TEST REQUEST FORM

Sample/Specimen No. 9-090 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 12-28-89

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
N/A	N/A	N/A
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-7-1

Received By: R.G ALEXANDER Date 12-28-89 (LS) RGA 12-29-89

Approved By: R.G ALEXANDER Date 12-28-89

DEC 1991
RECEIVED
EDMC

9212129

SIEVE ANALYSIS DATA SHEET

Sample ID 9-090 Page 1 of 1

Tested By R.G. ALEXANDER Date 12-28-89

Procedure ETAL-07 Rev 1 Date Issued 11-15-89

EQUIPMENT ITEM	CALIBRATION NO.	DATE DUE
Balance	3304	3-25-90
Thermometer	0006	2-6-90
N/A	N/A	N/A

Sample Description SANDY GRAVEL Sieve Time 10 (min)

reduced by ☒ splitting ☒ quartering ☐ stockpile

(B) (A)
BEFORE TEST WT. N/A AFTER TEST WT. N/A $\frac{B-A}{B}$ X 100 = N/A % LOSS

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
N/A	2	4655.33	0	0	0	100	100
	1 1/2		514.34	11.0	11.0	89.0	89.0
	1		1090.57	23.4	23.4	76.6	76.6
	3/4		1462.96	31.4	31.4	68.6	68.6
	1/2		1770.15	38.0	38.0	62.0	62.0
	3/8		1944.80	41.8	41.8	58.2	58.2
	#4		2241.33	48.1	48.1	51.9	51.9
	#10	4655.33	2637.21	56.6	56.6	43.4	43.4
	#40	150.73	110.21	73.1	73.1	26.9	11.7
	#60		123.57	82.0	82.0	18.0	7.8
	#100		130.88	86.8	86.8	13.2	5.7
	#200	150.73	136.77	90.7	90.7	9.3	4.0

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 9.3 %

D=Original Dry Weight of Sample 150.73g

E=Dry Weight of Sample After Washing/Sieve 136.77g

C = <(D-E)/D> X 100

Remarks WASH FINE GRADING

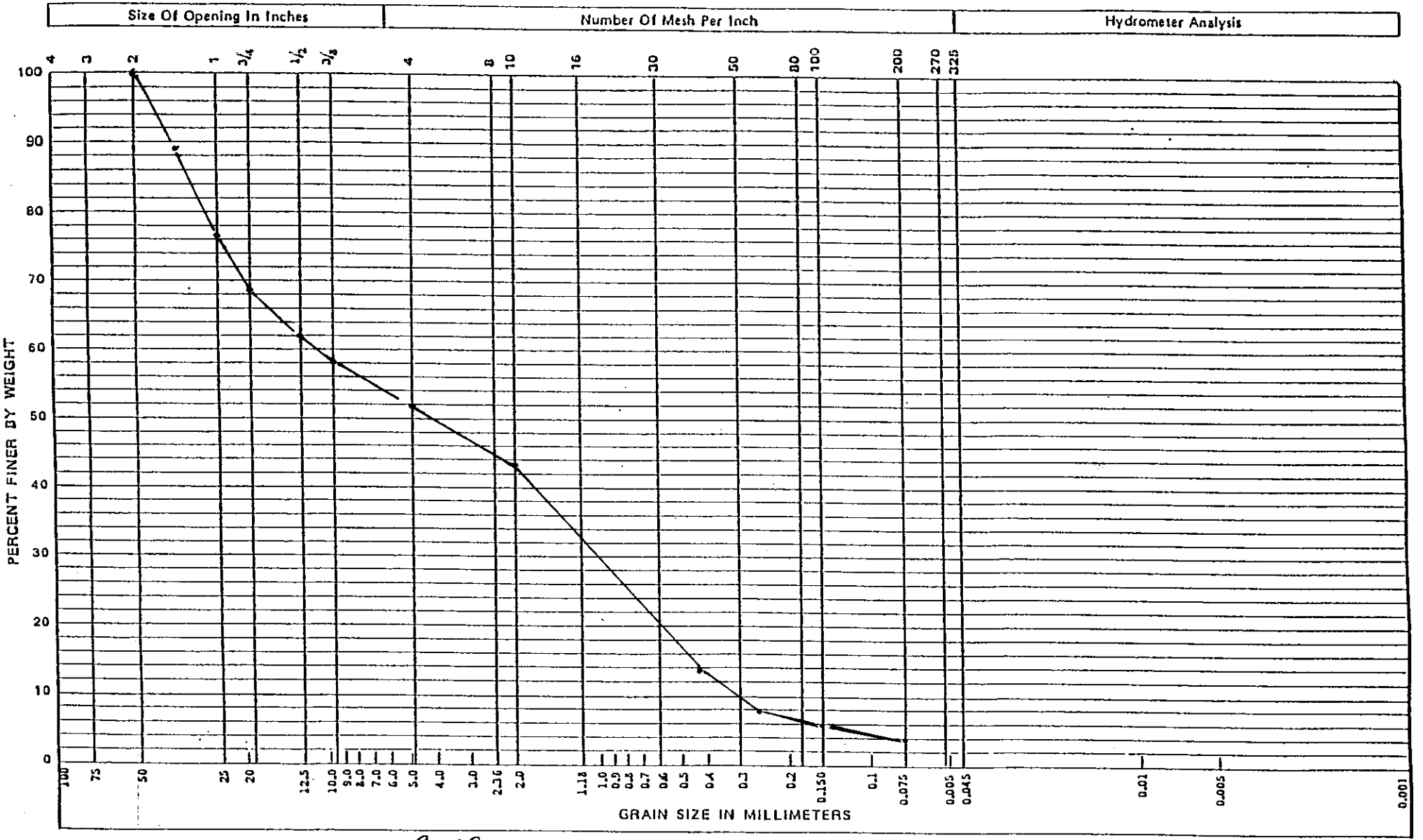
ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By [signature] Date 5 Jan 90

A-6400-204(2-87)

9211730

9 2 1 GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-090 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-9-1

Plotted by: R.G ALEXANDER Date: 1-3-90

Checked by: J F Rudyan Date: 5 Jan 90

BD-6400-136 (9-85)

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL Y4 REV. NO. Ø

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
9-090	5522.64	5233.39	578.06	4944.58	4655.33	6.21

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 12-~~29~~-89 RGA 12-29-89

9211132

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: JW Lindberg Telephone 6-5005

Sample Collected by: Singleton/Anderson/Lindberg Date: Dec 7-12, 1989 Time: NA

Sample Locations: 1100-EM-1 Operable Unit, Temp. Well # MW-7

Ice Chest No.: NA Field Logbook & Page No.: NA

Remarks: NA

Bill of Lading No.: NA Off Site Property No.: NA

Method of Shipment: Hand Carry

Shipped to: Jerry Alexander 2101-M Bldg 200E

Sample Identification	
MW-7-1 Plastic bags (Soil)	
MW-7-2 Plastic bags (Soil)	
MW-7-4 Lexan Tube (Soil)	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
JW Lindberg JW Lindberg	RG Alexander RG ALEXANDER	12-15-89/1300 Hrs
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

FVR\071889-B

9211133

SAMPLING ANALYSIS REQUEST

Part I: Field Section

Collector Singleton/Lindberg Date Sampled 12-7-89 Time NA hours

Affiliation of Sampler Westinghouse

Address MSIN 44-56
number street city state zip

Telephone (—) 6-5005 Company Contact JW Lindberg

LABORATORY SAMPLE NUMBER	COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION**
	MW-7-1	Soil	~5Kg, plastic bags
	MW-7-2	Soil	~5Kg plastic bags

Analysis Requested Sieve/Hydrometer Analysis ASTM-D-422, only do Hydrometer when percent passing #200 sieve is greater than 10% of total sample.

Special Handling and/or Storage NA

PART II: LABORATORY SECTION**

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate whether sample is soil, sludge, etc.
**Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

RADIATION RELEASE

Bldg. MW-7 Date 12-11-89

Released By _____
Operational Health Physics

Remarks MW-7-1

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-7 Date 12-11-89

Released By _____
Operational Health Physics

Remarks MW-7-2

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-7 Date 12/12/89

Released By _____
Operational Health Physics

Remarks MW-7-4

54-3000-022 (09/88)

9 2 1 - 1 3 5

TEST REQUEST FORM

Sample/Specimen No. 9-091 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 12-28-89

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
N/A	N/A	N/A
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-7-2

Received By: R.G ALEXANDER Date 12-18-89

Approved By: R.G ALEXANDER Date 12-28-89

9212136

SIEVE ANALYSIS DATA SHEET

Sample ID 9-091 Page 1 of 1

Tested By R.G. ALEXANDER Date 12-28-89

Procedure ETAL-07 Rev 1 Date Issued 11-15-89

EQUIPMENT ITEM	CALIBRATION NO.	DATE DUE
Balance	3304	3-25-90
Thermometer	0006	2-6-90
N/A	N/A	N/A

Sample Description SANDY GRAVEL Sieve Time 10 (min)

reduced by ☒ splitting ☒ quartering ☐ stockpile

BEFORE TEST WT (B) N/A AFTER TEST WT. (A) N/A $\frac{B-A}{B}$ X 100 = N/A % LOSS

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
N/A	2	3882.43	ø	ø	ø	100	100
	1½		ø	ø	ø	100	100
	1		52.87	1.4	1.4	98.6	98.6
	3/4		96.26	2.5	2.5	97.5	97.5
	1/2		169.32	4.4	4.4	95.6	95.6
	3/8		236.97	6.1	6.1	93.9	93.9
	#4		389.10	10.0	10.0	90.0	90.0
	#10	3882.43	674.84	17.4	17.4	82.6	82.6
	#40	129.45	83.92	64.8	64.8	35.2	29.1
	#60		112.80	87.1	87.1	12.9	10.7
	#100		120.99	93.5	93.5	6.5	5.3
	#200	129.45	124.19	95.9	95.9	4.1	3.4

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 4.1 %

D=Original Dry Weight of Sample 129.45g

E=Dry Weight of Sample After Washing/Sieve 124.19g

C = <(D-E)/D> X 100

Remarks

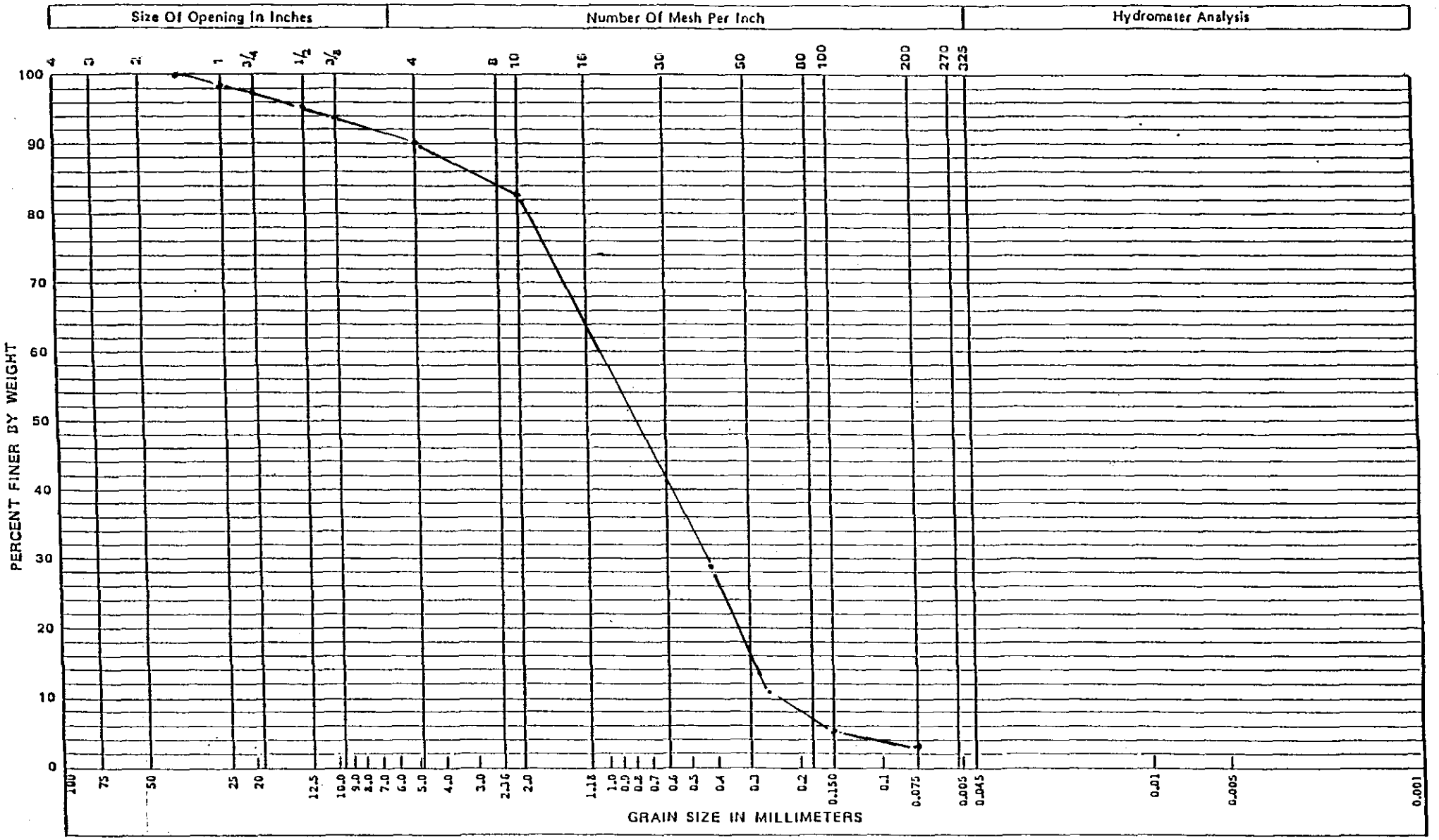
WASH FINE GRADING

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By J. Riley [signature] Date 1-5-90

A-6400-204(2-87)

9 2 1 GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-091 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-7-2

Plotted by: R.G ALEXANDER Date: 1-3-~~89~~ 90 Rev 1-8-90

Checked by: J Rehyer Date: 5 Jan 90

BD-6400-136 (9-85)

SOIL MOISTURE DATA SHEET

PROCEDURE NO. _____ REV. NO. _____

THERMOMETER NO. _____ CALIBRATION DUE DATE _____

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
9-091	5137.50	4467.15	584.72	4552.78	3882.43	17.3

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: RG ALEXANDER DATE 12-28-89

9212136

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: JW Lindberg Telephone 6-5005

Sample Collected by: Singleton/Anderson/Lindberg Date: Dec 7-12, 1989 Time: NA

Sample Locations: 1100-EM-1 Operable Unit, Temp. Well # MW-7

Ice Chest No.: NA Field Logbook & Page No.: NA

Remarks: NA

Bill of Lading No.: NA Off Site Property No.: NA

Method of Shipment: Hand Carry

Shipped to: Jerry Alexander 2101-M Bldg 200E

Sample Identification	
MW-7-1 Plastic bags (Soil)	
MW-7-2 Plastic bags (Soil)	
MW-7-4 Lexan Tube (Soil)	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
JW Lindberg JW Lindberg	RG Alexander RG ALEXANDER	12-15-89/1300 Hrs
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

FVR\071889-B

9212140

SAMPLING ANALYSIS REQUEST

Part I: Field Section

Collector Singleton / Lindberg Date Sampled 12-7-89 Time NA hours

Affiliation of Sampler Westinghouse

Address MSIN H4-56
number street city state zip

Telephone (—) 6-5005 Company Contact JW Lindberg

LABORATORY SAMPLE NUMBER	COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION**
	mw-7-1	Soil	~5Kg, plastic bags
	mw-7-2	Soil	~5Kg plastic bags

Analysis Requested Sieve / Hydrometer Analysis ASTM-D-422, only do Hydrometer when percent passing #200 sieve is greater than 10% of total sample.

Special Handling and/or Storage NA

PART II: LABORATORY SECTION**

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate whether sample is soil, sludge, etc.
**Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

RADIATION RELEASE

Bldg. MW-7 Date 12-11-89

Released By _____
Operational Health Physics

Remarks MW-7-1

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-7 Date 12-11-89

Released By _____
Operational Health Physics

Remarks MW-7-2

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-7 Date 12/12/89

Released By _____
Operational Health Physics

Remarks MW-7-4

54-3000-022 (09/88)

9213042

TEST REQUEST FORM

Sample/Specimen No. 9-078 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 12-11-89

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-7-3

Received By: RG ALEXANDER Date 12-11-89

Approved By: RG ALEXANDER Date 12-11-89

9212243

SIEVE ANALYSIS DATA SHEET

Sample ID 9-078 Page 1 of 2

Tested By P.G ALEXANDER Date 12-11-89

Procedure ESTAL-07 Rev Ø Date Issued 11-15-89

EQUIPMENT ITEM	CALIBRATION NO.	DATE DUE
Balance	3304	12-28-89
Thermometer	0006	2-6-90
N/A	N/A	N/A

Sample Description SANDY GRAVEL Sieve Time 10 (min)

reduced by ☒ splitting ☐ quartering ☐ stockpile

(B) (A)
BEFORE TEST WT. N/A AFTER TEST WT. N/A $\frac{B-A}{B}$ X 100 = N/A % LOSS

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
N/A	2	4479.21	Ø	Ø	Ø	100	100
	1½		519.53	11.6	11.6	88.4	88.4
	1		942.96	21.1	21.1	78.9	78.9
	¾		1118.32	25.0	25.0	75.0	75.0
	½		1363.10	30.4	30.4	69.6	69.6
	⅜		1562.90	34.9	34.9	65.1	65.1
	#4	4479.21	2026.33	45.2	45.2	54.8	54.8
	#10	170.37	37.45	22.0	22.0	78.0	42.7
	#40		79.93	46.9	46.9	53.1	29.0
	#60		99.23	58.2	58.2	41.8	22.9
	#100		114.28	67.1	67.1	32.9	18.0
	#200		127.62	74.9	74.9	26.1	13.8

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 _____%

D=Original Dry Weight of Sample _____g

E=Dry Weight of Sample After Drying _____g

C = <(D-E)/D> X 100

Remarks
WASH FINE GRADING UNDER SIZE FIELD SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By J T Relyea Date 12 Dec 89

A-6400-204(2-87)

9212144

SIEVE ANALYSIS DATA SHEET

Sample ID 9-078 Page 2 of 2

Tested By R.G ALEXANDER Date 12-12-89

Procedure ETAL-07 Rev Ø Date Issued 11-15-89

EQUIPMENT ITEM	CALIBRATION NO.	DATE DUE
Balance	3304	12-28-89
Thermometer	0006	2-6-90
N/A	N/A	N/A

Sample Description SAND Sieve Time 10 (min)

reduced by ☒ splitting ☐ quartering ☐ stockpile

(B) (A)
BEFORE TEST WT. N/A AFTER TEST WT. N/A $\frac{B-A}{B}$ X 100 = N/A % LOSS

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
N/A							
	#4	170.37	Ø	Ø	Ø	100	100
	#10		37.45	22.0	22.0	78.0	78.0
	#40		79.93	46.9	46.9	53.1	53.1
	#60		99.23	58.2	58.2	41.8	41.8
	#100		114.28	67.1	67.1	32.9	32.9
	#200		127.62	74.9	74.9	25.1	25.1

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve N/A %

D=Original Dry Weight of Sample N/A g

E=Dry Weight of Sample After Drying N/A g

C = <(D-E)/D> X 100

Remarks
- #4 WASH GRADING

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By J T Relyea Date 12 Dec 89

A-6400-204(2-87)

9211245

HYDROMETER ANALYSIS DATA SHEET

Sample ID 9-078 Page 1 of 1

Tested By HC Benny Date 2-28-90

Procedure ETL-07 Rev 1 Date Issued 11-15-89

EQUIPMENT ITEM	NO.	CALIBRATION DUE DATE
Hydrometer	1000	2-16-91
Balance	3304	3-25-90
Thermometer/Thermocouple	0602	2-9-91

Specific gravity of Sample 2.73

% Passing No. 10 Sieve 42.7 (%)

Hygroscopic Correction Factor 0

WEIGHT OF SAMPLE

Wt. Container + Soil N/A (g)

Wt. Container N/A (g)

Wt. Soil 67.07 (g)

COMPOSITE CORRECTION

1st Reading 6 at 23.8 °C

2nd Reading N/A at N/A °C

HYGROSCOPIC MOISTURE CONTENT

Wt. Container + Air Dry Soil N/A (g)

Wt. Container + Oven Dry Soil N/A (g)

Wt. Container N/A (g)

Water Content N/A (%)

REMARKS

Tube A

W2 157.07

9211345

Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)
2-28-90	1139	2.0	27	21	24.9	13.2	0.033
	1142	5.0	21	15	24.9	9.5	0.021
	1152	15.0	17	11	24.6	6.9	0.013
	1207	30.0	15	9	24.3	5.7	0.009
	1237	60.0	14	8	23.9	5.0	0.006
	1547	250.00	11	5	22.8	3.2	0.003
3-1-90	1137	1,440.0	10	4	22.7	2.5	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.

Checked By R.G. Mefford Date 3-6-90

SPECIFIC GRAVITY OF SOILS DATA SHEET

Specimen/Sample No. 9-078 Page 1 of 1

Test Operator R.G. ALEXANDER 3-2-90

EQUIPMENT ITEM	NO.	DATE DUE
Balance	3304	3-25-90
Oven Thermometer	0007	8-16-90
Thermometer	0002	2-9-91
Pycnometer	2554	N/A

Wetting Agent "Q" WATER

	DETERMINATION NO.	1	2	3
	Drying Container No.	N/A	N/A	N/A
	Wt. Container + Oven Dry Soil, ± 0.01g	N/A .__	.__	.__
	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	387.11	.__	.__
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	412.50	.__	.__
	Temperature, T_x at W_b, °C	23.7		
G_w	Specific Gravity of Wetting Agent at T_x	1.00	_.__	_.__
G_t	Specific Gravity of Soil at T_x	2.74	_.__	_.__
G_s	Specific Gravity of Soil at 20°C	2.73	_.__	_.__

$$G_t = \frac{G_{w^*} \gamma_{w^*} W_o}{W_o + (W_a - W_b)}$$

γ_w = Unit Weight Of Water (g/cc)

*$G_s = K \cdot G_t$

K values found in ASTM D854-58, Table 1

*NOTE $G_s = G_t$ When Test Run at 20 °c

Average Specific Gravity At 20°c	2.73

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.

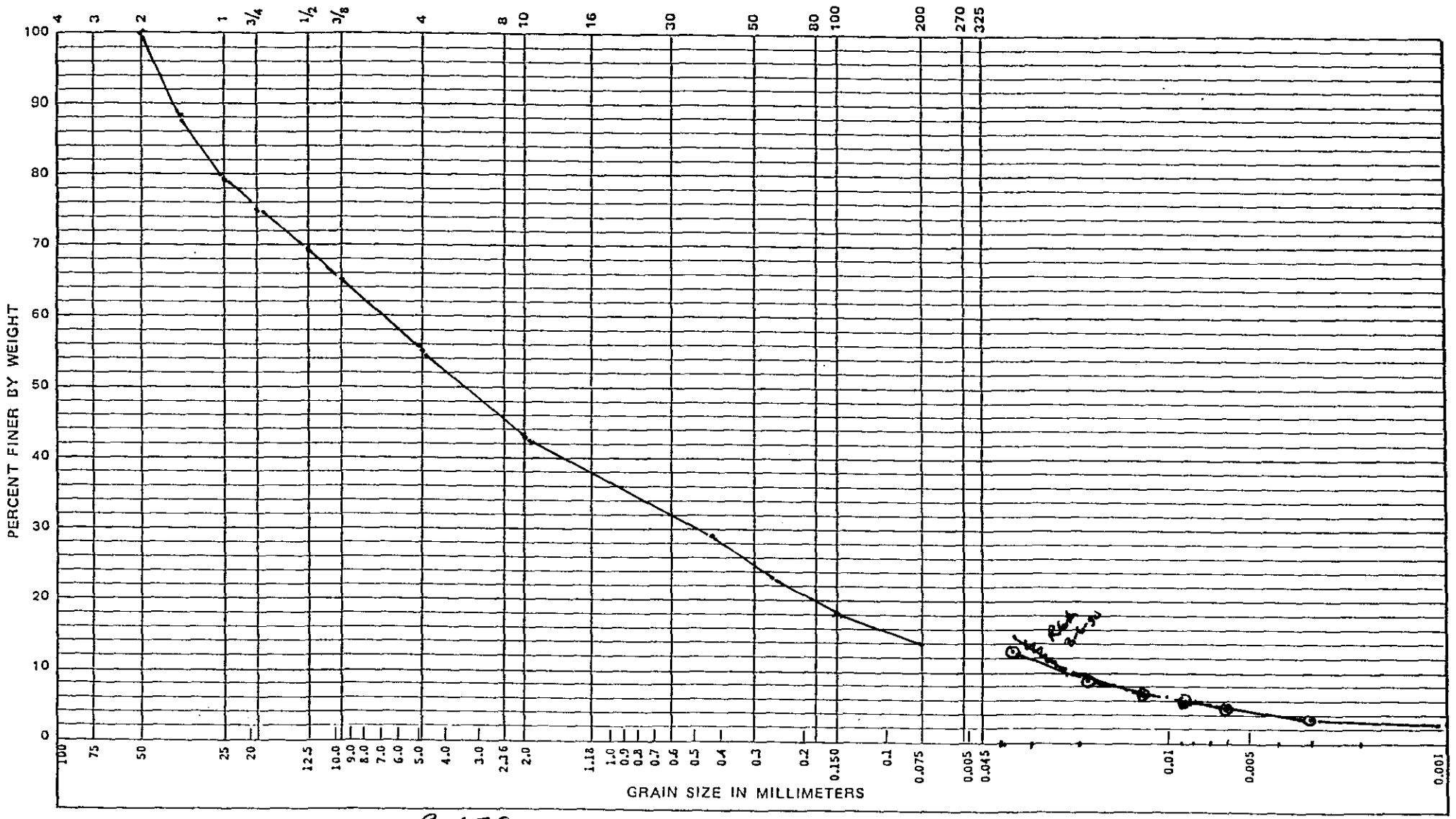
Checked By H.C. Benny Date 3-2-90

A-6400-235 (9-86)

9211147

9212 10743

GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-078 Procedure No. ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-7-3

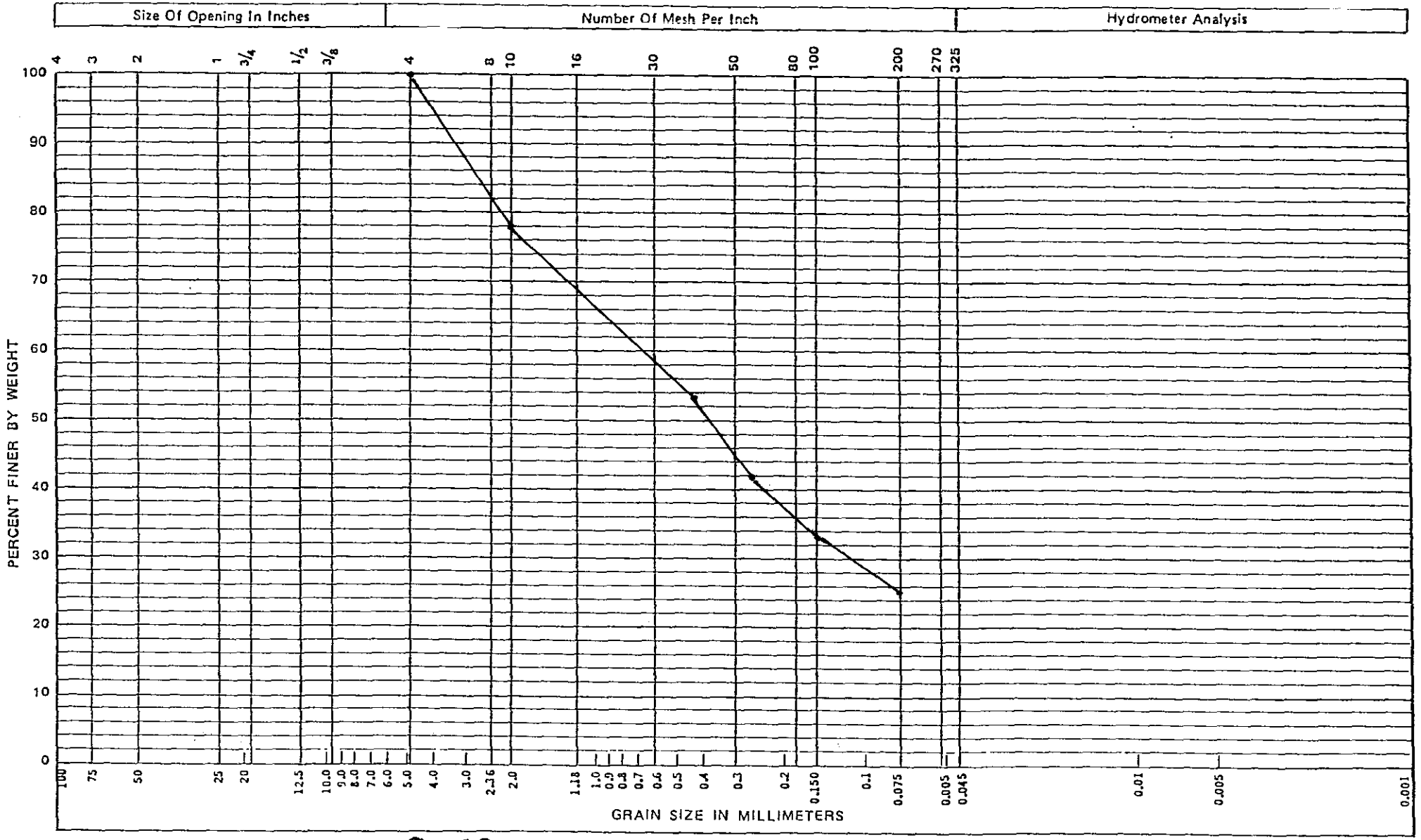
Plotted by: R.G ALEXANDER Date: 12-12-89

Checked by: J.F Relyea Date: 12 Dec 89

BD 6400 126 (0 85)

9212 1049

GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-678 Procedure No. ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description: -#4 SAND/SILT
MW-7-3
30% = 0.1 mm

Plotted by: R.G ALEXANDER
Date: 12-12-89

Checked by: J J Reluzco
Date: 12-Dec 89

BD-6400-136 (9-85)

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETRL-14 REV. NO. 0

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
9-078	5364.28	5067.69	518.48	4775.80	4479.21	6.62

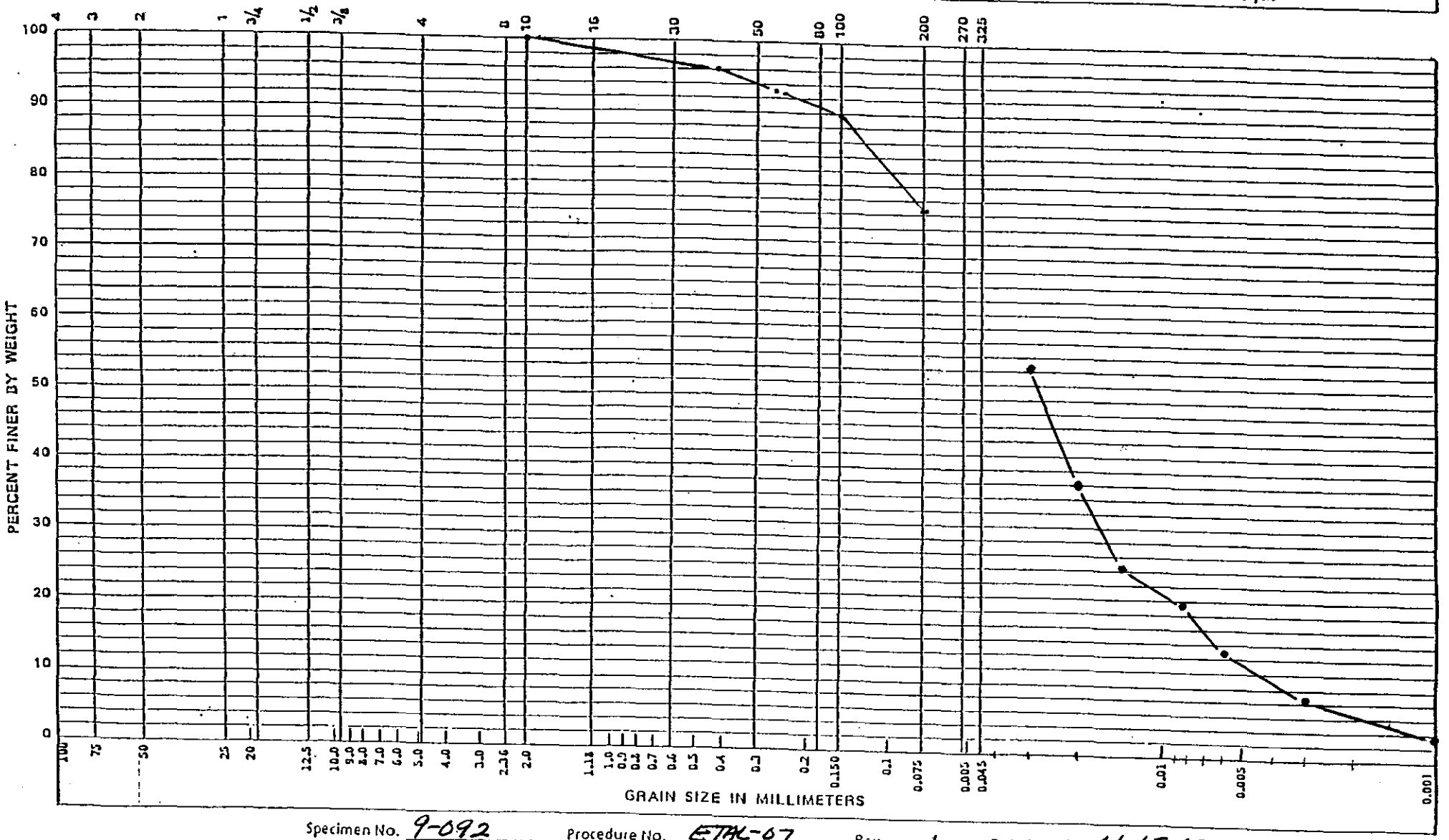
ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R.G ALEXANDER DATE 12-12-89

9212110750

9 2 1 2 [illegible] 5 6

GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-092 Procedure No. ETAC-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY SILT MW-7-4	Plotted by: R.G ALEXANDER Date: 12-28-89	Checked by: HC Benney Date: 1-11-90

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: Jon Lindberg Telephone 3-5005

Sample Collected by: K.M. Singleton Date: 12-7-89 Time: NA

Sample Locations: 1100EM1, 1100-3, MW-7

Ice Chest No.: NA Field Logbook & Page No.:

Remarks: NA

Bill of Lading No.: NA Off Site Property No.: NA

Method of Shipment: By K.M. Singleton

Shipped to: 2101-M

Sample Identification

1) MW-7-3, ~6 lbs of soil in plastic bag

NA

NA

NA

NA

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
K.M. Singleton	R.G. Alexander	12-11-89 / 10:15 AM
Relinquished by:	Received by:	Date/Time:
	R.G. Alexander	
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

FVR\071889-B

9212152

RADIATION RELEASE

Bldg. Drilling MW 6 Site Date 11-21-89

Released By C. D. Fulwyler
Operational Health Physics

Remarks Detectable sample # MW-6-5 MW-6-5

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. Horn Rapids Date 11-7-89

Released By
Operational Health Physics

Remarks MW-10-2
sieve & moisture anal.

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. Horn Rapids Date 10-23-89

Released By
Operational Health Physics

Remarks MW-8-1

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. Horn Rapids Date 11-7-89

Released By
Operational Health Physics

Remarks MW-10-3

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. Horn Rapid Date 10-30-89

Released By
Operational Health Physics

Remarks MW-8-2

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. Horn Rapids Date 11-10-89

Released By
Operational Health Physics

Remarks MW-10-4
41.5'-42'

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. Horn Rapids Date 10-30-89

Released By
Operational Health Physics

Remarks MW-8-3

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-7 Date 12-11-89

Released By
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. Horn Rapids Date 11-6-89

Released By
Operational Health Physics

Remarks [redacted] 9.5 ft to 10.5 ft
MW-10-1

54-3000-022 (09/88)

TEST REQUEST FORM

Sample/Specimen No. 9-092 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 12-28-89

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07
HYD. CONDUCTIVITY	1	ETAL-09
ATTERBERG LIMITS	1	ETAL-18

Remarks FIELD SAMPLE MW-7-4

Received By: R.G ALEXANDER Date 12-15-89

Approved By: R.G ALEXANDER Date 12-28-89

9212154

SIEVE ANALYSIS DATA SHEET

Sample ID 9-092 Page 1 of 1

Tested By R.G ALEXANDER Date 12-28-89

Procedure ETAL-07 Rev 1 Date Issued 11-15-89

EQUIPMENT ITEM	CALIBRATION NO.	DATE DUE
Balance	3304	3-25-90
Thermometer	0006	2-6-90
N/A	N/A	N/A

Sample Description SANDY SILT Sieve Time 10 (min)

reduced by ☒ splitting ☐ quartering ☐ stockpile

(B) (A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A $\frac{B-A}{B}$ X 100 = N/A % LOSS

Sieve ID Number	Sieve Size	Sample Weight	Cumulative Wt. Retained (g)	% Retained	Cumulative % Retained	Cumulative % Pass	% Pass
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	#10	135.75	0	0	0	100	100
	#40		5.10	3.8	3.8	96.2	96.2
	#60		9.59	7.1	7.1	92.9	92.9
	#100		14.26	10.5	10.5	89.5	89.5
	#200	135.75	31.74	23.4	23.4	76.6	76.6

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 76.6%

D=Original Dry Weight of Sample 135.75 g

E=Dry Weight of Sample After Washing/Sieve 31.74 g

C = <(D-E)/D> X 100

Remarks

WASH GRADING

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

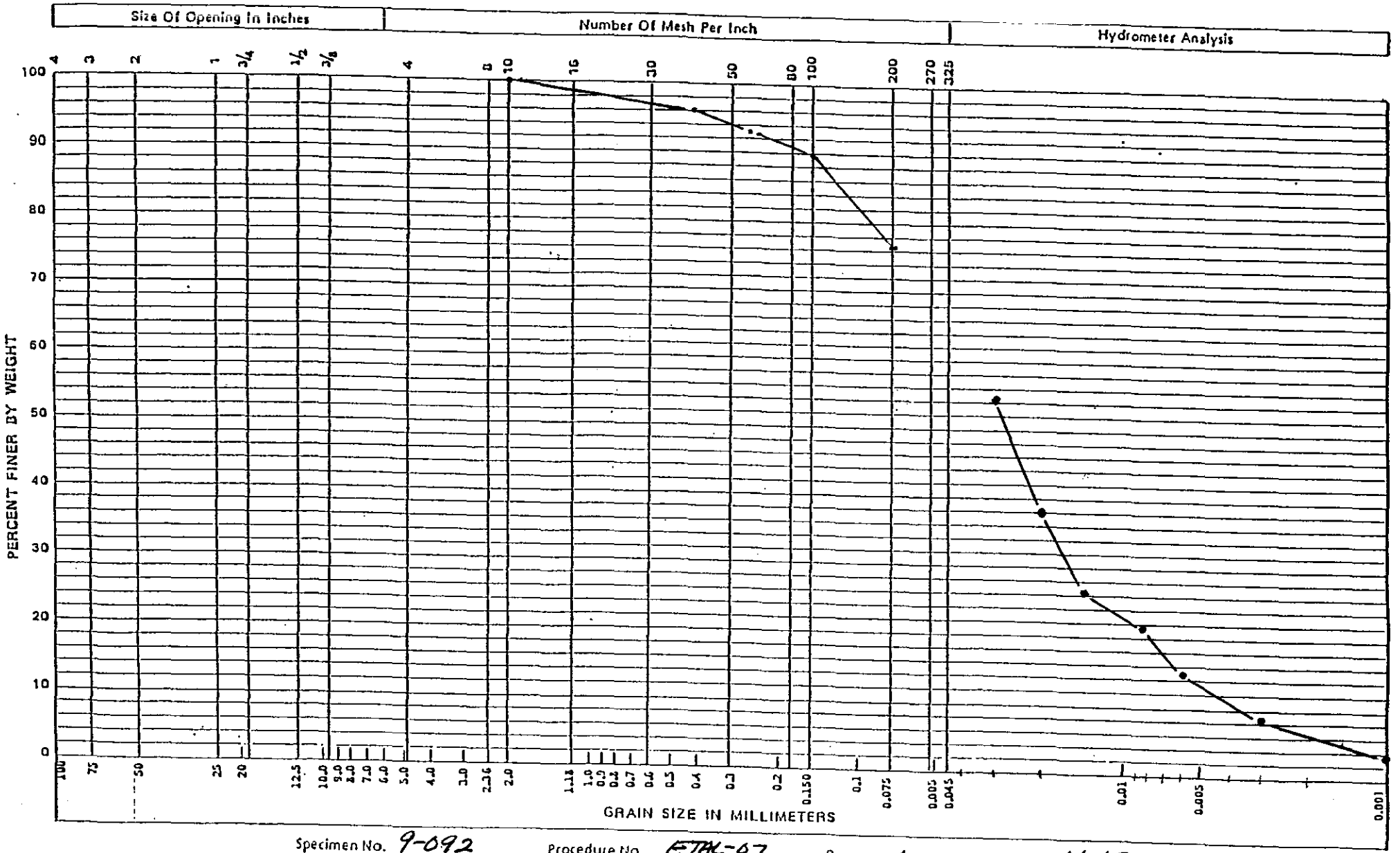
Checked By HC Ramsey Date 1-11-90

A-6400-204(2-87)

9212-15

9 2 1 2 [illegible] 5 6

GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-092 Procedure No. ETAC-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY SILT
MW-7-4

Plotted by: R.G ALEXANDER
Date: 12-28-89

Checked by: HC Benney
Date: 1-11-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. 0

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

SAMPLE NO.	WET WT. + CAN	DRY WT. + CAN	CAN WT.	WET WT. SOIL	DRY WT. SOIL	% WATER
9-092	1119.99	900.41	311.48	808.51	588.93	37.3

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 12-28-89

SPECIFIC GRAVITY OF SOILS DATA SHEET

Specimen/Sample No. 9-092 Page 1 of 1

Test Operator R.G. ALEXANDER 3-2-90

EQUIPMENT ITEM	NO.	DATE DUE
Balance	3304	3-25-90
Oven Thermometer	0007	8-16-90
Thermometer	0002	2-9-91
Pycnometer	2554	N/A

Wetting Agent _____

	DETERMINATION NO.	1	2	3
	Drying Container No.	N/A	N/A	N/A
	Wt. Container + Oven Dry Soil, ± 0.01g	N/A .--	N/A .--	N/A .--
	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 .10	.--	.--
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	412 .11	.--	.--
	Temperature, T_x at W_b, °C	25.0C .	.	.
G_w	Specific Gravity of Wetting Agent at T_x	1.00	-.--	-.--
G_t	Specific Gravity of Soil at T_x	2.67	-.--	-.--
G_s	Specific Gravity of Soil at 20°C	2.66	-.--	-.--

$$G_t = \frac{G_w * \gamma_w * W_o}{W_o + (W_a - W_b)}$$

γ_w = Unit Weight Of Water (g/cc)

*$G_s = K * G_t$

K values found in ASTM D854-58, Table 1

*NOTE $G_s = G_t$ When Test Run at 20 °c

Average Specific Gravity At 20°c	2.66

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 H C Berry Date 3-3-90

A-6400-235 (9-86)

HYDROMETER ANALYSIS DATA SHEET

Sample ID 9-092 Page 1 of 1

Tested By HL Benny Date 3-7-90

Procedure ETAL 07 Rev 1 Date Issued 11-15-89

EQUIPMENT ITEM	NO.	CALIBRATION DUE DATE
Hydrometer	1000	2-16-91
Balance	3304	3-25-90
Thermometer/Thermocouple	0002	2-9-91

Specific gravity of Sample 2.66

% Passing No. 10 Sieve 100 (%)

Hygroscopic Correction Factor Ø

WEIGHT OF SAMPLE

Wt. Container + Soil NA (g)

Wt. Container NA (g)

Wt. Soil 60.50 (g)

COMPOSITE CORRECTION

1st Reading 7 at 24.2 °C

2nd Reading NA at NA °C

HYGROSCOPIC MOISTURE CONTENT

Wt. Container + Air Dry Soil NA (g)

Wt. Container + Oven Dry Soil NA (g)

Wt. Container NA (g)

Water Content NA (%)

REMARKS

Tube A

Ws 60.50

Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)
3-7-90	0655	2.0	40	33	24.1	54.5 ·	0.02
	0658	5.0	30	23	24.2	38.0 ·	0.02
	0708	15.0	23	16	24.4	26.4 ·	0.012
	0723	30.0	20	13	24.1	21.5 ·	0.00
	0753	60.0	16	9	24.0	14.9 ·	0.00
↓	1103	250.00	12	5	23.7	8.3 ·	0.00
3-8-90	0653	1,440.0	9	2	20.9	3.3 ·	0.00

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.

Checked By R.G Alexander Date 3-14-90

HYDRAULIC CONDUCTIVITY OF SOILS DATA SHEET

Sample No. 9-092 Page 1 Of 5

Test Operator ______ Date ______

EQUIPMENT ITEM	NO.	DATE DUE
Balance	3304	3-25-90
Oven Thermometer	0006	2-6-90
Thermometer	N/A	N/A
Thermocouple		
Temperature Controller		
Pressure Gauge		
Pressure Transducer		
Pressure Transducer		
Back Pressure Gauge		
Pressure Transducer		
Pressure Transducer		
Calipers	5623	8-6-90
Load Frame	N/A	N/A
Data Logger		
N/A		
N/A		
N/A		

☐ Immediate (User) Calibration Performed. (Documentation To Be Attached)

Sample Preparation

PARTICLE SIZE (Sieve Mesh Range)

N/A	To	N/A
	To	
	To	
	To	
	To	
	To	
	To	

WEIGHT

N/A	%
	%
	%
	%
	%
	%
	%
Total	100 %

OTHER COMPONENTS

N/A	

N/A	%
	%
	%
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 HC Barry Date 1-11-90

Specimen No. 9-092

SAMPLE PREPARATION

Determine Weight of Samples in Container

Container No.	#4
Wt. of Sample + Container, g	1119.99
Wt. of Container, g	311.48
Wt. of Sample, g	808.51

Determine the Water Content of the "Air Dry" Sample

Container No.	4
Wt. Container & Wet Soil (A), g	1119.99
Wt. Container & Dry Soil (B), g	900.41
Wt. of Water, g	219.58
Wt. of Container (C), g	311.48
Wt. of Dry Soil, W_s, g	588.93
Water Content (W), %	37.3

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

SAMPLE COMPONENT	SPECIFIC GRAVITY, G	LABORATORY NOTEBOOK DATA LOCATION
N/A	N/A	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 Harold A Benny Date 1-11-90

Sample No. 9-092

SAMPLE COMPACTION

Compaction Method Static N/A Tamping N/A

STATIC or TAMPING	Load Applied, g/ Layer length, cm / No. Tamps per Layer/ Layer Length, cm	Layer 1	N/A	11	N/A
		2		12	
		3		13	
		4		14	
		5		15	
		6		16	
		7		17	
		8		18	
		9		19	
		10		20	

Total No. of Layers N/A

INTACT SAMPLE FROM SPLIT TUBE IN 4" LUCITE TUBE

Tamper Foot Diameter cm	N/A
Tamper Applied Load, g	N/A
Sample Diameter, (d), cm	8.78
Sample Length, (L), cm	7.64
Sample Mold or Permeameter Weight & Compacted Sample, g	1036.69
Sample Mold or Permeameter Weight, g	175.22
Weight of Compacted Sample, (E), g	861.47
Weight of Container & Uncompacted Wet Sample, (A), g	1119.99
Weight of Container & Uncompacted Dry Sample, (B), g	900.41
Weight of Water, g	219.58
Weight of Container, (C), g	311.48
Weight of Dry Soil, (WS), g	588.93
Water Content, %	37.3
Compacted Bulk Density of Sample, (γm), g/cc	1.86
Compacted Sample Dry Density, (γd), g/cc	1.36

$$\gamma m = \frac{E}{(\pi)\,(d/2)^2 (L)}$$

$$\gamma d = \left(\frac{\gamma m}{W + 100}\right) 100$$

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 H C Benny Date 1-11-90

HYDRAULIC CONDUCTIVITY DATA SHEET

Sample ID. 9-092 Page 4 of 5

Procedure No. ETAL-09 Date Issued 11-15-89

DATE	TIME			VOLUME DETERMINANTS							Operator Initials
				Effluent		Container		System	Pressure		
Year 89 (Mo/Day)	System Down (Hr: Min)	System Up (Hr: Min)	Time Change (Hr: Min)	Temp (°C)	Weight (±0.1g)	Tare (±0.1g)	Tare & Effluent (±0.1g)	Temp (°C)	Pore H_2O ~~psi~~ CM	Back H_2O (psi)	
12-28	—	1105	START TEST			267.40	—	—	193.7	N/A	RGA
1-3-90	1105	1110	144:00	21°	632.06	267.40	899.46	21°	193.7	N/A	RGA
1-5-90	1110	1115	48:00	22°	250.72	267.40	518.12 ~~894~~ RGA	22°	193.7	N/A	RGA
1-9	1115	1120	96:00	22°	483.36	267.40	750.76	22°	193.7	N/A	RGA
1-10	1120	STOP	48:00	21°	120.30	267.40	387.70	21	193.7	N/A	RGA
1-10	STOP	TEST	—	—	—	—	—	—	—	—	RGA

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 HC Bonny? Date 1-11-90

A-6400-234.2 (7-86)

9211163

HYDRAULIC CONDUCTIVITY DATA SHEET

Sample ID 9-092 Page 5 of 5

Procedure No. ETAL-09 Date Issued 11-15-89

Date Year 89 (Mo/Day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (cm/cm)	Effluent Analysis (Sample Number)	Effluent Analysis Lab. Notebook Location	Effluent Description	Operator Initials
12-28	START TEST		—	—	—	RGA
1-3-90	7.94×10^{-7}	26.35	—	—	CLEAR	RGA
1-5	9.45×10^{-7}	25.35	—	—	CLEAR	RGA
1-9	9.11×10^{-7}	25.35	—	—	CLEAR	RGA
1-10	9.07×10^{-7}	25.35	—	—	CLEAR	RGA
1-10	STOP TEST	9.1	$\pm 0.2 \times 10^{-7}$ cm/SEC		—	RGA

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 HL Benny Date 1-11-90

9 2 1 2 2 1 1 0 7 5 4

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: JW Lindberg Telephone 6-5005

Sample Collected by: Singleton/Anderson/Lindberg Date: Dec 7-12, 1989 Time: NA

Sample Locations: 1100-EM-1 Operable Unit, Temp. Well # MW-7

Ice Chest No.: NA Field Logbook & Page No.: NA

Remarks: NA

Bill of Lading No.: NA Off Site Property No.: NA

Method of Shipment: Hand Carry

Shipped to: Jerry Alexander 2101-M Bldg 200E

Sample Identification	
MW-7-1 Plastic bags (Soil)	
MW-7-2 Plastic bags (Soil)	
MW-7-4 Lexan Tube (Soil)	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
JW Lindberg JW Lindberg	RG Alexander RG ALEXANDER	12-15-89/1300 Hrs
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

FVR\071889-B

9211150155

SAMPLING ANALYSIS REQUEST

Part I: Field Section

Collector Anderson/Lindberg Date Sampled 12-12-89 Time NA hours

Affiliation of Sampler Golder/Westinghouse

Address Richland
number street city state zip

Telephone (—) 6-5005 Company Contact JW Lindberg

LABORATORY SAMPLE NUMBER	COLLECTOR'S SAMPLE NO.	TYPE OF SAMPLE*	FIELD INFORMATION**
	MW-7-4	Soil	Lexan Tube

Analysis Requested Permeability after Klute & Dirksen, Atterberg Limits, Sieve/Hydrometer Analysis

Special Handling and/or Storage Please remove any sluff material at top of lexan tube prior to permeability test.

PART II: LABORATORY SECTION**

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate whether sample is soil, sludge, etc.
**Use back of page for additional information relative to sample location.

Figure 9-19. Example of hazardous waste sample analysis sheet.

9211365

RADIATION RELEASE

Bldg. MW-7 Date 12-11-89

Released By _____
Operational Health Physics

Remarks MW-7-1

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-7 Date 12-11-89

Released By _____
Operational Health Physics

Remarks MW-7-2

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-7 Date 12/12/89

Released By _____
Operational Health Physics

Remarks MW-7-4

54-3000-022 (09/88)

9211167