SIAR

TEST REQUEST FORM

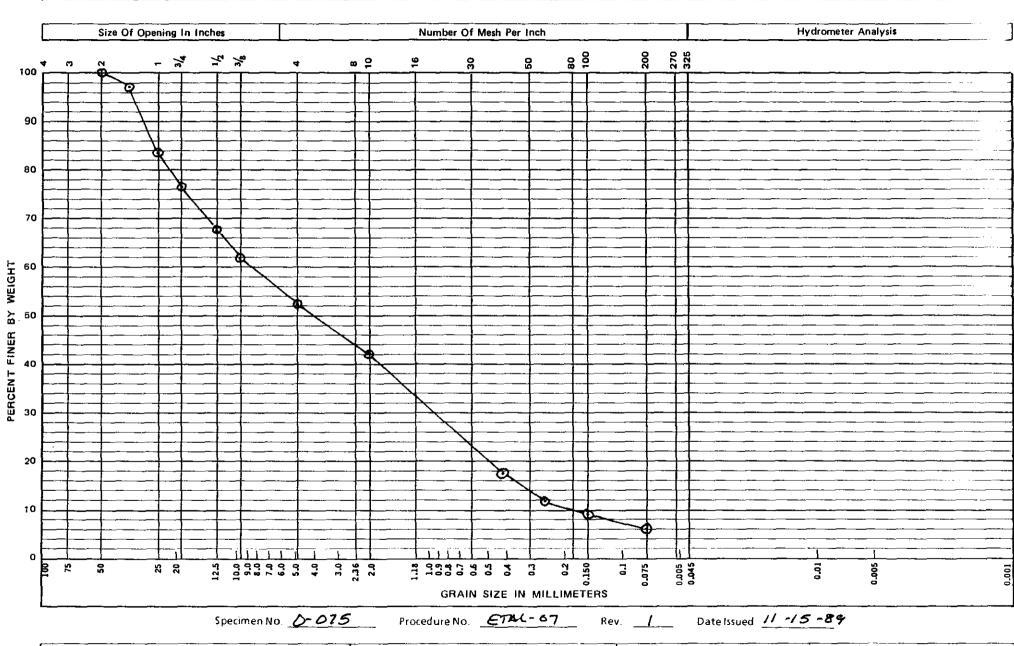
Sample/Specimer	No. <u>0-075</u>	Cost Code/Work Order No. ED 332
Requested By:	0rg. <u>81732</u>	Person J. LINDBERG Date 2-19-90
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIDUE ANALYSIS		ETNL-07
Hydrouffer		ETAL OT (IF RED)
MOISTURE		ETAL-14
<u> </u>	NA	NIA
	•	
Remarks Field MW-z-i	SAMPLE	Received By: RGALEXANDER Date 2-6-90
		Approved By: R.G ALEXANOGE Date 2-15-90



Tested By R-G-ALEYAMPER Date 1-19-90 Procedure ETPA-07 Rev Date Issued 11-15-84					
	7				
Procedure ETAL-07 Rev 1	<u> </u>				
Date Issued 11-15-6	i				
EQUIPMENT ITEM CALIBRATION NO. DATE DUE Balance 3304 3-25-90					
Thermometer 0007 8-/6-50					
<u>~~/~</u> ~/~					
Sample Description SANDY GRAVEL Sieve Time 10	(min)				
reduced by S splitting I quartering I stockpile					
BEFORE TEST WT. $\square A$ AFTER TEST WT. $\square A$ B $\square A$ 100 = $\square A$ %	LOSS				
Sieve ID Sieve Sample Cumulative Wt. % Retained Cumulative % Cumulative % Retained Page 19 Pag					
N/A 2 4831.81 Ø Ø Ø 10	0 /00				
11/2 155.42 3.2 3.2 96	8 94.				
1 787-35 16.3 16.3 83	.7 83.				
3/4 1135.52 23.5 23.5 74.	5 76.				
1/2 1575.78 32.6 32.6 67.	4 67.				
3/8 1842.23 38.1 38.1 61.					
2293.06 47.5 47.5 52.					
#10 2797.53 57.9 57.9 42.	1 42.				
#40 138 67 80.48 58.0 58.0 58.0 42.	0 17.7				
#60 99.38 71.7 71.7 28.	3 11.9				
#100 110.08 79.4 79.4 20.					
1 1200 1 118.77 BS.6 BS.6 14.4 6.1					
Finess Modules (FM) N/ (See ASTM C 136-83, Section 8.2)					
MATERIALS FINER THAN NO. 200 SIEVE BY WASHING					
C=Percentage of Material Passing a 200 Sieve 144 % Remarks					
D=Original Dry Weight of Sample 13667 SMALL FIRE					
E=Dry weight of Sample After Washing/Sieve 116. 11g	- S-ANDOC				
$C = \langle (D-E)/D \rangle X 100$					
ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THIS OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS Checked By HC Benny Date 2-22-					

A-6400-204(2-67)

GRAIN SIZE ANALYSIS PLOT



Sample Description: SANDY GRAVEL MW-2-1

Plotted by: R.G ALEXANDER Checked by: HL Benny Date: 2-19-90

Date: 2-22-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. Ø

THERMOMETER NO. COO7 CALIBRATION DUE DATE 8-16-90

						
SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0~075	5515.36	5409.87	578.06	4957.30	4831.81	2.18
						
			\times			
						·
		/				
						
						
					-	

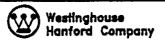
ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR:

R.G. ALEXANDER

DATE 2-19-90

Westinhouse Hanford Company	CHAIR	CHAIN OF CUSTODY		
Company Contact Jon Lindbers	Tele	phone	6-5005	
Sample Collected by Kim. Single	fcn Date 1,25, 26, 29	30-90		
Sample Locations		<u> </u>		
Ice Chest No		Page No.	WHC-N-306-5 pgs 6-	
Remarks				
Bill of Lading No.	7 Offsite Property No	o/	IA	
Method of Shipment Jerry Ale	Wander / Truck			
Shipped to 2101-11, 200	E			
2) MW-2-2, /plastic tag 3) MW-2-3, /plastic ton 4) MW-2-4 /, plastic to	gsoil; Grain Size	Tec	t	
	Chain of Possession			
Relinquised by?	Received by: R.G. ALEXANDER	Date	Time:	
SHOUGHT KM Singlet	RG Alexand	ł	6-90/6630	
	Received by:		Time:	
Relinquised by:	Received by:	Date/	Time:	
Relinquised by:	Received by:	Date/	Time:	



SAMPLE ANALYSIS REQUEST

	ELD SECTION						
Collector: _/	Collector: K.M. Singletan Date Sampled: 1-15, 26, 230 Time: NA hours						
Company (Contact Jon Lindber	5	Telephone () 6-5005				
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REQUESTED				
mw.2-1	1 plante bay	soil	Grain Size (Mostule				
MW 2-2	I plante bog	sel	Grain Size & Moisture				
MW-2-3	1 plaster boz	soil	Grain Size				
MW 24	I pladic bas	Soil	Grain Size, A. limits E permesmeter				
Field inform	nation ** MW-2 a	salo	contained in a stainler				
Special Hai	ndling and/or Storage						
PART II: L	ABORATORY SECTION						
Received by	1	Title	Date				
Analysis Re	quired						
Indicate Use Bac	Whether Sample is Soil, ck of Page for Additional	Sludge, Wa Information	ter, Etc. 1 Relative to Sample Location.				

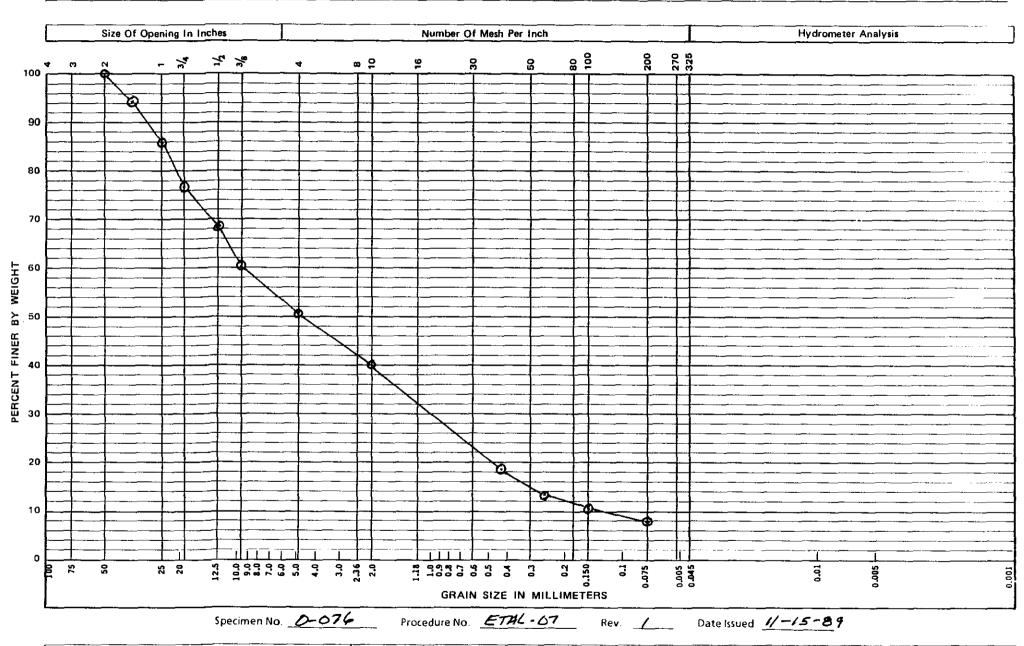
KADIATION RELEASE	RADIATION RELEASE
Released By Date	Released By DOUND Date 1-26-90
Operational Health Physics Remarks (1) 93 9000000 (09/98)	Operational Health Physics Remarks Sulface Sulface MW-2-2 54/3000-022 (09/88)
RADIATION RELEASE	SURVEYED BY RM FOR SHIPMENT
Released By Operational Health Physics	Dose rate side of container Max. dose rate through the container Dose rate to handle container Dose rate at nearest approach or convene
Remarks On Butsido 177 199 199 190 190 190 190 190 190	SWP and RSR required Yes No 80 SURVEYED BY VE Baldwin (6C670 DATE 1/30/90
	Miù-2-4 54-8800-009(1-86)

TEST REQUEST FORM

	Sample/Specimer	1 No. <u>6-076</u>	Cost Code/Work Order No. ED332
Test Requested Samples (Instruction Used) LEVE ANALYSIS ETAL-07 LYDROMETER ETAL-07 (EF REQ) MOISTURE ETAL-14	Requested By:	Org. <u>81232</u>	Person J. LIND BEEG Date Z-19-90
Test Requested Samples (Instruction Used) LEVE ANALYSIS ETAL-07 LYDROMETER ETAL-07 (EF REQ) MOISTURE ETAL-14			
HUDROMETER ETAL-OT (EFREQ) MOISTURE ETAL-14	Test Requested		
MOISTURE 1 ETAL-14	ELEVELAN SUS		BTAL-07
	HYDROMETER		ETAL-07 (EF REQ)
N/A N/A	MOISTURE		ETAL-14
•	NA	N/A	NA
		NA	
	Remarks FIED		Received By: R. G. ALEXANDER Date 2-6- Approved By: R. G. ALEXANDER Date 2-19.

SIEVE ANALYSIS DATA SHEET							
	Sampl	e ID <u>O-</u>	076		Page/	of <u>/</u>	******
	Te	sted By	R.G. Alexai	YDER I	Date 2-19-	90	
	Pr	ocedure_6	<i>ETAL-</i> 07 Re	v <u> </u>	Date Issued <u>/</u>	1-15-89	
		EQUIPME Balance Thermome	NT ITEM CAI	3304 0007	10. DATE D 3-25 8-16-	-90	
		N/A		W/A	N/A		
Sampl	le Desc	ription	SANDY GRAV	Æ	Sieve Tir	me_/O(1	min)
	reduced	ьу 🗘	splitting)	quartering	: □ stockp	lle	 ,
BEF	(B) ORE TE	est wt.	/A AFTER TE	ST WT. 4/4	$\frac{B-A}{B} \times 100 = 2$	V/4 % LOSS	
Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative 7	% Pass
N/A	2	4757.4	Ø	Ø	9	100	100
	1/2		270.28	5.7	5.7	94.3	94.3
	1		674.42	14.2	14.2	858	85.8
	3/4		1/15.97	23.5	23.5	76.5	76.5
	1/2		1620.26	34.1	3/.4	68.6	1086
	3/8		1891.39	39.8	39.8	60-2	60.2
	#4	<u> </u>	2360,33	49.6	49.6	50.4	50.4
	#10						
	#40	126.01 67.44 53.6 53.5 44.5				44.5	18.6
	#60		<i>83.56</i>	66.3	64.3	33.7	13.5
	#100		92-46	73.4	73.4	36.4	10.6
*	# H200 1 101.44 80.5 80.5 19.5 7.8						
	Finess Modules (FM) (See ASTM C 136-83, Section 8.2)						
MATERIALS FINER THAN NO. 200 SIEVE BY WASHING							
C=Percentage of Material Passing a 200 Sieve 19.5 % Remarks							
	D=Original Dry Weight of Sample 1360 " WASH FINE GRADING Small Rices						401146
E=Dry Wei			r Washing/Sleve	101.44 E	Spar	ν E	
		(D-E)/D> X					
			URATELY AND AINED AND US				ST
Ch	ecked	By #Bo	Kunda VIII O	JED CAULDIA	Date		
<u> </u>	A-6400-204(2-87)						

GRAIN SIZE ANALYSIS PLOT



Sample Description: SANDY GRAVEL

MW-Z-Z

Plotted by: R.G. Alexander

Date: 2-19-90

__ Checked by: HL Benny

Date: 2-22-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. Ø

THERMOMETER NO. 0007 CALIBRATION DUE DATE 8-14-90

ļ	 		y			
SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-076	5426.55	5341.64	584.∞	48 41.55	4757.64	1.76
						7
						
						
}						 -
			<u> </u>			
						ļ
·						
						
			\times			
		/				
			_	}		
		*	<u> </u>			
				<u> </u>		

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR:

R.G. ALEXANDER

DATE 2-19-90

Westinhouse Hanford Company	СН	AIN OF CUSTODY
Company Contact Jon Lindberg		Telephone
Sample Collected by Kim. Sing	7. 1	29.30-90 Time NA
Sample Locations		
ice Chest No. NA		and Page No. WHC-N-386-5 pgs 6-7
Remarks		
Bill of Lading No.	VA Offsite Propert	y No
Method of Shipment Jerry A.	lexander / Truck	
Shipped to 2101-11, 200	OE '	
1) MW-2-1, /plastu bag	Sample Identification Soil: Test: Grain & M.	bisture
2) MW-2-2, /plastic be	ag soil; Grain Size	E Moisture Testo
	has soil; Grain Siz	
3) 111W & 3, 1 plante, &	145 300, 5 01 4111 012	C real
4/1011-2-4/ 1/2016	has wil Test from	In Size, Moisture, permeamite
- Janes - Jane	At here	limit
Dalinguisadhug	Chain of Possession	
Relinquised by?	Received by: R.G. Alexander	
SHI Coult BM Singlet	1	2-6-90/6630
Relinquised by:	Received by:	Date/Time:
Relinquised by:	Received by:	Date/Time:
Relinquised by:	Received by:	Date/Time:

תגא	Westingh	cuse
	Hanford	ouse Company

SAMPLE ANALYSIS REQUEST

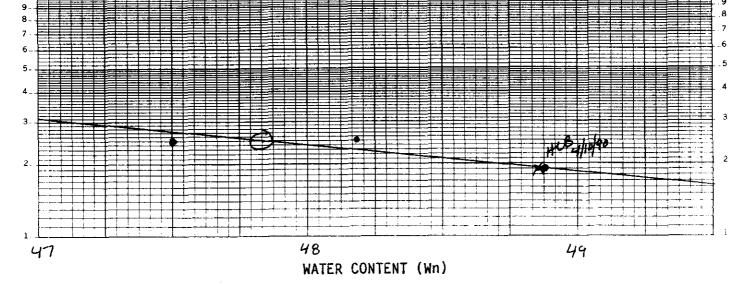
	LD SECTION K.M.Singleton	Date Sample	ed:/-75,26,7130 Time: <u>NA</u> hours
Company C	ontact Jon Lindbe	9	Telephone () 6-5005
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REQUESTED
MW-2-1	I plante bay	soil	Grain Size (Mrstul
MW2-2	I plastic bag	sal	Grain Size & Moisture
MW-2-2	I plaster king	soil	Grain Size
MW 24	1 plack bas	Soil	Grain Size, A. Cimits E permeanuter
Field Inform	nation <u>MW-2</u> Cener	isalso	contained in a stainle
Special Har	dling and/or Storage_		
PART II: L	ABORATORY SECTION		
•		Title	•Date
Analysis Re	quired		
Indicate Use Bac	Whether Sample is Solik of Page for Addition	il, Sludge, Wa al Information	iter, Etc. 1 Relative to Sample Location.

· · · · · · · · · · · · · · · · · · ·	A Company of the Comp
RADIATION RELEASE	RADIATION RELEASE
11 11 Date 1-26-90	-Bldg MW-2, Date 1-26-90
Released By Operational Health Physics	Released 8y Operational Health Physics
Remarks Sp gn Hilled Fillegri	Remarks Sound accountle,
54-3000-022 (09/89)	Surfaces sulsals Mar Mul-2-2 54/3000-022 (09/88
ing the second of the second o	by the state of th
RADIATION RELEASE	SURVEYED BY RM FOR SHIPMENT
Released By Date -26-90	Max. dose rate through the container Dose rate to handle container Dose rate to handle container
Operational Health Physics Remarks On Autual 19	Dose rate at nearest approach on conveyancemr-hr
Jus-	SWP and RSR required Yes D No 15
MW-2-3 54-3000-022 (09/88)	SURVEYED BY TE BALLULAD 60670 DATE 1/30/90
The second secon	Miu-2-4 54-8800-009(1-86)

N

PLASTIC INDEX SOILS DATA SHEET

Sample No. <u>O-076</u>	PageofZ_
Test Operator_HLBenny	Date <u>4/10/90</u>
Thermometer No. 0007	_ Calibration Date <u>8/16/90</u>



Liquid Limit (LL) 47.84 Graph

Plastic Limit (PL) 39.67 (Avg.)

Liquid Limit (LL) NA One Point

Moisture (PL) 40.81% 40.43% 37.77%

Moisture (LL) 47.84 %

Plastic Index (PI)* 8.17

*PI = LL - PL

Remarks_

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. AND 4144.

THE TEST OPERATOR WAS APPROPIATELY TRAINED AND ULITIZED CALIBRATED TEST INSTRUMENTS. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THIS DATA.

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-018 REV. NO. _____

THERMOMETER NO. 0007 CALIBRATION DUE DATE 8/16/90

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-076-1	16.55	15.04	11.34	5.21	3,70	40.81
~ 7	13.91	13.15	11.27	2.64	1.88	40.43
-3	15.90	14.68	11.45	4.45		37.77
				Average	% Water	39.67
0-076-4	23.96	19.87	11.26	12.70	8-61	47.50
-5	63.07	59.19	51.25	11-842	7.94	48.87
-6	63.85	59.87		12.24	8.26	48.18
						-
					-	
						
	-					
				, <u></u>	·	
				<u> </u>		

JOB 4/16/90
ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: HBenny

Blows 25

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TEST REQUEST FORM

Sample/Specimen !	No. 0-077	Cost (Code/Work Order No. El	337
Requested By: O	rg. <u>81232</u>	Persor	J. LIND BERG Date	2-19-90
Test Requested	No. of Samples		Test Lab Inform (Instruction	
SEVE ANALYSIS		_	ETAL-07	
Hydroneter.		<i>-</i>	ETAL-67 (DEREG)	
NIA	N/A		NIA	
NA	N/A		NIA	
Remarks Field	SAMPLE	Receiv	ed By: R.G. Alexander	Nata 2-6-90
Mw-2-3			ed By: RG A KEXANDER	
			·	

					IAV	YSIS DAT	A SI	HEET		
	Sampl				•			ge <u> </u>		
	Tested By R.G. ALEXANDER Date Z-19-90									
	Pro	oced	ure <u> 6</u>	TAL-07	Re	v <u> </u>	Date	Issued_10	-15-89	
		EQU Bala		NT ITEM	CAI	ibration n 33 0¥	<u>. o.</u>	DATE D	- 9 o	
		Ther	mome	ter		2007 N/A		8-16-		
			N/H							
Sampl	le Desc	ript	ion	D YELLAS	RAN	EL		Sieve Tir	ne 10 (n	ain)
] quartering				
BEF	/m\					(A) ST WT.NA				
Sieve ID Number	Sieve Size		nple ght	Cumulative Retained (% Retained		nulative % etained	Cumulative % Pass	% Pass
N/A	2	176	9.74	Ø		Ø		ø	100	100
İ	11/2		•	12145	5	6.9		6.9	93.1	93.1
	1			189.9	7	10.7		16.7	89.3	89.3
	3/4			235.9	8	13.3		3.3	86.7	86.7
	1/2			296.3	9	16.7	/	6.7	83.3	88.3
	3/8			338.66	6	18.9	1	8.9	81.1	81.1
	#4	١		384.32	?	21.8	2	1. 8	78.2	78.2
	#10	1769	3.74	481.6		27.6		7.6	72.4	72.4
	# 40	16	2.23	78.29		48.2		08.2	51.8	37.5
	#60			100.20	>	61-7		1.7	38.3	27/7
	#100			112.60		69.4		9.4	30,4	22.2
1	#Z00	4	7	124.48	,	76-7		6.7	23.3	14.9
<u> </u>	Finess l	Modul	les (FM) N/A	(See ASTM C 1				74.1
MATERI	ALS FIN	VER	THAN	NO. 200		VE BY WASH				
				sing a 200				Remark		
D=Origina	d Dry We	ight	of San	aple		1 <u>62.27 g</u>		WASH SHAU		MG
E=Dry We				r Washing/S	Sieve	124.48 g		SAM		
<u> </u>			x <a\\< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></a\\<>							
						COMPLETE				т
	ecked				ט ט	SED CALIBR	ATED		MENTS 2-22-90	
				7					8400 004/0 mg)	

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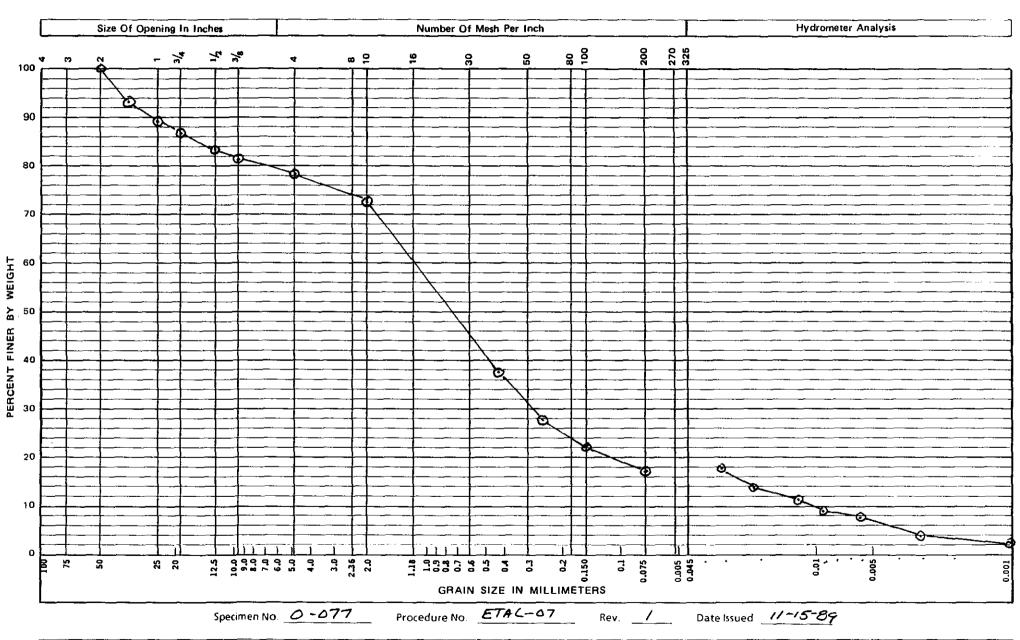
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GRAIN SIZE ANALYSIS PLOT



Sample Description: SANDY GRAVEL

MW-Z-3

Plotted by: R.G. Alexander

Date: 2-19-90

Checked by: HLBenny

Date: 2-22-90

PROCEDURE NO. ETAC-14 REV. NO. Ø

THERMOMETER NO. OOO7 CALIBRATION DUE DATE 8-16-90

						
SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
0-077	2558.5Z	2359.13	589.39	1969.13	1769,74	11.27
-						
`						
						
		,				
·						

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR:

R.G. ALEXANDER

DATE 2-19-90

			HYDROMETER AN	NALYSIS DATA SH	ET		
Sample I	0_0-	-077			Page _ /_ of _/	<u> </u>	
		Tostad By R. C	A LEX ANDER	2Date	3-19-90		
		1		Pate Issued 11-15-89			
•		EQUIPA	MENTITEM	NO.	CALIBRATION DUE DATE		
				1000 3304	2-16-91	}	
		Balance	r/Thermocouple		2-9-91		
		Inermomete	771 nermocouple				
1		of Sample		HYGROSO	OPIC MOISTURE O	ONTENT	
	-		72.4 (%)	Wt. Container +	Air Dry Soil	N/A	g)
Hygroso	copic Corr	ection Factor	 	Wt. Container +	Oven Dry Soil	<i>W/A</i> (1	g)
	· v	VEIGHT OF SAM	<u>PLE</u>	Wt. Container	· N/A	(1	g)
Wt. Cor	- ntainer +	Soil	N/A (9)		NA		
Wt. Cor	ntainer		M/A (g)				
Wt. Soi			55.62 (9)		<u>REMARKS</u>		
				TUBE B		·	_
	COV	APOSITE CORRE	CTION				
1st Read	ding	<u>5</u> at	°c	<u> </u>			
2nd Re	ading	at	<u>a3.</u> 4 °c	PAN #9 117.	55		
							
Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correcti	n Temp. on (°C)	Soil in suspension (%)	Particle diameter (mm)
3-19	0832	2.0	19	14	24.0	17.9	0.032
3-19	0835	5.0	16	//	24.1	14.0	0.021
3-19	0845	15.0	14	9 (24.1	11.5	0.012
3-19	0900	30.0	12	7	24.0	8,9	0.009
3-19	0930	60.0	11	6	23.8	7.7	0.006
3-19	12.40	250.00	8	3	24.1	3,8	0.003
3-20	0830	1,440.0	7	2	23.3	2.6	0.001

Formulas and Tables used to calculate percent Soil in suspension, particle diameter and hygroscopic correction factor are found in ASTM D422.

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

23.3

2.6

0.001

SPECIFIC GRAVITY OF SOILS DATA SHEET

Test	Operator R.G. ALEXANDER		 		3-5-9	<u>)o</u>		
•	•		•					
	EQUIPMENTITEM	NO.			DA	TE DUE	}	
Bai	ance	3304			3-25	-90		
Ov	en Thermometer	0007			8-16	-90		
	ermometer	0002			2-9-			
Py	cnometer	2554			N/A			
Wett	ing Agent ''Q" WATER							
	DETERMINATION NO.		1			2		3
	Drying Container No.		NA		2/	A	NA	
	Wt. Container + Oven Dry Soil, ± 0.01g		NIA					·
	Wt. Container, ± 0.01g		N/A			·	.\	
w.	Wt. Oven Dry Soil, g		40	.00		·	1	·
	Pycnometer No.		2554	4				
	Wt. Pycnometer, g		125	72		·		
W _a	Wt. Pycnometer + Wetting Agent, g		387			·		
W _b	Wt. Pycnometer + Wetting Agent + Soil, g		412	62		·		•_
	Temperature, T _x at W _b , °C		24	,4e.				
G _w	Specific Gravity of Wetting Agent at T _x		1.	<u>00</u>			1	
G,	Specific Gravity of Soil at T _x		2	76			<u></u>	
G,	Specific Gravity of Soil at 20°C			75			4	•••
G _t =	$\frac{G_{\mathbf{w}^*} Y_{\mathbf{w}^*} W_{\mathbf{o}}}{W_{\mathbf{o}} + (W_{\mathbf{a}} - W_{\mathbf{b}})}$	·		·				
γ _w = *G _s =	Unit Weight Of Water (g/cc)		Avera	ge Speci	fic Gravity	At 20°c		<u>2.75</u>
K valu	es found in ASTM D854-58, Table 1							
NOT	E G _s = G _t When Test Run at 20 ℃							
			•	÷				

Checked By HBenny

A-6400-235 (9-86)

Westinhouse Hanford Company	CHAIN	OF CUS	TODY	
Company Contact Jon Lindbers	Teler	ohone	6-500	5
Sample Collected by Kim. Single	ton Date (-25, 26, 29	30-90	Time	UA
Sample Locations				
Ice Chest No. NA	Field Logbook and	Page No.	WHC-N-36	6-5 pas 6-7
Remarks			·	
Bill of Lading No.	7 Offsite Property No	/	VA.	
Method of Shipment Jerry Ale	Nander / Truck		·	
Shipped to 2101-11, 200	E	·		
2) MW-2-2, /plastic kay 3) MW-2-3, /plastic by	g soil; Grain Size & g soil; Grain Size g soil; Grain Size g soil; Test, Grain Athug.	Moist	st	
	Chain of Possession	<u></u>		
Relinquised by?	Received by: R.G. ALEXANDER	Date	Time:	
SHOwell KM Singer	RG Alexand	_	,	. 30
Relinquised by:	Received by:		Time:	
Relinquised by:	Received by:	Date	Time:	
Relinquised by:	Received by:	Date	Time:	



SAMPLE ANALYSIS REQUEST

	LD SECTION		
Collector: _	K.M.Singleton_o	ate Sample	ed:/-15,16,7130 Time: <u>NA</u> hours
Company (Contact Jon Lindber	5	Telephone () 6-5005
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REQUESTED
MW-2-1	1 plante bay	Soil	Grain Size (Mristuse
MW 2-2	I plante bog	sal	Grain Size & Moisture
MW-2-3	I plaster bog	soil	Grain Size
MW-24	I place has	Soil	Grain Size, A. Cimits
Fleid Inform	ngtion ** MW-2 &	salao.	contained in a stainles
Special Hai	ndling and/or Storage		
	ABORATORY SECTION	····	
•	y	Title	Date
	•		A =1
indicate Use Ba	Whether Sample is Soil, S ck of Page for Additional	Siudge, Wa Information	ter, Etc. I Relative to Sample Location.

RADIATION RELEASE	RADIATION RELEASE
Released By Operational Health Physics	Released By DOUD Date 1-26-90
Remarks SD on Stilled 27 Magni	Operational Health Physics' Remarks 94 11 11 11 11 11 11 11 11 11 11 11 11 11
54-3000-022 (09/99)	MW-2-2 59/3000-022 (05/88
RADIATION RELEASE	SURVEYED BY RM FOR SHIPMENT
Released By Operational Health Physics Remarks On Bulsials of F	Dose rate side of container Max. dose rate through the container Dose rate to handle container Dose rate at nearest approach on conveyance mr-hr External contamination
100 -2-3 54-3000-022 (09/88)	SWP and RSR required Yes No ST SURVEYED BY TE BALLULA (6.0670 DATE 1/30/90 S148800-000(1-86)
	The state of the s

TEST REQUEST FORM

Requested By: Org	. <u>80232</u>	Person J. LNOBELG Date Z-14-9a
Test Requested	No. of Samples	Test Lab Information (Instruction Used)
Hyp. COMBUCTIVITY	(ETAL-09
ATTERBERG LIMITS	1	ETAL - 18
N/A	NIA	N/A
N/A	-N/P	W/A
	•	
Remarks FIEW 5	AMPLE.	Received By: R. & Alexander Date 2-6-90 Approved By: RG Alexander Date 2-14-9

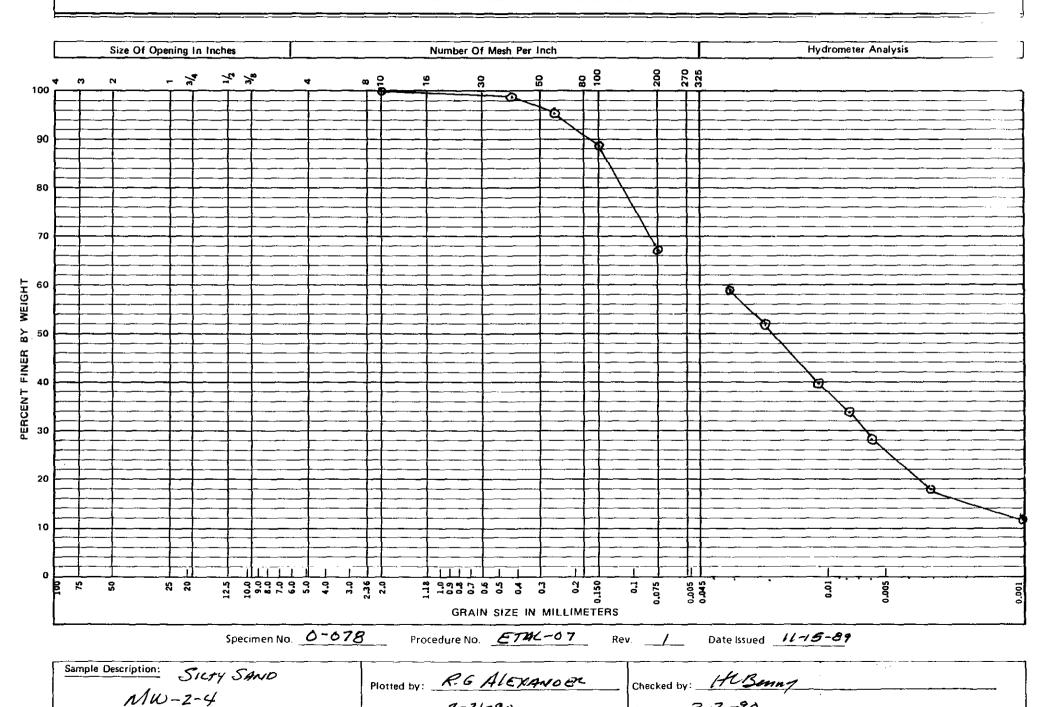
								YSIS	DAT						
	Sa	mpl	e ID	<u>ه- د</u>	8 FC					Page		of	<u>t</u>		
İ		Tes	sted	Ву	R.G	A	LEXAL	DER	I	Date3	2 - 20 -	90			
		Pro	oced	ure <u>.</u>	TAL	<u>.~o</u>	Re	v <u> </u>	1	Date I	ssued <u>l</u>	1-15-89	<u>a</u>		
		•		JIPME nce	ENT I	TEN	<u>CAI</u>		rion n		DATE D				
				mome					7		8-16-9	} •			
		-		NI	^			<u> </u>	<u> </u>		w/#				
Samp				_							eve Tir		 (n	ain))
	red		by	<u> X</u>	splitt	ing			artering	: [stockp	ile			
BEF	OR	(B) E TE	EST 1	WT. <u> </u>	IA A	(FT)	ER TE	(A) ST W7	. N/F	X V-B	100 = 1	VIA %	LOSS		
Sleve ID Number		leve Ilze	"	nple ght	Cum			% Re	tained		ilative % ained	Cumul. Pas		% 1	Pass
2/4						1					[1		1
1													-		
					1						<u> </u>				
						\neg				<u>-</u>	 				
						\neg					-		<u> </u>		
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	1-	10				ø		Q	s	0	<u>'</u>	12	60	10	50
		40		., .	 	1.6	7	1,			7		.3		8.3
	4				1	4.5	·····	4.		4.		95.			5.4
	77	70			11	1.28	,	11.0		/1.		88,		88	
1	#z	တ			3.	2.4	٥	32.		32		67		67.	
			lod ul	es (FM	[)	<u>u/l</u>	<u>, </u>				Section :				
MATERI	ALS	FIN	IER '	THAN	NO.	20	0 SIEV	Æ BY	WASE	ING	*				
C=Percen	tage	of M	later	al Pa	gaing	a 20	00 Sieve		_%		Remarl				
D=Origina		-	_		•			98.5		-	WASH	GICAD	11171 C		 .
E=Dry We						hing	g/Sleve	32.40	£	-					
				/D> X		· <u> · · · · · · · · · · · · · · · · · </u>						:			
											CORDEI NSTRU		E TES'	T	
Ch	lecl	ced	By_	HCF	enn	1		ب رسد	·41TITTY//	TIED I	Date_				
				-	<u> </u>							-8400-20	4(2_87\		

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GRAIN SIZE ANALYSIS PLOT



Date: 2-21-90 Date: 3-3-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. <u>E74C-14</u> REV. NO. <u>Ø</u>

THERMOMETER NO. <u>O007</u> CALIBRATION DUE DATE <u>\$-16-90</u>

Sample no.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	Z WATER
0-078	248.94	214.76	116.23	132,71	98.53	34.69
						7
-						
			X			
						<u> </u>
		/				·
					\	
	/					
			<u> </u>			
/						
/						

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR:

R.G ALEXANDER

DATE 2-21-90

		ŀ	IYDROMETER AN	ALYSIS DATA SHEET			
Sample I	·	0-078		Page	of		
		Tested By R. G	ALEXANDER	Date 3-19	-90		
		·		te Issued 11-15-89			
		EQUIPM	<u>ENT ITEM</u>		BRATION DATE		
		Hydrometer			16-91		
		Balance			25-90	1	
		Thermometer	/Thermocouple	0002 2-	-9-91		
Specific	gravity o	of Sample2	.69	HYGROSCOPIC	MOISTURE C	ONTENT	
% Passii	ng No. 10	Sieve	<u>0 </u>	Wt. Container + Air Dr			7)
Hygroso	opic Corr	ection Factor		Wt. Container + Oven	-		-
		VEICHT OF CARA	ם כ	Wt. Container + Oven Wt. Container	7		
140	_	VEIGHT OF SAMI	<u>ν/Α</u> (g)	\			_
.9	ntainer +			Water Content	N/M	(%o)
Wt. Cor			$\frac{A/A}{A}$ (g)	RE	MARKS		
″Wt. Soil		•	67.11 (g)	TUBE A			
	<u>COI</u>	MPOSITE CORREC	TION	7000 74			
ist Read	ding	5 at	<i>23,8</i> °c	_ W =			
•:			<i>23.</i> 4 °c	A			
				Pan # 7 116.11			
		•					
4	 	<u> </u>		T			
Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter
7		2.0	. /		-		(mm)
3-19	0820	5.0	45	40	24.0	59.0	0.027
3-19	0825	<u> </u>	39	34	24.1	50.2	0.018
3-19	0837	15.0	32	27	24.1	39.8	0.011
3-19	0848	30.0	28	23	24.0	33.9	0.008
3-19	0918	60.0	24	19	23.8	28.0	0.006
3-19	1228	250.00		/2	24.2	17.7	0.003
3-20	0818	1,440.0	/3	8	23.4	11.8	0.001
Formulas	and Tables	used to calculate per	cent Soil in suspension, par	ticle diameter and hygroscopic co	rrection factor a	ire found in AS	TM D422.
	ALL REQU	IRED DATA ARE ACC	URATELY AND COMPLETEL	Y RECORDED. THE TEST OPERATO	OR WAS APPRO	PRIATELY	ļ
	TRAINED	AND UTILIZED CALIBI D TO PRODUCE THE	RATED TEST INSTRUMENTS	AS INDICATED ABOVE. APPROVE	D TEST PROCED	URES WERE	
	Checked 8	, JARe	yen-	Date_3-2/	-90		

SPECIFIC GRAVITY OF SOILS DATA SHEET

Specimen/Sample No.	0-078	Page 1 of 1
Test Operator RG	Alexander	3-6-90
EQUIPMENT ITEM	NO.	DATE DUE
Balance	3304	3-25-90
Oven Thermometer	0007	8-16-90
Thermometer	0002	2-9-91
Pycnometer	2554	NIA
		

Wetting Agent 'O" WATER

	DETERMINATION NO.	1	2	3
	Drying Container No.	NA	N/A	N/A
	Wt. Container + Oven Dry Soil, ± 0.01g	N/A ·		<u>-</u>
	Wt. Container, ± 0.01g	N/A		·
W _o	Wt. Oven Dry Soil, g	40 .00		
	Pycnometer No.	2554		
	Wt. Pycnometer, g	135 .72		
W _a	Wt. Pycnometer + Wetting Agent, g	387 - 22		
W _b	Wt. Pycnometer + Wetting Agent + Soil, g	412.23		
	Temperature, T _x at W _b , °C	23,2 6		
G _w	Specific Gravity of Wetting Agent at T _x	1.00		
G,	Specific Gravity of Soil at T _x	2.69		
G,	Specific Gravity of Soil at 20°C	₹.49	\	1

$$G_{t} = \frac{G_{w^{*}} Y_{w^{*}} W_{o}}{W_{o} + (W_{a} - W_{b})}$$

 $\gamma_w = Unit Weight Of Water (g/cc)$

*G, = K.G,

Average Specific Gravity At 20°c

<u> 2.69</u>

K values found in ASTM D854-58, Table 1

*NOTE G, = G, When Test Run at 20 °c

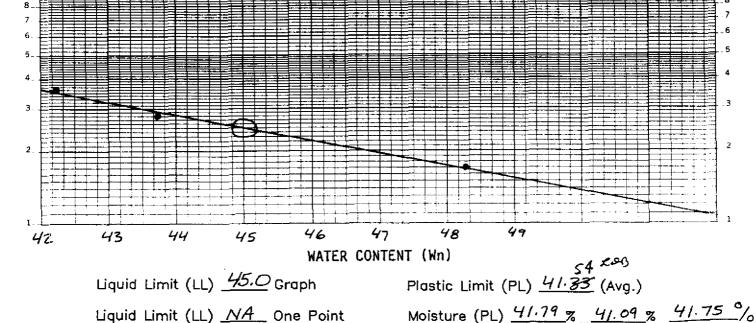
ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HCBenny

Date 3-7-90

PLASTIC INDEX SOILS DATA SHEET

Sample No. 0-078 Test Operator HCBenn7 Date 4/9/90Thermometer No. 0007 Calibration Date 8/16/90



Moisture (LL) <u>45.0</u>%

Moisture (PL) 41.79 % 41.09 % 41.75 %

Plastic Index (PI)* 3.67

*P1 = LL - PL

Remarks

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. ZOB 4/1/50 THE TEST OPERATOR WAS APPROPIATELY TRAINED AND ULITIZED CALIBRATED TEST INSTRUMENTS. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THIS DATA.

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL -018

REV. NO.

THERMOMETER NO. 0007 CALIBRATION DUE DATE 8/16/90

	SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
	0-078-1	24.45	23.05	19.70	4.75	3 <i>,</i> 3 <i>5</i>	41.79
	-2	23.04	21.98	19.40	3.64	2.58	41.09
	-3	26.61	24.56	19.65	6.96	4.91	41.75
Blows					Ave	e. % Water	41.335
28	0-078-4	32.94	28.95	19.82	13.12	9.13	43.76
36	-5	32.80	28.94	19.79	13.01	9.15	42.19
17	-6	34.80	29.92	19.81	14.99	10.11	48.27
					Au	e. % Water	44.72
				_			
				-			
				-			
,							
				-			
	-						
				i			

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR:

DATE

HYDRAULIC CONDUCTIVITY OF SOILS DATA SHEET Page 1 01 5 0-078 Sample No. _ Test Operator R. G. A LEXANDER Date 2-15-90 W. NO. DATE DUE EQUIPMENT ITEM 3304 3-25-90 Balance 8-16-90 0007 Oven Thermometer NIA Thermometer Thermocouple Temperature Controller Pressure Gauge Pressure Transducer Pressure Transducer Back Pressure Gauge Pressure Transducer Pressure Transducer 5623 Calipers 8-16-90 ALM NA Load Frame Data Logger N/A 1/A AIN Immediate (User) Calibration Performed. (Documentation To Be Attached) Sample Preparation PARTICLE SIZE WEIGHT (Sieve Mesh Range) N/A TO N/A __ то _____ __ To _____ __ To __ _ To _ __ To ___ Total OTHER COMPONENTS NA Total 100 % ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA. Checked By HCBenny

SAMPLE PREPARATION

Determine Weight of Samples in Container

Container No.	28
Wt. of Sample + Container, g	248.94
Wt. of Container, g	116.23
Wt. of Sample, g	132,71

Determine the Water Content of the "Air Dry" Sample

Container No.	28
Wt. Container & Wet Soil (A), g	248.94
Wt. Container & Dry Soil (B), g	214.76
Wt. of Water, g	34.18
Wt. of Container (C), g	116,23
Wt. of Dry Soil, Ws, g	98.53
Water Content (W), %	34.69

$$W = \left(\frac{A \cdot B}{B \cdot C}\right) 100$$

SAMPLE COMPONENT	SPECIFIC GRAVITY, G	LABORATORY NOTEBOOK DATA LOCATION
N/A.	N/A	4/4
NA	WIA	NIA
N/4	NlA	N/A

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY
TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE, APPROVED TEST PROCEDURES
WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HLBenny

Date 3-3-90

SAMPLE COMPACTION

Compaction Method Static N/A Tamping N/A

STATIC Load Applied, g/ Layer length, cm	er 1	N/I	Δ,	11	N	A
or	2			12	1	
TAMPING No. Tamps per Layer/ Layer Length, cm	3			13		
Layer Length, cm	4			14		
	5			15		<u>-</u>
	6			16		
Total No. of Layers N/A	7			17		
INTACT SAMPLE CUT	8			18		
INTACT SAMPLE CUT FROM 4" STEEL LINER	9			19		
	10	4		20	4	
Tamper Foot Diameter cm		NIN	,			
Tamper Applied Load, g		N/F	A			
Sample Diameter, (d), cm		9.8	2.			
Sample Length, (L), cm		6.17	۷_			
Sample Mold or Permeameter Weight & Compacted Sample,	9	1151.	25			
Sample Mold or Permeameter Weight, g		246	80,			
Weight of Compacted Sample, (E), g		905	.17			
Weight of Container & Uncompacted Wet Sample, (A), g		248.	.94			
Weight of Container & Uncompacted Dry Sample, (B), g		214.	76			
Weight of Water, g		34.	18			
Weight of Container, (C), g		ا ما ا	23			
Weight of Dry Soil, (WS), g		98.	53			
Water Content, %		34.	69			
Compacted Bulk Density of Sample, (7m), g/cc		1.95				
Compacted Sample Dry Density, (γd), g/cc		1,46				

$$\gamma_{\rm m} = \frac{E}{(\pi) (d/2) 2(L)}$$

$$\gamma_{\rm d} = \left(\frac{\gamma_{\rm m}}{w + 100}\right) 100$$

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By 46 Benny

Date 3-3-90

HYDRAULIC CONDUCTIVITY DATA SHEET

Page <u>4</u> of <u>5</u>

Procedure No. ETAL-09 Date Issued 12-1-89

DATE		TIME	·····			VOLUM	E DETERMI	NANTS		 	T
	System	System	Time	Effi	 uent	Cont	ainer	System	Pres	sure	Operator
Year 90 (Mo/Day)	Down (Hr: Min)	Up (Hr: Min)	Change (Hr: Min)	Temp (°C)	Weight (±0,1g)	Tare (±0.1q)	Tare & Ef- fluent(±0.1g)	Temp	Pore H ₂ 0	Back H ₂ O (psi)	Initials
2-22	_	0900				61.09			50	N/A	RGA
2-22	1320	1325	4:20	22	16.10	61.09	77.19	ZZ	50	4/4	RGA
2-22	/ 50 0	1500	1:35	22	5.48	61.09	46.57	22	50	NIA	Rich
2-28	1000	1000	19:00	21	81.26	150.48	231.74	21	50	NIA	REA
2-23	1445	1445	4.45	22	19,53	61.09	80,62	22	50	MLA	RGB
2-26	0745	07.55	65:00	21	348.02	150.48	498,50	21	60	NIA	RGA
2-76	13 10	5TOP	5115	22	28.9 (61.09	90.00	2-2	60	MA	RGA
2-26	Stop	4 ESX								_	REA
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ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HLBenny

_____ Date 3-3-90

HVDDAIIIIO	COMPLICATIVITY	DATA	CHEET
TTURAULIC	CONDUCTIVITY	DAIA	SHEET

Procedure No. ET4C-09

Page <u>5</u> of <u>5</u>

Date Issued 12-1-89

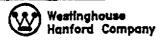
Year Po	Hydraulic	Hydraulic	Effluent	Analysis	F.C.	
Year	Conductivity (cm/sec)	Gradient (cm/cm)	(Sample Number)	Lab. Notebook Location	Effluent Description	Operator Initials
2-22	START	T E S∕T	_		CLEAR	RGA
2-22	2.37×10-8	574.71		_	CLEAR	RGA
2-22	Z.Z1×10-B	574.71	-	_	CIENT	RGA
2-23	273 x 10-8	5 4 4,71	_	-	CLEAR	RGA
2-23	2-62 × 10-8	594.71		. —	CIENC	RGA
2-26	2.85 X10-8	689.66			CLEAR	RCA
2-26	2.93×10-8	689.66	-	_	CLEAR	REA
Stop	159	2.7 +/- 0	3 × 10-8 C	MISEC		RGA
		• • • • • • • • • • • • • • • • • • • •				
						772.00
		-				

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HBenny

Date 3-3-90

Westinhouse Hanford Company	CHAIN O	F CUSTODY
Company Contact Jon Lindhers	Telepho	ine <u>6-5005</u>
Sample Collected by Kim. Single to	on Date 1,25, 26, 29, 30	0-40 Time <u>NA</u>
Sample Locations 100 Em-1, MI	N2	
Ice Chest No	Field Logbook and Pag	je No. WHC-N-38 6-5 pgs 6-7
Remarks		
Bill of Lading No. NA	Offsite Property No.	NA
Method of Shipment Jerry Alexa	ander / Truck	
Shipped to <u>2101-111, 200 E</u>		
1) MW-2-1, /plastic bag soi 2) MW-2-2, /plastic bag 3) MW-2-3, /plastic bag 4) MW-2-4 /, plastic bag	soil; Grain Size & M	Noistene Tests Test Test Test Test
		<u></u>
	Chain of Possession	
Relinquised by?	ceived by: R.G. ALEXANDER	Date/Time:
	R.G Alexand	2-4-90 /0630
Relinquised by:	ceived by:	Date/Time:
Relinquised by:	ceived by:	Date/Time:
Relinquised by:	ceived by:	Date/Time:



SAMPLE ANALYSIS REQUEST

	LD SECTION		
Coilector: _/	K.M.Singleton d	ate Sample	ed:/-75.76.7430-Time: <u>NA</u> hours
Company (Contact Jon Lindber	5-	Telephone () 6-5005
SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE	ANALYSIS REQUESTED
MW-2-1	1 plante bay	Soil	Grain Size & Mrstul
MW 2-2	I plante bog	sal	Grain Size C Moisture
MW-2-3	1 plaster brz	soil	Grain Size
MW-24	I plack bas	Soil	Grain Size, A. amits
			E permeanutel
Field Inform	nation MW-2 6	salw	contained in a stainbur
Special Hai	ndling and/or Storage		
	ABORATORY SECTION		
	quired	Tiffe	Date
	Whether Sample is Soil,	Sludge Wa	der Sie
Use Bac	ck of Page for Additional	Information	Relative to Sample Location.

RADIATION RELEASE	RADIATION RELEASE
Released By Operational Health Physics Remarks S State of State o	Released By Operational Health Physics' Remarks Salar Grand Control of Salar
RADIATION RELEASE Parage Parage Propertional Health Physics Remarks Don Author Physics MW-2-3 54-3000-022 (09/88)	SURVEYED BY RM FOR SHIPMENT Dose rate - side of container Max. dose rate through the container Dose rate to handle container Dose rate at nearest approach on conveyance In External contamination SWP and RSR required Yes INO SURVEYED BY TE Baldwill (60670) DATE 130/90

<u>م</u>