STAR

9212110750

TEST REQUEST FORM

Sample/Specimen No. D-032 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12-1

Received By: R.G ALEXANDER Date 1-18-90

Approved By: R.G. ALEXANDER Date 1-29-90

DEC 1991
RECEIVED
EDMC

SIEVE ANALYSIS DATA SHEET

Sample ID 0-032 Page 1 of 1

Tested By R.G ALEXANDER Date 1-29-90

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 SAND 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							
	#10	154.00	Ø	Ø	Ø	100	100
	#40		74.88	48.6	48.6	51.4	51.4
	#60		126.62	82.2	82.2	17.8	17.8
	#100		145.06	94.2	94.2	5.8	5.8
	#200		150.40	97.7	97.7	2.3	2.3

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 ____ %

D=Original Dry Weight of Sample 154.00 g

E=Dry Weight of Sample After Washing/Sieve 150.40 g

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

Remarks
WASH FINE GRADING
SMALL FIELD
SAMPLE

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

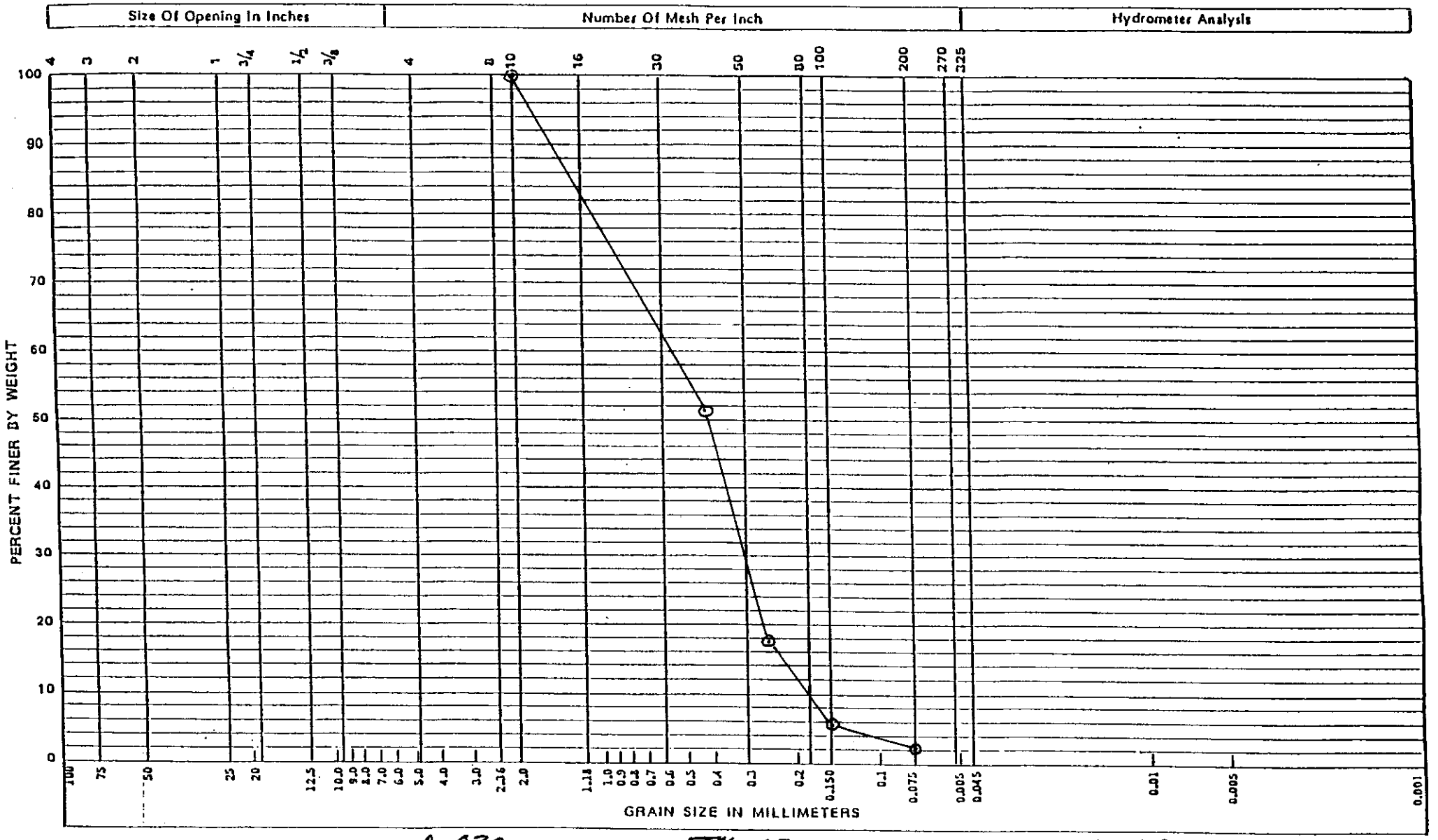
Checked By HLBenny Date 1-31-90

A-6400-204(2-87)

9212110051

9 2 1 2 1 1 0 5 2

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-032 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description:	Plotted by:	Checked by:
~~Sandy Gravel~~ MW-12-1 SAND Rev 1-29-90	R.G. ALEXANDER	HL Benny
	Date: 1-29-90	Date: 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
0-032	5435.76	5254.71	835.76	4600.00	4418.95	4.10

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 1-29-90

9 2 1 2 1 1 0 7 5 3

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J.W. Lindberg Telephone: 6-5005

Sample Collected by: R.D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner-6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner-6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D Miller	JW Lindberg	Jan 16 0145S
Relinquished by:	Received by:	Date/Time:
JW Lindberg	R.G ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

9 2 1 2 1 1 0 1 5 4

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9 2 1 2 1 0 5 5

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By B
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By B
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By B
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By B
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By B
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By B
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By M Caseland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By M Caseland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

9 2 1 1 0 5 6

TEST REQUEST FORM

Sample/Specimen No. 0-033 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks MW-12-2

Received By: RG ALEXANDER Date 1-18-90

Approved By: RG ALEXANDER Date 1-29-90

9212110557

SIEVE ANALYSIS DATA SHEET

Sample ID 0-033 Page 1 of 1

Tested By R.G ALEXANDER Date 1-29-90

Procedure _____ Rev _____ Date Issued _____

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

Sample Description SAND 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	4614.13	Ø	Ø	Ø	100	100
	1½		Ø	Ø	Ø	100	100
	1		176.72	3.8	3.8	96.2	96.2
	¾		212.74	4.6	4.6	95.4	95.4
	½		292.83	6.3	6.3	93.7	93.7
	⅜		338.02	7.3	7.3	92.7	92.7
	#4		390.35	8.5	8.5	91.5	91.5
	#10	4614.13	432.83	9.4	9.4	90.6	90.6
	#40	147.58	15.40	10.4	10.4	89.6	81.2
	#60		51.20	34.7	34.7	65.3	59.2
	#100		80.96	54.9	54.9	45.1	40.9
	#200		104.03	70.5	70.5	29.5	26.7

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 29.5 %

D=Original Dry Weight of Sample 147.58 g

E=Dry Weight of Sample After Washing/Sieve 104.03 g

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

Remarks
WASH FINE GRADING
SMALL FIELD
SAMPLE

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

Checked By H L Benny Date 1-31-90

A-6400-204(2-87)

9212110058

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
0-633	5505.23	5198.13	584.00	4921.23	4614.13	6.66

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 1-29-90

9212110259

HYDROMETER ANALYSIS DATA SHEET

Sample ID 0.033

Page 1 of 1

Tested By HL Benny Date 3-8-90

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 2.70

% Passing No. 10 Sieve 90.6 (%)

Hygroscopic Correction Factor Ø

WEIGHT OF SAMPLE

Wt. Container + Soil NA (g)

Wt. Container NA (g)

Wt. Soil 95.11 (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 D

* Considerable foam (~1") on top after mixing, readings are approximate.

w = 104.98

Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)
3-8-90	0923	2.0	~20 *	13	23.4	12.3	0.033
	0926	5.0	~16 *	9	23.2	8.5	0.021
	0936	15.0	14	7	23.2	6.6	0.013
	0951	30.0	13	6	23.1	HLB 3-13-90 ~~5.67.8~~	0.009
	1021	60.0	12	5	22.4	4.7	0.006
	1331	250.00	9	2	22.0	1.9	0.003
3-9-90	0921	1,440.0	8	1	21.8	0.9	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. Alexander Date 3-14-90

A-6400-205 (1.87)

9 2 1 2 1 0 2 6 0

SPECIFIC GRAVITY OF SOILS DATA SHEET

Specimen/Sample No. 0-033 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 .09	.__	.__
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	412 .31	.__	.__
	Temperature, T_x at W_b, °C	24.8 c	.	.
G_w	Specific Gravity of Wetting Agent at T_x	1.00	_.__	_.__
G_t	Specific Gravity of Soil at T_x	2.71	_.__	_.__
G_s	Specific Gravity of Soil at 20°C	2.70	_.__	_.__

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

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

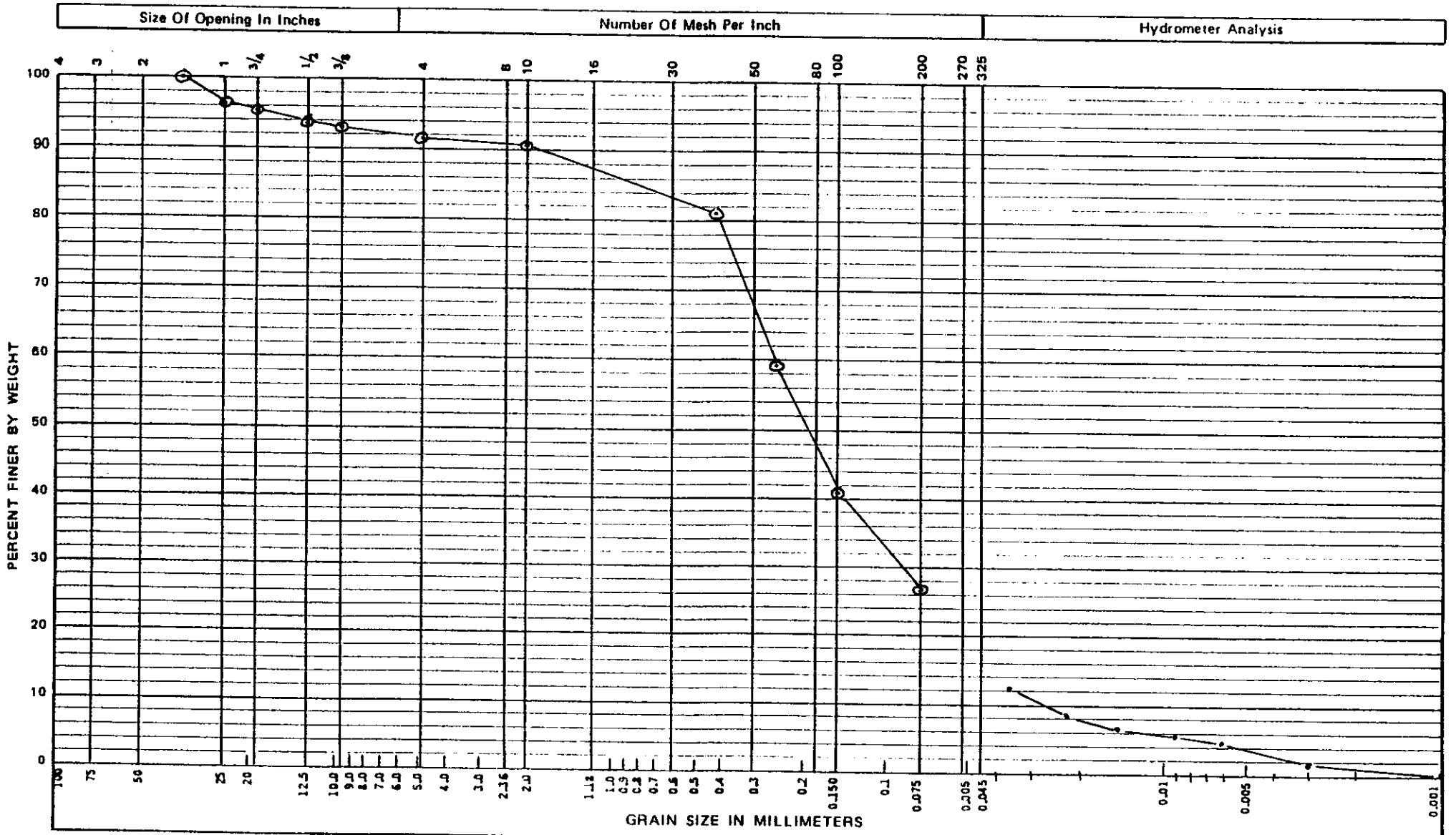
Average Specific Gravity At 20°c	2.70

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 Benny Date 3-2-90

A-6400-235 (9-86)

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-033 Procedure No ETAL-07 Rev. 1 Date Issued 11-1589

Sample Description: SAND
MW-12-2 Rcd 1-29-90

Plotted by: R.G ALEXANDER
Date: 1-29-90

Checked by: HL Benny
Date: 1-31-90

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J.W. Lindberg Telephone: 6-5005

Sample Collected by: R.D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab.

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner-6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner-6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D Miller	JWLindberg	Jan 16 0145
Relinquished by:	Received by:	Date/Time:
JWLindberg	R.G ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By [signature]
Operational Health Physics

Remarks

1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By [signature]
Operational Health Physics

Remarks

1 Sample

54-3000-022 (09/88)

TEST REQUEST FORM

Sample/Specimen No. 0-034 Cost Code/Work Order No. ED-332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12-3

Received By: R.G ALEXANDER Date 1-18-90

Approved By: R.G ALEXANDER Date 1-29-90

SIEVE ANALYSIS DATA SHEET

Sample ID 0-034 Page 1 of 1

Tested By RG ALEXANDER Date 1-29-90

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

EQUIPMENT ITEM	CALIBRATION NO.	DATE DUE
Balance	9304	3-26-90
Thermometer	0006	2-6-90
N/A	N/A	N/A

Sample Description SAND 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	4338.55	Ø	Ø	Ø	100	100
	1½		Ø	Ø	Ø	100	100
	1		26.99	0.6	0.6	99.4	99.4
	¾		161.36	3.7	3.7	96.3	96.3
	½		233.69	5.4	5.4	94.6	94.6
	⅜		266.06	6.1	6.1	93.9	93.9
	#4		335.49	7.7	7.7	92.3	92.3
	#10	4338.55	388.12	8.9	8.9	91.1	91.1
	#40	141.53	15.10	10.7	10.7	89.3	81.4
	#60		57.18	40.4	40.4	59.6	54.3
	#100		95.57	67.5	67.5	32.5	29.6
	#200		121.09	85.6	85.6	14.4	13.2

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 85.6 %

D=Original Dry Weight of Sample 141.53 g

E=Dry Weight of Sample After Washing/Sieve 121.09 g

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

Remarks
WASH FINE GRADING
SMALL FIELD
SAMPLE

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

Checked By HLBenny Date 1-31-90

A-5400-204(2-87)

9212106 7

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
6-034	5011.30	4923.27	584.72	4426.58	4338.55	2.03

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 1-29-90

9 2 1 2 1 1 7 1 5 3

HYDROMETER ANALYSIS DATA SHEET

Sample ID 0-034 Page ____ of ____

Tested By HLBenny Date 3-7-90

Procedure ____ Rev ____ Date Issued ____

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 2.71

% Passing No. 10 Sieve 91.1 (%)

Hygroscopic Correction Factor Ø

WEIGHT OF SAMPLE

Wt. Container + Soil ~~10~~ HLB 2-25-90 (g)

Wt. Container ____ (g)

Wt. Soil 103.42 (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 B

W=113.52

Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Partic diame (mm
3-7-90	0704	2.0	11	4	24.7	3.5	0.03
↓	0707	5.0	10	3	24.4	2.6	0.02
	0717	15.0	8	1	23.8	0.9	0.01
	0732	30.0	7	0	23.8	Ø	N
	0802	60.0	HLB Ø NA	NA	NA	NA	N
↓	1112	250.00	Ø NA	NA	NA	NA	N
NA	0702	1,440.0	NA	NA	NA	NA	N

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 RG Alexander Date 3-14-90

A-6400-205

SPECIFIC GRAVITY OF SOILS DATA SHEET

Specimen/Sample No. 0-034 Page 1 of 1

Test Operator R.G. ALEXANDER 2-26-90

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 .07	.__	.__
W_b	Wt. Pycnometer + Wetting Agent + Soil, g	412 .33	.__	.__
	Temperature, T_x at W_b, °C	25.6 C		
G_w	Specific Gravity of Wetting Agent at T_x	1.00	_.__	_.__
G_t	Specific Gravity of Soil at T_x	2.71	_.__	_.__
G_s	Specific Gravity of Soil at 20°C	2.71	_.__	_.__

* LIGHT BROWN SAND

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

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

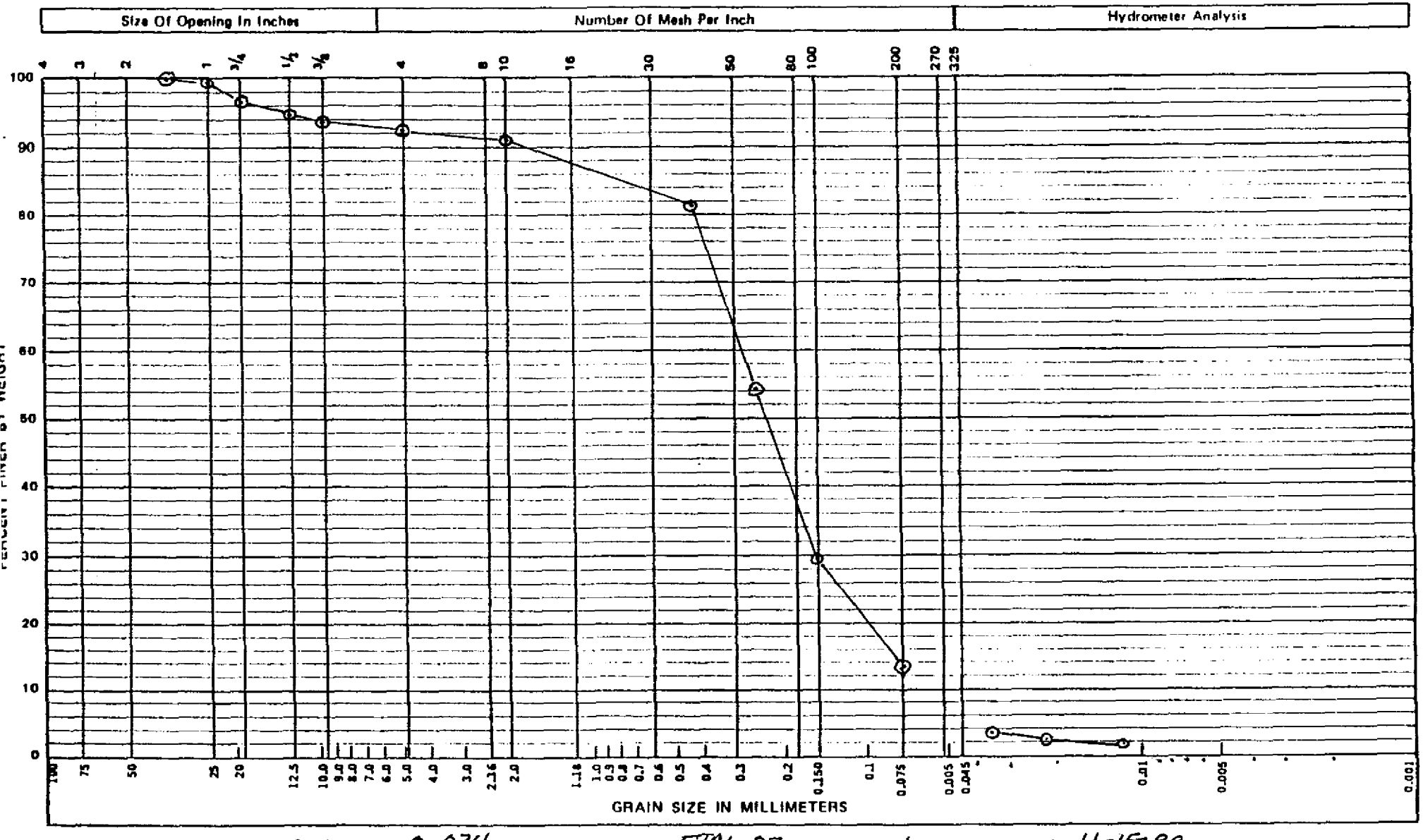
Average Specific Gravity At 20°c	2.71

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 Benny Date 3-1-90

A-6400-235 (9-86)

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-034 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SAND MW-12-3	Plotted by: R.G ALEXANDER Date: 1-29-90	Checked by: HL Benny Date: 1-31-90

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab.

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner-6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner-6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D. Miller	J.W. Lindberg	Jan 16 0145
Relinquished by:	Received by:	Date/Time:
J.W. Lindberg	R.G. ALEXANDER	1-18-90/0610
Relinquished by:	Received by: R.G. Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9212103 73

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By [signature]
Operational Health Physics

Remarks

1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By [signature]
Operational Health Physics

Remarks

1 Sample

54-3000-022 (09/88)

9 2 1 2 1 0 7 4

TEST REQUEST FORM

Sample/Specimen No. 0-035 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks FIELD SAMPLE MW+2-4

Received By: R.G ALEXANDER Date 1-18-90

Approved By: R.G ALEXANDER Date 1-29-90

9 2 1 2 1 0 7 5

SIEVE ANALYSIS DATA SHEET

Sample ID 0-035 Page 1 of 1

Tested By R.G. ALEXANDER Date 1-29-90

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 1/2	4319.06	663.44	15.4	15.4	84.6	84.6
	2		663.44	15.4	15.4	84.6	84.6
	1 1/2		965.92	22.4	22.4	77.6	77.6
	1		1298.72	30.1	30.1	69.9	69.9
	3/4		1650.26	38.2	38.2	61.8	61.8
	1/2		1830.83	42.4	42.4	57.6	57.6
	3/8		1961.08	45.4	45.4	54.6	54.6
	#4		2130.42	49.3	49.3	50.7	50.7
	#10	4319.06	2265.35	52.5	52.5	47.5	47.5
	#40	149.07	36.08	24.2	24.2	75.8	36.0
	#60		73.27	49.2	49.2	50.8	24.1
	#100		106.31	71.3	71.3	28.7	13.6
	#200		126.47	84.8	84.8	15.2	7.2

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 15.2 %

D=Original Dry Weight of Sample 149.07 g

E=Dry Weight of Sample After Washing/Sieve 126.47 g

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

Remarks
WASH FINE GRADING
SMALL FIELD
SAMPLE

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

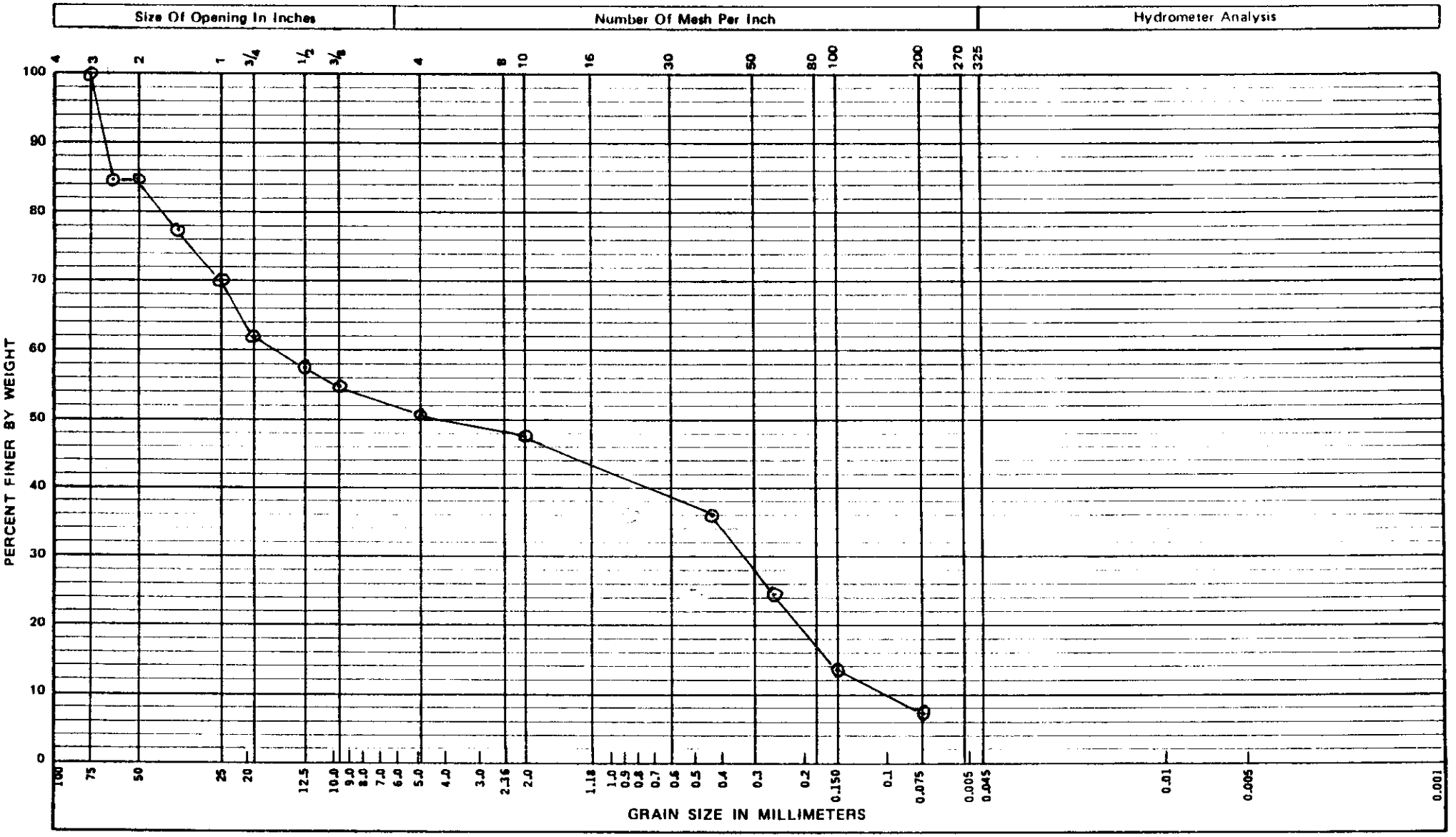
Checked By HL Benny Date 1-31-90

A-8400-204(2-87)

9 2 1 1 1 1 7 6

9 2 1 2 1 0 7 7

GRAIN SIZE ANALYSIS PLOT



Specimen No. D-035 Procedure No ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-12-4

Plotted by: R.G ALEXANDER Date: 1-29-90

Checked by: H.L Benny Date: 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
0-035	4991.80	4908.45	589.39	4402.41	4319.06	1.93

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 1-29-90

9212 1 0 7 9

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9 2 1 2 1 0 1 7 9

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner - 6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner - 6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D Miller	JW Lindberg JW Lindberg	Jan 16/0145
Relinquished by:	Received by:	Date/Time:
JW Lindberg JW Lindberg	R.G ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

9 2 1 1 0 3 8 0

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By MM Copeland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By MM Copeland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

9 2 1 2 1 1 0 5 9 1

TEST REQUEST FORM

Sample/Specimen No. 0-036 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12-5

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: R.G. ALEXANDER Date 1-29-90

9212110532

SIEVE ANALYSIS DATA SHEET

Sample ID 0-036 Page 1 of 1

Tested By R.G. ALEXANDER Date 1-29-90

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	4839.71	Ø	Ø	Ø	100	100
	1 1/2		218.49	4.5	4.5	95.5	95.5
	1		428.69	8.9	8.9	91.1	91.1
	3/4		685.82	14.2	14.2	85.8	85.8
	1/2		926.77	19.1	19.1	80.9	80.9
	3/8		1060.28	21.9	21.9	78.1	78.1
	#4		1201.32	24.8	24.8	75.2	75.2
	#10	4839.71	1224.41	25.3	25.3	74.7	74.7
	#40	124.62	47.17	37.9	37.9	62.1	46.4
	#60		99.75	80.0	80.0	20.0	14.9
	#100		114.27	91.7	91.7	8.3	6.2
	#200		119.64	96.0	96.0	4.0	3.0

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 4.0 %

D=Original Dry Weight of Sample 124.62 g

E=Dry Weight of Sample After Washing/Sieve 119.64 g

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

Remarks
WASH FINE GRADING
SMALL FIELD
SAMPLE

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

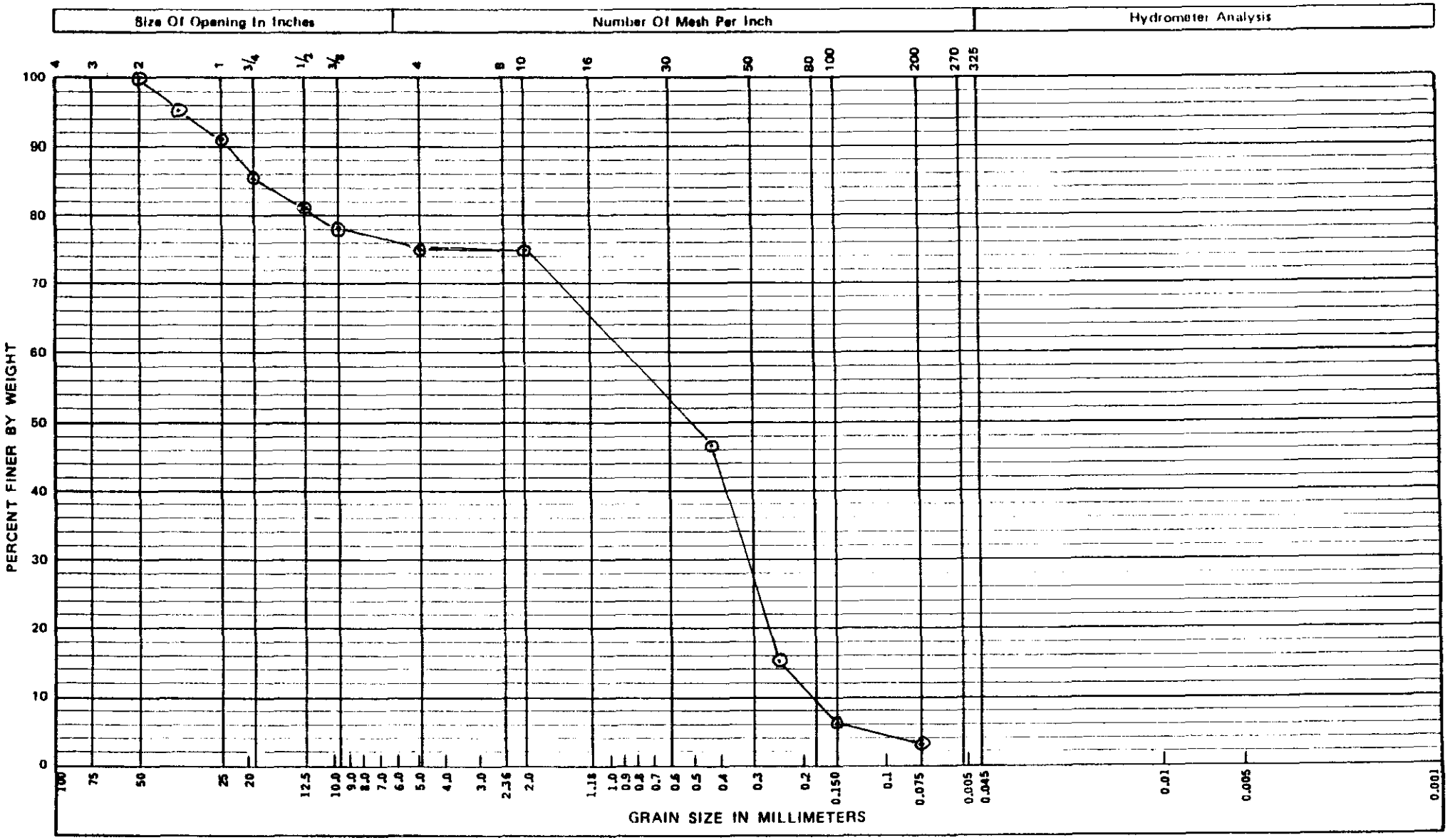
Checked By HL Benny Date 1-31-90

A-6400-204(2-67)

9 2 1 2 1 1 0 9 3

9 2 1 2 1 1 0 3 9 4

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-036 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-14-5	Plotted by: R.G. ALEXANDER Date: 1-29-90	Checked by: HL Benny Date: ~~TB~~ HLB 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
0-036	5528.74	5428.19	588.48	4940.26	4839.71	2.08

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 1-29-90

9212110735

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R.D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab.

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner-6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner-6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D Miller	JW Lindberg	Jan 16 0145S
Relinquished by: JW Lindberg	Received by: R.G ALEXANDER	Date/Time: 1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

9212110036

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9 2 1 2 6 0 1 1 7

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By [signature]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By M L Copeland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By M L Copeland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

9 2 1 2 1 0 5 3 8

TEST REQUEST FORM

Sample/Specimen No. 0-037 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12-6

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: RG ALEXANDER Date 1-29-90

9212-0-39

SIEVE ANALYSIS DATA SHEET

Sample ID O-037 Page 1 of 1

Tested By RG ALEXANDER Date 1-29-90

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	4359.81	Ø	Ø	Ø	100	100
	1½		674.27	15.5	15.5	84.5	84.5
	1		891.07	20.4	20.4	79.6	79.6
	¾		1117.56	25.6	25.6	74.4	74.4
	½		1510.32	34.6	34.6	65.4	65.4
	⅜		1796.81	41.2	41.2	58.8	58.8
	#4		2318.78	53.2	53.2	46.8	46.8
	#10	4359.81	2667.52	61.2	61.2	38.8	38.8
	#40	147.15	75.76	51.5	51.5	48.5	18.8
	#60		100.56	68.3	68.3	31.7	12.3
	#100		113.26	77.0	77.0	23.0	8.9
	#200		123.41	83.9	83.9	16.1	6.2

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 16.1 %

D=Original Dry Weight of Sample 147.15 g

E=Dry Weight of Sample After Washing/Sieve 123.41 g

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

Remarks
WASH FINE GRADING
SMALL FIELD
SAMPLE

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

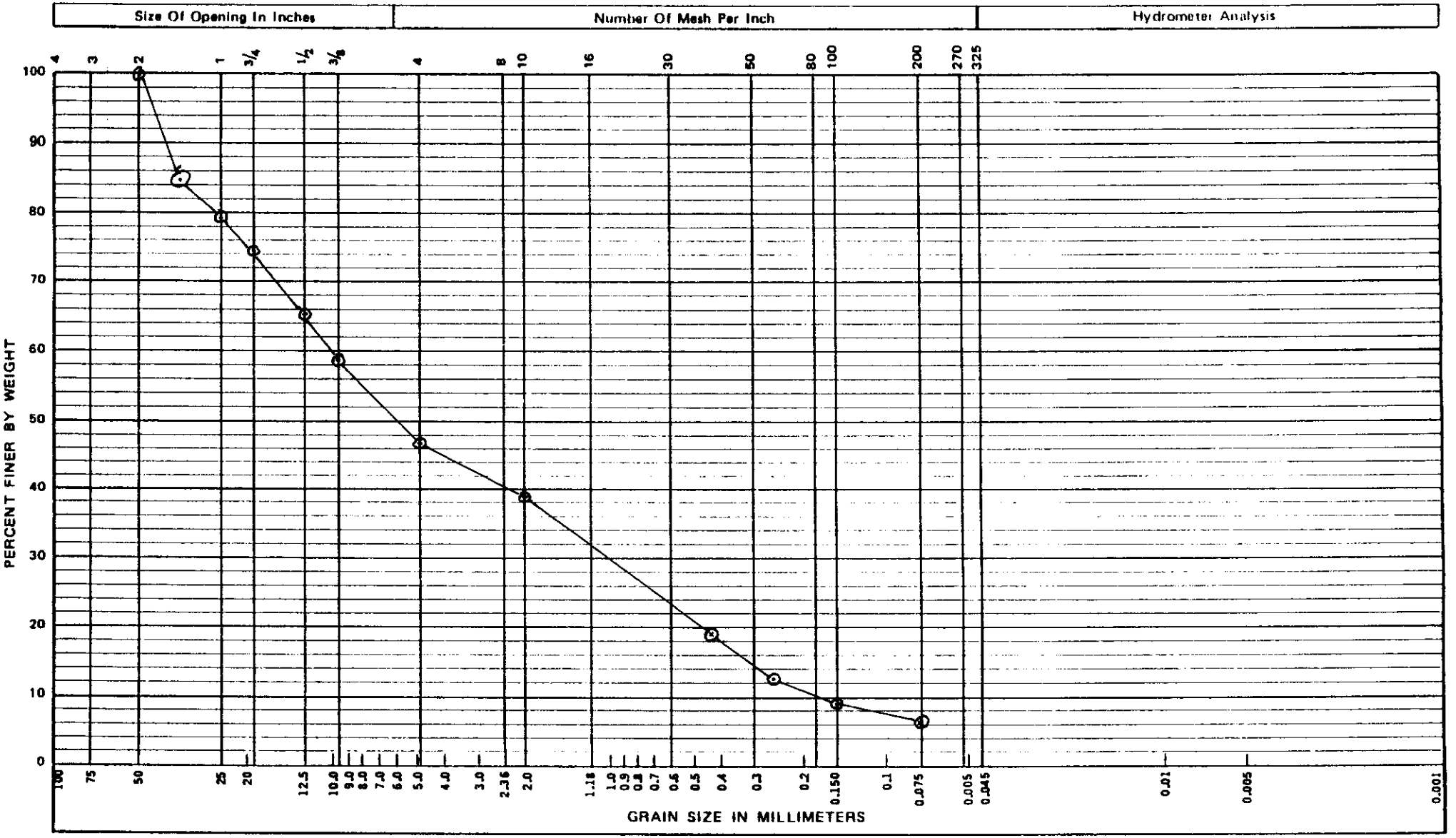
Checked By HL Benny Date 1-31-90

A-6400-204(2-87)

0 6 0 0 1 1 0 1 2 1 2 6

9 2 1 2 0 9 1

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-037 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-12-6

Plotted by: R.G. ALEXANDER Date: 1-29-90

Checked by: HL Benny Date: 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
0-037	5063.00	4937.87	578.06	4484.94	4359.81	2.87

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 1-29-90

9 2 1 1 1 0 6 2

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner-6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner-6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D Miller	JW Lindberg	Jan 16 0145S
Relinquished by:	Received by:	Date/Time:
JW Lindberg	R.G ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

9212106.93

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9212110194

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By M M Copeland
Operational Health Physics

Remarks

I Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By M M Copeland
Operational Health Physics

Remarks

I Sample

54-3000-022 (09/88)

9 2 1 2 1 0 9 5

TEST REQUEST FORM

Sample/Specimen No. 0-038 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12-7

Received By: R.G ALEXANDER Date 1-18-90

Approved By: R.G ALEXANDER Date 1-29-90

9212110.96

SIEVE ANALYSIS DATA SHEET

Sample ID 0-038 Page 1 of 1

Tested By R.G. ALEXANDER Date 1-29-90

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	4501.57	Ø	Ø	Ø	100	100
	1½		134.40	3.0	3.0	97.0	97.0
	1		525.82	11.7	11.7	88.3	88.3
	3/4		797.27	17.7	17.7	82.3	82.3
	1/2		1054.08	23.4	23.4	76.6	76.6
	3/8		1249.22	27.8	27.8	72.2	72.2
	#4		1676.80	37.2	37.2	62.8	62.8
	#10	4501.57	2062.44	45.8	45.8	54.2	54.2
	#40	149.59	104.96	70.2	70.2	29.8	16.2
	#60		125.67	84.0	84.0	16.0	8.7
	#100		132.67	88.7	88.7	11.3	6.1
	#200		138.34	92.5	92.5	7.5	4.1

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 7.5 %

D=Original Dry Weight of Sample 149.59 g

E=Dry Weight of Sample After Washing/Sieve 138.34 g

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

Remarks
WASH FINE GRADING
SMALL FIELD
SAMPLE

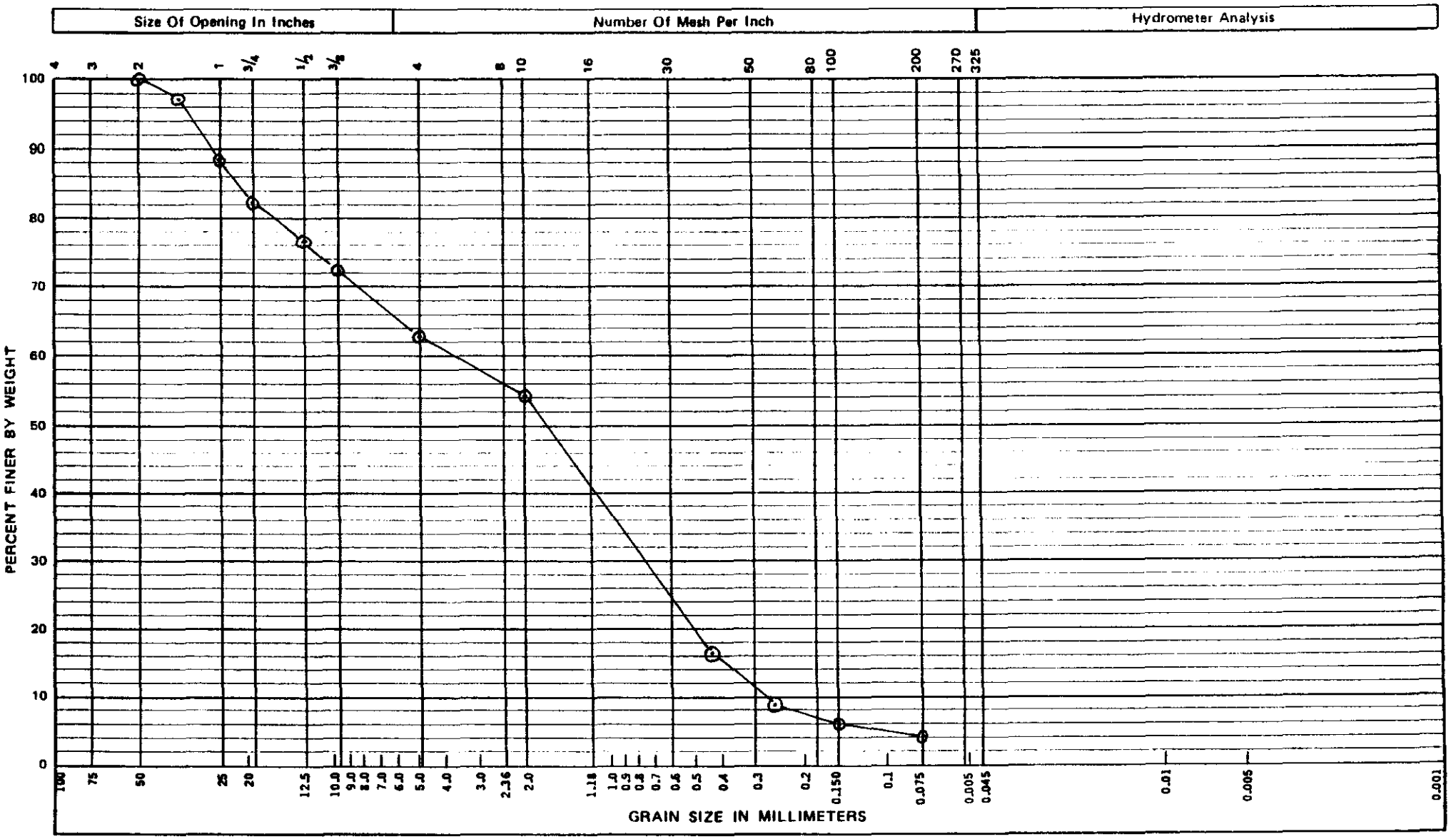
ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By H L Benny Date 1-31-90

A-8400-204(2-87)

9 2 1 2 1 1 0 . 9 7

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-038 Procedure No. ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-12-7	Plotted by R.G. ALEXANDER Date: 1-29-90	Checked by HL Benny Date: 1-31-90

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J.W. Lindberg Telephone: 6-5005

Sample Collected by: R.D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner - 6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner - 6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D. Miller	JW Lindberg JW Lindberg	Jan 16/0145S
Relinquished by:	Received by:	Date/Time:
JW Lindberg JW Lindberg	R.G ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

9 2 1 1 1 6 9 9

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. 6

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
0-038	5445.07	5331.15	829.58	4615.49	4501.57	2.53

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 1-29-90

9212100

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9212110101

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By M T Copeland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By M T Copeland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

9 2 1 1 0 0 2

TEST REQUEST FORM

Sample/Specimen No. 0-039 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12-8

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: R.G. ALEXANDER Date 1-29-90

9212103

SIEVE ANALYSIS DATA SHEET

Sample ID 0-039 Page 1 of 1

Tested By R.G. ALEXANDER Date 1-29-90

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

EQUIPMENT ITEM	CALIBRATION NO.	DATE DUE
Balance	3304	5-25-90
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	4268.13	Ø	Ø	Ø	100	100
	1 1/2		117.23	2.7	2.7	97.3	97.3
	1		361.25	8.5	8.5	91.5	91.5
	3/4		552.88	13.0	13.0	87.0	87.0
	1/2		936.67	21.9	21.9	78.1	78.1
	3/8		1236.31	29.0	29.0	71.0	71.0
	#4		2060.17	48.3	48.3	51.7	51.7
	#10	4268.13	2849.94	66.8	66.8	33.2	33.2
	#40	142.17	58.89	41.4	41.4	58.6	19.5
	#60		77.96	54.8	54.8	45.2	15.0
	#100		92.30	64.9	64.9	35.1	11.7
	#200		107.17	75.4	75.4	24.6	8.2

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 24.6 %

D=Original Dry Weight of Sample 142.17 g

E=Dry Weight of Sample After Washing/Sieve 107.17 g

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

Remarks
WSH FINE GRADING
SMALL FIELD
SAMPLE

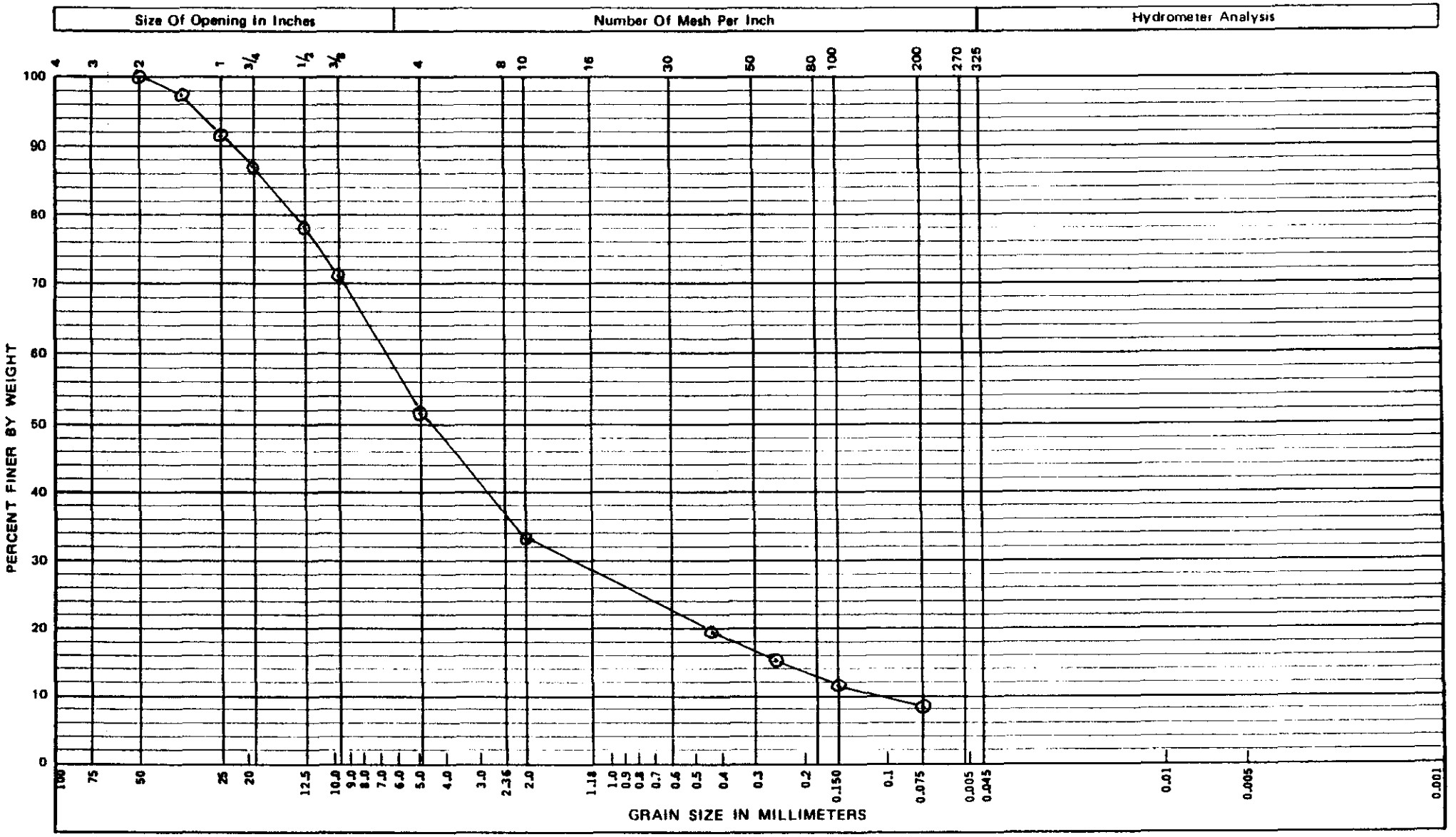
ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By H L Berry Date 1-31-90

A-8400-204(2-87)

9212110204

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-039 Procedure No ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-12-8

Plotted by R.G. ALEXANDER Date: 1-29-80

Checked by: HL Benny Date: 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
0-039	RGA 1-29-90 ~~5EL~~ 5270.93	5124.69	856.56	4414.37	4268.13	3.43

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 1-29-90

9 2 1 2 1 1 2 0 6

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5085

Sample Collected by: R.D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner - 6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner - 6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D. Miller	JW Lindberg JW Lindberg	Jan 16 0145S
Relinquished by:	Received by:	Date/Time:
JW Lindberg JW Lindberg	R.G ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

9210107

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9 2 1 1 1 0 3

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By M T Copeland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By M T Copeland
Operational Health Physics

Remarks 1 Sample

54-3000-022 (09/88)

9212110909

TEST REQUEST FORM

Sample/Specimen No. 0-040 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 1-31-89

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IFREQ)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12-9

Received By: R G ALEXANDER Date 1-18-90

Approved By: R.G ALEXANDER Date 1-31-90

9 2 1 2 1 1 0 5 1 0

SIEVE ANALYSIS DATA SHEET

Sample ID 0-040 Page 1 of 1

Tested By R.G ALEXANDER Date 1-31-90

Procedure ETDL-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	4378.14	Ø	Ø	Ø	100	100
	1½		607.98	13.9	13.9	86.1	86.1
	1		1512.11	34.5	34.5	65.5	65.5
	3/4		1778.77	40.6	40.6	59.4	59.4
	1/2		2190.73	50.0	50.0	50.0	50.0
	3/8		2392.24	54.6	54.6	45.4	45.4
	#4		2776.49	63.4	63.4	36.6	36.6
	#10	4378.14	3140.34	71.7	71.7	28.3	28.3
	#40	148.53	34.59	23.3	23.3	76.7	21.7
	#60		61.79	41.6	41.6	58.4	16.5
	#100		98.90	66.6	66.6	33.4	9.5
	#200		119.67	80.6	80.6	19.4	5.5

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 19.4 %

D=Original Dry Weight of Sample 148.53 g

E=Dry Weight of Sample After Washing/Sieve 119.67 g

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

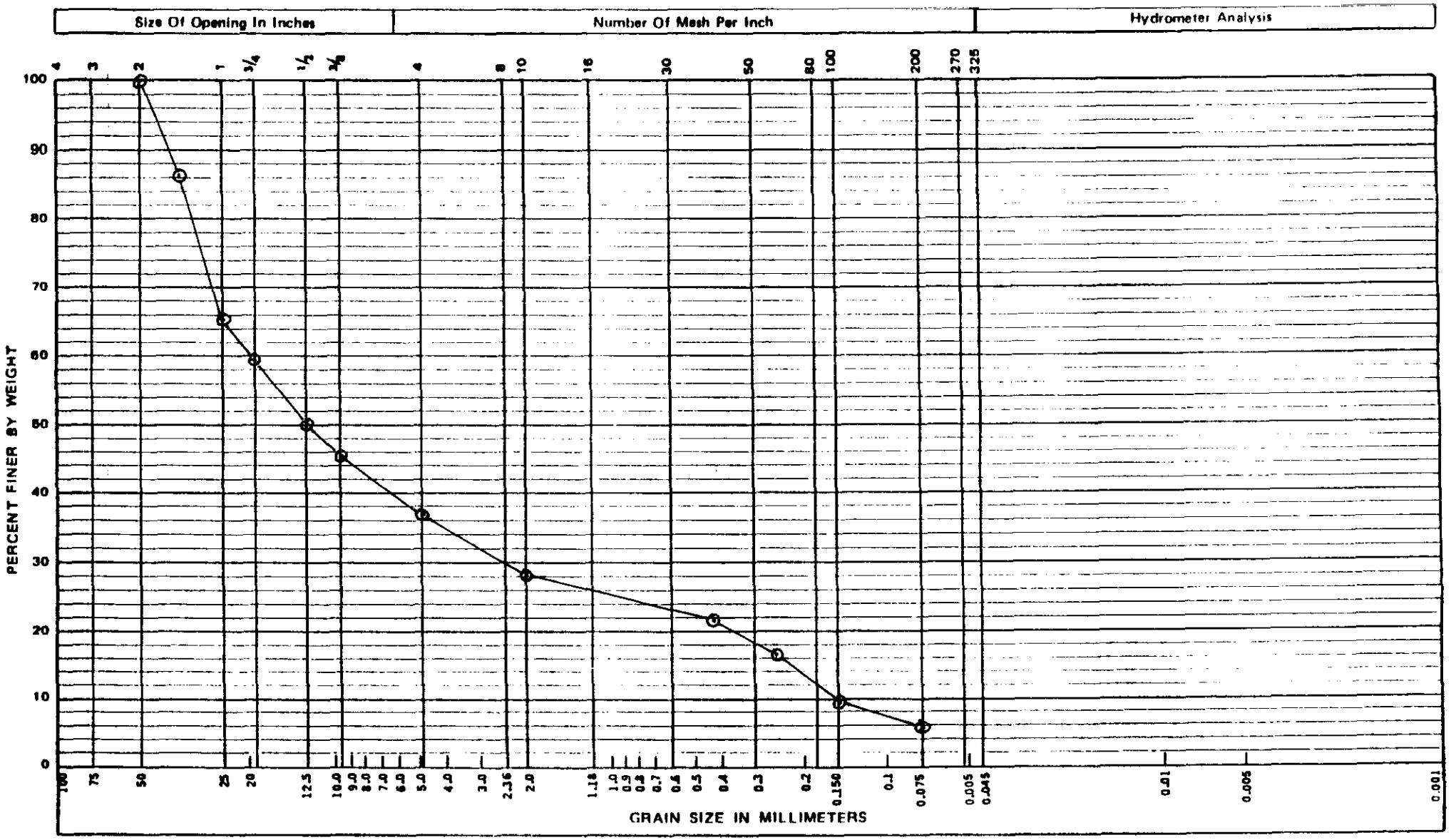
Remarks
WASH FINE GRADING
SMALL FIELD
SAMPLE

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

Checked By HL Benny Date 1-31-90

A-6400-204(2-87)

GRAIN SIZE ANALYSIS PLOT



Specimen No 0-040 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-12-9	Plotted by: R.G ALEXANDER Date: 1-31-90	Checked by: Date:

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
0-040	5076.25	4956.20	578.06	4498.19	4378.14	2.74

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 1-31-90

9212113

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J.W. Lindberg Telephone: 6-5005

Sample Collected by: R.D. Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner-6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner-6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D Miller	JW Lindberg	Jan 16 0145S
Relinquished by:	Received by:	Date/Time:
JW Lindberg	R.G. ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

9 2 1 1 0 1 4

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9 2 1 2 1 1 0 1 1 5

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By [illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By M A Copeland
Operational Health Physics

Remarks

1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By M A Copeland
Operational Health Physics

Remarks

1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-9 Date 1-15-90

Released By M A Copeland
Operational Health Physics

Remarks

1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-10 Date 1-15-90

Released By M A Copeland
Operational Health Physics

Remarks

1 Sample

54-3000-022 (09/88)

TEST REQUEST FORM

Sample/Specimen No. 0-041 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-31-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ.)
MOISTURE	1	ETAL-14
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12.10

Received By: R.G ALEXANDER Date 1-18-90

Approved By: RG ALEXANDER Date 1-31-90

9 2 1 2 1 0 0 1 7

SIEVE ANALYSIS DATA SHEET

Sample ID 0-041 Page 1 of 1

Tested By R G ALEXANDER Date 1-31-90

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	4491.12	Ø	Ø	Ø	100	100
	1½		135.88	3.0	3.0	97.0	97.0
	1		479.53	10.7	10.7	89.3	89.3
	3/4		705.32	15.7	15.7	84.3	84.3
	1/2		1273.80	28.4	28.4	71.6	71.6
	3/8		1700.42	37.9	37.9	62.1	62.1
	#4		2685.32	59.8	59.8	40.2	40.2
	#10	4491.12	3277.85	73.0	73.0	27.0	27.0
	#40	153.37	44.97 ~~153.37~~	29.3	29.3	70.7	19.1
	#60		77.91	50.8	50.8	49.2	13.3
	#100		107.68	70.2	70.2	29.8	8.0
	#200		123.98	80.8	80.8	19.2	5.2

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 ____ %

D=Original Dry Weight of Sample 153.37 g

E=Dry Weight of Sample After Washing/Sieve 123.98 g

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

Remarks
WASH FINE GRADING
SMALL FIELD
SAMPLE

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

Checked By HLBenny Date 1-31-90

A-8400-204(2-87)

9 2 1 2 1 1 0 1 8

HYDROMETER ANALYSIS DATA SHEET

Sample ID 0-041 Page 1 of 1

Tested By HL Benny Date 2-23-90

Procedure ETAL07 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	2002	2-9-91

Specific gravity of Sample 2.30 (see 9-088)

% Passing No. 10 Sieve 27.0 (%)

Hygroscopic Correction Factor Ø

WEIGHT OF SAMPLE

Wt. Container + Soil NA (g)

Wt. Container NA (g)

Wt. Soil 50.0 (g)

COMPOSITE CORRECTION

1st Reading 6 at 23.8 °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 C
Test stopped when readings same as blank

W= 185.19

Assume "a" = 1.11, K = 0.01447

Date	Clock time	Elapsed time (min)	Hydrometer reading	Hydrometer with composite correction	Temp. (°C)	Soil in suspension (%)	Particle diameter (mm)
2-23-90	1507	2.0	24	18	25.0	10.8	0.036 ~~0.050~~
↓	1510	5.0	12	6	25.0	3.6	0.022
	1520	15.0	7	1	25.0	0.6	0.010
	1535	30.0	7	1	25.0	0.6	0.007
	1605	60.0	7	1	24.7	0.6	0.005
↓	1915	250.00	6	Ø	24.4	Ø	Ø
NA	NA	1,440.0	NA	NA	NA	NA	NA

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.

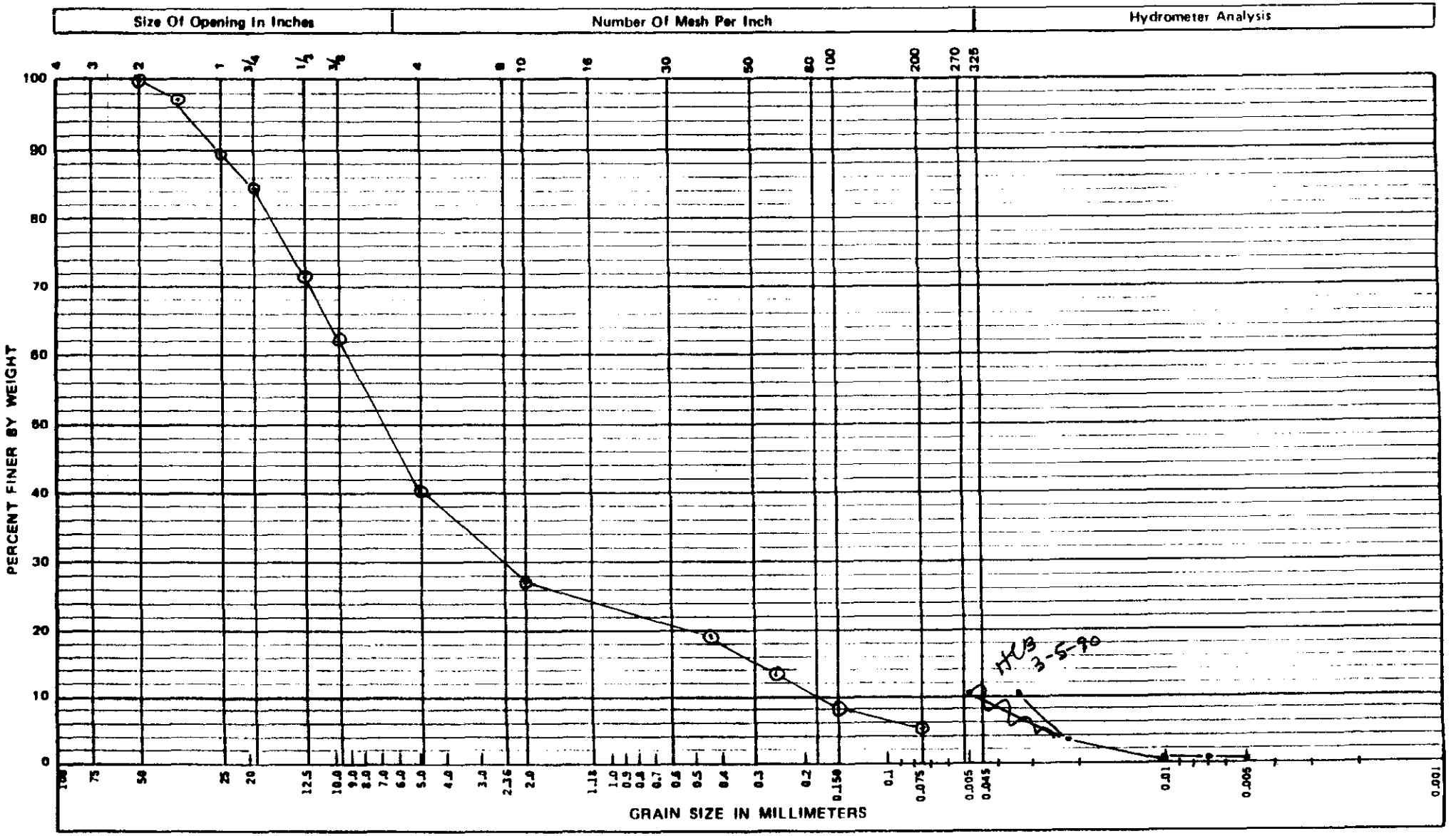
Checked By R.G Alexander Date 3-5-90

A-6400-205 (1.87)

9212119

9 2 1 2 [illegible] 0 [illegible] 2 0

GRAIN SIZE ANALYSIS PLOT



Specimen No 0-041 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description:	Plotted by:	Checked by:
SANDY GRAVEL MW-12-10	R.G ALEXANDER	HL BENNY
	Date: 1-31-90	Date: 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
0-041	5283.17	5080.51	589.39	4693.78	4491.12	4.51

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 1-31-90

9212110121

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D. Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner - 6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner - 6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D. Miller	JW Lindberg JW Lindberg	Jan 16 0145
Relinquished by:	Received by:	Date/Time:
JW Lindberg JW Lindberg	R.G ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9 2 1 2 1 1 0 2 3

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90

Released By B[illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90

Released By B[illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90

Released By B[illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90

Released By B[illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90

Released By B[illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90

Released By B[illegible]
Operational Health Physics

Remarks

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90

Released By M L Copeland
Operational Health Physics

Remarks

I Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90

Released By M L Copeland
Operational Health Physics

Remarks

I Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-9 Date 1-15-90

Released By M L Copeland
Operational Health Physics

Remarks

I Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-10 Date 1-15-90

Released By M L Copeland
Operational Health Physics

Remarks

I Sample

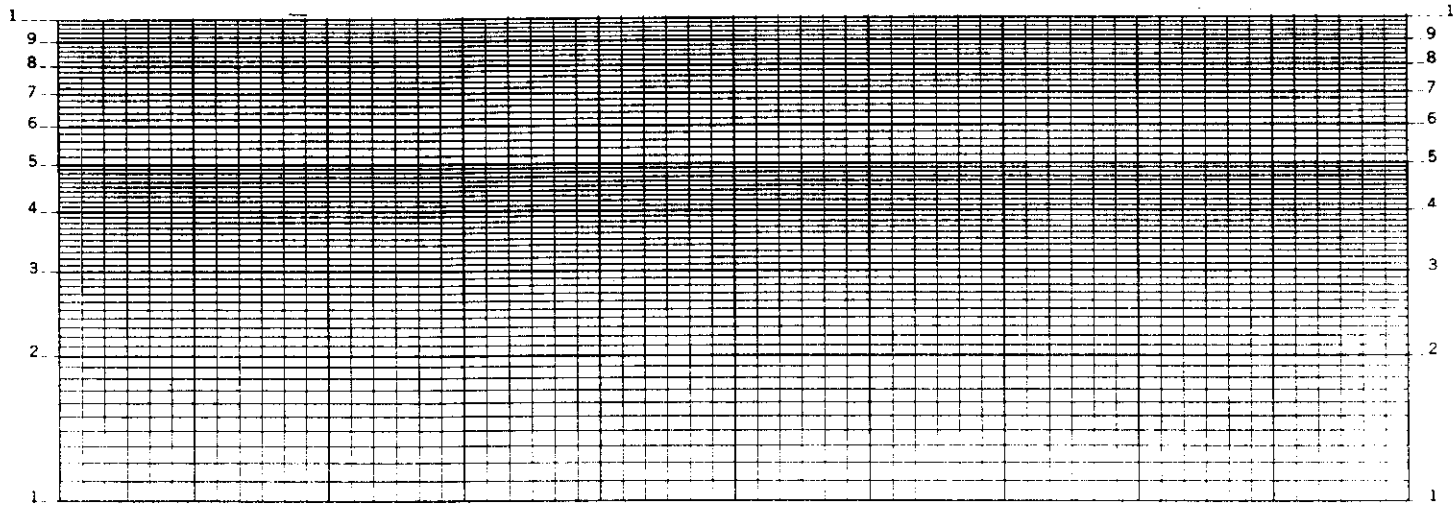
54-3000-022 (09/88)

PLASTIC INDEX SOILS DATA SHEET

Sample No. 0-041 Page 1 of 2

Test Operator HLBenny Date 4/9/90

Thermometer No. 0007 Calibration Date 8-16-90



WATER CONTENT (Wn)

Liquid Limit (LL) NA Graph

Liquid Limit (LL) NA One Point

Moisture (LL) NA %

Plastic Limit (PL) NA (Avg.)

Moisture (PL) NA % NA %

Plastic Index (PI)* NA

*PI = LL − PL

Remarks Non-Plastic (Volcanic Ash)

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

Sample is not cohesive. Liquid limit can't be performed.

TEST REQUEST FORM

Sample/Specimen No. 0-042 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-31-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
SIEVE ANALYSIS	1	ETAL-07
HYDROMETER	1	ETAL-07 (IF REQ)
ATTERBERG LIMITS	1	ETAL-18
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12-11

Received By: RG ALEXANDER Date 1-18-90

Approved By: RG ALEXANDER Date 1-31-90

9 2 1 2 1 1 0 1 2 6

SIEVE ANALYSIS DATA SHEET

Sample ID 0-042 Page 1 of 1

Tested By R. G. ALEXANDER Date 1-31-90

Procedure EJAL-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 SILT 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							
	#4	111.50	Ø	Ø	Ø	100	100
	#10		1.54	1.4	1.4	98.6	98.6
	#40		10.14	9.1	9.1	90.9	90.9
	#60		12.96	11.6	11.6	88.4	88.4
	#100		15.54	13.9	13.9	86.1	86.1
	#200		29.62	26.6	26.6	73.4	73.4

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 73.4 %

D=Original Dry Weight of Sample 111.50 g

E=Dry Weight of Sample After Washing/Sieve 29.62 g

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

Remarks
WASH GRADING
SMALL FIELD
SAMPLE

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

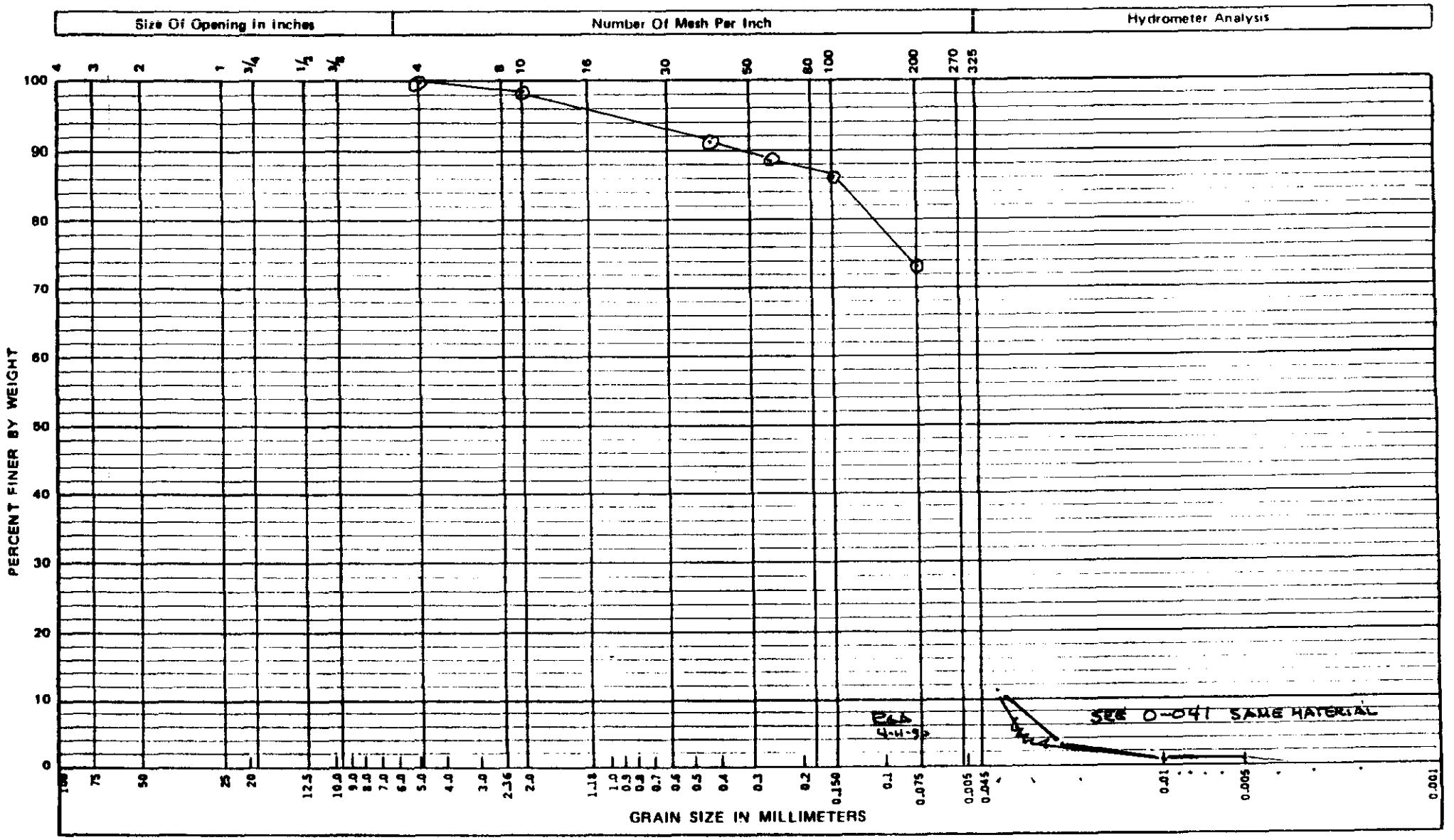
Checked By HC Benny Date 1-29-90

A-8400-204(2-87)

9210107

9 2 1 2 [illegible] 0 : 2 8

GRAIN SIZE ANALYSIS PLOT



Specimen No 0-042 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SILT MW-12-11	Plotted by: RG ALEXANDER Date: 1-31-90	Checked by: HL BENNY Date: 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 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
0-042	2487.54	1912.96	588.48	1899.06	1324.48	43.38

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 1-31-90

9211126

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner-6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner-6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) Rand D. Miller	JW Lindberg JW Lindberg	Jan 16 0145S
Relinquished by:	Received by:	Date/Time:
JW Lindberg JW Lindberg	R.G ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

9212130

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

RADIATION RELEASE

Bldg. MW-12-11 Date 1-16-90

Released By M Copeland
Operational Health Physics

Remarks 1 silt sample (ash)

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12 Date 1-16-90

Released By M Copeland
Operational Health Physics

Remarks 1 silt sample (ash)

54-3000-022 (09/88)

9212110032

TEST REQUEST FORM

Sample/Specimen No. 0-043 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-31-90

Test Requested	No. of Samples	Test Lab Information (Instruction Used)
HYDRAULIC CONDUCTIVITY	1	ETAL-09
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Remarks FIELD SAMPLE MW-12-12

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: R.G. ALEXANDER Date 1-31-90

9212 1 0 6 3 3

HYDRAULIC CONDUCTIVITY OF SOILS DATA SHEET

Sample No. 0-043 Page 1 Of 5

Test Operator R.G Alexander Date 1-31-90

EQUIPMENT ITEM	NO.	DATE DUE
Balance	3304	3-25-90
Oven Thermometer	6006	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	8-16-90
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)			WEIGHT
N/A	To	N/A	N/A %
	To		%
	To		%
	To		%
	To		%
	To		%
	To		%
			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 HCBenny Date 2-13-90

SAMPLE PREPARATION

Determine Weight of Samples in Container

Container No.	#6
Wt. of Sample + Container, g	2487.54
Wt. of Container, g	588.48
Wt. of Sample, g	1899.06

Determine the Water Content of the "Air Dry" Sample

Container No.	6
Wt. Container & Wet Soil (A), g	2487.54
Wt. Container & Dry Soil (B), g	1912.96
Wt. of Water, g	574.58
Wt. of Container (C), g	588.48
Wt. of Dry Soil, W_s, g	1324.48
Water Content (W), %	43.38

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

SAMPLE COMPONENT	SPECIFIC GRAVITY, G	LABORATORY NOTEBOOK DATA LOCATION
N/A	N/A	N/A
N/A	N/A	N/A
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 HL Benny Date ~~2-13-87~~ 2-13-90 HLB 2-13-90

Sample No. 0-043

SAMPLE COMPACTION

Compaction Method Static N/A Tamping N/A

STATIC or TAMPING	Load Applied, g/ Layer length, cm	Layer 1	N/A	11	N/A
		2		12	
	No. Tamps per Layer/ Layer Length, cm	3		13	
		4		14	
		5		15	
		6		16	
	Total No. of Layers N/A	7		17	
	INTACT SAMPLE IN 4"x6" SS TUBE	8		18	
		9		19	
		10		20	

Tamper Foot Diameter cm	N/A
Tamper Applied Load, g	N/A
Sample Diameter, (d), cm	9.78
Sample Length, (L), cm	15.22
Sample Mold or Permeameter Weight & Compacted Sample, g	2496.87
Sample Mold or Permeameter Weight, g	594.47
Weight of Compacted Sample, (E), g	1902.40
Weight of Container & Uncompacted Wet Sample, (A), g	2487.54
Weight of Container & Uncompacted Dry Sample, (B), g	1912.96
Weight of Water, g	574.58
Weight of Container, (C), g	588.48
Weight of Dry Soil, (WS), g	1324.48
Water Content, %	43.38
Compacted Bulk Density of Sample, (γm), g/cc	1.66
Compacted Sample Dry Density, (γd), g/cc	1.16

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

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

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 HLBenny Date 2-13-90

HYDRAULIC CONDUCTIVITY DATA SHEET

Sample ID. 0-043 Page 4 of 5

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

DATE Year 90 (Mo/Day)	TIME System Down (Hr: Min)	System Up (Hr: Min)	Time Change (Hr: Min)	VOLUME DETERMINANTS Effluent Temp (°C)	Effluent Weight (±0.1g)	Container Tare (±0.1g)	Container Tare & Effluent (±0.1g)	System Temp (°C)	Pressure Pore H_2O ~~(psi)~~ CM	Pressure Back H_2O (psi)	Operator Initials
2-1	—	1000	—	—	—	150.46	—	—	191.3	N/A	RGA
2-1	1400	STOP	4:00	22	150.89	150.46	301.35	22	191.3	N/A	RGA
2-2	—	1000	—	—	—	150.46	—	—	191.3	N/A	RGA
2-2	1330	STOP	3:30	22	127.46	150.46	277.92	22	191.3	N/A	RGA
2-6	—	0930	—	—	—	150.46	—	—	191.3	N/A	RGA
2-6	1430	STOP	5:00	22	306.13	150.46	456.59	22	191.3	N/A	RGA
2-7	—	0730	—	—	—	150.46	—	—	191.3	N/A	RGA
2-7	1630	STOP	9:00	22	509.10	150.46	659.56	22	191.3	N/A	RGA
2-8	—	0800	—	—	—	150.46	~~461.38~~ RGA 2-8-90	—	191.3	N/A	RGA
2-8	1400	1415	6:00	22	310.92	150.46	461.38	22	191.3	N/A	RGA
2-9	11:15	11:20	21:00	22	1010.01	267.36	1277.37	22	191.3	N/A	RGA
2-10	1120	1125	24:00	22	~~926.78~~ 931.78 HLB 2-13-90	267.36	1199.14	22	191.3	N/A	RGA
2-12	0725	0730	44:00	21	1510.80	799.56	2310.36	21	191.3	N/A	RGA
2-12	1630	1635	9:00	22	463.03	267.36	730.39	22	191.3	N/A	RGA
2-13	0735	STOP	15:00	22	~~987.49~~ 937.49 HLB 2-13-90	267.36	1204.85	22	191.3	N/A	RGA
2-13	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 HL Benny Date 2-13-90

A-6400-234.2 (7-86)

9 2 1 2 1 1 0 . 3 7

HYDRAULIC CONDUCTIVITY DATA SHEET

Sample ID 0-043

Page 5 of 5

Procedure No. ETAL-09

Date Issued 12-1-89

Date Year 90 (Mo/Day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (cm/cm)	Effluent Analysis (Sample Number)	Effluent Analysis Lab. Notebook Location	Effluent Description	Operator Initials
2-1	START	TEST	—	—	—	RGA
2-1	1.11×10^{-5}	12.57	—	—	CLEAR	RGA
2-2	START	TEST	—	—	CLEAR	RGA
2-2	1.07×10^{-5}	12.57	—	—	CLEAR	RGA
2-6	START	TEST	—	—	CLEAR	RGA
2-6	1.80×10^{-5}	12.57	—	—	CLEAR	RGA
2-7	START	TEST	—	—	CLEAR	RGA
2-7	1.66×10^{-5}	12.57	—	—	CLEAR	RGA
2-8	START	TEST	—	—	CLEAR	RGA
2-8	1.53×10^{-5}	12.57	—	—	CLEAR	RGA
2-9	1.42×10^{-5}	12.57	—	—	CLEAR	RGA
2-10	1.14×10^{-5}	12.57	—	—	CLEAR	RGA
2-12	1.01×10^{-5}	12.57	—	—	CLEAR	RGA
2-12	1.54×10^{-5}	12.57	—	—	CLEAR	RGA
2-13	1.84×10^{-5}	12.57	—	—	CLEAR	RGA
2-13	STOP TEST	$1.5 \pm 0.4 \times 10^{-5}$ 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 HLBenny Date 2-13-90

A-6400-234.3 (7-86)

9212110138

Westinghouse Hanford Company

CHAIN OF CUSTODY

Company Contact: J.W. Lindberg Telephone: 6-5005

Sample Collected by: R.D Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.:

Remarks: Field Logbook No# WHC-N-306-3

Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

MW-12-1, plastic bag	MW-12-12, S/S liner - 6"
MW-12-2, " "	
MW-12-3, " "	
MW-12-4, " "	
MW-12-5, " "	
MW-12-6, " "	
MW-12-7, " "	
MW-12-8, " "	
MW-12-9, " "	
MW-12-10, " "	
MW-12-11, S/S liner - 6"	

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
(GAI) RaoD Miller	JW Lindberg JW Lindberg	Jan 16/0145S
Relinquished by:	Received by:	Date/Time:
JW Lindberg JW Lindberg	R.G ALEXANDER	1-18-90/0610
Relinquished by:	Received by: RG Alexander	Date/Time:
Relinquished by:	Received by:	Date/Time:

9 2 1 2 1 0 0 3 9

Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

SAMPLE NUMBER	NUMBER & TYPE OF SAMPLE CONTAINERS	TYPE OF SAMPLE *	ANALYSIS REQUESTED
MW-12-1	1 plastic bag	Soil	Particle Size, Moisture
MW-12-2	"	"	" "
MW-12-3	"	"	" "
MW-12-4	"	"	" "
MW-12-5	"	"	" "
MW-12-6	"	"	" "
MW-12-7	"	"	" "
MW-12-8	"	"	" "
MW-12-9	"	"	" "
MW-12-10	"	"	" "
MW-12-11	1 6" Split Spoon Liner	"	Particle Size, Atterberg Lim.
MW-12-12	"	"	Permeability

Field Information ** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9212110140

RADIATION RELEASE

Bldg. MW-12-11 Date 1-16-90

Released By M Copeland
Operational Health Physics

Remarks 1 silt sample (ash)

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12 Date 1-16-90

Released By M Copeland
Operational Health Physics

Remarks 1 silt sample (ash)

54-3000-022 (09/88)

9 2 1 2 1 1 0 2 4 1