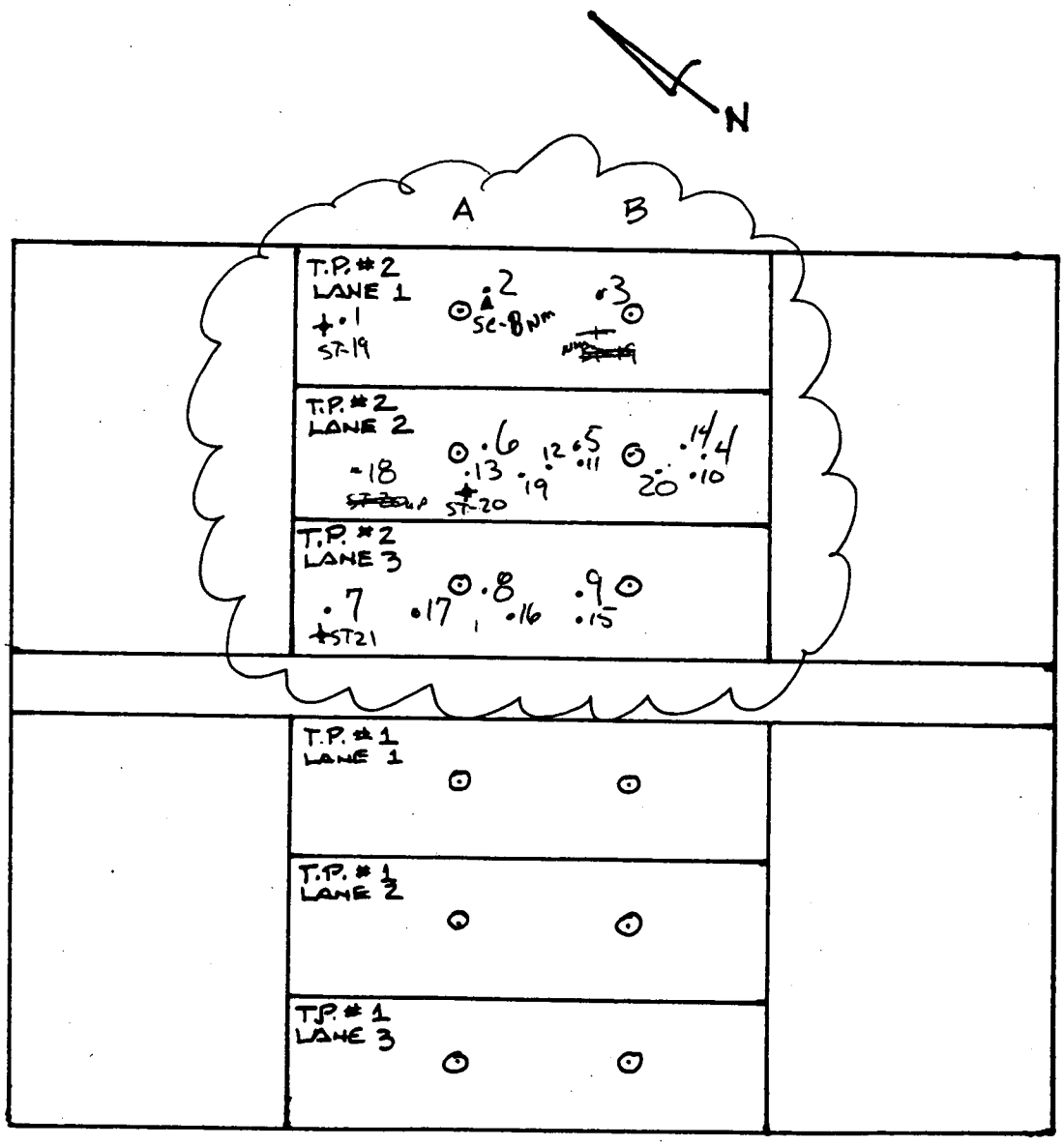
698

GEOSYNTEC CONSULTANTS

Written by: Manuel C Palau Date: 96 / 06 / 26 (YY MM DD) Reviewed by: _____ Date: __/__/__ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS TEST PAD #2, LIFT #1

- • FDT'S
- + SHELBY TUBE
- ▲ Sand cone

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 27 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED) 6"

% COMPACTION: ≥ 95 MOISTURE RANGE: _____ ASTM D 698: A B C (CIRCLE ONE) / ASTM D 1557: A B C _____

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962706-1	TEST PAD #2, ~~LIFT~~ LANE 3 E	6"/LIFT 2	11.6	124.2	12.8	136.3	120.8	97.3	P			MP
962706-2	TEST PAD #2, LANE 3 CTR	6"/LIFT 2	11.6	124.2	14.2	~~140.8~~ 137.5	120.8	96.9	P			MP
962706-3	TEST PAD #2, LANE 3 W	6"/LIFT 2	11.6	124.2	11.0	140.8	126.8	102.1	P			MP
962706-4	TEST PAD #2, LANE 2 W	6"/LIFT 2	11.6	124.2	12.9	139.8	123.8	99.7	P			MP
* 962706-5	TEST PAD #2, LANE 2 CTR	6"/LIFT 2	11.6	124.2	13.1	137.9	121.9	98.1	P			MP
962706-6	TEST PAD #2, LANE 2 E	6"/LIFT 2	11.6	124.2	12.7	138.2	122.6	98.7	P			MP
962706-7	TEST PAD #2, LANE 1 W	6"/LIFT 2	11.6	124.2	12.7	139.2	123.5	99.5	P		REWORKED	MP
962706-8	TEST PAD #2, LANE 1 CTR	6"/LIFT 2	11.6	124.2	12.7	139.3	123.6	99.5	P		REWORKED	MP
962706-9	TEST PAD #2, LANE 1 E	6"/LIFT 2	11.6	124.2	11.6	140.1	125.5	101.1	~~P~~ F	F	REWORKED	MP
962706-10	TEST PAD #2, LANE 1 E	6"/LIFT 2	11.6	124.2	12.7	138.7	123.1	99.1	P			MP
962706-11	TEST PAD #2, LANE 1 CTR	6"/LIFT 2	11.6	124.2	13.4	138.0	121.7	98.0	P			MP
962706-12	TEST PAD #2, LANE 1 W	6"/LIFT 2	11.6	124.2	12.7	139.4	123.7	99.6	P			MP
			LIFT 1 AVG		12.9	138.7	122.9	99				
			LIFT 2 AVG		12.9	138.6	122.8	99				
			LIFT 3 AVG		12.7	138.7	122.6	99				

* SC-2

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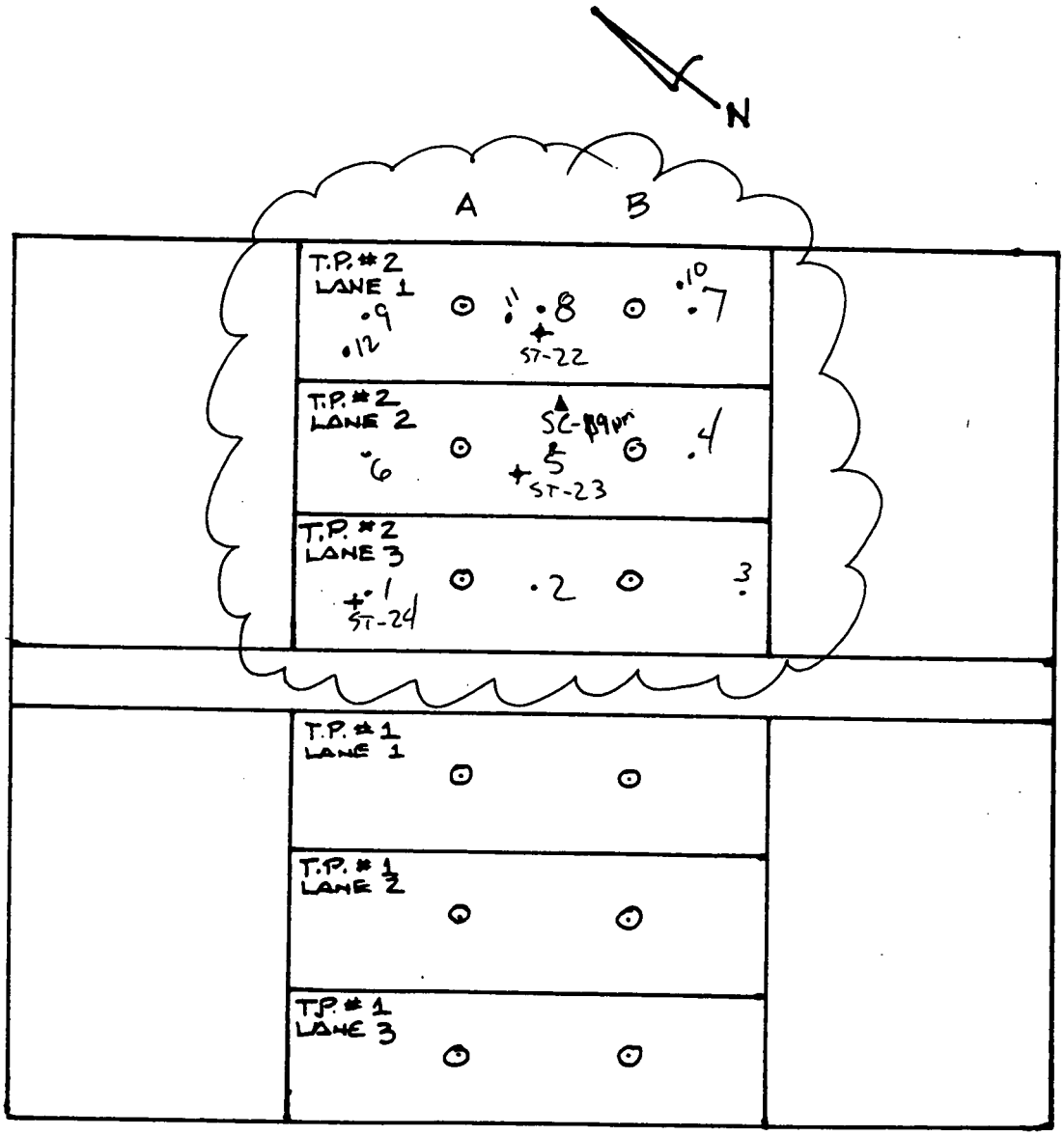
GeoSyntec Consultants

Written by: Manuel Palau Date: 96/06/27 (YY/MM/DD) Reviewed by: _____ Date: __/__/__ (YY/MM/DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS PAD#2 LIFT#2

• FDT'S

+ SHELBY TUBE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 27 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED): 6"

% COMPACTION: ≥ 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C (CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962706-13	TEST PAD #2, LANE 1 W	6" / LIFT 3	11.6	124.2	13.3	138.9	122.6	98.7	P			MP
962706-14	TEST PAD #2, LANE 1 CTR	6" / LIFT 3	11.6	124.2	11.9	139.6	124.8	100.5		F	REWORKED	MP
962706-15	TEST PAD #2, LANE 1 E	6" / LIFT 3	11.6	124.2	11.9	139.4	124.6	100.3		F	REWORKED	MP
962706-16	TEST PAD #2, LANE 2 E	6" / LIFT 3	11.6	124.2	12.5	136.8	121.7	98.0		F	REWORKED	MP
962706-17	TEST PAD #2, LANE 2 CTR	6" / LIFT 3	11.6	124.2	12.5	137.9	122.5	98.7		F	REWORKED	MP
962706-18	TEST PAD #2, LANE 2 W	6" / LIFT 3	11.6	124.2	12.2	140.0	124.8	100.5		F	REWORKED	MP
962706-19	TEST PAD #2, LANE 3 W	6" / LIFT 3	11.6	124.2	12.6	138.2	122.7	98.8	P			MP
962706-20	TEST PAD #2, LANE 3 CTR	6" / LIFT 3	11.6	124.2	11.9	135.9	121.4	97.8		F	REWORKED	MP
962706-21	TEST PAD #2, LANE 3 E	6" / LIFT 3	11.6	124.2	11.9	137.7	123.1	99.1		F	REWORKED	MP
~~962706-22~~	~~TEST PAD #2, LANE~~	~~6" / LIFT 3~~	~~11.6~~	~~124.2~~								
~~962706-23~~	~~TEST PAD #2, LANE~~	~~6" / LIFT 3~~	~~11.6~~	~~124.2~~								
~~962706-24~~	~~TEST PAD #2, LANE~~	~~6" / LIFT 3~~	~~11.6~~	~~124.2~~								
~~962706-25~~	~~TEST PAD #2, LANE~~	~~6" / LIFT 3~~	~~11.6~~	~~124.2~~								
			LANE 1 AVG.		12.4	139.3	123.9	100				
			LANE 2 AVG.		12.4	138.2	123.0	99				
			LANE 3 AVG.		12.1	137.2	122.5	99				

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SHEET NO. 1 OF 3

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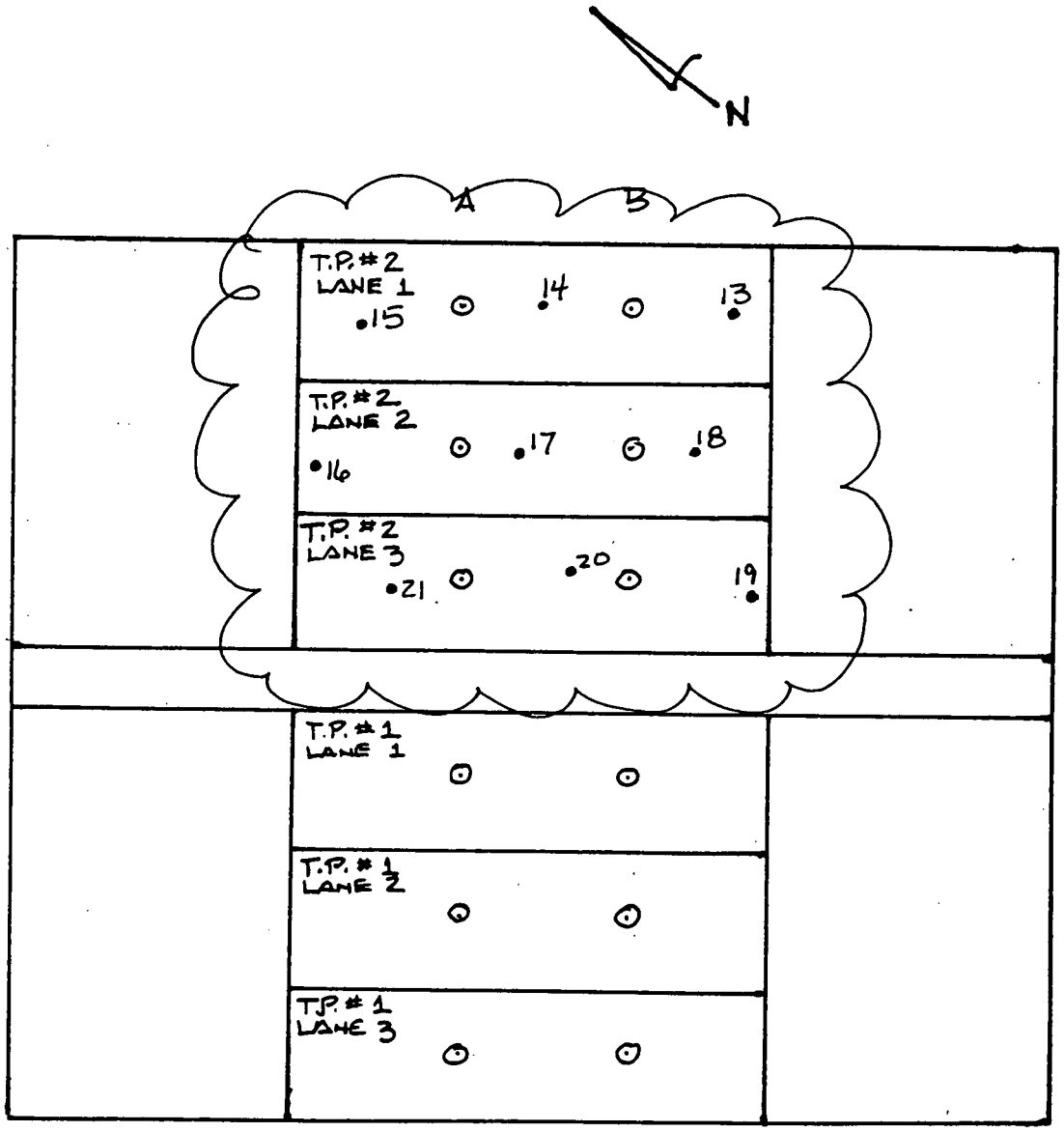
000033

Written by: M P Date: 96 / 06 / 27 (YY MM DD) Reviewed by: _____ Date: __ / __ / __ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 3

• FDT'S

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 28 day June month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON SITE BORROW MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED): 6"

% COMPACTION: >= 95 MOISTURE RANGE: WINDOW ASTM D 698: (CIRCLE ONE) A B C / ASTM D 1557: A B C

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO. 962806-	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
1	TEST PAD #2, LANE 1 E	6"/Lift 3	11.6	124.2	13.9	138.3	121.5	97.8	P			MP
2	TEST PAD #2, LANE 1 CTR	6"/LIFT 3	11.6	124.2	14.8	127.5	119.8	96.5	P			MP
3	TEST PAD #2, LANE 1 W	6"/LIFT 3	11.6	124.2	13.0	139.1	123.1	99.1	P			MP
4	TEST PAD #2, LANE 2 E	6"/LIFT 3	11.6	124.2	13.6	136.7	120.3	96.9	P			MP
5	TEST PAD #2, LANE 2 CTR	6"/LIFT 3	11.6	124.2	13.4	135.4	119.4	96.1	P			MP
6	TEST PAD #2, LANE 2 W	6"/LIFT 3	11.6	124.2	13.0	138.2	122.3	98.5	P			MP
7	TEST PAD #2, LANE 3 W	6"/LIFT 3	11.6	124.2	14.0	136.1	119.4	96.1	P			MP
8	TEST PAD #2, LANE 3 CTR	6"/LIFT 3	11.6	124.2	14.5	134.9	117.8	94.9	P			MP
9	TEST PAD #2, LANE 3 E	6"/LIFT 3	11.6	124.2	14.0	135.5	118.9	95.7	P			MP
	LANE 1 AVG				13.9	135.0	118.5	95	P			NM
	LANE 2 AVG				13.3	136.8	120.7	97	P			NM
	LANE 3 AVG				14.2	135.5	118.7	96	P			NM

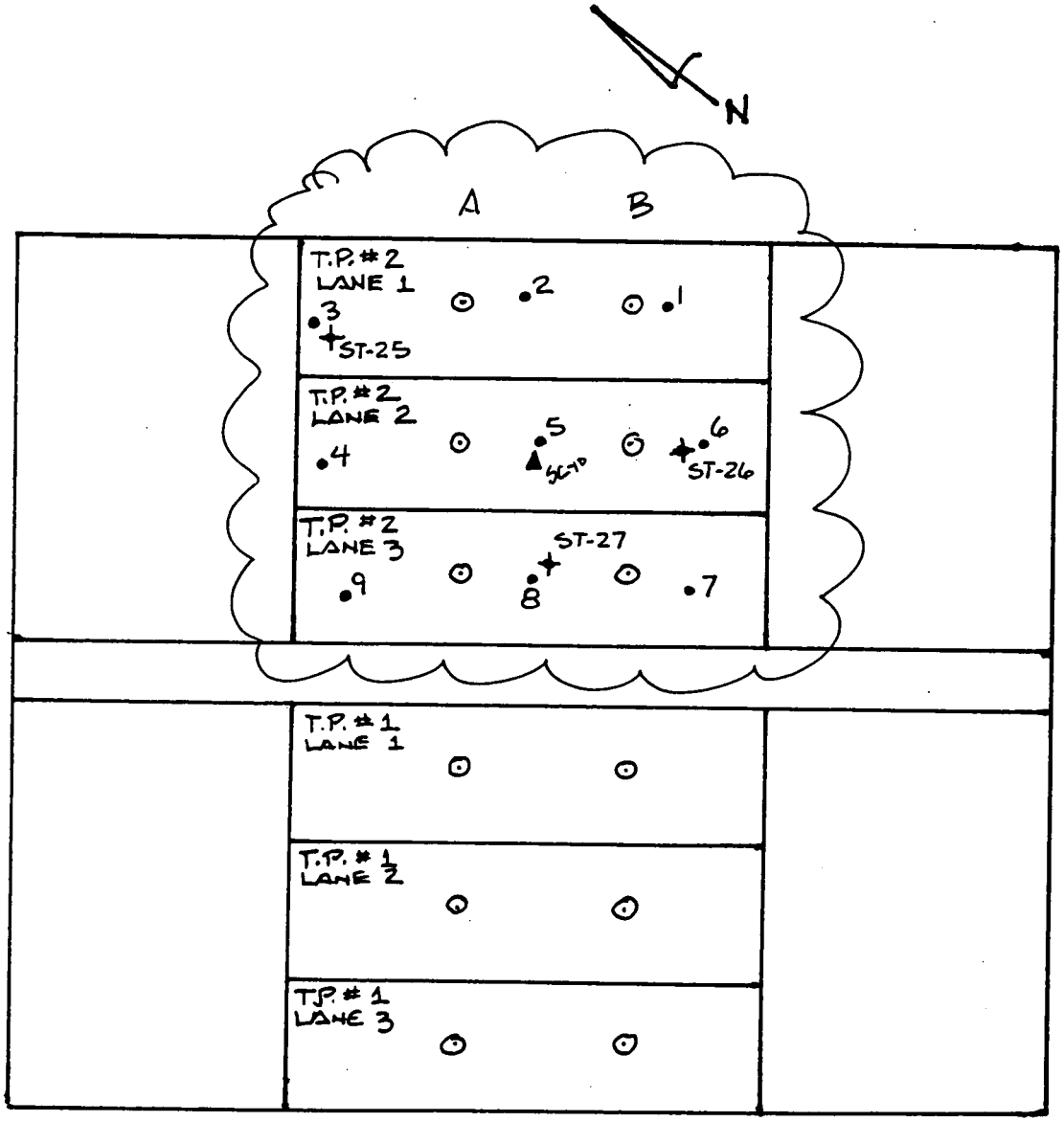
/NM

000035

GEOSYNTEC CONSULTANTS

Written by: MP Date: 96/06/28 (YY/MM/DD) Reviewed by: _____ Date: __/__/__ (YY/MM/DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 3

• FDT'S

+ SHELBY TUBE

▲ SAND CONE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3400 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 28 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED): 6"

% COMPACTION: ≥ 95 MOISTURE RANGE: WINDOW ASTM D 698: (CIRCLE ONE) A B C / ASTM D 1557: A B C

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962806-10	TEST PAD #2, LANE 1 E	6"/LIFT 4	11.6	124.2	14.3	135.1	118.2	95.1	P			MP
962806-11	TEST PAD #2, LANE 1 CTR	6"/LIFT 4	11.6	124.2	13.9	135.9	119.3	96.1	P			MP
962806-12	TEST PAD #2, LANE 1 W	6"/LIFT 4	11.6	124.2	14.6	133.6	117.2	94.0	P			MP
962806-13	TEST PAD #2, LANE 2 E	6"/LIFT 4	11.6	124.2	13.3	136.4	120.5	97.0	P			MP
962806-14	TEST PAD #2, LANE 2 CTR	6"/LIFT 4	11.6	124.2	13.6	133.6	117.6	95.6	P			MP
962806-15	TEST PAD #2, LANE 2 W	6"/LIFT 4	11.6	124.2	14.2	135.0	118.2	95.2	P			MP
962806-16	TEST PAD #2, LANE 3 W	6"/LIFT 4	11.6	124.2	14.2	134.0	117.4	94.5	P	F	REWORKED	MP
962806-17	TEST PAD #2, LANE 3 CTR	6"/LIFT 4	11.6	124.2	15.3	132.8	115.2	92.7		F	REWORKED	MP
962806-18	TEST PAD #2, LANE 3 E	6"/LIFT 4	11.6	124.2	13.1	136.4	120.6	97.1		F	REWORKED	MP
~~962806-19~~	~~EAST RAMP TEST PAD #2~~	~~6"/SC-3~~	~~11.6~~	~~124.2~~	~~15.7~~	~~132.4~~	~~114.5~~	*	P			MP
962806-19	EAST RAMP TP-1	6"	17.0	111.5	15.7	132.4	114.5	103	*		-	MP
	LANE 1 AVG				14.1	134.9	118.2	95	P			NM
	LANE 2 AVG				13.7	135.0	118.7	96	P			NM
	LANE 3 AVG				14.2	134.4	117.7	95	P			NM

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* FOR CALIBRATION WITH SAND CONE ONLY

NM

SHEET NO. 1 OF 2

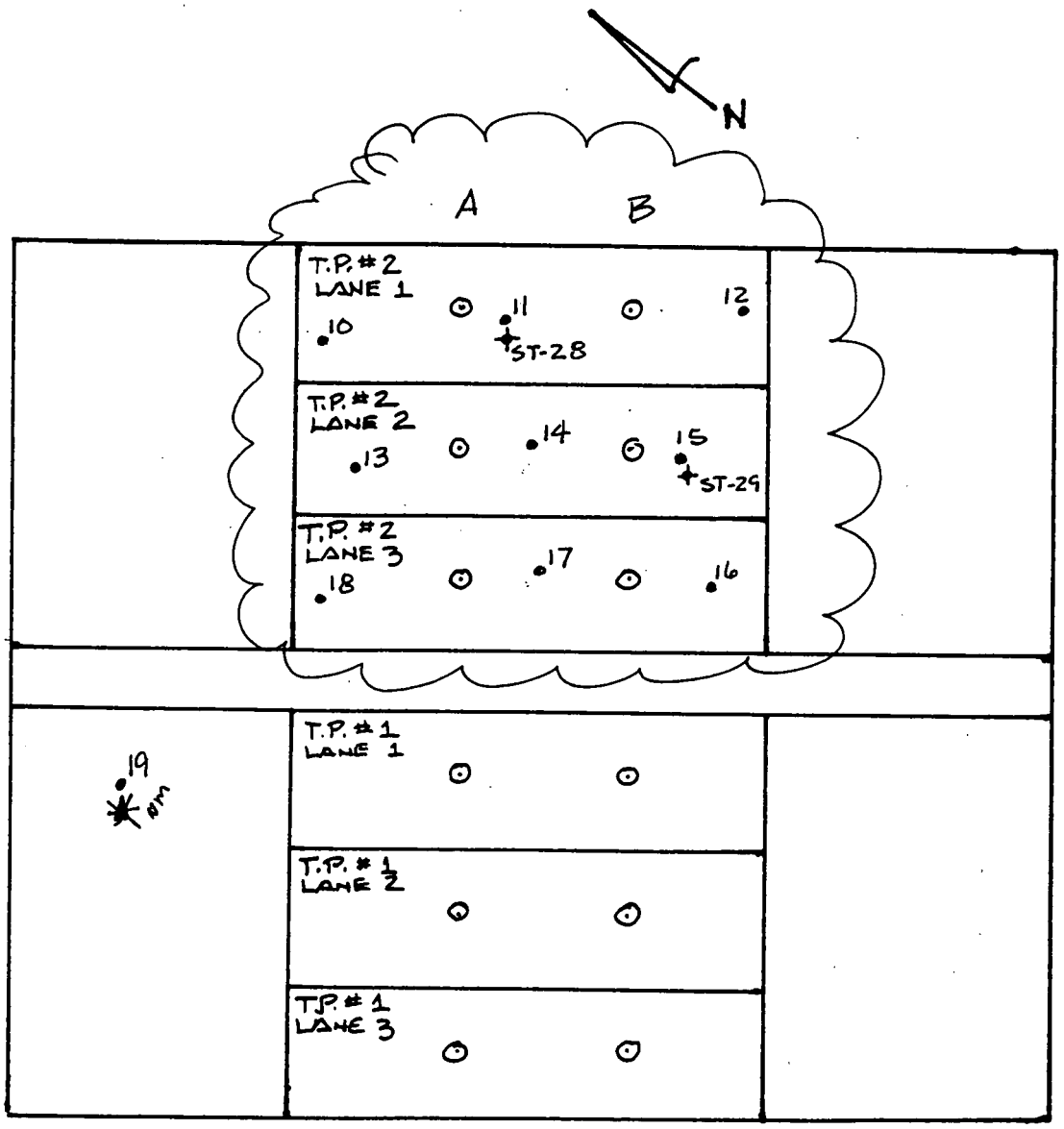
000052

09

GEOSYNTEC CONSULTANTS

Written by: MP Date: 96 / 06 / 28 (YY MM DD) Reviewed by: _____ Date: __ / __ / __ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 4

- • FDT'S
- + SHELBY TUBES
- ▲ SAND CONE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 29 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE/COMPACTED): 6"
(CIRCLE ONE)

% COMPACTION: ≥ 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C
(CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS		FIELD TEST RESULTS						RETEST NO.	QA ID
			OMC (%)	MAX DRY UNIT WT (PCF)	FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL		
962906-1	TEST PAD #2, LANE 3 E	6" / LIFT 4	11.6	124.2	13.9	136.9	120.9	96.9	P			MP
962906-2	TEST PAD #2, LANE 3 CTR	6" / LIFT 4	11.6	124.2	14.9	136.3	118.6	95.5	P			MP
962906-3	TEST PAD #2, LANE 3 W	6" / LIFT 4	11.6	124.2	13.7	134.2	119.8	96.5	P			MP
	LANE 3 AVG.				14.1	136.5	119.6	96	P			NM

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SHEET NO. 1 OF 2

/NM

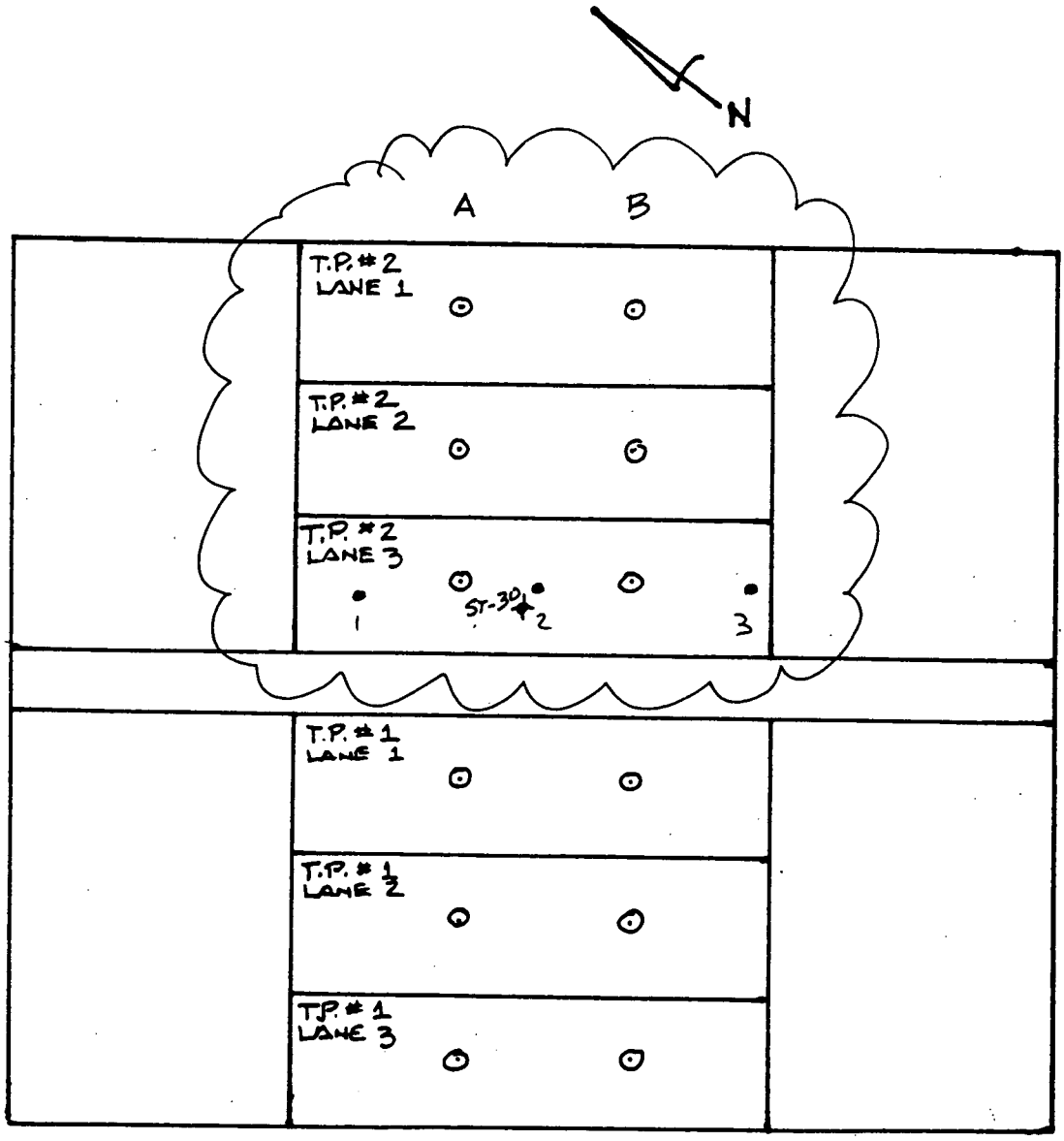
000039

000008

GEOSYNTEC CONSULTANTS

Written by: MANUEL PALAU Date: 96/06/29 (YY/MM/DD) Reviewed by: _____ Date: __/__/__ (YY/MM/DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS TEST PAD #2 (ITY)

• FDT'S

+ SHELBY TUBE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 29 day JUNE month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ (CIRCLE ONE) LIFT THICKNESS (LOOSE/COMPACTED): 6"

% COMPACTION: ≥ 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C (CIRCLE ONE)

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS		FIELD TEST RESULTS						RETEST NO.	QA ID
			OMC (%)	MAX DRY UNIT WT (PCF)	FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL		
962906-4	TEST PAD#2, LANE 1 W	6" / LIFT 5	11.6	124.2	12.4	138.8	123.5	99.5	P			MP
962906-5	TEST PAD#2, LANE 1 CTR	6" / LIFT 5	11.6	124.2	14.4	136.4	119.2	96.0	P			MP
962906-6	TEST PAD#2, LANE 1 E	6" / LIFT 5	11.6	124.2	14.4	136.1	119.0	95.8	P			MP
962906-7	TEST PAD#2, LANE 2 E	6" / LIFT 5	11.6	124.2	13.5	138.0	121.6	97.9	P			MP
962906-8	TEST PAD#2, LANE 2 CTR	6" / LIFT 5	11.6	124.2	14.0	137.1	120.2	96.0	P			MP
962906-9	TEST PAD#2, LANE 2 W	6" / LIFT 5	11.6	124.2	14.0	136.0	119.3	96.1	P			MP
962906-10	TEST PAD#2, LANE 3 W	6" / LIFT 5	11.6	124.2	12.6	139.0	123.5	99.4	P			MP
962906-11	TEST PAD#2, LANE 3 CTR	6" / LIFT 5	11.6	124.2	13.0	137.7	121.8	98.1	P			MP
962906-12	TEST PAD#2, LANE 3 E	6" / LIFT 5	11.6	124.2	12.5	139.3	123.8	99.7	P			MP
	LANE 1 AVG				13.7	137.1	120.6	97	P			NM
	LANE 2 AVG				13.8	137.0	120.4	97	P			NM
	LANE 3 AVG				12.7	138.7	123.1	99	P			NM

GEO SYNTEC CONSULTANTS FILE NO.: 2-20-FNM

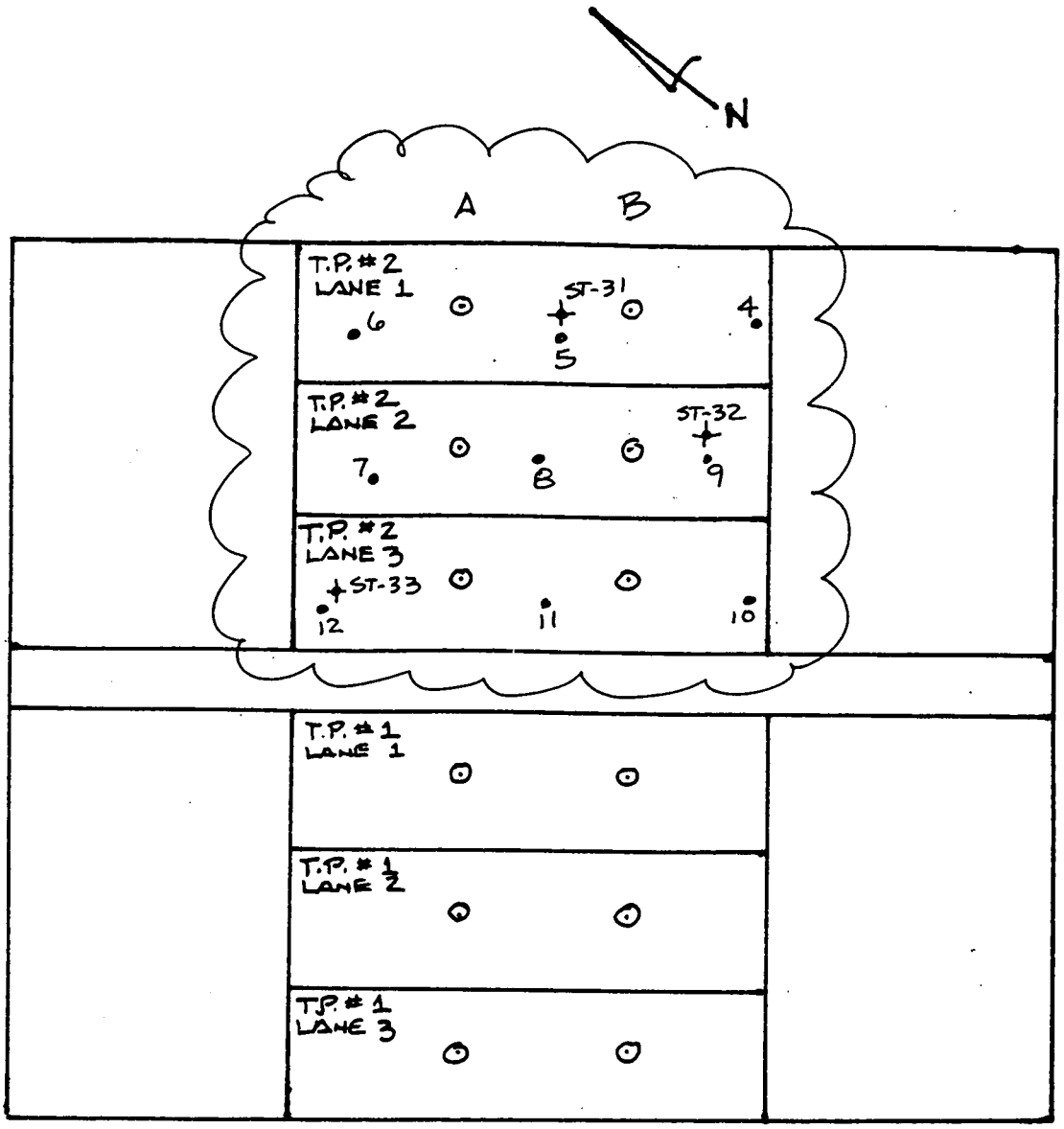
SHEET NO. 1 OF 2

000041

009

Written by: MP Date: 96 / 06 / 29 (YY MM DD) Reviewed by: _____ Date: __ / __ / __ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 5

• FDT'S

+ SHELBY TUBE

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD NUCLEAR MOISTURE/DENSITY TEST LOG (ASTM D 3017 AND ASTM D 2922)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 29 day June month 1996 year

SPECIFICATION REQUIREMENTS

SOURCE: ON-SITE BORROW MATERIAL TYPE: FILL / SUBGRADE / SUBBASE / CLAY / OTHER: _____ LIFT THICKNESS (LOOSE / COMPACTED): 6"

% COMPACTION: ≥ 95 MOISTURE RANGE: WINDOW ASTM D 698: A B C / ASTM D 1557: A B C

NUCLEAR GAUGE TYPE: TROXLER 3440 NUCLEAR GAUGE SERIAL NO. 20202 COR. FACTOR: _____

TEST NO.	TEST LOCATION	PROBE DEPTH/ ELEV/ LIFT NO.	LAB RESULTS OMC (%)	LAB RESULTS MAX DRY UNIT WT (PCF)	FIELD TEST RESULTS FMC (%)	WET UNIT WT (PCF)	DRY UNIT WT (PCF)	PERCENT COMPACT (%)	PASS	FAIL	RETEST NO.	QA ID
962906-13	TEST PAD #2, LANE 1 E	6"/LIFT 6	11.6	124.2	12.9	138.8	122.9	98.9	P			MP
962906-14	TEST PAD #2, LANE 1 CTR	6"/LIFT 6	11.6	124.2	13.2	138.7	122.5	98.7	P			MP
962906-15	TEST PAD #2, LANE 1 W	6"/LIFT 6	11.6	124.2	13.1	137.1	121.2	97.6	P			MP
962906-16	TEST PAD #2, LANE 2 W	6"/LIFT 6	11.6	124.2	13.5	137.0	120.7	97.2	P			MP
962906-17	TEST PAD #2, LANE 2 CTR	6"/LIFT 6	11.6	124.2	14.0	138.1	121.1	97.5	P			MP
962906-18	TEST PAD #2, LANE 2 E	6"/LIFT 6	11.6	124.2	12.7	138.5	122.9	98.9	P			MP
962906-19	TEST PAD #2, LANE 3 E	6"/LIFT 6	11.6	124.2	13.0	139.1	123.1	99.1	P			MP
962906-20	TEST PAD #2, LANE 3 CTR	6"/LIFT 6	11.6	124.2	13.2	138.6	122.4	98.6	P			MP
962906-21	TEST PAD #2, LANE 3 W	6"/LIFT 6	11.6	124.2	12.8	137.2	121.6	97.9	P			MP
	LANE 1 AVG				13.1	138.2	122.2	98	P			NM
	LANE 2 AVG				13.4	137.9	121.6	98	P			NM
	LANE 3 AVG				13.0	138.3	122.4	99	P			NM

NM

GEO SYNTEC CONSULTANTS FILE NO.: 2-20-FNM

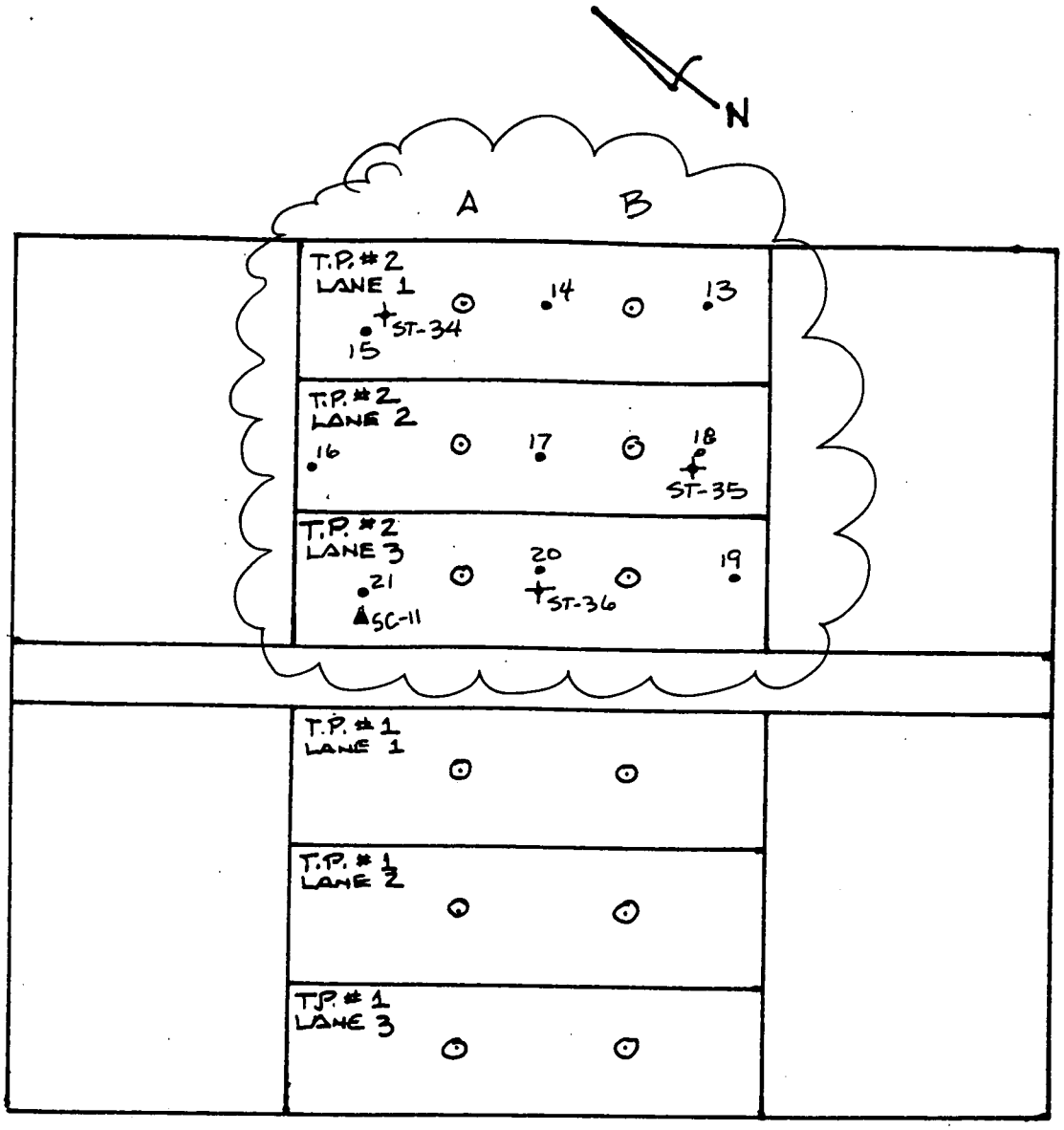
SHEET NO. 1 OF 2

000018

608

Written by: MP Date: 96 / 06 / 29 (YY MM DD) Reviewed by: _____ Date: __ / __ / __ (YY MM DD)

Client: FERMCO Project: TEST PAD PROGRAM Project/~~Proposal~~ No.: GE 3900 Task No.: 5.3



TEST PAD TEST LOCATIONS LIFT 6

- • FDT'S
- + SHELBY TUBE
- ▲ SAND CONE

APPENDIX F

APPENDIX F

SAND CONE TEST DATA SHEETS

- Field Calibration of Bulk Density of Sand for Sand Cone
- Field Sand Cone Density Test

Field Calibration of Bulk Density for Sand for Sand Cone

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD CALIBRATION OF BULK DENSITY OF SAND FOR SAND CONE (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: _____

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 29 day MAY month 1996 year

SAND SOURCE: FLINT SHOT - OTTAWA SAND - BOART LONGYEAR QA ID: NM

SAND SHALL BE UNIFORM WITH 100% PASSING THE NO. 10 SIEVE, LESS THEN 3% PASSING THE NO. 60 SIEVE, AND UNIFORMITY COEFFICIENT $Cu = D_{60} / D_{10}$ LESS THAN 2.0. A MINIMUM OF 3 BULK DENSITY DETERMINATIONS SHALL BE MADE ON EACH BAG OF SAND USED. THE VARIATION BETWEEN ANY TRIAL AND THE AVERAGE SHALL NOT BE GREATER THAN 1% OF THE AVERAGE. BULK-DENSITY CALIBRATION SHALL BE CONDUCTED REGULARLY THROUGHOUT THE PROJECT. (INTERVALS SHOULD NOT EXCEED 14 DAYS)

wt. of sand in funnel = 3.70 lbs.

			TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 4	TRIAL 5
A	INITIAL WEIGHT OF CONTAINER	(lbs)	15.72	15.71	15.72	15.72	15.71
B	FINAL WEIGHT OF SAND CONTAINER	(lbs)	8.75	8.73	8.74	8.73	8.73
C	WEIGHT OF SAND = B-A	(lbs)	6.97	6.98	6.98	6.99	6.98
D		(ft^3)					
E	VOLUME OF CONTAINER (1)	(ft^3)	0.073	0.073	0.073	0.073	0.073
F	DENSITY OF SAND = C/E	(pcf)	95.4	95.6	95.6	95.8	95.6

AVERAGE BULK UNIT WEIGHT (DENSITY) OF SAND (pcf) = 95.6 (NOTE: OTTAWA SAND DENSITY IS APPROXIMATELY 95 TO 98 LB/FT^3)

NOTE: (1) THE VOLUME OF THE CONTAINER MUST BE DETERMINED. A 6-in. DIAMETER MOLD MUST HAVE A CAPACITY OF 1/13.333 ± 0.0009 ft^3. THE MOLD VOLUME SHOULD BE CALCULATED FROM THE AVERAGE OF AT LEAST SIX INTERNAL DIAMETER AND THREE VERTICAL HEIGHT MEASUREMENTS MADE TO THE NEAREST 0.001 in. OR FROM THE AMOUNT OF WATER REQUIRED TO COMPLETELY FILL THE MOLD AND CORRECTED FOR TEMPERATURE VARIANCE.

Field Sand Cone Density Test

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 06 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UPPER HOR. BR. TILL QA ID: NM

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRCLE ONE) FILL / (SUBGRADE) / SUBBASE / CLAY / OTHER:

% COMPACTION: 95 MOISTURE CONTENT RANGE:

TEST LOCATION: TEST PAD 1, LANE 2 TEST NO.: (960606-3) SC-1

FIELD TEST DATA – ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	5.10
B	INITIAL WT. OF SAND & JAR	(lbs)	15.71	I	WT. OF TARE NO.: ____	(lbs)	0.54
C	FINAL WT. OF SAND & JAR	(lbs)	8.47	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	4.56
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	HGM ~~7~~.24	K	WET UNIT WT. = J/G	(pcf)	123.2
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	99.7
F	WT. OF SAND IN HOLE = D-E	(lbs)	3.54	N	PERCENT COMPACTION = M/U	(%)	102 NM ~~101~~
G	VOLUME OF HOLE = F/A	(ft^3)	0.037				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT – ASTM D 2216

O	WT. OF TARE NO. A	(grams)	8.0	R	WT. OF WATER = P-Q	(grams)	33.9
P	WT. OF WET SOIL & TARE	(grams)	HGM 185.~~5~~	S	WT. OF DRY SOIL = Q-O	(grams)	143.6
Q	WT. OF DRY SOIL & TARE	(grams)	151.6	T	MOISTURE CONTENT = (R/S)X100	(%)	23.6

COMPACTION TEST DATA

SAMPLE REFERENCE NO.	UH-01	U	MAXIMUM DRY UNIT WT.	(pcf)	99.2
TEST STANDARD USED	D698 A	V	OPTIMUM MOISTURE CONTENT	(%)	22.8

COMPARISON WITH NUCLEAR GAUGE – ASTM D 2922 AND D 3017

TEST NO.	960606-3	MOISTURE CONTENT	(%)	23.6
WET UNIT WT.	(pcf) 120.7	DRY UNIT WT.	(pcf)	HGM 97.7 ~~78.9~~

000049

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NM

SHEET NO. 1 OF 1

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 14 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: WHBT QA ID: JM

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRLCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER:

% COMPACTION: 95 MOISTURE CONTENT RANGE:

TEST LOCATION: TEST PAD 1, LANE 2 TEST NO.: SC-2

FIELD TEST DATA - ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	6.21
B	INITIAL WT. OF SAND & JAR	(lbs)	15.93	I	WT. OF TARE NO.: ____	(lbs)	.54
C	FINAL WT. OF SAND & JAR	(lbs)	7.73	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	5.67
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	8.20 ~~3.70~~	K	WET UNIT WT. = J/G	(pcf)	120.6
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	98.8
F	WT. OF SAND IN HOLE = D-E	(lbs)	4.50	N	PERCENT COMPACTION = M/U	(%)	96
G	VOLUME OF HOLE = F/A	(ft^3)	0.047				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT - ASTM D 2216

O	WT. OF TARE NO. 1	(grams)	131.3	R	WT. OF WATER = P-Q	(grams)	29.7
P	WT. OF WET SOIL & TARE	(grams)	295.5	S	WT. OF DRY SOIL = Q-O	(grams)	134.5
Q	WT. OF DRY SOIL & TARE	(grams)	265.8	T	MOISTURE CONTENT = (R/S)X100	(%)	22.1

COMPACTION TEST DATA

SAMPLE REFERENCE NO. NJM	AVG COMP ~~WH04~~	U	MAXIMUM DRY UNIT WT. (pcf)	103.0 ~~106.8~~ NJM
TEST STANDARD USED	D698B	V	OPTIMUM MOISTURE CONTENT (%)	21.7 ~~20.5~~ NJM

COMPARISON WITH NUCLEAR GAUGE - ASTM D 2922 AND D 3017

TEST NO.	4	MOISTURE CONTENT	(%)	22.3
WET UNIT WT. (pcf)	124.0	DRY UNIT WT.	(pcf)	101.4

000050

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UHBT QA ID: NM

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRLCLE ONE) FILL / SUBGRADE / SUBBASE / (CLAY) / OTHER:

% COMPACTION: 95 MOISTURE CONTENT RANGE:

TEST LOCATION: TEST PAD 1, Lane 3, LIFT 3 TEST NO.: 3

FIELD TEST DATA – ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	6.24
B	INITIAL WT. OF SAND & JAR	(lbs)	16.03	I	WT. OF TARE NO.: ____	(lbs)	.54
C	FINAL WT. OF SAND & JAR	(lbs)	8.01	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	5.70
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	8.02	K	WET UNIT WT. = J/G	(pcf)	126.7
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	105.1
F	WT. OF SAND IN HOLE = D-E	(lbs)	4.32	N	PERCENT COMPACTION = M/U	(%)	95 NM ~~98~~
G	VOLUME OF HOLE = F/A	(ft^3)	0.045				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT – ASTM D 2216

O	WT. OF TARE NO. 2	(grams)	131.1	R	WT. OF WATER = P-Q	(grams)	27.4
P	WT. OF WET SOIL & TARE	(grams)	292.1	S	WT. OF DRY SOIL = Q-O	(grams)	133.6
Q	WT. OF DRY SOIL & TARE	(grams)	264.7	T	MOISTURE CONTENT = (R/S)X100	(%)	20.5

COMPACTION TEST DATA

SAMPLE REFERENCE NO. NM	UH-20 ~~UH-04~~	U	MAXIMUM DRY UNIT WT.	(pcf)	110.3 NM ~~106.8~~
TEST STANDARD USED	D698-B	V	OPTIMUM MOISTURE CONTENT	(%)	18.0 ~~20.5~~

COMPARISON WITH NUCLEAR GAUGE – ASTM D 2922 AND D 3017

TEST NO.	961506-B	MOISTURE CONTENT	(%)	19.9
WET UNIT WT.	(pcf) 128.5	DRY UNIT WT.	(pcf)	107.2

000051

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 16 day JUNE month 1996 year

SOURCE: MATERIAL TYPE: UHBT QA ID: NM

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRLCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER:

% COMPACTION: 95 MOISTURE CONTENT RANGE:

TEST LOCATION: TEST PAD 1 LIFT 4 TEST NO.: 4

FIELD TEST DATA – ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	6.70
B	INITIAL WT. OF SAND & JAR	(lbs)	16.08	I	WT. OF TARE NO.: ____	(lbs)	.54
C	FINAL WT. OF SAND & JAR	(lbs)	7.64	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	6.16
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	8.44	K	WET UNIT WT. = J/G	(pcf)	123.2
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	102.8
F	WT. OF SAND IN HOLE = D-E	(lbs)	4.74	N	PERCENT COMPACTION = M/U	(%)	93.2
G	VOLUME OF HOLE = F/A	(ft^3)	0.050				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT – ASTM D 2216

O	WT. OF TARE NO. 1	(grams)	131.3	R	WT. OF WATER = P-Q	(grams)	23.0
P	WT. OF WET SOIL & TARE	(grams)	270.2	S	WT. OF DRY SOIL = Q-O	(grams)	115.9
Q	WT. OF DRY SOIL & TARE	(grams)	247.2	T	MOISTURE CONTENT = (R/S)X100	(%)	19.8

COMPACTION TEST DATA

SAMPLE REFERENCE NO.	UH-20	U	MAXIMUM DRY UNIT WT.	(pcf)	110.3
TEST STANDARD USED	D698B	V	OPTIMUM MOISTURE CONTENT	(%)	18.0

COMPARISON WITH NUCLEAR GAUGE – ASTM D 2922 AND D 3017

TEST NO.	961606-5	MOISTURE CONTENT		(%)	17.4
WET UNIT WT.	(pcf) 129.5	DRY UNIT WT.		(pcf)	110.3

000052

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 20 day JUNE month 1996 year

SOURCE: ~~TEST PAD~~ ON-SITE BORROW MATERIAL TYPE: UHBT QA ID: MP

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / (CLAY) OTHER:

% COMPACTION: ≥ 95% MOISTURE CONTENT RANGE: WINDOW

TEST LOCATION: TEST PAD 1, LANE 2, LIFT 5 TEST NO.: SC-5

FIELD TEST DATA – ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	7.55
B	INITIAL WT. OF SAND & JAR	(lbs)	16.18	I	WT. OF TARE NO.: ____	(lbs)	0.63
C	FINAL WT. OF SAND & JAR	(lbs)	7.41	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	6.92
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	8.77	K	WET UNIT WT. = J/G	(pcf)	130.6
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	109.8
F	WT. OF SAND IN HOLE = D-E	(lbs)	5.07	N	PERCENT COMPACTION = M/U	(%)	98.5
G	VOLUME OF HOLE = F/A	(ft^3)	0.053				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT – ASTM D 2216

O	WT. OF TARE NO. 1	(grams)	131.3	R	WT. OF WATER = P-Q	(grams)	20.6
P	WT. OF WET SOIL & TARE	(grams)	261.1	S	WT. OF DRY SOIL = Q-O	(grams)	109.2
Q	WT. OF DRY SOIL & TARE	(grams)	240.5	T	MOISTURE CONTENT = (R/S)X100	(%)	18.9

COMPACTION TEST DATA

SAMPLE REFERENCE NO. LAB SAMPLE*	96B79 MP	U	MAXIMUM DRY UNIT WT.	(pcf)	111.5
TEST STANDARD USED ASTM	D698-B	V	OPTIMUM MOISTURE CONTENT	(%)	17.0

COMPARISON WITH NUCLEAR GAUGE – ASTM D 2922 AND D 3017

TEST NO.	962006-5	MOISTURE CONTENT	000053	(%)	18.3
WET UNIT WT.	(pcf) 128.8	DRY UNIT WT.		(pcf)	108.9

* Using Standard Proctor and Perm Window developed during Preconstruction Lab Testing. JM

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 21 day JUNE month 1996 year

SOURCE: ON SITE BORROW MATERIAL TYPE: UHBT QA ID: MP

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRLCLE ONE) FILL / SUBGRADE / SUBBASE / (CLAY) / OTHER:

% COMPACTION: ≥95% MOISTURE CONTENT RANGE: WINDOW

TEST LOCATION: TEST PAD 1, LANE 1, LIFT 6 TEST NO.: SC-6

FIELD TEST DATA – ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	8.07
B	INITIAL WT. OF SAND & JAR	(lbs)	16.13	I	WT. OF TARE NO.: ____	(lbs)	0.62
C	FINAL WT. OF SAND & JAR	(lbs)	6.88	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	7.45
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	9.25	K	WET UNIT WT. = J/G	(pcf)	128.45
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	107.4
F	WT. OF SAND IN HOLE = D-E	(lbs)	5.55	N	PERCENT COMPACTION = M/U	(%)	96.3
G	VOLUME OF HOLE = F/A	(ft^3)	0.058				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT – ASTM D 2216

O	WT. OF TARE NO. 1	(grams)	131.3	R	WT. OF WATER = P-Q	(grams)	24.4
P	WT. OF WET SOIL & TARE	(grams)	280.0	S	WT. OF DRY SOIL = Q-O	(grams)	124.3
Q	WT. OF DRY SOIL & TARE	(grams)	255.6	T	MOISTURE CONTENT = (R/S)X100	(%)	19.6

COMPACTION TEST DATA

SAMPLE REFERENCE NO.	LAB SAMPLE*	96B74	U	MAXIMUM DRY UNIT WT.	(pcf)	111.5
TEST STANDARD USED	ASTM	D-698B	V	OPTIMUM MOISTURE CONTENT	(%)	17.0

COMPARISON WITH NUCLEAR GAUGE – ASTM D 2922 AND D 3017

TEST NO.		962106-5	MOISTURE CONTENT	(%)	19.1
WET UNIT WT.	(pcf)	129.3	DRY UNIT WT.	(pcf)	108.5

000054

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SHEET NO. 1 OF 1

NM

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 23 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: UH BT QA ID: MP

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / NM SUBBASE / CLAY / OTHER:

% COMPACTION: ≥ 95% MOISTURE CONTENT RANGE: PERM WINDOW

TEST LOCATION: TEST PAD #2, LANE 2, FOUNDATION* TEST NO.: SC-~~8~~7 NM

FIELD TEST DATA – ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	4.91
B	INITIAL WT. OF SAND & JAR	(lbs)	16.48	I	WT. OF TARE NO.: ____	(lbs)	0.63
C	FINAL WT. OF SAND & JAR	(lbs)	9.69	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	~~4.93~~ 4.28
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	6.79	K	WET UNIT WT. = J/G	(pcf)	133.8
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	113.8
F	WT. OF SAND IN HOLE = D-E	(lbs)	3.09	N	PERCENT COMPACTION = M/U	(%)	102.1
G	VOLUME OF HOLE = F/A	(ft^3)	0.032				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT – ASTM D 2216

O	WT. OF TARE NO. 4	(grams)	131.0	R	WT. OF WATER = P-Q	(grams)	22.3
P	WT. OF WET SOIL & TARE	(grams)	280.0	S	WT. OF DRY SOIL = Q-O	(grams)	126.7
Q	WT. OF DRY SOIL & TARE	(grams)	257.7	T	MOISTURE CONTENT = (R/S)X100	(%)	17.6

COMPACTION TEST DATA

SAMPLE REFERENCE NO.	LAB SAMPLE	96B74	U	MAXIMUM DRY UNIT WT.	(pcf)	111.5
TEST STANDARD USED	ASTM	D698B	V	OPTIMUM MOISTURE CONTENT	(%)	17.0

COMPARISON WITH NUCLEAR GAUGE – ASTM D 2922 AND D 3017

TEST NO.		962306-1	MOISTURE CONTENT	(%)	17.1
WET UNIT WT.	(pcf)	130.9	DRY UNIT WT.	(pcf)	111.8

000055

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SHEET NO. 1 OF 1 NM

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 26 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT QA ID: UP

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER:

% COMPACTION: ≥95% MOISTURE CONTENT RANGE: WINDOW

TEST LOCATION: TEST PAD #2, LANE 1, LIFT 1 TEST NO.: SC-18 NM

FIELD TEST DATA – ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	6.00
B	INITIAL WT. OF SAND & JAR	(lbs)	16.24	I	WT. OF TARE NO.: ____	(lbs)	0.63
C	FINAL WT. OF SAND & JAR	(lbs)	8.73	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	5.37
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	7.51	K	WET UNIT WT. = J/G	(pcf)	134.3
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	119.2
F	WT. OF SAND IN HOLE = D-E	(lbs)	3.81	N	PERCENT COMPACTION = M/U	(%)	96.0
G	VOLUME OF HOLE = F/A	(ft^3)	0.040				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT – ASTM D 2216

O	WT. OF TARE NO. 1	(grams)	131.3	R	WT. OF WATER = P-Q	(grams)	16.7
P	WT. OF WET SOIL & TARE	(grams)	280.0	S	WT. OF DRY SOIL = Q-O	(grams)	132.0
Q	WT. OF DRY SOIL & TARE	(grams)	263.3	T	MOISTURE CONTENT = (R/S)X100	(%)	12.7

COMPACTION TEST DATA

SAMPLE REFERENCE NO.		LH-06	U	MAXIMUM DRY UNIT WT.	(pcf) 124.2
TEST STANDARD USED	ASTM	D698B	V	OPTIMUM MOISTURE CONTENT	(%) 11.6

COMPARISON WITH NUCLEAR GAUGE – ASTM D 2922 AND D 3017

TEST NO.		962606-2	MOISTURE CONTENT	(%)	12.5
WET UNIT WT.	(pcf)	140.7	DRY UNIT WT.	(pcf)	125.0

000056

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 27 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT QA ID: MP

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRLCLE ONE) FILL / SUBGRADE / SUBBASE / (CLAY) / OTHER:

% COMPACTION: ≥ 95 MOISTURE CONTENT RANGE: WINDOW

TEST LOCATION: TEST PAD #2, LIFT #2 LANE #2 962706-5 TEST NO.: SC-~~8~~ 9 NM

FIELD TEST DATA - ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	6.12 MP
B	INITIAL WT. OF SAND & JAR	(lbs)	16.11	I	WT. OF TARE NO.: ____	(lbs)	0.63
C	FINAL WT. OF SAND & JAR	(lbs)	8.60	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	5.49
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	7.51	K	WET UNIT WT. = J/G	(pcf)	137.3
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	120.8
F	WT. OF SAND IN HOLE = D-E	(lbs)	3.81	N	PERCENT COMPACTION = M/U	(%)	97.3
G	VOLUME OF HOLE = F/A	(ft^3)	0.040				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT - ASTM D 2216

O	WT. OF TARE NO. 4	(grams)	131.0	R	WT. OF WATER = P-Q	(grams)	18.0
P	WT. OF WET SOIL & TARE	(grams)	280.0	S	WT. OF DRY SOIL = Q-O	(grams)	131.0
Q	WT. OF DRY SOIL & TARE	(grams)	262.0	T	MOISTURE CONTENT = (R/S)X100	(%)	13.7

COMPACTION TEST DATA

SAMPLE REFERENCE NO.	LH-06	U	MAXIMUM DRY UNIT WT.	(pcf)	124.2
TEST STANDARD USED ASTM	D-698B	V	OPTIMUM MOISTURE CONTENT	(%)	11.6

COMPARISON WITH NUCLEAR GAUGE - ASTM D 2922 AND D 3017

TEST NO.	962706-5	MOISTURE CONTENT		(%)	13.1
WET UNIT WT.	(pcf) 137.9	DRY UNIT WT.	000057	(pcf)	121.9

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JM SHEET NO. 1 OF 1

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GF-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 28 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT QA ID: MP

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRLCLE ONE) FILL / SUBGRADE / SUBBASE / CLAY / OTHER:

% COMPACTION: ≥95 MOISTURE CONTENT RANGE: WINDOW

TEST LOCATION: ~~TEST PAD #2, LIFT 3, LANE~~ NM @962806-19 TEST NO.: SC-~~7~~ 10 NM

FIELD TEST DATA – ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	5.76
B	INITIAL WT. OF SAND & JAR	(lbs)	15.98	I	WT. OF TARE NO.: ____	(lbs)	0.63
C	FINAL WT. OF SAND & JAR	(lbs)	8.32	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	5.13
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	7.66	K	WET UNIT WT. = J/G	(pcf)	125.1
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	107.7
F	WT. OF SAND IN HOLE = D-E	(lbs)	3.96	N	PERCENT COMPACTION = M/U	(%)	97 NM ~~87~~
G	VOLUME OF HOLE = F/A	(ft^3)	0.041				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT – ASTM D 2216

O	WT. OF TARE NO. 2	(grams)	131.1	R	WT. OF WATER = P-Q	(grams)	20.8
P	WT. OF WET SOIL & TARE	(grams)	280.6	S	WT. OF DRY SOIL = Q-O	(grams)	128.1
Q	WT. OF DRY SOIL & TARE	(grams)	259.8 MP ~~262~~	T	MOISTURE CONTENT = (R/S)X100	(%)	16.2

COMPACTION TEST DATA

SAMPLE REFERENCE NO. NM	96B74 ~~LH06~~	U	MAXIMUM DRY UNIT WT.	(pcf)	111.5 NM ~~124.2~~
TEST STANDARD USED	D698B	V	OPTIMUM MOISTURE CONTENT	(%)	17.0 NM ~~11.6~~

COMPARISON WITH NUCLEAR GAUGE – ASTM D 2922 AND D 3017

TEST NO.	962806-19 MP ~~22~~	MOISTURE CONTENT	(%)	15.7
WET UNIT WT.	(pcf) 132.4	DRY UNIT WT.	(pcf)	114.5

000058

©GEOSYNTEC CONSULTANTS FILE NO. 2-18-FSC

/JM SHEET NO. 1 OF 1

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD SAND CONE DENSITY TEST (ASTM D 1556)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 29 day JUNE month 1996 year

SOURCE: On-site Borrow MATERIAL TYPE: LHBT QA ID: MP

SPECIFICATION REQUIREMENTS:

MATERIAL TYPE: (CIRLCLE ONE) FILL / SUBGRADE / SUBBASE / (CLAY) OTHER:

% COMPACTION: ≥ 95 MOISTURE CONTENT RANGE: Window

TEST LOCATION: TEST NO.: SC-~~X~~ 11 NM

FIELD TEST DATA – ASTM D 1556

A	BULK UNIT WT. OF SAND (SEE FORM 2-12-FLC)	(pcf)	95.6	H	WT. OF WET SOIL & TARE FROM HOLE	(lbs)	6.73
B	INITIAL WT. OF SAND & JAR	(lbs)	17.07	I	WT. OF TARE NO.: ____	(lbs)	0.63
C	FINAL WT. OF SAND & JAR	(lbs)	9.30	J	WT. OF WET SOIL FROM HOLE = H-I	(lbs)	6.10
D	WT. OF SAND IN FUNNEL & HOLE = B-C	(lbs)	7.77	K	WET UNIT WT. = J/G	(pcf)	141.9
E	WT. OF SAND IN FUNNEL (1)	(lbs)	3.70	M	DRY UNIT WT. = K/[1+(T/100)]	(pcf)	125.2
F	WT. OF SAND IN HOLE = D-E	(lbs)	4.07	N	PERCENT COMPACTION = M/U	(%)	100.8
G	VOLUME OF HOLE = F/A	(ft^3)	0.043				

NOTE: (1) THE WEIGHT OF SAND IN FUNNEL (E) IS OBTAINED BY WEIGHING THE SAND, A MINIMUM OF THREE TIMES, IN THE APPARATUS BEFORE AND AFTER THE APPARATUS HAS BEEN TURNED OVER ON THE BASE PLATE ALONG A FLAT SURFACE WITH THE SAND BEING EXPENDED.

FIELD MOISTURE CONTENT – ASTM D 2216

O	WT. OF TARE NO. 4	(grams)	131.0	R	WT. OF WATER = P-Q	(grams)	17.5
P	WT. OF WET SOIL & TARE	(grams)	280.0	S	WT. OF DRY SOIL = Q-O	(grams)	131.5
Q	WT. OF DRY SOIL & TARE	(grams)	262.5	T	MOISTURE CONTENT = (R/S)X100	(%)	13.3

COMPACTION TEST DATA

SAMPLE REFERENCE NO.	LH06	U	MAXIMUM DRY UNIT WT.	(pcf)	124.2
TEST STANDARD USED	D698B	V	OPTIMUM MOISTURE CONTENT	(%)	11.6

COMPARISON WITH NUCLEAR GAUGE – ASTM D 2922 AND D 3017

TEST NO.	962906-21		MOISTURE CONTENT	(%)	12.8
WET UNIT WT.	(pcf) 137.2		DRY UNIT WT.	(pcf)	121.6

000059

APPENDIX G

Soil Sample Log

FERMCO GE 3900 TASK 05.3

FIELD LABORATORY TESTING 03 JUNE – 15 JULY, 1996

UPPER HORIZON SOILS

MOISTURE CONTENT (OVEN)	—	7
MOISTURE CONTENT (MICROWAVE)	—	28
HYDROMETER ANALYSES	—	5
SIEVE ANALYSES	—	5
ATTERBERG LIMITS	—	5
STANDARD PROCTOR	—	~~6~~ 7

LOWER HORIZON SOILS

MOISTURE CONTENT (OVEN)	—	6
MOISTURE CONTENT (MICROWAVE)	—	16
HYDROMETER ANALYSES	—	6
SIEVE ANALYSES	—	6
ATTERBERG LIMITS	—	6
STANDARD PROCTOR	—	4

TOTALS FOR PROJECT

MC (OVEN)	—	13
MC (MICROWAVE)	—	44
HYD. ANAL.	—	11
SIEVE ANAL.	—	11
ATT. LIMITS	—	11
STD. PROCTOR	—	11

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

SOIL SAMPLE LOG

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

PROJECT NO. GE 3900 TASK NO.:

DESCRIPTION: TEST PAD CONSTRUCTION

DATE: 03 day JUNE month 1996 year

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	SOIL DESCRIPTION	SOURCE (LOCATION, DEPTH, ELEVATION)	MATERIAL TYPE	DATE (day/mo)	TEST METHODS	QA ID
UH-01		Br. SILTY CLAY	0'-1' ON-SITE BORROW	BROWN TILL UPPER HORIZON	03 JUNE	D2216, D4643, D698, D4318, D422	NM
UH-02		"	TEST PAD AREA	"	05 JUNE	D4643	NM
UH-03		"	" " "	"	05 JUNE	D4643	NM
UH-04		BR/GR SILTY Clay	1'-2' ON-SITE BORROW	"	10 JUNE	D2216, D4643, D4318, D422, D698	NM
UH-05		" " "	2'-3' ON-SITE BORROW	"	10 JUNE	D2216, D4643, D4318, D422, D698	NM
UH-06		" " "	3'-4' ON-SITE BORROW	"	10 JUNE	D2216, D4643, D4318, D422, D698	NM
UH-07		" " "	4'-5' ON SITE BORROW	"	10 JUNE	D2216, D4643, D4318, D422, D698	NM
UH-08		" " "	TP-1 LIFT 1	"	13 JUNE	D4643	NM
UH-09		" " "	TP-1 Lift 2	"	13 JUNE	D4643	NM
UH-10		" " "	TP-1 LIFT 2	"	13 JUNE	D4643	NM
UH-11		" " "	TP-1 LIFT 2	"	14 JUNE	D4643	NM
UH-12		" " "	TP-1 LIFT 2	"	14 JUNE	D698 (CK. Point)	NM
UH-13		" " "	TP-1 LIFT 3	"	14 JUNE	D4643	NM
UH-14		" " "	TP-1 LIFT 3	"	15 JUNE	D4643	NM
UH-15		" " "	TP-1 LIFT 3	"	15 JUNE	D4643	NM

NOTES:

000063

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

SOIL SAMPLE LOG

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM

DATE: 13 day JUNE month 1996 year

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	SOIL DESCRIPTION	SOURCE (LOCATION, DEPTH, ELEVATION)	MATERIAL TYPE	DATE (day/mo)	TEST METHODS	QA ID
ST-01 A/B	96F53	BROWN CLAY	TP-1, LIFT-1, LANE 1	* UHBT	13 JUNE	D 5084	NM
ST-02 A/B	96F55		TP-1, LIFT-1, LANE 2				
ST-03 A/B	96F57		TP-1, LIFT-1, LANE 3				
ST-04 A/B	96F59		TP-1, LIFT-2, LANE 1		14 JUNE		
ST-05 A/B	96F61		TP-1, LIFT-2, LANE 2				
ST-06 A/B	96F63		TP-1, LIFT-2, LANE 3				
ST-07 A/B	96F65		TP-1, LIFT-3, LANE 1		15 JUNE		
ST-08 A/B	96F67		TP-1, LIFT-3, LANE 2				
ST-09 A/B	96F69		TP-1, LIFT 3, LANE 3				
ST-10 A/B	96F71		TP-1, LIFT 4, LANE 1		16 JUNE		
ST-11 A/B	96F73		TP-1, LIFT 4, LANE 2				
ST-12 A/B	96F75		TP-1, LIFT-4, LANE 3				
ST-13 A/B	96F95		TP-1, LIFT 5, LANE 3		20 JUNE		
ST-14 A/B	96F97		TP-1, LIFT 5, LANE 2				
ST-15 A/B	96F99		TP-1, LIFT 5, LANE 1				

NOTES: * UPPER HORIZON BROWN TILL

000064

8698

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

SOIL SAMPLE LOG

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 15 day JUNE month 1996 year

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	SOIL DESCRIPTION	SOURCE (LOCATION, DEPTH, ELEVATION)	MATERIAL TYPE	DATE (day/mo)	TEST METHODS	QA ID
UH-16	—	BR Silty Clay	TEST PAD 1 LIFT 3	UHBT	15 JUNE	D4643	NM
UH-17	—	" " "	TEST PAD 1 LIFT 3	UHBT	15 JUNE	D4643	NM
UH-18	—	" " "	TEST PAD 1 LIFT 3	UHBT	15 JUNE	D4643	NM
UH-19	—	" " "	BORROW -36"	UHBT	15 JUNE	D4643	NM
UH-20	—	" " "	" COMPOSITE	UHBT	15 JUNE	D698	NM
UH-21	—	Br. Clay w/ some gvl	TEST PAD 1 LIFT 4	UHBT	16 JUNE	D4643	NM
UH-22	—	" " "	TEST PAD 1 LIFT 5	UHBT	17 JUNE	D4643	NM
UH-23	—	" " "	TEST PAD 1 LIFT 5	UHBT	17 JUNE	D4643	NM
UH-24	—	" " "	TEST PAD 1 LIFT 5	UHBT	17 JUNE	D4643	NM
UH-25	—	" " "	TEST PAD 1 LIFT 5	UHBT	17 JUNE	D4643	NM
UH-26	—	" " "	TEST PAD 1 LIFT 5	UHBT	18 JUNE	D4643	NM
UH-27	—	" " "	TEST PAD 1 LIFT 5	UHBT	20 JUNE	D4643	CS
UH-28	—	" " "	TEST PAD 1 LIFT 5	UHBT	20 JUNE	D4643	CS
UH-29	—	" " "	TEST PAD 1 LIFT 5	UHBT	20 JUNE	D4643	MP
UH-30	—	" " "	TEST PAD 1 LIFT 6	UHBT	21 JUNE	D4643	MP

NOTES:

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

SOIL SAMPLE LOG

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION

DATE: 17 day JUNE month 1996 year

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	SOIL DESCRIPTION	SOURCE (LOCATION, DEPTH, ELEVATION)	MATERIAL TYPE	DATE (day/mo)	TEST METHODS	QA ID
LH-01	—	BR. SILTY CLAY & GVL	TP- 5'-6' ON-SITE BORROW	LOWER HORIZON TILL	17 JUNE	D698, D422, D4318, D2216, D4643	NM
LH-02	—	"	TP- 6'-7' ON-SITE BORROW	"	17 JUNE	"	NM
LH-03	—	"	TP- 7'-8' ON-SITE BORROW	"	17 JUNE	"	NM
LH-04	—	"	TP- 8'-9' ON-SITE BORROW	"	17 JUNE	"	NM
LH-05	—	"	TP- 9'-10' ON-SITE BORROW	"	17 JUNE	"	NM
LH-06	—	"	COMPOSIT ON-SITE BORROW	"	17 JUNE	"	NM
LH-07	—	"	TEST PAD #2, LIFT #1	"	25 JUNE	D4643	MP
LH-08	—	"	TEST PAD #2, LIFT #1	"	26 JUNE	D4643	MP
LH-09	—	"	TEST PAD #2, LIFT #1	"	26 JUNE	D4643	MP
LH-10	—	"	TEST PAD #2, LIFT #1	"	26 JUNE	D4643	MP
LH-11	—	"	TEST PAD #2, LIFT #2	"	27 JUNE	D4643	MP
LH-12	—	"	TEST PAD #2, LIFT #2	"	27 JUNE	D4643	MP
LH-13	—	"	TEST PAD #2, LIFT #3	"	27 JUNE	D4643	MP
LH-14	—	"	ON SITE BORROW PIT	"	28 JUNE	D4643	MP

NOTES:

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

SOIL SAMPLE LOG

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM

DATE: 21 day JUNE month 1996 year

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	SOIL DESCRIPTION	SOURCE (LOCATION, DEPTH, ELEVATION)	MATERIAL TYPE	DATE (day/mo)	TEST METHODS	QA ID
ST-16 A B	96F101	BROWN CLAY	TP-1, LIFT 6, LANE-1	* UHBT	21 JUNE	D5084	NM
ST-17 A B	96F103	↓	TP-1, LIFT 6, LANE-2	↓	↓	↓	↓
ST-18 A B	96F105	↓	TP-1, LIFT-6, LANE-3	↓	↓	↓	↓

NOTES: * UPPER HORIZON BROWN TILL

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SHEET NO. 2 OF 2

000067

8698

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

SOIL SAMPLE LOG

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION

DATE: 21 day JUNE month 1996 year

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	SOIL DESCRIPTION	SOURCE (LOCATION, DEPTH, ELEVATION)	MATERIAL TYPE	DATE (day/mo)	TEST METHODS	QA ID
UH-31	-	Br. CLAY w/ SOME GRAVEL	TEST PAD 1, LIFT 6	UHBT	21/JUNE	D4643	MP
UH-32	-	" " "	TEST PAD 1, LIFT 6	UHBT	21 JUNE	D4643	MP
~~UH-33~~ MP	-		1				

NOTES:

GEOSYNTEC CONSULTANTS FILE NO. 2-01-SSL

SHEET NO. 3 OF 3

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

SOIL SAMPLE LOG

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM

DATE: 26 day JUNE month 1996 year

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	SOIL DESCRIPTION	SOURCE (LOCATION, DEPTH, ELEVATION)	MATERIAL TYPE	DATE (day/mo)	TEST METHODS	QA ID
ST-19 A B	96G30	BROWN CLAY	TP-2, LIFT-1, LANE-1	* LHBT	26 JUNE	D 5084	NM
ST-20 A B	96G32		TP-2, LIFT-1, LANE-2				
ST-21 A B	96G34		TP-2, LIFT-1, LANE 3				
ST-22 A B	96G36		TP-2, LIFT-2, LANE 1		27 JUNE		
ST-23 A B	96G38		TP-2, LIFT-2, LANE-2				
ST-24 A B	96G41		TP-2, LIFT-2, LANE-3				
ST-25 A B	96G42		TP-2, LIFT-3, LANE-1				
ST-26 A B	96G44		TP-2, LIFT-3, LANE-2				
ST-27 A B	96G46		TP-2, LIFT 3, LANE-3				
ST-28 A B	96G48		TP-2, LIFT-4, LANE-1		28 JUNE		
ST-29 A B	96G50		TP-2, LIFT-4, LANE-2				
ST-30 A B			TP-2, LIFT-4, LANE-3		29 JUNE		
ST-31 A B	96G54		TP-2, LIFT-5, LANE-1				
ST-32 A B	96G56		TP-2, LIFT-5, LANE-2				
ST-33 A B	96G59		TP-2, LIFT-5, LANE-3				

NOTES: * LOWER HORIZON BROWN TILL

000069

©GEOSYNTEC CONSULTANTS FILE NO. 2-01-SSL

SHEET NO. 1 OF 2

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

SOIL SAMPLE LOG

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION

DATE: 28 day JUNE month 1996 year

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	SOIL DESCRIPTION	SOURCE (LOCATION, DEPTH, ELEVATION)	MATERIAL TYPE	DATE (day/mo)	TEST METHODS	QA ID
LH-15	–	BR SILTY CLAY W/GVL	TEST PAD #2, LIFT #4	LOWER HORIZON TILL	28 JUNE	D4643	MP
LH-16	–	"	TEST PAD #2, LIFT #5	"	29 JUNE	D4643	MP
LH-17	–	"	TEST PAD #2, LIFT #6	"	29 JUNE	D4643	MP

NOTES:

020000

GEO SYNTEC CONSULTANTS FILE NO. 2-01-SSL

SHEET NO. 2 OF 2

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

SOIL SAMPLE LOG

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM

DATE: 29 day JUNE month 1996 year

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	SOIL DESCRIPTION	SOURCE (LOCATION, DEPTH, ELEVATION)	MATERIAL TYPE	DATE (day/mo)	TEST METHODS	QA ID
ST-34 A B	96660	BROWN CLAY	TP-2, LIFT-6, LANE-1	LHBT	29 JUNE	D 5084	NM
ST-35 A B	96662	↓	TP-2, LIFT-6, LANE-2	↓	↓	↓	↓
ST-36 A B	96664	↓	TP-2, LIFT-6, LANE-3	↓	↓	↓	↓

NOTES:

GEO SYNTEC CONSULTANTS FILE NO. 2-01-SSL

SHEET NO. 2 OF 2

Laboratory Test Summary

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 03 day JUNE month 1996 year

SOURCE: ON SITE BORROW — MATERIAL TYPE: UPPER HOR. BR. TILL QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%) * D 4643	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	PL (%)	PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	MOIST. CONT. ASTM D 2216 (%)	HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
UH-01	—	26.6/*26.3	93.6	✓	✓	55	22	33	FAT CLAY (CH)	—	—	99.2	22.8	—	—	—	—	—
UH-02	—	22.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UH-03	—	25.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UH-04	—	20.8/*20.4	81.5	✓	✓	49	22	27	LEAN CLAY (CL)	—	—	106.8	20.5	—	—	—	—	—
UH-05	—	15.3/*16.0	71.6	✓	✓	36	19	17	LEAN CLAY (CL)	—	—	116.1	13.7	—	—	—	—	—
UH-06	—	14.1/*14.3	72.4	✓	✓	32	18	14	LEAN CLAY (CL)	—	—	117.8	14.0	—	—	—	—	—
UH-07	—	13.5/*14.1	70.6	✓	✓	28	17	11	LEAN CLAY (CL)	—	—	119.0	13.2	—	—	—	—	—
UH-08	—	* 23.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UH-09	—	* 24.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
UH-10	—	* 25.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF ____.

©GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 1 OF 10

000073

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 03 day JUNE month 1996 year

SOURCE: ON-SITE BORROW — MATERIAL TYPE: UHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%) * D4643	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/ FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
UH-11	—	* 23.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
☆ UH-12	—	—	—	—	—	—	—	—	—	—	—	** 102.0 ~~20.1~~	** 20.1 ~~102.0~~	—	—	—		—
UH-13	—	* 21.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-14	—	* 20.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-15	—	* 20.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-16	—	* 21.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-17	—	* 20.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-18	—	* 22.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-19	—	* 22.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-20	—	—	—	—	—	—	—	—	—	—	—	110.3	18.0	—	—	—		—

COMMENTS: ** 1 POINT PROCTOR CHECK POINT ☆ STD. PROCTOR RESULTS 107.0 pcf @ 17.2% omc

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF ____.

©GEO SYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 2 OF 4

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: 6E3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 03 day JUNE month 1996 year

SOURCE: ON-SITE BORROW — MATERIAL TYPE: UHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%) *D4643	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/ FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
UH-21	—	* 23.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-22	—	* 16.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-23	—	* 16.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-24	—	* 17.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-25	—	* 17.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-26	—	* 17.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-27	—	* 17.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-28	—	* 19.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-29	—	* 18.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—
UH-30	—	* 21.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF ____.

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 03 day JUNE month 1996 year

SOURCE: ON-SITE BORROW — MATERIAL TYPE: UHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%) * D4643	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
UH-31	–	* 20.5	–	–	–	–	–	–	—	–	–	–	–	–	–	–	–	–
UH-32	–	* 20.3	–	–	–	–	–	–	—	–	–	–	–	–	–	–	–	–
~~UH33~~ MA	"	*	"	"	"	"	"	"	~~[illegible]~~	"	"	"	"	"	"	"	"	"

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF ____.

©GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 4 OF 40

920000

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 26 day JUNE month 1996 year

SOURCE: TEST PAD 2 / LIFT 1 — MATERIAL TYPE: LHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	PL (%)	PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	MOIST. CONT. ASTM D 2216 (%)	HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-19A	96G30	—	—	—	—	—	—	—	—	—	—	—	—	121.9	13.4	① 2.4E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 1.8E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 1.7E8	P	—
ST-20A	96G32	—	—	—	—	—	—	—	—	—	—	—	—	126.0	10.5	① 3.2E6	F	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 9.9E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 4.1E8	P	—
ST-21A	96G34	—	—	—	—	—	—	—	—	—	—	—	—	120.2	14.2	① 3.4E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 2.3E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 1.7E8	P	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2 psi ② 5 psi ③ 10 psi

©GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 1 OF 60

220000

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 27 day JUNE month 1996 year

SOURCE: TEST PAD 2 / LIFT 2 — MATERIAL TYPE: LHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-22A	96G36	—	—	—	—	—	—	—	—	—	—	—	—	122.4	14.0	① 2.2E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 2.0E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 1.6E8	P	—
ST-23A	96G38	—	—	—	—	—	—	—	—	—	—	—	—	122.2	13.0	① 4.5E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 3.5E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 1.8E8	P	—
ST-24B	96G41	—	—	—	—	—	—	—	—	—	—	—	—	121.6	14.1	① 3.5E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 3.6E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 3.0E8	P	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2psi ② 5psi ③ 10psi

©GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 2 OF 6

000078

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 27 day JUNE month 1996 year

SOURCE: TEST PAD 2 / LIFT 3 — MATERIAL TYPE: LHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	PL (%)	PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	MOIST. CONT. ASTM D 2216 (%)	HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-25A	96G42	—	—	—	—	—	—	—	—	—	—	—	—	121.5	13.0	① 6.1E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 4.2E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 3.2E8	P	—
ST-26A	96G44	—	—	—	—	—	—	—	—	—	—	—	—	121.0	13.6	① 1.5E7	F	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 3.5E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 2.4E8	P	—
ST-27A	96G46	—	—	—	—	—	—	—	—	—	—	—	—	118.3	15.0	① 2.8E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 2.1E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 1.4E8	P	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2psi ② 5psi ③ 10psi

GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 3 OF 6

620079

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: ____ day ____ month 1996 year

SOURCE: TEST PAD 2 / LIFT 4 — MATERIAL TYPE: LHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-28A	96G48	—	—	—	—	—	—	—	—	—	—	—	—	120.4	14.4	① 4.8EB	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 2.8EB	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 1.8EB	P	—
ST-29A	96G50	—	—	—	—	—	—	—	—	—	—	—	—	119.7	14.2	① 4.0EB	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 3.1EB	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 2.0EB	P	—
ST-30	96G	—	—	—	—	—	—	—	—	—	—	—	—			①		—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	②		—
		—	—	—	—	—	—	—	—	—	—	—	—			③		—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2psi ② 5psi ③ 10psi

GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 4 OF 6

000080

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 29 day JUNE month 1996 year

SOURCE: TEST PAD 2 / LIFT 5 — MATERIAL TYPE: LHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-31A	96G54	—	—	—	—	—	—	—	—	—	—	—	—	122.8	13.4	① 2.0E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	②		—
		—	—	—	—	—	—	—	—	—	—	—	—			③		—
ST-32A	96G56	—	—	—	—	—	—	—	—	—	—	—	—	122.3	13.7	① 3.8E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	②		—
		—	—	—	—	—	—	—	—	—	—	—	—			③		—
ST-33B	96G59	—	—	—	—	—	—	—	—	—	—	—	—	118.0	13.8	① 9.7E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	②		—
		—	—	—	—	—	—	—	—	—	—	—	—			③		—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2 psi ② 5 psi ③ 10 psi

SHEET NO. 5 OF 6

000081

000089

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 29 day JUNE month 1996 year

SOURCE: TEST PAD 2 / LIFT 6 — MATERIAL TYPE: LHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/ FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-34A	96G60	—	—	—	—	—	—	—	—	—	—	—	—	121.6	13.8	①		—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	②		—
		—	—	—	—	—	—	—	—	—	—	—	—			③		—
ST-35A	96G62	—	—	—	—	—	—	—	—	—	—	—	—	118.9	12.7	① 8.1EB	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 5.2EB	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③		—
ST-36A	96G64	—	—	—	—	—	—	—	—	—	—	—	—	118.2	12.5	① 3.9EB	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	②		∇
		—	—	—	—	—	—	—	—	—	—	—	—			③		—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2psi ② 5psi ③ 10psi

GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 6 OF 6

000082

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 13 day JUNE month 1996 year

SOURCE: TEST PAD 1 / LIFT 1 — MATERIAL TYPE: UHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-1A	96F53	—	—	—	—	—	—	—	—	—	—	—	—	98.2	23.7	① 1.9E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 9.5E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 6.5E9	P	—
ST-2A	96F55	—	—	—	—	—	—	—	—	—	—	—	—	99.2	23.6	① 2.1E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 7.3E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 4.6E9	P	—
ST-3A	96F57	—	—	—	—	—	—	—	—	—	—	—	—	100.1	24.2	① 1.2E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 8.7E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 4.3E9	P	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2 psi ② 5 psi ③ 10 psi

GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 1 OF 6

000083

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 14 day JUNE month 1996 year

SOURCE: TEST PAD 1 / LIFT 2 — MATERIAL TYPE: UHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-4A	96F59	—	—	—	—	—	—	—	—	—	—	—	—	103.3	21.7	① 5.9E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 1.5E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 4.4E9	P	—
ST-5A	96F61	—	—	—	—	—	—	—	—	—	—	—	—	104.3	22.0	① 1.4E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 3.9E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 2.3E9	P	—
ST-6A	96F63	—	—	—	—	—	—	—	—	—	—	—	—	105.4	20.7	① 2.6E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 9.7E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 4.4E9	P	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2 psi ② 5 psi ③ 10 psi

©GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 2 OF 6

000084

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 15 day JUNE month 1996 year

SOURCE: TEST PAD 1 / LIFT 3 — MATERIAL TYPE: UHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-7A	96F65	—	—	—	—	—	—	—	—	—	—	—	—	104.6	20.8	① 3.3E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 1.6E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 8.4E9	P	—
ST-8A	96F67	—	—	—	—	—	—	—	—	—	—	—	—	105.0	21.3	① 1.3E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 1.1E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 6.9E9	P	—
ST-9A	96F69	—	—	—	—	—	—	—	—	—	—	—	—	107.7	19.6	① 2.9E7	F	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 9.8E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 5.7E9	P	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2 psi
② 5 psi
③ 10 psi

GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 3 OF 6

000085

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 16 day JUNE month 1996 year

SOURCE: TEST PAD 1 / LIFT 4 — MATERIAL TYPE: UHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-10A	96F71	—	—	—	—	—	—	—	—	—	—	—	—	112.4	17.9	① 5.9E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—			② 3.4E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 2.0E8	P	—
ST-11A	96F73	—	—	—	—	—	—	—	—	—	—	—	—	109.0	18.4	① 1.2E7	F	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—			② 2.2E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 8.7E9	P	—
ST-12A	96F75	—	—	—	—	—	—	—	—	—	—	—	—	109.6	17.8	① 3.2E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—			② 7.7E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 3.0E9	P	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2 psi
② 5 psi
③ 10 psi

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 20 day JUNE month 1996 year

SOURCE: TEST PAD 1 / LIFT 5 — MATERIAL TYPE: UHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-13A	96F95	—	—	—	—	—	—	—	—	—	—	—	—	111.3	18.4	① 2.1E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 1.6E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 1.2E8	P	—
ST-14A	96F97	—	—	—	—	—	—	—	—	—	—	—	—	110.2	20.1	① 5.3E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 1.1E8	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 3.7E9	P	—
ST-15A	96F99	—	—	—	—	—	—	—	—	—	—	—	—	111.5	19.0	① 9.8E9	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 8.0E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 7.5E9	P	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2 psi
② 5 psi
③ 10 psi

©GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 5 OF 6

000087

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 21 day JUNE month 1996 year

SOURCE: TEST PAD 1 / LIFT 6 — MATERIAL TYPE: UHBT QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
ST-16A	96F101	—	—	—	—	—	—	—	—	—	—	—	—	107.3	20.5	① 1.5E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 9.8E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 8.8E9	P	—
ST-17A	96F103	—	—	—	—	—	—	—	—	—	—	—	—	108.3	19.6	① 1.7E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 6.1E9	P	—
		—	—	—	—	—	—	—	—	—	—	—	—			③ 6.5E9	P	—
ST-18A	96F105	—	—	—	—	—	—	—	—	—	—	—	—	106.4	21.1	① 1.8E8	P	—
↓	↓	—	—	—	—	—	—	—	—	—	—	—	—	↓	↓	② 1.3E8	P	▼
		—	—	—	—	—	—	—	—	—	—	—	—			③ 9.6E9	P	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF *.

* ① 2 psi ② 5 psi ③ 10 psi

©GEOSYNTEC CONSULTANTS FILE NO. 2-22-LTS

SHEET NO. 6 OF 6

000088

Partial Size Distribution and Soil Classification

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

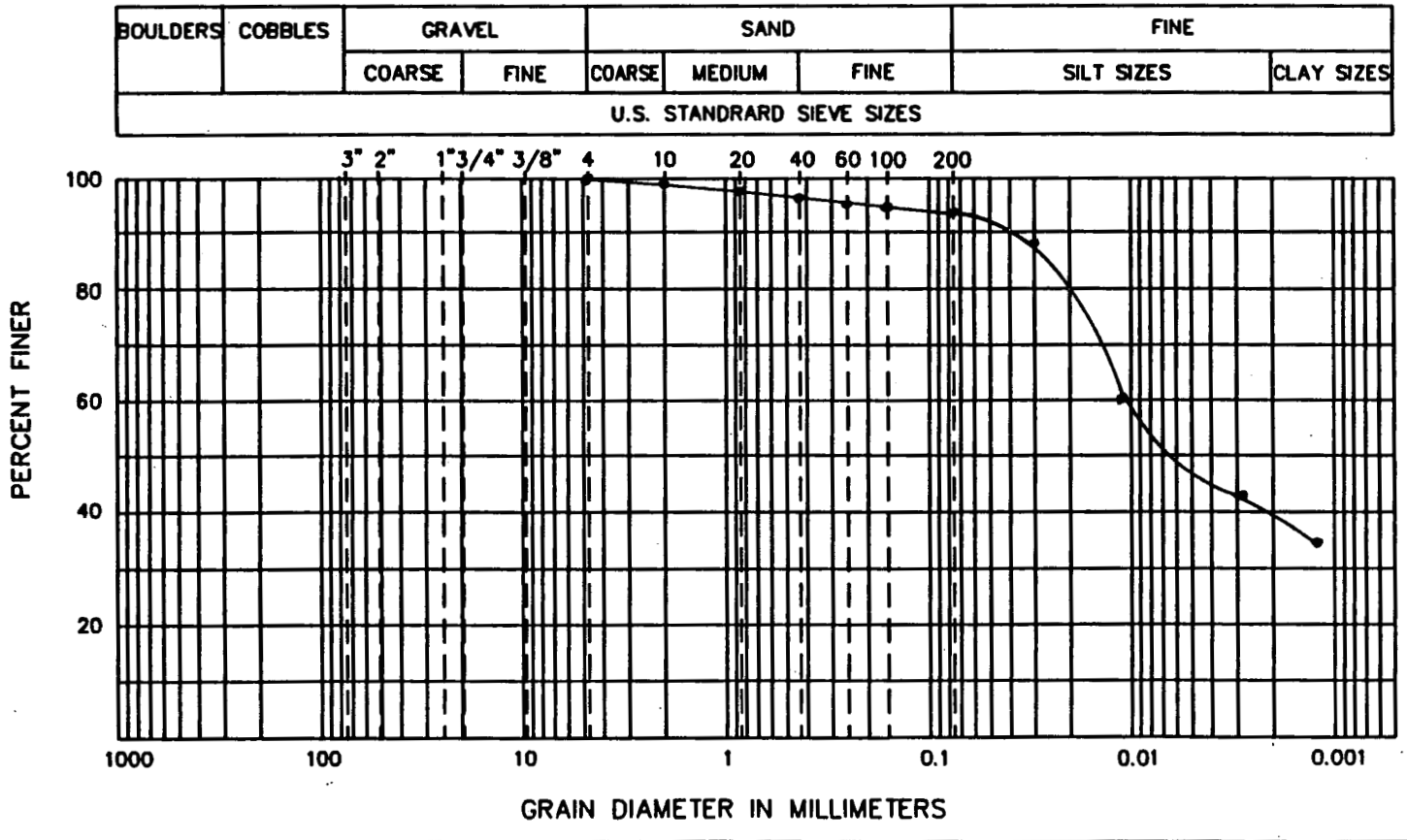
(ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONST. — DATE: 11 day JUNE month 1996 year

SOURCE: ON-SITE BORROW — MATERIAL TYPE: UPPER HOR. BR. TILL — SAMPLE NO.: UH-01 — QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 55

(PL) 22

(PI) 33

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	
NO. 4	100
NO. 10	98.9
NO. 20	97.7
NO. 40	96.9
NO. 60	96.1
NO. 100	95.0
NO. 200	93.6

SOIL CLASSIFICATION (ASTM D 2487): BROWN — FAT CLAY (CH)

©GEO SYNTEC CONSULTANTS FILE NO. 2-16-PSD

SHEET NO. 3 OF 3

000090

000098

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD A)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: 6E 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONST. DATE: 05 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-01 QA ID: NM

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30% AND IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL	H_2O added		150 mL	200 mL	250 mL	300 mL	375 mL
A	WT. OF SOIL & MOLD	(grams)	5946.7	6010.2	6082.8	6132.7	6155.4
B	WT. OF MOLD	(grams)	4318.3	4318.3	4318.3	4318.3	4318.3
C	WT. OF SOIL = A - B	(grams)	1628.4	1691.9	1764.5	1814.4	1837.1
D	WET UNIT WT.(1) = C X 0.066	(pcf)	107.5	111.7	116.5	119.8	121.2
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	93.9	96.1	98.0	99.0	96.8

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D ~~2216~~ 4643 (MICROWAVE)							
	TARE NO.		1	1	1	1	1
F	WT. OF TARE	(grams)	131.3	131.3	131.3	131.3	131.3
G	WT. OF WET SOIL & TARE	(grams)	298.3	272.8	289.2	270.5	293.4
H	WT. OF DRY SOIL & TARE	(grams)	277.1	253.1	264.1	246.3	260.7
I	WT. OF WATER = G - H	(grams)	21.2	19.7	25.1	24.2	32.7
J	WT. DRY SOIL = H - F	(grams)	145.8	121.8	132.8	115.0	129.4
K	MOISTURE CONTENT = (I/J) X 100	(%)	14.5	16.2	18.9	21.0	25.2

*GEOSYNTEC CONSULTANTS FILE NO. 2-04-FLC

/JM

SHEET NO. 1 OF 2

000091

6.9.8

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

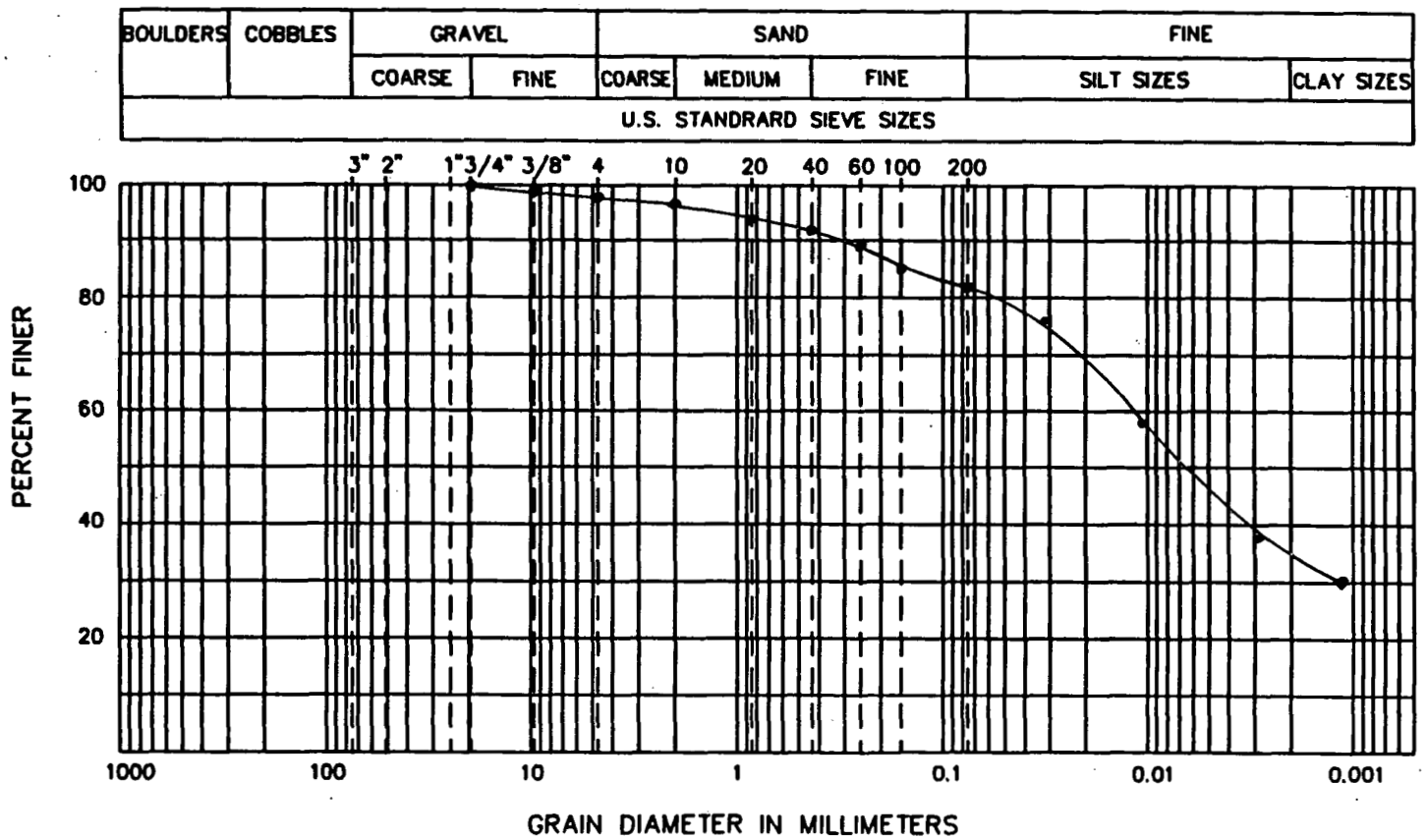
PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION

DATE: 19 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 1'-2' MATERIAL TYPE: UPPER HORIZON BR. TILL

SAMPLE NO.: UH-04 QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 49

(PL) 22

(PI) 27

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	100
3/8-in.	98.7
NO. 4	98.2
NO. 10	96.6
NO. 20	94.3
NO. 40	91.8
NO. 60	89.1
NO. 100	85.4
NO. 200	81.5

SOIL CLASSIFICATION (ASTM D 2487): BROWN & GRAY - LEAN CLAY (CL) W/ SOME SAND & TR. of GVL

©GEOSYNTEC CONSULTANTS FILE NO. 2-18-PSD

SHEET NO. 3 OF 3

000092

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD ~~A~~ B)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: ____ day ____ month 1996 year

SOURCE: ON-SITE BORROW 1'-2' — MATERIAL TYPE: UPPER HORIZON BR. TILL — SAMPLE NO.: UH-04 — QA ID: NM/JW

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30% AND IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL		H_2O added	50mL	100 mL	150mL	0mL	
A	WT. OF SOIL & MOLD	(grams)	6132.7	6232.5	6246.1	6087.3	
B	WT. OF MOLD	(grams)	4318.0	4318.0	4318.0	4318.0	4318.0
C	WT. OF SOIL = A - B	(grams)	1814.7	1914.5	1928.1	1769.3	
D	WET UNIT WT.(1) = C X 0.066	(pcf)	119.8	126.4	127.3	116.8	
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	103.6	106.0	103.2 ✓	102.8 ✓	

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D ~~2216~~ 4643 MICROWAVE					JW 6/13		
	TARE NO.		1	1			
F	WT. OF TARE	(grams)	131.3	131.3	131.3	131.3	
G	WT. OF WET SOIL & TARE	(grams)	279.9	272.3	~~286.9~~ 247.3	232.1	
H	WT. OF DRY SOIL & TARE	(grams)	259.8	249.5	~~267.8~~ 225.4	220.0	
I	WT. OF WATER = G - H	(grams)	20.1	22.8	21.9 ~~19.1~~ 13.2	12.1	
J	WT. DRY SOIL = H - F	(grams)	128.5	118.2	94.1 ~~136.5~~ 96.9	88.7	
K	MOISTURE CONTENT = (I/J) X 100	(%)	15.6	19.3	23.3 ✓	13.6 ✓	

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*GEOSYNTEC CONSULTANTS FILE NO. 2-04-FLC

✓NM

SHEET NO. 1 OF 2

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

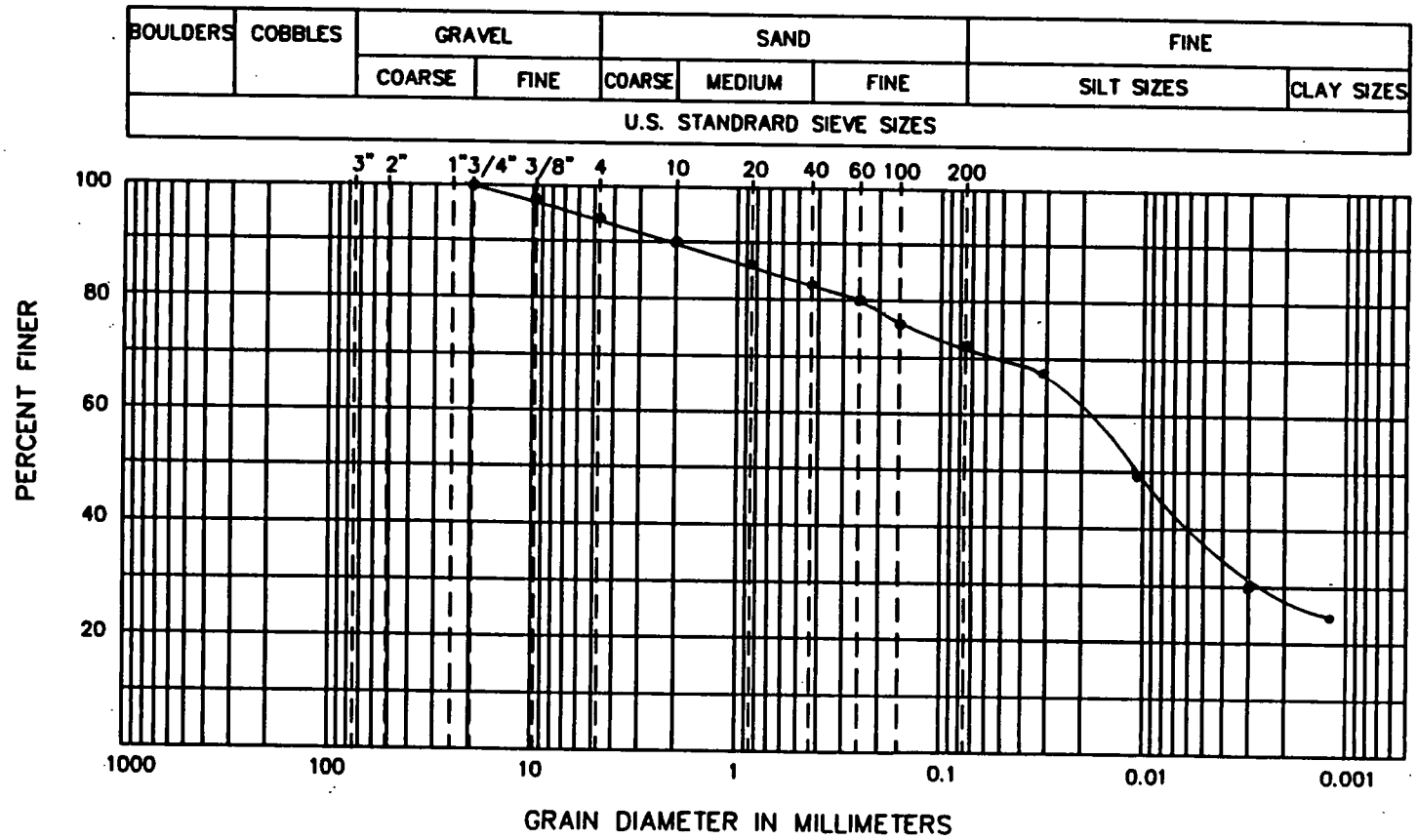
DESCRIPTION: TEST PAD CONSTRUCTION

SOURCE: ON-SITE BORROW 2'-3' MATERIAL TYPE: UPPER HORIZON BR. TILL

PROJECT NO.: GE3900 TASK NO.: 5.3

DATE: 19 day JUNE month 1996 year

SAMPLE NO.: UH-05 QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 36

(PL) 19

(PI) 17

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	100
3/8-in.	97.6
NO. 4	94.4
NO. 10	89.8
NO. 20	86.1
NO. 40	82.6
NO. 60	79.6
NO. 100	75.6
NO. 200	71.6

SOIL CLASSIFICATION (ASTM D 2487): BROWN & GRAY — LEAN CLAY (CL) W/ SOME SAND & GVL.

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SHEET NO. 3 OF 3

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000095

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD A)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 2'-3' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-05 QA ID: JW

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30% AND IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL			0 mL	50 mL	100 mL	150 mL	
A	WT. OF SOIL & MOLD	(grams)	6250.6	6327.7	6336.8	6282.4	
B	WT. OF MOLD	(grams)	4318.0	4318.0	4318.0 NM	4318.0	
C	WT. OF SOIL = A - B	(grams)	1932.6	2009.7	2018.8	1964.4	
D	WET UNIT WT.(1) = C X 0.066	(pcf)	127.6	132.6	133.2	129.7	
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	114.3 ✓	115.8 ✓	114.3 NM	110.2 ✓	

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D ~~2216~~ 4643 MICROWAVE							
	TARE NO.		1	1	1	1	
F	WT. OF TARE	(grams)	131.3	131.3	131.3	131.3	
G	WT. OF WET SOIL & TARE	(grams)	217.7	225.4	255.2	228.3	
H	WT. OF DRY SOIL & TARE	(grams)	208.7	213.5	237.6	213.7	
I	WT. OF WATER = G - H	(grams)	9.0	11.9	17.6	14.6	
J	WT. DRY SOIL = H - F	(grams)	77.4	82.2	106.3	82.4	
K	MOISTURE CONTENT = (I/J) X 100	(%)	11.6 ✓	14.5 ✓	16.6 ✓	17.7 ✓	

✓NM

GEOSYNTEC CONSULTANTS FILE NO. 2-04-FLC SHEET NO. 1 OF 2

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

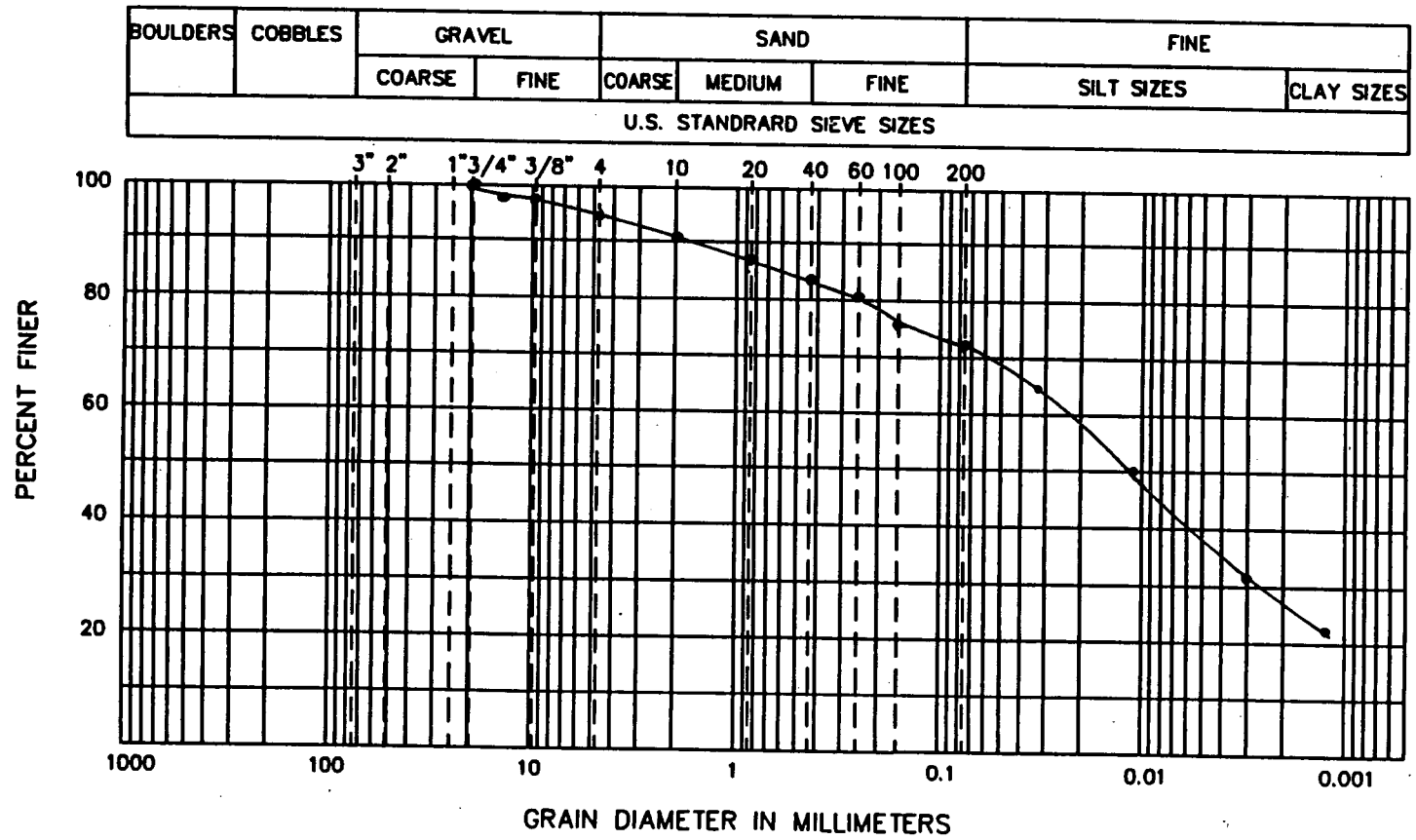
PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION

DATE: 19 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 3'-4' MATERIAL TYPE: UPPER HORIZON BR. TILL

SAMPLE NO.: UH-06 QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 32

(PL) 18

(PI) 14

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	100
1/2-in.	97.6
3/8-in.	97.6
NO. 4	95.0
NO. 10	90.6
NO. 20	86.9
NO. 40	83.5
NO. 60	80.5
NO. 100	76.4
NO. 200	72.4

SOIL CLASSIFICATION (ASTM D 2487): BROWN & GRAY — SANDY LEAN CLAY (CL) w/ SOME Gravel

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SHEET NO. 3 OF 3

000096

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

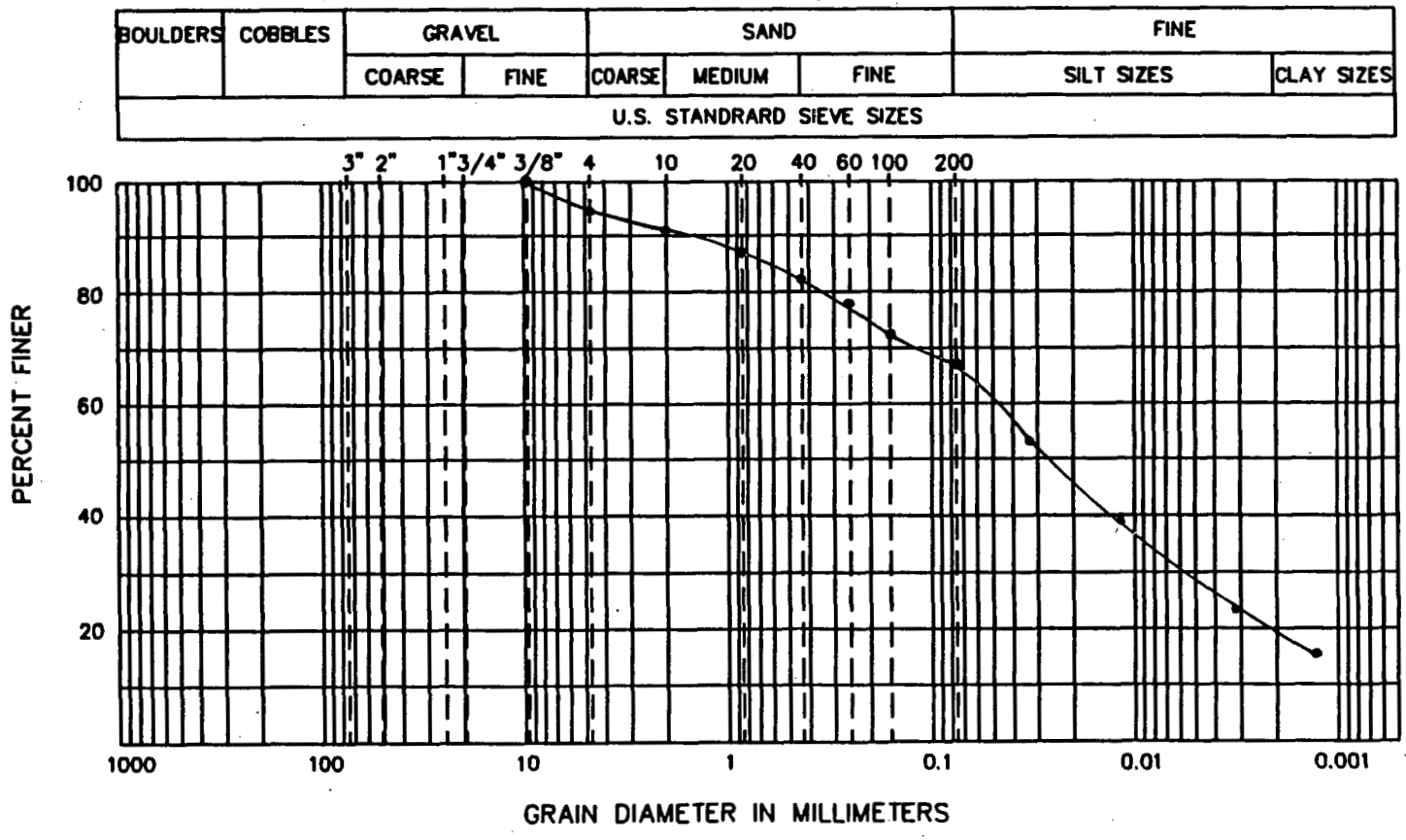
(ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW — MATERIAL TYPE: LHBT — SAMPLE NO.: LH-01 — QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 29

(PL) 16

(PI) 13

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	100
NO. 4	95.2
NO. 10	91.1
NO. 20	86.7
NO. 40	82.3
NO. 60	78.0
NO. 100	72.4
NO. 200	67.3

SOIL CLASSIFICATION (ASTM D 2487): BROWN - SANDY LEAN CLAY (CL) W/ TRACE OF GRAVEL

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

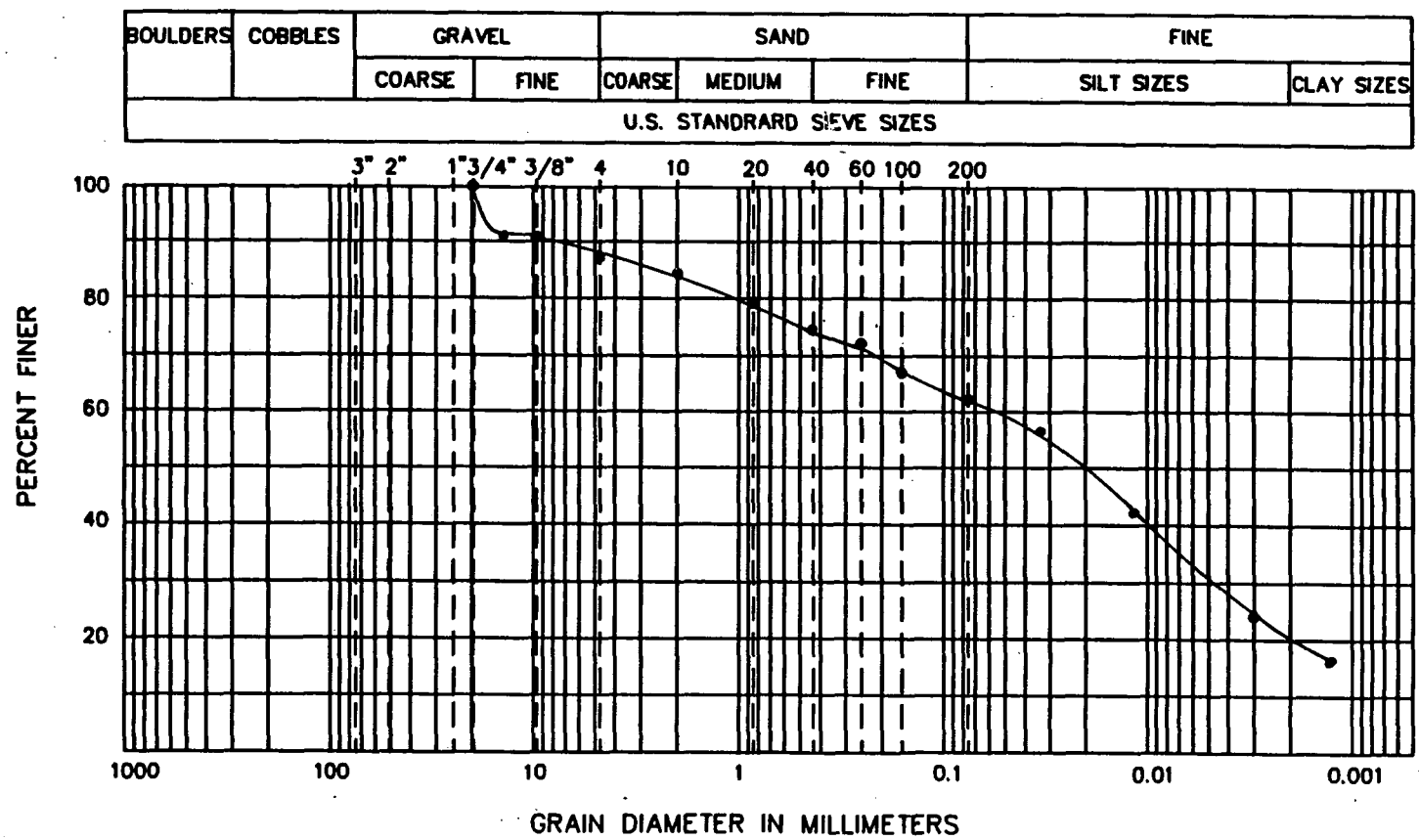
PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION

DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT

SAMPLE NO.: LH-02 QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 28

(PL) 16

(PI) 12

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	100
1/2-in.	91.1
3/8-in.	90.8
NO. 4	87.3
NO. 10	83.5
NO. 20	79.3
NO. 40	75.2
NO. 60	71.5
NO. 100	66.4
NO. 200	61.8

SOIL CLASSIFICATION (ASTM D 2487): BROWN - SANDY LEAN CLAY (CL) W/ SOME GRAVEL

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SHEET NO. 3 OF 3

NM

000098

GEOSYNTEC CONSULTANTS

FERMCO Fernald Environmental Restoration Management Corporation

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

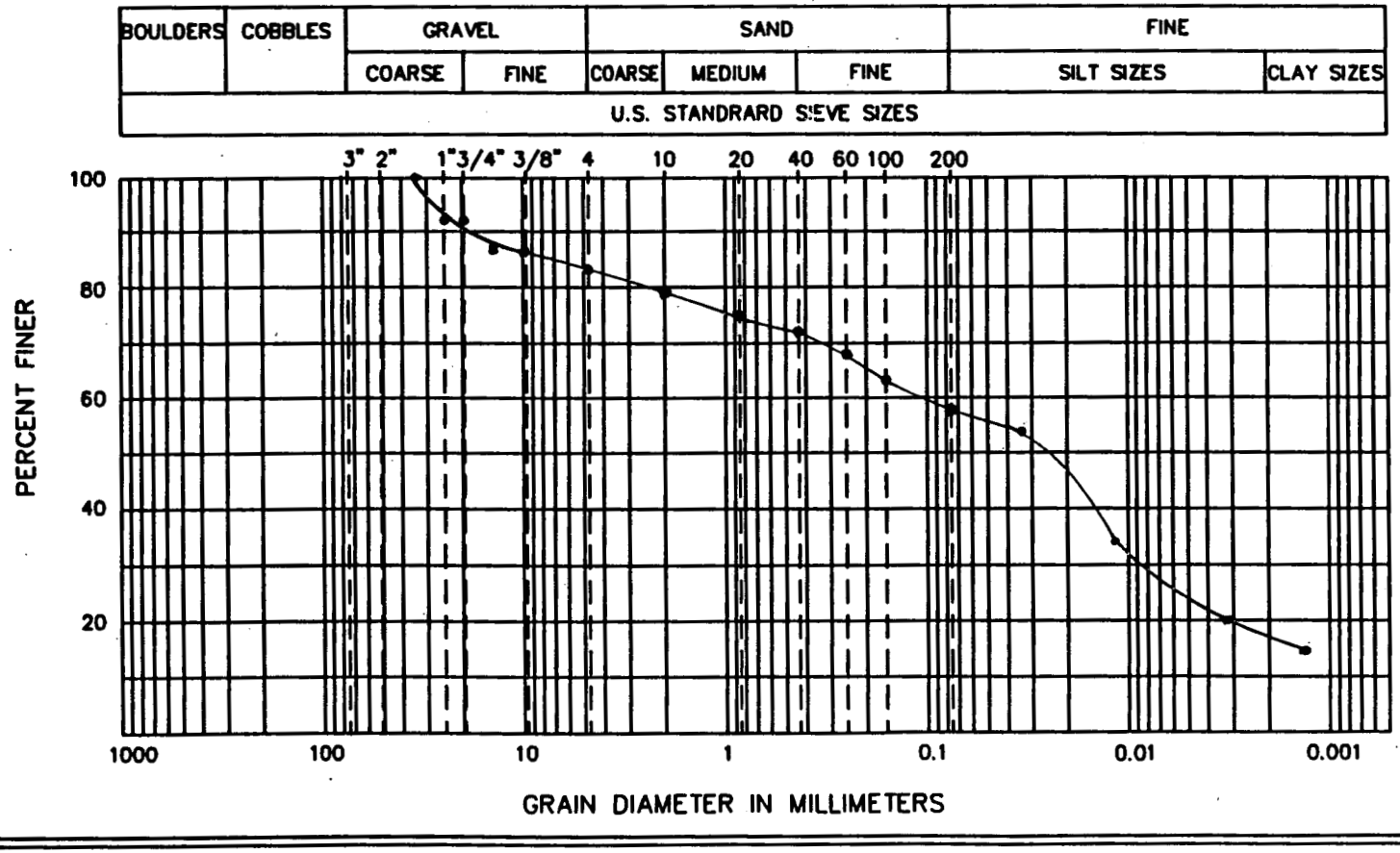
(ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW — MATERIAL TYPE: LHBT — SAMPLE NO.: LH-03 — QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 25

(PL) 16

(PI) 9

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	100
1-in.	92.0
3/4-in.	92.0
1/2-in.	87.6
3/8-in.	86.9
NO. 4	83.4
NO. 10	79.4
NO. 20	75.4
NO. 40	71.5
NO. 60	67.8
NO. 100	62.7
NO. 200	57.8

SOIL CLASSIFICATION (ASTM D 2487): BROWN- SANDY LEAN CLAY (CL) w/ SOME GRAVEL

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NM

SHEET NO. 3 OF 3

000099

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD B)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM DATE: 20 day JUNE month 1996 year

SOURCE: BARROW PIT MATERIAL TYPE: LHBT SAMPLE NO.: LH-03 QA ID: MP

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30%, IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS GREATER THAN 20%, AND IF THE MATERIAL RETAINED ON THE NO. 3/8-in. (9.5-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 3/8-in. (9.5-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL

A	WT. OF SOIL & MOLD	(grams)	6195	6268	6360	6370	
B	WT. OF MOLD	(grams)	4318.0	4318.0	4318.0	4318.0	
C	WT. OF SOIL = A - B	(grams)	1877	1950	2042	2052	
D	WET UNIT WT.(1) = C X 0.066	(pcf)	123.9	128.7	134.8	135.4	
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	115.1	117.4	121.8	118.3	

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D 2216

	TARE NO.		4	1	2	1	
F	WT. OF TARE	(grams)	131.0	131.3	131.1	131.3	
G	WT. OF WET SOIL & TARE	(grams)	240.0	250.0	250	250	
H	WT. OF DRY SOIL & TARE	(grams)	232.3	239.6	238.5	235.0	
I	WT. OF WATER = G - H	(grams)	7.7	10.4	~~10.4~~ 11.5	15.0	
J	WT. DRY SOIL = H - F	(grams)	101.3	108.3	107.4	103.7	
K	MOISTURE CONTENT = (I/J) X 100	(%)	7.6	9.6	10.7	14.5	

000100

GEOSYNTEC CONSULTANTS FILE NO. 2-05-FLC SHEET NO. 1 OF 2

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FERMCO

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

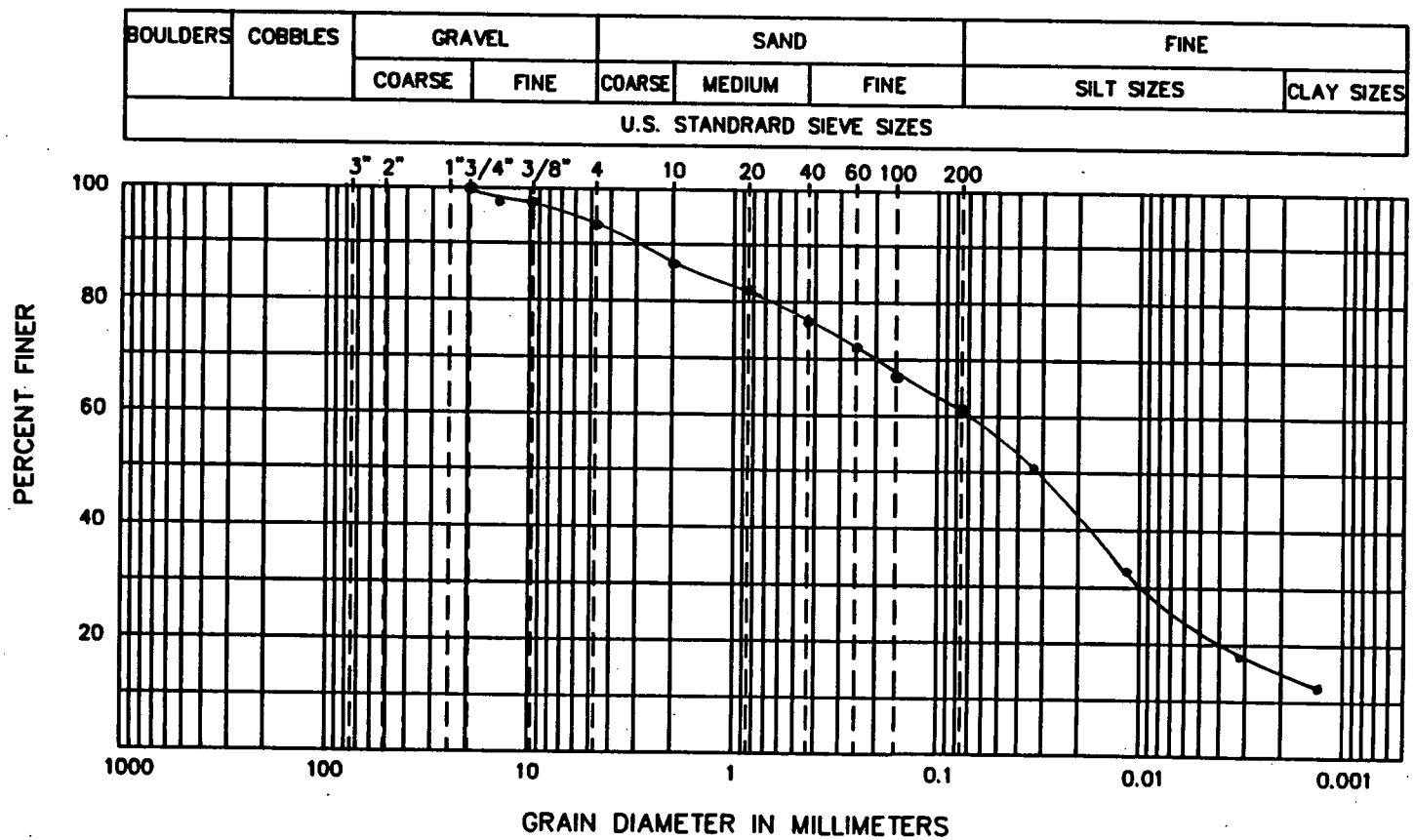
PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION

DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT

SAMPLE NO.: LH-04 QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 24

(PL) 15

(PI) 9

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	100
1/2-in.	97.9
3/8-in.	97.6
NO. 4	92.8
NO. 10	86.7
NO. 20	81.5
NO. 40	76.6
NO. 60	72.4
NO. 100	67.1
NO. 200	60.7

SOIL CLASSIFICATION (ASTM D 2487): BROWN - SANDY LEAN CLAY (CL) W/SOME GRAVEL

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SHEET NO. 3 OF 3

NM

000101

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD B)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM — DATE: 20 day JUNE month 1996 year

SOURCE: BARROW PIT — MATERIAL TYPE: CHBT — SAMPLE NO.: LH-04 — QA ID: MP

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30%, IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS GREATER THAN 20%, AND IF THE MATERIAL RETAINED ON THE NO. 3/8-in. (9.5-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 3/8-in. (9.5-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL

A	WT. OF SOIL & MOLD	(grams)	6223	6353	6417	6347	
B	WT. OF MOLD	(grams)	4318.0	4318.0	4318.0	4318.0	
C	WT. OF SOIL = A - B	(grams)	1905	2035	2099	2029	
D	WET UNIT WT.(1) = C X 0.066	(pcf)	125.7	134.3	138.5	133.9	
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	116.0	121.6	123.0	117.0	

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D 2216

	TARE NO.		2	4	1	5	
F	WT. OF TARE	(grams)	131.1	131.0	131.3	131.0	
G	WT. OF WET SOIL & TARE	(grams)	271.7	270.0	270.2	265.5	
H	WT. OF DRY SOIL & TARE	(grams)	260.8	256.9	254.7	248.6	
I	WT. OF WATER = G - H	(grams)	10.9	13.1	15.5	16.9	
J	WT. DRY SOIL = H - F	(grams)	129.7	125.9	123.4	117.6	
K	MOISTURE CONTENT = (I/J) X 100	(%)	8.4	10.4	12.6	14.4	

GEOSYNTEC CONSULTANTS FILE NO. 2-05-FLC

/JM

SHEET NO. 1 OF 2

000102

000103

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

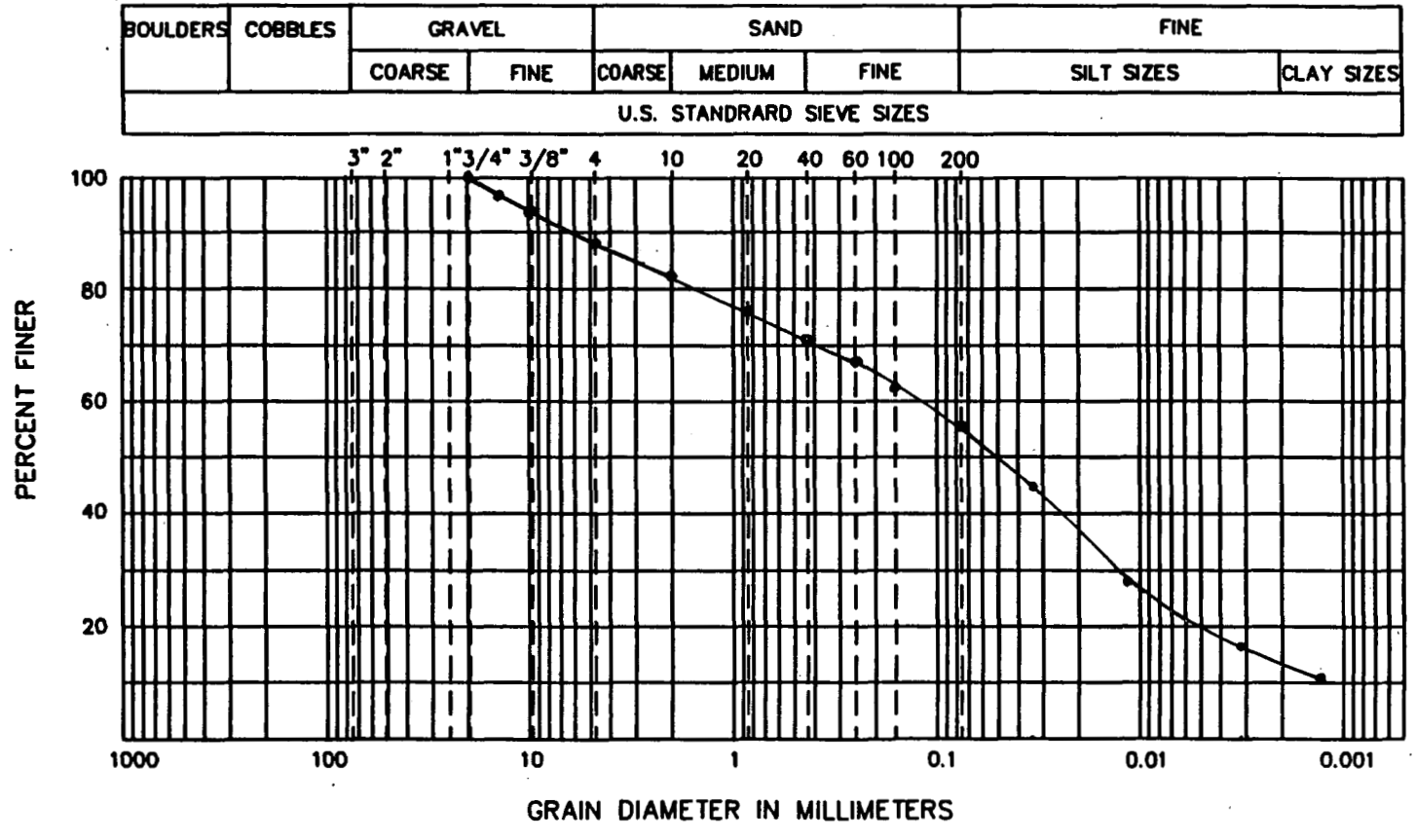
PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT — SAMPLE NO.: LH-05 QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 23

(PL) 15

(PI) 8

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	100
1/2-in.	96.9
3/8-in.	93.5
NO. 4	88.4
NO. 10	81.9
NO. 20	76.2
NO. 40	71.1
NO. 60	66.8
NO. 100	61.8
NO. 200	55.6

SOIL CLASSIFICATION (ASTM D 2487): BROWN - SANDY LEAN CLAY (CL) w/ some gravel

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NM

SHEET NO. 3 OF 3

000103

GEOSYNTEC CONSULTANTS

FERMCO

FERNALD ON-SITE DISPOSAL FACILITY

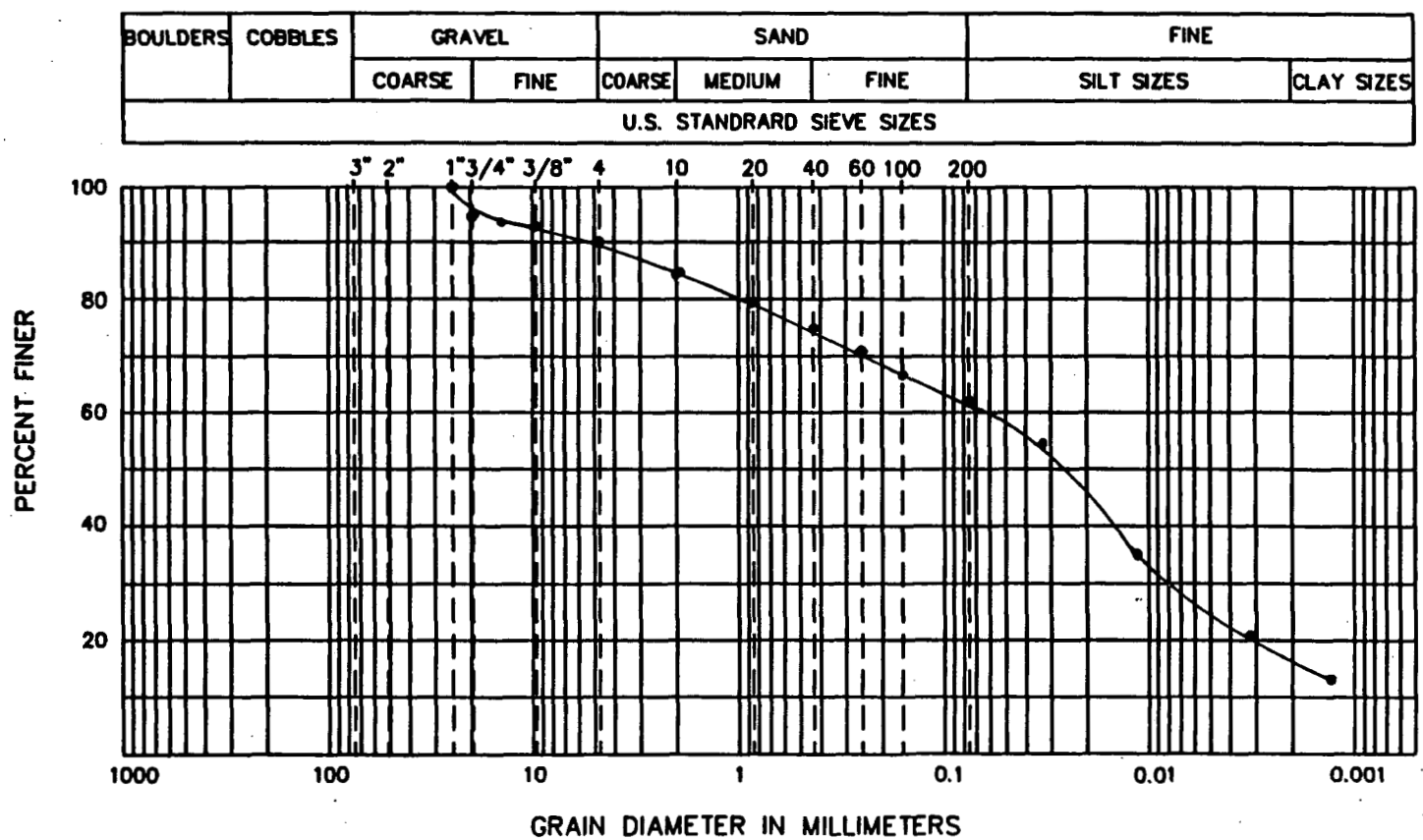
PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 15 day JULY month 1996 year

SOURCE: ON-SITE BORROW — MATERIAL TYPE: LH BT — SAMPLE NO.: LH-06 COMPOSITE — QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 27

(PL) 16

(PI) 11

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	100
3/4-in.	95.3
1/2-in.	93.9
3/8-in.	93.2
NO. 4	89.5
NO. 10	83.9
NO. 20	79.2
NO. 40	74.9
NO. 60	71.1
NO. 100	66.6
NO. 200	61.9

SOIL CLASSIFICATION (ASTM D 2487): BROWN - LEAN CLAY WITH SAND (CL) W/SOME GRAVEL

Laboratory Compaction

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD A)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: ON SITE BORROW 3'-4' MATERIAL TYPE: UPPER HORIZON SAMPLE NO.: UH-06 QA ID: JW

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30% AND IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL	H_2O ADDED		0 mL	50 mL	100 mL	150 mL	35 mL
A	WT. OF SOIL & MOLD	(grams)	6214.3	6350.4	6332.3	6323.2	6359.5
B	WT. OF MOLD	(grams)	4318.0	4318.0	4318.0	4318.0	4318.0
C	WT. OF SOIL = A - B	(grams)	1896.3	2032.4	2014.3	2005.2	2041.5
D	WET UNIT WT.(1) = C X 0.066	(pcf)	125.2	134.1	132.9	132.3	134.7
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	~~112.0~~ 111.9 NM	117.6 NM	114.6 ✓	113.6 ✓	118.0

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D ~~2216~~ 4643 MICROWAVE							
	TARE NO.		1	4	1	1	1
F	WT. OF TARE	(grams)	131.3	131.0	131.3	131.3	131.3
G	WT. OF WET SOIL & TARE	(grams)	235.2	220.6	235.1	269.0	276.6
H	WT. OF DRY SOIL & TARE	(grams)	224.2	209.0	220.8	249.5	258.5
I	WT. OF WATER = G - H	(grams)	11.0	11.0	14.3	19.5	18.1
J	WT. DRY SOIL = H - F	(grams)	92.9	78.0	89.5	118.2	127.3
K	MOISTURE CONTENT = (I/J) X 100	(%)	~~11.8~~ 11.8 OK NM	14.1 ✓	16.0 ✓	16.5 ✓	14.2

✓NM

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SHEET NO. 1 OF 2

000106

GEOSYNTEC CONSULTANTS

FERMCO

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM D 422 & ASTM D 2487)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO

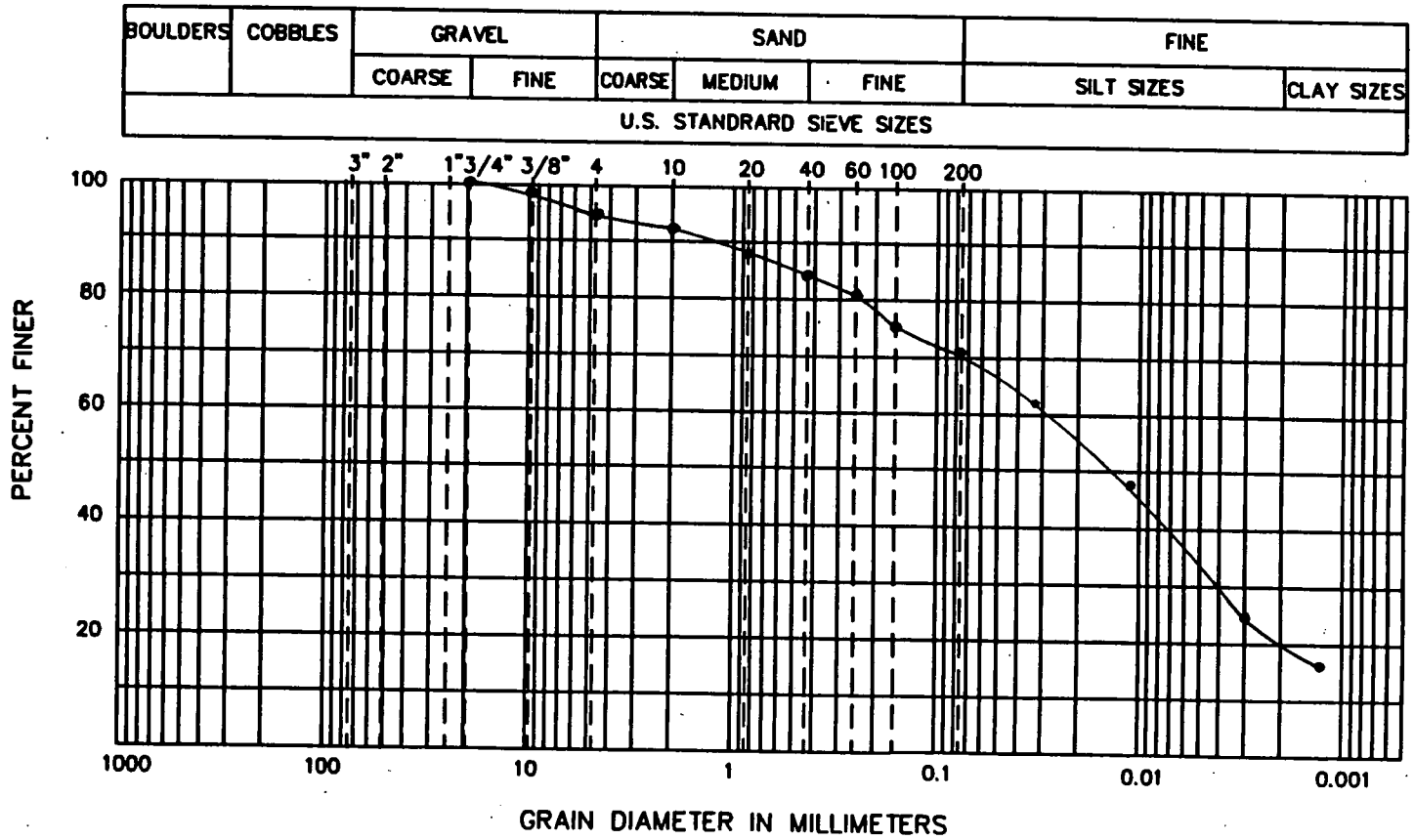
DESCRIPTION: TEST PAD CONSTRUCTION

SOURCE: ON-SITE BORROW 4'-5' MATERIAL TYPE: UPPER HORIZON BR TILL

PROJECT NO.: GE 390D TASK NO.: 5.3

DATE: 19 day JUNE month 1996 year

SAMPLE NO.: UH-07 QA ID: NM



CURVE COEFFICIENTS

(C_u) —

(C_c) —

ATTERBERG LIMITS

(LL) 28

(PL) 17

(PI) 11

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	100
3/8-in.	99.1
NO. 4	95.2
NO. 10	91.9
NO. 20	88.1
NO. 40	84.4
NO. 60	80.8
NO. 100	75.6
NO. 200	70.6

SOIL CLASSIFICATION (ASTM D 2487): BROWN & GRAY - SANDY LEAN CLAY (CL) W/ SOME GRAVEL

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/NM

SHEET NO. 3 OF 3

000107

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD ~~A~~ B

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 15 day JUNE month 1996 year

SOURCE: ONSITE BORROW 4'-5' — MATERIAL TYPE: UPPER HORIZON — SAMPLE NO.: UH-07 — QA ID: JW

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30% AND IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL

			0mL	50mL	100mL	150mL	
A	WT. OF SOIL & MOLD	(grams)	6282.4	6368.5	6332.3	6309.6	
B	WT. OF MOLD	(grams)	4318.0	4318.0	4318.0	4318.0	
C	WT. OF SOIL = A - B	(grams)	1964.4	2050.5	2014.3	1991.6	
D	WET UNIT WT.(1) = C X 0.066	(pcf)	129.7	135.3	132.9	131.4	
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	116.4 ✓	118.3 ✓	114.6 ✓	112.1 ✓	

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D ~~2216~~ 4643 MICROWAVE

	TARE NO.		2	1	2	1	
F	WT. OF TARE	(grams)	131.1	131.3	131.1	131.3	
G	WT. OF WET SOIL & TARE	(grams)	207.4	227.5	236.5	213.6	
H	WT. OF DRY SOIL & TARE	(grams)	199.6	215.4	222.0	201.5	
I	WT. OF WATER = G - H	(grams)	7.8	12.1	14.5	12.1	
J	WT. DRY SOIL = H - F	(grams)	68.5	84.1	90.9	70.2	
K	MOISTURE CONTENT = (I/J) X 100	(%)	11.4 ✓	14.4 ✓	16.0 ✓	17.2 ✓	

✓NM

*GEOSYNTEC CONSULTANTS FILE NO. 2-04-FLC

SHEET NO. 1 OF 2

000108

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD A)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 16 day JUNE month 1996 year

SOURCE: LIFT 2 TEST PAD 1 — MATERIAL TYPE: — SAMPLE NO.: UH-12 — QA ID: JW

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30% AND IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL			0 mL	50 mL	100 mL	150 mL	
A	WT. OF SOIL & MOLD	(grams)	6037.4	6128.1	6114.5	6227.9	
B	WT. OF MOLD	(grams)	4318.0	4318.0	4318.0	4318.0	
C	WT. OF SOIL = A - B	(grams)	1719.4	1810.1	1796.5	1909.9	
D	WET UNIT WT.(1) = C X 0.066	(pcf)	113.5	119.5	118.6	126.0	
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	102.1	104.6	103.0	106.8	

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D ~~2216~~ 4643 MICROWAVE							
	TARE NO.		1	1	1	1	
F	WT. OF TARE	(grams)	131.3	131.3	131.3	131.3	
G	WT. OF WET SOIL & TARE	(grams)	294.8	304.6	298.7	290.7	
H	WT. OF DRY SOIL & TARE	(grams)	278.4	283.0	276.6	266.4	
I	WT. OF WATER = G - H	(grams)	16.4	21.6	22.1	24.3	
J	WT. DRY SOIL = H - F	(grams)	147.1	151.7	145.3	135.1	
K	MOISTURE CONTENT = (I/J) X 100	(%)	11.1	14.2	15.2	18.0	

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD A)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 14 day JUNE month 1996 year

SOURCE: TEST PAD 1 MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-12 QA ID: JW

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30% AND IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL

A	WT. OF SOIL & MOLD	(grams)	6173.5				
B	WT. OF MOLD	(grams)	4318.0				
C	WT. OF SOIL = A - B	(grams)	1855.5				
D	WET UNIT WT.(1) = C X 0.066	(pcf)	122.5				
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	102.0				

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D ~~2216~~ 4643 MICROWAVE

	TARE NO.		2				
F	WT. OF TARE	(grams)	131.1				
G	WT. OF WET SOIL & TARE	(grams)	237.9				
H	WT. OF DRY SOIL & TARE	(grams)	220.0				
I	WT. OF WATER = G - H	(grams)	17.9				
J	WT. DRY SOIL = H - F	(grams)	88.9				
K	MOISTURE CONTENT = (I/J) X 100	(%)	20.1				

000110

*GEOSYNTEC CONSULTANTS FILE NO. 2-04-FLC

CK PLUG /NM SHEET NO. 1 OF 1

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD ~~A~~ B

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 15 day JUNE month 1996 year

SOURCE: BARROW COMPOSITE MATERIAL TYPE: UH-BT — SAMPLE NO.: UH-20 QA ID: JW

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30% AND IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL

				UH-20	100 mL	150 mL	
A	WT. OF SOIL & MOLD	(grams)	*6296.0	*5978.4	6096.4	6187.1	
B	WT. OF MOLD	(grams)	4318.0	4318.0	4318.0	4318.0	
C	WT. OF SOIL = A - B	(grams)	1978.0	1660.4	1778.4	1869.1	
D	WET UNIT WT.(1) = C X 0.066	(pcf)	130.5	109.6	117.4	123.4	
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	109.8 NM	100.5	102.7	106.5	

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL. THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D 2216

	TARE NO.		4	4	5	1	
F	WT. OF TARE	(grams)	130.0	131.0	131.0	131.3	
G	WT. OF WET SOIL & TARE	(grams)	~~226.6~~ 226.6	212.4	294.5	291.8	
H	WT. OF DRY SOIL & TARE	(grams)	211.5	205.7	274.1	269.9	
I	WT. OF WATER = G - H	(grams)	15.1	6.7	20.4	21.9	
J	WT. DRY SOIL = H - F	(grams)	80.5	74.7	143.1 NM ~~144.1~~	138.6 ~~298.0~~	
K	MOISTURE CONTENT = (I/J) X 100	(%)	18.8	9.0	14.3 NM	15.8	

*GEOSYNTEC CONSULTANTS FILE NO. 2-04-FLC

* CHECK POINTS

NM

SHEET NO. 1 OF 20

000111

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD B)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM DATE: 18 day JUNE month 1996 year

SOURCE: BAR PIT MATERIAL TYPE: SAMPLE NO.: LH-01 QA ID: JW

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30%, IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS GREATER THAN 20%, AND IF THE MATERIAL RETAINED ON THE NO. 3/8-in. (9.5-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 3/8-in. (9.5-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL

A	WT. OF SOIL & MOLD	(grams)	6223.4	6323.2	6395.0	6364.0	
B	WT. OF MOLD	(grams)	4318.0	4318.0	4318.0	4318.0	
C	WT. OF SOIL = A - B	(grams)	1905.4	2005.2	2077.0	2046.0	
D	WET UNIT WT.(1) = C X 0.066	(pcf)	125.8	132.3	137.1	135.0	
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	114.8	118.8	119.9	117.7	

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D 2216

	TARE NO.						
F	WT. OF TARE	(grams)	131.3	131.3	131.3	131.3	
G	WT. OF WET SOIL & TARE	(grams)	302.1	299.8	288.8	283.5	
H	WT. OF DRY SOIL & TARE	(grams)	287.0	282.6	269.1	264.0	
I	WT. OF WATER = G - H	(grams)	15.1	17.2	19.7	19.5	
J	WT. DRY SOIL = H - F	(grams)	155.7	151.3	137.8	132.7	
K	MOISTURE CONTENT = (I/J) X 100	(%)	9.7	11.4	14.3	14.7	

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD B)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM DATE: 21 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: LH-BT SAMPLE NO.: LH-06 QA ID: MP

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30%, IF THE MATERIAL RETAINED ON THE NO. 4 (4.75-mm) SIEVE IS GREATER THAN 20%, AND IF THE MATERIAL RETAINED ON THE NO. 3/8-in. (9.5-mm) SIEVE IS LESS THAN 20%.
ALL MATERIAL RETAINED ON THE NO. 3/8-in. (9.5-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 4-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 25 BLOWS PER LAYER.

COMPACTION OF SOIL

A	WT. OF SOIL & MOLD	(grams)	6240	6340	6410	6371	
B	WT. OF MOLD	(grams)	4318	4318	4318	4318	
C	WT. OF SOIL = A - B	(grams)	1922	2022	2092	~~1990~~ MP 2053	
D	WET UNIT WT.(1) = C X 0.066	(pcf)	126.8	133.5	138.1	135.5	
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	117.4	121.4	123.2	117.8	

NOTE: (1) IF CALIBRATED MOLD OF 1/30 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (30 / 453.6) = 0.066). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/30 ± 0.0005 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

MOISTURE CONTENT - ASTM D 2216

	TARE NO.		1	1	1	1	
F	WT. OF TARE	(grams)	131.3	131.3	131.3	131.3	
G	WT. OF WET SOIL & TARE	(grams)	280.0	270.2	280.0	280.0	
H	WT. OF DRY SOIL & TARE	(grams)	269.0	257.6	263.9	260.6	
I	WT. OF WATER = G - H	(grams)	11.0	12.6	16.1	19.4	
J	WT. DRY SOIL = H - F	(grams)	137.7	126.3	132.6	129.3	
K	MOISTURE CONTENT = (I/J) X 100	(%)	8.0	10.0	12.1	15.0	

0001113

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 17 day JUNE month 1996 year

SOURCE: ON-SITE BORROW — MATERIAL TYPE: LOWER HORIZON BR. TILL — QA ID: NM

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%) *D4643	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
LH-01	—	12.4/12.7*	67.3	✓	✓	29	16	13	LEAN CLAY (CL)	—	—	13.3	121.7	—	—	—	—	—
LH-02	—	12.8/14.1*	61.8	✓	✓	28	16	12	LEAN CLAY (CL)	—	—	—	—	—	—	—	—	—
LH-03	—	12.3/12.1*	57.8	✓	✓	25	16	9	LEAN CLAY (CL)	—	—	11.8	122.3	—	—	—	—	—
LH-04	—	12.8/13.5*	60.7	✓	✓	24	15	9	LEAN CLAY (CL)	—	—	11.9	124.1	—	—	—	—	—
LH-05	—	12.2/13.1*	55.6	✓	✓	23	15	8	LEAN CLAY (CL)	—	—	—	—	—	—	—	—	—
** LH-06	—	12.6	61.9	✓	✓	27	16	11	LEAN CLAY (CL)	—	—	11.6	124.2	—	—	—	—	—
LH-07	—	14.4*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LH-08	—	13.2*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LH-09	—	13.3*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

COMMENTS: ** COMPOSIT

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF ____.

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY TEST SUMMARY

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO — PROJECT NO.: GE 3900 — TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION — DATE: 26 day JANUARY month 1996 year

SOURCE: ON-SITE BORROW — MATERIAL TYPE: LHBT — QA ID: MP

NOTE: Separate forms are required for each material type and source. All samples must have a site sample number and be recorded on the soil sample log.

SITE SAMPLE NO.	GEL SAMPLE NO.	SAMPLE MOISTURE CONTENT ASTM D 2216 (%) *D4643	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBURG LIMITS ASTM D 4318: LL (%)	ATTERBURG LIMITS: PL (%)	ATTERBURG LIMITS: PI	SOIL CLASSIFICATION ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY: MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY: HYDRAULIC COND'VITY (cm/sec)	PASS/FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
LH-10	–	14.6*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LH-11	–	12.7*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LH-12	–	13.5*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LH-13	–	13.2*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LH-14	–	13.6*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LH-15	–	14.8*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LH-16	–	14.4*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LH-17	–	13.5*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

COMMENTS:

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF ____.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF ____.

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SHEET NO. 2 OF 2

000115

Moisture

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: LE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONST. DATE: 03 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: ~~UPPER~~ HOR BR. TILL SAMPLE NO.: UH-01 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	NM 1				
A	WT. OF TARE	131.2				
B	WT. OF WET SOIL & TARE	298.2				
C	WT. OF DRY SOIL & TARE	263.1				
D	WT. OF WATER = B-C	35.1				
E	WT. OF DRY SOIL = C-A	131.9				
F	MOISTURE CONTENT = (D/E) X 100	26.6				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	3				
A	WT. OF TARE	92.4				
B	WT. OF WET SOIL & TARE	193.8				
C	WT. OF DRY SOIL & TARE	172.7				
D	WT. OF WATER = B-C	21.1				
E	WT. OF DRY SOIL = C-A	80.3				
F	MOISTURE CONTENT = (D/E) X 100	26.3				

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

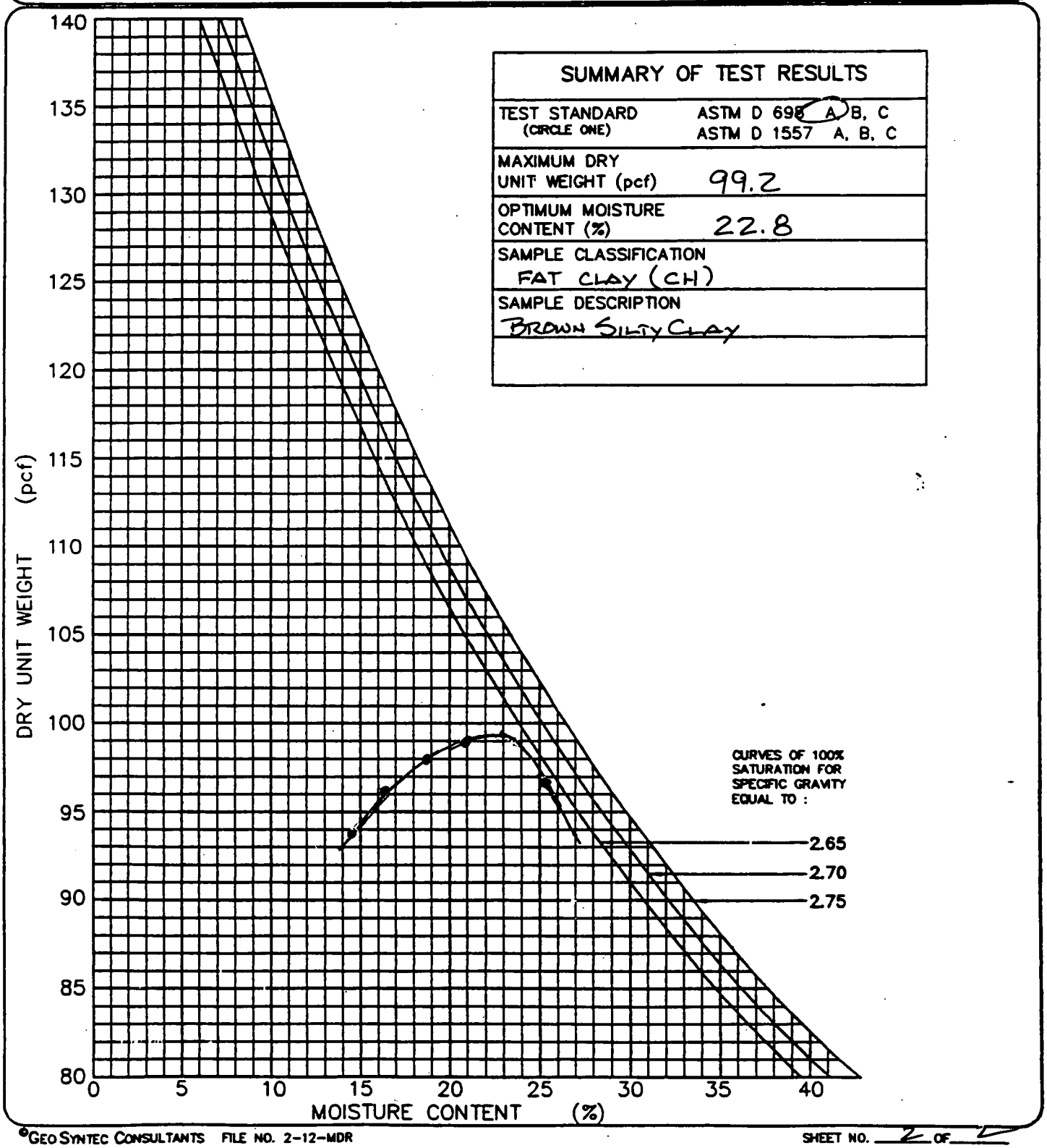
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: 6E 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONST. DATE: 05 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UPPER HOR BR. TILL SAMPLE NO.: UH-01 QA ID: HM



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 (A) B, C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	99.2
OPTIMUM MOISTURE CONTENT (%)	22.8
SAMPLE CLASSIFICATION	FAT CLAY (CH)
SAMPLE DESCRIPTION	BROWN SILTY CLAY

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SHEET NO. 2 OF 2

/dm 000118

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 05 day JUNE month 1996 year

SOURCE: TEST PAD MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-02 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

TROXLER = 21.8%

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1				
A	WT. OF TARE	131.3				
B	WT. OF WET SOIL & TARE	NM 268.7				
C	WT. OF DRY SOIL & TARE	243.7				
D	WT. OF WATER = B-C	NM 25.0				
E	WT. OF DRY SOIL = C-A	112.4				
F	MOISTURE CONTENT = (D/E) X 100	22.2				

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 05 day JUNE month 1996 year

SOURCE: TEST PAD MATERIAL TYPE: UPPER HORIZON BR TILL SAMPLE NO.: UH-03 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

TROXLER = 25.9

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	2				
A	WT. OF TARE	131.3 NM				
B	WT. OF WET SOIL & TARE	314.2				
C	WT. OF DRY SOIL & TARE	276.8				
D	WT. OF WATER = B-C	37.4				
E	WT. OF DRY SOIL = C-A	145.5				
F	MOISTURE CONTENT = (D/E) X 100	25.7				

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 10 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 1'-2' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-04 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	A				
A	WT. OF TARE	8.0				
B	WT. OF WET SOIL & TARE	237.6				
C	WT. OF DRY SOIL & TARE	198.1				
D	WT. OF WATER = B-C	39.5				
E	WT. OF DRY SOIL = C-A	190.1				
F	MOISTURE CONTENT = (D/E) X 100	20.8				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1				
A	WT. OF TARE	131.3				
B	WT. OF WET SOIL & TARE	265.8				
C	WT. OF DRY SOIL & TARE	243.0				
D	WT. OF WATER = B-C	22.8				
E	WT. OF DRY SOIL = C-A	111.7				
F	MOISTURE CONTENT = (D/E) X 100	20.4				

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 10 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 2'-3' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-05 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	C				
A	WT. OF TARE	8.0				
B	WT. OF WET SOIL & TARE	272.5				
C	WT. OF DRY SOIL & TARE	237.4				
D	WT. OF WATER = B-C	35.1				
E	WT. OF DRY SOIL = C-A	229.4				
F	MOISTURE CONTENT = (D/E) X 100	15.3				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	2				
A	WT. OF TARE	131.1				
B	WT. OF WET SOIL & TARE	280.7				
C	WT. OF DRY SOIL & TARE	260.1				
D	WT. OF WATER = B-C	20.6				
E	WT. OF DRY SOIL = C-A	129.0				
F	MOISTURE CONTENT = (D/E) X 100	16.0				

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 10 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 3'-4' MATERIAL TYPE: UPPER HORIZON BR TILL SAMPLE NO.: UH-06 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	E				
A	WT. OF TARE	8.0				
B	WT. OF WET SOIL & TARE	274.9				
C	WT. OF DRY SOIL & TARE	242.0				
D	WT. OF WATER = B-C	32.9				
E	WT. OF DRY SOIL = C-A	234.0				
F	MOISTURE CONTENT = (D/E) X 100	14.1				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1		1		
A	WT. OF TARE	131.3		131.3		
B	WT. OF WET SOIL & TARE	299.8		295.8		
C	WT. OF DRY SOIL & TARE	278.7		275.3		
D	WT. OF WATER = B-C	21.1		20.5		
E	WT. OF DRY SOIL = C-A	147.4		144.0		
F	MOISTURE CONTENT = (D/E) X 100	14.3		14.2		

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 10 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 4'-5' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-07 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	G				
A	WT. OF TARE	8.0				
B	WT. OF WET SOIL & TARE	292.3				
C	WT. OF DRY SOIL & TARE	258.4				
D	WT. OF WATER = B-C	33.9				
E	WT. OF DRY SOIL = C-A	250.4				
F	MOISTURE CONTENT = (D/E) X 100	13.5				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	4				
A	WT. OF TARE	131.2				
B	WT. OF WET SOIL & TARE	292.8				
C	WT. OF DRY SOIL & TARE	272.8				
D	WT. OF WATER = B-C	20.0				
E	WT. OF DRY SOIL = C-A	141.6				
F	MOISTURE CONTENT = (D/E) X 100	14.1				

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FERNALD ON-SITE DISPOSAL FACILITY

869

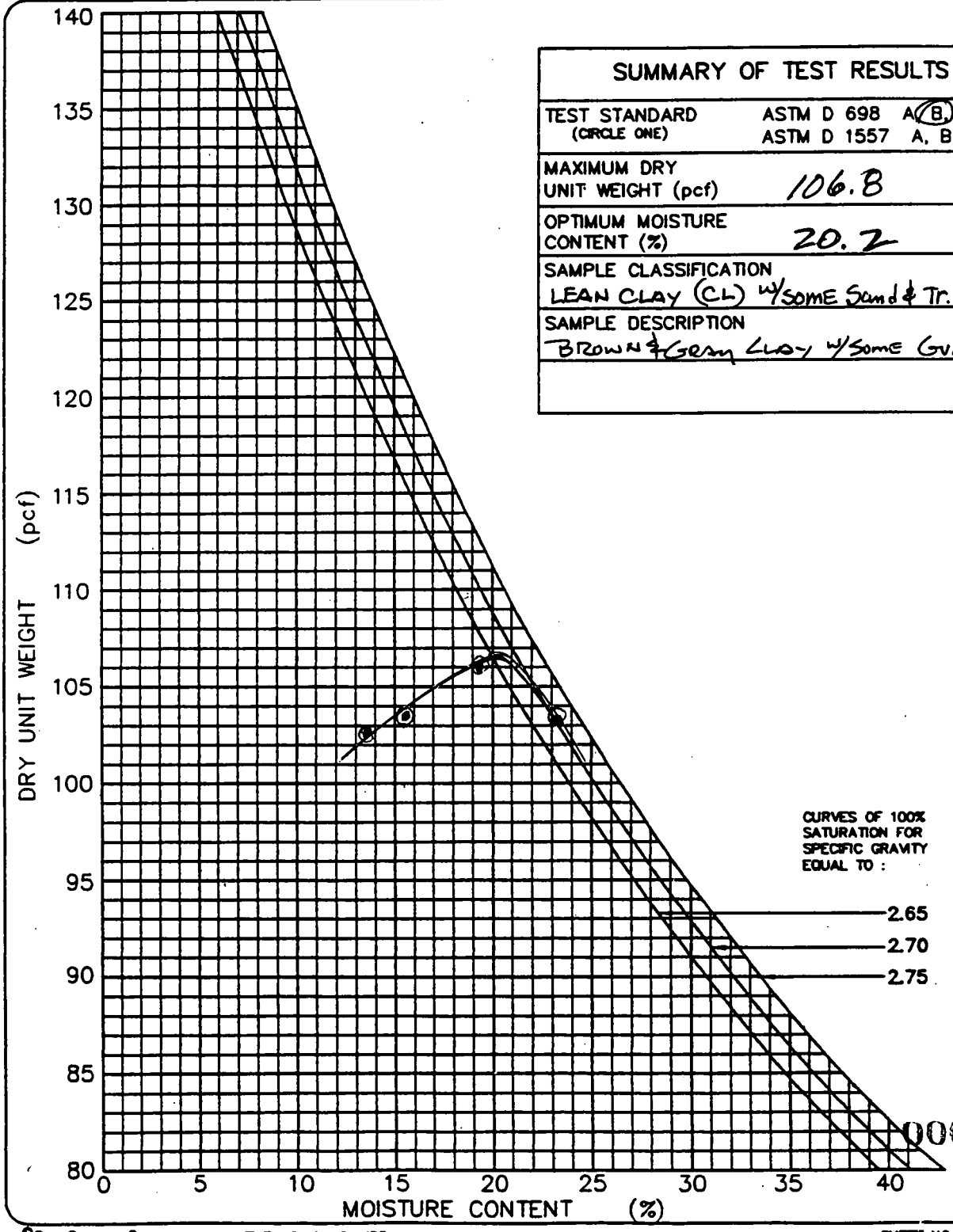
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UPPER HORIZON SAMPLE NO.: UH-04 QA ID: J MD



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A (B) C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	106.8
OPTIMUM MOISTURE CONTENT (%)	20.2
SAMPLE CLASSIFICATION	LEAN CLAY (CL) w/SOME Sand & Tr. gvl.
SAMPLE DESCRIPTION	BROWN & Gray CLAY w/SOME GVL

000125

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SHEET NO. 2 OF 2

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FERNALD ON-SITE DISPOSAL FACILITY

869

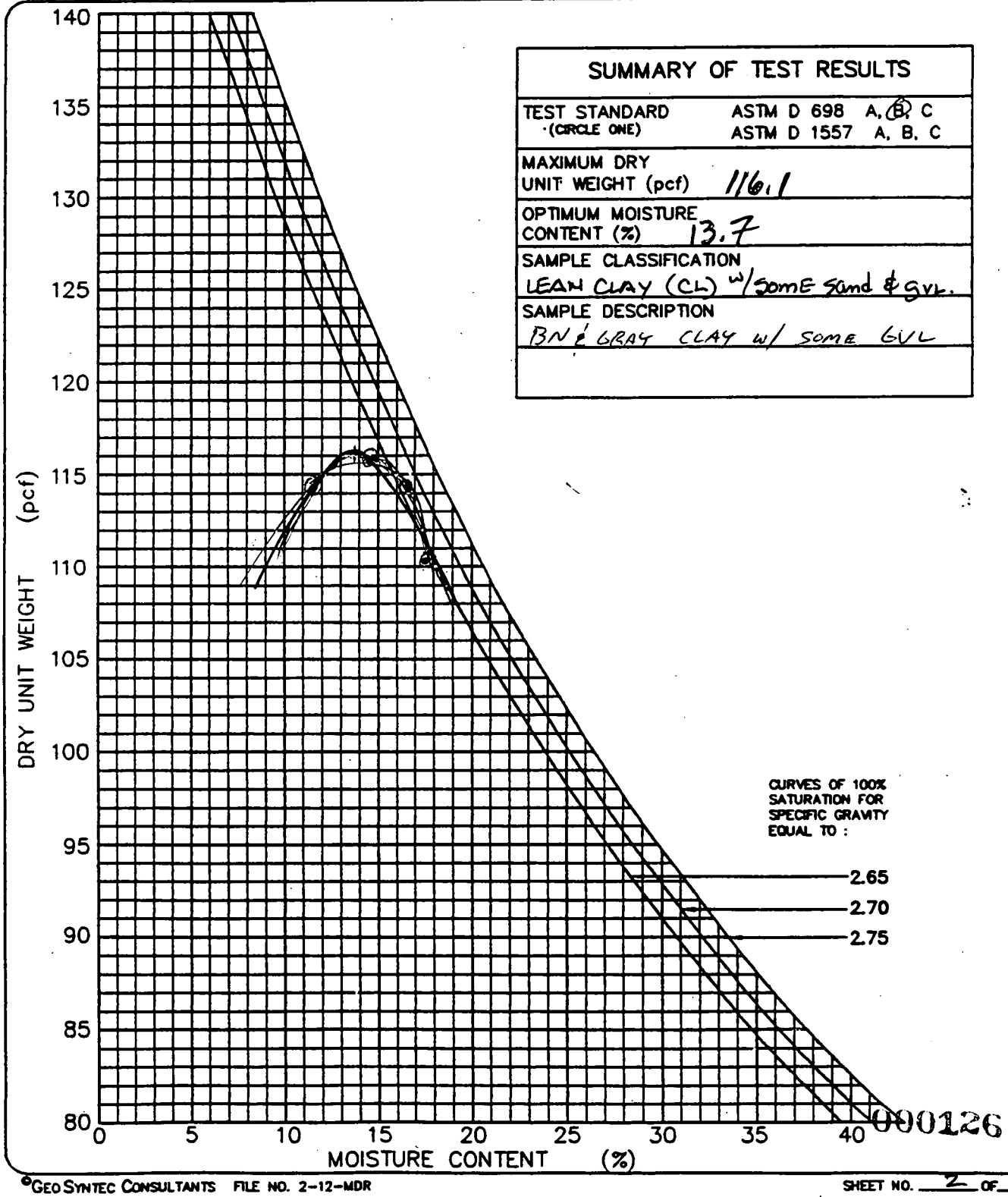
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JUNE month 1996 year

SOURCE: ON SITE BORROW 2'-3' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-05 QA ID: JW



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A, (B), C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	116.1
OPTIMUM MOISTURE CONTENT (%)	13.7
SAMPLE CLASSIFICATION	LEAN CLAY (CL) w/ SOME SAND & GVL.
SAMPLE DESCRIPTION	BN & GRAY CLAY w/ SOME GVL

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SHEET NO. 2 OF 2

/NM

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

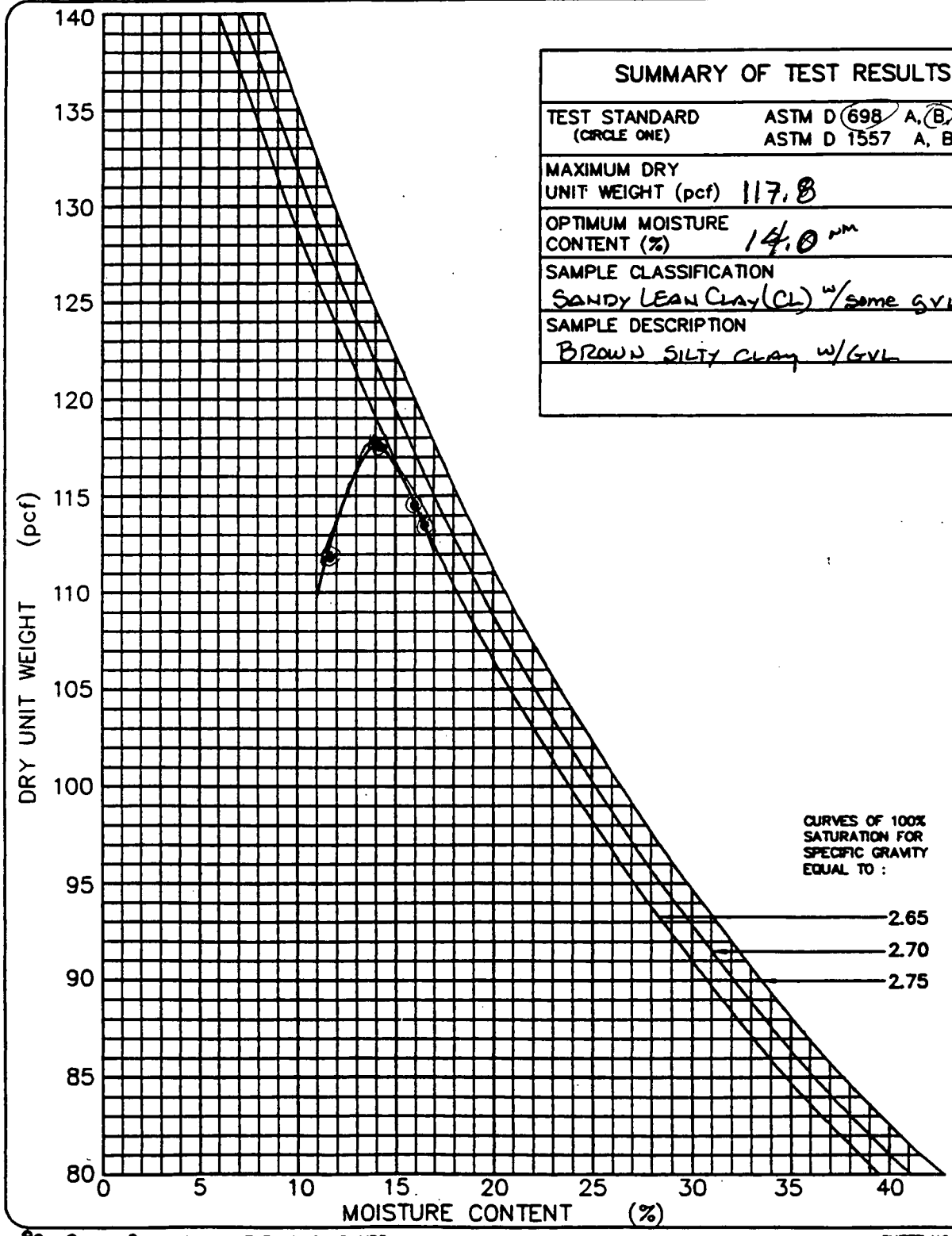
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: ON SITE BORROW 3'-4' MATERIAL TYPE: UPPER HORIZON SAMPLE NO.: UH-06 QA ID: JW



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D (698) A, (B) C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	117.8
OPTIMUM MOISTURE CONTENT (%)	14.0 NM
SAMPLE CLASSIFICATION	SANDY LEAN CLAY (CL) w/ some GVL.
SAMPLE DESCRIPTION	BROWN SILTY CLAY w/ GVL

000127

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SHEET NO. 2 OF 2

JW

869

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JUNE month 1996 year

SOURCE: TEST PAD 1 LIFT 1 MATERIAL TYPE: UPPER HORIZON BR TILL SAMPLE NO.: UH-08 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2		AVG	
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	271.4	272.4			
C	WT. OF DRY SOIL & TARE	243.6	246.4			
D	WT. OF WATER = B-C	27.8	26.0			
E	WT. OF DRY SOIL = C-A	112.3	115.3			
F	MOISTURE CONTENT = (D/E) X 100	24.8	22.5		23.7	

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UPPER HORIZON BR TILL SAMPLE NO.: UH-09 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2		avg	
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	241.7	263.2			
C	WT. OF DRY SOIL & TARE	217.0	240.7			
D	WT. OF WATER = B-C	24.7	22.5			
E	WT. OF DRY SOIL = C-A	85.7	109.6			
F	MOISTURE CONTENT = (D/E) X 100	28.8	20.5		24.6	000129

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-10 QA ID: DM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2		avg	
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	270.7	273.4			
C	WT. OF DRY SOIL & TARE	243.3	244.5			
D	WT. OF WATER = B-C	27.4	29.1			
E	WT. OF DRY SOIL = C-A	112.0	113.4			
F	MOISTURE CONTENT = (D/E) X 100	24.5	25.7		25.1	

000130

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 14 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-11 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	16.1 1	16.4 2		avg.	
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	296.4	285.8			
C	WT. OF DRY SOIL & TARE	264.8	255.9			
D	WT. OF WATER = B-C	31.6	29.9			
E	WT. OF DRY SOIL = C-A	133.5	124.8			
F	MOISTURE CONTENT = (D/E) X 100	23.6	23.9		23.8	

000131

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 14 day JUNE month 1996 year

SOURCE: TEST PAD 1 LIFT 3 MATERIAL TYPE: UHBT SAMPLE NO.: UH-13 QA ID: JW

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2		Avg	
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	232.2	234.2			
C	WT. OF DRY SOIL & TARE	214.5	216.6			
D	WT. OF WATER = B-C	17.7	17.6			
E	WT. OF DRY SOIL = C-A	83.2	85.5			
F	MOISTURE CONTENT = (D/E) X 100	21.3	20.6		21.0	

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SHEET NO. ____ OF ____

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

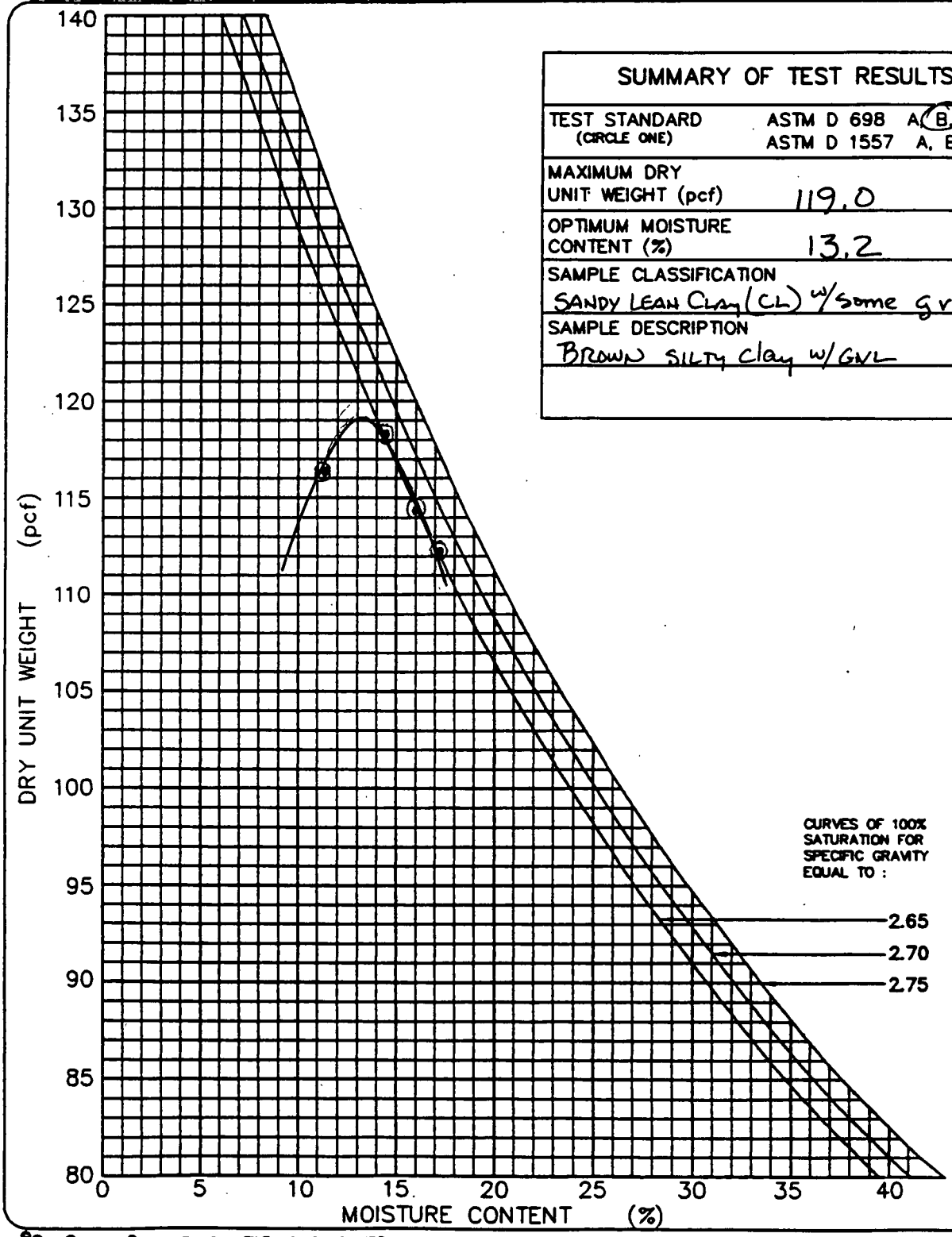
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: ON SITE BORROW 4'-5' MATERIAL TYPE: UPPER HORIZON SAMPLE NO.: UH-07 QA ID: JW



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A (B) C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	119.0
OPTIMUM MOISTURE CONTENT (%)	13.2
SAMPLE CLASSIFICATION	SANDY LEAN CLAY (CL) w/some GVL.
SAMPLE DESCRIPTION	BROWN SILTY clay w/GVL

000133

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SHEET NO. 2 OF 2

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: TEST PAD 1 MATERIAL TYPE: UHBT SAMPLE NO.: UH-14 QA ID: JM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2		AVG	
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	276.7	298.8			
C	WT. OF DRY SOIL & TARE	253.1	270.2			
D	WT. OF WATER = B-C	23.6	28.6			
E	WT. OF DRY SOIL = C-A	121.8	139.1			
F	MOISTURE CONTENT = (D/E) X 100	19.4	20.6		20.0	

1000 HRS 869

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: TEST PAD 1 MATERIAL TYPE: UHBT SAMPLE NO.: UH-15 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	2	4		avg	
A	WT. OF TARE	131.1	131.0			
B	WT. OF WET SOIL & TARE	288.8	302.5			
C	WT. OF DRY SOIL & TARE	261.6	274.6			
D	WT. OF WATER = B-C	27.2	27.9			
E	WT. OF DRY SOIL = C-A	130.5	143.6			
F	MOISTURE CONTENT = (D/E) X 100	20.8	19.4		20.1	

1045 HRS 869

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: 6E3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day ~~MAY~~ JUNE month 1996 year

SOURCE: TEST PAD 1 MATERIAL TYPE: UHBT SAMPLE NO.: UH-16 QA ID: DM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2		avg	
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	268.5	279.2			
C	WT. OF DRY SOIL & TARE	244.7	253.5			
D	WT. OF WATER = B-C	23.8	25.7			
E	WT. OF DRY SOIL = C-A	113.4	122.4			
F	MOISTURE CONTENT = (D/E) X 100	21.0	21.0		21.0	

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1/N SHEET NO. 1 OF 1

1145 HRS 869

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: TEST PAD 1 MATERIAL TYPE: UHBT SAMPLE NO.: UH-17 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	4	5		avg	
A	WT. OF TARE	131.0	131.0			
B	WT. OF WET SOIL & TARE	268.1	257.6			
C	WT. OF DRY SOIL & TARE	244.5	235.8			
D	WT. OF WATER = B-C	23.6	21.8			
E	WT. OF DRY SOIL = C-A	113.5	104.8			
F	MOISTURE CONTENT = (D/E) X 100	20.8	20.8		20.8	

000137

1445 HRS

869

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: TEST PAD 1 MATERIAL TYPE: UHBT SAMPLE NO.: UH-1B QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	VOID NM 2	4	5		avg
A	WT. OF TARE	131.1	131.0	131.0		
B	WT. OF WET SOIL & TARE	290.9	269.2	239.6		
C	WT. OF DRY SOIL & TARE	268.5	244.1	219.6		
D	WT. OF WATER = B-C	22.4	25.1	20.0		
E	WT. OF DRY SOIL = C-A	137.4	113.1	88.6		
F	MOISTURE CONTENT = (D/E) X 100	~~16.3~~ KEM	22.2	22.6		22.4

000138

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: UHBT SAMPLE NO.: UH-19 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	AVG		
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	276.5	273.3			
C	WT. OF DRY SOIL & TARE	249.8	247.4			
D	WT. OF WATER = B-C	26.7	25.9			
E	WT. OF DRY SOIL = C-A	118.5	116.3			
F	MOISTURE CONTENT = (D/E) X 100	22.6	22.3	22.4		

000139

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

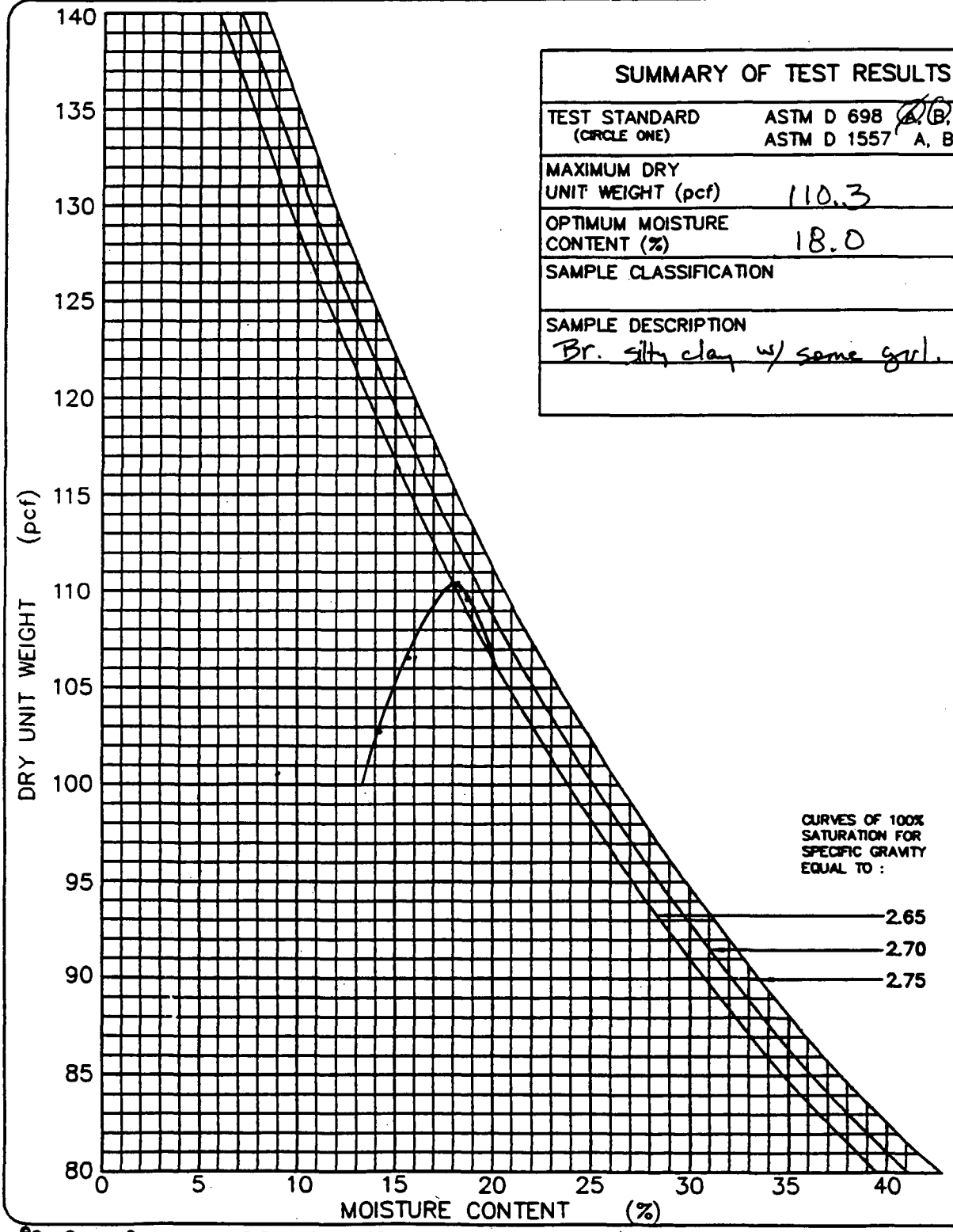
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JUNE month 1996 year

SOURCE: BORROW COMPOSITE MATERIAL TYPE: UH-BT SAMPLE NO.: UH-20 QA ID: JW



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A, B, C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	110.3
OPTIMUM MOISTURE CONTENT (%)	18.0
SAMPLE CLASSIFICATION	
SAMPLE DESCRIPTION	Br. silty clay w/ some grvl.

000140

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SHEET NO. 2 OF 7

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

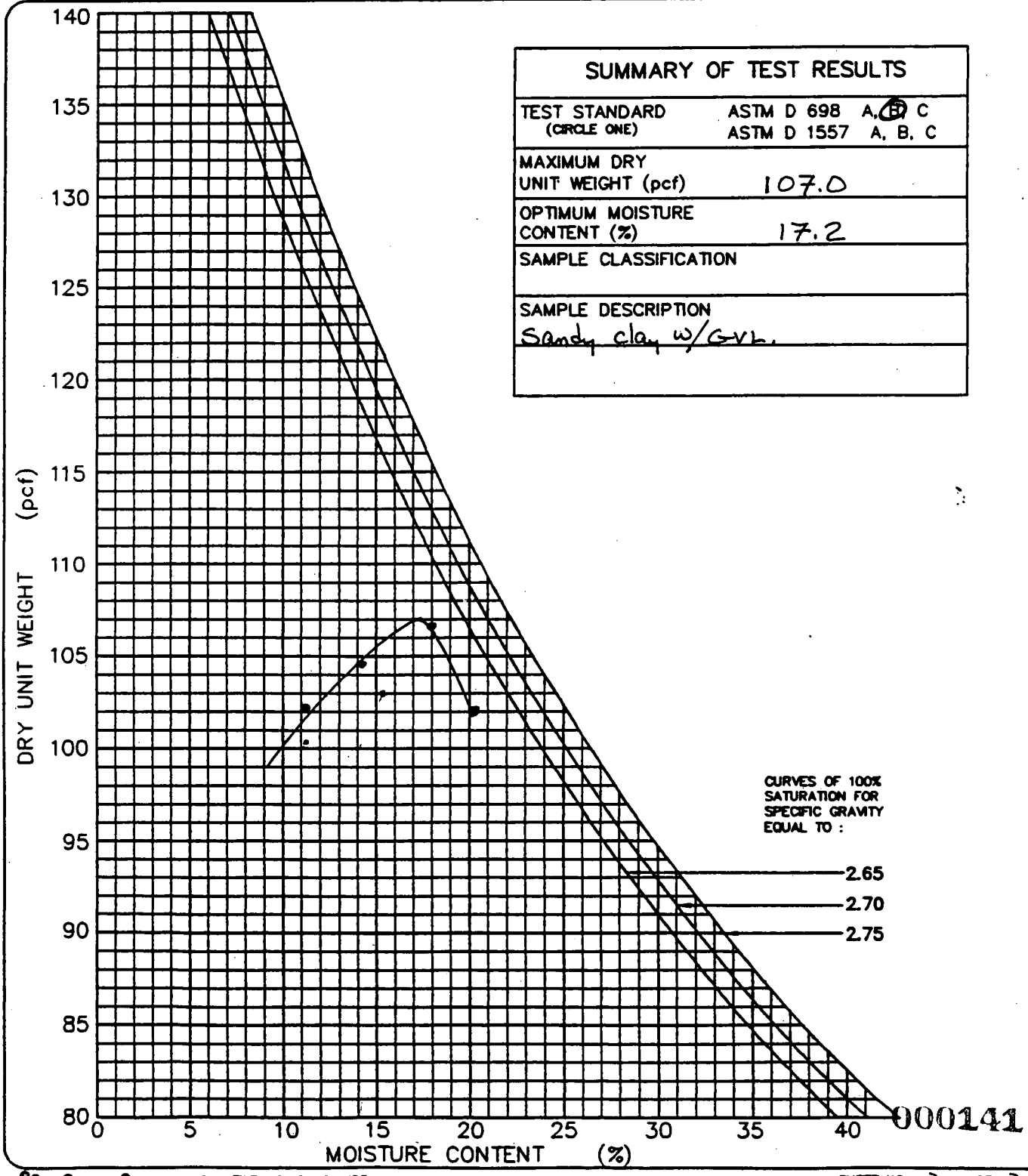
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: 6E 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 16 day JUNE month 1996 year

SOURCE: LIFT 2 TEST PAD 1 MATERIAL TYPE: UHBT SAMPLE NO.: UH-12 QA ID: JW



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A, (B) C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	107.0
OPTIMUM MOISTURE CONTENT (%)	17.2
SAMPLE CLASSIFICATION	
SAMPLE DESCRIPTION	Sandy clay w/GVL.

000141

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SHEET NO. 2 OF 2

0915 Hrs.

869

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 16 day JUNE month 1996 year

SOURCE: TEST PAD 1 LIFT 4 MATERIAL TYPE: UHBT SAMPLE NO.: UH-21 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.		4	2		avg	
A	WT. OF TARE		131.0	131.1			
B	WT. OF WET SOIL & TARE		296.2	291.4			
C	WT. OF DRY SOIL & TARE	NM	261.7	265.5			
D	WT. OF WATER = B-C	NM	34.8	25.9			
E	WT. OF DRY SOIL = C-A	NM	130.7	134.4			
F	MOISTURE CONTENT = (D/E) X 100	NM	26.7	19.3		23.0	

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NM

SHEET NO. 1 OF 1

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 53

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 17 day JUNE month 1996 year

SOURCE: TEST PAD 1 LIFT 5 MATERIAL TYPE: UHBT SAMPLE NO.: UH-22 QA ID: JW

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	AVG		
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	293.0	338.9			
C	WT. OF DRY SOIL & TARE	269.4	310.8			
D	WT. OF WATER = B-C	23.6	28.1			
E	WT. OF DRY SOIL = C-A	138.1	179.7			
F	MOISTURE CONTENT = (D/E) X 100	17.1	15.6	16.4		

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 17 day JUNE month 1996 year

SOURCE: TEST PAD 1 LIFT 5 MATERIAL TYPE: UHBT SAMPLE NO.: UH-23 QA ID: JW

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	AVG		
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	279.4	299.9			
C	WT. OF DRY SOIL & TARE	259.2	276.1			
D	WT. OF WATER = B-C	20.2	23.8			
E	WT. OF DRY SOIL = C-A	127.9	145.0			
F	MOISTURE CONTENT = (D/E) X 100	15.8	16.4	16.1		

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM DATE: 17 day JUNE month 1996 year

SOURCE: TEST PAD-1 LIFT 5 MATERIAL TYPE: _____ SAMPLE NO.: UH-24 QA ID: JW

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		AVG
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	268.9	293.8	274.9		
C	WT. OF DRY SOIL & TARE	247.4	269.3	255.1		
D	WT. OF WATER = B-C	21.5	24.5	19.8		
E	WT. OF DRY SOIL = C-A	116.1	138.2	124.1		
F	MOISTURE CONTENT = (D/E) X 100	18.5	17.7	16.0		17.4

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: 6E-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 17 day JUNE month 1996 year

SOURCE: TEST PAD 1 LIFT 5 MATERIAL TYPE: UHBT SAMPLE NO.: UH-25 QA ID: JW

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		avg
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	277.2	258.9	283.7		
C	WT. OF DRY SOIL & TARE	256.6	238.8	262.2		
D	WT. OF WATER = B-C	20.6	20.1	21.5		
E	WT. OF DRY SOIL = C-A	125.3	107.7	131.2		
F	MOISTURE CONTENT = (D/E) X 100	16.4	18.7	16.4		17.1

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: 6E3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM DATE: 18 day JUNE month 1996 year

SOURCE: TEST PAD-1 MATERIAL TYPE: UHBT SAMPLE NO.: UH-26 QA ID: JW

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4	AVG	
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	298.1	296.1	277.3		
C	WT. OF DRY SOIL & TARE	272.9	273.1	256.0		
D	WT. OF WATER = B-C	25.2	23	21.3		
E	WT. OF DRY SOIL = C-A	141.6	142.0	125		
F	MOISTURE CONTENT = (D/E) X 100	17.8	16.2	17.0	17.0	

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FERNALD ON-SITE DISPOSAL FACILITY

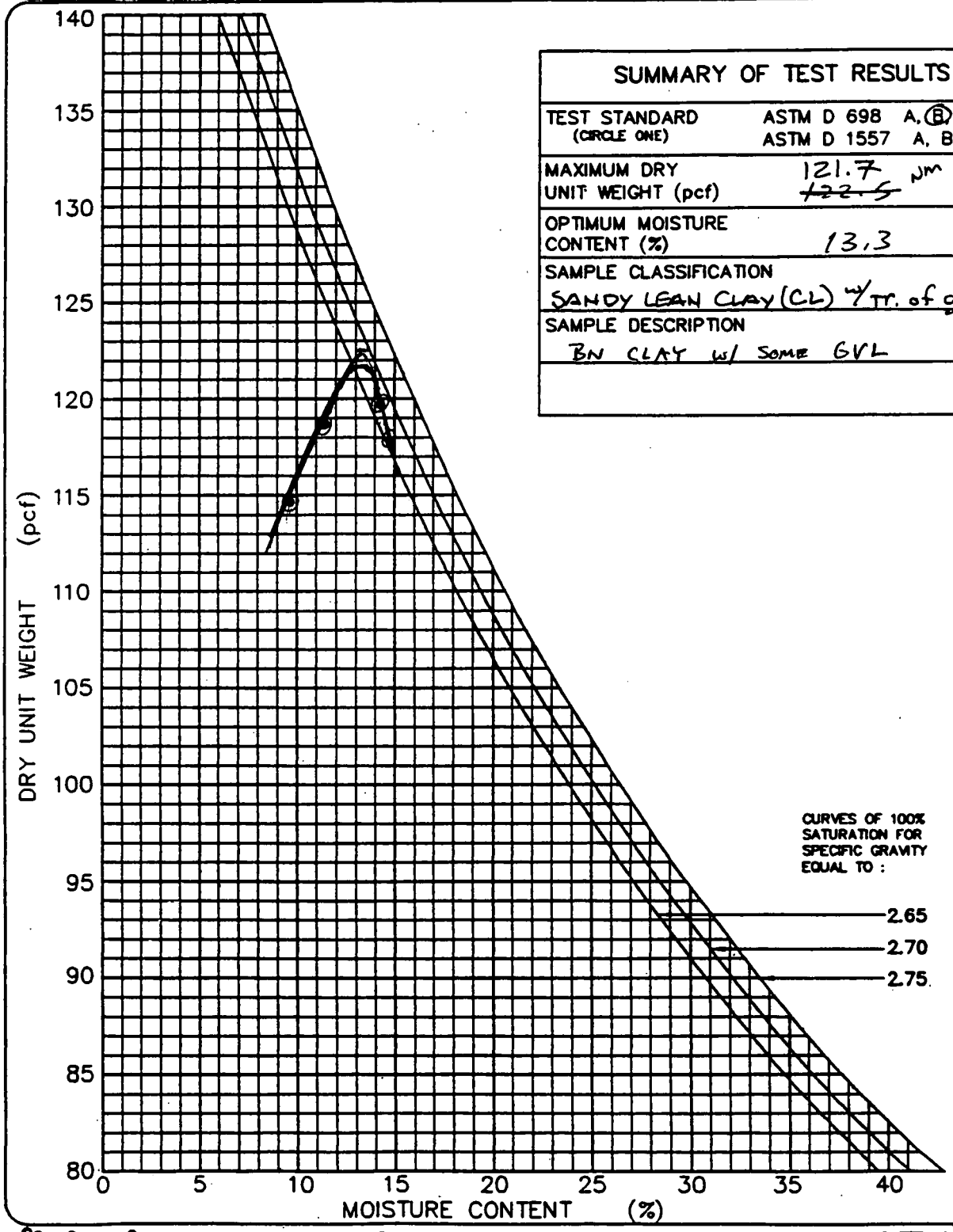
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: 6E3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM DATE: 18 day JUNE month 1996 year

SOURCE: BAR PIT MATERIAL TYPE: SAMPLE NO.: 2H-01 QA ID: JW



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A, (B) C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	121.7 ~~122.5~~ JM
OPTIMUM MOISTURE CONTENT (%)	13.3
SAMPLE CLASSIFICATION	SANDY LEAN CLAY (CL) w/ TR. of gvl.
SAMPLE DESCRIPTION	BN CLAY w/ SOME GVL

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SHEET NO. 2 OF 2

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 20 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: UH-BT SAMPLE NO.: UH-27 QA ID: CS

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	4	5		AVG
A	WT. OF TARE	131.3	131.0	131.0		
B	WT. OF WET SOIL & TARE	267.5	265.6	266.0		
C	WT. OF DRY SOIL & TARE	247.0	244.6	246.6		
D	WT. OF WATER = B-C	20.5	21.0	20.2		
E	WT. OF DRY SOIL = C-A	115.7	113.6	115.6		
F	MOISTURE CONTENT = (D/E) X 100	17.7	18.5	17.5		17.9

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 20 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: UH-BT SAMPLE NO.: UH-28 QA ID: CS

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	2	4			AUG
A	WT. OF TARE	131.1	131.0			
B	WT. OF WET SOIL & TARE	261.6	262.7			
C	WT. OF DRY SOIL & TARE	240.5	241.6			
D	WT. OF WATER = B-C	21.1	21.1			
E	WT. OF DRY SOIL = C-A	109.4	110.6			
F	MOISTURE CONTENT = (D/E) X 100	19.3	19.2			19.2

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 20 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: UHBT SAMPLE NO.: UH-29 QA ID: UP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		AVG
A	WT. OF TARE	131.3	131.1	~~130.0~~ 131.0		
B	WT. OF WET SOIL & TARE	270.0	270.0	270.0		
C	WT. OF DRY SOIL & TARE	247.9	248.5	248.1		
D	WT. OF WATER = B-C	22.1	21.5	21.9		
E	WT. OF DRY SOIL = C-A	116.6	117.4	117.1		
F	MOISTURE CONTENT = (D/E) X 100	19.0	18.3	18.7		18.7

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

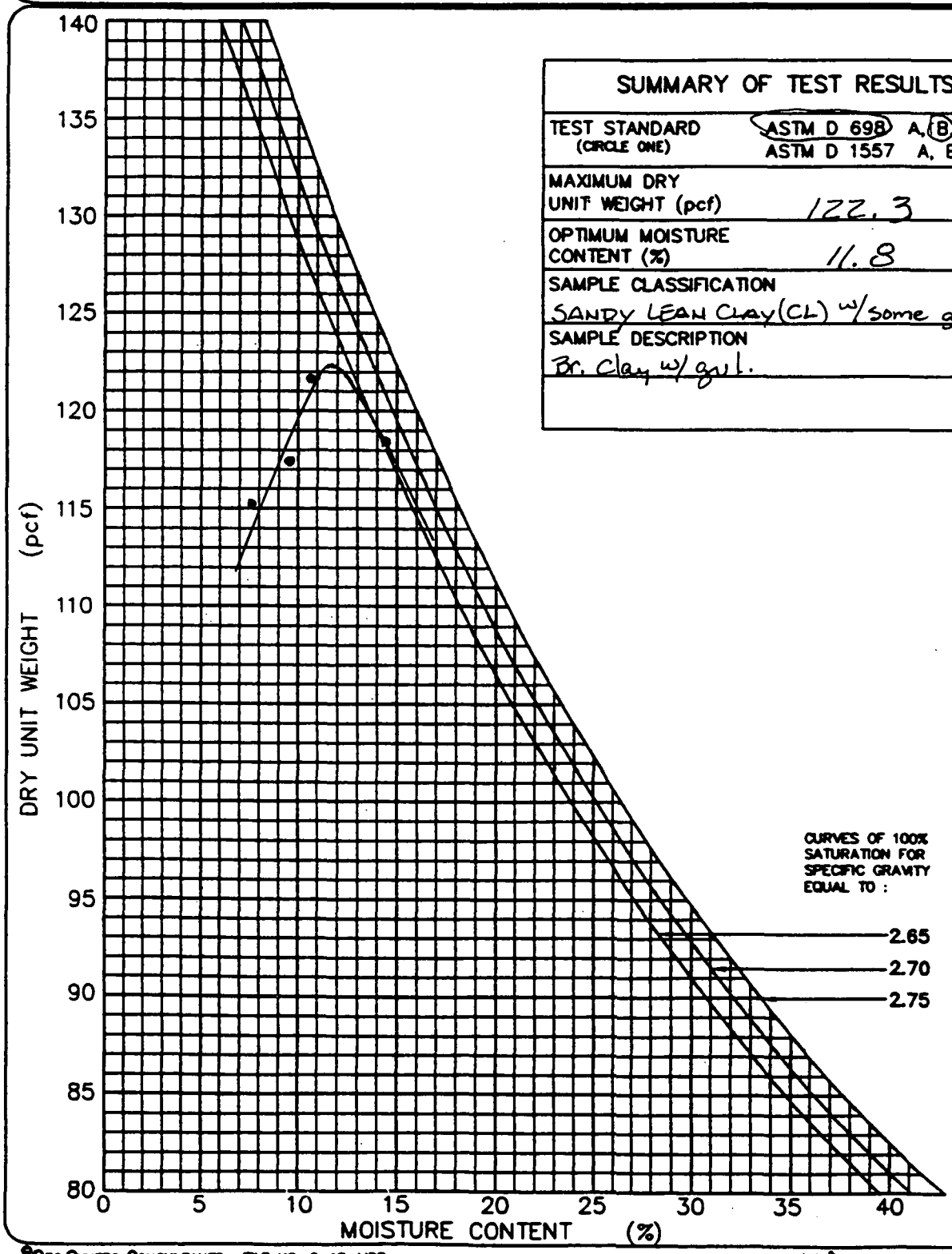
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM DATE: 20 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: LHBT SAMPLE NO.: LH03 QA ID: MP



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A, (B) C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	122.3
OPTIMUM MOISTURE CONTENT (%)	11.8
SAMPLE CLASSIFICATION	SANDY LEAN CLAY (CL) w/ some gvl.
SAMPLE DESCRIPTION	Br. Clay w/ gvl.

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SHEET NO. 2 OF 2

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 21 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: UH BT SAMPLE NO.: UH-30 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

		LANE 1	LANE 2	LANE 3		
	TARE NO.	1	2	4		AVG
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	280.0	280.0	280.0		
C	WT. OF DRY SOIL & TARE	253.3	254.9	253.7		
D	WT. OF WATER = B-C	26.7	25.1	26.3		
E	WT. OF DRY SOIL = C-A	122.0	123.8	122.7		
F	MOISTURE CONTENT = (D/E) X 100	21.9	20.3	21.4		21.2

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 21 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: UHBT SAMPLE NO.: UH-31 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		AVG
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	280.0	280.0	280.0		
C	WT. OF DRY SOIL & TARE	254.8	254.7	254.6		
D	WT. OF WATER = B-C	25.2	25.3	25.4		
E	WT. OF DRY SOIL = C-A	123.5	123.6	123.6		
F	MOISTURE CONTENT = (D/E) X 100	20.4	20.5	20.6		20.5

000154

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 21 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: UHBT SAMPLE NO.: UH-32 QA ID: UP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		AVG
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	280.0	280.0	280.0		
C	WT. OF DRY SOIL & TARE	255.3	254.7	254.5		
D	WT. OF WATER = B-C	24.7	25.3	25.5		
E	WT. OF DRY SOIL = C-A	124.0	123.6	123.5		
F	MOISTURE CONTENT = (D/E) X 100	19.9	20.5	20.6		20.3

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FERNALD ON-SITE DISPOSAL FACILITY

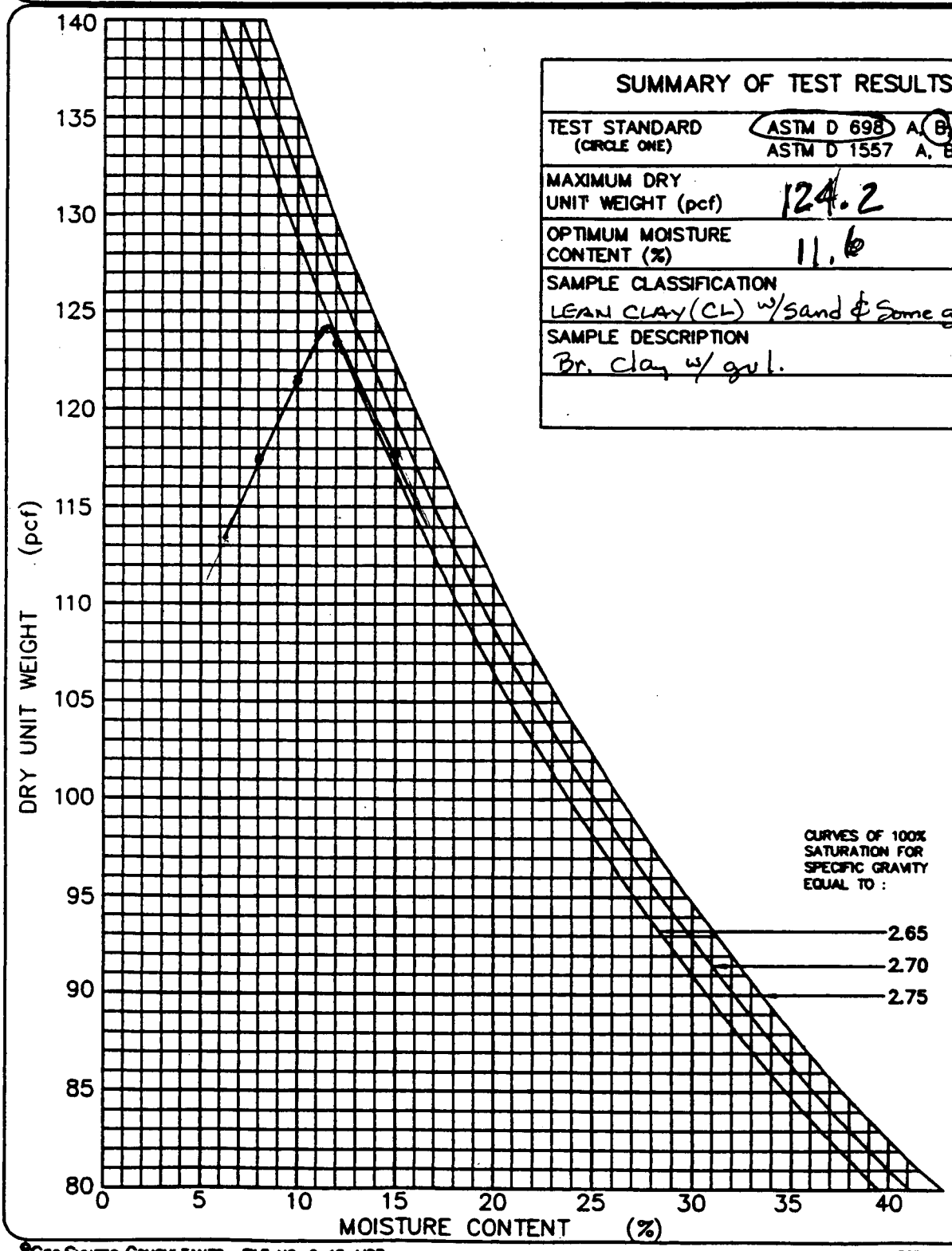
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM DATE: 21 day June month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: LHBT SAMPLE NO.: LH-06 QA ID: MP



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A, B, C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	124.2
OPTIMUM MOISTURE CONTENT (%)	11.6
SAMPLE CLASSIFICATION	LEAN CLAY (CL) w/sand & some gvl.
SAMPLE DESCRIPTION	Br. clay w/ gvl.

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SHEET NO. 2 OF 2

/JM

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM DATE: 25 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: LHBT SAMPLE NO.: LH-07 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	2	4			AUG
A	WT. OF TARE	131.1	131.0			
B	WT. OF WET SOIL & TARE	280.0	280.0			
C	WT. OF DRY SOIL & TARE	261.4	261.2			
D	WT. OF WATER = B-C	18.6	18.8			
E	WT. OF DRY SOIL = C-A	130.3	130.2			
F	MOISTURE CONTENT = (D/E) X 100	14.3	14.4			0001574

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 26 day JUNE month 1996 year

SOURCE: ONSITE BORROW MATERIAL TYPE: CH-BT SAMPLE NO.: CH-08 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		AVG
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	280.0	280.0	280.0		
C	WT. OF DRY SOIL & TARE	263.2	262.1	262.7		
D	WT. OF WATER = B-C	16.8	17.9	17.3		
E	WT. OF DRY SOIL = C-A	131.9	131.0	131.7		
F	MOISTURE CONTENT = (D/E) X 100	12.7	13.7	13.1		13.2

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: Test Pad Construction DATE: 26 day June month 1996 year

SOURCE: On-Site Borrow MATERIAL TYPE: LHBT SAMPLE NO.: LH-~~08~~ MP 09 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2			Avg
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	280.0	280.0			
C	WT. OF DRY SOIL & TARE	262.3	262.9			
D	WT. OF WATER = B-C	17.7	17.1			
E	WT. OF DRY SOIL = C-A	131.0	131.8			
F	MOISTURE CONTENT = (D/E) X 100	13.5	13.0			13.3

000159

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: Test Pad Construction DATE: 26 day June month 1996 year

SOURCE: Onsite Borrow MATERIAL TYPE: HBT SAMPLE NO.: LH-10 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2			AVG
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	280.0	280.0			
C	WT. OF DRY SOIL & TARE	261.1	261.1			
D	WT. OF WATER = B-C	18.9	18.9			
E	WT. OF DRY SOIL = C-A	129.8	130.0			
F	MOISTURE CONTENT = (D/E) X 100	14.6	14.5			14.6

000160

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 27 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-11 QA ID: HP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		AVG
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	280.0	280.0	280.0		
C	WT. OF DRY SOIL & TARE	264.3	263.6	261.9		
D	WT. OF WATER = B-C	15.7	16.4	18.1		
E	WT. OF DRY SOIL = C-A	133	132.5	130.9		
F	MOISTURE CONTENT = (D/E) X 100	11.8	12.4	13.8		12.7

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 27 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-12 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2			AVG
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	280.0	280.0			
C	WT. OF DRY SOIL & TARE	262.6	262.2			
D	WT. OF WATER = B-C	17.4	17.8			
E	WT. OF DRY SOIL = C-A	131.3	131.1			
F	MOISTURE CONTENT = (D/E) X 100	13.3	13.6			13.5

000162

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 27 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-13 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		AVG
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	280.0	280.0	280.0		
C	WT. OF DRY SOIL & TARE	262.7	262.7	262.4		
D	WT. OF WATER = B-C	17.3	17.3	17.6		
E	WT. OF DRY SOIL = C-A	131.4	131.6	131.4		
F	MOISTURE CONTENT = (D/E) X 100	13.2	13.1	13.4		13.2

000163

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: Test Pad Construction DATE: 28 day June month 1996 year

SOURCE: Onsite Borrow MATERIAL TYPE: LHBT SAMPLE NO.: LH-14 QA ID: MJ

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		AVG
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	280.0	280.0	280.0		
C	WT. OF DRY SOIL & TARE	262.0	262.0	262.7		
D	WT. OF WATER = B-C	18.0	18.0	17.3		
E	WT. OF DRY SOIL = C-A	130.7	130.9	131.7		
F	MOISTURE CONTENT = (D/E) X 100	13.8	13.8	13.1		13.6

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F[redacted]O ON-SITE FERNALD DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 28 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LH BT SAMPLE NO.: LH-15 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	3		AVG
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	280.0	~~280.8~~ 281.6 MP	280.0		
C	WT. OF DRY SOIL & TARE	261.6	262.5	259.8		
D	WT. OF WATER = B-C	18.4	19.1	20.2		
E	WT. OF DRY SOIL = C-A	130.3	131.4	128.8		
F	MOISTURE CONTENT = (D/E) X 100	14.1	14.5	15.7		14.8

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F[redacted]O ON-SITE FERNALD DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: S.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 29 day JUNE month 1996 year

SOURCE: ONSITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-16 QA ID: WP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2			AVG
A	WT. OF TARE	131.3	131.1			
B	WT. OF WET SOIL & TARE	280.0	280.0			
C	WT. OF DRY SOIL & TARE	261.0	261.5			
D	WT. OF WATER = B-C	19.0	18.5			
E	WT. OF DRY SOIL = C-A	129.7	130.4			
F	MOISTURE CONTENT = (D/E) X 100	14.6	14.2			14.4

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 29 day June month 1996 year

SOURCE: ONSITE BORROW MATERIAL TYPE: CLAY SAMPLE NO.: LH-17 QA ID: MP

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.					
A	WT. OF TARE					
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1	2	4		Average
A	WT. OF TARE	131.3	131.1	131.0		
B	WT. OF WET SOIL & TARE	280.0	280.0	280.0		
C	WT. OF DRY SOIL & TARE	262.0	262.1	262.9		
D	WT. OF WATER = B-C	18.0	17.9	17.1		
E	WT. OF DRY SOIL = C-A	130.7	131.0	131.9		
F	MOISTURE CONTENT = (D/E) X 100	13.8	13.7	13.0		13.5

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 9 day JULY month 1996 year

SOURCE: IN-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-01 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	E				
A	WT. OF TARE	8.0				
B	WT. OF WET SOIL & TARE	321.2				
C	WT. OF DRY SOIL & TARE	286.6				
D	WT. OF WATER = B-C	34.6				
E	WT. OF DRY SOIL = C-A	278.6				
F	MOISTURE CONTENT = (D/E) X 100	12.4				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1				
A	WT. OF TARE	131.3				
B	WT. OF WET SOIL & TARE	283.8				
C	WT. OF DRY SOIL & TARE	266.6				
D	WT. OF WATER = B-C	17.2				
E	WT. OF DRY SOIL = C-A	135.3				
F	MOISTURE CONTENT = (D/E) X 100	12.7				

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 9 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-02 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	G				
A	WT. OF TARE	8.0				
B	WT. OF WET SOIL & TARE	336.4				
C	WT. OF DRY SOIL & TARE	299.1				
D	WT. OF WATER = B-C	37.3				
E	WT. OF DRY SOIL = C-A	291.1				
F	MOISTURE CONTENT = (D/E) X 100	12.8				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1				
A	WT. OF TARE	131.3				
B	WT. OF WET SOIL & TARE	289.2				
C	WT. OF DRY SOIL & TARE	269.7				
D	WT. OF WATER = B-C	19.5				
E	WT. OF DRY SOIL = C-A	138.4				
F	MOISTURE CONTENT = (D/E) X 100	14.1				

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SHEET NO. 1 OF 1

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 9 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-03 QA ID: IVM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	F	D		avg	
A	WT. OF TARE	8.0	8.0			
B	WT. OF WET SOIL & TARE	306.2	399.8			
C	WT. OF DRY SOIL & TARE	271.2	360.3			
D	WT. OF WATER = B-C	35.0	39.5			
E	WT. OF DRY SOIL = C-A	263.2	352.3			
F	MOISTURE CONTENT = (D/E) X 100	13.3	11.2		12.3	

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	1				
A	WT. OF TARE	131.3				
B	WT. OF WET SOIL & TARE	285.8				
C	WT. OF DRY SOIL & TARE	269.1				
D	WT. OF WATER = B-C	16.7				
E	WT. OF DRY SOIL = C-A	137.8				
F	MOISTURE CONTENT = (D/E) X 100	12.1				

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3500 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 9 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-04 QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	N				
A	WT. OF TARE	13.5				
B	WT. OF WET SOIL & TARE	782.8				
C	WT. OF DRY SOIL & TARE	695.6				
D	WT. OF WATER = B-C	87.2				
E	WT. OF DRY SOIL = C-A	682.1				
F	MOISTURE CONTENT = (D/E) X 100	12.8				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	NM ~~N~~ 1				2
A	WT. OF TARE	NM 131.3 ~~13.5~~				131.1
B	WT. OF WET SOIL & TARE	283.0				257.3
C	WT. OF DRY SOIL & TARE	264.9				242.7
D	WT. OF WATER = B-C	18.1				14.6
E	WT. OF DRY SOIL = C-A	133.6				111.6
F	MOISTURE CONTENT = (D/E) X 100	13.5				13.1

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FERNALD ON-SITE DISPOSAL FACILITY

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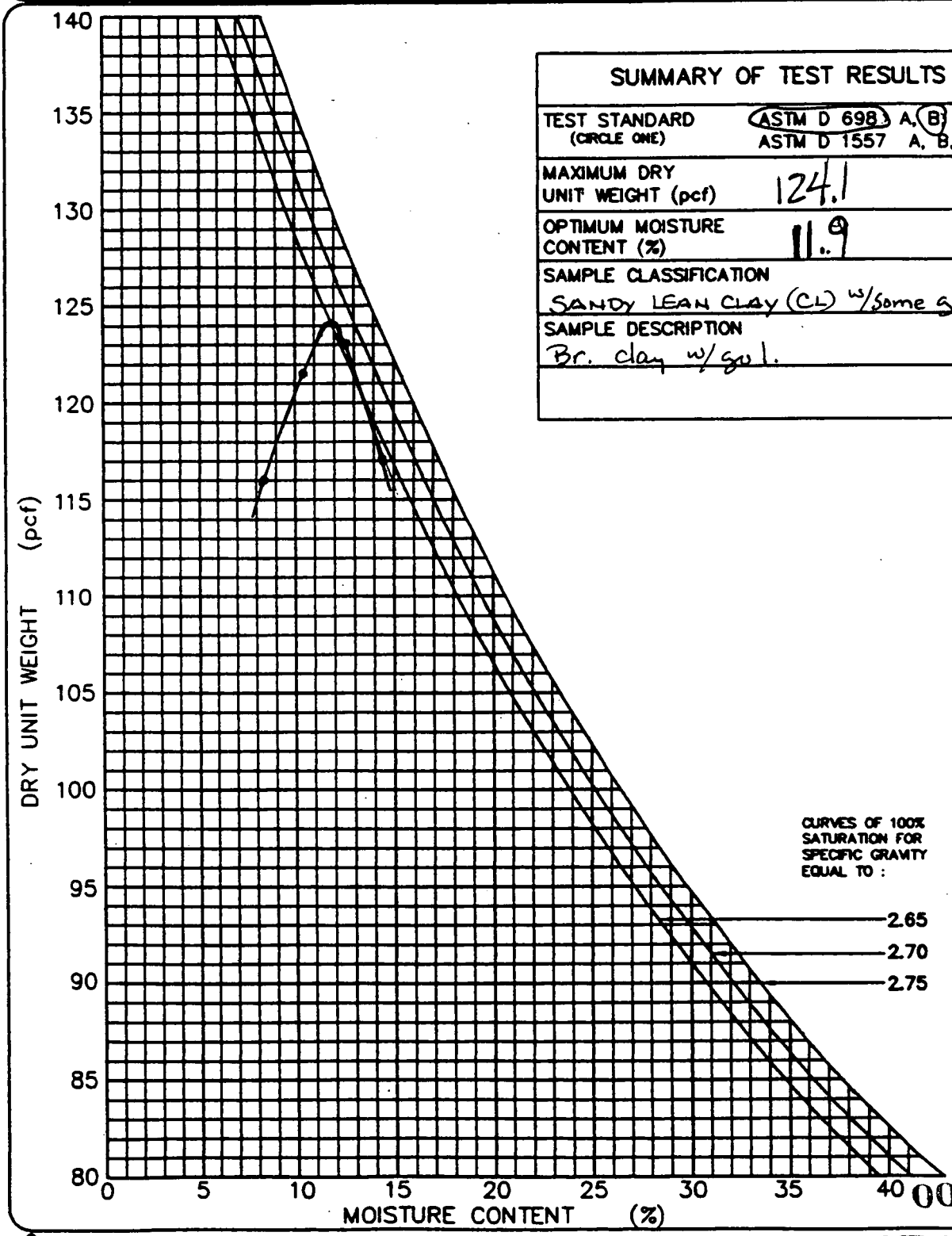
MOISTURE-DENSITY RELATIONSHIP

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE-3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM DATE: 20 day JUNE month 1996 year

SOURCE: BORROW PIT MATERIAL TYPE: LHBT SAMPLE NO.: LH-04 QA ID: MP



SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A, (B) C ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	124.1
OPTIMUM MOISTURE CONTENT (%)	11.9
SAMPLE CLASSIFICATION	SANDY LEAN CLAY (CL) w/some gvl.
SAMPLE DESCRIPTION	Br. clay w/gvl.

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SHEET NO. 2 OF 2

/ JM

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FERNALD ON-SITE DISPOSAL FACILITY

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3800 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 9 day JULY month 1996 year

SOURCE ON-SITE MATERIAL TYPE: LHBT SAMPLE NO.: LH-05 QA ID: WM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	0				
A	WT. OF TARE	13.5				
B	WT. OF WET SOIL & TARE	671.9				
C	WT. OF DRY SOIL & TARE	600.4				
D	WT. OF WATER = B-C	71.5				
E	WT. OF DRY SOIL = C-A	586.9				
F	MOISTURE CONTENT = (D/E) X 100	12.2				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	2				2
A	WT. OF TARE	131.1				131.1
B	WT. OF WET SOIL & TARE	285.5				222.0
C	WT. OF DRY SOIL & TARE	267.6				211.9
D	WT. OF WATER = B-C	17.9				10.1
E	WT. OF DRY SOIL = C-A	136.5				80.8
F	MOISTURE CONTENT = (D/E) X 100	13.1				125

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FERNALD ON-SITE DISPOSAL FACILITY

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LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-06 COMPOSITE QA ID: NM

OVEN METHOD (ASTM D 2216)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO.	I				
A	WT. OF TARE	7.8				
B	WT. OF WET SOIL & TARE	373.2				
C	WT. OF DRY SOIL & TARE	332.2				
D	WT. OF WATER = B-C	41.0				
E	WT. OF DRY SOIL = C-A	324.4				
F	MOISTURE CONTENT = (D/E) X 100	12.6				

MICROWAVE METHOD (ASTM D 4643)

RECOMMENDED MASS OF MOIST SAMPLE WEIGHT

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	2				
A	WT. OF TARE	131.1				
B	WT. OF WET SOIL & TARE					
C	WT. OF DRY SOIL & TARE					
D	WT. OF WATER = B-C					
E	WT. OF DRY SOIL = C-A					
F	MOISTURE CONTENT = (D/E) X 100					

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FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

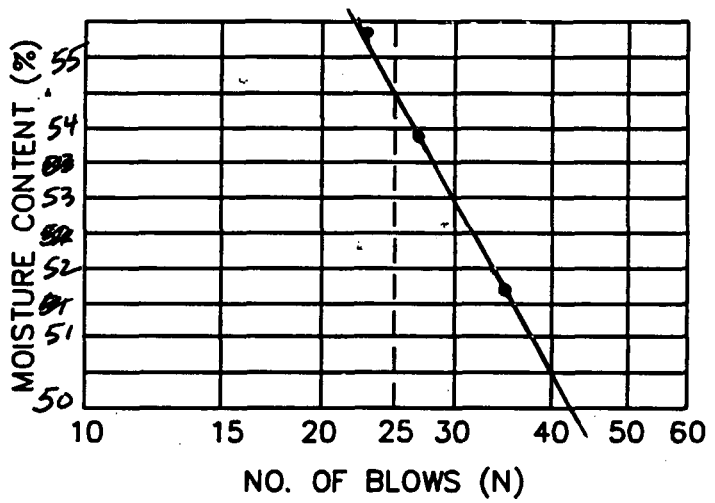
DESCRIPTION: TEST PAD CONST. DATE: 10 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UPPER HOR. BR. TILL SAMPLE NO.: UH-01 QA ID: NM

LIQUID LIMIT DETERMINATION

	TARE NO.		b'	d'	f'	
A	WT. OF TARE	(grams)	25.60	27.04	25.86	
B	WT. OF WET SOIL & TARE	(grams)	43.73	48.00	43.26	
C	WT. OF DRY SOIL & TARE	(grams)	37.55	40.66	37.06	
D	WT. OF WATER = B-C	(grams)	6.18	7.34	6.20	
E	WT. OF DRY SOIL = C-A	(grams)	11.95	13.62	11.20	
F	MOISTURE CONTENT = (D/E)X100	(%)	51.7	53.9	55.4	
N	NUMBER OF BLOWS		35	27	23	

II



PLASTIC LIMIT DETERMINATION

	TARE NO.		g'	h'	i'	
A	WT. OF TARE	(grams)	25.76	25.13	24.85	
B	WT. OF WET SOIL & TARE	(grams)	33.00	32.32	31.19	
C	WT. OF DRY SOIL & TARE	(grams)	31.70	31.03	30.07	
D	WT. OF WATER = B-C	(grams)	1.30	1.29	1.12	
E	WT. OF DRY SOIL = C-A	(grams)	5.94	5.90	5.22	
F	MOISTURE CONTENT = (D/E)X100	(%)	21.9	21.9	21.5	

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LIQUID LIMIT (LL) = 55 PLASTIC LIMIT (PL) = 22 PLASTICITY INDEX (PI) = 33

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: ~~18~~ 10 day ~~JUNE~~ JULY month 1996 year

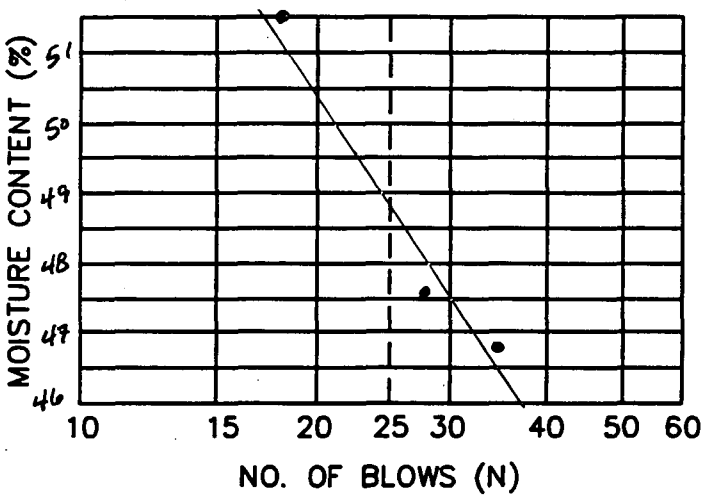
SOURCE: ON-SITE BORING 1'-2' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-04 QA ID: NM

LIQUID LIMIT DETERMINATION

	TARE NO.		w'	v'	b'	
A	WT. OF TARE	(grams)	26.00	25.72	25.60	
B	WT. OF WET SOIL & TARE	(grams)	44.75	42.66	41.66	
C	WT. OF DRY SOIL & TARE	(grams)	38.77	37.20	36.20	
D	WT. OF WATER = B-C	(grams)	5.98	5.46	5.46	
E	WT. OF DRY SOIL = C-A	(grams)	12.77	11.48	10.60	
F	MOISTURE CONTENT = (D/E)X100	(%)	46.8	47.6	51.5	
N	NUMBER OF BLOWS		35	28	18	

B

II



LL

PLASTIC LIMIT DETERMINATION

	TARE NO.		n'	h'	f'	
A	WT. OF TARE	(grams)	28.66	25.13	25.86	
B	WT. OF WET SOIL & TARE	(grams)	35.43	31.05	33.44	
C	WT. OF DRY SOIL & TARE	(grams)	34.20	30.47	32.10	
D	WT. OF WATER = B-C	(grams)	1.23	1.18	1.34	
E	WT. OF DRY SOIL = C-A	(grams)	5.54	5.34	6.24	
F	MOISTURE CONTENT = (D/E)X100	(%)	22.2	22.1	21.5	

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LIQUID LIMIT (LL) = 49 PLASTIC LIMIT (PL) = 22 PLASTICITY INDEX (PI) = 27

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GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 10 day JULY month 1996 year

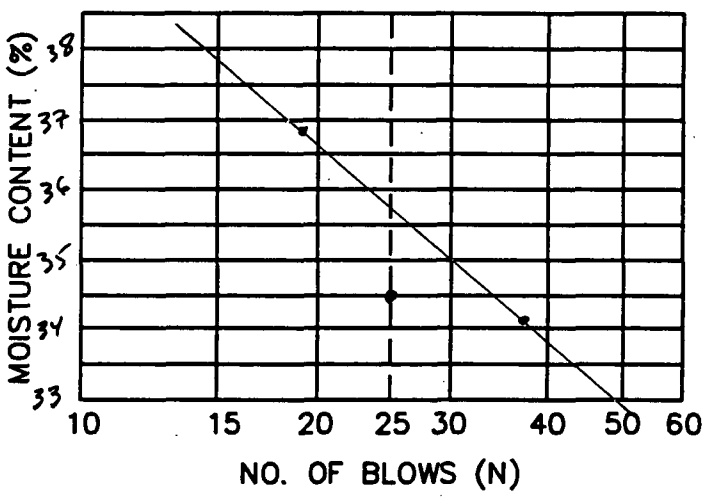
SOURCE: ~~ON-SITE BORROW~~ 2'-3' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-05 QA ID: NM

LIQUID LIMIT DETERMINATION

	TARE NO.		d'	~~VOID NM~~	i'	
A	WT. OF TARE	(grams)	27.04	~~25.22~~	24.85	
B	WT. OF WET SOIL & TARE	(grams)	47.36	~~43.40~~	43.32	
C	WT. OF DRY SOIL & TARE	(grams)	42.19	~~38.74~~	38.35	
D	WT. OF WATER = B-C	(grams)	5.17	~~4.66~~	4.97	
E	WT. OF DRY SOIL = C-A	(grams)	15.15	~~13.52~~	13.50	
F	MOISTURE CONTENT = (D/E)X100	(%)	34.1	~~34.5~~	36.8	
N	NUMBER OF BLOWS		38	~~25~~	19	

D

III



LL

PLASTIC LIMIT DETERMINATION

	TARE NO.		g'	K'	m'	
A	WT. OF TARE	(grams)	25.76	26.59	28.29	
B	WT. OF WET SOIL & TARE	(grams)	34.42	35.14	35.49	
C	WT. OF DRY SOIL & TARE	(grams)	33.04	33.69	34.34	
D	WT. OF WATER = B-C	(grams)	1.38	1.45	1.15	
E	WT. OF DRY SOIL = C-A	(grams)	7.28	7.10	6.05	
F	MOISTURE CONTENT = (D/E)X100	(%)	19.0	20.4	19.0	

000178

LIQUID LIMIT (LL) = 36 PLASTIC LIMIT (PL) = 19 PLASTICITY INDEX (PI) = 17

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 11 day JULY month 1996 year

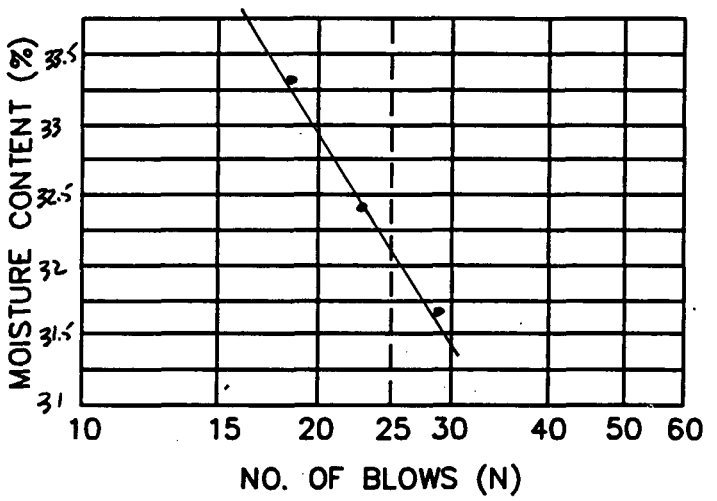
SOURCE: ON-SITE BORROW 3'-4' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-06 QA ID: NM

LIQUID LIMIT DETERMINATION

	TARE NO.		i'	d'	m'	
A	WT. OF TARE	(grams)	24.85	27.04	28.29	
B	WT. OF WET SOIL & TARE	(grams)	43.90	45.64	47.69	
C	WT. OF DRY SOIL & TARE	(grams)	39.31	41.09	42.84	
D	WT. OF WATER = B-C	(grams)	4.59	4.55	4.85	
E	WT. OF DRY SOIL = C-A	(grams)	14.46	14.05	14.55	
F	MOISTURE CONTENT = (D/E)X100	(%)	31.7	32.4	33.3	
N	NUMBER OF BLOWS		29	23	18	

F

VI



CL

PLASTIC LIMIT DETERMINATION

	TARE NO.		j'	n'	b'	
A	WT. OF TARE	(grams)	25.22	28.66	25.60	
B	WT. OF WET SOIL & TARE	(grams)	33.80	38.73	36.86	
C	WT. OF DRY SOIL & TARE	(grams)	32.50	37.21	35.14	
D	WT. OF WATER = B-C	(grams)	1.30	1.52	1.72	
E	WT. OF DRY SOIL = C-A	(grams)	7.28	8.55	9.54	
F	MOISTURE CONTENT = (D/E)X100	(%)	17.9	17.8	18.0	

000179

LIQUID LIMIT (LL) = 32 PLASTIC LIMIT (PL) = 18 PLASTICITY INDEX (PI) = 14

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 11 day JULY month 1996 year

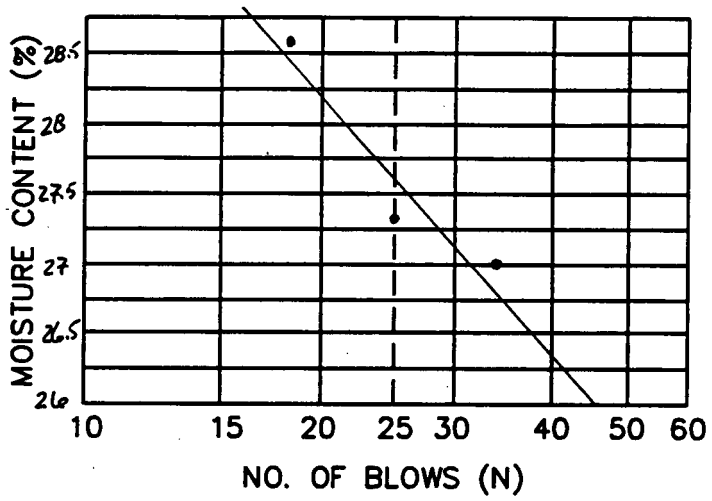
SOURCE: ON-SITE BORROW 4'-5' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-07 QA ID: NM

LIQUID LIMIT DETERMINATION

	TARE NO.		h'	f'	w'	
A	WT. OF TARE	(grams)	25.13	25.86	26.00	
B	WT. OF WET SOIL & TARE	(grams)	43.05	43.27	45.81	
C	WT. OF DRY SOIL & TARE	(grams)	39.24	39.54	41.40	
D	WT. OF WATER = B-C	(grams)	3.81	3.74	4.41	
E	WT. OF DRY SOIL = C-A	(grams)	14.11	13.68	15.40	
F	MOISTURE CONTENT = (D/E)X100	(%)	27.0	27.3	28.6	
N	NUMBER OF BLOWS		34	25	18	

H

II



LL

PLASTIC LIMIT DETERMINATION

	TARE NO.		g'	v'	k'	
A	WT. OF TARE	(grams)	25.76	25.72	26.59	
B	WT. OF WET SOIL & TARE	(grams)	33.87	35.89	34.99	
C	WT. OF DRY SOIL & TARE	(grams)	32.70	34.40	33.79	
D	WT. OF WATER = B-C	(grams)	1.17	1.49	1.20	
E	WT. OF DRY SOIL = C-A	(grams)	6.94	8.68	7.20	
F	MOISTURE CONTENT = (D/E)X100	(%)	16.9	17.2	16.7	

000180

LIQUID LIMIT (LL) = 28 PLASTIC LIMIT (PL) = 17 PLASTICITY INDEX (PI) = 11

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

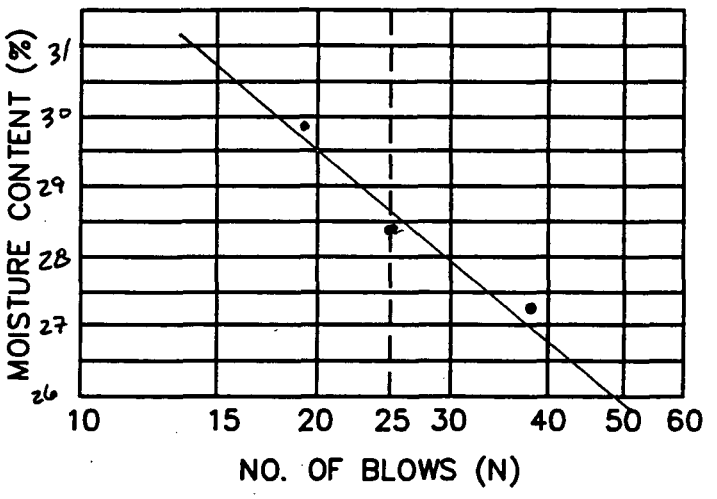
SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-01 QA ID: NM/NB

LIQUID LIMIT DETERMINATION

	TARE NO.		i'	m'	d'	
A	WT. OF TARE	(grams)	24.85	28.29	27.04	
B	WT. OF WET SOIL & TARE	(grams)	38.38	44.24	39.51	
C	WT. OF DRY SOIL & TARE	(grams)	35.48	40.71	36.64	
D	WT. OF WATER = B-C	(grams)	2.90	3.53	2.87	
E	WT. OF DRY SOIL = C-A	(grams)	10.63	12.42	9.60	
F	MOISTURE CONTENT = (D/E)X100	(%)	27.3	28.4	29.9	
N	NUMBER OF BLOWS		38	25	19	

C

III



LL

PLASTIC LIMIT DETERMINATION

	TARE NO.		k'	b'	w'	
A	WT. OF TARE	(grams)	26.59	25.60	26.00	
B	WT. OF WET SOIL & TARE	(grams)	37.58	37.22	38.93	
C	WT. OF DRY SOIL & TARE	(grams)	36.02	35.57	37.14	
D	WT. OF WATER = B-C	(grams)	1.56	1.65	1.79	
E	WT. OF DRY SOIL = C-A	(grams)	9.43	9.97	11.14	
F	MOISTURE CONTENT = (D/E)X100	(%)	16.5	16.5	16.1	

000181

LIQUID LIMIT (LL) = 29 PLASTIC LIMIT (PL) = 16 PLASTICITY INDEX (PI) = 13

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

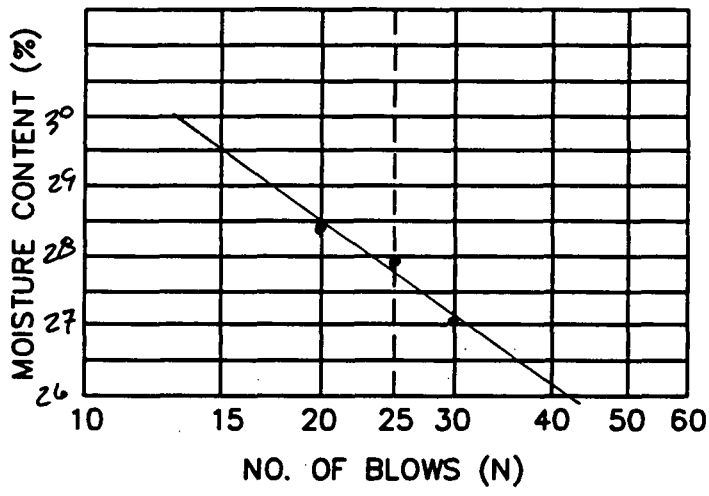
SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-02 QA ID: NM/NB

LIQUID LIMIT DETERMINATION

	TARE NO.		j'	h'	g'	
A	WT. OF TARE	(grams)	25.22	25.13	25.76	
B	WT. OF WET SOIL & TARE	(grams)	37.40	37.68	38.28	
C	WT. OF DRY SOIL & TARE	(grams)	34.80	34.94	35.51	
D	WT. OF WATER = B-C	(grams)	2.60	2.74	2.77	
E	WT. OF DRY SOIL = C-A	(grams)	9.58	9.81	9.75	
F	MOISTURE CONTENT = (D/E)X100	(%)	27.1	27.9	28.4	
N	NUMBER OF BLOWS		30	25	20	

H

II



LL

PLASTIC LIMIT DETERMINATION

	TARE NO.		n'	F'	v'	
A	WT. OF TARE	(grams)	28.66	25.86	25.72	
B	WT. OF WET SOIL & TARE	(grams)	40.72	40.47	38.15	
C	WT. OF DRY SOIL & TARE	(grams)	39.04	38.44	36.40	
D	WT. OF WATER = B-C	(grams)	1.68	2.03	1.75	
E	WT. OF DRY SOIL = C-A	(grams)	10.38	12.58	10.68	
F	MOISTURE CONTENT = (D/E)X100	(%)	16.2	16.1	16.4	

000182

LIQUID LIMIT (LL) = 28 PLASTIC LIMIT (PL) = 16 PLASTICITY INDEX (PI) = 12

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JULY month 1996 year

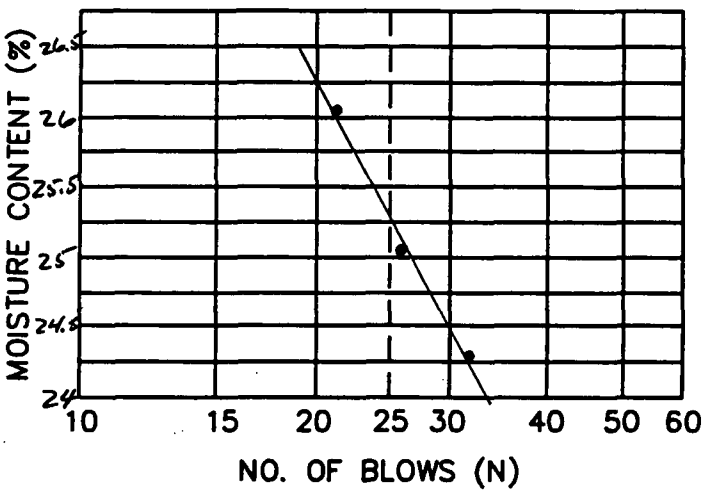
SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-03 QA ID: NM/NB

LIQUID LIMIT DETERMINATION

	TARE NO.		m'	i'	j'	
A	WT. OF TARE	(grams)	28.29	24.85	25.22	
B	WT. OF WET SOIL & TARE	(grams)	46.94	41.55	44.00	
C	WT. OF DRY SOIL & TARE	(grams)	42.49	38.20	40.11	
D	WT. OF WATER = B-C	(grams)	3.45	3.35	3.89	
E	WT. OF DRY SOIL = C-A	(grams)	14.2	13.35	14.89	
F	MOISTURE CONTENT = (D/E)X100	(%)	24.3	25.1	26.1	
N	NUMBER OF BLOWS		33	26	22	

IV

B



LL

PLASTIC LIMIT DETERMINATION

	TARE NO.		d'	h'	g'	
A	WT. OF TARE	(grams)	27.04	25.13	25.76	
B	WT. OF WET SOIL & TARE	(grams)	34.81	31.22	35.51	
C	WT. OF DRY SOIL & TARE	(grams)	33.77	30.38	34.20	
D	WT. OF WATER = B-C	(grams)	1.04	0.84	1.31	
E	WT. OF DRY SOIL = C-A	(grams)	6.73	5.25	8.44	
F	MOISTURE CONTENT = (D/E)X100	(%)	15.5	16.0	15.5	

000183

LIQUID LIMIT (LL) = 25 PLASTIC LIMIT (PL) = 16 PLASTICITY INDEX (PI) = 9

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JULY month 1996 year

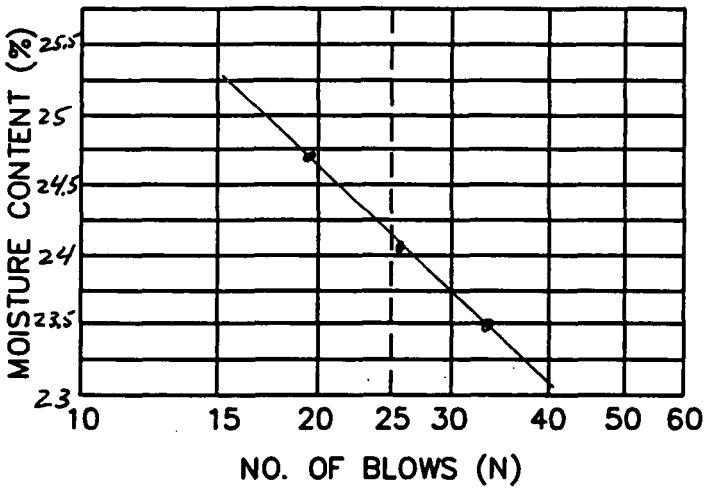
SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-04 QA ID: NM/NB

LIQUID LIMIT DETERMINATION

	TARE NO.		K'	V'	b'	
A	WT. OF TARE	(grams)	26.59	25.72	25.60	
B	WT. OF WET SOIL & TARE	(grams)	43.23	43.04	42.90	
C	WT. OF DRY SOIL & TARE	(grams)	40.06	39.68	39.47	
D	WT. OF WATER = B-C	(grams)	3.17	3.36	3.43	
E	WT. OF DRY SOIL = C-A	(grams)	13.47	13.96	13.87	
F	MOISTURE CONTENT = (D/E)X100	(%)	23.5	24.1	24.7	
N	NUMBER OF BLOWS		34	26	19	

I

III



CL

PLASTIC LIMIT DETERMINATION

	TARE NO.		f'	n'	w'	
A	WT. OF TARE	(grams)	25.86	28.66	26.00	
B	WT. OF WET SOIL & TARE	(grams)	35.20	38.08	33.61	
C	WT. OF DRY SOIL & TARE	(grams)	33.97	36.82	32.68	
D	WT. OF WATER = B-C	(grams)	1.23	1.26	0.93	
E	WT. OF DRY SOIL = C-A	(grams)	8.11	8.16	6.68	
F	MOISTURE CONTENT = (D/E)X100	(%)	15.2	15.4	13.9	

000184

LIQUID LIMIT (LL) = 24 PLASTIC LIMIT (PL) = 15 PLASTICITY INDEX (PI) = 9

1/NM

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FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 14 day JULY month 1996 year

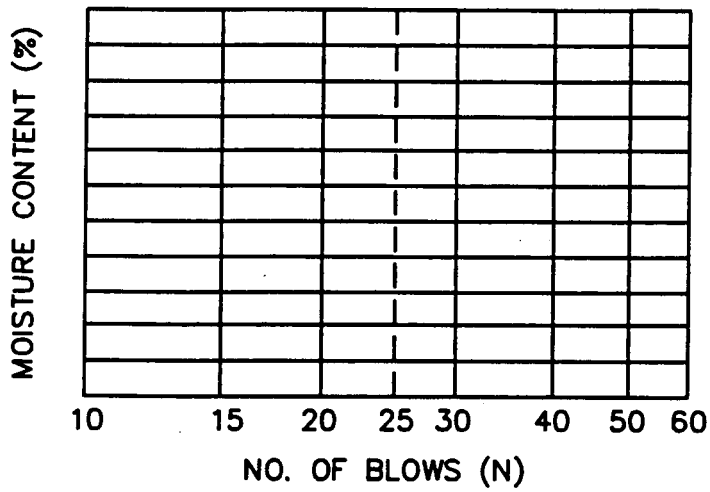
SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-05 QA ID: NM/NB

LIQUID LIMIT DETERMINATION

	TARE NO.		K'			
A	WT. OF TARE	(grams)	26.59			
B	WT. OF WET SOIL & TARE	(grams)	40.60			
C	WT. OF DRY SOIL & TARE	(grams)	38.00			
D	WT. OF WATER = B-C	(grams)	2.60			
E	WT. OF DRY SOIL = C-A	(grams)	11.41			
F	MOISTURE CONTENT = (D/E)X100	(%)	22.8			
N	NUMBER OF BLOWS		25			

A

III



NOTE: DUE TO INSUFFICIENT AMT. OF SAMPLE, ONLY ONE LIQUID LIMIT POINT AND TWO PLASTIC LIMIT POINTS WERE PERFORMED.

NM

LL

PLASTIC LIMIT DETERMINATION

	TARE NO.		V'	b'		
A	WT. OF TARE	(grams)	25.72	25.60		
B	WT. OF WET SOIL & TARE	(grams)	38.79	38.19		
C	WT. OF DRY SOIL & TARE	(grams)	37.09	36.56		
D	WT. OF WATER = B-C	(grams)	1.70	1.63		
E	WT. OF DRY SOIL = C-A	(grams)	11.37	10.96		
F	MOISTURE CONTENT = (D/E)X100	(%)	15.0	14.9		

000185

LIQUID LIMIT (LL) = 23 PLASTIC LIMIT (PL) = 15 PLASTICITY INDEX (PI) = 8

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

ATTERBERG LIMITS TEST (ASTM D 4318)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

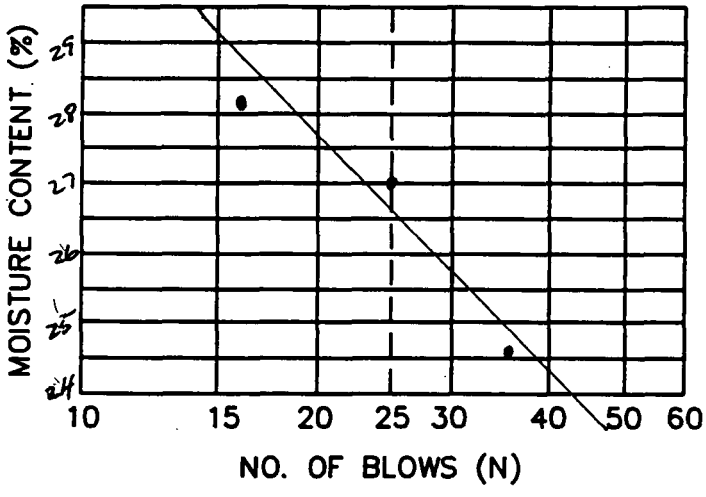
LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 14 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-06 COMPOSITE QA ID: NM/NB

LIQUID LIMIT DETERMINATION

	TARE NO.		m'	i'	j'	
A	WT. OF TARE	(grams)	28.29	24.85	25.22	
B	WT. OF WET SOIL & TARE	(grams)	41.98	42.50	42.04	
C	WT. OF DRY SOIL & TARE	(grams)	39.28	38.75	38.34	
D	WT. OF WATER = B-C	(grams)	2.70	3.75	3.70	
E	WT. OF DRY SOIL = C-A	(grams)	10.99	13.90	13.12	
F	MOISTURE CONTENT = (D/E)X100	(%)	24.6	27.0	28.2	
N	NUMBER OF BLOWS		36	25	17	



PLASTIC LIMIT DETERMINATION

	TARE NO.		d'	g'	h'	
A	WT. OF TARE	(grams)	27.04	25.76	25.13	
B	WT. OF WET SOIL & TARE	(grams)	43.65	44.15	40.98	
C	WT. OF DRY SOIL & TARE	(grams)	41.42	41.69	38.84	
D	WT. OF WATER = B-C	(grams)	2.23	2.46	2.14	
E	WT. OF DRY SOIL = C-A	(grams)	14.38	15.93	13.71	000186
F	MOISTURE CONTENT = (D/E)X100	(%)	15.5	15.4	15.6	

LIQUID LIMIT (LL) = 27 PLASTIC LIMIT (PL) = 16 PLASTICITY INDEX (PI) = 11

Sieve Analysis

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONST. DATE: 11 day JUNE month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: UPPER HOR. BR. TILL SAMPLE NO.: UH-01 QA ID: NM

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

		A BEFORE WASH	3 AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	140.2	100.9
WT. OF TARE	(grams)	8.0	92.4
WT. OF DRY SAMPLE	(grams)	132.2	8.5

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
4	4.75	0	0	100	
10	2.00	1.5	1.1	98.9	
20	0.850	3.0	2.3	97.7	
40	0.425	4.1	3.1	96.9	
60	0.250	5.1	3.9	96.1	
100	0.150	6.6	5.0	95.0	
200	0.075	8.4	6.4	93.6	
PAN	—	8.5	—	—	

000188

%FINER = 100 − Σ% RETAINED

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1/pm

SHEET NO. 2 OF 3

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FERNALD ON-SITE DISPOSAL FACILITY

869

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 18 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 1'-2' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-04 QA ID: NM

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

		A BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	198.1	43.4
WT. OF TARE	(grams)	8.0	8.0
WT. OF DRY SAMPLE	(grams)	190.1	35.4

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
1/2"	12.5 ~~9.5~~ mm	~~2.4~~ 0 mm	0	100	
3/8"	9.5	2.4	1.3	98.7	
4	4.75	3.5	1.8	98.2	
10	2.00	6.4	3.4	96.6	
20	0.850	10.9	5.7	94.3	
40	0.425	15.6	8.2	91.8	
60	0.250	20.8	10.9	89.1	
100	0.150	27.5	14.6	85.4	
200	0.075	35.2	18.5	81.5	
PAN	—	35.4	—	—	

000189

%FINER = 100 − Σ% RETAINED

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 19 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 2'-3' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-05 QA ID: NM

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

		BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	237.4	73.5
WT. OF TARE	(grams)	8.0	8.0
WT. OF DRY SAMPLE	(grams)	229.4	65.5

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
1/2"	12.5	0	0	100	
3/8"	9.5	5.5	2.4	97.6	
4	4.75	12.8	5.6	94.4	
10	2.00	23.3	10.2	89.8	
20	0.850	32.0	13.9	86.1	
40	0.425	39.9	17.4	82.6	
60	0.250	46.9	20.4	79.6	
100	0.150	56.0	24.4	75.6	
200	0.075	65.2	28.4	71.6	
PAN	—	65.5	—	—	

000190

%FINER = 100 − Σ% RETAINED

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: 6E3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 19 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 4'-5' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-07 QA ID: NM

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

		G BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	258.4	82.2
WT. OF TARE	(grams)	8.0	8.0
WT. OF DRY SAMPLE	(grams)	250.4	74.2

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
NM ~~1/2~~ 1/2"	12.5	0	0	100	
3/8"	9.5	2.2	0.9	99.1	
4	4.75	12.0	4.8	95.2	
10	2.00	20.4	8.1	91.9	
20	0.850	29.7	11.9	88.1	
40	0.425	39.0	15.6	84.4	
60	0.250	48.0	19.2	80.8	
100	0.150	61.1	24.4	75.6	
200	0.075	73.6	29.4	70.6	
PAN	—	74.2	—	—	

000191

%FINER = 100 − Σ% RETAINED

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/ NM SHEET NO. 2 OF 3

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW 3'-4' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-06 QA ID: NM

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

		E BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	242.0	73.0
WT. OF TARE	(grams)	8.0	8.0
WT. OF DRY SAMPLE	(grams)	234.0	65.0

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
3/4"	19.0	0	0	100	
1/2"	12.5	5.5	2.4	97.6	
3/8"	9.5	5.5	2.4	97.6	
4	4.75	NM ~~19.4~~ 11.6	5.0	95.0	
10	2.00	21.9	9.4	90.6	
20	0.850	30.6	13.1	86.9	
40	0.425	38.6	16.5	83.5	
60	0.250	45.7	19.5	80.5	
100	0.150	55.2	23.6	76.4	
200	0.075	64.7	27.6	72.4	
PAN	—	65.0	—	—	

000192

%FINER = 100 − Σ% RETAINED

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-01 QA ID: NM/NB

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

E		BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	286.6	99.7
WT. OF TARE	(grams)	8.0	8.0
WT. OF DRY SAMPLE	(grams)	278.6	91.7

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
4	4.75	13.3	4.8	95.2	
10	2.00	24.9	8.9	91.1	
20	.850	37.1	13.3	86.7	
40	.425	49.4	17.7	82.3	
60	.250	61.2	22.0	78.0	
100	.150	76.9	27.6	72.4	
200	.075	91.2	32.7	67.3	
PAN	—	91.7	—	—	

000193

%FINER = 100 − Σ% RETAINED

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1/25 SHEET NO. 2 OF 3

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-02 QA ID: NM/NB

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

G		BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	299.1	119.8
WT. OF TARE	(grams)	8.0	8.0
WT. OF DRY SAMPLE	(grams)	291.1	111.8

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
3/4"	19.0	0	0	100	
1/2"	12.5	25.8 ~~31.7~~ NLB	8.9 ~~10.7~~ NLB	91.1	
3/8"	9.5	26.9 ~~36.7~~ NLB	9.2	90.8	
4	4.75	36.9 ~~45.7~~ NLB	12.7	87.3	
10	2.00	48.1	16.5	83.5	
20	.850	60.2	20.7	79.3	
40	.425	72.1	24.8	75.2	
60	.250	82.9	28.5	71.5	
100	.150	97.1	33.4	66.6	
200	.075	111.1	38.2	61.8	
PAN	—	111.8	—	—	

000194

%FINER = 100 − Σ% RETAINED

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/ NM SHEET NO. 2 OF 3

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-03 QA ID: WM/NB

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

F+D		BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	631.5	276.7
WT. OF TARE	(grams)	16.0	16.0
WT. OF DRY SAMPLE	(grams)	615.5	260.7

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
1.5"	37.5	0	0	100	
1"	25.0	49.0	8.0	92.0	
3/4"	19.0	49.0	8.0	92.0	
1/2"	12.5	76.1	12.4	87.6	
3/8"	9.5	80.7	13.1	86.9	
4	4.75	102.0	16.6	83.4	
10	2.00	126.8	20.6	79.4	
20	.850	151.3	24.6	75.4	
40	.425	175.5	28.5	71.5	
60	.250	198.0	32.2	67.8	
100	.150	229.6	37.3	62.7	
200	.075	259.6	42.2	57.8	
PAN	—	260.7	—	—	

000195

%FINER = 100 − Σ% RETAINED

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1N SHEET NO. 2 OF 3

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-04 QA ID: NM/NB

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

N		BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	695.6	290.0
WT. OF TARE	(grams)	13.5	13.5
WT. OF DRY SAMPLE	(grams)	682.1	276.5

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
3/4"	19.0	0	0	100	
1/2"	12.5	14.4	2.1	97.9	
3/8"	9.5	16.2	2.4	97.6	
4	4.75	49.0	7.2	92.8	
10	2.00	90.5	13.3	86.7	
20	.850	126.2	18.5	81.5	
40	.425	159.3	23.4	76.6	
60	.250	188.6	27.6	72.4	
100	.150	224.1	32.9	67.1	
200	~~[illegible]~~ NLB .075	268.2	39.3	60.7	
PAN	—	276.5	—	—	

%FINER = 100 − Σ% RETAINED

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-05 QA ID: NM/NB

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

Θ		BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	600.4	282.0
WT. OF TARE	(grams)	13.5	13.5
WT. OF DRY SAMPLE	(grams)	586.9	268.5

SIEVE ANALYSIS

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
3/4"	19.0	0	0	100.0	
1/2"	12.5	18.0	3.1	96.9	
3/8"	9.5	38.4	6.5	93.5	
4	4.75	68.3	11.6	88.4	
10	2.00	106.2	18.1	81.9	
20	.850	139.8	23.8	76.2	
40	.425	169.4	28.9	71.1	
60	.250	194.7	33.2	66.8	
100	.150	224.1	38.2	61.8	
200	.075	260.6	44.4	55.6	
PAN	—	268.5	—	—	

000197

%FINER = 100 − Σ% RETAINED

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FERNALD ON-SITE DISPOSAL FACILITY

869

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 15 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-06 COMPOSITE QA ID: NM/NB

SOIL SAMPLE SIZE (ASTM D 1140)

DIAMETER OF LARGEST PARTICLE (SIEVE SIZE)	(grams)	NO. 10	NO. 4	3/4-in.
APPROXIMATE MINIMUM WT. OF SAMPLE	(grams)	200	500	1500

		BEFORE WASH	AFTER WASH
WT. OF DRY SAMPLE PLUS TARE	(grams)	332.2	136.3
WT. OF TARE	(grams)	7.8	7.8
WT. OF DRY SAMPLE	(grams)	324.4	128.5

SIEVE ANALYSIS (I)

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
1"	25.0	0	0	100	
3/4"	19.0	15.3	4.7	95.3	
1/2"	12.5	19.8	6.1	93.9	
3/8"	9.5	22.1	6.8	93.2	
4	4.75	NB ~~77.8~~ 34.0	10.5	89.5	
10	2.00	52.3	16.1	83.9	
20	.850	67.4	20.8	79.2	
40	.425	81.4	25.1	74.9	
60	.250	93.6	28.9	71.1	
100	.150	108.3	33.4	66.6	
200	.075	126.8	39.1	61.9	
PAN	—	128.5	—	—	

000198

%FINER = 100 − Σ% RETAINED

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1/1^

SHEET NO. 2 OF 3

Hydrometer

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FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONST. DATE: 10 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 0'-1' MATERIAL TYPE: UPPER HOR. BR. TILL SAMPLE NO.: UH-01 QA ID: NM

m.c.
B
8.0
190.8
153.8
37.0
145.8
25.4

HYDROMETER ANALYSIS (1)

HYDROMETER NO.: 152H PERCENT PASSING NO. 200 SIEVE = 93.6

DISPERSING AGENT: SODIUM HEXAMETAPHOSPHATE SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W. 47.8

ZERO CORRECTION: -5.5/-5.5/-4.0/-4.5 MENICUS CORRECTION: —

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
10 JUNE	0900	2	65.0	45.0	39.5	82.6	88.2	9.8	4.9	.01399	0.030
↓	0915	15	65.0	32.5	27.0	56.5	60.3	11.9	0.79	.01399	0.011
	1300	240	71.0	23.0	19.0	39.7	42.4	13.2	0.055	.01332	0.0029
11 JUNE	0900	1440	67.0	20.0	15.5	32.4	34.6	13.8	0.0096	.01382	0.0012

000200

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 11 day JUNE month 1996 year

SOURCE: ON-SITE BORROW 1'-2' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-04 QA ID: NM

HYDROMETER ANALYSIS 3 60.0g WW

HYDROMETER NO.: 152 H PERCENT PASSING NO. 200 SIEVE = 81.5 NM ~~81.5~~ ~~90.1~~

DISPERSING AGENT: SODIUM HEXAMETAPHOSPHATE SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W, 49.7

ZERO CORRECTION: -4.5/-4.5/-4.3/-5.0 MENICUS CORRECTION: —

JAR #1

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
11 JUNE	0930	2	68	42.5	38.0	76.5	76.5	10.1	5.05	.01365	0.031
↓	0945	15	68	33.5	29.0	58.4	58.4	11.5	0.767	.01365	0.011
↓	1330	240	70	23.0	18.7	37.6	37.6	13.3	0.055	.01348	0.0029
12 JUNE	0930	1440	65	20.0	15.0	30.2	30.2	13.8	0.0096	.01399	0.0012

000201

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

869

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 11 day JUNE month 1996 year

SOURCE: ON SITE BORROW 2'-3' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: 4H-05 QA ID: NM

HYDROMETER ANALYSIS 6 60.0g WW

HYDROMETER NO.: 152H PERCENT PASSING NO. 200 SIEVE = 71.6

DISPERSING AGENT: SODIUM HEXAMETAPHOSPHATE SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W, 52.0

ZERO CORRECTION: -4.5/-4.5/-4.3/-5.0 MENICUS CORRECTION: —

JAR # 2

13.1

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
11 JUNE	0935	2	68°	40.0	35.5	68.3	68.3	10.5	5.25	.01365	0.031
	0950	15	68	30.0	25.5	49.0	49.0	12.1	0.807	.01365	0.011
	1335	240	70	20.0	15.7	30.2	30.2	13.8	0.058	.01348	0.0030
12 JUNE	0935	1440	65	18.0	13.0	25.0	25.0	14.2	0.0099	.01399	0.0013

000202

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FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 10 day JULY month 1996 year

SOURCE: ON-SITE BORRUN 3'-4' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-06 QA ID: NM

HYDROMETER ANALYSIS ~~X~~ NM IV 60.0g WW

HYDROMETER NO.: 15214 PERCENT PASSING NO. 200 SIEVE = 72.4

DISPERSING AGENT: SODIUM HEXAMETAPHOSPHATE SPECIFIC GRAVITY: ~~ASSUMED~~ 2.65 DRY WT. OF SOIL, W, ~~52.6~~ 52.5 NM

~~ZERO~~ CORRECTION: -4.5, -5.0, -6.0 MENICUS CORRECTION:

1445
1310
13.5

JAR - 2 TARE - 4

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
10 JULY	0850	2	65.0	38.5	34.0	64.8	64.8	10.7	5.35	.01399	.032
↓	0905	15	65.0	30.5	26.0	49.5	49.5	12.0	0.8	.01399	.011
↓	1250	240	69.0	21.5	16.5	31.4	31.4	13.6	0.06	.01357	.0030
11 JULY	0850	1440	64.0	17.5	11.5	21.9	21.9	14.4	0.01	.01399	.0013

000203

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 10 day JULY month 1996 year

SOURCE: ON-SITE BORROW 4'-5' MATERIAL TYPE: UPPER HORIZON BR. TILL SAMPLE NO.: UH-07 QA ID: NM

HYDROMETER ANALYSIS BB 60.0 gm WW

HYDROMETER NO.: 152H PERCENT PASSING NO. 200 SIEVE = 70.6

DISPERSING AGENT: SODIUM HEXAMETAPHOSPHATE SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W. 52.9

~~ZERO~~ CORRECTION: -4.5, -5.0, -6.0 MENICUS CORRECTION: —

JAR — 1 TARE - 1

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
10 JULY	0845	2	65.0	37.5	33.0	62.4	62.4	10.9	5.45	.01399	.032
↓	0900	15	~~30.0~~ 65.0 DN	~~25.5~~ 30.0 UP	25.5	48.2	48.2	12.1	.8	.01399	.011
↓	1245	240	69.0	18.0	13.0	24.6	24.6	14.2	0.06	.01357	.0030
11 JULY	0845	1440	64.0	15.0	9.0	17.0	17.0	14.8	0.01	.01399	.0014

000204

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 11 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-01 QA ID: NM

HYDROMETER ANALYSIS 6 60.0 gm WW

26.4
8.0
18.4

HYDROMETER NO.: 152 H PERCENT PASSING NO. 200 SIEVE = 67.3

DISPERSING AGENT: SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W. 53.2

ZERO CORRECTION: -5.0, -3.5, -4.5 MENICUS CORRECTION: —

JAR 1 (B)

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
11 July	0930	2	66.0	33.0	28.0	52.6	52.6	11.7	5.85	.01382	.033
	0945	15	66.0	25.5	20.5	38.5	38.5	12.9	.86	.01382	.012
	1330	240	75.0	15.5	12.0	22.6	22.6	14.3	.06	.01301	.0031
12 July	0930	1440	70.0	13.0	8.5	16.0	16.0	14.9	.01	.01348	.0014

000205

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 11 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-02 QA ID: NM

HYDROMETER ANALYSIS 7 60.0 ww

HYDROMETER NO.: 152H PERCENT PASSING NO. 200 SIEVE = 61.8

DISPERSING AGENT: SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W, 52.6

ZERO CORRECTION: -5.0, -3.5, -4.5 MENICUS CORRECTION: —

JAR 2 (H)

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
11 JULY	0935	2	66.0	35.0	30.0	57.0	57.0	11.4	5.7	.01382	.033
	0950	15	66.0	27.0	22.0	41.8	41.8	12.7	.85	.01382	.012
	1335	240	75.0	16.0	12.5	23.8	23.8	14.2	.04	.01301	.0030
12 JULY	0935	1440	70.0	13.5	9.0	17.1	17.1	14.8	.01	.01348	.0014

000206

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-03 QA ID: NM

HYDROMETER ANALYSIS 3 60.0 gm WW

25.4
5.0
17.4

HYDROMETER NO.: 152H PERCENT PASSING NO. 200 SIEVE = 57.8

DISPERSING AGENT: SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W, ~~53.0~~ 53.5 NM

ZERO CORRECTION: -4.5, -4.5, -4.0 MENICUS CORRECTION: —

JAR 1 TARE-G

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
12 JULY	0900	2	70.0	33.5	29.0	54.2	54.2	11.5	5.75	.01348	.033
↓	0915	15	70.0	22.5	18.0	33.6	33.6	13.3	.89	.01348	.012
↓	1300	240	71.0	15.0	10.5	19.6	19.6	14.6	.06	.01332	.0031
13 JULY	0900	1440	76.0	12.0	8.0	15.0	15.0	15.0	.01	.01301	.0014

000207

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE390D TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 12 day JULY month 1996 year

SOURCE ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-04 QA ID: NM

HYDROMETER ANALYSIS BB 60.0 gm ww

27.7
8.0
19.7

HYDROMETER NO.: 152 H PERCENT PASSING NO. 200 SIEVE = 60.7

DISPERSING AGENT: SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W, 53.1

ZERO CORRECTION: -4.5, -4.5, -4.0 MENICUS CORRECTION: —

JAR 2 TARE = E

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
12 JULY	0905	2	70.0	31.5	27.0	50.8	50.8	11.9	5.95	.01348	.033
	0920	15	70.0	22.0	17.5	33.0	33.0	13.4	.89	.01348	.012
	1305	240	71.0	14.0	09.5	17.9	17.9	14.7	.06	.01332	.0031
13 JULY	0905	1440	76.0	11.0	7.0	13.2	13.2	15.2	.01	.01301	.0014

000208

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: 6E 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JULY month 1996 year

SOURCE ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-05 QA ID: NM/NB

HYDROMETER ANALYSIS BB 60.0 gms WW

HYDROMETER NO.: 152H PERCENT PASSING NO. 200 SIEVE = 55.6

DISPERSING AGENT: SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W, 53.3

ZERO CORRECTION: -4.0, -4.0, -5.0 MENICUS CORRECTION: —

29.3 8.0 21.3

JAR 1 TARED

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
13 JULY	0900	2	76.0	28.0	24.0	45.0	45.0	12.4	6.2	.01301	.034
↓	0915	15	76.0	19.0	15.0	28.1	28.1	13.8	.92	.01301	.012
↓	1300	240	75.0	13.0	9.0	16.9	16.9	14.8	.06	.01301	.0031
14 JULY	0900	1440	72.0	11.0	6.0	11.3	11.3	15.3	0.1	.01332	.0014

000209

GEOSYNTEC CONSULTANTS

FERNALD ON-SITE DISPOSAL FACILITY

PARTICLE SIZE ANALYSIS HYDROMETER METHOD (ASTM D 422)

PROJECT: FERNALD ON-SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO: GE 3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD CONSTRUCTION DATE: 13 day JULY month 1996 year

SOURCE: ON-SITE BORROW MATERIAL TYPE: LHBT SAMPLE NO.: LH-06 COMPOSITE QA ID: NM/NB

HYDROMETER ANALYSIS 3 60.0 gm WW

HYDROMETER NO.: 152.H PERCENT PASSING NO. 200 SIEVE = 61.9

DISPERSING AGENT: SPECIFIC GRAVITY: ASSUMED 2.65 DRY WT. OF SOIL, W. 53.2

ZERO CORRECTION: -4.0, -4.0, -5.0 MENICUS CORRECTION: —

25.0 / 3.0 / 14

JAR 2 TARE F

DATE (day/mo)	TIME OF READING	ELAPSED TIME (MIN)	TEMP. (°F/°C)	ACTUAL HYD. 3-MIN	CORR. HYD. READING	AMOUNT FINER (%)	TOTAL AMOUNT FINER (%)	EFF'V DEPTH, L (cm)	L/T	K	PARTICLE DIAM., D (mm)
13 July	0905	2	76.0	33.0	29.0	54.5	54.5	11.5	5.75	.01301	.033
	0920	15	76.0	23.0	19.0	35.7	35.7	13.2	.88	.01301	.012
	1305	240	75.0	15.0	11.0	20.7	20.7	14.5	0.06	.01301	.0031
14 July	0905	1440	72.0	12.0	7.0	13.2	13.2	15.2	0.01	.01332	.0014

000210

Shelby Tube Results (Construction Phase)

GEOSYNTEC CONSULTANTS

Geomechanics & Environmental Laboratory
2658 Holcomb Bridge Road • Suite 110
Alpharetta, Georgia 30201 • USA
Tel. (770) 645-6575 • Fax (770) 645-6570

13 November 1996
05

Mr. Kenneth W. Cargill, P.E.
GeoSyntec Consultants
1100 Lake Hearn Drive, Suite 200
Atlanta, Georgia 30342

Subject: Final Report - Laboratory Test Results
Test Pad Construction-phase Testing

Dear Mr. Cargill:

GeoSyntec Consultants (GeoSyntec) Geomechanics and Environmental Laboratory in Alpharetta, Georgia is pleased to present the attached final test results (Tables 1 and 2) for the above referenced project. A blank shown on any of the tables indicates that the test was not performed, the parameter is not applicable, or that the test resulted in insufficient data to report the designated parameter. Attachment A presents the general information pertinent to the testing program and the policy of GeoSyntec regarding the limitations of and the use of the test results.

The Geomechanics and Environmental Laboratory appreciates the opportunity to provide testing services for this project. Should you have any questions regarding the attached test results or if you require additional information, please do not hesitate to contact either of the undersigned.

Sincerely,

Barry E. Sigmon

Barry E. Sigmon, P.G.
Assistant Program Manager
Geotechnical Testing

Nader S. Rad

Nader S. Rad, Ph.D., P.E.
Laboratory Director

Attachment
Copy To: David Phillips

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GE3900-05.3/F964G084.CDB

TABLE 1

HYDRAULIC CONDUCTIVITY TEST RESULTS - TEST PAD 1

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY
TEST PAD CONSTRUCTION-PHASE TESTING

Site Sample ID	Lab Sample No.	Rigid Wall - Constant Head ASTM D 2434			Flexible Wall - Falling Head ASTM D 5084				Hydraulic Conductivity Ratio (HCR) ASTM D 5567					Remarks
		Test Specimen Initial Conditions		Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Consolidation Pressure (psi)	Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Final Hydraulic Conductivity (cm/s)	Final HCR (-)	Fig. No.	
		Dry Unit Weight (pcf)	Moisture Content (%)		Dry Unit Weight (pcf)	Moisture Content (%)			Dry Unit Weight (pcf)	Moisture Content (%)				
ST - 1A	96F53				98.2	23.7	2.0	1.9E-8						
							5.0	9.5E-9						
							10.0	6.5E-9						
ST - 2A	96F55				99.2	23.6	2.0	2.1E-8						
							5.0	7.3E-9						
							10.0	4.6E-9						
ST - 3A	96F57				100.1	24.2	2.0	1.2E-8						
							5.0	8.7E-9						
							10.0	4.3E-9						
ST - 4A	96F59				103.3	21.7	2.0	5.9E-8						
							5.0	1.5E-8						
							10.0	4.4E-9						
ST - 5A	96F61				104.3	22.0	2.0	1.4E-8						
							5.0	3.9E-9						
							10.0	2.3E-9						
ST - 6A	96F63				105.4	20.7	2.0	2.6E-8						
							5.0	9.7E-9						
							10.0	4.4E-9						

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TABLE 1 (Continued)

HYDRAULIC CONDUCTIVITY TEST RESULTS - TEST PAD 1

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY
TEST PAD CONSTRUCTION-PHASE TESTING

Site Sample ID	Lab Sample No.	Rigid Wall - Constant Head ASTM D 2434			Flexible Wall - Falling Head ASTM D 5084				Hydraulic Conductivity Ratio (HCR) ASTM D 5567					Remarks
		Test Specimen Initial Conditions		Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Consolidation Pressure (psi)	Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Final Hydraulic Conductivity (cm/s)	Final HCR (-)	Fig. No.	
		Dry Unit Weight (pcf)	Moisture Content (%)		Dry Unit Weight (pcf)	Moisture Content (%)			Dry Unit Weight (pcf)	Moisture Content (%)				
ST - 7A	96F65				104.6	20.8	2.0	3.3E-8						
							5.0	1.6E-8						
							10.0	8.4E-9						
ST - 8A	96F67				105.0	21.3	2.0	1.3E-8						
							5.0	1.1E-8						
							10.0	6.9E-9						
ST - 9A	96F69				107.7	19.6	2.0	2.9E-7						
							5.0	9.8E-9						
							10.0	5.7E-9						
ST - 10A	96F71				112.4	17.9	2.0	5.9E-8						
							5.0	3.4E-8						
							10.0	2.0E-8						
ST - 11A	96F73				109.0	18.4	2.0	1.2E-7						
							5.0	2.2E-8						
							10.0	8.7E-9						
ST - 12A	96F75				109.6	17.8	2.0	3.2E-8						
							5.0	7.7E-9						
							10.0	3.0E-9						

TABLE 1 (Continued)

HYDRAULIC CONDUCTIVITY TEST RESULTS - TEST PAD 1

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY
TEST PAD CONSTRUCTION-PHASE TESTING

Site Sample ID	Lab Sample No.	Rigid Wall - Constant Head ASTM D 2434			Flexible Wall - Falling Head ASTM D 5084				Hydraulic Conductivity Ratio (HCR) ASTM D 5567					Remarks
		Test Specimen Initial Conditions		Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Consolidation Pressure (psi)	Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Final Hydraulic Conductivity (cm/s)	Final HCR (-)	Fig. No.	
		Dry Unit Weight (pcf)	Moisture Content (%)		Dry Unit Weight (pcf)	Moisture Content (%)			Dry Unit Weight (pcf)	Moisture Content (%)				
ST-13A	96F95				111.3	18.4	2	2.1E-8						
							5	1.6E-8						
							10	1.2E-8						
ST-14A	96F97				110.2	20.1	2	5.3E-8						
							5	1.1E-8						
							10	3.7E-9						
ST-15A	96F99				111.5	19.0	2	9.8E-9						
							5	8.0E-9						
							10	7.5E-9						
ST-16A	96F101				107.3	20.5	2	1.5E-8						
							5	9.8E-9						
							10	8.8E-9						
ST-17A	96F103				108.3	19.6	2	1.7E-8						
							5	6.1E-9						
							10	6.5E-9						
ST-18A	96F105				106.4	21.1	2	1.8E-8						
							5	1.3E-8						
							10	9.6E-9						

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TABLE 2

HYDRAULIC CONDUCTIVITY TEST RESULTS - TEST PAD 2

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY
TEST PAD CONSTRUCTION-PHASE TESTING

Site Sample ID	Lab Sample No.	Rigid Wall - Constant Head ASTM D 2434			Flexible Wall - Falling Head ASTM D 5084				Hydraulic Conductivity Ratio (HCR) ASTM D 5567					Remarks
		Test Specimen Initial Conditions		Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Consolidation Pressure (psi)	Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Final Hydraulic Conductivity (cm/s)	Final HCR (-)	Fig. No.	
		Dry Unit Weight (pcf)	Moisture Content (%)		Dry Unit Weight (pcf)	Moisture Content (%)			Dry Unit Weight (pcf)	Moisture Content (%)				
ST-19A	96G30				121.9	13.4	2	2.4E-8						
							5	1.8E-8						
							10	1.7E-8						
ST-20A	96G32				126.0	10.5	2	3.2E-6						
							5	9.9E-8						
							10	4.1E-8						
ST-21A	96G34				120.2	14.2	2	3.4E-8						
							5	2.3E-8						
							10	1.7E-8						
ST-22A	96G36				122.4	14.0	2	2.2E-8						
							5	2.0E-8						
							10	1.6E-8						
ST-23A	96G38				122.2	13.0	2	4.5E-8						
							5	3.5E-8						
							10	1.8E-8						
ST-24B	96G41				121.6	14.1	2	3.5E-8						
							5	3.6E-8						
							10	3.0E-8						

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TABLE 2 (Continued)

HYDRAULIC CONDUCTIVITY TEST RESULTS - TEST PAD 2

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY
TEST PAD CONSTRUCTION-PHASE TESTING

Site Sample ID	Lab Sample No.	Rigid Wall - Constant Head ASTM D 2434			Flexible Wall - Falling Head ASTM D 5084				Hydraulic Conductivity Ratio (HCR) ASTM D 5567					Remarks
		Test Specimen Initial Conditions		Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Consolidation Pressure (psi)	Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Final Hydraulic Conductivity (cm/s)	Final HCR (-)	Fig. No.	
		Dry Unit Weight (pcf)	Moisture Content (%)		Dry Unit Weight (pcf)	Moisture Content (%)			Dry Unit Weight (pcf)	Moisture Content (%)				
ST-25A	96G42				121.5	13.0	2	6.1E-8						
							5	4.2E-8						
							10	3.2E-8						
ST-26A	96G44				121.0	13.6	2	1.5E-7						
							5	3.5E-8						
							10	2.2E-8						
ST-27A	96G46				118.3	15.0	2	2.8E-8						
							5	2.1E-8						
							10	1.4E-8						
ST-28A	96G48				120.4	14.4	2	4.8E-8						
							5	2.8E-8						
							10	1.8E-8						
ST-29A	96G50				119.7	14.2	2	4.0E-8						
							5	3.1E-8						
							10	2.0E-8						
ST-30B	96G53				116.4	14.2	2	5.0E-8						
							5	3.8E-8						
							10	2.2E-8						

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TABLE 2 (Continued)

HYDRAULIC CONDUCTIVITY TEST RESULTS - TEST PAD 2

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY
TEST PAD CONSTRUCTION-PHASE TESTING

Site Sample ID	Lab Sample No.	Rigid Wall - Constant Head ASTM D 2434			Flexible Wall - Falling Head ASTM D 5084				Hydraulic Conductivity Ratio (HCR) ASTM D 5567					Remarks
		Test Specimen Initial Conditions		Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Consolidation Pressure (psi)	Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Final Hydraulic Conductivity (cm/s)	Final HCR (-)	Fig. No.	
		Dry Unit Weight (pcf)	Moisture Content (%)		Dry Unit Weight (pcf)	Moisture Content (%)			Dry Unit Weight (pcf)	Moisture Content (%)				
ST-31A	96G54				122.8	13.4	2	2.0E-8						
							5	1.8E-8						
							10	1.4E-8						
ST-32A	96G56				122.3	13.7	2	3.8E-8						
							5	2.8E-8						
							10	2.2E-8						
ST-33B	96G59				118.0	13.8	2	8.9E-8						
							5	4.0E-8						
							10	2.3E-8						
ST-34A	96G60				121.6	13.8	2	2.9E-8						
							5	2.8E-8						
							10	2.3E-8						
ST-35A	96G62				118.9	12.7	2	8.1E-6						
							5	5.2E-8						
							10	2.0E-8						
ST-36A	96G64				118.2	12.5	2	3.9E-8						
							5	2.0E-8						
							10	1.5E-8						

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ATTACHMENT A

Sample Identification, Handling, Storage and Disposal

Laboratory Test Standards

Application of Test Results

SAMPLE IDENTIFICATION, HANDLING, STORAGE AND DISPOSAL

Test materials were sent to GeoSyntec Consultants (GeoSyntec) Geomechanics and Environmental Laboratory in Atlanta, Georgia by the client or its representative(s). Samples delivered to the laboratory were identified by client sample identification (ID) numbers which had been assigned by representative(s) of the client. Upon being received at the laboratory, each sample was assigned a laboratory sample number to facilitate tracking and documentation.

Based on the information provided to GeoSyntec by the client or its representative(s) and, when applicable, procedural guidelines recommended by an industrial hygiene consultant, the following Occupational Safety and Health Administration (OSHA) level of personal protection was adopted for handling and testing of the test materials:

[X] test materials were not contaminated, no special protection measures were taken;
[ ] level D
[ ] level C
[ ] level B

In accordance with the health and safety guidelines of GeoSyntec, contaminated materials are stored in a designated containment area in the laboratory. Non-contaminated materials are stored in a general storage area in the laboratory.

GeoSyntec Geomechanics and Environmental Laboratory will continue storing the test materials for a period of 30 days from the date of this report or a year from the time that the samples were received, which ever is shorter. Thereafter: (i) contaminated materials will be returned to the client or its designated representative(s); and (ii) the materials which are not contaminated will be discarded unless long-term storage arrangements are specifically made with GeoSyntec Geomechanics and Environmental Laboratory.

LABORATORY TEST STANDARDS

At the request of the client, the laboratory testing program was performed utilizing the guidelines provided in the following test standards:

[X] **moisture content** - American Society for Testing and Materials (ASTM) D 2216 "*Standard Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures*";

[ ] **moisture content** - ASTM D 4643 "*Standard Test Method for Determination of Water (Moisture) Content of Soil by the Microwave Method*";

[ ] **particle-size analysis** - ASTM C 136, "*Standard Method for Sieve Analysis of Fine and Coarse Aggregates*";

[ ] **particle-size analysis** - ASTM D 422, "*Standard Method for Particle-Size Analysis of Soils*";

[ ] **percent passing No. 200 sieve** - ASTM D 1140, "*Standard Test Method for Amount of Material in Soil Finer Than No. 200 (75 microns) sieve*";

[ ] **Atterberg limits** - ASTM D 4318, "*Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils*";

[ ] **soil classification** - ASTM D 2487, "*Standard Test Method for Classification of Soils for Engineering Purposes*";

[ ] **soil pH** - ASTM D 4972, "*Standard Test Method for pH of Soils*";

[ ] **soil pH** - United States Environmental Protection Agency (USEPA) SW-846 Method 9045, Revision 1, 1987, Standard Test Method for Measurement of "*Soil pH*";

[ ] **specific gravity** - ASTM D 854, "*Standard Test Method for Specific Gravity of Soils*";

[ ] **carbonate content** - ASTM D 3042, "*Standard Test Method for Insoluble Residue in Carbonate Aggregates*";

[ ] **carbonate content** - ASTM D 4373, "*Standard Test Method for Calcium Carbonate Content of Soils*";

[ ] **soundness** - ASTM C 88, "*Standard Test Method for Soundness of Aggregates by use of Sodium Sulfate or Magnesium Sulfate*";

[ ] **loss-on-ignition (LOI)** - ASTM D 2974, "*Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils*";

[ ] **standard Proctor compaction** - ASTM D 698, "*Standard Test Method for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb (2.49-kg) Rammer and 12-in. (305-mm) Drop*";

[ ] **modified Proctor compaction** - ASTM D 1557, "*Standard Test Method for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457-mm) Drop*";

[ ] **maximum relative density** - ASTM D 4253, "*Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table*";

[ ] **minimum relative density** - ASTM D 4254, "*Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density*";

[ ] **unit weight** - ASTM D 2937, "*Standard Test Method for Density of Soil In Place by the Drive-Cylinder Method*";

[ ] **unit weight, void ratio, porosity, and degree of saturation** - U. S. Army Corp of Engineers (USCOE); EM-1110-2-1906, "*Unit Weight, Void Ratio, Porosity, and Degree of Saturation, Appendix II*";

[ ] **mass per unit area** - ASTM D 3776, "*Standard Test Method for Mass Per Unit Area (weight) of Woven Fabric*";

[ ] **thickness measurement** - ASTM D 1777, "*Standard Test Method for Measuring Thickness of Textile Materials*";

[ ] **free swell** - United States Pharmacopeia National Formulary (USP-NF) XVII, "*Swell Index of Clay*";

[ ] **swell of clay in GCL's** - Geosynthetic Research Institute (GRI) GCL-1, "*Standard Test Method for Swell Measurement of the Clay Component of GCL's*";

[ ] **fluid loss** - American Petroleum Institute (API) RP 13B, "*Section 4, Bentonite*";

[ ] **marsh funnel** - API RP 13B, "*Section 4, Field Testing of Oil Mud Viscosity and Gel Strength*";

[ ] **pinhole dispersion** - ASTM D 4647, "*Standard Test Method for Identification and Classification of Dispersive Clay Soils by the Pinhole Test*";

[ ] **gradient ratio** - ASTM D 5101, "*Standard Test Method for Measuring the Soil-Geotextile System Clogging Potential by the Gradient Ratio*";

[ ] **hydraulic conductivity ratio (HCR)** - ASTM D 5567, "*Standard Test Method for Hydraulic Conductivity Ratio (HCR) Testing of Soil/Geotextile Systems*";

[ ] **hydraulic transmissivity** - ASTM D 4716, "*Standard Test Method for Constant Head Hydraulic Transmissivity (In-plane flow) of Geotextiles and Geotextile Related Products*";

[ ] **one-dimensional consolidation** - ASTM D 2435, "*Standard Test Method for One-Dimensional Consolidation Properties of Soil*";

[ ] **one-dimensional swell/collapse** - ASTM D 4546, "*Standard Test Method for One-Dimensional Swell or Settlement Potential of Cohesive Soils*";

[ ] **unconfined compressive strength (UCS)** - ASTM D 2166, " *Standard Test Method for Unconfined Compressive Strength of Cohesive Soil*";

[ ] **triaxial compressive strength ($\overline{ICU}$)** - ASTM D 4767, "*Standard Test Method for Triaxial Compression Test on Cohesive Soils*";

[ ] **triaxial compressive strength (UU)** - ASTM D 2850, "*Standard Test Method for Unconsolidated, Undrained Compressive Strength of Cohesive Soils in Triaxial Compression*";

[ ] **rigid wall constant head hydraulic conductivity** - ASTM D 2434, "*Standard Test Method for Permeability of Granular Soils (Constant Head)*";

[ ] **rigid wall constant head hydraulic conductivity** - USCOE; EM-1110-2-1906, "*Standard Test Method for Permeability Tests, Appendix VII*";

[X] **flexible wall falling head hydraulic conductivity** - ASTM D 5084, "*Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter*";

[ ] **flexible wall falling head hydraulic conductivity** - USCOE; EM-1110-2-1906, "*Standard Test Method for Permeability Tests, Appendix VII*";

[ ] **index flux of GCL** - proposed ASTM method rough draft # 1, 6/18/94, "*Standard Test Method for Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter*";

[ ] **flexible wall falling head hydraulic conductivity** - GRI GCL-2, "*Standard Test Method for Permeability of Geosynthetic Clay Liners (GCLs)*";

[ ] **permeability/compatibility** - USEPA Method 9100 SW-846, Revision 1, 1987, Standard Test Method for Measurement of "*Saturated Hydraulic Conductivity, Saturated Leachate Conductivity and Intrinsic Permeability*";

[ ] **permeability** - API RP 27, "*Recommended Practice for Determining Permeability of Porous Media*";

[ ] **capillary-moisture** - ASTM D 2325, "*Standard Test Method for Capillary-Moisture Relationships for Coarse- and Medium-Textured Soils by Porous-Plate Apparatus*";

[ ] **capillary-moisture** - ASTM D 3152, "*Standard Test Method for Capillary-Moisture Relationships for Fine-Textured Soils by Pressure-Membrane Apparatus*";

[ ] **paint filter liquids** - USEPA Method 9095, SW-846, Revision 1, 1987, "*Paint Filter Liquids Test*"; and

[ ] **bulk unit weight** - ASTM C 138, "*Standard Test Method for Weight per Cubic Foot, Yield, and Air Content (Gravimetric) of Concrete*".

APPLICATION OF TEST RESULTS

The reported test results apply to the field materials inasmuch as the samples sent to the laboratory for testing are representative of these materials. This report applies only to the materials tested and does not necessarily indicate the quality or condition of apparently identical or similar materials. The testing was performed in accordance with the general engineering standards and conditions reported. The test results are related to the testing conditions used during the testing program. As a mutual protection to the client, the public, and GeoSyntec, this report is submitted and accepted for the exclusive use of the client and upon the condition that this report is not used, in whole or in part, in any advertising, promotional or publicity matter without prior written authorization from GeoSyntec.

Shelby Tube Results (Post-Construction)

GEOSYNTEC CONSULTANTS

Geomechanics & Environmental Laboratory
2658 Holcomb Bridge Road • Suite 110
Alpharetta, Georgia 30201 • USA
Tel. (770) 645-6575 • Fax (770) 645-6570

869

13 November 1996

05

Mr. Kenneth W. Cargill, P.E.
GeoSyntec Consultants
1100 Lake Hearn Drive, Suite 200
Atlanta, Georgia 30342

Subject: Final Report - Laboratory Test Results
Test Pad Post-construction Testing

Dear Mr. Cargill:

GeoSyntec Consultants (GeoSyntec) Geomechanics and Environmental Laboratory in Alpharetta, Georgia is pleased to present the attached final test results (Tables 1 and 2) for the above referenced project. A blank shown on any of the tables indicates that the test was not performed, the parameter is not applicable, or that the test resulted in insufficient data to report the designated parameter. Attachment A presents the general information pertinent to the testing program and the policy of GeoSyntec regarding the limitations of and the use of the test results.

The Geomechanics and Environmental Laboratory appreciates the opportunity to provide testing services for this project. Should you have any questions regarding the attached test results or if you require additional information, please do not hesitate to contact either of the undersigned.

Sincerely,

Barry E. Sigmon

Barry E. Sigmon, P.G.
Assistant Program Manager
Geotechnical Testing

Nader S. Rad

Nader S. Rad, Ph.D., P.E.
Laboratory Director

Attachment
Copy To: David Phillips

000224

GE3900-05.3/F964G141.CDB

TABLE 1
HYDRAULIC CONDUCTIVITY TEST RESULTS

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY
TEST PAD POST-CONSTRUCTION TESTING

Site Sample ID	Lab Sample No.	Rigid Wall Constant Head ASTM D 2434			Flexible Wall Falling Head ASTM D 5084				Section[1]
		Test Specimen Initial Conditions		Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Consolidation Pressure (psi)	Hydraulic Conductivity (cm/s)	
		Dry Unit Weight (pcf)	Moisture Content (%)		Dry Unit Weight (pcf)	Moisture Content (%)			
TP-1 L-1 S-1	96I01.1				106.9	20.6	2	5.1E-8	upper
							5	1.3E-8	
							10	8.2E-9	
	96I01.2				112.1	19.8	5	1.5E-8	middle
	96I01.3				111.1	18.4	5	1.1E-8	lower
TP-1 L-1 S-3	96I02.1				107.8	19.5	5	1.5E-8	upper
	96I02.2				109.5	19.1	2	1.3E-8	middle
							5	1.2E-8	
							10	8.7E-9	
	96I02.3				111.3	18.4	5	8.0E-9	lower
TP-1 L-2 S-1	96I03.1				103.0	22.1	5	1.0E-8	upper
	96I03.2				110.8	18.6	5	2.8E-8	middle
	96I03.3				109.1	19.6	2	2.3E-8	lower
							5	1.1E-8	
							10	4.4E-9	
TP-1 L-2 S-2	96I12.2				103.1	21.9	5	7.8E-9	upper
	96I12.4				107.2	19.8	5	9.5E-9	middle
	96I12.6				105.8	20.9	2	9.4E-9	lower
							5	5.0E-9	
							10	3.9E-9	

Note:

1. This is the location that the specimen was obtained from the thin-walled tube sample.

000225

TABLE 1 (CONTINUED)
HYDRAULIC CONDUCTIVITY TEST RESULTS

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY
TEST PAD POST-CONSTRUCTION TESTING

Site Sample ID	Lab Sample No.	Rigid Wall Constant Head ASTM D 2434			Flexible Wall Falling Head ASTM D 5084				Section[1]
		Test Specimen Initial Conditions		Hydraulic Conductivity (cm/s)	Test Specimen Initial Conditions		Consolidation Pressure (psi)	Hydraulic Conductivity (cm/s)	
		Dry Unit Weight (pcf)	Moisture Content (%)		Dry Unit Weight (pcf)	Moisture Content (%)			
TP-2 L-1 S-1	96I04.1				120.3	14.5	2	6.3E-8	upper
							5	3.3E-8	
							10	2.1E-8	
	96I04.2				121.6	14.0	5	2.2E-8	middle
	96I04.3				122.1	13.3	5	2.1E-8	lower
TP-2 L-1 S-1A	96I05.1				121.0	13.7	5	4.5E-8	upper
	96I05.2				120.2	14.3	2	4.6E-8	middle
							5	3.1E-8	
							10	1.7E-8	
	96I05.3				117.8	12.2	5	1.6E-8	lower
TP-2 L-2 S-1	96I08.1				120.0	12.6	5	2.2E-8	upper
	96I08.2				118.2	14.6	2	2.5E-8	middle
							5	2.0E-8	
							10	1.5E-8	
	96I08.3				120.6	14.2	5	2.2E-8	lower
TP-2 L-2 S-3	96I09.1				116.2	14.6	5	1.6E-8	upper
	96I09.2				120.4	14.2	5	1.5E-8	middle
	96I09.3				122.8	14.1	2	3.6E-8	lower
							5	2.2E-8	
							10	1.7E-8	

Note:

1. This is the location that the specimen was obtained from the thin-walled tube sample.

000226

TABLE 2
DEGREE OF SATURATION TEST RESULTS

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY
TEST PAD POST-CONSTRUCTION TESTING

Site Sample ID	Lab Sample No.	Approximate Depth[1] (in.)	Dry Unit Weight (pcf)	Moisture Content (%)	Degree of Saturation (%)	Remarks
TP-1 L-1 S-2	96I10.1	.5 to 4	106.1	20.5	93.0	
	96I10.2	4 to 7	108.1	19.8	94.6	
	96I10.3	7 to 10	112.3	18.3	97.4	
	96I10.4	10 to 12.5	113.3	18.2	99.4	
	96I10.5	12.5 to 16	110.5	19.2	97.9	
TP-1 L-1 S-4	96I11.1	1 to 4	105.3	21.4	95.2	
	96I11.2	6 to 9	111.1	17.9	92.2	
	96I11.3	9 to 12	114.5	17.0	96.0	
	96I11.4	12 to 15	108.5	19.5	94.3	
TP-1 L-2 S-2	96I12.1	.5 to 2.5	100.8	22.8	91.2	
	96I12.2	3.5 to 6	103.1	21.9	92.8	
	96I12.3	7 to 9	106.6	19.4	89.5	
	96I12.4	9 to 11.5	107.2	19.8	92.5	
	96I12.5	11.5 to 13	107.1	19.6	91.8	
	96I12.6	13 to 15	105.8	20.9	94.5	
TP-1 L-2 S-4	96I13.1	3 to 5.5	101.3	22.6	91.5	
	96I13.2	5.5 to 9.5	107.2	20.4	95.3	
	96I13.3	9.5 to 13.5	109.5	19.5	96.1	
	96I13.4	13.5 to 17.5	110.0	19.4	97.6	
TP-2 L-1 S-2	96I14.1	8 to 11	122.8	13.0	92.6	
	96I14.2	11 to 14	122.7	12.8	91.0	
	96I14.3	14 to 17	120.5	13.6	91.0	
TP-2 L-1 S-4	96I15.1	3 to 5.5	120.6	13.1	87.7	
	96I15.2	5.5 to 8.5	122.8	13.3	95.1	
	96I15.3	8.5 to 11	120.3	14.2	94.1	
	96I15.4	12 to 15	120.9	14.4	97.1	
TP-2 L-2 S-2	96I16.1	.5 to 3	119.5	13.6	88.4	
	96I16.2	9 to 12	123.4	13.7	99.6	
	96I16.3	12.5 to 15.5	124.3	12.7	94.4	
TP-2 L-2 S-4	96I17.1	3 to 6	120.9	13.3	89.8	
	96I17.2	6 to 9	121.0	13.6	92.4	
	96I17.3	9 to 12	121.4	14.0	95.7	
	96I17.4	12 to 15	123.9	12.8	94.0	

Note:

1. Approximate distance from top of sample which was extruded from the thin-walled tube.

ATTACHMENT A

Sample Identification, Handling, Storage and Disposal

Laboratory Test Standards

Application of Test Results

SAMPLE IDENTIFICATION, HANDLING, STORAGE AND DISPOSAL

Test materials were sent to GeoSyntec Consultants (GeoSyntec) Geomechanics and Environmental Laboratory in Atlanta, Georgia by the client or its representative(s). Samples delivered to the laboratory were identified by client sample identification (ID) numbers which had been assigned by representative(s) of the client. Upon being received at the laboratory, each sample was assigned a laboratory sample number to facilitate tracking and documentation.

Based on the information provided to GeoSyntec by the client or its representative(s) and, when applicable, procedural guidelines recommended by an industrial hygiene consultant, the following Occupational Safety and Health Administration (OSHA) level of personal protection was adopted for handling and testing of the test materials:

[X] test materials were not contaminated, no special protection measures were taken;
[ ] level D
[ ] level C
[ ] level B

In accordance with the health and safety guidelines of GeoSyntec, contaminated materials are stored in a designated containment area in the laboratory. Non-contaminated materials are stored in a general storage area in the laboratory.

GeoSyntec Geomechanics and Environmental Laboratory will continue storing the test materials for a period of 30 days from the date of this report or a year from the time that the samples were received, which ever is shorter. Thereafter: (i) contaminated materials will be returned to the client or its designated representative(s); and (ii) the materials which are not contaminated will be discarded unless long-term storage arrangements are specifically made with GeoSyntec Geomechanics and Environmental Laboratory.

LABORATORY TEST STANDARDS

At the request of the client, the laboratory testing program was performed utilizing the guidelines provided in the following test standards:

[X] **moisture content** - American Society for Testing and Materials (ASTM) D 2216 "*Standard Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures*";

[ ] **moisture content** - ASTM D 4643 "*Standard Test Method for Determination of Water (Moisture) Content of Soil by the Microwave Method*";

[ ] **particle-size analysis** - ASTM C 136, "*Standard Method for Sieve Analysis of Fine and Coarse Aggregates*";

[ ] **particle-size analysis** - ASTM D 422, "*Standard Method for Particle-Size Analysis of Soils*";

[ ] **percent passing No. 200 sieve** - ASTM D 1140, "*Standard Test Method for Amount of Material in Soil Finer Than No. 200 (75 microns) sieve*";

[ ] **Atterberg limits** - ASTM D 4318, "*Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils*";

[ ] **soil classification** - ASTM D 2487, "*Standard Test Method for Classification of Soils for Engineering Purposes*";

[ ] **soil pH** - ASTM D 4972, "*Standard Test Method for pH of Soils*";

[ ] **soil pH** - United States Environmental Protection Agency (USEPA) SW-846 Method 9045, Revision 1, 1987, Standard Test Method for Measurement of "*Soil pH*";

[ ] **specific gravity** - ASTM D 854, "*Standard Test Method for Specific Gravity of Soils*";

[ ] **carbonate content** - ASTM D 3042, "*Standard Test Method for Insoluble Residue in Carbonate Aggregates*";

[ ] **carbonate content** - ASTM D 4373, "*Standard Test Method for Calcium Carbonate Content of Soils*";

[ ] **soundness** - ASTM C 88, "*Standard Test Method for Soundness of Aggregates by use of Sodium Sulfate or Magnesium Sulfate*";

[ ] **loss-on-ignition (LOI)** - ASTM D 2974, "*Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils*";

[ ] **standard Proctor compaction** - ASTM D 698, "*Standard Test Method for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb (2.49-kg) Rammer and 12-in. (305-mm) Drop*";

[ ] **modified Proctor compaction** - ASTM D 1557, "*Standard Test Method for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457-mm) Drop*";

[ ] **maximum relative density** - ASTM D 4253, "*Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table*";

[ ] **minimum relative density** - ASTM D 4254, "*Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density*";

[ ] **unit weight** - ASTM D 2937, "*Standard Test Method for Density of Soil In Place by the Drive-Cylinder Method*";

[ ] **unit weight, void ratio, porosity, and degree of saturation** - U. S. Army Corp of Engineers (USCOE); EM-1110-2-1906, "*Unit Weight, Void Ratio, Porosity, and Degree of Saturation, Appendix II*";

[ ] **mass per unit area** - ASTM D 3776, "*Standard Test Method for Mass Per Unit Area (weight) of Woven Fabric*";

[ ] **thickness measurement** - ASTM D 1777, "*Standard Test Method for Measuring Thickness of Textile Materials*";

[ ] **free swell** - United States Pharmacopeia National Formulary (USP-NF) XVII, "*Swell Index of Clay*";

[ ] **swell of clay in GCL's** - Geosynthetic Research Institute (GRI) GCL-1, "*Standard Test Method for Swell Measurement of the Clay Component of GCL's*";

[ ] **fluid loss** - American Petroleum Institute (API) RP 13B, "*Section 4, Bentonite*";

[ ] **marsh funnel** - API RP 13B, "*Section 4, Field Testing of Oil Mud Viscosity and Gel Strength*";

[ ] **pinhole dispersion** - ASTM D 4647, "*Standard Test Method for Identification and Classification of Dispersive Clay Soils by the Pinhole Test*";

[ ] **gradient ratio** - ASTM D 5101, "*Standard Test Method for Measuring the Soil-Geotextile System Clogging Potential by the Gradient Ratio*";

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[ ] **triaxial compressive strength (UU)** - ASTM D 2850, "*Standard Test Method for Unconsolidated, Undrained Compressive Strength of Cohesive Soils in Triaxial Compression*";

[ ] **rigid wall constant head hydraulic conductivity** - ASTM D 2434, "*Standard Test Method for Permeability of Granular Soils (Constant Head)*";

[ ] **rigid wall constant head hydraulic conductivity** - USCOE; EM-1110-2-1906, "*Standard Test Method for Permeability Tests, Appendix VII*";

[X] **flexible wall falling head hydraulic conductivity** - ASTM D 5084, "*Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter*";

[ ] **flexible wall falling head hydraulic conductivity** - USCOE; EM-1110-2-1906, "*Standard Test Method for Permeability Tests, Appendix VII*";

[ ] **index flux of GCL** - proposed ASTM method rough draft # 1, 6/18/94, "*Standard Test Method for Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter*";

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[ ] **paint filter liquids** - USEPA Method 9095, SW-846, Revision 1, 1987, "*Paint Filter Liquids Test*"; and

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APPENDIX H

APPENDIX H

SDRI TEST DATA SHEETS

- SDRI 1-1 (Test Pad No. 1, Lane 1)
  - Infiltration Data
  - Tensiometer Readings
  - Swell Gauge Readings
- SDRI 1-2 (Test Pad No. 1, Lane 2)
  - Infiltration Data
  - Tensiometer Readings
  - Swell Gauge Readings
- SDRI 2-1 (Test Pad No. 2, Lane 1)
  - Infiltration Data
  - Tensiometer Readings
  - Swell Gauge Readings
- SDRI 2-2 (Test Pad No. 2, Lane 2)
  - Infiltration Data
  - Tensiometer Readings
  - Swell Gauge Readings

SDRI 1-1 (Test Pad No. 1, Lane 1)

- Infiltration Data
- Tensiometer Readings
- Swell Gauge Readings

GEOSYNTEC CONSULTANTS

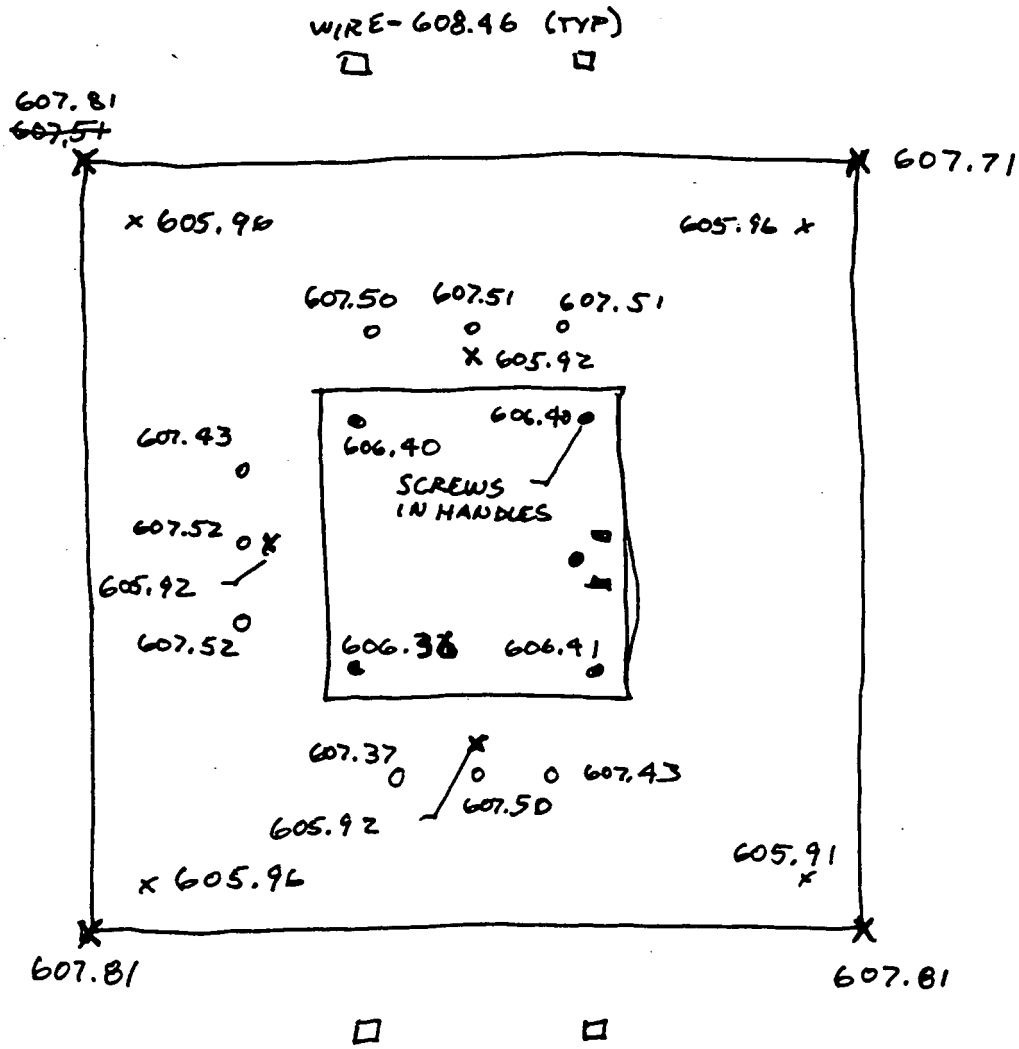
Written by: HARRY TOMLINSON Date: 96/6/25 (YY MM DD) Reviewed by: DKP Date: 96/6/26 (YY MM DD)

Client: FERMCO Project: OSDF TEST PADS Project/Proposal No.: GE 3900 Task No.: 5.3

TEST PAD No. 1 SDR1 NO. 1

SDR1-1-1

DOCUMENTARY SURVEY.



UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day June month 1996 year
SDRI NO: SDRI-1-1 TEST PAD NO: 1 LANE NO: 1 QA ID: NLB

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

I = infiltration (cm/s)
Q = quantity of flow (ml)
t = interval of time (s)
A = area of inner ring (cm^2)

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	°F/°C Temp. ~~(°C)~~	Water Depth (in.)
6/25	1617	1830							Full
6/26	0759	1830		6767	6514			75/	Full
6/27	0802	0710 (6/28)		6495	5953			77/	12 7/8"
NLB ~~6/28~~	~~0710~~	~~0710~~	—	—	~~5953~~	—	—	~~77°F~~/	—
6/28	0835	0741 (6/29)		5953	5534			78/	12 1/2"
6/29	0926	0717 (6/30)		5534	4436			78/	12 3/8"
6/30	0744	0749		7630	6976			77/	Full
7/1	0827	0724		6976	6625			78/	Full
7/2	0759	0723		~~6625~~	6190			77/	Full
7/3	0801	0735		6190	6053			74/	Full
7/4	0906	0756		6053	5801			78/	Full
7/5	0848	0725		5801	5546			75/	Full
7/6	0820	0757		5546	5313			75/	Full
7/7	0850	0751		5313	5135			76/	12 3/4
7/8	0845	0727		5135	4949			76/	13 5/16
7/9	0835	0728		4949	4775			75/	13 5/16
7/10	0827	0723		7325	6897			74/	13 3/16

NOTES:

Full = 13"

To: Rudy Bonaparte
From: Jay Beech
Total pgs = 6

1889

0002235

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day June month 1996 year

SDRI NO: 1-1 TEST PAD NO: 1 LANE NO: 1 QA ID: NLB

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

I = infiltration (cm/s)
Q = quantity of flow (ml)
t = interval of time (s)
A = area of inner ring (cm^2)

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	Temp. (°C)	Water Depth (in.)	
7/11	0818	0736		6897	6644			74	13 3/8	7/13 rain
7/12	0849	0720		3082	2790			74	13 5/16	
7/14	0751	0730		2790	2716			76	13 1/4	rained .8 inch
7/15	0807	0721		2716	2526			75	13 7/8	rained 8/10
7/16	0803	0752		2526	2323			75	13 7/8	bailed water out until full
7/17	0932	0802		2933	2802			76	Full	
7/18	0911	0825		2802	2567			75	Full	bail out water
7/19	RA	IN								rained 9/10
7/20	0828	0740		3179	3103			76	13 1/4	rained 2/10
7/21	0743	0812		2567	2532			75	13 1/4	
7/22	0821	0800		3103	2701			73	Full	siphoned out water
7/23	0801	0752		2532	2358			73	Full	rained .60
7/24	0753	0814		2701	2578			73	Full	
7/25	0815	0803		2893	2789			74	13 1/4	
7/26	0806	0804		2578	2252			73	13 1/4	
7/27	0805	0831 (29)		2789	2565			73	13 1/4	
7/28	RA	IN		—	—			—	—	

NOTES:

000236

8698

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day JUNE month 1996 year
SDRI NO: 1-1 TEST PAD NO: 1 LANE NO: 1 QA ID: NLB

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

I = infiltration (cm/s)
Q = quantity of flow (ml)
t = interval of time (s)
A = area of inner ring (cm^2)

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	Temp. (°C)	Water Depth (in.)
7/29	0832	0806		3301	3239			75	13 1/4
7/30	0807	0802		2565	2515			74	Full
7/31	0803	0800(2)		3239	3058			73	13 1/4
8/1	—	—		—	—			—	—
8/2	0803	0801		2515	2026			73	13 1/4
8/3	—	—		—	—			—	—
8/4	0802	0751		3058	2931			75	13 3/16
8/5	0759	0755		6497	5763			75	13 3/16
8/13	0755							75	13 7/16

NOTES:

0002337

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UNITED STATES
DEPARTMENT OF ENERGY

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day June month 1996 year

SDRI NO: SDRI-1-2 NLB TEST PAD NO: 1 LANE NO: 1 QA ID: NLB

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
6/25	1830	12	12	4	9	12	12	8	11	20	20	10	17
6/26	1830	15	12	8	12	18	15	12	15	27	24	15	22
6/27	0802	14	10	7	10	18	16	12	15	28	24	17	23
6/28	0810	12	9	6	9	18	16	12	15	28	24	18	23
6/29	0743	10	9	6	8	18	15	12	15	28	23	18	23
6/30	0729	8	8	5	7	16	14	12	14	26	22	18	22
7/1	0746 NLB	7	7	5	6	16	14	12	14	26	21	18	22
7/2	0701	6	6	4	5	16	14	11	14	25	20	18	21
7/3	0724	6	6	4	5	14	13	10	12	25	20	18	21
7/4	0742	6	6	4	5	14	12	10	12	26	20	18	21
7/5	0758	5	5	3	4	14	12	10	12	25	20	18	21
7/6	0831	5	5	3	4	13	12	10	12	25	20	18	21
7/7	0855	4	4	3	4	12	10	10	11	24	18	17	20
7/8	0900	4	4	0	3	12	10	9	10	24	18	17	20
7/9	0734	4	4	0	3	11	10	9	10	24	18	16	19
7/10	0732	4	4	0	3	11	10	9	10	24	18	16	19

PROJECT:

TENSIOMETER TYPE:

NOTES:

000238

2869

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day JUNE month 1996 year
SDRI NO: SDRI-1-1 TEST PAD NO: 1 LANE NO: 1 QA ID: NM/NB

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
7/11	0733	4	4	0	3	0	10	9	6	24	18	16	19
7/12	0745	4	4	0	3	0	10	9	6	23	18	16	19
7/14	0728	2	4	0	2	0	9	8	6	22	16	16	18
7/15	0740	2	2	0	1	2	8	8	6	21	16	15	17
7/16	0745	2	2	0	1	2	8	7	6	21	16	15	17
7/17	0759	0	2	0	1	0	8	8	5	21	16	14	17
7/18	0916	0	2	0	1	0	8	8	5	21	16	14	17
7/19	–	R	A	I	N	–	–	–		–	–	–	
7/20	0840	0	2	0	1	0	8	6	5	21	15	13	16
7/21	0745	0	2	0	1	0	8	7	5	21	15	12	16
7/22	0825	0	2	0	1	0	7	6	4	19	14	12	15
7/23	0804	0	2	0	1	0	8	6	5	19	14	12	15
7/24	0755	0	2	0	1	0	8	NL 6	5	20	14	13	16
7/25	0819	0	2	0	1	0	8	6	5	20	14	13	16
7/26	0809	0	2	0	1	0	7	6	4	20	14	12	15
7/27	0807	0	0	0	Ø	0	8	6	5	20	15	12	16

PROJECT:

TENSIOMETER TYPE:

NOTES:

0002239

1-8-96

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day June month 1996 year

SDRI NO: 1-1 TEST PAD NO: 1 LANE NO: 1 QA ID: NB

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
7/28	~~0835~~	R	A	I	N	–	–	–		–	–	–	
7/29	0835	0	0	0	Ø	0	6	6	4	19	14	12	15
7/30	0821	0	0	0	Ø	0	6	6	4	18	13	11	14
7/31	0807	0	0	0	Ø	0	6	6	4	18	13	11	14
8/1	–	–	–	–		–	–	–		–	–	–	
8/2	0807	0	0	0	Ø	2	6	6	5	18	12	10	13
8/3	–	–	–	–		–	–	–		–	–	–	
8/4	0805	0	2	0	1	2	7	6	5	18	13	10	14
8/5	0801	0	2	0	1	2	6	6	5	18	12	10	13
8/13	0812	0	0	0	0	2	6	4		15	11	8	

PROJECT:

TENSIOMETER TYPE:

NOTES:

000240

7-8-96

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day JUNE month 1996 year
SDRI NO: 1-1 TEST PAD NO: 1 LANE NO: 1 QA ID: NB/NM

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
25 JUNE	1830	34.99	20.92	41.31	16.07
26	1830	35.05	20.61	40.88	16.16
27	0759	33.89	20.81	40.91	14.71
28	0710	34.95	21.11	41.50	15.70
29	0746	35.69	20.30	37.75	15.89
30	0732	35.59	20.35	41.00	15.81
01 JULY	0736	34.79	21.25	41.41	16.14
02	0705	34.56	21.80	42.21	15.50
03	0726	34.80	21.10	41.52	15.50
04	0745	36.05	21.10	41.61	16.05
05	0900	35.86	21.55	41.65	16.22
06	0844	35.85	21.49	41.15	17.13

000241

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UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day JUNE month 1996 year

SDRI NO: 1-1 TEST PAD NO: 1 LANE NO: 1 QA ID: NB/NM

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
07 July	0857	36.68	23.08	43.11	16.87
08 July	0907	36.50	22.65	41.90	16.30
09	0735	37.25	20.89	42.11	15.09
10	0734	35.55	21.64	42.00	16.00
11	0735	35.62	21.70	41.45	15.59
12	0746	35.64	21.63	41.29	15.39
13	—	—	—	—	—
14	0730	36.55	21.00	41.70	15.75
15	0743	35.90	21.15	40.81	15.69
16	0748	36.39	20.70	42.00	15.95
17	0855	35.86	22.35	43.30	15.75
18	0917	36.55	22.50	41.40	16.01

000242

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day JUNE month 1996 year
SDRI NO: 1-1 TEST PAD NO: 1 LANE NO: 1 QA ID: NLB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
19 JULY	RAIN	—	—	—	—
20	0850	34.60	21.91	42.68	16.25
21	0747	35.99	21.75	42.62	16.11
22	0826	35.92	21.48	41.89	16.31
23	0806	36.28	22.03	42.51	16.10
24	0757	36.62	21.79	41.93	15.99
25	0820	35.95	21.95	42.51	16.15
26	0811	35.92	22.48	42.36	15.68
27	0808	35.93	22.22	42.66	16.06
~~28~~	~~08~~ RAIN		—	—	—
29	0836	36.21	21.51	42.75	16.28
30	0822	36.59	22.36	42.60	16.40

000243

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UNITED STATES
DEPARTMENT OF ENERGY

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 065.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 25 day JUNE month 1996 year
SDRI NO: 1-1 TEST PAD NO: 1 LANE NO: 1 QA ID: MLB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
31 JULY	0809	36.50	21.45	42.60	15.92
1 August	—	—	—	—	—
2	0809	36.40	21.73	41.85	16.13
3	—	—	—	—	—
4	0806	36.30	21.59	41.90	16.77
5	0802	36.82	21.70	42.15	16.44
13	0814	37.15	22.75	42.60	16.23

000244

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SDRI 1-2 (Test Pad No. 1, Lane 2)

- Infiltration Data
- Tensiometer Readings
- Swell Gauge Readings

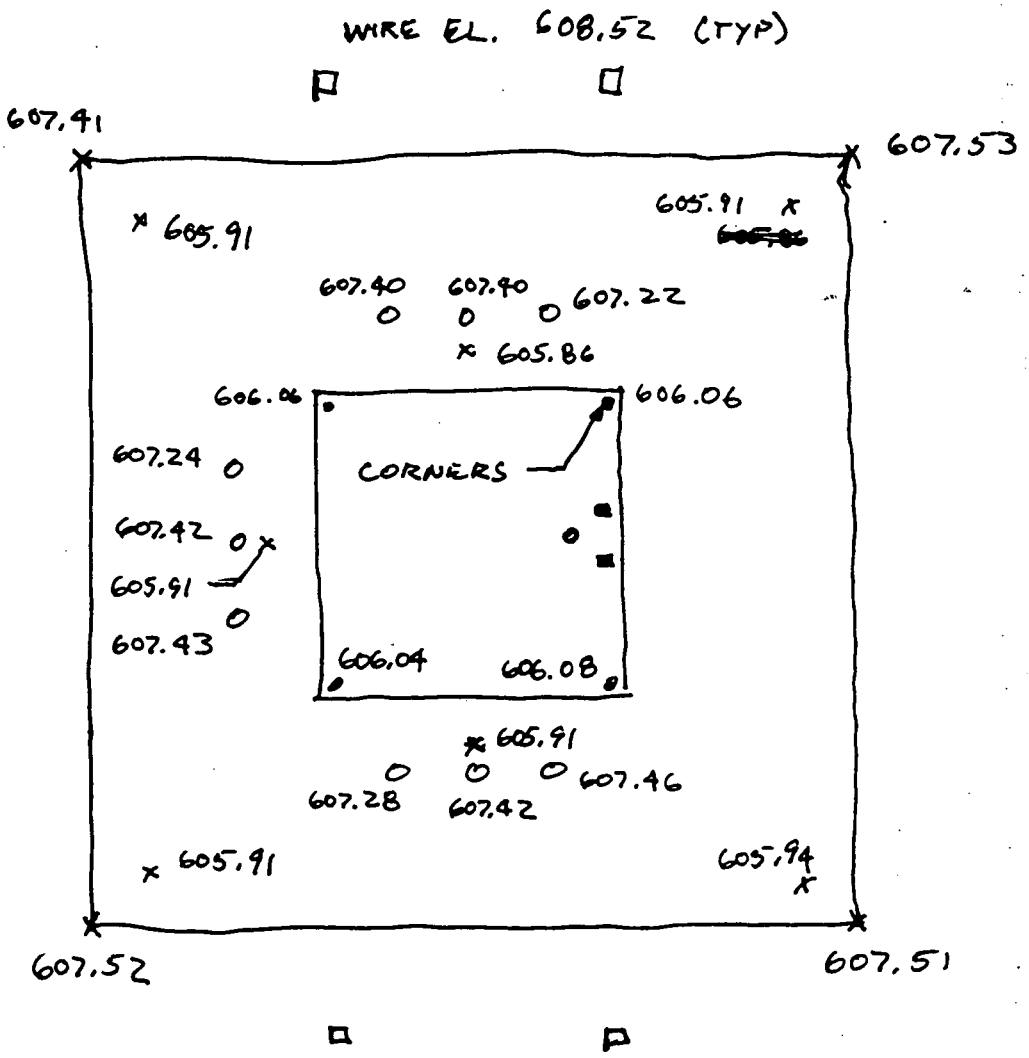
Written by: HARRY TOMLINSON Date: 96/6/25 (YY MM DD) Reviewed by: DKY Date: 96/6/26 (YY MM DD)

Client: FERMCO Project: OSDF TEST PADS Project/Proposal No.: GE3900 Task No.: 53

TEST PAD NO. 1 SDRI NO. ~~1~~ 2 DKY

SDRI - 1 - ~~1~~ 2 DKY

DOCUMENTARY SURVEY



Think this is really 96/6/26 SDRI-1-2? Need to verify DKY

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 27 day June month 1996 year
SDRI NO: SDRI-1-2 TEST PAD NO: 1 LANE NO: 2 QA ID: NLB

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

I = infiltration (cm/s)
Q = quantity of flow (ml)
t = interval of time (s)
A = area of inner ring (cm^2)

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	°F/°C Temp. ~~(°C)~~	Water Depth (in.)
6/27	1517	1727		5418	5271*			85/	Full
6/28	0810	0723 (6/28)		5271	4862			77/	10 3/8" *
6/29	0920	0728 (6/30)		4862	4535			78/	9 15/16
6/30	0946	0752		6813	6384			77/	Full
7/1	~~0830~~ 0830	0726		6384	6102			79/	Full
NLB ~~7/2~~	~~0759~~	0						~~77/~~	~~Full~~
7/2	0811	0712		6102	5878			79/	Full
~~7/3~~				~~5878~~	~~NLB~~				
7/3	0805	0732		5878	5589			75/	Full
7/4	0905	0746		5589	5358			75/	Full
7/5	0850	0728		5358	5145			75/	Full
7/6	0821	0759		5145	4942			75/	Full
7/7	0846	0748		4942	4790			76/	~~10 1/8~~ 10 9/16"
7/8	0848	0728		4790	4622			76/	10 15/16
7/9	0837	0726		4622	4415			75/	10 7/8
7/10	0833	0726		7284	6884			74/	10 7/8
7/11	0814	0738		6884	6553			74/	10 7/8

NOTES:

FULL = 10 5/8"

Had a leak in Rear outer seal on 6/27

* bung was open underwater for split second

000247

6/8/96

UNITED STATES
DEPARTMENT OF ENERGY

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 12 day ~~July~~ June month 1996 year
SDRI NO: 1-2 TEST PAD NO: 1 LANE NO: 2 QA ID: NLB

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

I = infiltration (cm/s)
Q = quantity of flow (ml)
t = interval of time (s)
A = area of inner ring (cm^2)

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	Temp. (°C)	Water Depth (in.)	
7/12	0853	0722		3194	2906			74	10 3/4	7/13 rain
7/14	0754	0731		2906	2807			76	10 7/8	
7/15	0808	0728		2807	2667			76	11 5/16	
7/16	0806	0753		2667	2474			75	11 5/16	bailed water out
7/17	0929	0804		3203	3056			75	Full	
7/18	0936	0830 (20)		3056	2845			76	Full	bailed water out
7/19	RA	IN								
7/20	0832	07[redacted]52		3115	3054			76	10 13/16	
7/21	07[redacted]53	0835		2845	2750			74	10 13/16	siphoned out water
7/22	0838	0811		3054	2438			72	Full	rain 6/10
7/23	0812	0802		2750	2599			72	Full	
7/24	0803	0825		2438	2532 ?			73	Full	
7/25	0826	0815		3288	3165			74	Full	
7/26	0817	0813		2902	2665			73	Full	
7/27	0814	0841 (29)		3165	2959			73	Full	
7/28	RA	IN		—	—			—	—	
7/29	0842	0828		3050	2971			75	Full	

NOTES:

000248

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UNITED STATES
DEPARTMENT OF ENERGY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 12 day JUNE month 1996 year
SDRI NO: 1-2 TEST PAD NO: 1 LANE NO: 2 QA ID: WLB

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

I = infiltration (cm/s)
Q = quantity of flow (ml)
t = interval of time (s)
A = area of inner ring (cm^2)

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	Temp. (°C)	Water Depth (in.)
7/30	0829	0814		2959	2916			74	Full
7/31	0815	0813		2971	2783			73	10 13/16
8/1	—	—		—	—			—	—
8/2	0817	0810		2916	2581			72	10 3/4
8/3	—	—		—	—			—	—
8/4	0811	0806		2783	2674			75	10 13/16
8/5	0810	0758		6708	6041			76	10 3/4
8/13								75	10 7/8

NOTES:

000249

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UNITED STATES
DEPARTMENT OF ENERGY

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3

DESCRIPTION: TEST PAD PROGRAM START DATE: 27 day June month 1996 year

SDRI NO: SDRI-1-2 TEST PAD NO: 1 LANE NO: 2 QA ID: NLB

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
6/27	1517	12	12	16	13	18	0	24	21	30	24	30	28
6/28	0810	10	12	14	12	20	0	26	23	35	28	34	32
6/29	0723	10	12	14	12	20	0	26	23	36	27	35	33
6/30	0720	9	12	14	12	20	0	26	23	37	26	34	32
7/1	0728	9	12	14	12	20	0	25	23	36	26	33	32
7/2	0714	8	11	12	10	20	0	24	22	36	26	32	31
7/3	0713	8	10	12	10	19	0	24	22	36	25	30	30
7/4	0750	8	10	12	10	20	0	23	22	37	24	30	30
7/5	0801	8	10	10	9	20	0	24	22	37	24	30	30
7/6	0834	8	10	10	9	20	0	16	18	37	24	28	30
7/7	0904	8	9	10	9	18	0	12	15	35	24	26	28
7/8	0914	7	8	8	8	18	0	10	14	34	23	24	27
7/9	0740	7	7	7	7	17	0	9	13	34	23	21	26
7/10	0741	6	7	7	7	17	0	9	13	35	23	20	26
7/11	0730	6	7	7	7	17	0	9	13	35	23	18	25
7/12	0751	6	6	6	6	17	0	8	13	34	23	16	24
~~7/13~~	~~0732~~	~~5~~	~~5~~	~~4~~		~~16~~	~~0~~	~~6~~		~~33~~	~~22~~	~~14~~	

PROJECT:

TENSIOMETER TYPE:

NOTES:

000250

869

UNITED STATES
DEPARTMENT OF ENERGY

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 053

DESCRIPTION: TEST PAD PROGRAM START DATE: 27 day JUNE month 1996 year

SDRI NO: 1-2 TEST PAD NO: 1 LANE NO: 2 QA ID: NB/NM

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
7/14	0732	5	5	4	5	16	0	6	11	33	22	14	23
7/15	0750	6	6	5	6	15	0	6	11	32	20	13	22
7/16	0753	4	4	5	4	15	0	7	11	32	20	13	22
7/17	0755	4	4	4	4	16	0	7	12	32	20	13	22
7/18	0930	3	3 ~~15~~ NB	3	3	15	0	7	11	30	20	12	21
7/19	—	R	A	I	N	—	—	—		—	—	—	
7/20	0841	0	0	2	1	14	0	6	10	31	20	11	21
7/21	0756	0	0	2	1	15	0	6	11	31	20	11	21
7/22	0842	0	0	2	1	14	0	6	10	29	20	11	20
7/23	0816	0	0	3	1	15	0	7	11	30	20	11	20
7/24	0805	0	NLB 2	3	2	16	0	7	12	29	20	11	20
7/25	0831	0	3	3	2	16	0	7	12	28	20	11	20
7/26	0819	0	3	2	2	15	0	6	11	29	20	11	20
7/27	0815	0	2	0	1	16	0	6	11	30	20	11	20
7/28	—	R	A	I	N	—	—	—		—	—	—	
7/29	0843	0	3	0	1	14	0	6	10	28	19	10	19

PROJECT:

TENSIOMETER TYPE:

NOTES:

000251

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UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM START DATE: 27 day JUNE month 1996 year

SDRI NO: 1-2 TEST PAD NO: 1 LANE NO: 2 QA ID: NLB

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
7/30	0830	0	0	0	Ø	14	0	6	10	27	19	10	19
7/31	0819	0	0	2	1	14	0	6	10	27	18	10	18
8/1	—	—	—	—		—	—	—		—	—	—	
8/2	0819	0	2	0	1	14	0	6	10	27	18	10	18
8/3	—	—	—	—		—	—	—		—	—	—	
8/4	0813	0	3	2	2	14	0	6	10	27	18	9	18
8/5	0812	0	2	2	1	14	0	6	10	26	18	9	18
8/13	0817	0	0	0		12	0	6		22	15	8	

PROJECT:

TENSIOMETER TYPE:

NOTES:

000252

869

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 27 day JUNE month 1996 year
SDRI NO: 1-Z TEST PAD NO: 1 LANE NO: Z QA ID: NM/NB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
27 JUNE	1517	30.39	11.89	40.61	6.80
28	1810	29.89	12.49	40.48	6.76
29	0832	30.70	10.01	40.50	6.72
30	0722	30.45	11.71	39.98	6.41
1 JULY	0729	30.76	11.25	40.60	5.19
2	0717	30.04	13.01	40.69	7.18
3	0716	30.32	12.89	40.78	6.99
4	0752	30.49	12.33	40.10	7.71
5	0911	29.50	12.18	37.20	5.98
6	0848	30.69	10.22	39.81	3.50
7	0902	31.85	9.81	41.08	7.34
8	0917	31.46	13.50	40.07	7.15

008253

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UNITED STATES
DEPARTMENT OF ENERGY

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 27 day JUNE month 1996 year
SDRI NO: 1-2 TEST PAD NO: 1 LANE NO: 2 QA ID: NM/NB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
9 JULY	0741	31.30	12.70	40.75	6.78
10	0742	30.54	12.52	39.42	6.81
11	0742	30.62	12.19	38.66	7.08
12	0753	30.51	12.15	38.16	6.11
13	—	—	—	—	—
14	0735	31.11	11.72	39.99	7.50
15	0752	30.00	12.19	38.29	7.71
16	0755	31.85	13.16	37.55	7.42
17	0901	30.65	12.65	41.60	7.62
18	0928	30.78	13.76	41.37	7.73
19	RAIN	—	—	—	—
20	0854	31.27	12.51	42.05	7.69

0002541

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DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 27 day June month 1996 year
SDRI NO: 1-2 TEST PAD NO: 1 LANE NO: 2 QA ID: NLB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
21 JULY	0758	30.57	13.04	40.81	NLB ~~7~~ 7.88
22	0843	29.65	11.34	41.32	NLB ~~7~~ 7.82
23	0817	30.50	12.75	41.35	7.73
24	0806	30.70	11.81	39.21	7.25
25	0834	32.25	11.80	41.72	7.74
26	0821	31.95	12.62	40.13	6.92
27	0816	31.54	12.35	41.88	7.64
28	RAIN	—	—	—	—
29	0844	32.43	12.31	41.58	7.25
30	0831	32.96	12.62	42.85	7.48
31	0821	32.85	12.43	40.40	7.65
1 AUGUST	—	—	—	—	—

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 27 day JUNE month 1996 year
SDRI NO: 1-2 TEST PAD NO: 1 LANE NO: 2 QA ID: NLB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
2 AUGUST	0821	32.55	12.91	42.10	7.65
3	—	—	—	—	—
4	0815	32.48	12.83	42.53	7.38
5	0813	32.60	12.11	42.29	7.84
13	0819	32.95	13.11	40.82	7.65

000256

869

SDRI 2-1 (Test Pad No. 2, Lane 1)

- Infiltration Data
- Tensiometer Readings
- Swell Gauge Readings

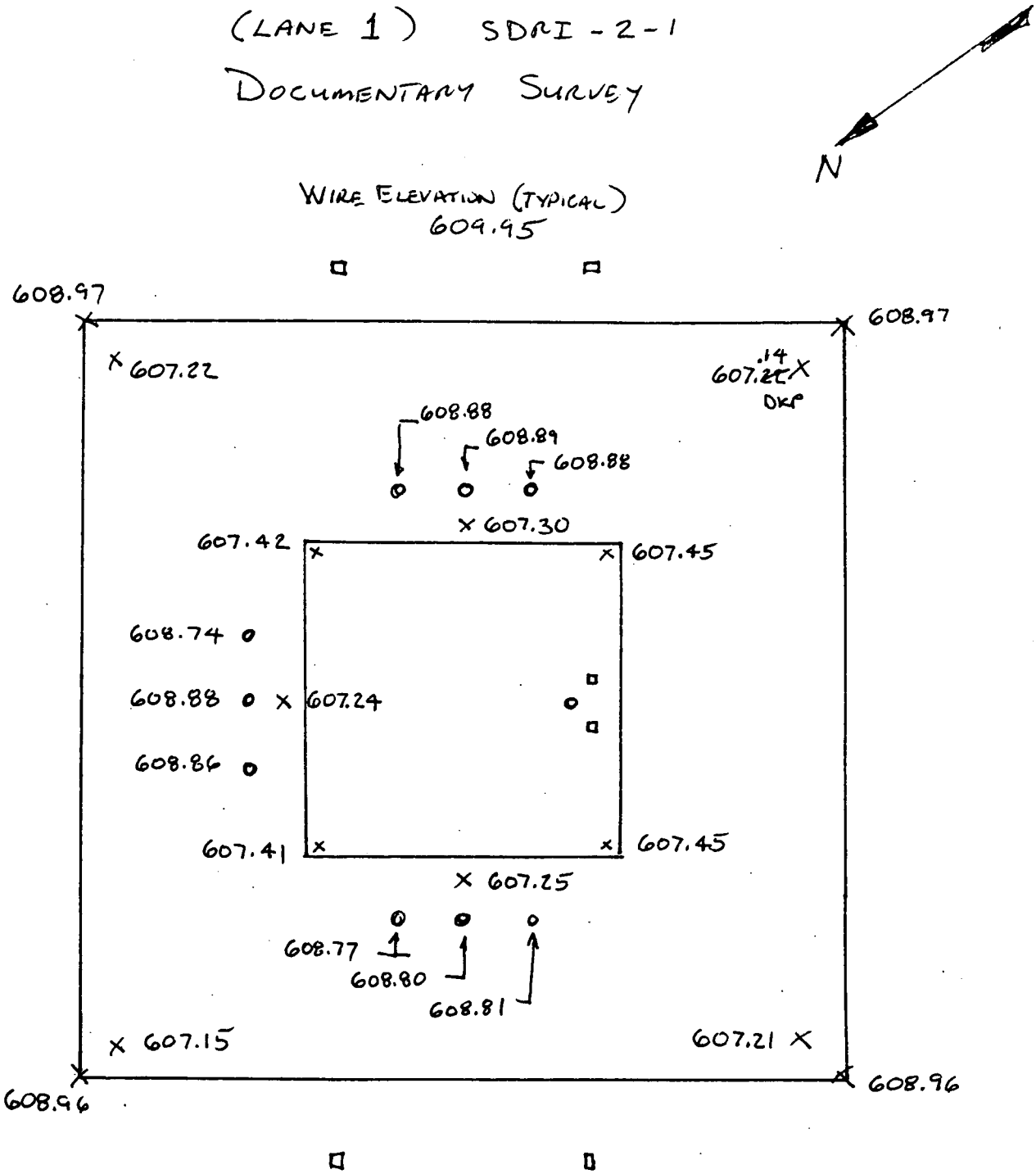
Written by: D. K. PHILLIPS Date: 96/07/02 (YY MM DD) Reviewed by: _____ Date: __/__/__ (YY MM DD)

Client: FERMCO Project: FERNAL OSDF (TEST PAD PROGRAM) Project/Proposal No.: GE-3900 Task No.: 05.3

TEST PAD #2 SDRI No. 1

(LANE 1) SDRI-2-1

DOCUMENTARY SURVEY



UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 NLB day July month 1996 year
SDRI NO: SDRI-2-1 TEST PAD NO: 2 LANE NO: 1 QA ID: NLB

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

I = infiltration (cm/s)
Q = quantity of flow (ml)
t = interval of time (s)
A = area of inner ring (cm^2)

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	Temp. (°C)	Water Depth (in.)
7/4	0839	1710		7033	6682			78	Full
7/5	0859	0723		6682	6200			78	Full
7/6	0824	0754		6200	5821			78	Full
7/7	0842	0746		5821	5533			78	12"
7/8	0852	0730		5533	5243			78	12 1/2
7/9	0842	~~0725~~ 0724		5243	4943			78	12 9/16
7/10	0804	0721		4943	4668			77	12 9/16
7/11	0810	0733		4668	4262			76	12 9/16
7/12	0846	0724		3206	2803			77	12 7/16
7/14	0749	0727		2803	2658			78	12 3/8
7/15	0805	0723		2658	2464			77	13"
7/16	0801	0750		2464	2252			78	13"
7/17	0926	0811		3033	2876			77	Full
7/18	0909	0822		2876	2625			78	Full
7/19	RA	IN							
7/20	0823	0803		2803	2715			78	12 1/2
7/21	0805	0854		2625	2524			77	12 7/16

RAIN 7/13

bailed water out

bailed water out

NOTES: Full = 12 3/16"

000259

UNITED STATES
DEPARTMENT OF ENERGY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day July month 1996 year
SDRI NO: 2-1 TEST PAD NO: 2 LANE NO: 1 QA ID: NLB

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

I = infiltration (cm/s)
Q = quantity of flow (ml)
t = interval of time (s)
A = area of inner ring (cm^2)

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	Temp. (°C)	Water Depth (in.)
7/22	0856	0824	~~[illegible]~~ NLB	2715	2634			74°	Full
7/23	0825	0812		2524	2350			74	Full
7/24	0813	0838		2634	2306			75	Full
7/25	0839	0825		3062	2915			75	12 7/16
7/26	0827	0824		2306	1981			75	12 7/16
7/27	0825	0849		2969	2716			75	12 7/16
7/28	R A	I N		—	—			—	—
7/29	08~~42~~ 58	0844		3281	3201			76	12 3/8
7/30	0845	0828		2716	2653			76	Full
7/31	0829	0825		3201	2987			75	12 7/16
8/1	—	—		—	—			—	—
8/2	0827	0819		2653	2200			75	12 7/16
8/3	—	—		—	—			—	—
8/4	0820	0823		2987	2852			76	12 7/16
8/5	0826	0808		6909	6199			77	12 3/8
8/13								77	12 1/2

NOTES:

000260

698

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day July month 1996 year
SDRI NO: SDRI-2-1 TEST PAD NO: 2 LANE NO: 1 QA ID: NLB

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
7/4	0803	10	~~8~~ 10	9	10	12	~~5~~ 8	8	9	6	~~10~~ 5	0	6
7/5	0806	6	6	6	6	11	~~5~~ 8	7	9	5	5	0	5
7/6	0836	5	4	5	5	10	9	6	8	5	5	0	5
7/7	0916	5	3	5	4	9	8	6	8	5	4	0	5
7/8	0923	3	0	4	2	8	7	4	6	5	3	0	4
7/9	0745	4	0	5	3	8	6	4	6	5	4	0	5
7/10	0748	4	2	5	4	7	6	4	6	5	4	0	5
7/11	0746	4	2	4	3	7	6	4	6	5	4	0	5
7/12	0758	4	0	4	3	6 um	7	4	6	4	4	0	4
7/14	0741	2	0	4	2	5	6	2	4	4	2	0	3
7/15	0758	0	0	6	2	5	6	0	4	6	0	0	3
7/16	0801	2	0	2	1	4	6	0	3	4	2	0	3
7/17	0802	0	0	2	1	4	5	0	3	4	0	0	2
7/18	0848	0	0	3	1	4	5	0	3	4	0	0	2
7/19	–	R	A	I	N	–	–	–		–	–	–	
7/20	0842	0	0	3	1	2	5	0	2	4	0	0	2

PROJECT:

TENSIOMETER TYPE:

NOTES:

000261

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UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 053

DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day JULY month 1996 year

SDRI NO: 2-1 TEST PAD NO: 2 LANE NO: 1 QA ID: NB/NM

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
7/21	0807	0	0	3	1	2	5	0	2	4	0	0	2
7/22	0901	0	0	3	1	3	5	0	3	3	0	0	2
7/23	0827	0	0	3	1	3	5	0	3	4	0	0	2
7/24	0815	0	0	2	1	3	5	0	3	4	0	0	2
7/25	~~0837~~ 0844	0	0	0	Ø	0	5	0	2	4	0	0	2
7/26	0833	0	0	0	Ø	0	5	0	2	4	0	0	2
7/27	0826	0	0	2	1	0	5	0	2	4	0	0	2
7/28	—	R	A	I	N	—	—	—		—	—	—	
7/29	0852	0	0	2	1	0	5	0	2	4	0	0	2
7/30	0846	0	0	2	1	0	5	0	2	4	0	0	2
7/31	0832	0	0	2	1	0	4	0	1	4	0	0	2
8/1	—	—	—	—		—	—	—		—	—	—	
8/2	0830	0	0	2	1	0	4	0	1	4	0	0	2
8/3	—	—	—	—		—	—	—		—	—	—	
8/4	0822	0	0	2	1	0	4	0	1	4	0	0	2
8/5	0828	0	0	2	1	0	4	0	1	4	0	0	2

PROJECT:

TENSIOMETER TYPE:

NOTES:

8/12 0822 0 0 0 0 0 0 0 0 0

000262

F-869

UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day JULY month 1996 year
SDRI NO: 2-1 TEST PAD NO: 2 LANE NO: 1 QA ID: NB/NM

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
04 JULY	0817	35.72	5.75	38.59	1.75
05	0912	36.95	4.61	39.50	2.45
06	0852	37.25	6.15	40.98	1.85
07	0913	37.92	6.48	38.26	1.89
08	0924	38.28	6.56	40.49	1.91
09	0747	37.38	5.75	39.36	*
** 09	0800	** 55.25	** 22.99	** 56.30	** 17.72
10	0750	54.95	23.50	56.75	18.76
11	0749	54.81	23.15	56.99	17.60
12	0800	54.69	22.68	54.28	17.71
13	—	—	—	—	—
14	0742	55.09	23.90	57.00	17.92

* UNABLE TO READ, RESET CALIPER.

** RESET CALIPER

000263

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UNITED STATES
DEPARTMENT OF ENERGY

FERMCO

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 5.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day July month 1996 year
SDRI NO: 2-1 TEST PAD NO: 2 LANE NO: 1 QA ID: NB/NM

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
15 July	0801	54.99	23.71	55.19	17.60
16	0803	55.19	23.34	56.95	17.58
17	0850	55.89	24.40	59.34	19.04
18	0853	56.31	24.41	58.80	18.54
19	RAIN	—	—	—	—
20	0857	55.82	23.23	59.12	18.00
21	0809	55.60	23.72	56.99	18.62
22	0903	55.60	22.82	56.82	18.60
23	0828	55.40	23.07	57.71	19.39
24	0816	55.95	23.26	58.39	19.39
25	~~0838~~ NB ~~0837~~ NB 0843	55.97	23.10	58.92	18.49
26	0834	56.10	23.46	57.95	18.45

UNITED STATES
DEPARTMENT OF ENERGY

FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day JULY month ____ year
SDRI NO: 2-1 TEST PAD NO: 2 LANE NO: 1 QA ID: NLB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
27 JULY	0827	56.29	21.99	57.26	18.48
28	RAIN	—	—	—	—
29	0853	55.75	23.01	58.98	17.92
30	0847	56.02	22.93	59.11	19.41
31	0833	56.01	21.13	58.28	18.08
1 AUGUST	—	—	—	—	—
2	0832	56.84	22.90	58.41	18.49
3	—	—	—	—	—
4	0823	55.95	22.95	59.85	18.92
5	0829	55.85	22.87	57.65	18.60
13	0824	56.22	23.26	56.78	18.48

000265

SDRI 2-2 (Test Pad No. 2, Lane 2)

- Infiltration Data
- Tensiometer Readings
- Swell Gauge Readings

GEOSYNTEC CONSULTANTS

Written by: D.K. PHILLIPS Date: 96 / 07 / 02 (YY MM DD) Reviewed by: _____ Date: __ / __ / __ (YY MM DD)

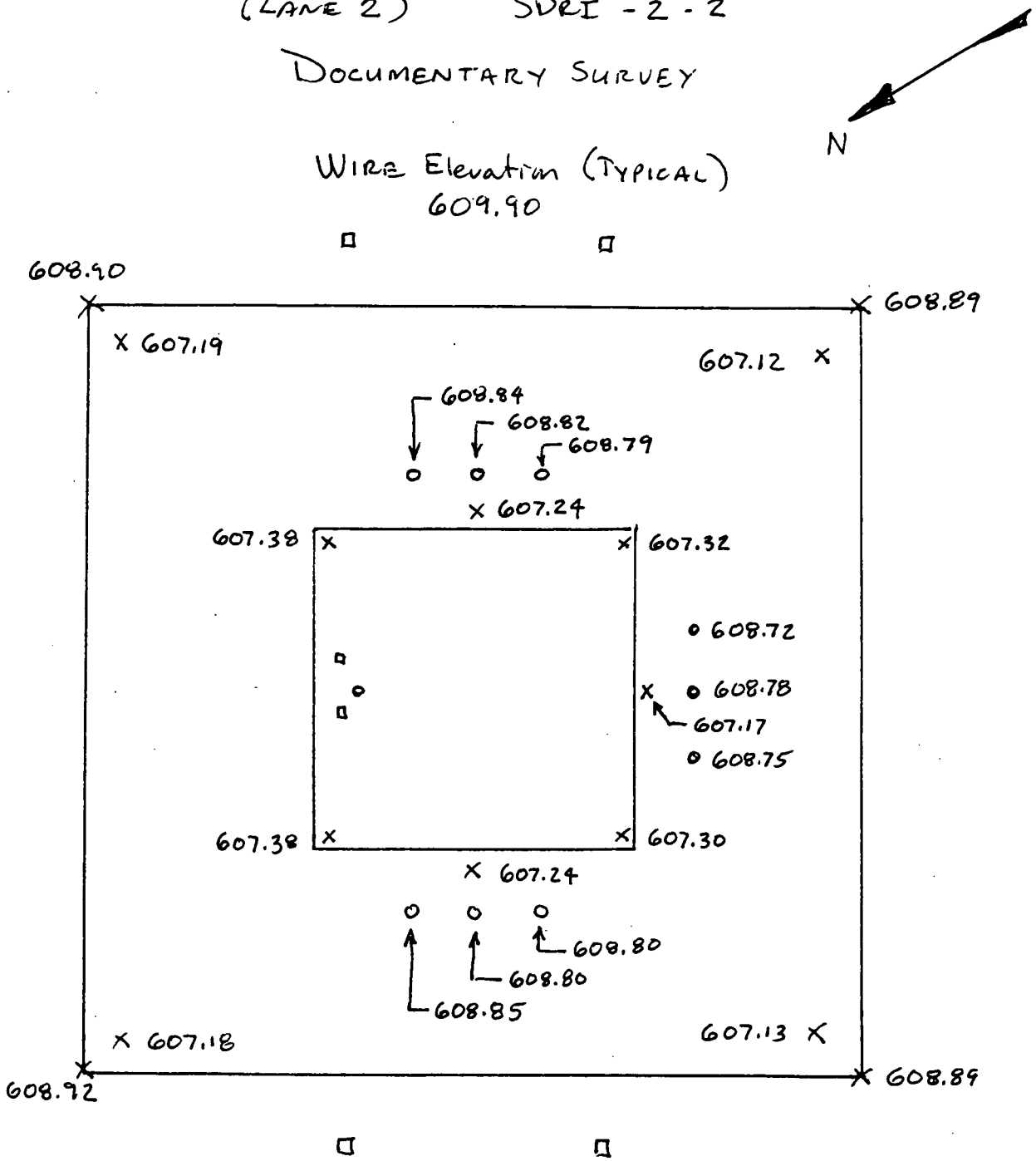
TEST PAD PROGRAM

Client: FERMCO Project: FERNAL OSDF Project/Proposal No.: GE3700 Task No.: 05.3

TEST PAD No. 2 SDRI No 2

(LANE 2) SDRI - 2 - 2

DOCUMENTARY SURVEY



UNITED STATES
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FERMCO

FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM START DATE: ~~14~~ 4 day July month 1996 year

SDRI NO: SDRI-2-2 TEST PAD NO: 2 LANE NO: 2 QA ID: NLB

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

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

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	Temp. F°(°C)	Water Depth (in.)
7/4	0841	1707		6560	6224			78	Full
7/5	0855	0720		6224	5761			78	Full
7/6	0826	0752		5761	5394			78	Full
7/7	0848	0744		5394	5128			79	12 3/8"
7/8	0856	0731		5128	4892			79	12 7/8
7/9	0845	0723		4892	4648			78	12 13/16
7/10	0802	0720		4648	4371			77	12 13/16
7/11	0807	0730		4371	4025			76	12 13/16
7/12	0834	~~0720~~ NLB 0728		3023	2616			77	12 3/4
7/14	0747	0726		2616	2486			~~76~~ NLB 78	Full
7/15	0800	0717		2486	2486			77	13 5/16
7/16	0758	0749		2486	2222			78	13 1/4
7/17	0921	0813		2781	2588			78	Full
7/18	0928	0817		2588	2338			78	Full
7/19	RA	IN							
7/20	0819	0813		2889	2818			78	12 7/8
7/21	0815	0904		2338	2273			77	12 7/8

RAIN 7/13

Inadvertently left bag clasp closed

bailed out water

bailed out water

NOTES: Full = 12 5/8"

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DEPARTMENT OF ENERGY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day JULY month 1996 year
SDRI NO: 2-2 TEST PAD NO: 2 LANE NO: 2 QA ID: NLB.

DATA FORM FOR SDRI TEST

Project:
Inner Ring Info:
Outer Ring Info:
Liner Thickness (cm):

I = Q/(At)

I = infiltration (cm/s)
Q = quantity of flow (ml)
t = interval of time (s)
A = area of inner ring (cm^2)

Date	Initial Time (s)	Final Time (s)	t Interval of Time (s)	Initial Wt of Bag (g)	Final Wt. of Bag (g)	Q Quan. of Flow (ml)	I Infiltration (cm/s)	Temp. (°C)	Water Depth (in.)
7/22	0911	0833		2818	2520			75	Full
7/23	0834	0821		2273	2089			75	Full
7/24	0822	0850		2520	2360			75	Full
7/25	0851	0839		3099	2969			76	12 15/16
7/26	0840	0832		2360	1975			75	12 7/8
7/27	0833	0900		2915	2633			76	12 7/8
7/28	R A	I N		—	—			—	—
7/29	0901	0852		3185	3095			77	12 13/16
7/30	0853	0839		2633	2597			76	Full
7/31	0840	0835		3095	2883			75	12 7/8
8/1	—	—		—	—			—	—
8/2	0837	0826		2597	2093			75	12 7/8
8/3	—	—		—	—			—	—
8/4	0827	0833		2883	2715			77	12 13/16
8/5	0835	0812		7160	6199			78	12 13/16
8/13								77	12 15/16

NOTES:

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FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY

LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3

DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day July month 1996 year

SDRI NO: SDRI-2-2 TEST PAD NO: 2 LANE NO: 2 QA ID: NLB

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
7/4	0806	0	9	24	17	14	6	8	9	6	4	4	5
7/5	0810	0	3	14	9	11	5	7	8	6	2	3	4
7/6	0839	0	0	8	4	10	4	7	7	6	0	3	3
7/7	0856	0	0	5	3	9	4	6	6	5	0	4	3
7/8	0930	0	0	3	2	8	2	6	5	5	0	3	3
7/9	0751	0	0	2	1	7	2	6	5	4	0	4	3
7/10	0756	0	0	2	1	6	2	6	5	5	0	4	3
7/11	0753	0	0	2	1	6	2	6	5	5	0	4	3
7/12	0805	0	0	2	1	6	2	6	5	4	0	4	3
7/14	0746	0	0	2	1	5	0	5	3	4	0	2	2
7/15	0806	0	0	0	Ø	6	0	4	3	4	0	4	3
7/16	0810	0	0	0	Ø	4	0	5	3	2	0	4	2
7/17	0805	0	0	0	Ø	5	0	5	3	3	0	4	2
7/18	0858	0	0	0	Ø	4	0	5	3	3	0	4	2
7/19	—	R	A	I	N	—	—	—		—	—	—	
7/20	0843	0	0	0	Ø	3	0	4	2	2	0	2	1

PROJECT:

TENSIOMETER TYPE:

NOTES:

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FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day JULY month 1996 year
SDRI NO: 2-2 TEST PAD NO: 2 LANE NO: 2 QA ID: NLB

DATE	TIME	TENSIOMETER READING - CENTIBARS											
		DEPTH - 6"				DEPTH - 12"				DEPTH - 18"			
		Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average	Group 1	Group 2	Group 3	Average
7/21	0818	0	0	0	Ø	3	0	5	3	2	0	3	2
7/22	0913	0	0	0	Ø	3	0	4	2	2	0	3	2
7/23	0836	0	0	0	Ø	3	0	5	3	3	0	3	2
7/24	0825	0	0	0	Ø	3	0	5	3	3	0	4	2
7/25	0854	0	0	0	Ø	3	0	5	3	3	0	4	2
7/26	0844	0	0	0	Ø	3	0	5	3	3	0	4	2
7/27	0834	0	0	0	Ø	3	0	5	3	3	0	4	2
7/28	–	R	A	I	W	–	–	–		–	–	–	
7/29	0904	0	0	0	Ø	2	0	4	2	3	0	4	2
7/30	0855	0	0	0	Ø	2	0	4	2	3	0	4	2
7/31	0843	0	0	0	Ø	2	0	4	2	2	0	4	2
8/1	~~0840~~	~~0~~	~~0~~	~~0~~	Ø	~~2~~	~~0~~	~~4~~		~~2~~	~~0~~	~~4~~	NLB
8/2	0840	0	0	0	Ø	2	0	4	2	3	0	4	2
8/3	—	—	—	—		—	—	—		—	—	—	
8/4	0829	0	0	0	Ø	2	0	5	2	3	0	4	2
8/5	0840	0	0	0	Ø	2	0	4	2	3	0	4	2

PROJECT:
TENSIOMETER TYPE:
NOTES:

8/13 0822 0 0 0 2 0 4 2 0 4

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FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day JULY month 1996 year
SDRI NO: 2-2 TEST PAD NO: 2 LANE NO: 2 QA ID: NM/NB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
4 JULY	0836	51.25	27.95	57.78	31.51
5	0918	52.25	26.27	57.82	32.53
6	0855	51.91	28.50	58.70	32.09
7	0908	52.15	28.05	58.65	33.36
8	0932	51.68	28.45	61.57	31.48
9	0752	51.36	28.50	60.35	32.50
10	0758	50.92	28.55	60.97	32.59
11	0756	51.56	27.20	60.65	31.80
12	0807	51.76	25.99	59.91	31.35
13	—	—	—	—	—
14	0748	50.91	28.69	59.09	31.60
15	0810	52.00	28.22	59.70	32.26

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FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day July month 1996 year
SDRI NO: 2-2 TEST PAD NO: 2 LANE NO: 2 QA ID: NB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
16 July	0812	51.00	27.63	60.35	32.40
17	0845	51.20	28.68	61.46	32.85
18	0900	52.70	28.40	61.61	32.90
19	RAIN	—	—	—	—
20	0859	51.92	28.68	61.04	32.85
21	0819	51.70	27.41	61.68	32.84
22	0915	51.80	28.08	61.82	32.15
23	0837	51.79	28.30	60.32	32.85
24	0826	52.24	27.00	60.12	33.08
25	0855	52.35	28.48	60.01	33.18
26	0845	51.45	28.60	61.41	31.80
27	0835	52.18	33.28	60.75	32.75

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FERNALD ENVIRON...NTAL
MANAGEMENT PROJECT
ON-SITE DISPOSAL FACILITY

SDRI TEST (ASTM D 5093)

PROJECT: FEMP ON SITE DISPOSAL FACILITY
LOCATION: FERNALD, OHIO PROJECT NO.: GE3900 TASK NO.: 05.3
DESCRIPTION: TEST PAD PROGRAM START DATE: 4 day JULY month 1996 year
SDRI NO: 2-2 TEST PAD NO: 2 LANE NO: 2 QA ID: NLB

Date	Time	Swell Gauge Reading (mm)			
		Right Front	Right Rear	Left Front	Left Rear
28 JULY	RAIN	—	—	—	—
29	0905	51.69	28.50	61.80	32.55
30	0858	50.60	28.14	60.90	33.12
31	0844	52.11	28.20	60.61	32.92
1 AUGUST	—	—	—	—	—
2	0841	52.20	28.18	59.60	32.86
3	—	—	—	—	—
4	0830	52.90	28.25	60.80	32.92
5	0841	51.97	27.62	61.16	32.87
13	0829	52.08	28.08	58.90	32.86

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APPENDIX I

SDRI TEST RESULTS

APPENDIX I

SDRI DATA INTERPRETATION

1. INTRODUCTION

The sealed double-ring infiltrometer (SDRI) data collected at the On-Site Disposal Facility (OSDF) test pads are analyzed to estimate the hydraulic conductivity of the compacted clay beneath each SDRI. SDRI tests were performed in Lanes 1 and 2 of each Test Pads 1 and 2. The data collected during the tests include:

- the volume of water that flowed into the inner ring of the SDRI;
- movement of the inner ring;
- temperature of the water in the outer ring of the SDRI; and
- the water surface level in the outer ring of the SDRI.

The remainder of this appendix presents the methods used to interpret the SDRI data and the results of the analyses.

2. METHODS OF SDRI DATA INTERPRETATION

2.1 Overview

The following two methods were used to interpret the SDRI data:

- Method 1 - The American Society of Testing and Materials (ASTM) Standard test method of incremental-flow analysis modified to account for hydraulic gradient; and

- Method 2 - A flow analysis where the field data points are "smoothed" using a curve fitting procedure.

It is noted that the inner ring movement and water temperature effects are not accounted for in the two methods used herein. These effects are not considered in analyzing the OSDF test pad SDRI data for the reasons described below.

- The inner ring movement was measured using a relatively simple and crude method. The method allows movement measurement with moderate accuracy for relatively large movements. However, for small movements (i.e., less than 1 mm), this method may result in significant measurement inaccuracy. Fluctuation existed in the reading values and movement direction (i.e., upward or downward). This fluctuation is expected to be caused by the tolerance inherited in the measurement method. However, in general, the cumulative movements of all four SDRI inner rings were in the upward direction as the tests progressed. The net cumulative movements of the rings at the end of the tests were between 0.9 and 1.4 mm for the four SDRIs. These movements are very small, and therefore, are not likely measured very accurately. Because of the potential for inaccuracy in inner ring movement measurement, the inner ring movement effect is not accounted for in the methods used to interpret the SDRI data. It is noted that not accounting for the upward inner ring movement in the analysis is conservative because the fraction of water volume that flows out of the flexible bag and into the inner ring as a result of the inner ring upward movement, is not subtracted from the total inflow volume.

- Most of the data was recorded at approximately the same time of the day (i.e., early in the morning). Furthermore, the SDRIs were thermally insulated. These two factors resulted in very small variations in water temperature between reading times (the maximum temperature difference between any two initial and final readings was 3°F). The water temperature fluctuated a few degrees above and below an average of approximately 75°F, and therefore, had no net (i.e., cumulative) effect on the inflow out of the bags. Therefore, the effects of water temperature variability on inflow

volumes are considered to be relatively small, and therefore, were not accounted for in the analysis.

The two methods used to evaluate the SDRI field data are described below in detail.

2.2 Method 1

The ASTM standard method (i.e., ASTM D 5093, *Standard Test Method for Field Measurement of Infiltration Rate using a Double-Ring Infiltrometer with a Sealed-Inner Ring*) dictates that an incremental infiltration rate, not a hydraulic conductivity, be calculated. It is noted that hydraulic conductivity could be evaluated as the infiltration rate divided by hydraulic gradient; however, the hydraulic gradient would have to be known or assumed. This method was modified to calculate hydraulic conductivity as described below.

This method assumes that all of the water that flows from the flexible bag into the inner ring during each discrete time interval is infiltration. Therefore, the infiltration rate is calculated for any time interval as follows:

$$I = \frac{\Delta V_b}{\Delta t \times a} \qquad (1)$$

where: I = infiltration rate (cm/s);
ΔV_b = volume loss from the bags during the monitoring period (cm^3);
Δt = monitoring time interval (sec); and
a = area of the SDRI inner ring (cm^2).

The depth of the wetting front is calculated for each time interval based on the assumption that the wetting front advances uniformly downward from the inner ring; it is assumed that the volume of air in the voids at the time of compaction is completely replaced by infiltration water as the wetting front advances; for any time interval, the

depth of the wetting front is calculated using the cumulative infiltration up to the end of the time interval under consideration;

$$Z_w = \frac{V_Q}{a \times n\ (1 - S_o)} \tag{2}$$

where: Z_w = computed depth of the wetting front below the soil surface (cm);
V_Q = cumulative volume of water that flowed into the inner ring (cm^3);
n = total porosity of the soil (dimensionless); and
S_o = initial degree of saturation of the soil (dimensionless).

For a cumulative time period from the beginning of the test, the cumulative infiltration, V_Q, is calculated as the cumulative volume of inflow into the inner ring. This inflow volume is assumed equal to the cumulative volume of flow from the flexible bag plus an estimated volume of flow from the outer ring into the inner ring during the time period that the flexible bag is disconnected from the inner ring. The volume of flow which occurs while the bag is disconnected is estimated by calculating the rate of flow of water from the bag during the previous time interval and multiplying the rate by the time the bag is disconnected.

The hydraulic gradient is calculated for the same interval as the infiltration rate. This is accomplished by using the computed depth of the wetting front and the measured level of the water surface in the following equation:

$$i = \frac{h + Z_w}{Z_w} \tag{3}$$

where: i = hydraulic gradient (dimensionless); and
h = height of the water surface above the soil surface (cm).

The hydraulic conductivity, k, (reported in cm/s) of the compacted soil is then calculated by dividing the infiltration rate by the hydraulic gradient, as follows:

$$k = \frac{I}{i} \tag{4}$$

It is noted that the computation of hydraulic gradient, i, did not include any contribution caused by soil suction (i.e., by capillary tension in the pores of the soil). The phenomenon of soil suction increases the hydraulic gradient at the wetting front, however, the magnitude of this increase is uncertain. Due to the uncertainty, the effects of soil suction were not included in the calculation of hydraulic gradient. The effect of soil suction is to draw more water into the sail than would be the case with no soil suction. Therefore, the value of hydraulic conductivity, k, calculated using Equation 4 should be considered as a conservative upper-bound to the actual value.

2.3 Method 2

Method 2 is a flow analysis that uses curve-fitting techniques to fit the inflow test data and, thus, "smooth" the data. The curve-fitting procedure is used to remove some of the scatter that may occur in the data and is accomplished by fitting the data with an equation which approximates the trends in the test data. The smoothed data is then used rather than the actual test data.

The infiltration rate for a time increment is calculated as follows:

$$I = \frac{VQ_2 - VQ_1}{(t_2 - t_1) \; x \; a} \tag{5}$$

where:

I	=	infiltration rate (cm/s)
VQ_1	=	cumulative (i.e., total) volume of water that infiltrated the soil from beginning of test by time t_1 obtained from the smoothed data equation (cm^3);
VQ_2	=	cumulative (i.e., total) volume of water that infiltrated the soil from beginning of test by time t_2 obtained from the smoothed data equation (cm^3); and
a	=	area of the SDRI inner ring (cm^2).

Equations 2, 3, and 4 can then be used to calculate the depth of wetting front, hydraulic gradient, and hydraulic conductivity.

3. SDRI TEST RESULTS

The two analysis methods described above are implemented in a computer spreadsheet application. The data is input into the spreadsheet and calculations are performed automatically. A graph of cumulative volume versus time showing the actual data and a polynomial curve fitted to the data represented by an equation is automatically generated. The parameters describing the polynomial curve equation are manually input into the same spreadsheet and the smoothed data and associated results are then automatically generated. A graph showing the "unsmoothed" and "smoothed" hydraulic conductivities as a function of time is then plotted.

The spreadsheets used to interpret the data for the four SDRIs are included herein along with graphs of cumulative volume and hydraulic conductivity as a function of time from the beginning the test. As shown in the attached spreadsheets and figures, the incremental hydraulic conductivity calculated using Method 1 exhibits scatter while the "smoothed" hydraulic conductivity calculated using Method 2 seems to be a good representation of an average hydraulic conductivity.

The hydraulic conductivity measured by each SDRI was estimated as the average of hydraulic conductivities calculated during approximately the last 20 days of the test monitoring period. These hydraulic conductivity estimates are as follows:

- Test Pad 1, Lane 1: 1.5×10^{-8} cm/s
- Test Pad 1, Lane 2: 1.4×10^{-8} cm/s
- Test Pad 2, Lane 1: 2.3×10^{-8} cm/s
- Test Pad 2, Lane 2: 2.1×10^{-8} cm/s

TEST PAD NO. 1 - LANE 1

Initial Soil Conditions:

Water Content, w (%) = 19.4

Dry Unit Weight, γ_d (pcf) = 106.8

Specific Gravity, G_s = 2.7

Va/V = 0.034

$$\frac{V_a}{V} = 1 - \left(\frac{\gamma_d}{62.4}\right)\left(\frac{1}{G_s} + w\right)$$

Inner Ring dimensions: 5 ft by 5 ft

Outer Ring dimensions: 12 ft by 12 ft

Test Fill Thickness: 3 ft

Date On	Date Off	Initial Time	Final Time	Time Interval t (s)	Initial Weight of Bags (g)	Final Weight of Bags (g)	V_b (ml)	ΣV_b (ml)	Rate of Flow (ml/s)	Infiltration Rate (cm/s)	Time Bags Off (s)	Bags Off Q (ml)	Cum Q (ml)
25-Jun	25-Jun	16:17	18:30	7980			0	0	0.000				0
26-Jun	26-Jun	07:59	18:30	37860	6767	6514	253	253	0.007	2.88E-07	48540	162	415
27-Jun	28-Jun	08:02	07:10	83280	6495	5953	542	795	0.007	2.80E-07	48720	321	1279
28-Jun	29-Jun	08:35	07:41	83160	5953	5534	419	1214	0.005	2.17E-07	5100	29	1727
29-Jun	30-Jun	09:26	07:17	78660	5534	4436	1098	2312	0.014	6.01E-07	6300	60	2885
30-Jun	01-Jul	07:44	07:49	86700	7630	6976	654	2966	0.008	3.25E-07	1620	17	3556
01-Jul	02-Jul	08:27	07:24	82620	6976	6625	351	3317	0.004	1.83E-07	2280	13	3921
02-Jul	03-Jul	07:59	07:23	84240	6625	6190	435	3752	0.005	2.22E-07	2100	10	4366
03-Jul	04-Jul	08:01	07:35	84840	6190	6053	137	3889	0.002	6.95E-08	2280	8	4510
04-Jul	05-Jul	09:06	07:56	82200	6053	5801	252	4141	0.003	1.32E-07	5460	13	4775
05-Jul	06-Jul	08:48	07:25	81420	5801	5546	255	4396	0.003	1.35E-07	3120	10	5040
06-Jul	07-Jul	08:20	07:57	85020	5546	5313	233	4629	0.003	1.18E-07	3300	10	5282
07-Jul	08-Jul	08:50	07:51	82860	5313	5135	178	4807	0.002	9.25E-08	3180	8	5468
08-Jul	09-Jul	08:45	07:27	81720	5135	4949	186	4993	0.002	9.80E-08	3240	7	5661
09-Jul	10-Jul	08:35	07:28	82380	4949	4775	174	5167	0.002	9.09E-08	4080	9	5844
10-Jul	11-Jul	08:27	07:23	82560	7325	6897	428	5595	0.005	2.23E-07	3540	13	6285
11-Jul	12-Jul	08:18	07:36	83880	6897	6644	253	5848	0.003	1.30E-07	3300	14	6552
12-Jul	14-Jul	08:49	07:20	167460	3082	2790	292	6140	0.002	7.51E-08	4380	10	6854
14-Jul	15-Jul	07:51	07:30	85140	2790	2716	74	6214	0.001	3.74E-08	1860	2	6931
15-Jul	16-Jul	08:07	07:21	83640	2716	2526	190	6404	0.002	9.78E-08	2220	3	7124
16-Jul	17-Jul	08:03	07:52	85740	2526	2323	203	6607	0.002	1.02E-07	2520	6	7333
17-Jul	18-Jul	09:32	08:02	81000	2933	2802	131	6738	0.002	6.96E-08	6000	12	7476
18-Jul	20-Jul	09:11	08:25	170040	2802	2567	235	6973	0.001	5.95E-08	4140	6	7717
20-Jul	21-Jul	08:28	07:40	83520	3179	3103	76	7049	0.001	3.92E-08	180	0	7793
21-Jul	22-Jul	07:43	08:12	88140	2567	2532	35	7084	0.000	1.71E-08	180	0	7828
22-Jul	23-Jul	08:21	08:00	85140	3103	2701	402	7486	0.005	2.03E-07	540	1	8232
23-Jul	24-Jul	08:01	07:52	85860	2532	2358	174	7660	0.002	8.73E-08	60	0	8406
24-Jul	25-Jul	07:53	08:14	87660	2701	2578	123	7783	0.001	6.04E-08	60	0	8529
25-Jul	26-Jul	08:15	08:03	85680	2893	2789	104	7887	0.001	5.23E-08	60	0	8633
26-Jul	27-Jul	08:06	08:04	86280	2578	2252	326	8213	0.004	1.63E-07	180	0	8960
27-Jul	29-Jul	08:05	08:31	174360	2789	2565	224	8437	0.001	5.53E-08	60	0	9184
29-Jul	30-Jul	08:32	08:06	84840	3301	3239	62	8499	0.001	3.15E-08	60	0	9246
30-Jul	31-Jul	08:07	08:02	86100	2565	2515	50	8549	0.001	2.50E-08	60	0	9296
31-Jul	02-Aug	08:03	08:00	172620	3239	3058	181	8730	0.001	4.51E-08	60	0	9477
02-Aug	04-Aug	08:03	08:01	172680	2515	2026	489	9219	0.003	1.22E-07	180	0	9966
04-Aug	05-Aug	08:02	07:51	85740	3058	2931	127	9346	0.001	6.38E-08	60	0	10093
05-Aug	13-Aug	07:59	07:55	690960	6497	5763	734	10080	0.001	4.57E-08	480	1	10828

TEST PAD NO. 1 - LANE 1

Curve fitting parameters for smoothed Q Cum:

x2	-4.12
x1	388.1
x0	923.82

Average Water Depth (ft)	Depth of Wetting Front d (ft)	Gradient I (dimless)	Unsmoothed Hydraulic Conductivity K (cm/s)	No. of Days Elapsed	Smoothed Q Cum (ml)	Delta Q Cum (ml)	Smoothed Depth of Wetting Front d (ft)	Smoothed Gradient I (dimless)	Smoothed Hydraulic Conductivity K (cm/s)
1.08	0.00	#DIV/0!	#DIV/0!	0.1	960	960	0.04	28.1	1.84E-07
1.08	0.02	63.7	1.98E-09	1.1	1343	383	0.06	20.4	9.37E-09
1.07	0.05	21.2	8.35E-09	2.6	1912	570	0.08	14.5	1.28E-08
1.04	0.07	15.5	1.32E-08	3.6	2283	370	0.09	12.0	1.51E-08
1.03	0.12	9.6	5.79E-08	4.6	2631	348	0.11	10.4	1.69E-08
1.08	0.15	8.3	3.83E-08	5.6	2984	353	0.12	9.7	1.77E-08
1.08	0.16	7.6	2.33E-08	6.6	3316	332	0.14	8.9	1.90E-08
1.08	0.18	7.0	3.11E-08	7.6	3645	329	0.15	8.1	2.02E-08
1.08	0.19	6.8	1.00E-08	8.6	3969	324	0.16	7.6	2.12E-08
1.08	0.20	6.5	1.92E-08	9.7	4286	317	0.18	7.1	2.20E-08
1.08	0.21	6.2	2.11E-08	10.6	4584	298	0.19	6.7	2.27E-08
1.08	0.22	5.9	1.92E-08	11.7	4887	303	0.20	6.3	2.33E-08
1.06	0.23	5.7	1.57E-08	12.6	5174	287	0.21	5.9	2.42E-08
1.11	0.23	5.7	1.65E-08	13.6	5449	275	0.23	5.9	2.36E-08
1.11	0.24	5.6	1.55E-08	14.6	5721	272	0.24	5.7	2.38E-08
1.10	0.26	5.2	4.10E-08	15.6	5983	263	0.25	5.4	2.42E-08
1.11	0.27	5.1	2.46E-08	16.6	6241	257	0.26	5.3	2.40E-08
1.11	0.28	4.9	1.49E-08	18.6	6723	483	0.28	5.0	2.43E-08
1.10	0.29	4.8	7.59E-09	19.6	6956	232	0.29	4.8	2.39E-08
1.16	0.30	4.9	1.93E-08	20.6	7176	221	0.30	4.9	2.26E-08
1.16	0.30	4.8	2.06E-08	21.6	7395	219	0.31	4.8	2.23E-08
1.08	0.31	4.5	1.45E-08	22.7	7602	207	0.32	4.4	2.31E-08
1.08	0.32	4.4	1.33E-08	24.7	7991	389	0.33	4.3	2.26E-08
1.10	0.32	4.4	8.88E-09	25.6	8166	175	0.34	4.2	2.12E-08
1.10	0.32	4.4	3.89E-09	26.7	8343	176	0.35	4.2	2.06E-08
1.08	0.34	4.2	4.85E-08	27.7	8506	163	0.35	4.1	2.02E-08
1.08	0.35	4.1	2.13E-08	28.6	8661	155	0.36	4.0	1.94E-08
1.08	0.35	4.1	1.49E-08	29.7	8811	150	0.37	4.0	1.86E-08
1.10	0.36	4.1	1.28E-08	30.7	8950	139	0.37	4.0	1.75E-08
1.10	0.37	4.0	4.10E-08	31.7	9081	131	0.38	3.9	1.67E-08
1.10	0.38	3.9	1.42E-08	33.7	9321	240	0.39	3.8	1.54E-08
1.10	0.38	3.9	8.13E-09	34.7	9426	105	0.39	3.8	1.39E-08
1.08	0.39	3.8	6.57E-09	35.7	9524	98	0.40	3.7	1.31E-08
1.10	0.39	3.8	1.19E-08	37.7	9696	172	0.40	3.7	1.15E-08
1.10	0.41	3.7	3.33E-08	39.7	9835	139	0.41	3.7	9.38E-09
1.10	0.42	3.6	1.76E-08	40.6	9892	57	0.41	3.7	7.75E-09
1.10	0.45	3.4	1.33E-08	48.7	10054	162	0.42	3.6	2.76E-09

TEST PAD NO. 1 - LANE 1

VOLUME DUE TO TEMPERATURE CHANGE

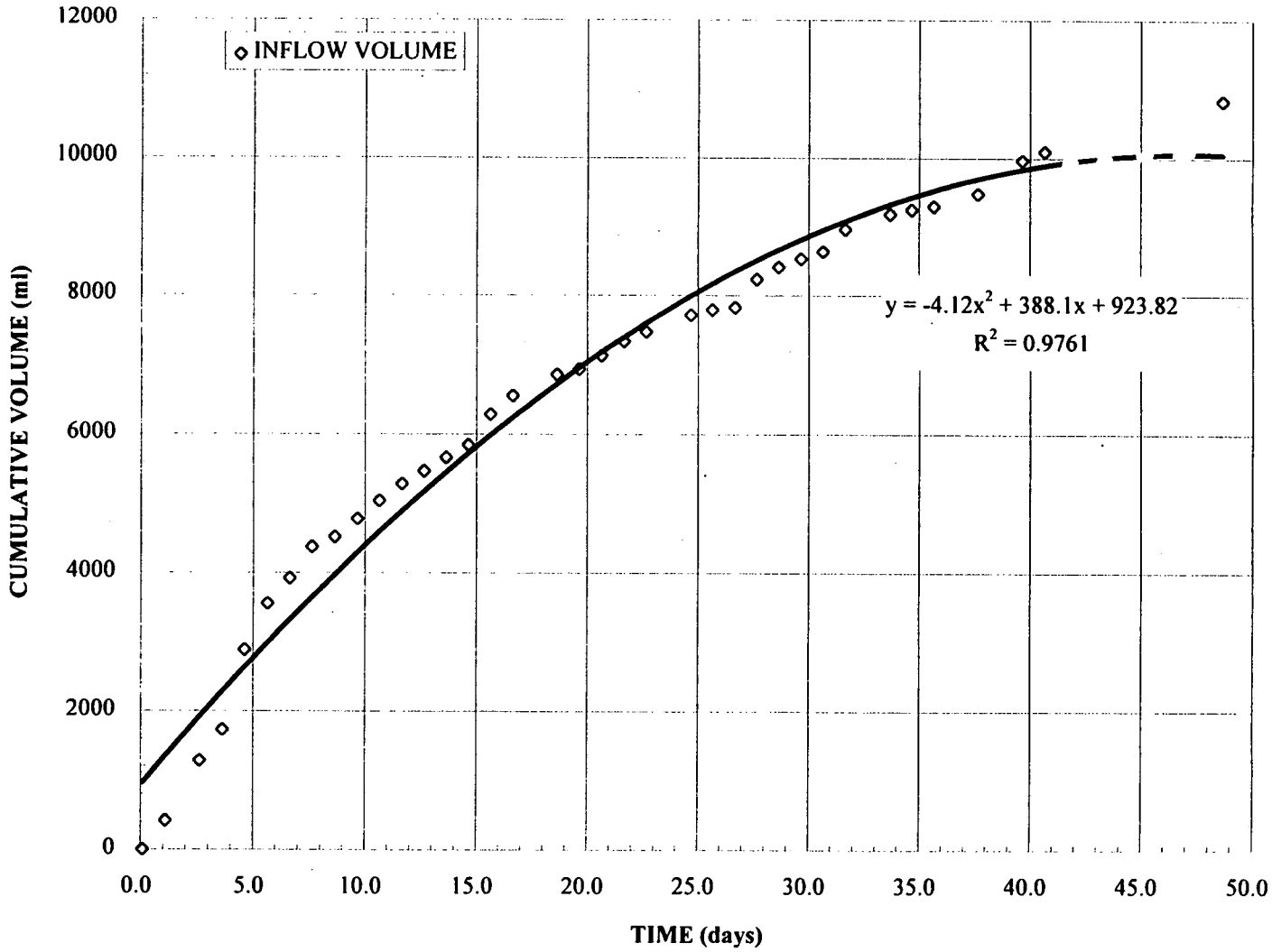
Initial Date	Final Date	Initial Time	Final Time	Initial Temp (F)	End Temp (F)	Cum Temp Q (ml)	Temp Q (ml)
25-Jun	25-Jun	16:17	18:30			0.00	0.00
26-Jun	26-Jun	07:59	18:30	75	75	0.00	0.00
27-Jun	28-Jun	08:02	07:10	75	77	-33.40	-33.40
28-Jun	29-Jun	08:35	07:41	77	78	-50.10	-16.70
29-Jun	30-Jun	09:26	07:17	78	78	-50.10	0.00
30-Jun	01-Jul	07:44	07:49	78	77	-33.40	16.70
01-Jul	02-Jul	08:27	07:24	77	78	-50.10	-16.70
02-Jul	03-Jul	07:59	07:23	78	77	-33.40	16.70
03-Jul	04-Jul	08:01	07:35	77	74	16.70	50.10
04-Jul	05-Jul	09:06	07:56	74	75	0.00	-16.70
05-Jul	06-Jul	08:48	07:25	75	75	0.00	0.00
06-Jul	07-Jul	08:20	07:57	75	75	0.00	0.00
07-Jul	08-Jul	08:50	07:51	75	76	-16.70	-16.70
08-Jul	09-Jul	08:45	07:27	76	76	-16.70	0.00
09-Jul	10-Jul	08:35	07:28	76	75	0.00	16.70
10-Jul	11-Jul	08:27	07:23	75	74	16.70	16.70
11-Jul	12-Jul	08:18	07:36	74	74	16.70	0.00
12-Jul	14-Jul	08:49	07:20	74	74	16.70	0.00
14-Jul	15-Jul	07:51	07:30	74	76	-16.70	-33.40
15-Jul	16-Jul	08:07	07:21	76	75	0.00	16.70
16-Jul	17-Jul	08:03	07:52	75	75	0.00	0.00
17-Jul	18-Jul	09:32	08:02	75	75	0.00	0.00
18-Jul	20-Jul	09:11	08:25	75	75	0.00	0.00
20-Jul	21-Jul	08:28	07:40	75	76	-16.70	-16.70
21-Jul	22-Jul	07:43	08:12	76	75	0.00	16.70
22-Jul	23-Jul	08:21	08:00	75	73	33.40	33.40
23-Jul	24-Jul	08:01	07:52	73	73	33.40	0.00
24-Jul	25-Jul	07:53	08:14	73	73	33.40	0.00
25-Jul	26-Jul	08:15	08:03	73	74	16.70	-16.70
26-Jul	27-Jul	08:06	08:04	74	73	33.40	16.70
27-Jul	29-Jul	08:05	08:31	73	73	33.40	0.00
29-Jul	30-Jul	08:32	08:06	73	75	0.00	-33.40
30-Jul	31-Jul	08:07	08:02	75	74	16.70	16.70
31-Jul	02-Aug	08:03	08:00	74	73	33.40	16.70
02-Aug	04-Aug	08:03	08:01	73	73	33.40	0.00
04-Aug	05-Aug	08:02	07:51	73	75	0.00	-33.40
05-Aug	13-Aug	07:59	07:55	75	75	0.00	0.00

TEST PAD NO. 1 - LANE 1

FLOW INTO INNER RING DUE TO VERTICAL MOVEMENT

Date	Time	S1 Corner 1 (mm)	S2 Corner 2 (mm)	S3 Corner 3 (mm)	S4 Corner 4 (mm)	Avg Delta (mm)	Cum Delta (mm)	Volume Due to Movement Qs (ml)	Cum Volume Due to Movement Qs.cum (ml)
25-Jun	18:30	34.99	20.92	41.31	16.07				0
26-Jun	18:30	35.05	20.61	40.88	16.16	-0.15	-0.15	-343	-343
27-Jun	07:59	33.89	20.81	40.91	14.71	-0.60	-0.74	-1382	-1725
28-Jun	07:10	34.95	21.11	41.50	15.70	0.74	-0.01	1707	-17
29-Jun	07:46	35.69	20.30	37.75	15.89	-0.91	-0.92	-2108	-2125
30-Jun	07:32	35.59	20.35	41.00	15.81	0.78	-0.14	1812	-314
01-Jul	07:36	34.79	21.25	41.41	16.14	0.21	0.07	488	174
02-Jul	07:05	34.56	21.80	42.21	15.50	0.12	0.19	279	453
03-Jul	07:26	34.80	21.10	41.52	15.50	-0.29	-0.09	-668	-215
04-Jul	07:45	36.05	21.10	41.61	16.05	0.47	0.38	1097	883
05-Jul	09:00	35.86	21.55	41.65	16.22	0.12	0.50	273	1155
06-Jul	08:44	35.85	21.49	41.15	17.13	0.09	0.58	197	1353
07-Jul	08:57	36.68	23.08	43.11	16.87	1.03	1.61	2392	3745
08-Jul	09:07	36.50	22.65	41.90	16.30	-0.60	1.02	-1388	2357
09-Jul	07:35	37.25	20.89	42.11	15.09	-0.50	0.51	-1167	1190
10-Jul	07:34	35.55	21.64	42.00	16.00	-0.04	0.47	-87	1103
11-Jul	07:35	35.62	21.70	41.45	15.59	-0.21	0.27	-482	621
12-Jul	07:46	35.64	21.63	41.29	15.39	-0.10	0.16	-238	383
14-Jul	07:30	36.55	21.00	41.70	15.75	0.26	0.43	610	993
15-Jul	07:43	35.90	21.15	40.81	15.69	-0.36	0.06	-842	151
16-Jul	07:48	36.39	20.70	42.00	15.95	0.37	0.44	865	1016
17-Jul	08:55	35.86	22.35	43.30	15.75	0.56	0.99	1289	2305
18-Jul	09:17	36.55	22.50	41.40	16.01	-0.20	0.79	-465	1841
20-Jul	08:50	34.60	21.91	42.68	16.25	-0.25	0.54	-592	1248
21-Jul	07:47	35.99	21.75	42.62	16.11	0.26	0.79	598	1846
22-Jul	08:26	35.92	21.48	41.89	16.31	-0.22	0.58	-505	1341
23-Jul	08:06	36.28	22.03	42.51	16.10	0.33	0.91	766	2108
24-Jul	07:57	36.62	21.79	41.93	15.99	-0.15	0.76	-343	1765
25-Jul	08:20	35.95	21.95	42.51	16.15	0.06	0.82	134	1899
26-Jul	08:11	35.92	22.48	42.36	15.68	-0.03	0.79	-70	1829
28-Jul	08:08	35.93	22.22	42.66	16.06	0.11	0.89	250	2079
29-Jul	08:36	36.21	21.51	42.75	16.28	-0.03	0.86	-70	2009
30-Jul	08:22	36.59	22.36	42.60	16.40	0.30	1.17	697	2706
31-Jul	08:09	36.50	21.45	42.60	15.92	-0.37	0.79	-859	1846
02-Aug	08:09	36.40	21.73	41.85	16.13	-0.09	0.70	-209	1637
04-Aug	08:06	36.30	21.59	41.90	16.77	0.11	0.82	261	1899
05-Aug	08:02	36.82	21.70	42.15	16.44	0.14	0.95	319	2218
13-Aug	08:14	37.15	22.75	42.60	16.23	0.41	1.36	941	3159

FIGURE 1-1
TEST PAD NO. 1, SDRI NO. 1
CUMULATIVE VOLUME VERSUS TIME



TEST PAD NO. 1 - LANE 2

Initial Soil Conditions:

Water Content, w (%) = 19.3

Dry Unit Weight, γ_d (pcf) = 107.2

Specific Gravity, G_s = 2.7

Va/V = 0.032

$$\frac{V_a}{V} = 1 - \left(\frac{\gamma_d}{62.4}\right)\left(\frac{1}{G_s} + w\right)$$

Inner Ring dimensions: 5 ft by 5 ft

Outer Ring dimensions: 12 ft by 12 ft

Test Fill Thickness: 3 ft

Date On	Date Off	Initial Time	Final Time	Time Interval t (s)	Initial Weight of Bags (g)	Final Weight of Bags (g)	V_b (ml)	ΣV_b (ml)	Rate of Flow (ml/s)	Infiltration Rate (cm/s)	Time Bags Off (s)	Bags Off Q (ml)	Cum Q (ml)
27-Jun	27-Jun	15:17	17:27	7800	5418	5271	147	147	0.019				147
28-Jun	29-Jun	08:10	07:23	83580	5271	4862	409	556	0.005	2.11E-07	52980	629	1185
29-Jun	30-Jun	09:20	07:18	79080	4862	4535	327	883	0.004	1.78E-07	7020	32	1544
30-Jun	01-Jul	07:46	07:52	86760	6813	6384	429	1312	0.005	2.13E-07	1680	8	1980
01-Jul	02-Jul	08:30	07:26	82560	6384	6102	282	1594	0.003	1.47E-07	2280	10	2272
02-Jul	03-Jul	08:11	07:12	82860	6102	5878	224	1818	0.003	1.16E-07	2700	8	2504
03-Jul	04-Jul	08:05	07:32	84420	5878	5589	289	2107	0.003	1.47E-07	3180	10	2803
04-Jul	05-Jul	09:05	07:46	81660	5589	5358	231	2338	0.003	1.22E-07	5580	17	3051
05-Jul	06-Jul	08:50	07:28	81480	5358	5145	213	2551	0.003	1.13E-07	3840	10	3275
06-Jul	07-Jul	08:21	07:59	85080	5145	4942	203	2754	0.002	1.03E-07	3180	8	3486
07-Jul	08-Jul	08:46	07:48	82920	4942	4790	152	2906	0.002	7.89E-08	2820	6	3644
08-Jul	09-Jul	08:48	07:28	81600	4790	4622	168	3074	0.002	8.86E-08	3600	7	3819
09-Jul	10-Jul	08:37	07:26	82140	4622	4415	207	3281	0.003	1.09E-07	4140	9	4035
10-Jul	11-Jul	08:33	07:26	82380	7284	6884	400	3681	0.005	2.09E-07	4020	15	4450
11-Jul	12-Jul	08:14	07:38	84240	6884	6553	331	4012	0.004	1.69E-07	2880	13	4793
12-Jul	14-Jul	08:53	07:22	167340	3194	2906	288	4300	0.002	7.41E-08	4500	13	5094
14-Jul	15-Jul	07:54	07:31	85020	2906	2807	99	4399	0.001	5.01E-08	1920	3	5196
15-Jul	16-Jul	08:08	07:28	84000	2807	2667	140	4539	0.002	7.18E-08	2220	3	5339
16-Jul	17-Jul	08:06	07:53	85620	2667	2474	193	4732	0.002	9.71E-08	2280	4	5537
17-Jul	18-Jul	09:29	08:04	81300	3203	3056	147	4879	0.002	7.78E-08	5760	12	5695
18-Jul	20-Jul	09:36	08:30	168840	3056	2845	211	5090	0.001	5.38E-08	5520	8	5915
20-Jul	21-Jul	08:32	07:52	84000	3115	3054	61	5151	0.001	3.13E-08	120	0	5976
21-Jul	22-Jul	07:53	08:35	88920	2845	2750	95	5246	0.001	4.60E-08	60	0	6071
22-Jul	23-Jul	08:38	08:11	84780	3054	2438	616	5862	0.007	3.13E-07	180	1	6688
23-Jul	24-Jul	08:12	08:02	85800	2750	2599	151	6013	0.002	7.58E-08	60	0	6839
24-Jul	25-Jul	08:03	08:25	87720	2438	2632	-194	5819	-0.002	-9.52E-08	60	0	6645
25-Jul	26-Jul	08:26	08:15	85740	3288	3165	123	5942	0.001	6.18E-08	60	0	6768
26-Jul	27-Jul	08:17	08:13	86160	2902	2665	237	6179	0.003	1.18E-07	120	0	7005
27-Jul	29-Jul	08:14	08:13	172740	3165	2959	206	6385	0.001	5.13E-08	60	0	7211
29-Jul	30-Jul	08:42	08:41	86340	3050	2971	79	6464	0.001	3.94E-08	1740	2	7292
30-Jul	31-Jul	08:29	08:28	86340	2959	2916	43	6507	0.000	2.14E-08	-720	-1	7335
31-Jul	02-Aug	08:15	08:13	172680	2971	2783	188	6695	0.001	4.69E-08	-780	-1	7522
02-Aug	04-Aug	08:17	08:10	172380	2916	2581	335	7030	0.002	8.37E-08	240	0	7857
04-Aug	05-Aug	08:11	08:06	86100	2783	2674	109	7139	0.001	5.45E-08	60	0	7966
05-Aug	13-Aug	08:10	07:58	690480	6708	6041	667	7806	0.001	4.16E-08	240	0	8634

TEST PAD NO. 1 - LANE 2

Curve fitting parameters for smoothed Q Cum:

x2	-2.9061
x1	296.82
x0	793.45

Average Water Depth (ft)	Depth of Wetting Front d (ft)	Gradient I (dimless)	Unsmoothed Hydraulic Conductivity K (cm/s)	No. of Days Elapsed	Smoothed Q Cum (ml	Delta Q Cum (ml)	Smoothed Depth of Wetting Front d (ft)	Smoothed Gradient I (dimless)	Smoothed Hydraulic Conductivity K (cm/s)
0.89	0.01	138.1	5.88E-09	0.1	820	820	0.04	25.6	1.77E-07
0.87	0.05	17.6	7.32E-09	1.7	1281	461	0.06	16.4	8.88E-09
0.83	0.07	13.2	1.24E-08	2.7	1564	283	0.07	13.0	1.09E-08
0.89	0.09	11.2	1.87E-08	3.7	1849	285	0.08	11.9	1.17E-08
0.89	0.10	9.9	1.45E-08	4.7	2117	268	0.09	10.5	1.29E-08
0.89	0.11	9.0	1.25E-08	5.7	2381	264	0.10	9.5	1.41E-08
0.89	0.12	8.2	1.73E-08	6.7	2646	265	0.12	8.6	1.51E-08
0.89	0.13	7.6	1.50E-08	7.7	2903	258	0.13	7.9	1.60E-08
0.89	0.14	7.2	1.50E-08	8.7	3149	246	0.14	7.4	1.68E-08
0.89	0.15	6.8	1.46E-08	9.7	3398	249	0.15	6.9	1.75E-08
0.88	0.16	6.5	1.17E-08	10.7	3634	236	0.16	6.5	1.82E-08
0.86	0.17	6.1	1.39E-08	11.7	3863	229	0.17	6.1	1.91E-08
0.91	0.18	6.1	1.69E-08	12.7	4088	226	0.18	6.0	1.86E-08
0.91	0.20	5.6	3.54E-08	13.7	4309	220	0.19	5.8	1.90E-08
0.91	0.21	5.3	3.08E-08	14.7	4525	216	0.20	5.6	1.92E-08
0.90	0.22	5.0	1.44E-08	16.7	4934	409	0.22	5.1	2.00E-08
0.91	0.23	5.0	9.87E-09	17.7	5132	198	0.23	5.0	1.96E-08
0.94	0.23	5.0	1.39E-08	18.7	5323	191	0.23	5.0	1.89E-08
0.94	0.24	4.9	1.94E-08	19.7	5511	189	0.24	4.9	1.89E-08
0.89	0.25	4.5	1.60E-08	20.7	5692	181	0.25	4.5	1.97E-08
0.89	0.26	4.4	1.18E-08	22.7	6037	344	0.27	4.3	1.96E-08
0.90	0.26	4.4	7.04E-09	23.7	6194	158	0.27	4.3	1.87E-08
0.90	0.27	4.4	1.05E-08	24.7	6355	161	0.28	4.2	1.84E-08
0.89	0.29	4.0	7.78E-08	25.7	6503	148	0.29	4.1	1.83E-08
0.89	0.30	3.9	1.92E-08	26.7	6647	144	0.29	4.0	1.79E-08
0.89	0.29	4.0	-2.36E-08	27.7	6787	141	0.30	4.0	1.74E-08
0.89	0.30	4.0	1.55E-08	28.7	6919	132	0.30	3.9	1.69E-08
0.89	0.31	3.9	3.05E-08	29.7	7046	127	0.31	3.9	1.64E-08
0.89	0.32	3.8	1.35E-08	31.7	7283	237	0.32	3.8	1.57E-08
0.89	0.32	3.8	1.03E-08	32.7	7395	112	0.32	3.7	1.47E-08
0.89	0.32	3.7	5.77E-09	33.7	7497	103	0.33	3.7	1.40E-08
0.90	0.33	3.7	1.26E-08	35.7	7687	189	0.34	3.7	1.29E-08
0.90	0.35	3.6	2.32E-08	37.7	7853	167	0.34	3.6	1.16E-08
0.90	0.35	3.6	1.52E-08	38.7	7928	75	0.35	3.6	1.04E-08
0.90	0.38	3.4	1.24E-08	46.7	8317	388	0.37	3.5	7.00E-09

TEST PAD NO. 1 - LANE 2

VOLUME DUE TO TEMPERATURE CHANGE

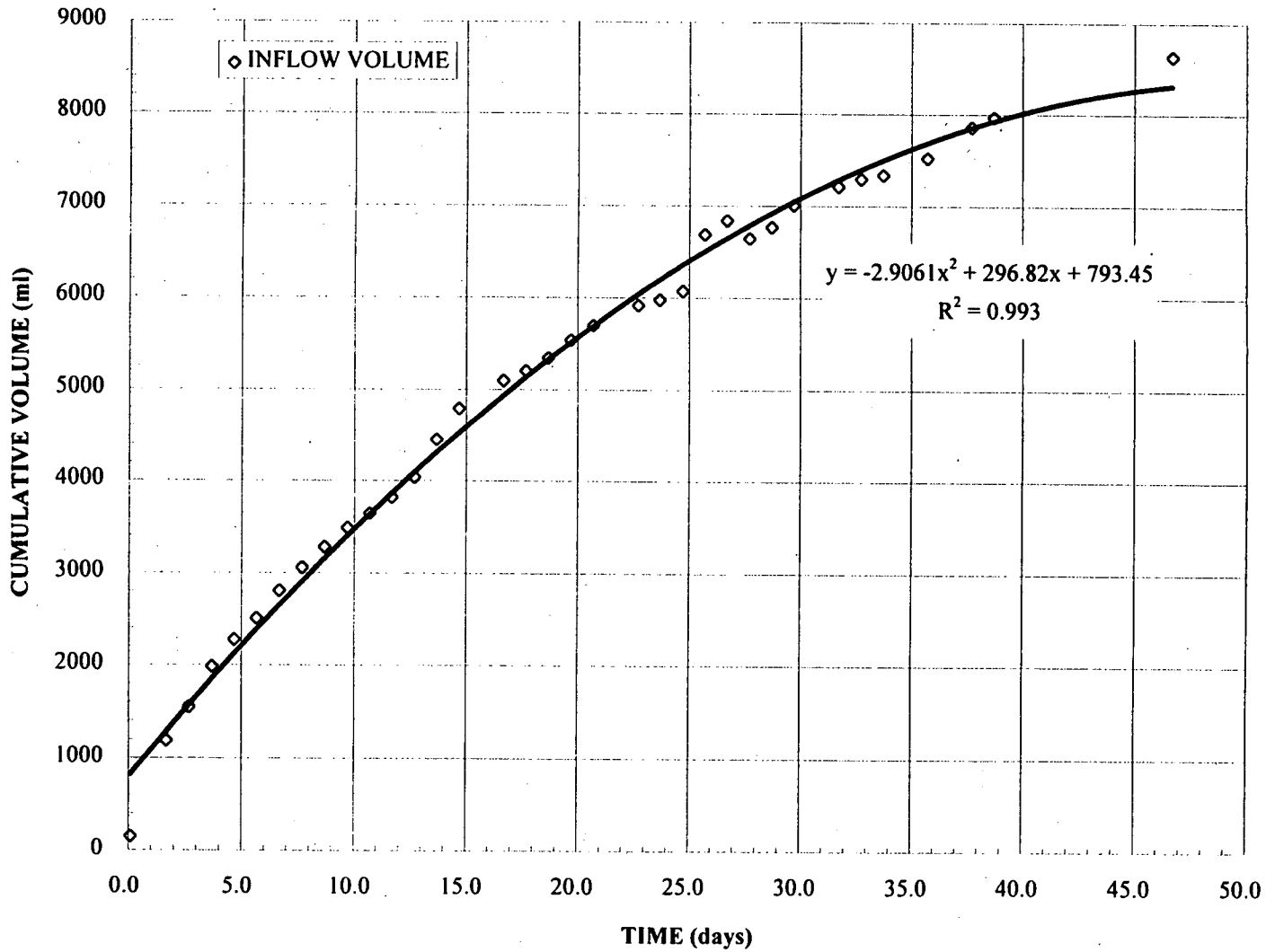
Initial Date	Final Date	Initial Time	Final Time	Initial Temp (F)	End Temp (F)	Cum Temp Q (ml)	Temp Q (ml)
27-Jun	27-Jun	15:17	17:27	85	85	0.00	0.00
28-Jun	29-Jun	08:10	07:23	77	77	0.00	0.00
29-Jun	30-Jun	09:20	07:18	77	78	-16.70	-16.70
30-Jun	01-Jul	07:46	07:52	78	77	0.00	16.70
01-Jul	02-Jul	08:30	07:26	77	79	-33.40	-33.40
02-Jul	03-Jul	08:11	07:12	79	79	-33.40	0.00
03-Jul	04-Jul	08:05	07:32	79	75	33.40	66.80
04-Jul	05-Jul	09:05	07:46	75	75	33.40	0.00
05-Jul	06-Jul	08:50	07:28	75	75	33.40	0.00
06-Jul	07-Jul	08:21	07:59	75	75	33.40	0.00
07-Jul	08-Jul	08:46	07:48	75	76	16.70	-16.70
08-Jul	09-Jul	08:48	07:28	76	76	16.70	0.00
09-Jul	10-Jul	08:37	07:26	76	75	33.40	16.70
10-Jul	11-Jul	08:33	07:26	75	74	50.10	16.70
11-Jul	12-Jul	08:14	07:38	74	74	50.10	0.00
12-Jul	14-Jul	08:53	07:22	74	74	50.10	0.00
14-Jul	15-Jul	07:54	07:31	74	76	16.70	-33.40
15-Jul	16-Jul	08:08	07:28	76	76	16.70	0.00
16-Jul	17-Jul	08:06	07:53	76	75	33.40	16.70
17-Jul	18-Jul	09:29	08:04	75	75	33.40	0.00
18-Jul	20-Jul	09:36	08:30	75	76	16.70	-16.70
20-Jul	21-Jul	08:32	07:52	76	76	16.70	0.00
21-Jul	22-Jul	07:53	08:35	76	74	50.10	33.40
22-Jul	23-Jul	08:38	08:11	74	72	83.50	33.40
23-Jul	24-Jul	08:12	08:02	72	72	83.50	0.00
24-Jul	25-Jul	08:03	08:25	72	73	66.80	-16.70
25-Jul	26-Jul	08:26	08:15	73	74	50.10	-16.70
26-Jul	27-Jul	08:17	08:13	74	73	66.80	16.70
27-Jul	29-Jul	08:14	08:13	73	73	66.80	0.00
29-Jul	30-Jul	08:42	08:41	73	75	33.40	-33.40
30-Jul	31-Jul	08:29	08:28	75	74	50.10	16.70
31-Jul	02-Aug	08:15	08:13	74	73	66.80	16.70
02-Aug	04-Aug	08:17	08:10	73	72	83.50	16.70
04-Aug	05-Aug	08:11	08:06	72	75	33.40	-50.10
05-Aug	13-Aug	08:10	07:58	75	76	16.70	-16.70

TEST PAD NO. 1 - LANE 2

FLOW INTO INNER RING DUE TO VERTICAL MOVEMENT

Date	Time	S1 Corner 1 (mm)	S2 Corner 2 (mm)	S3 Corner 3 (mm)	S4 Corner 4 (mm)	Avg Delta (mm)	Cum Delta (mm)	Volume Due to Movement Qs (ml)	Cum Volume Due to Movement Qs,cum (ml)
27-Jun	15:17	30.39	11.89	40.61	6.80				0
28-Jun	08:10	29.89	12.49	40.48	6.76	-0.02	-0.02	-41	-41
29-Jun	08:32	30.70	10.01	40.50	6.72	-0.42	-0.44	-981	-1022
30-Jun	07:22	30.45	11.71	39.98	6.41	0.16	-0.29	360	-662
01-Jul	07:29	30.76	11.25	40.60	5.19	-0.19	-0.47	-435	-1097
02-Jul	07:17	30.04	13.01	40.69	7.18	0.78	0.31	1812	714
03-Jul	07:16	30.32	12.89	40.78	6.99	0.02	0.32	35	749
04-Jul	07:52	30.49	12.33	40.10	7.71	-0.09	0.24	-203	546
05-Jul	09:11	29.50	12.18	37.20	5.89	-1.47	-1.23	-3403	-2857
06-Jul	08:48	30.69	10.22	39.81	3.50	-0.14	-1.37	-319	-3176
07-Jul	09:02	31.85	9.81	41.08	7.34	1.47	0.10	3403	226
08-Jul	09:17	31.46	13.50	40.07	7.15	0.53	0.62	1219	1446
09-Jul	07:41	31.30	12.70	40.75	6.78	-0.16	0.46	-377	1068
10-Jul	07:42	30.54	12.52	39.42	6.81	-0.56	-0.10	-1301	-232
11-Jul	07:42	30.62	12.19	38.66	7.08	-0.19	-0.29	-430	-662
12-Jul	07:53	30.51	12.15	38.16	6.11	-0.41	-0.69	-941	-1603
14-Jul	07:35	31.11	11.72	39.99	7.50	0.85	0.16	1968	366
15-Jul	07:52	30.00	12.19	38.29	7.71	-0.53	-0.38	-1237	-871
16-Jul	07:55	31.85	13.16	37.55	7.42	0.45	0.07	1039	168
17-Jul	09:01	30.65	12.65	41.60	7.62	0.64	0.71	1475	1643
18-Jan	09:28	30.78	13.76	41.37	7.73	0.28	0.99	650	2294
20-Jul	08:54	31.27	12.51	42.05	7.69	-0.03	0.96	-70	2224
21-Jul	07:58	30.57	13.04	40.81	7.88	-0.30	0.65	-708	1515
22-Jul	08:43	29.65	11.34	41.32	7.82	-0.54	0.11	-1260	255
23-Jul	08:17	30.50	12.75	41.35	7.73	0.55	0.66	1277	1533
24-Jul	08:06	30.70	11.81	39.21	7.25	-0.84	-0.18	-1951	-418
25-Jul	08:34	32.25	11.80	41.72	7.74	1.14	0.96	2636	2218
26-Jul	08:21	31.95	12.62	40.13	6.92	-0.47	0.48	-1097	1121
27-Jul	08:16	31.54	12.35	41.88	7.64	0.45	0.93	1039	2160
29-Jul	08:44	32.43	12.31	41.58	7.25	0.04	0.97	93	2253
30-Jul	08:31	32.96	12.62	42.85	7.48	0.59	1.56	1359	3612
31-Jul	08:21	32.85	12.43	40.40	7.65	-0.65	0.91	-1498	2114
02-Aug	08:21	32.55	12.91	42.10	7.65	0.47	1.38	1092	3205
04-Aug	08:15	32.48	12.83	42.53	7.38	0.00	1.38	6	3211
05-Aug	08:13	32.60	12.11	42.29	7.84	-0.09	1.29	-221	2990
13-Aug	08:19	32.95	13.11	40.82	7.65	-0.08	1.21	-180	2810

FIGURE 1-3
TEST PAD NO. 1, SDRI NO. 2
CUMULATIVE VOLUME VERSUS TIME



TEST PAD NO. 2 - LANE 1

Initial Soil Conditions:

Water Content, w (%) = 12.7

Dry Unit Weight, γ_d (pcf) = 123.2

Specific Gravity, G_s = 2.7

Va/V = 0.018

$$\frac{V_a}{V} = 1 - \left(\frac{\gamma_d}{62.4}\right)\left(\frac{1}{G_s} + w\right)$$

Inner Ring dimensions: 5 ft by 5 ft

Outer Ring dimensions: 12 ft by 12 ft

Test Fill Thickness: 3 ft

Date On	Date Off	Initial Time	Final Time	Time Interval t (s)	Initial Weight of Bags (g)	Final Weight of Bags (g)	V_b (ml)	ΣV_b (ml)	Rate of Flow (ml/s)	Infiltration Rate (cm/s)	Time Bags Off (s)	Bags Off Q (ml)	Cum Q (ml)
04-Jul	04-Jul	08:39	17:10	30660	7033	6682	351	351	0.011	4.93E-07			351
05-Jul	06-Jul	08:59	07:23	80640	6682	6200	482	833	0.006	2.57E-07	56940	496	1329
06-Jul	07-Jul	08:24	07:54	84600	6200	5821	379	1212	0.004	1.93E-07	3660	19	1727
07-Jul	08-Jul	08:42	07:46	83040	5821	5533	288	1500	0.003	1.49E-07	2880	11	2027
08-Jul	09-Jul	08:52	07:30	81480	5533	5243	290	1790	0.004	1.53E-07	3960	14	2331
09-Jul	10-Jul	08:42	07:24	81720	5243	4943	300	2090	0.004	1.58E-07	4320	16	2646
10-Jul	11-Jul	08:04	07:21	83820	4943	4668	275	2365	0.003	1.41E-07	2400	8	2930
11-Jul	12-Jul	08:10	07:33	84180	4668	4262	406	2771	0.005	2.08E-07	2940	12	3347
12-Jul	14-Jul	08:46	07:24	167880	3206	2803	403	3174	0.002	1.03E-07	4380	16	3766
14-Jul	15-Jul	07:49	07:27	85080	2803	2658	145	3319	0.002	7.34E-08	1500	3	3914
15-Jul	16-Jul	08:05	07:23	83880	2658	2464	194	3513	0.002	9.96E-08	2280	5	4113
16-Jul	17-Jul	08:01	07:50	85740	2464	2252	212	3725	0.002	1.06E-07	2280	5	4330
17-Jul	18-Jul	09:26	08:11	81900	3033	2876	157	3882	0.002	8.25E-08	5760	13	4500
18-Jul	20-Jul	09:09	08:22	169980	2876	2625	251	4133	0.001	6.36E-08	3480	6	4757
20-Jul	21-Jul	08:23	08:03	85200	2803	2715	88	4221	0.001	4.45E-08	60	0	4845
21-Jul	22-Jul	08:05	08:54	89340	2625	2524	101	4322	0.001	4.87E-08	120	0	4946
22-Jul	23-Jul	08:56	08:24	84480	2715	2634	81	4403	0.001	4.13E-08	120	0	5027
23-Jul	24-Jul	08:25	08:12	85620	2524	2350	174	4577	0.002	8.75E-08	60	0	5201
24-Jul	25-Jul	08:13	08:38	87900	2634	2306	328	4905	0.004	1.61E-07	60	0	5530
25-Jul	26-Jul	08:39	08:25	85560	3062	2915	147	5052	0.002	7.40E-08	60	0	5677
26-Jul	27-Jul	08:27	08:24	86220	2306	1981	325	5377	0.004	1.62E-07	120	0	6002
27-Jul	29-Jul	08:25	08:49	174240	2969	2716	253	5630	0.001	6.25E-08	60	0	6255
29-Jul	30-Jul	08:50	08:44	86040	3281	3201	80	5710	0.001	4.00E-08	60	0	6335
30-Jul	31-Jul	08:45	08:28	85380	2716	2653	63	5773	0.001	3.18E-08	60	0	6398
31-Jul	02-Aug	08:29	08:25	172560	3201	2987	214	5987	0.001	5.34E-08	60	0	6612
02-Aug	04-Aug	08:27	08:19	172320	2653	2200	453	6440	0.003	1.13E-07	120	0	7066
04-Aug	05-Aug	08:20	08:23	86580	2987	2852	135	6575	0.002	6.71E-08	60	0	7201
05-Aug	13-Aug	08:26	08:08	690120	6909	6199	710	7285	0.001	4.43E-08	180	0	7911

TEST PAD NO. 2 - LANE 1

Curve fitting parameters for smoothed Q Cum:

x2	-2.9526
x1	288.37
x0	896.49

Average Water Depth (ft)	Depth of Wetting Front d (ft)	Gradient I (dimless)	Unsmoothed Hydraulic Conductivity K (cm/s)	No. of Days Elapsed	Smoothed Q Cum (ml)	Delta Q Cum (ml)	Smoothed Depth of Wetting Front d (ft)	Smoothed Gradient I (dimless)	Smoothed Hydraulic Conductivity K (cm/s)
1.02	0.03	38.1	1.30E-08	0.4	998	998	0.08	14.0	1.00E-07
1.02	0.10	10.8	1.40E-08	1.9	1447	448	0.11	10.0	1.40E-08
1.02	0.14	8.5	2.17E-08	3.0	1727	280	0.14	8.5	1.60E-08
1.00	0.16	7.3	1.98E-08	4.0	1993	266	0.16	7.4	1.80E-08
1.04	0.18	6.7	2.18E-08	5.0	2252	259	0.18	6.9	1.90E-08
1.05	0.21	6.1	2.48E-08	5.9	2507	255	0.20	6.3	2.01E-08
1.05	0.23	5.6	2.47E-08	6.9	2757	250	0.22	5.9	2.13E-08
1.05	0.26	5.0	4.01E-08	8.0	3003	246	0.24	5.5	2.23E-08
1.04	0.30	4.5	2.23E-08	9.9	3473	470	0.27	4.8	2.44E-08
1.03	0.31	4.4	1.66E-08	11.0	3700	227	0.29	4.5	2.48E-08
1.08	0.32	4.3	2.23E-08	11.9	3920	220	0.31	4.5	2.44E-08
1.08	0.34	4.2	2.48E-08	13.0	4139	219	0.32	4.3	2.47E-08
1.02	0.35	3.9	1.98E-08	14.0	4351	212	0.34	4.0	2.61E-08
1.02	0.37	3.7	1.67E-08	16.0	4752	401	0.37	3.7	2.67E-08
1.04	0.38	3.7	1.19E-08	17.0	4941	189	0.39	3.7	2.58E-08
1.04	0.39	3.7	1.32E-08	18.0	5132	192	0.40	3.6	2.57E-08
1.02	0.39	3.6	1.15E-08	19.0	5308	175	0.42	3.5	2.59E-08
1.02	0.41	3.5	2.50E-08	20.0	5480	172	0.43	3.4	2.56E-08
1.02	0.43	3.4	4.79E-08	21.0	5650	170	0.44	3.3	2.53E-08
1.04	0.45	3.3	2.22E-08	22.0	5810	160	0.46	3.3	2.45E-08
1.04	0.47	3.2	5.05E-08	23.0	5965	155	0.47	3.2	2.41E-08
1.04	0.49	3.1	2.00E-08	25.0	6261	296	0.49	3.1	2.34E-08
1.03	0.50	3.1	1.30E-08	26.0	6399	137	0.50	3.1	2.25E-08
1.02	0.50	3.0	1.05E-08	27.0	6529	130	0.51	3.0	2.20E-08
1.04	0.52	3.0	1.78E-08	29.0	6775	246	0.53	3.0	2.07E-08
1.04	0.55	2.9	3.93E-08	31.0	6997	222	0.55	2.9	1.92E-08
1.04	0.56	2.8	2.36E-08	32.0	7100	103	0.56	2.9	1.78E-08
1.03	0.62	2.7	1.66E-08	40.0	7706	605	0.60	2.7	1.40E-08

TEST PAD NO. 2 - LANE 1

VOLUME DUE TO TEMPERATURE CHANGE

Initial Date	Final Date	Initial Time	Final Time	Initial Temp (F)	End Temp (F)	Cum Temp Q (ml)	Temp Q (ml)
04-Jul	04-Jul	08:39	17:10	78	78	0.00	0.00
05-Jul	06-Jul	08:59	07:23	78	78	0.00	0.00
06-Jul	07-Jul	08:24	07:54	78	78	0.00	0.00
07-Jul	08-Jul	08:42	07:46	78	78	0.00	0.00
08-Jul	09-Jul	08:52	07:30	78	78	0.00	0.00
09-Jul	10-Jul	08:42	07:24	78	78	0.00	0.00
10-Jul	11-Jul	08:04	07:21	78	77	16.70	16.70
11-Jul	12-Jul	08:10	07:33	77	76	33.40	16.70
12-Jul	14-Jul	08:46	07:24	76	77	16.70	-16.70
14-Jul	15-Jul	07:49	07:27	77	78	0.00	-16.70
15-Jul	16-Jul	08:05	07:23	78	77	16.70	16.70
16-Jul	17-Jul	08:01	07:50	77	78	0.00	-16.70
17-Jul	18-Jul	09:26	08:11	78	77	16.70	16.70
18-Jul	20-Jul	09:09	08:22	77	78	0.00	-16.70
20-Jul	21-Jul	08:23	08:03	78	78	0.00	0.00
21-Jul	22-Jul	08:05	08:54	78	77	16.70	16.70
22-Jul	23-Jul	08:56	08:24	77	74	66.80	50.10
23-Jul	24-Jul	08:25	08:12	74	74	66.80	0.00
24-Jul	25-Jul	08:13	08:38	74	75	50.10	-16.70
25-Jul	26-Jul	08:39	08:25	75	75	50.10	0.00
26-Jul	27-Jul	08:27	08:24	75	75	50.10	0.00
27-Jul	29-Jul	08:25	08:49	75	75	50.10	0.00
29-Jul	30-Jul	08:50	08:44	75	76	33.40	-16.70
30-Jul	31-Jul	08:45	08:28	76	76	33.40	0.00
31-Jul	02-Aug	08:29	08:25	76	75	50.10	16.70
02-Aug	04-Aug	08:27	08:19	75	75	50.10	0.00
04-Aug	05-Aug	08:20	08:23	75	76	33.40	-16.70
05-Aug	13-Aug	08:26	08:08	76	77	16.70	-16.70

*******	09-Jul	08:00	55.25	22.99	56.30	17.72

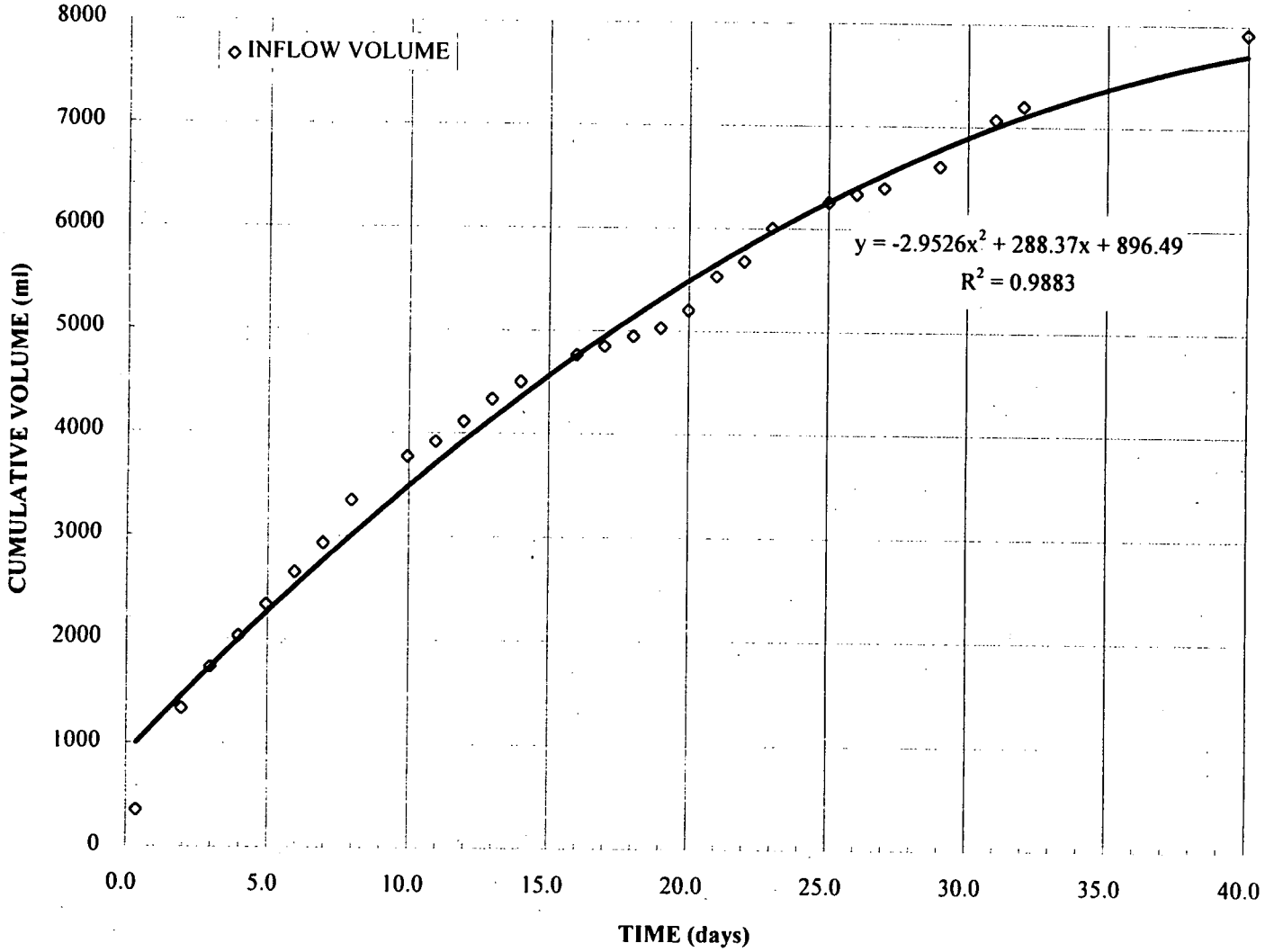
TEST PAD NO. 2 - LANE 1

FLOW INTO INNER RING DUE TO VERTICAL MOVEMENT

	Date	Time	S1 Corner 1 (mm)	S2 Corner 2 (mm)	S3 Corner 3 (mm)	S4 Corner 4 (mm)	Avg Delta (mm)	Cum Delta (mm)
	04-Jul	08:17	35.72	5.75	38.59	1.75		
	05-Jul	09:12	36.95	4.61	39.50	2.45	0.43	0.43
	06-Jul	08:52	37.25	6.15	40.98	1.85	0.68	1.11
	07-Jul	09:13	37.92	6.48	38.26	1.89	-0.42	0.68
	08-Jul	09:24	38.28	6.56	40.49	1.91	0.67	1.36
	09-Jul	07:47	37.38	5.75	39.36	1.91	-0.71	0.65
*****	10-Jul	07:50	54.95	23.50	56.75	18.76	0.43	1.07
	11-Jul	07:49	54.81	23.15	56.99	17.60	-0.35	0.72
	12-Jul	08:00	54.69	22.68	54.28	17.71	-0.80	-0.08
	14-Jul	07:42	54.89	23.90	57.00	17.92	1.09	1.01
	15-Jul	08:01	54.99	23.71	55.19	17.60	-0.56	0.46
	16-Jul	08:03	55.19	23.34	56.95	17.58	0.39	0.85
	17-Jul	08:50	55.89	24.40	59.34	19.04	1.40	2.25
	18-Jul	08:53	56.31	24.41	58.80	18.54	-0.15	2.10
	20-Jul	08:57	55.82	23.23	59.12	18.00	-0.47	1.63
	21-Jul	08:09	55.60	23.72	56.99	18.62	-0.31	1.32
	22-Jul	09:03	55.60	22.82	56.82	18.60	-0.27	1.04
	23-Jul	08:28	55.40	23.07	57.71	19.39	0.43	1.48
	24-Jul	08:16	55.95	23.26	58.39	19.39	0.36	1.83
	25-Jul	08:43	55.97	23.10	58.92	18.49	-0.13	1.70
	26-Jul	08:34	56.10	23.46	57.95	18.45	-0.13	1.57
	27-Jul	08:27	56.29	21.99	57.26	18.48	-0.49	1.09
	29-Jul	08:53	55.75	23.01	58.98	17.92	0.41	1.50
	30-Jul	08:47	56.02	22.93	59.11	19.41	0.45	1.95
	31-Jul	08:33	56.01	21.13	58.28	18.08	-0.99	0.96
	02-Aug	08:32	56.84	22.90	58.41	18.49	0.79	1.74
	04-Aug	08:23	55.95	22.95	59.85	18.92	0.26	2.00
	05-Aug	08:29	55.85	22.87	57.65	18.60	-0.68	1.33
	13-Aug	08:24	56.22	23.26	56.78	18.48	-0.06	1.27

***** RESET CALIPER

FIGURE 2-1
TEST PAD NO. 2, SDRI NO. 1
CUMULATIVE VOLUME VERSUS TIME



TEST PAD NO. 2 - LANE 2

Initial Soil Conditions:

Water Content, w (%) = 13.5

Dry Unit Weight, γ_d (pcf) = 121.2

Specific Gravity, G_s = 2.7

Va/V = 0.018

$$\frac{V_a}{V} = 1 - \left(\frac{\gamma_d}{62.4}\right)\left(\frac{1}{G_s} + w\right)$$

Inner Ring dimensions: 5 ft by 5 ft

Outer Ring dimensions: 12 ft by 12 ft

Test Fill Thickness: 3 ft

Date On	Date Off	Initial Time	Final Time	Time Interval t (s)	Initial Weight of Bags (g)	Final Weight of Bags (g)	V_b (ml)	ΣV_b (ml)	Rate of Flow (ml/s)	Infiltration Rate (cm/s)	Time Bags Off (s)	Bags Off Q (ml)	Cum Q (ml)
04-Jul	04-Jul	08:41	17:07	30360	6560	6224	336	336	0.011	4.77E-07			336
05-Jul	06-Jul	08:55	07:20	80700	6224	5761	463	799	0.006	2.47E-07	56880	478	1277
06-Jul	07-Jul	08:26	07:52	84360	5761	5394	367	1166	0.004	1.87E-07	3960	20	1664
07-Jul	08-Jul	08:48	07:44	82560	5394	5128	266	1432	0.003	1.39E-07	3360	13	1943
08-Jul	09-Jul	08:56	07:31	81300	5128	4892	236	1668	0.003	1.25E-07	4320	13	2192
09-Jul	10-Jul	08:45	07:23	81480	4892	4648	244	1912	0.003	1.29E-07	4440	13	2449
10-Jul	11-Jul	08:02	07:20	83880	4648	4371	277	2189	0.003	1.42E-07	2340	7	2733
11-Jul	12-Jul	08:07	07:30	84180	4371	4025	346	2535	0.004	1.77E-07	2820	10	3090
12-Jul	14-Jul	08:34	07:28	168840	3023	2616	407	2942	0.002	1.04E-07	3840	13	3509
14-Jul	15-Jul	07:47	07:26	85140	2616	2486	130	3072	0.002	6.57E-08	1140	2	3642
15-Jul	16-Jul	08:00	07:17	83820	2486	2486	0	3072	0.000	0.00E+00	2040	2	3643
16-Jul	17-Jul	07:58	07:49	85860	2486	2222	264	3336	0.003	1.32E-07	2460	4	3911
17-Jul	18-Jul	09:21	08:13	82320	2781	2588	193	3529	0.002	1.01E-07	5520	15	4119
18-Jul	20-Jul	09:28	08:17	168540	2588	2338	250	3779	0.001	6.39E-08	4500	9	4377
20-Jul	21-Jul	08:19	08:13	86040	2889	2818	71	3850	0.001	3.55E-08	120	0	4449
21-Jul	22-Jul	08:15	09:08	89580	2338	2273	65	3915	0.001	3.12E-08	120	0	4514
22-Jul	23-Jul	09:11	08:33	84120	2818	2520	298	4213	0.004	1.53E-07	180	0	4812
23-Jul	24-Jul	08:34	08:21	85620	2273	2089	184	4397	0.002	9.25E-08	60	0	4996
24-Jul	25-Jul	08:22	08:50	88080	2520	2360	160	4557	0.002	7.82E-08	60	0	5156
25-Jul	26-Jul	08:51	08:39	85680	3099	2969	130	4687	0.002	6.53E-08	60	0	5286
26-Jul	27-Jul	08:40	08:32	85920	2360	1975	385	5072	0.004	1.93E-07	60	0	5672
27-Jul	29-Jul	08:33	09:00	174420	2915	2633	282	5354	0.002	6.96E-08	60	0	5954
29-Jul	30-Jul	09:01	08:52	85860	3185	3095	90	5444	0.001	4.51E-08	60	0	6044
30-Jul	31-Jul	08:53	08:39	85560	2633	2597	36	5480	0.000	1.81E-08	60	0	6080
31-Jul	02-Aug	08:40	08:35	172500	3095	2883	212	5692	0.001	5.29E-08	60	0	6292
02-Aug	04-Aug	08:37	08:26	172140	2597	2093	504	6196	0.003	1.26E-07	120	0	6796
04-Aug	05-Aug	08:27	08:33	86760	2883	2715	168	6364	0.002	8.34E-08	60	0	6964
05-Aug	13-Aug	08:35	08:12	689820	7160	6199	961	7325	0.001	6.00E-08	120	0	7926

TEST PAD NO. 2 - LANE 2

Curve fitting parameters for smoothed Q Cum:

x2	-1.9866
x1	250.26
x0	903.71

Average Water Depth (ft)	Depth of Wetting Front d (ft)	Gradient I (dimless)	Unsmoothed Hydraulic Conductivity K (cm/s)	No. of Days Elapsed	Smoothed Q Cum (ml	Delta Cum (	Smoothed Depth of Wetting Front d (ft)	Smoothed Gradient I (dimless)	Smoothed Hydraulic Conductivity K (cm/s)
1.05	0.03	41.7	1.14E-08	0.4	991	991	0.08	14.8	9.50E-08
1.05	0.10	11.7	1.24E-08	1.9	1383	391	0.11	10.9	1.12E-08
1.05	0.13	9.2	1.94E-08	3.0	1628	246	0.12	9.4	1.27E-08
1.03	0.15	7.9	1.68E-08	4.0	1864	235	0.14	8.2	1.44E-08
1.07	0.17	7.4	1.61E-08	5.0	2094	230	0.16	7.7	1.51E-08
1.07	0.19	6.7	1.83E-08	5.9	2321	227	0.18	7.0	1.63E-08
1.07	0.21	6.1	2.27E-08	6.9	2546	224	0.20	6.5	1.73E-08
1.07	0.24	5.5	3.11E-08	8.0	2768	222	0.21	6.0	1.82E-08
1.06	0.27	4.9	2.06E-08	9.9	3197	429	0.25	5.3	2.01E-08
1.05	0.28	4.8	1.36E-08	10.9	3405	208	0.26	5.0	2.07E-08
1.11	0.28	5.0	0.00E+00	11.9	3609	204	0.28	5.0	2.04E-08
1.10	0.30	4.7	2.76E-08	13.0	3814	205	0.29	4.8	2.10E-08
1.05	0.32	4.3	2.19E-08	14.0	4014	200	0.31	4.4	2.22E-08
1.05	0.34	4.1	1.51E-08	16.0	4396	382	0.34	4.1	2.31E-08
1.07	0.34	4.1	8.58E-09	17.0	4580	184	0.35	4.0	2.28E-08
1.07	0.35	4.1	7.63E-09	18.0	4768	188	0.37	3.9	2.29E-08
1.05	0.37	3.8	3.96E-08	19.0	4941	172	0.38	3.8	2.34E-08
1.05	0.38	3.7	2.47E-08	20.0	5112	171	0.39	3.7	2.34E-08
1.05	0.40	3.7	2.14E-08	21.0	5284	172	0.41	3.6	2.34E-08
1.08	0.41	3.7	1.78E-08	22.0	5448	164	0.42	3.6	2.29E-08
1.07	0.44	3.5	5.57E-08	23.0	5608	160	0.43	3.5	2.30E-08
1.07	0.46	3.3	2.08E-08	25.0	5921	313	0.45	3.4	2.30E-08
1.07	0.46	3.3	1.36E-08	26.0	6069	148	0.47	3.3	2.25E-08
1.05	0.47	3.3	5.57E-09	27.0	6212	144	0.48	3.2	2.25E-08
1.07	0.48	3.2	1.64E-08	29.0	6490	278	0.50	3.1	2.20E-08
1.07	0.52	3.1	4.13E-08	31.0	6751	261	0.52	3.1	2.13E-08
1.07	0.53	3.0	2.77E-08	32.0	6877	126	0.53	3.0	2.06E-08
1.07	0.61	2.8	2.17E-08	40.0	7734	856	0.59	2.8	1.90E-08

TEST PAD NO. 2 - LANE 2

VOLUME DUE TO TEMPERATURE CHANGE

Initial Date	Final Date	Initial Time	Final Time	Initial Temp (F)	End Temp (F)	Cum Temp Q (ml)	Temp Q (ml)
04-Jul	04-Jul	08:41	17:07	78	78	0.00	0.00
05-Jul	06-Jul	08:55	07:20	78	78	0.00	0.00
06-Jul	07-Jul	08:26	07:52	78	78	0.00	0.00
07-Jul	08-Jul	08:48	07:44	78	79	-16.70	-16.70
08-Jul	09-Jul	08:56	07:31	79	79	-16.70	0.00
09-Jul	10-Jul	08:45	07:23	79	78	0.00	16.70
10-Jul	11-Jul	08:02	07:20	78	77	16.70	16.70
11-Jul	12-Jul	08:07	07:30	77	76	33.40	16.70
12-Jul	14-Jul	08:34	07:28	76	77	16.70	-16.70
14-Jul	15-Jul	07:47	07:26	77	78	0.00	-16.70
15-Jul	16-Jul	08:00	07:17	78	77	16.70	16.70
16-Jul	17-Jul	07:58	07:49	77	78	0.00	-16.70
17-Jul	18-Jul	09:21	08:13	78	78	0.00	0.00
18-Jul	20-Jul	09:28	08:17	78	78	0.00	0.00
20-Jul	21-Jul	08:19	08:13	78	78	0.00	0.00
21-Jul	22-Jul	08:15	09:08	78	77	16.70	16.70
22-Jul	23-Jul	09:11	08:33	77	75	50.10	33.40
23-Jul	24-Jul	08:34	08:21	75	75	50.10	0.00
24-Jul	25-Jul	08:22	08:50	75	75	50.10	0.00
25-Jul	26-Jul	08:51	08:39	75	76	33.40	-16.70
26-Jul	27-Jul	08:40	08:32	76	75	50.10	16.70
27-Jul	29-Jul	08:33	09:00	75	76	33.40	-16.70
29-Jul	30-Jul	09:01	08:52	76	77	16.70	-16.70
30-Jul	31-Jul	08:53	08:39	77	76	33.40	16.70
31-Jul	02-Aug	08:40	08:35	76	75	50.10	16.70
02-Aug	04-Aug	08:37	08:26	75	75	50.10	0.00
04-Aug	05-Aug	08:27	08:33	75	77	16.70	-33.40
05-Aug	13-Aug	08:35	08:12	77	78	0.00	-16.70

TEST PAD NO. 2 - LANE 2

FLOW INTO INNER RING DUE TO VERTICAL MOVEMENT

Date	Time	S1 Corner 1 (mm)	S2 Corner 2 (mm)	S3 Corner 3 (mm)	S4 Corner 4 (mm)	Avg Delta (mm)	Cum Delta (mm)
04-Jul	08:36	51.25	27.95	57.78	31.51		
05-Jul	09:18	52.25	26.27	57.82	32.53	0.09	0.09
06-Jul	08:55	51.91	28.50	58.70	32.09	0.58	0.68
07-Jul	09:08	52.15	28.05	58.65	33.36	0.25	0.93
08-Jul	09:32	51.68	28.45	61.57	31.48	0.24	1.17
09-Jul	07:52	51.36	28.50	60.35	32.50	-0.12	1.06
10-Jul	07:58	50.92	28.55	60.97	32.59	0.08	1.14
11-Jul	07:56	51.56	27.20	60.65	31.80	-0.46	0.68
12-Jul	08:07	51.76	25.99	59.91	31.35	-0.55	0.13
14-Jul	07:48	50.91	28.69	59.09	31.60	0.32	0.45
15-Jul	08:10	52.00	28.22	59.70	32.26	0.47	0.92
16-Jul	08:12	51.00	27.63	60.35	32.40	-0.20	0.72
17-Jul	08:45	51.20	28.68	61.46	32.85	0.70	1.43
18-Jul	09:00	52.70	28.40	61.61	32.90	0.35	1.78
20-Jul	08:59	51.92	28.68	61.04	32.85	-0.28	1.50
21-Jul	08:19	51.70	27.41	61.68	32.84	-0.21	1.29
22-Jul	09:15	51.80	28.08	61.82	32.15	0.05	1.34
23-Jul	08:37	51.79	28.30	60.32	32.85	-0.15	1.19
24-Jul	08:26	52.24	27.00	60.12	33.08	-0.21	0.99
25-Jul	08:55	52.35	28.48	60.01	33.18	0.40	1.38
26-Jul	08:45	51.45	28.60	61.41	31.80	-0.19	1.19
27-Jul	08:35	52.18	33.28	60.75	32.75	1.43	2.62
29-Jul	09:05	51.69	28.50	61.80	32.55	-1.11	1.51
30-Jul	08:58	50.60	28.14	60.90	33.12	-0.44	1.07
31-Jul	08:44	52.11	28.20	60.61	32.92	0.27	1.34
02-Aug	08:41	52.20	28.18	59.60	32.86	-0.25	1.09
04-Aug	08:30	52.90	28.25	60.80	32.92	0.51	1.60
05-Aug	08:41	51.97	27.62	61.16	32.87	-0.31	1.28
13-Aug	08:29	52.08	28.08	58.90	32.86	-0.43	0.86

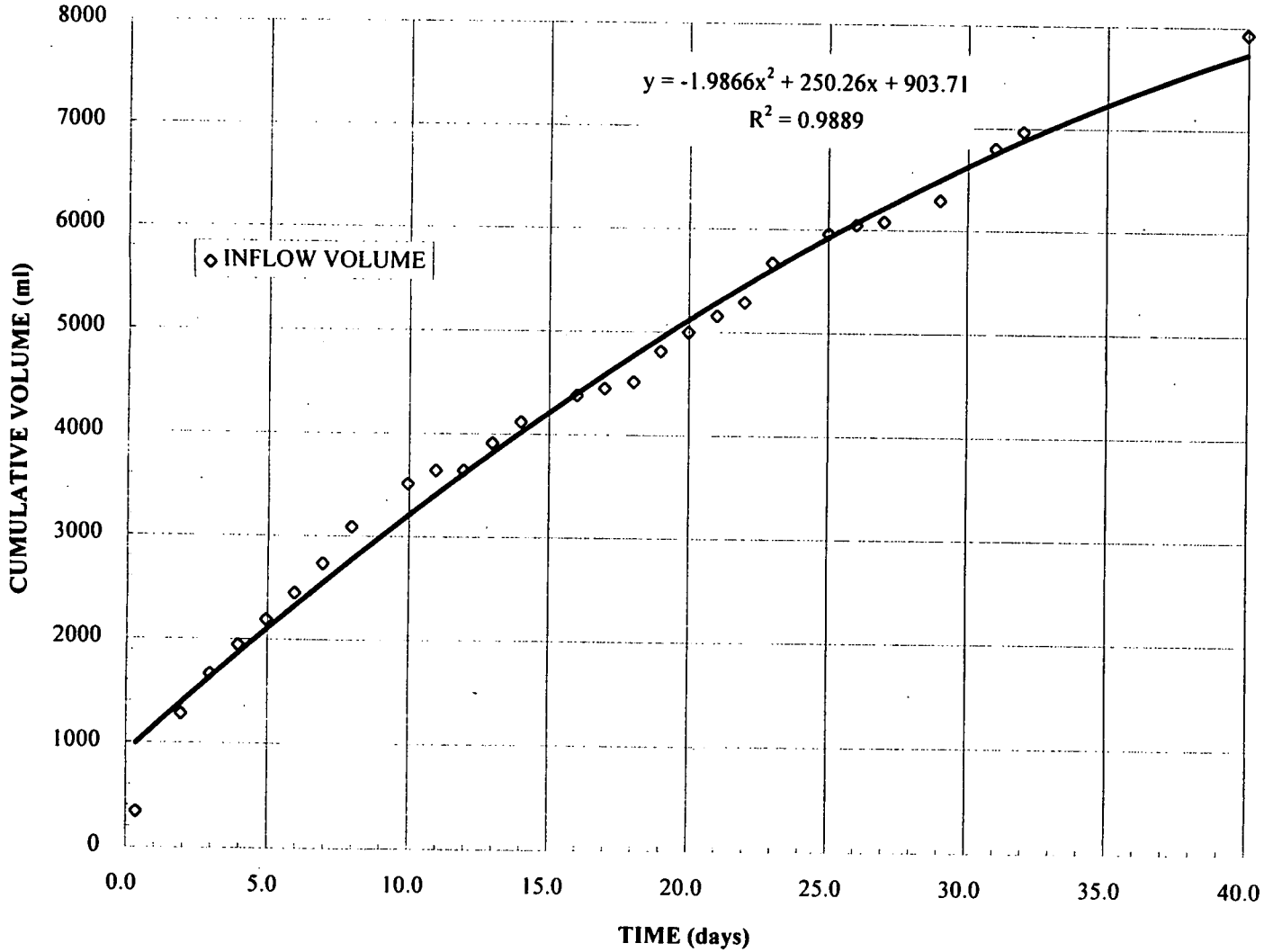



FIGURE 2-3
TEST PAD NO. 2, SDRI NO. 2
CUMULATIVE VOLUME VERSUS TIME