This document was too large to scan as a single document. It has been divided into smaller sections.

Section 3 of 3

Document Information			
Document #	**DOE-RL 90-18**	**Revision**	
Title	Phase 1 Remedial Investigation Report for the Hanford Site 1100-EM-1 Operable Unit		
Date	**08/1990**		
Originator	**DOE-RL**	**Originator Co.**	**DOE-RL**
Recipient		**Recipient Co.**	
References			
Keywords			
Projects			
Other Information	**EDMC # 0010801**		

SUBAPPENDIX H-4
OPERABLE UNIT MONITORING WELLS SOIL PHYSICAL ANALYTICAL RESULTS

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TABLE H-4. SUMMARY OF SOIL PHYSICAL RESULTS FOR MONITORING WELLS

Monitoring Well	Sample Id	Sample Depth (ft)	Sample Date	Moisture Content (%)	Unified Soil Classification (Group Criteria Only)
MW-1	1	10.5 - 12.1	01/11/90	1.26	Gravel with fines
MW-1	2	21.0 - 22.0	01/13/90	3.80	Gravel
MW-1	3	29.3 - 31.3	01/13/90	2.73	Gravel with fines
MW-1	4	34.0 - 35.0	01/13/90	1.77	Gravel
MW-1	5	40.0 - 41.7	01/15/90	4.19	Sand
MW-1	6	44.3 - 46.3	01/15/90	**	Gravel
MW-1	7	47.0 - 48.0	01/15/90	**	Gravel
MW-1	8	55.2 - 56.8	01/16/90	**	Gravel
MW-1	9	92.0 - 94.0	01/22/90	**	Fine-Grained Soil
MW-2	1	11.5 - 12.8	01/25/90	2.18	Gravel with fines
MW-2	2	19.0 - 20.0	01/25/90	1.76	Gravel with fines
MW-2	3	26.0 - 27.0	01/26/90	**	Sand with fines
MW-3	A2403	2.5 - 4.1	02/07/90	5.43	Sand with fines
MW-3	A2406	7.4 - 8.8	02/07/90	2.59	Gravel with fines
MW-3	A2408	15.1 - 16.9	02/08/90	2.48	Gravel with fines
MW-3	A2410	23.2 - 24.8	02/08/90	2.72	Sand with fines
MW-3	A2412	35.3 - 37.0	02/09/90	3.57	Gravel with fines
MW-3	A2414	36.6 - 39.2	02/09/90	4.21	Gravel with fines
MW-3	1	64.7 - 67.0	02/14/90	**	Gravel with fines
MW-3	2	74.0 - 76.3	02/15/90	**	Gravel
MW-3	3	81.7 - 83.7	02/16/90	**	Sand with fines
MW-4	1	8.5 - 9.5	11/09/89	2.00	Sand with fines
MW-4	2	16.0 - 17.0	11/10/89	3.00	Sand with fines
MW-4	3	31.0 - 32.0	11/13/89	2.16	Gravel
MW-4	4	50.0 - 52.0	11/15/89	**	Sand with fines
MW-4	5	56.0 - 58.0	11/16/89	**	Sand
MW-4	7	60.0 - 62.0	11/17/90	**	Sand
MW-5	1	2.4 - 2.5	12/07/89	2.41	Sand with fines
MW-5	2	5.8 - 6.0	12/07/89	2.41	Sand with fines
MW-5	3	14.5 - 15.0	12/07/89	**	Sand with fines
MW-5	4	18.5 - 19.0	12/08/89	2.11	Sand
MW-5	5	34.5 - 35.0	12/11/89	1.47	Gravel
MW-5	6	48.0 - 48.5	12/12/89	4.56	Gravel with fines
MW-5	7	50.0 - 50.5	12/12/89	**	Gravel
MW-5	8	54.5 - 55.0	12/13/89	**	Sand with fines
MW-5	9	64.5 - 66.5	12/14/89	**	Gravel
MW-5	10	69.7 - 70.7	12/15/89	**	Gravel
MW-5	11	74.5 - 76.5	12/15/89	**	Gravel
MW-5	12	79.5 - 81.5	12/18/89	**	Gravel
MW-5	13	86.6 - 88.6	12/18/89	**	Fine-Grained Soil
MW-6	1	24.0 - 25.0	11/13/89	2.08	Sand with fines
MW-6	2	43.0 - 44.4	11/13/89	4.16	Gravel

TABLE H-4. SUMMARY OF SOIL PHYSICAL RESULTS FOR MONITORING WELLS (CONT'D.)

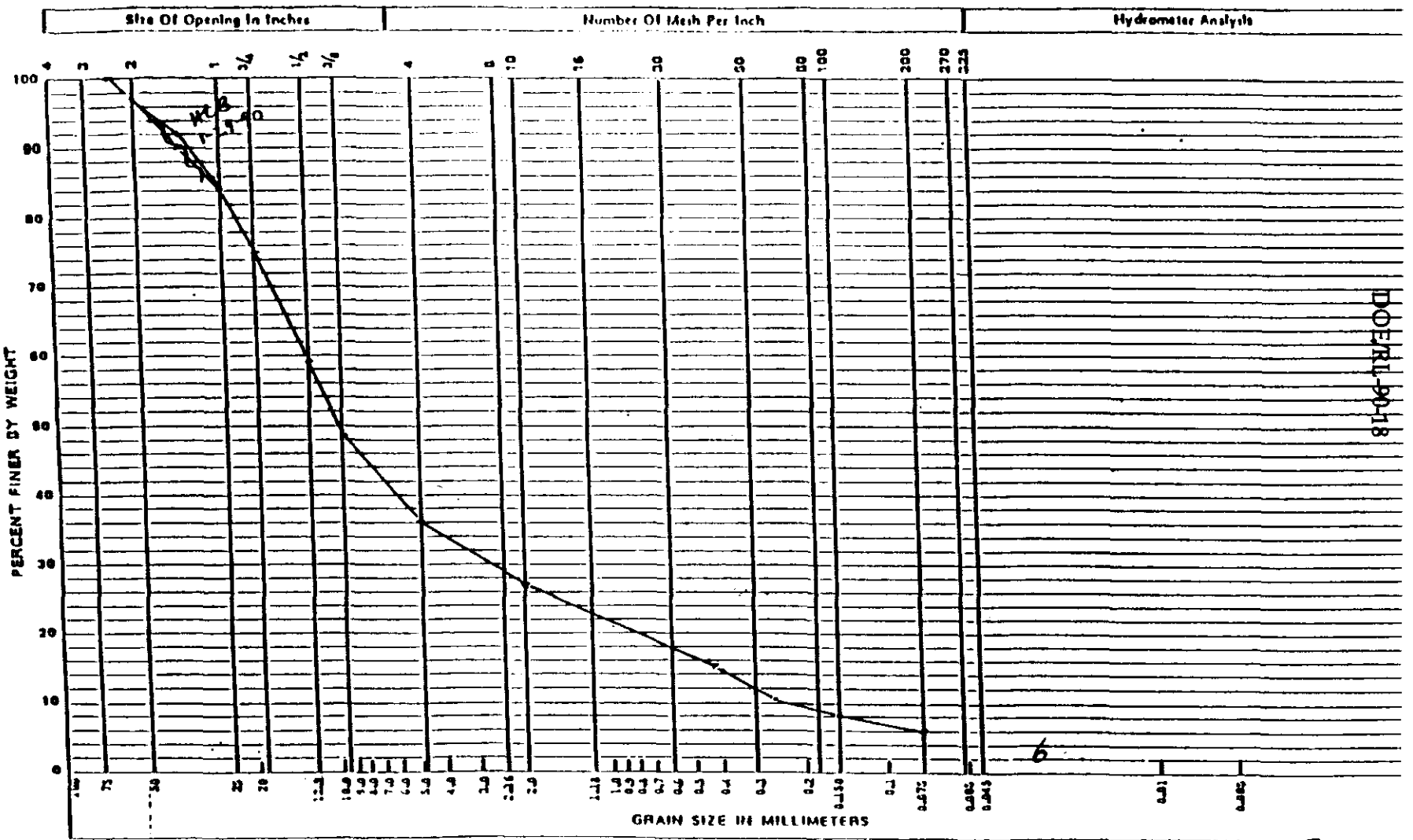
Monitoring Well	Sample Id	Sample Depth (ft)	Sample Date	Moisture Content (%)	Unified Soil Classification (Group Criteria Only)
MW-6	3	49.4 - 51.4	11/15/89	**	-
MW-6	4	85.0 - 87.0	11/20/89	**	Sand with fines
MW-6	5	89.0 - 91.0	11/20/89	**	Gravel with fines
MW-7	1	41.6 - 44.2	12/07/89	**	Sand
MW-7	2	45.4 - 48.4	12/07/89	**	Sand
MW-7	3	54.2 - 56.2	12/07/89	**	Gravel with fines
MW-7	4	87.3 - 89.3	12/07/89	**	Fine-Grained Soil
MW-8	1	3.5 - 4.0	10/23/89	1.83	Gravel with fines
MW-8	2	28.0 - 30.5	10/30/89	**	Gravel
MW-8	3	30.0 - 30.5	10/30/89	**	Gravel
MW-9	1	4.6 - 5.2	01/03/90	3.05	Gravel with fines
MW-9	2	- -	01/04/90	1.65	Gravel with fines
MW-9	3	14.1 - 15.2	01/04/90	2.83	Sand
MW-9	4	25.0 - 26.3	01/05/90	**	Sand
MW-9	5	32.0 - 32.5	01/05/90	**	Gravel
MW-9	6	35.9 - 37.9	01/05/90	**	Fine-Grained Soil
MW-9	7	62.6 - 63.2	01/17/90	**	Sand with fines
MW-9	8	66.8 - 67.6	01/18/90	**	Sand with fines
MW-9	9	69.0 - 69.6	01/18/90	**	Gravel
MW-10	1	9.5 - 10.5	11/06/89	2.47	Sand with fines
MW-10	2	14.5 - 15.0	11/07/89	1.86	Gravel with fines
MW-10	3	18.6 - 19.0	11/07/89	2.26	Gravel with fines
MW-10	4	41.5 - 42.0	11/09/89	**	Gravel with fines
MW-10	5	47.0 - 49.0	11/09/89	**	Sand with fines
MW-10	6	65.5 - 67.5	11/14/89	**	Fine-Grained Soil
MW-11	1	8.6 - 9.4	12/15/89	1.63	Sand
MW-11	2	43.0 - 44.0	12/19/89	**	Gravel
MW-11	3	49.0 - 50.0	12/19/89	**	Gravel with fines
MW-11	4	53.0 - 53.5	12/19/89	**	Gravel with fines
MW-12	1	1.0 - 1.5	01/13/90	4.10	Sand
MW-12	2	3.5 - 4.0	01/13/90	6.66	Sand with fines
MW-12	3	5.5 - 6.0	01/13/90	2.03	Sand with fines
MW-12	4	6.5 - 7.0	01/13/90	1.93	Gravel with fines
MW-12	5	7.0 - 7.5	01/13/90	2.08	Sand
MW-12	6	10.0 - 10.5	01/13/90	2.87	Gravel with fines
MW-12	7	11.5 - 12.0	01/13/90	2.53	Sand
MW-12	8	16.5 - 17.0	01/13/90	3.43	Gravel with fines
MW-12	9	26.5 - 27.0	01/15/90	2.74	Gravel with fines
MW-12	10	33.5 - 34.0	01/15/90	4.51	Gravel
MW-12	11	57.7 - 58.2	01/16/90	**	Fine-Grained Soil
MW-12	12	58.2 - 58.7	01/16/90	-	-
MW-13	1	9.5 - 10.0	01/08/90	2.78	Gravel

TABLE H-4. SUMMARY OF SOIL PHYSICAL RESULTS FOR MONITORING WELLS (CONT'D.)

Monitoring Well	Sample Id	Sample Depth (ft)	Sample Date	Moisture Content (%)	Unified Soil Classification (Group Criteria Only)
MW-13	2	13.0 - 13.5	01/08/90	2.33	Sand
MW-13	3	14.0 - 14.5	01/08/90	2.32	Gravel with fines
MW-13	4	17.5 - 18.0	01/09/90	2.94	Gravel
MW-13	5	25.5 - 26.0	01/09/90	1.09	Gravel
MW-13	6	43.5 - 44.0	01/09/90	**	Gravel with fines
MW-14	1	7.6 - 8.6	12/29/89	4.50	Sand with fines
MW-14	2	10.8 - 11.5	12/29/89	2.78	Sand with fines
MW-14	3	20.5 - 21.0	01/02/90	2.39	Gravel
MW-14	4	21.5 - 22.0	01/02/90	1.38	Gravel with fines
MW-14	5	31.0 - 31.5	01/02/90	**	Gravel with fines
MW-14	6	33.0 - 33.5	01/02/90	**	Gravel
MW-14	7	49.5 - 50.0	01/03/90	**	Gravel with fines
MW-14	8	53.5 - 54.0	01/03/90	**	Sand with fines
MW-14	9	58.7 - 59.2	01/04/90	**	Fine-Grained Soil
MW-14	10	59.2 - 59.7	01/04/90	**	Fine-Grained Soil
MW-14	11	59.7 - 60.2	01/04/90	-	-
MW-15	1	5.0 - 7.0	11/21/89	1.82	Gravel with fines
MW-15	2	9.0 - 10.0	11/22/89	2.09	Sand with fines
MW-15	3	14.5 - 15.0	11/22/89	2.36	Gravel with fines
MW-15	4	19.5 - 20.0	11/27/89	1.83	Gravel
MW-15	5	24.7 - 25.2	11/28/89	1.33	Gravel with fines
MW-15	6	30.0 - 30.5	11/28/89	**	Gravel
MW-15	7	34.5 - 35.5	11/29/89	**	Gravel with fines
MW-15	8	39.5 - 40.5	11/29/89	**	-
MW-15	9	44.5 - 45.5	11/29/89	**	Sand with fines
MW-15	10	49.5 - 50.5	11/30/89	**	Gravel
MW-15	11	51.5 - 52.5	11/30/89	**	Fine-Grained Soil
MW-15	12	52.5 - 53.0	11/30/89	**	Fine-Grained Soil
MW-17	1	10.0 - 11.0	01/11/90	2.57	Sand with fines
MW-17	2	15.0 - 16.0	01/11/90	1.74	Gravel with fines
MW-17	3	20.0 - 21.0	01/11/90	2.74	Sand with fines
MW-17	4	25.0 - 26.0	01/11/90	4.86	Sand with fines
MW-17	5	30.0 - 31.0	01/12/90	6.97	Sand with fines
MW-17	6	35.0 - 36.0	01/12/90	3.06	Sand with fines
MW-17	7	37.0 - 38.0	01/12/90	7.28	Sand with fines
MW-17	8	95.0 - 97.0	01/18/90	**	Fine-Grained Soil
MW-17	9	99.5 - 101.9	01/19/90	-	-
MW-17	10	105.0 - 107.0	01/20/90	**	Fine-Grained Soil
MW-17	11	110.0 - 111.5	01/20/90	**	Sand with fines
MW-17	12	124.0 - 125.0	01/20/90	**	Sand with fines

** - Sample was saturated

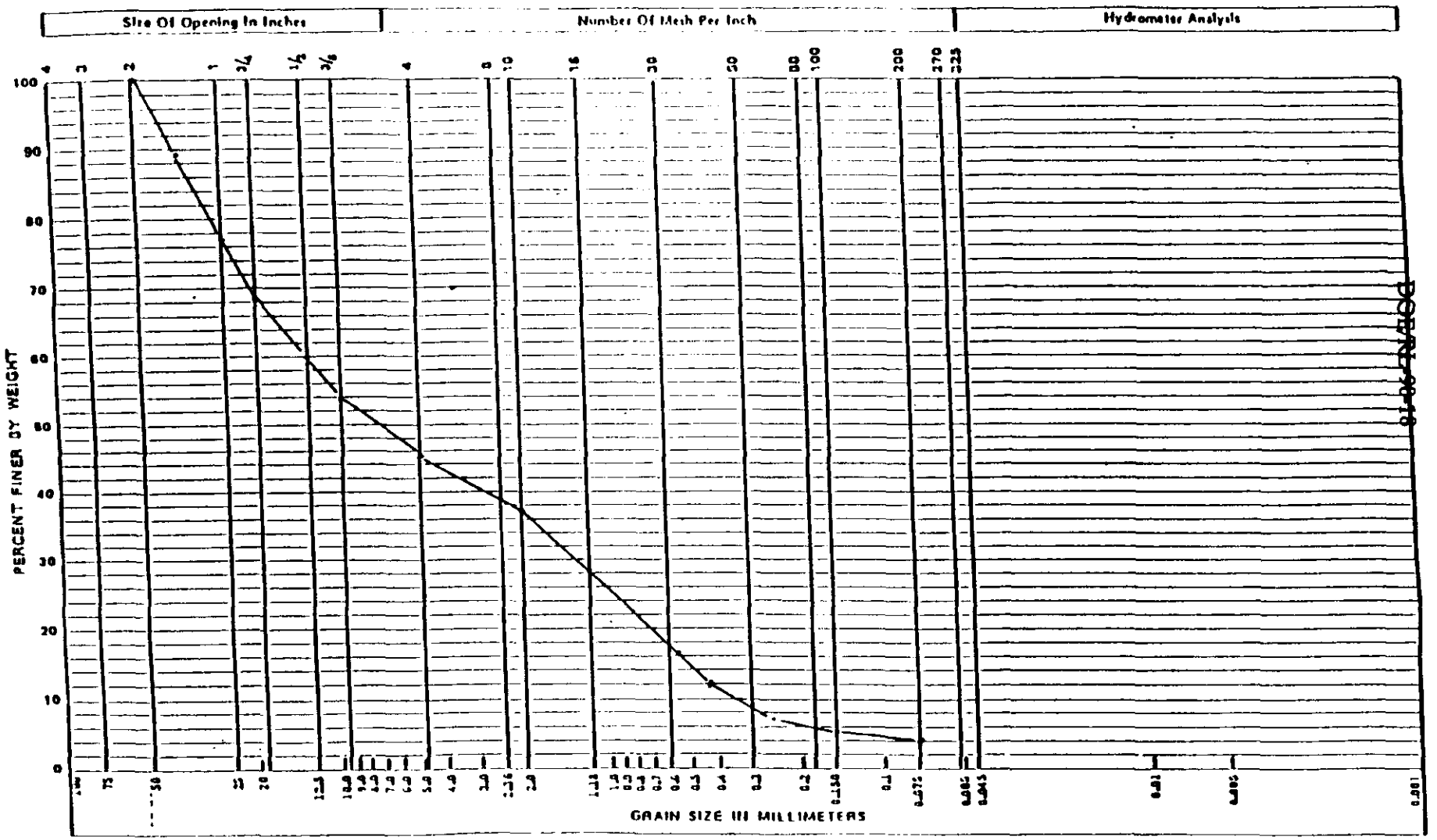
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-025 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT



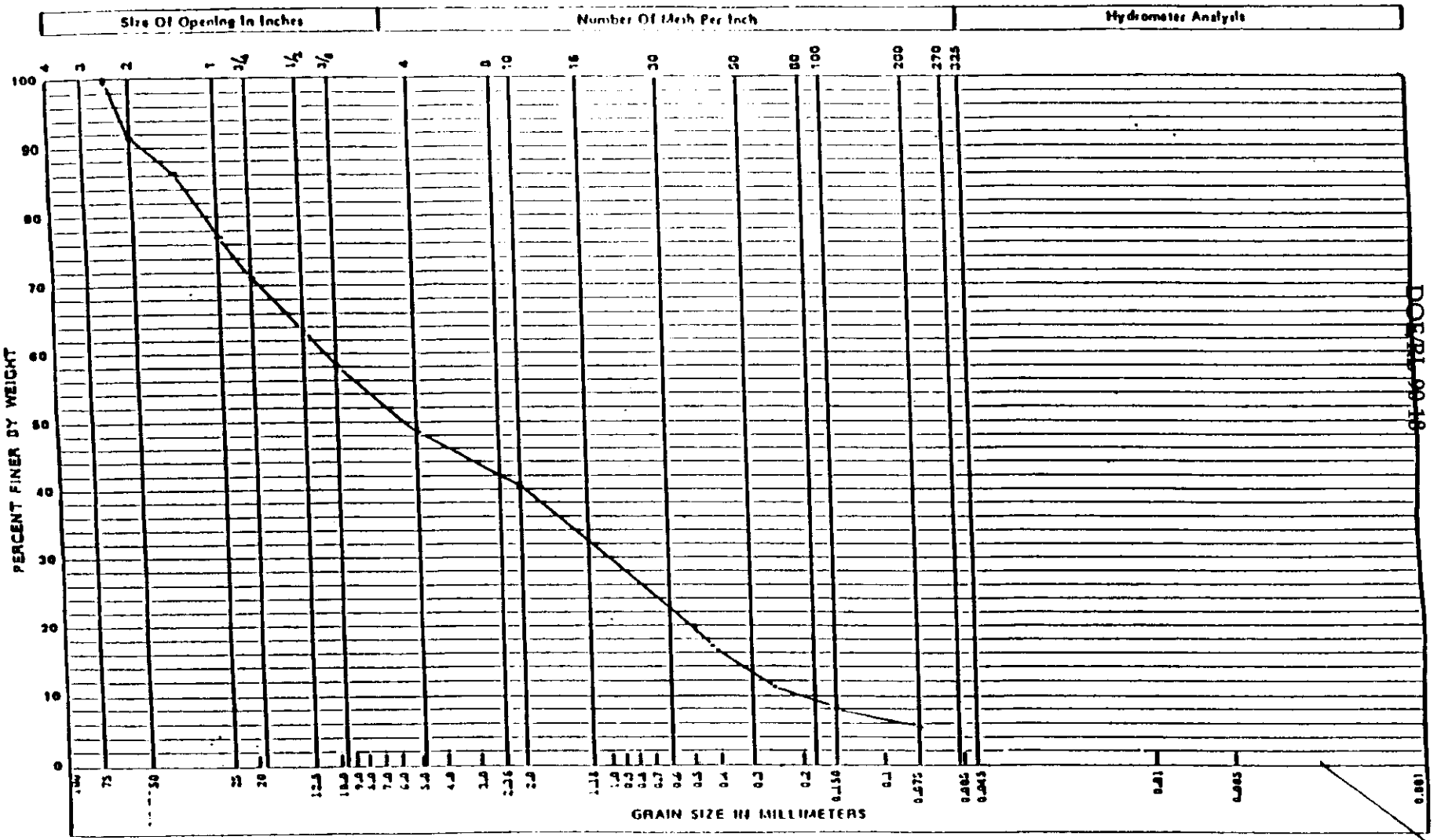
Specimen No. 0-026 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-1-2

Plotted by: R.G. ALEXANDER Date: 1-24-90

Checked by: H.C. Benny Date: 1-26-90

GRAIN SIZE ANALYSIS PLOT

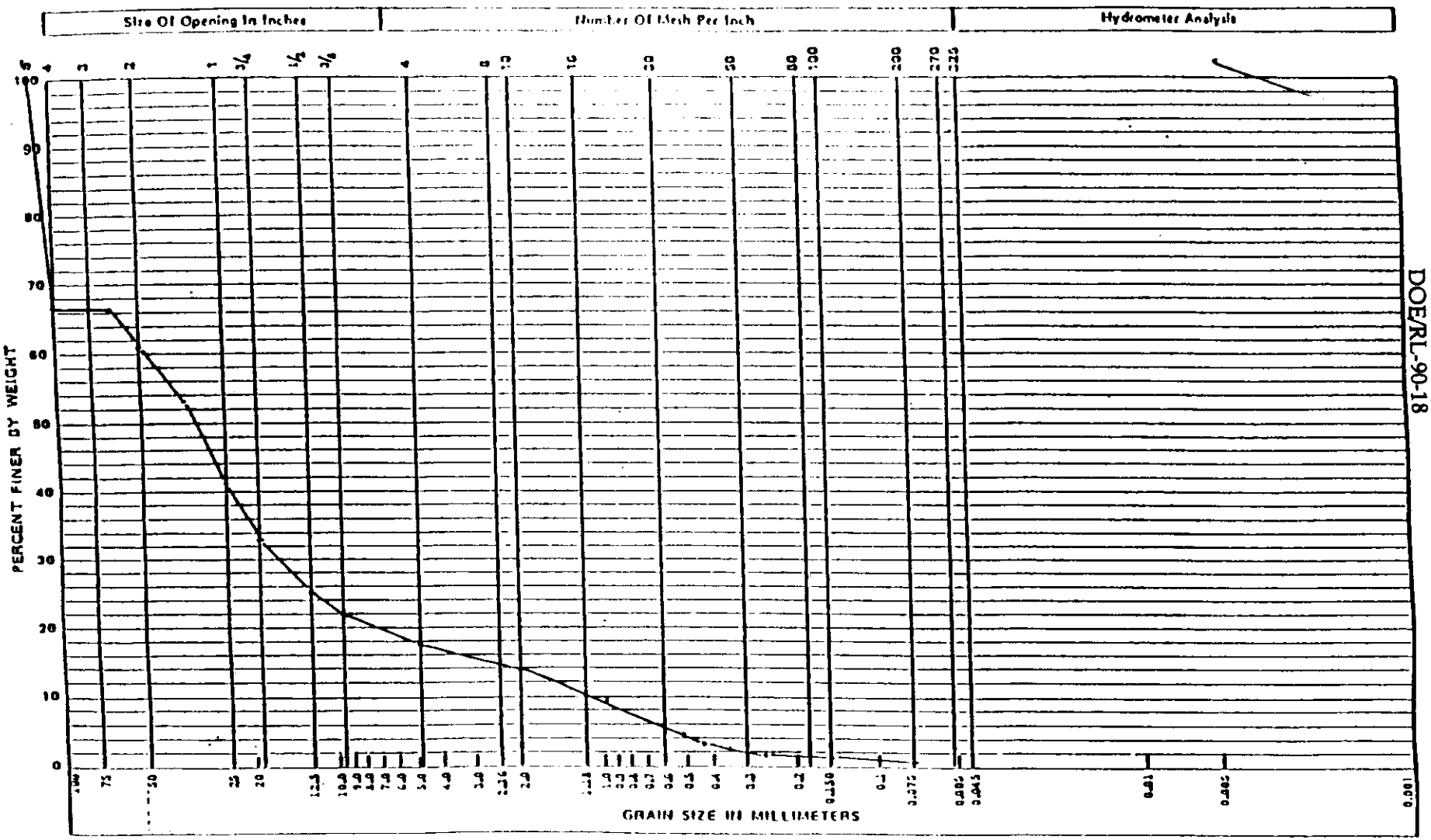


Specimen No. 0-027 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-84

Sample Description: SANDY GRAVEL

DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT



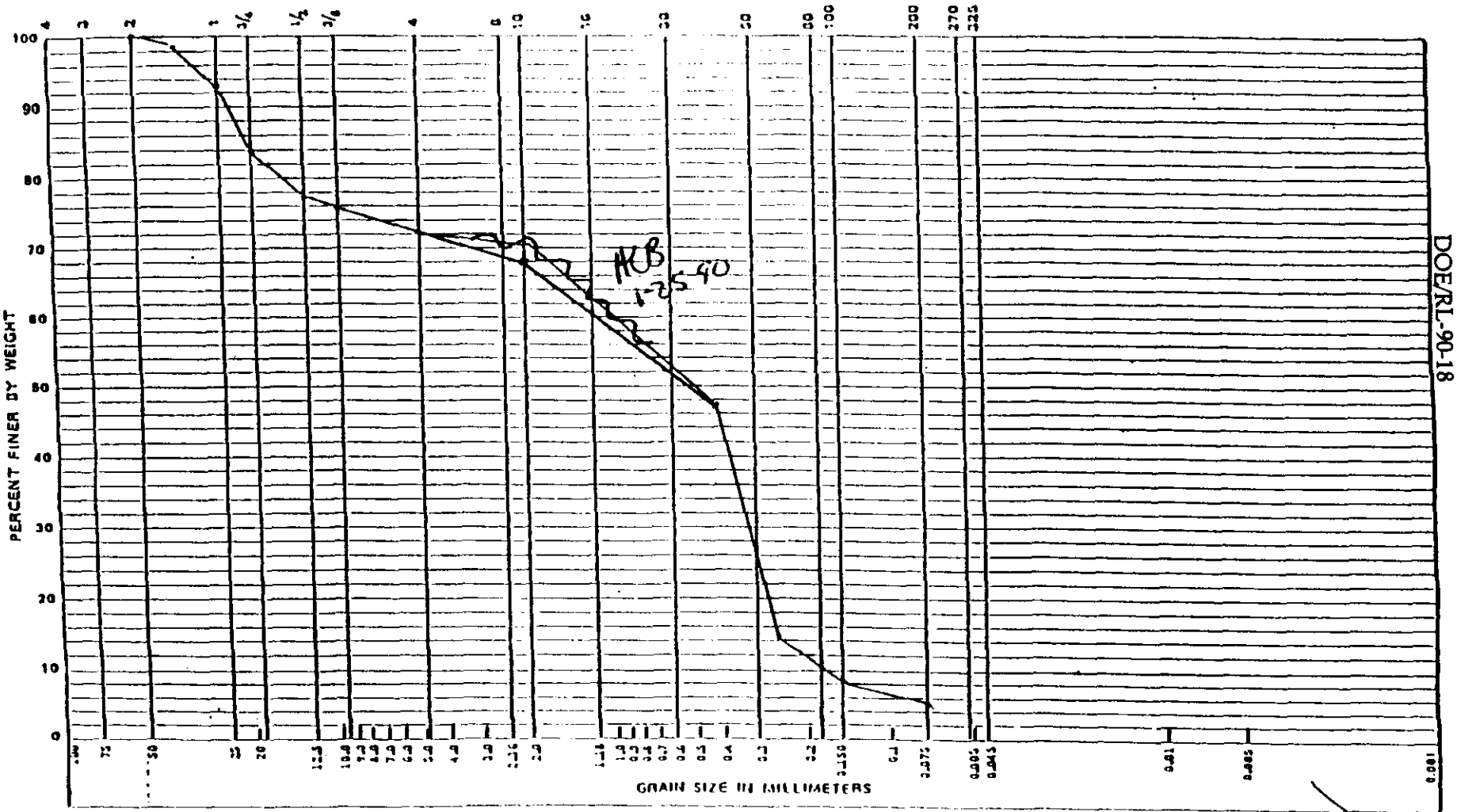
Specimen No. 0-028 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-1-4

Plotted by: R.G. ALEXANDER 1-26-90

Checked by: HL Benny 1-26-90

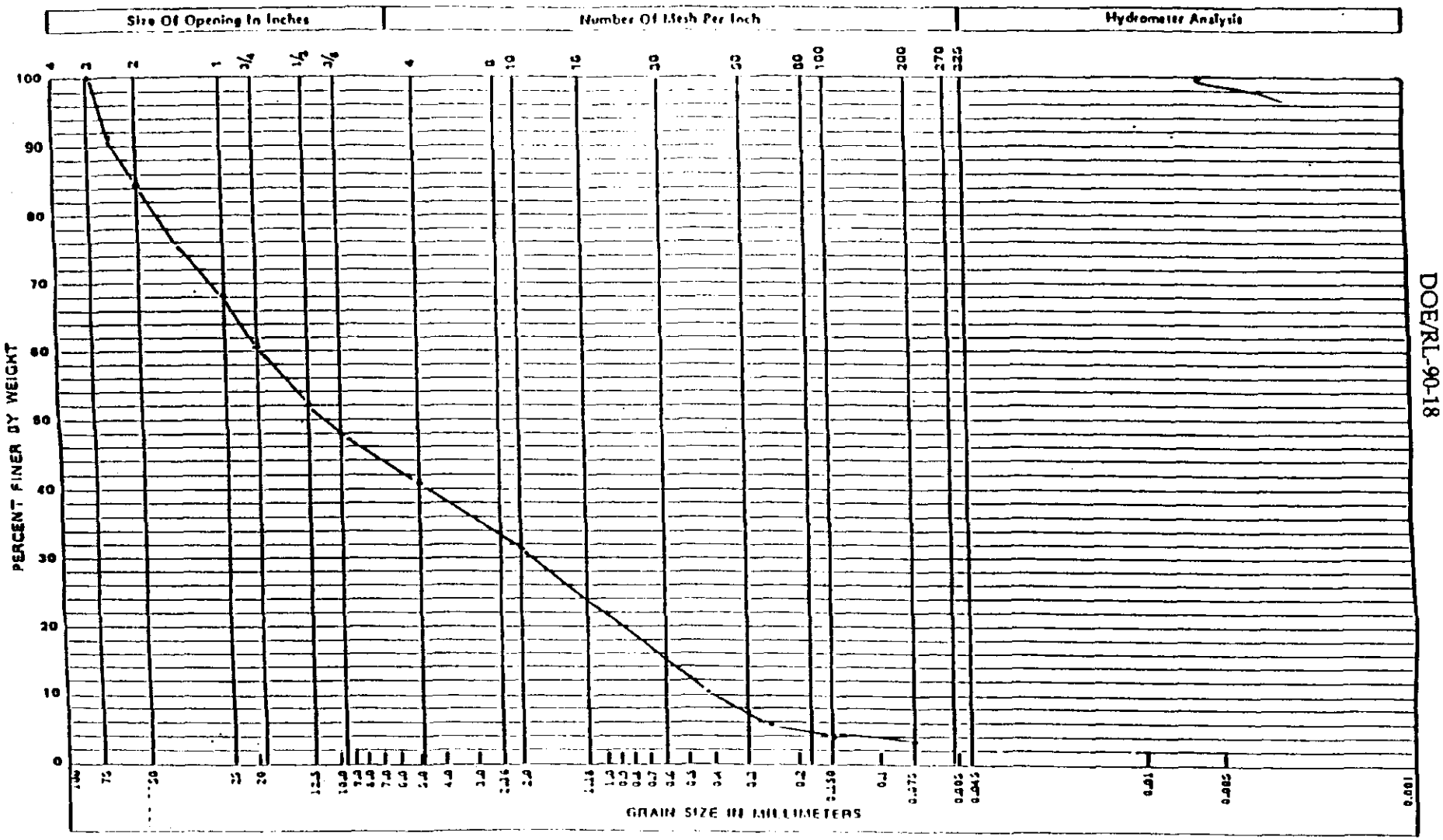
GRAIN SIZE ANALYSIS PLOT



Specimen No. O-029 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description:

GRAIN SIZE ANALYSIS PLOT

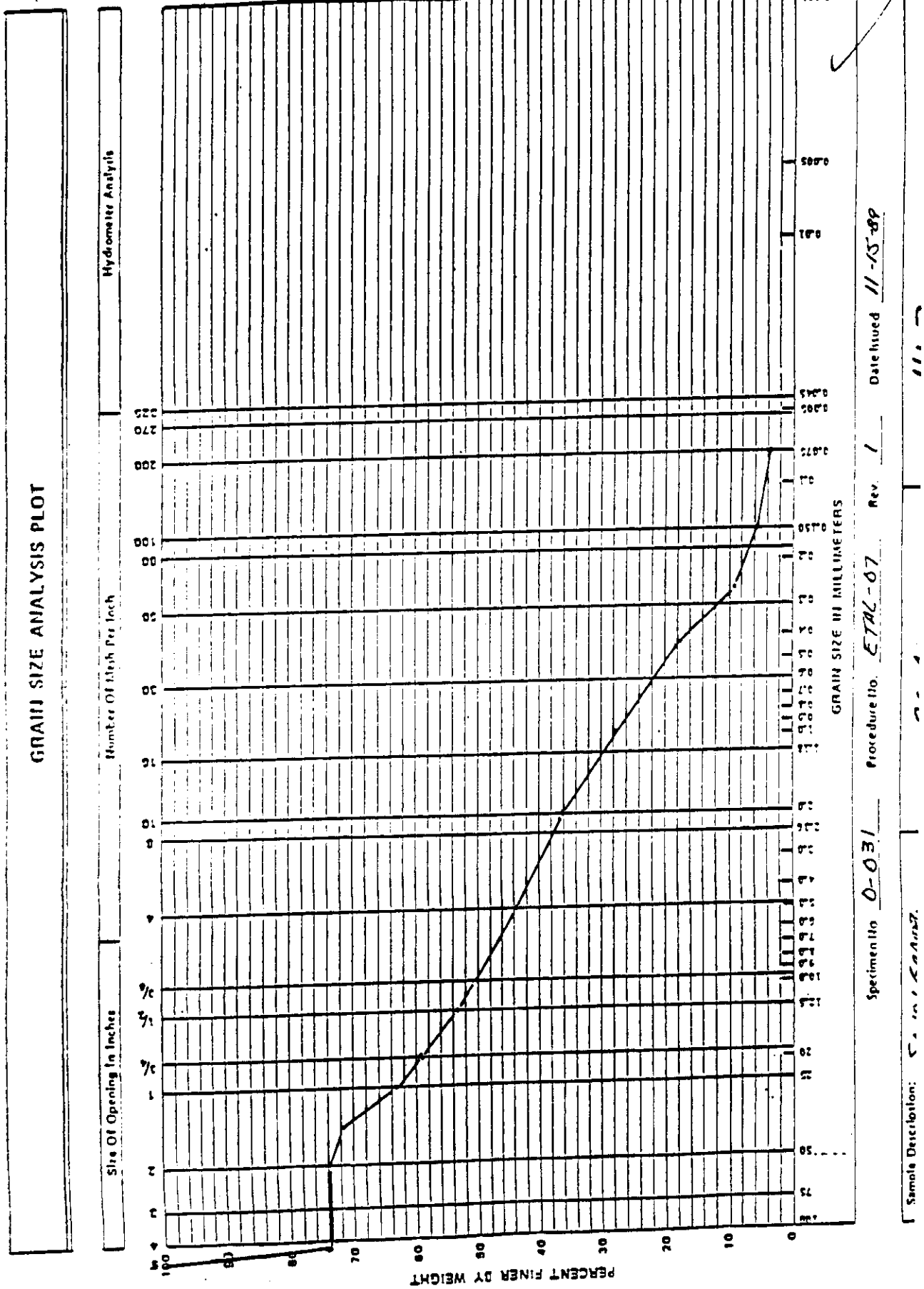


Specimen No. 0-030 Procedure No. ETAL-67 Rev. 1 Date Issued 11-15-89

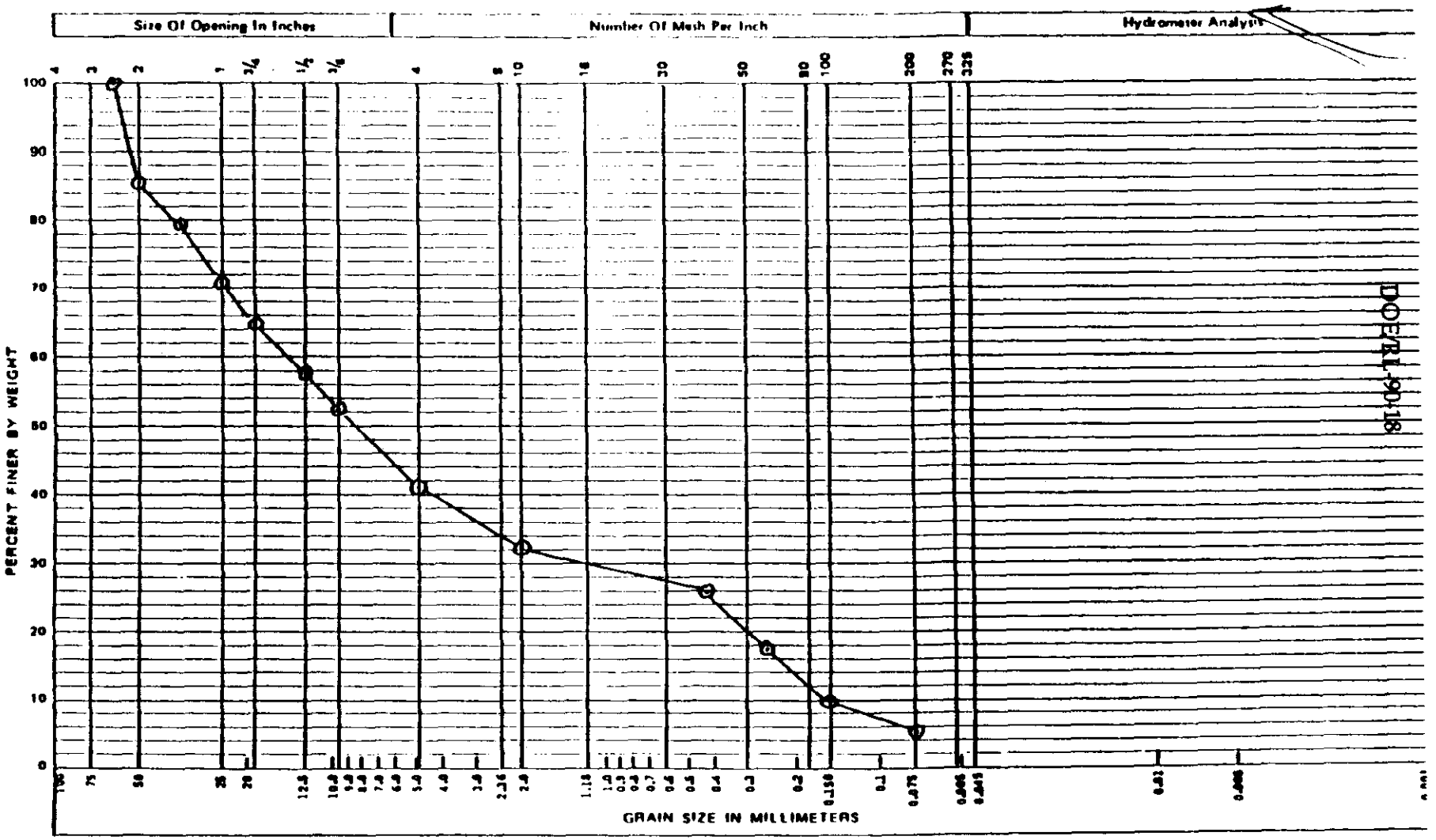
Sample Description: SANDY GRAVEL MW 1-6

Plotted by: R G ALEXANDER Date: 1-24-90

Checked by: H L Benny Date: 1-25-90


GRAIN SIZE ANALYSIS PLOT
Hydrometer Analysis
Number Of Mesh Per Inch
Size Of Opening In Inches
GRAIN SIZE IN MILLIMETERS
PERCENT FINER BY WEIGHT
Specimen No. 0-031
Procedure No. ETAL-07
Rev. 1
Date Issued 11-15-89
Sample Description:

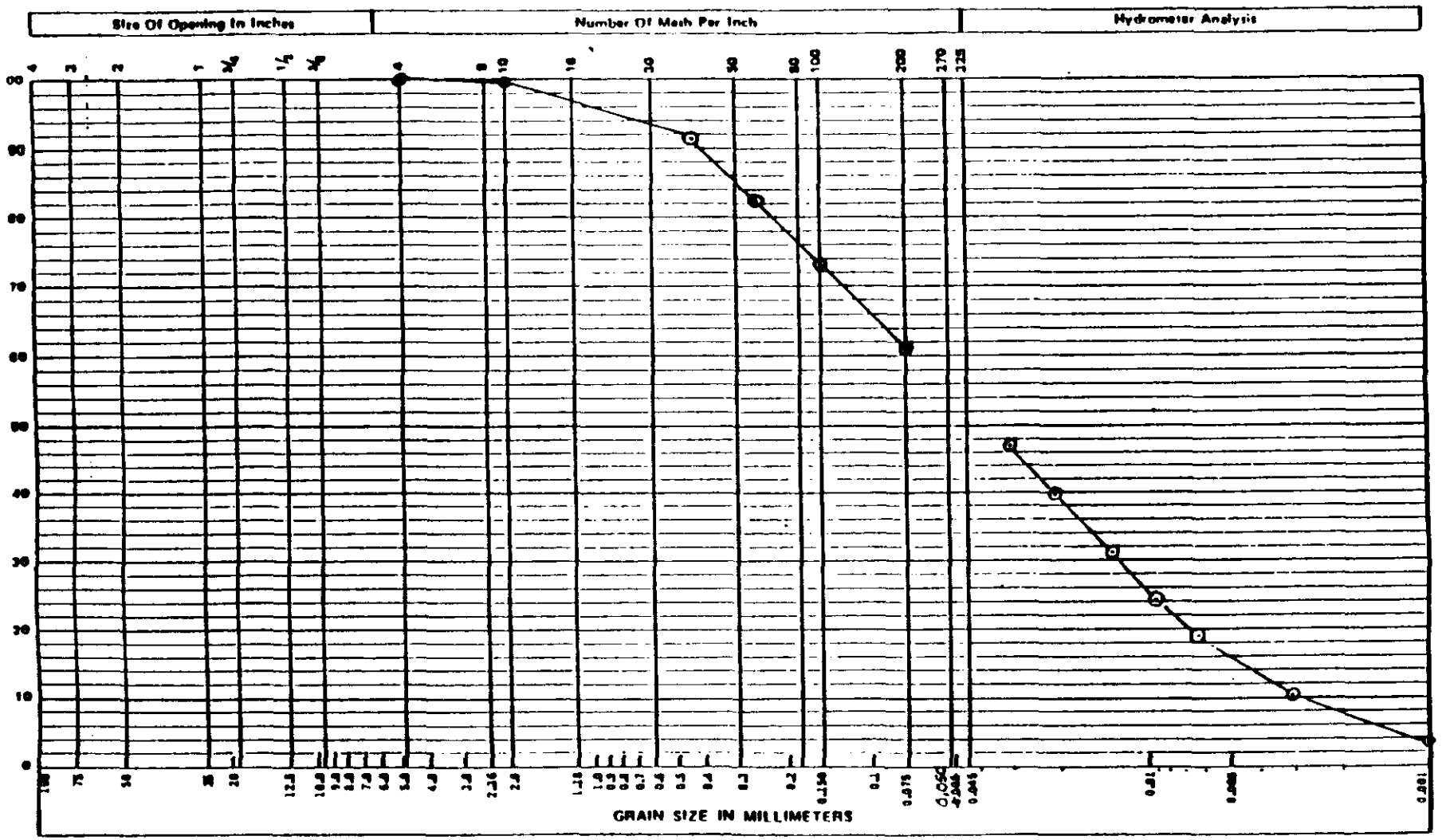
GRAIN SIZE ANALYSIS PLOT



Specimen No 0-050 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description:	Plotted by:	Checked by:	Approved by:
SANDY GRAVEL MW 1-8	R.G ALEXANDER	H.L Berry	NA
	Date: 2-5-90	Date: 2-13-90	Date

GRAIN SIZE ANALYSIS PLOT

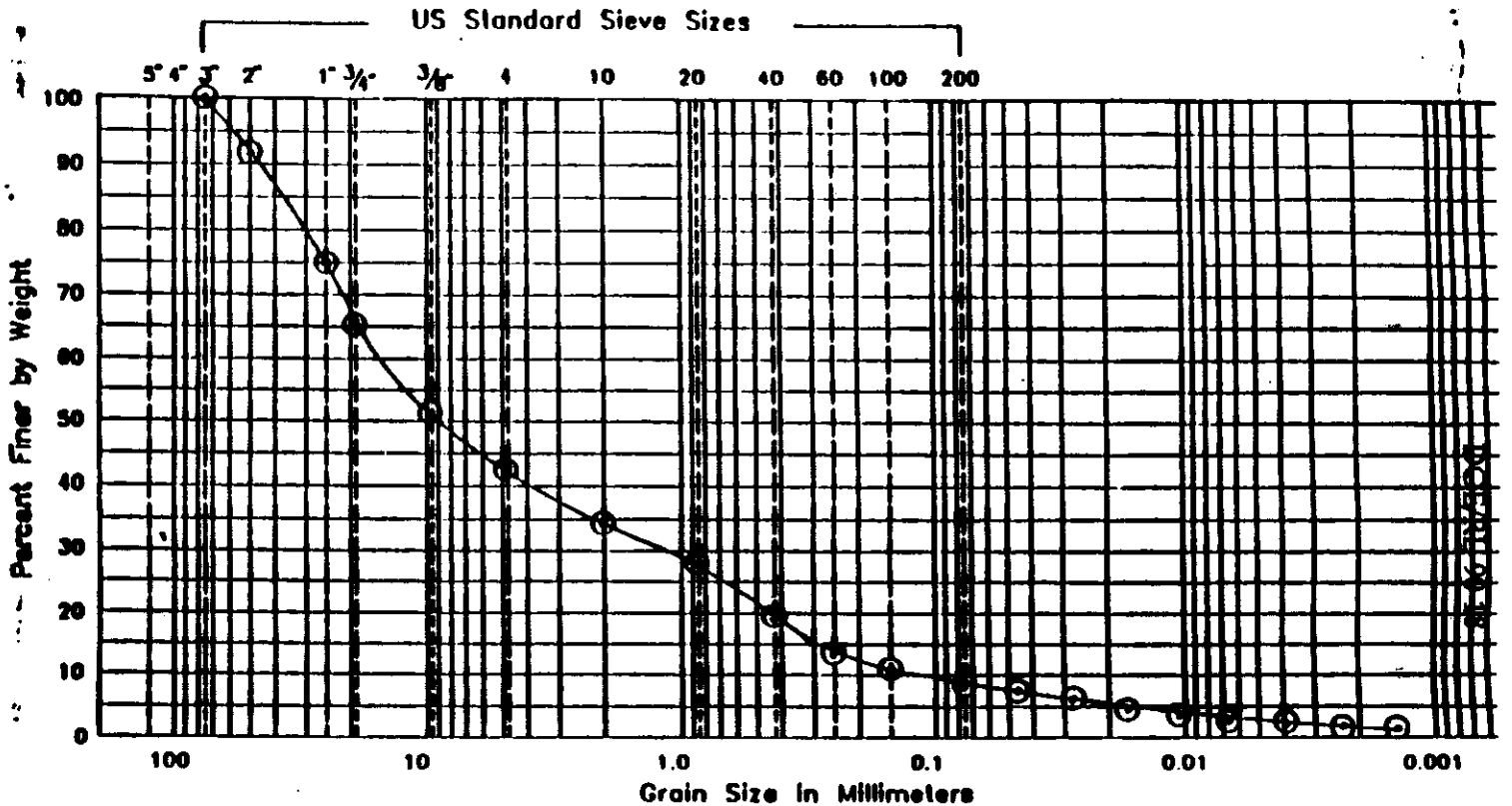


Specimen No 0-051 Procedure No ETBL-07 Rev 1 Date Issued 11-15-89

9 1 1 1 3 3 5 1 5 2 0

GRAIN SIZE DISTRIBUTION

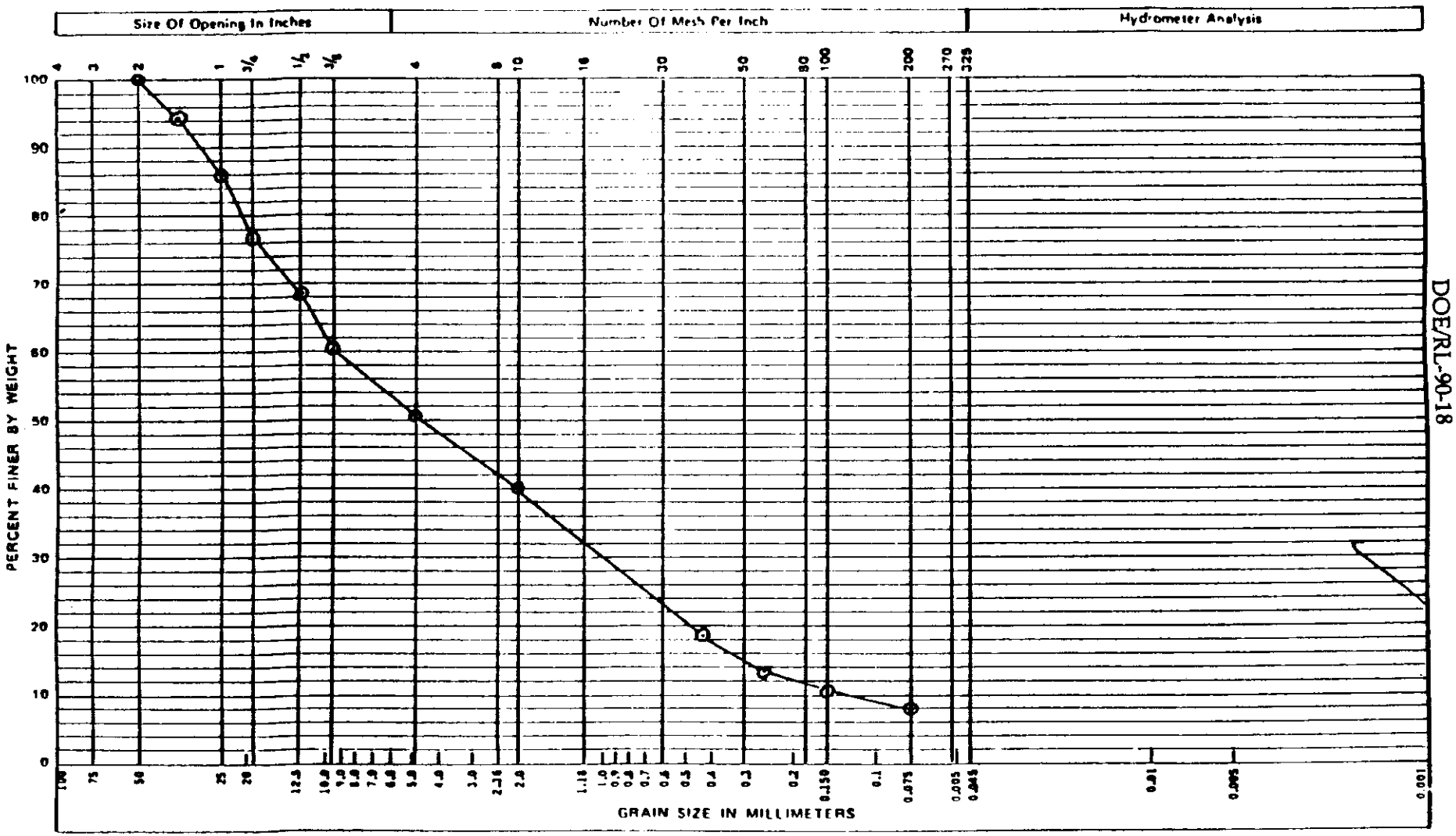
Project Witt Analytical Services/WA
Project No. 813-1426.000 Date 3-9-96 Drawn By DPO Approved By [illegible] Golder Associates



Cobbles	Gravel		Sand			Fines
	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay

Boring No.	Elev. or Depth	W_n	W_L	W_p	I_p	Description
A2406		2.7				Olive grey, c.f GRAVEL and c.f SAND, little silt, ~~(GP)~~, (GP-GM), DPC 3-9-96

GRAIN SIZE ANALYSIS PLOT



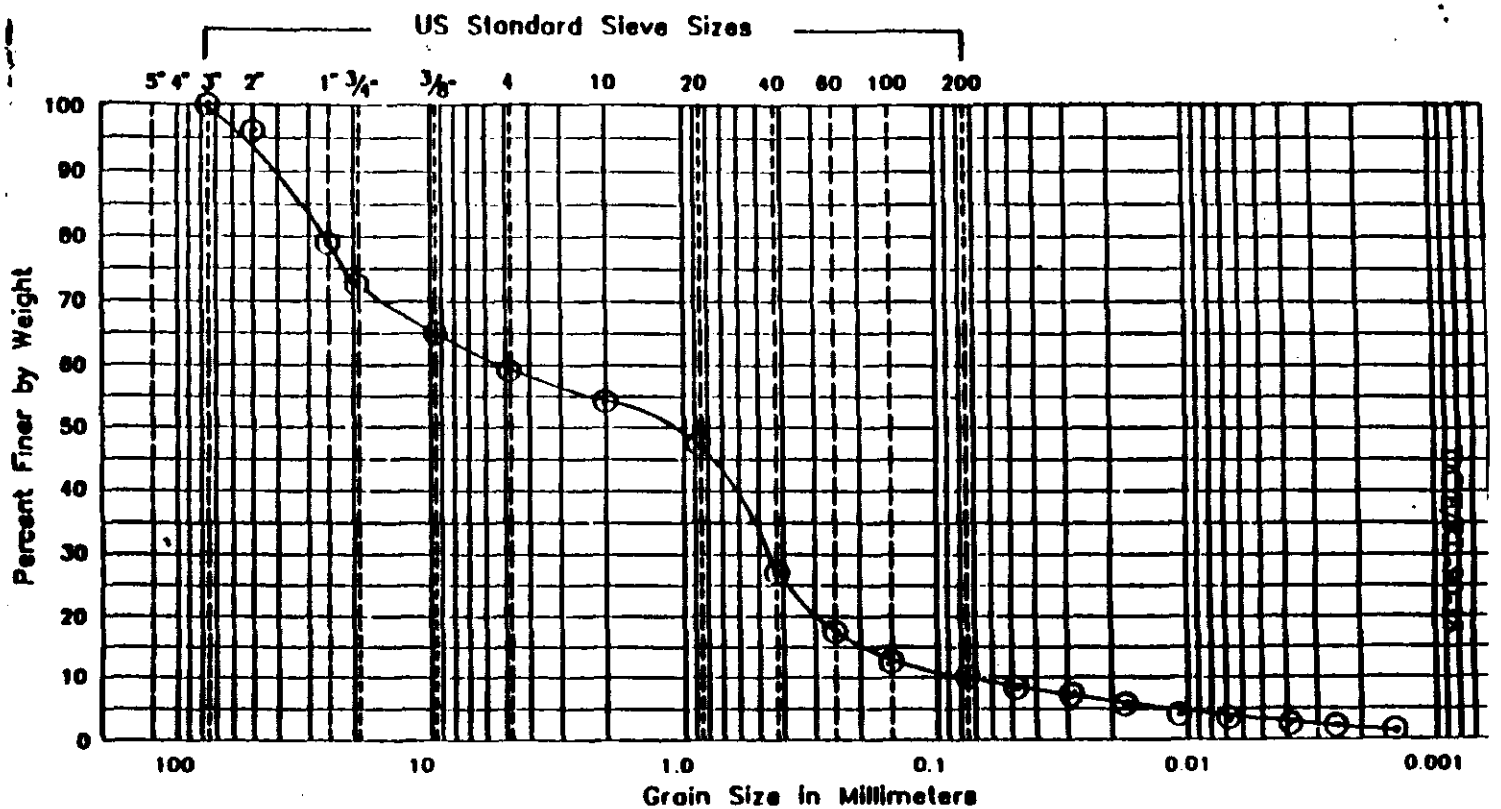
Specimen No D-076 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL | RC Alexander | H1 Ramp

9 1 1 1 3 9 5 1 5 2 2

GRAIN SIZE DISTRIBUTION

Project Witt Analytical Services/WA
Project No. 8/13-1420.000 Date 3-9-4[illegible] Checked By DPO Approved By [illegible]

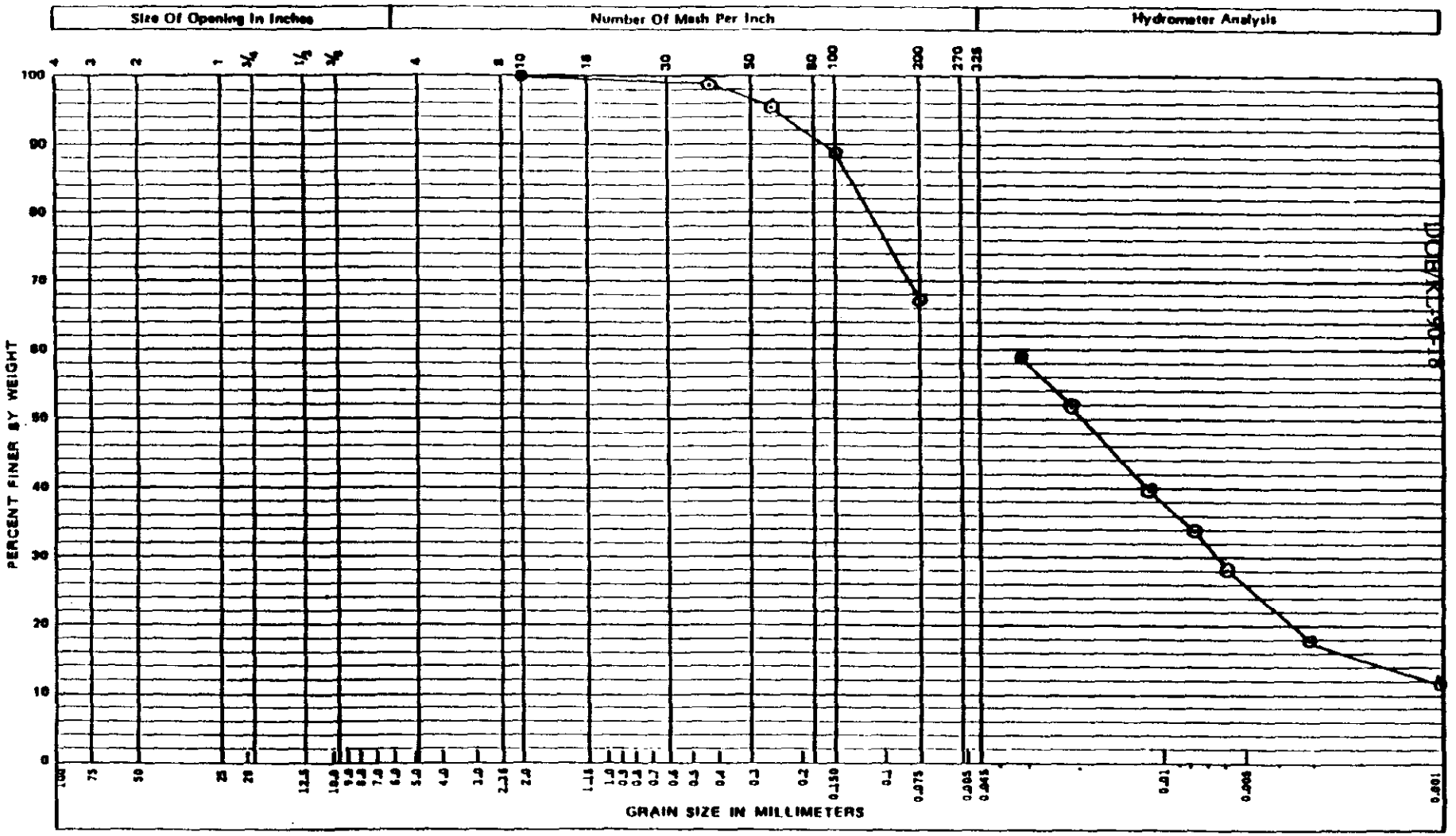


Cobbles	Gravel		Sand			Fines
	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay

Boring No.	Elev. or Depth	W_n	W_L	W_p	I_p	Description
A2410		3.7				Dark olive grey, c-f SAND and c-f GRAVEL, little silt, (SM-SP).

Golder Associates

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-078 Procedure No. ETNC-07 Rev. 1 Date Issued 11-15-89

WOE/KC-90-18

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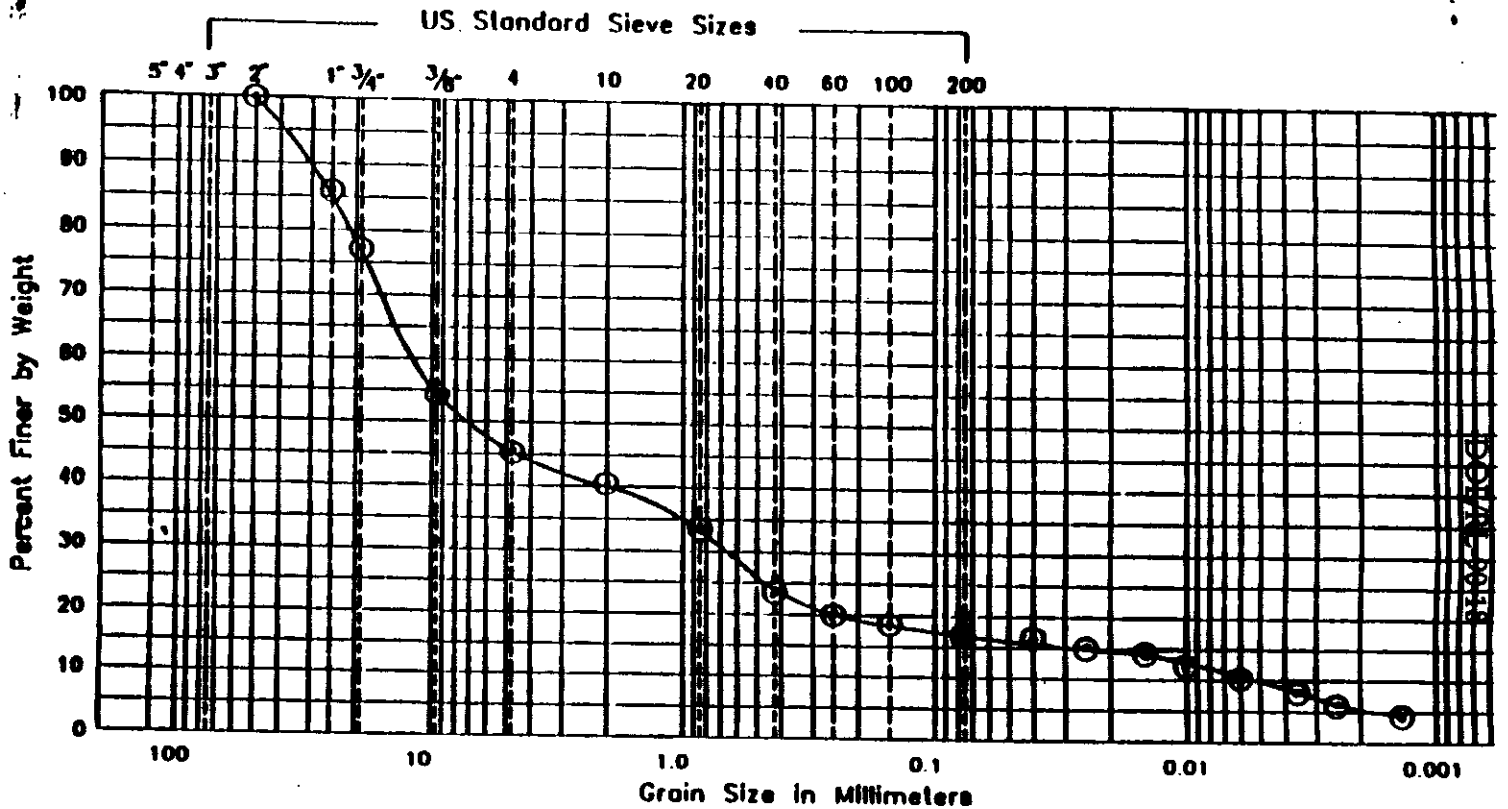
GRAIN SIZE DISTRIBUTION

Project WIPC / Analytical Services / WA
Project No. 913-1426.000 Date 3-9-94 Checked By DPO Approved By KAK

Golder Associates



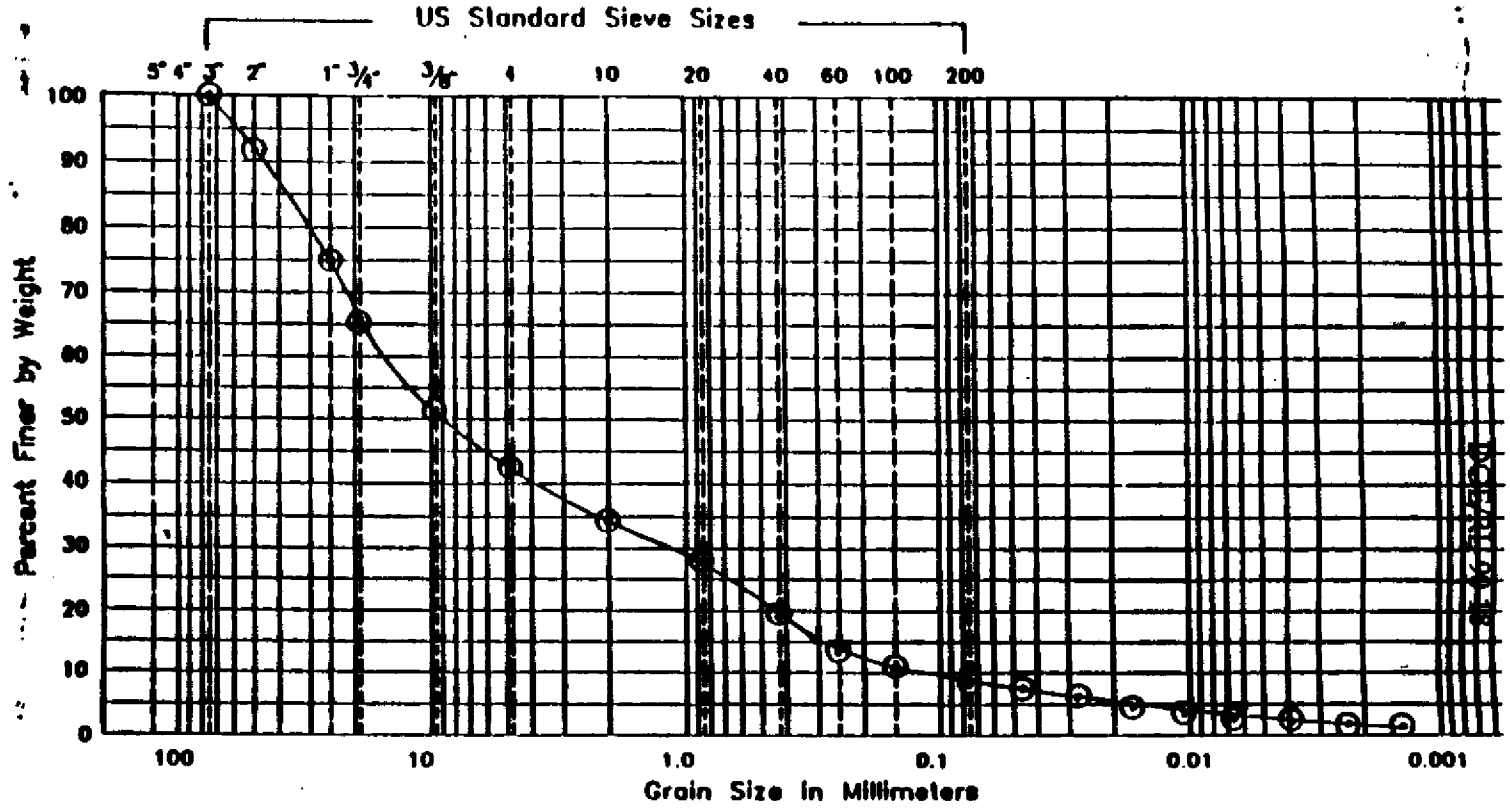
Cobbles	Gravel		Sand			Fines
	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay

Boring No.	Elev. or Depth	W_n	W_L	W_p	I_p	Description
A2415		5.7				Olive grey, c-f GRAVEL, some c-f sand, some silt, (GM).

9 1 1 1 3 3 5 1 5 2 0

GRAIN SIZE DISTRIBUTION

Project: Wire Analytical Services/WA
Project No. 813-1426.480 Date: 3-9-96 Drawn By: DPO Approved By: [signature] Golder Associates

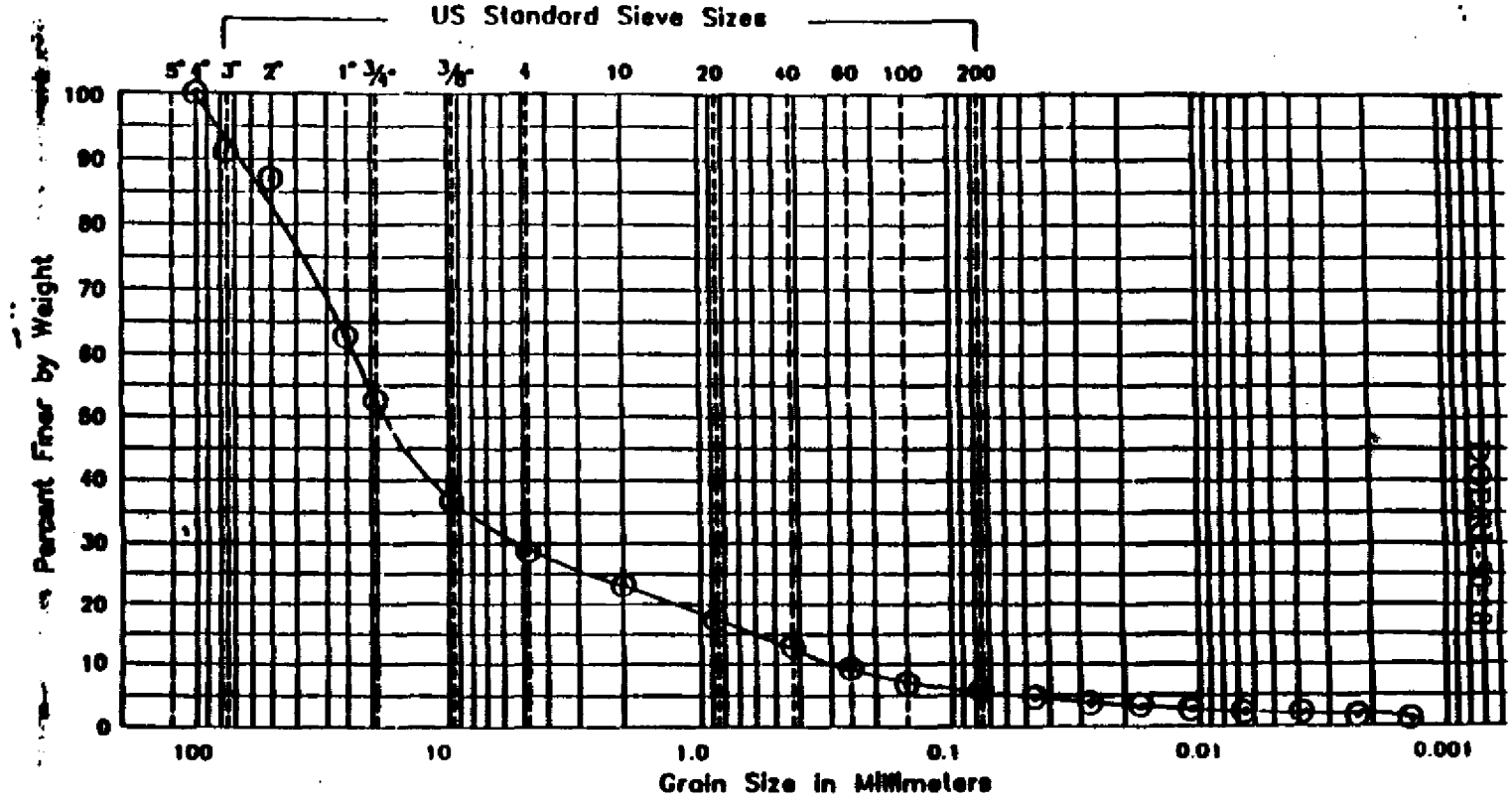


Cobbles	Gravel		Sand			Fines
	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay

Boring No.	Elev. or Depth	W_n	W_L	W_p	I_p	Description
A2406		2.7				Olive grey, c.f GRAVEL and c.f SAND, little silt, ~~(GP)~~ DPO 3-9-96, (GP-GM),

GRAIN SIZE DISTRIBUTION

Golder Associates



Cobbles	Gravel		Sand			Fines
	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay

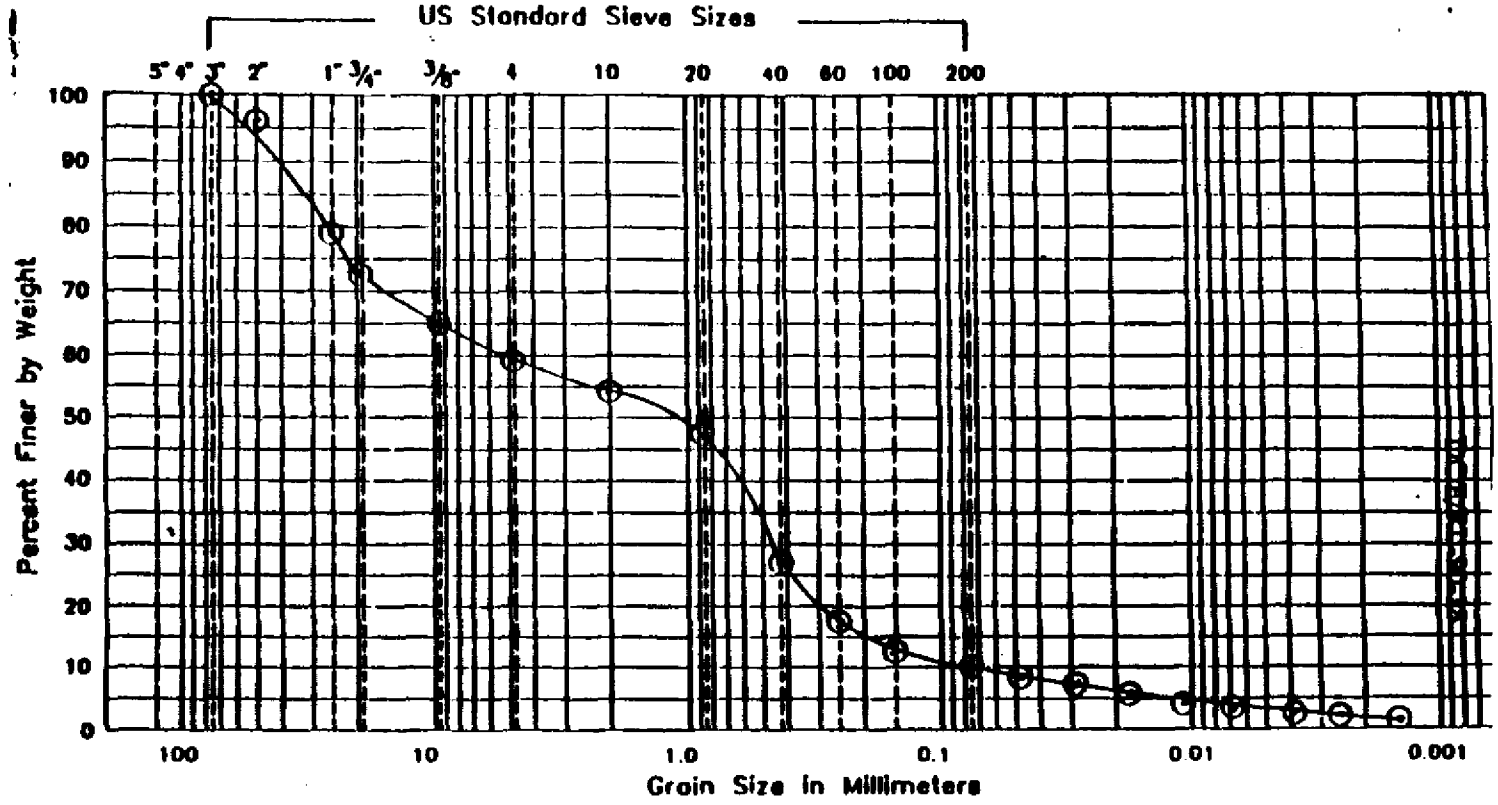
Boring No.	Elev. or Depth	W_n	W_L	W_P	I_P	Description
A2408		2.1				Olive grey, c-f GRAVEL, some c-f sand, little cobbles, little silt, (GM-GP).

Geologist identified as silty sandy gravel OK

9 1 1 1 3 4 5 1 5 2 2

GRAIN SIZE DISTRIBUTION

Project: Wire Analytical Services/WA
Project No. 8/13-1420.000 Date 3-7-4[illegible] Approved By DPO Approved By [illegible]



Cobbles	Gravel		Sand			Fines
	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay

Boring No.	Elev. or Depth	W_n	W_L	W_p	I_p	Description
A2410		3.7				Dark olive grey, c-f SAND and c-f GRAVEL, little silt, (SM-SP).

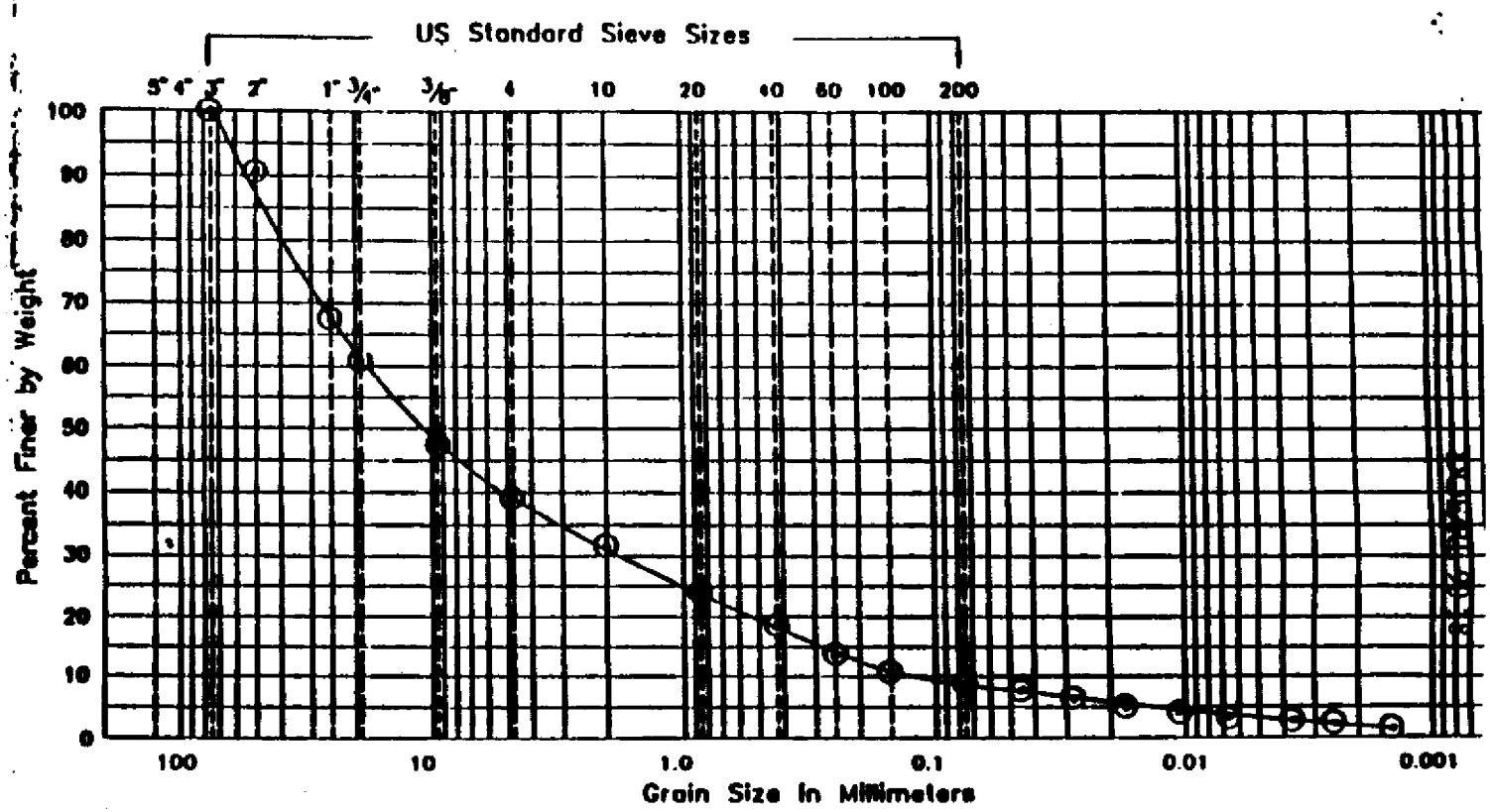
Golder Associates

9 1 1 1 0 0 5 1 3 2 5

GRAIN SIZE DISTRIBUTION

Project WITL / Analytical Services / WA
Project No. 913-1426.000 Date 3-9-94 Checked By DPO Approved By [illegible]

Golder Associates



Cobbles	Gravel		Sand			Fines
	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay

Boring No.	Elev. or Depth	W_n	W_L	W_p	I_p	Description
A2412		3.9				Dark olive grey, c-f GRAVEL and c-f SAND, little silt, (GM-GP).

Geologist: Silty Sandy Gravel

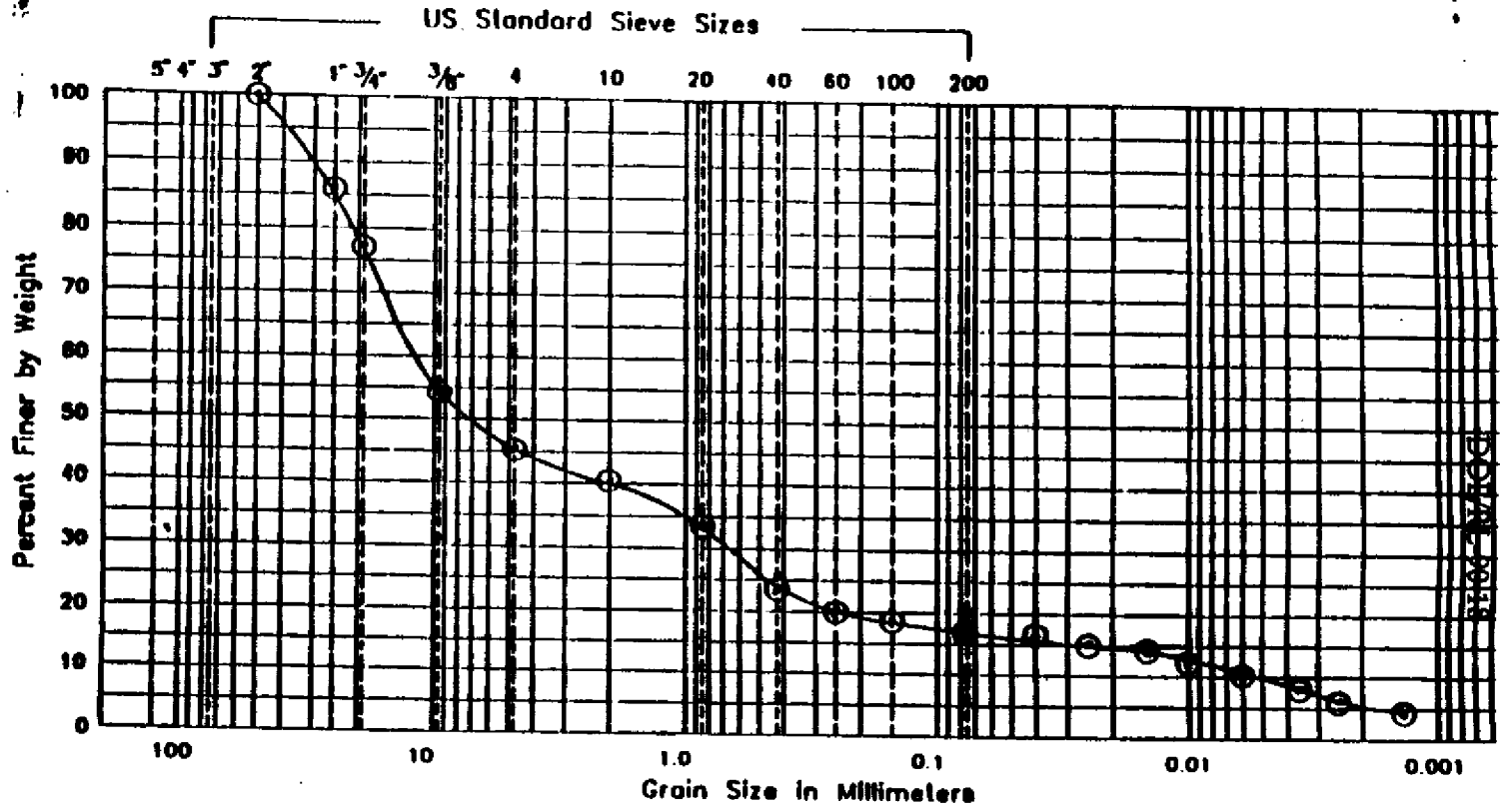
DK

9 1 1 1 9 0 5 1 7 2 4

GRAIN SIZE DISTRIBUTION

Project WIRC / Analytical Services / WA
Project No. 8713-1426.000 Date 3-9-96 Checked by DPO Approved by KAK

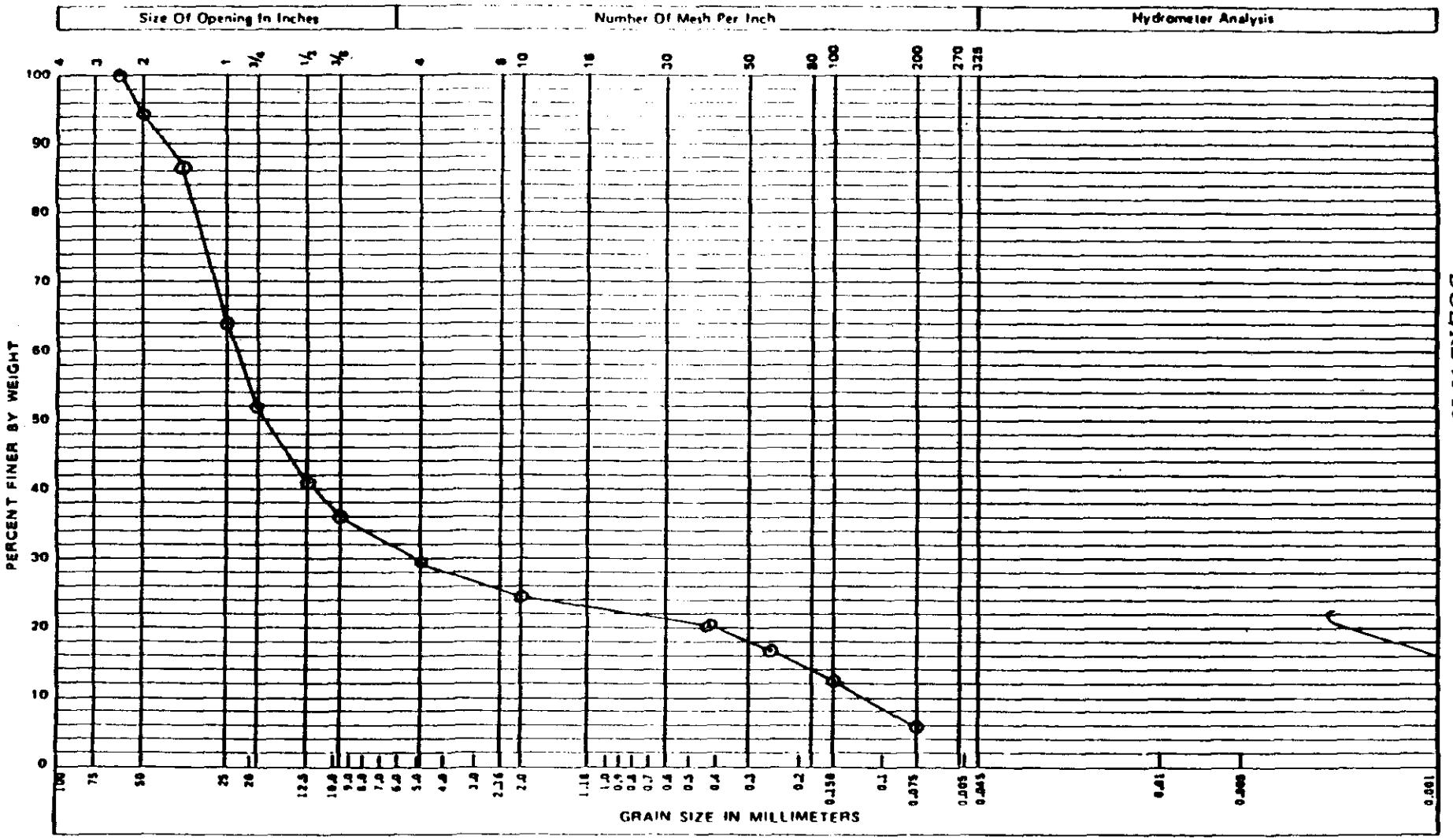
Golder Associates



Cobbles	Gravel		Sand			Fines
	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay

Boring No.	Elev. or Depth	W_n	W_L	W_p	I_p	Description
A2415		5.7				Olive grey, c-f GRAVEL, some c-f sand, some silt, (GM).

GRAIN SIZE ANALYSIS PLOT



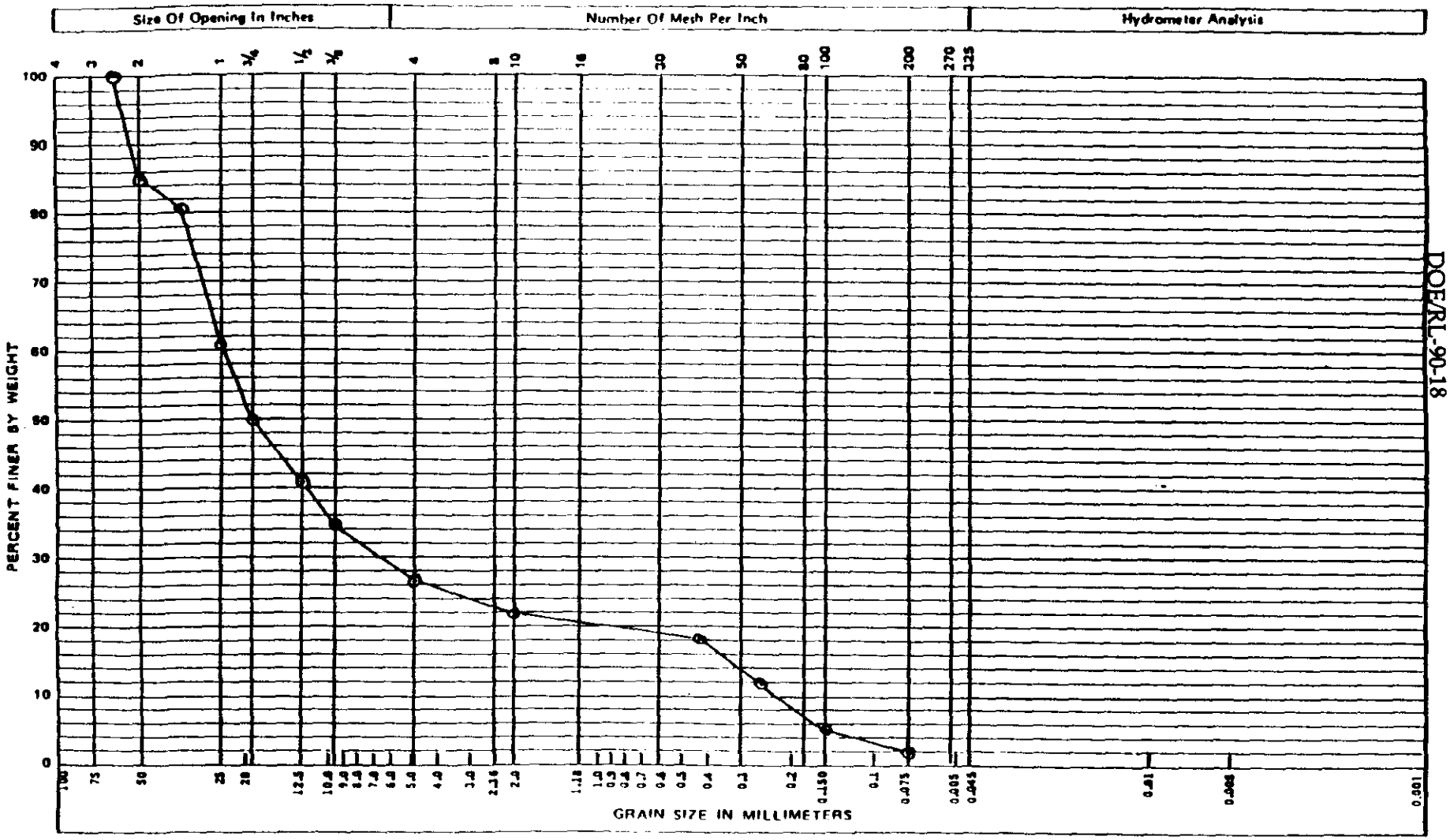
Specimen No 0-110 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-3-1

Plotted by: R.G ALEXANDER Date: 2-26-90

Checked by: HL Benny Date: 3-1-90

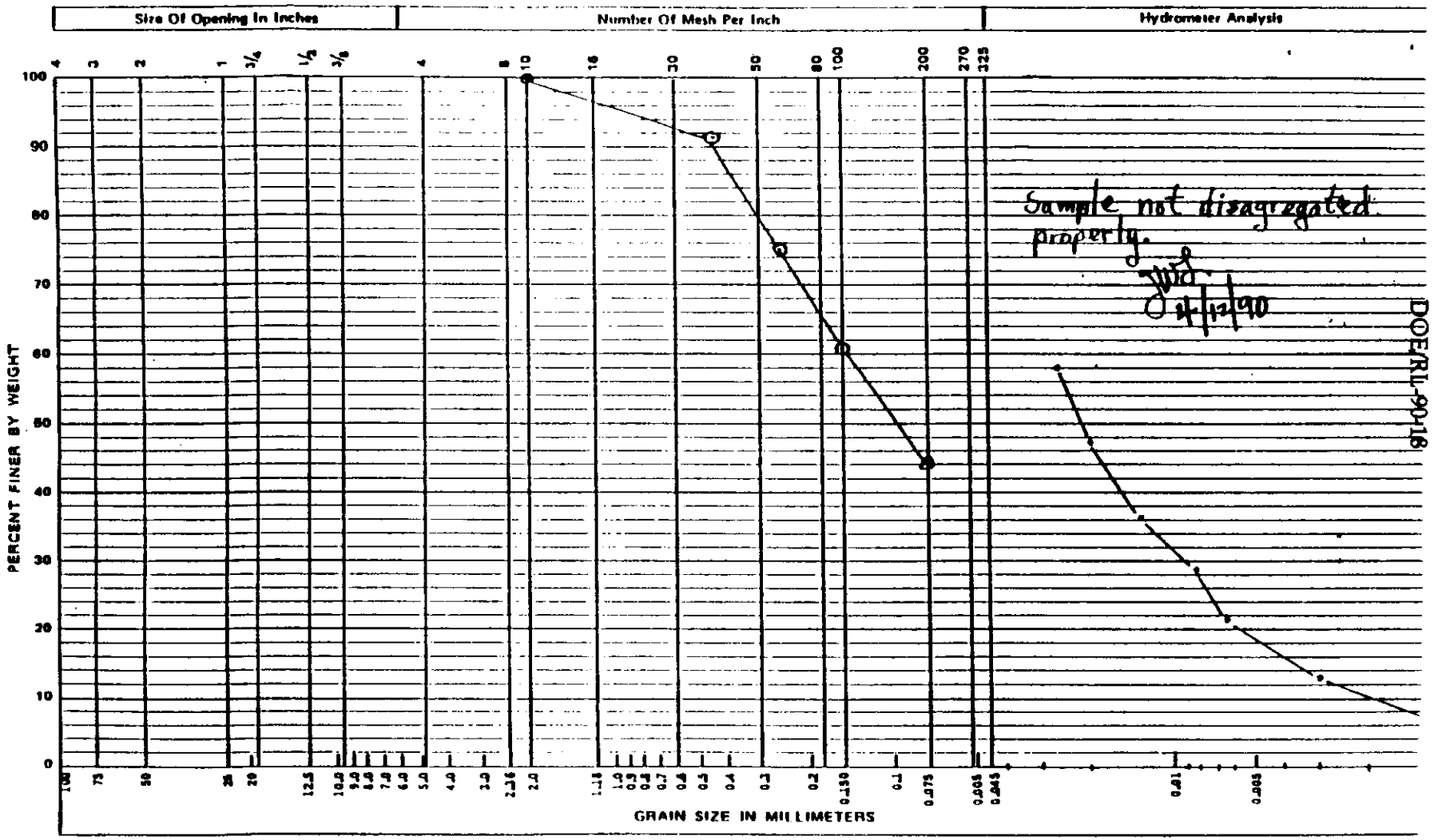
GRAIN SIZE ANALYSIS PLOT



Specimen No. O-111 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description:

GRAIN SIZE ANALYSIS PLOT



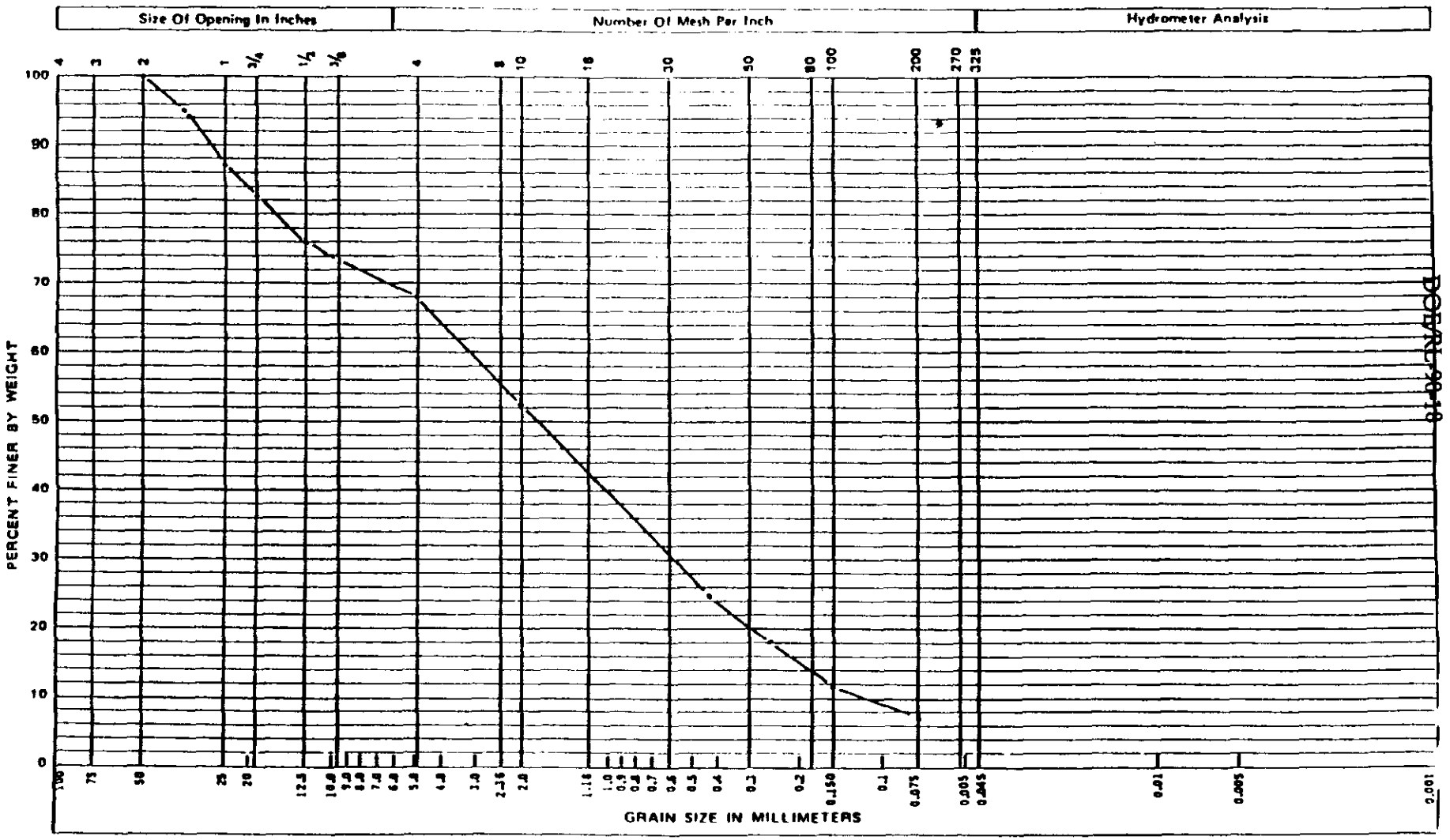
Specimen No O-112 Procedure No ETL-0-1 Rev 1 Date Issued 11-15-89

Sample Description: SILTY SAND MW-3-3

Plotted by: R.G ALEXANDER Date: 2-26-90

Checked by: HL Benny Date: 3-3-90

GRAIN SIZE ANALYSIS PLOT

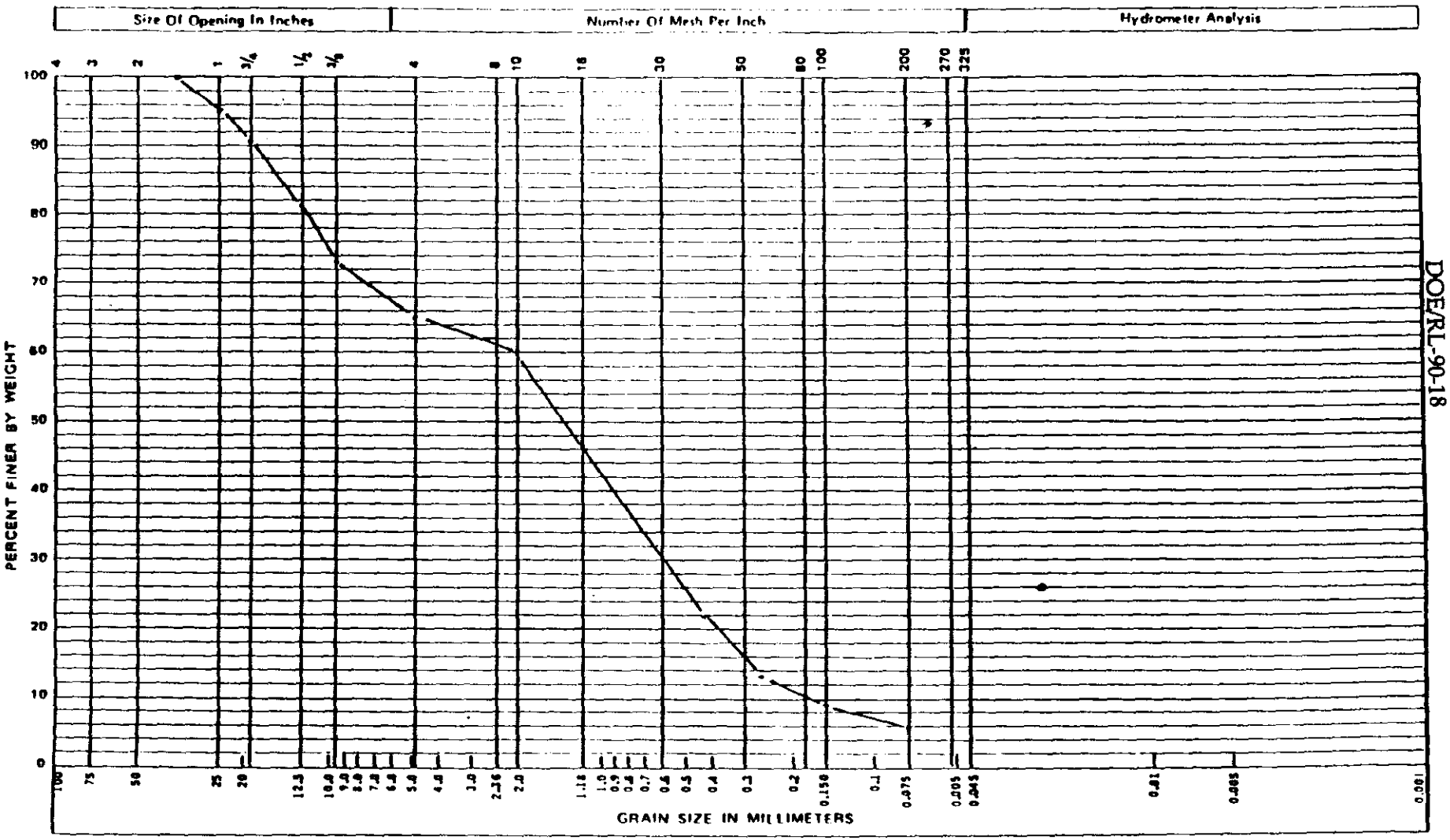


Specimen No 9-05B Procedure No ETAL-07 Rev Ø Date Issued 11-15-89

Sample Description:

DOE/RL-90-18

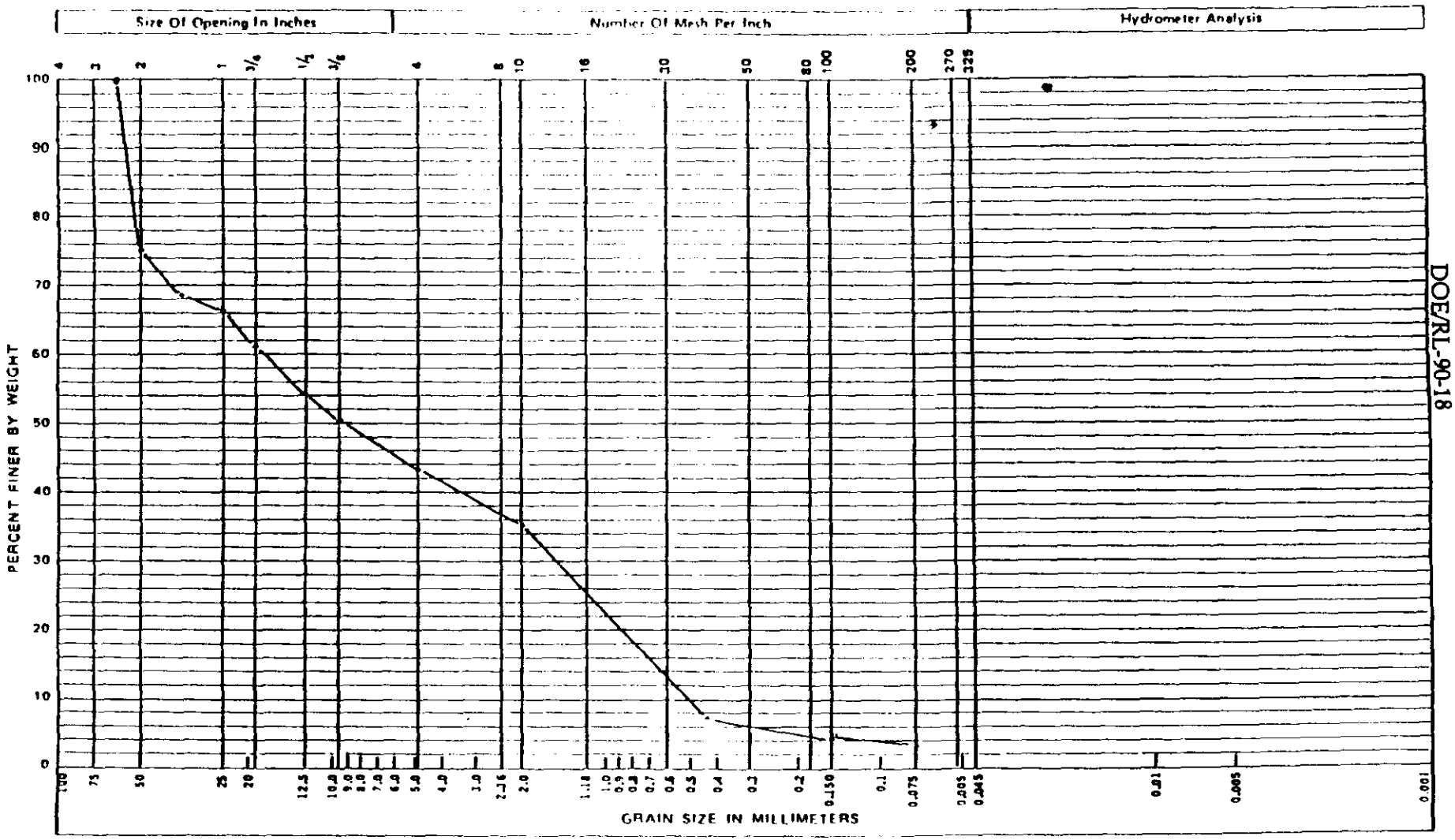
GRAIN SIZE ANALYSIS PLOT



Specimen No 9-059 Procedure No ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description:	Plotted by: R.G. ALEXANDER	Checked by: C.J. [illegible]
SANDY GRAVEL MW 4-2	Date: 11-30-89	Date: 12-5-89

GRAIN SIZE ANALYSIS PLOT

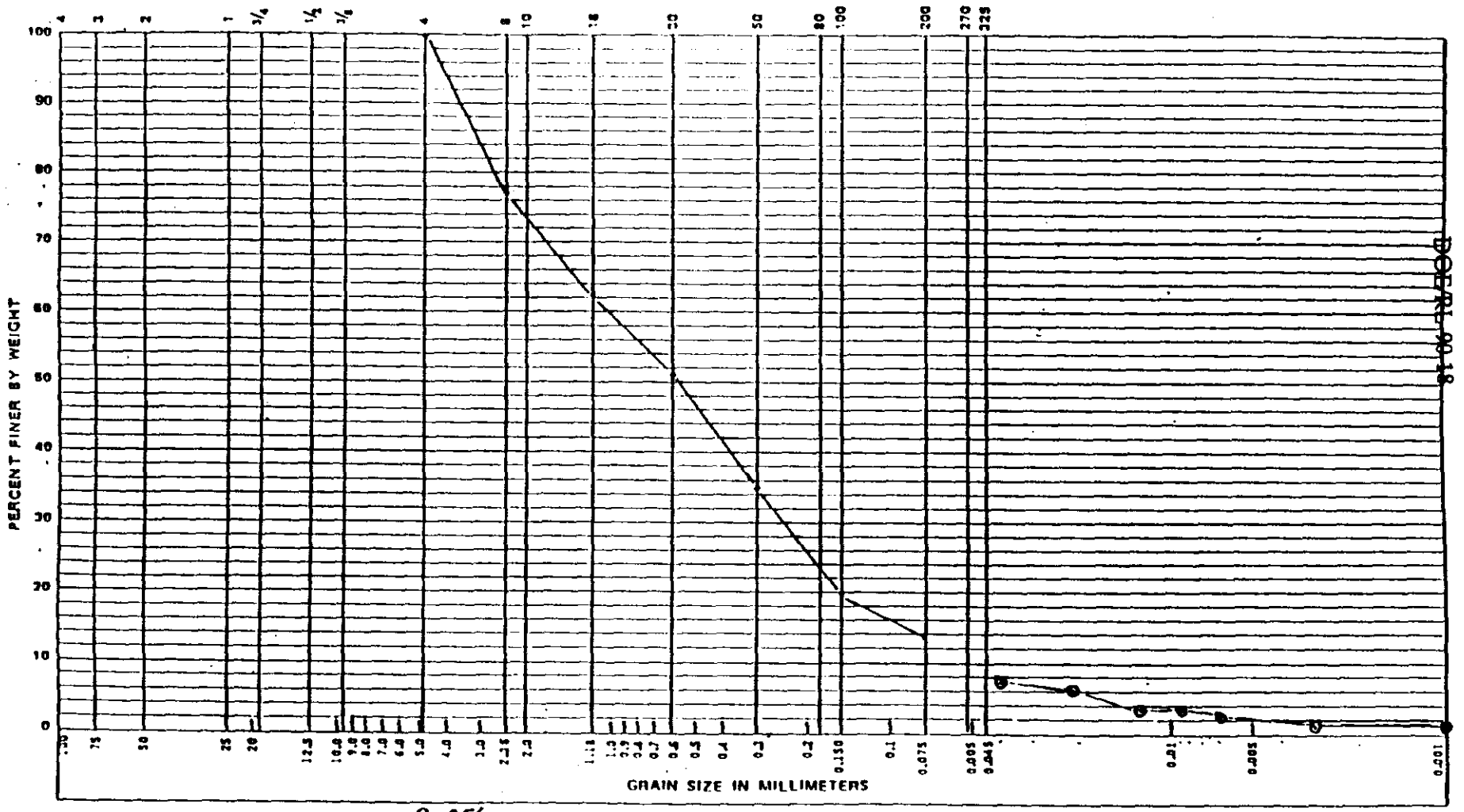


Specimen No 9-060 Procedure No ETBL-07 Rev Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL

9 1 1 1 3 3 5 1 5 3 1

GRAIN SIZE ANALYSIS PLOT

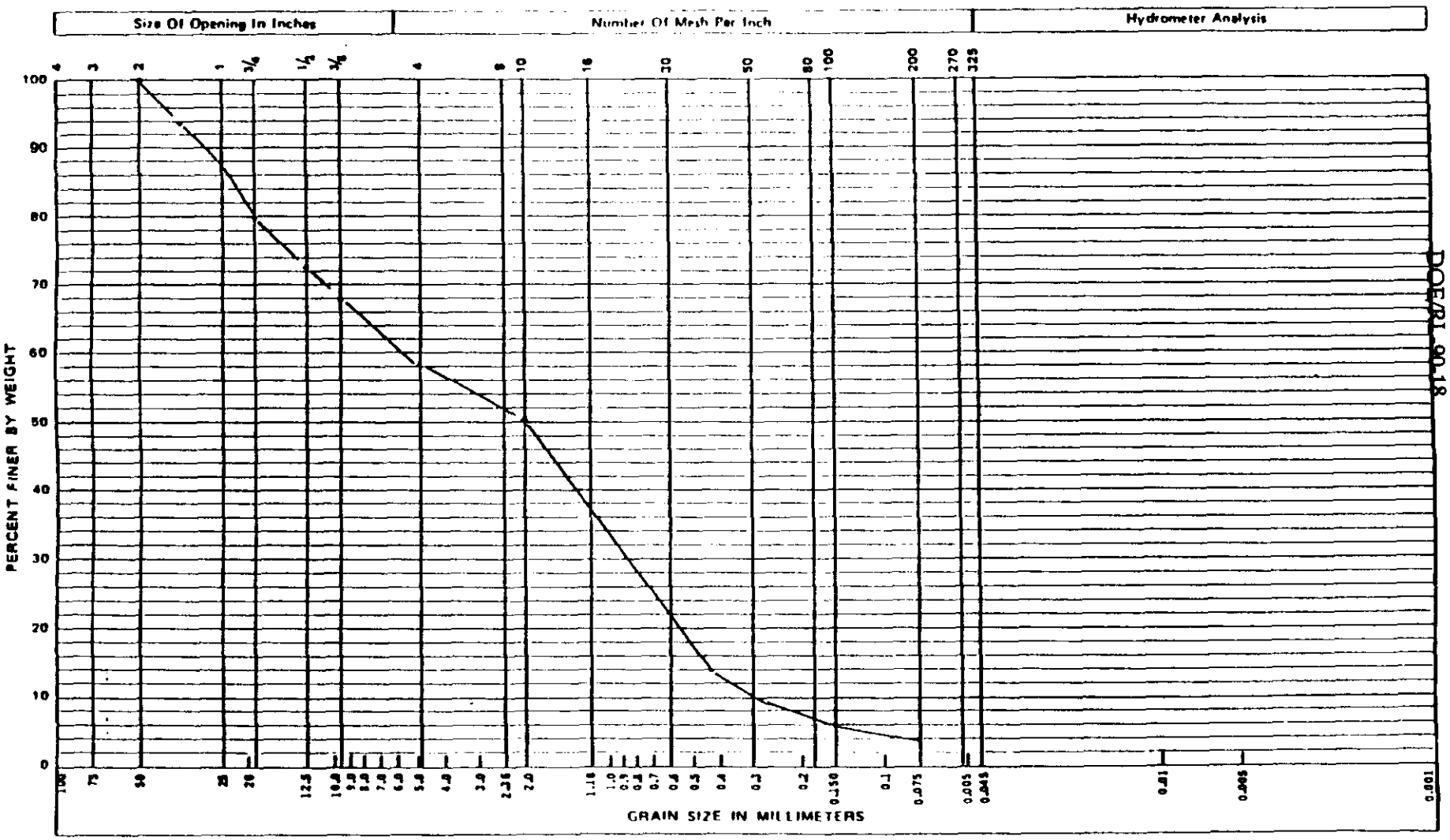


Specimen No 9-056 Procedure No. ETAL-07 Rev. 0 Date Issued 11-15-89

Sample Description:	Plotted by: R.G ALEXANDER	Checked by: C. J. Kemp, L.D. Bruggeman
SANDY GRAVEL 30% = 0.25 mm MW-4-4 +#4 = 56.0%	Date: 11-16-89	Date: 11-16-89

DOE/RL-90-18

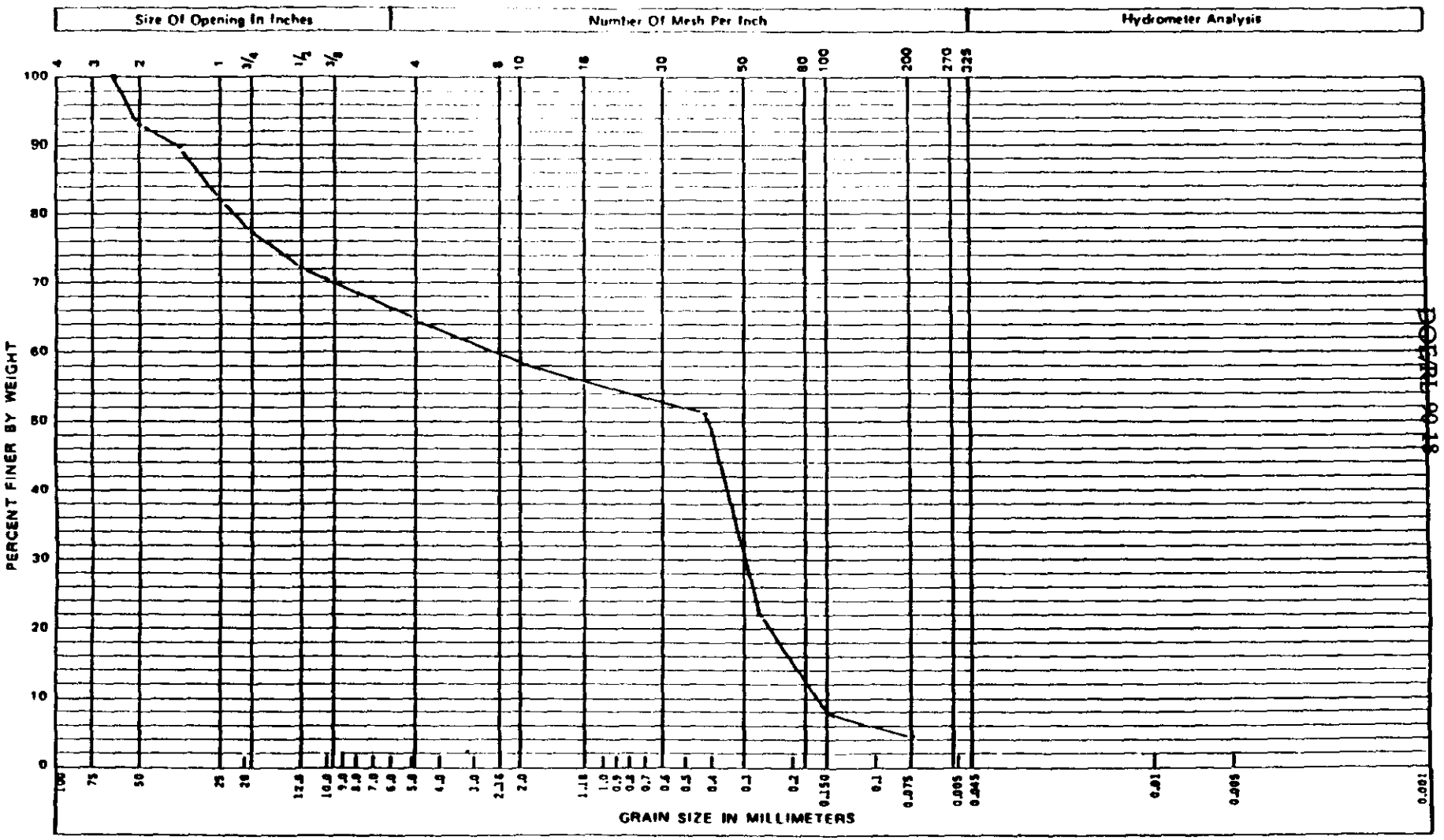
GRAIN SIZE ANALYSIS PLOT



Specimen No 9-061 Procedure No ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description:

GRAIN SIZE ANALYSIS PLOT

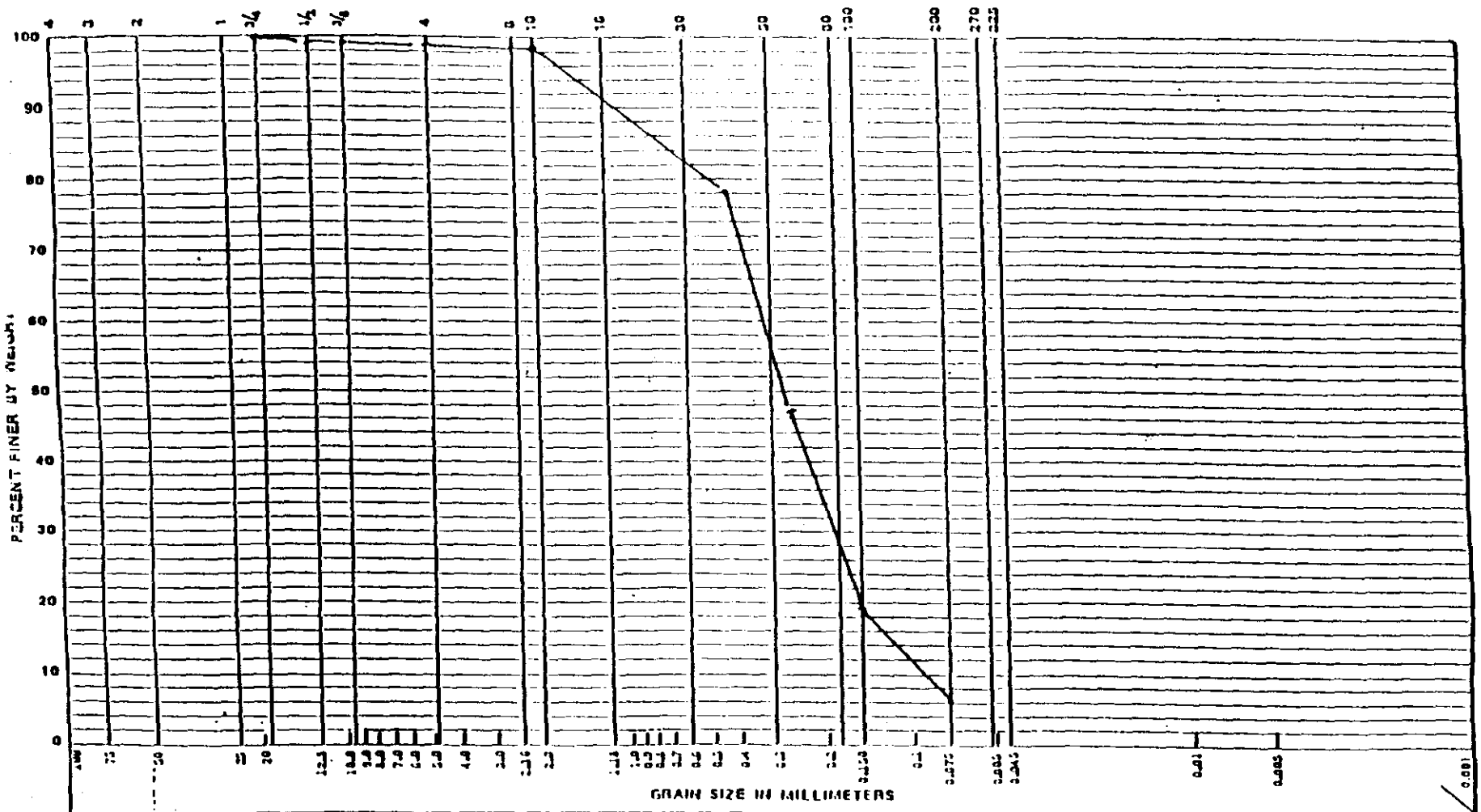


Specimen No 9-063 Procedure No ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-4-7	Plotted by: R.G. ALEXANDER Date: 12-5-89	Checked by: C.T. Kemp Date: 12-5-89

DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT

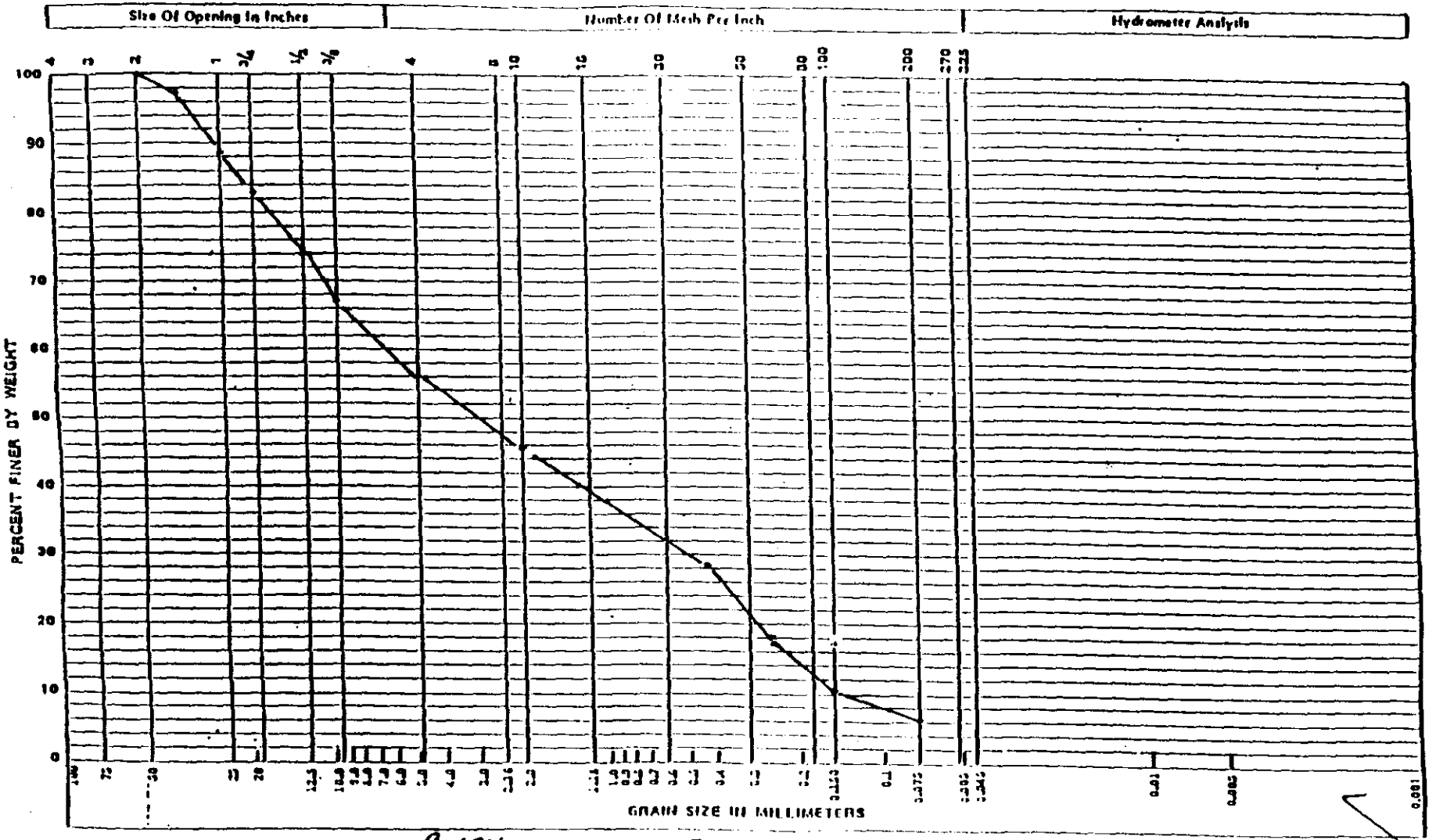


Specimen No. 9-093 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SAND MW1-5-1

Plotted by: R.G ALEXANDER Checked by: HL Ro...

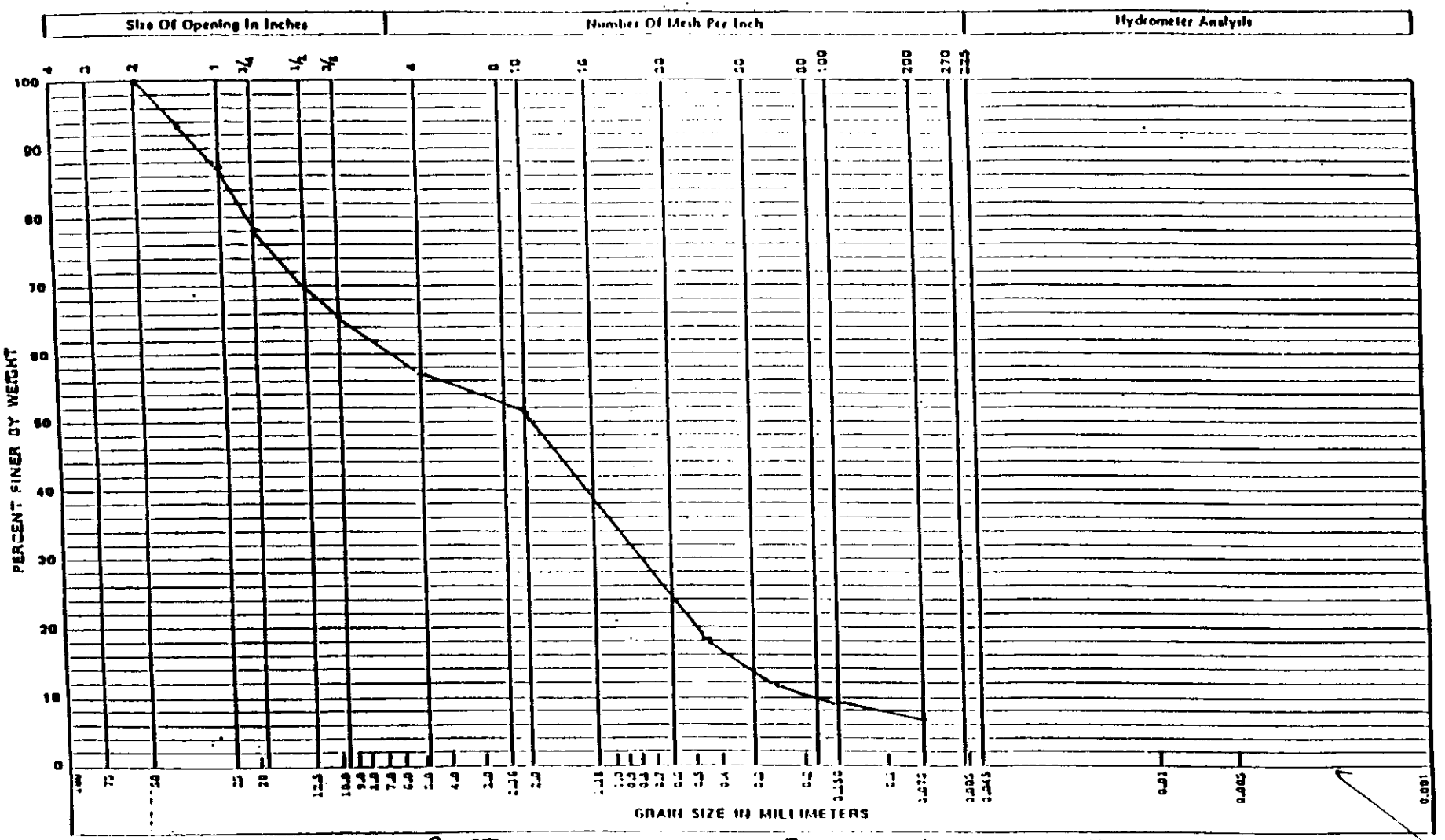
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-094 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-5-2	Plotted by: R.G. ALEXANDER Date: 1-8-90	Checked by: HL Bonney Date: 1-11-90

GRAIN SIZE ANALYSIS PLOT



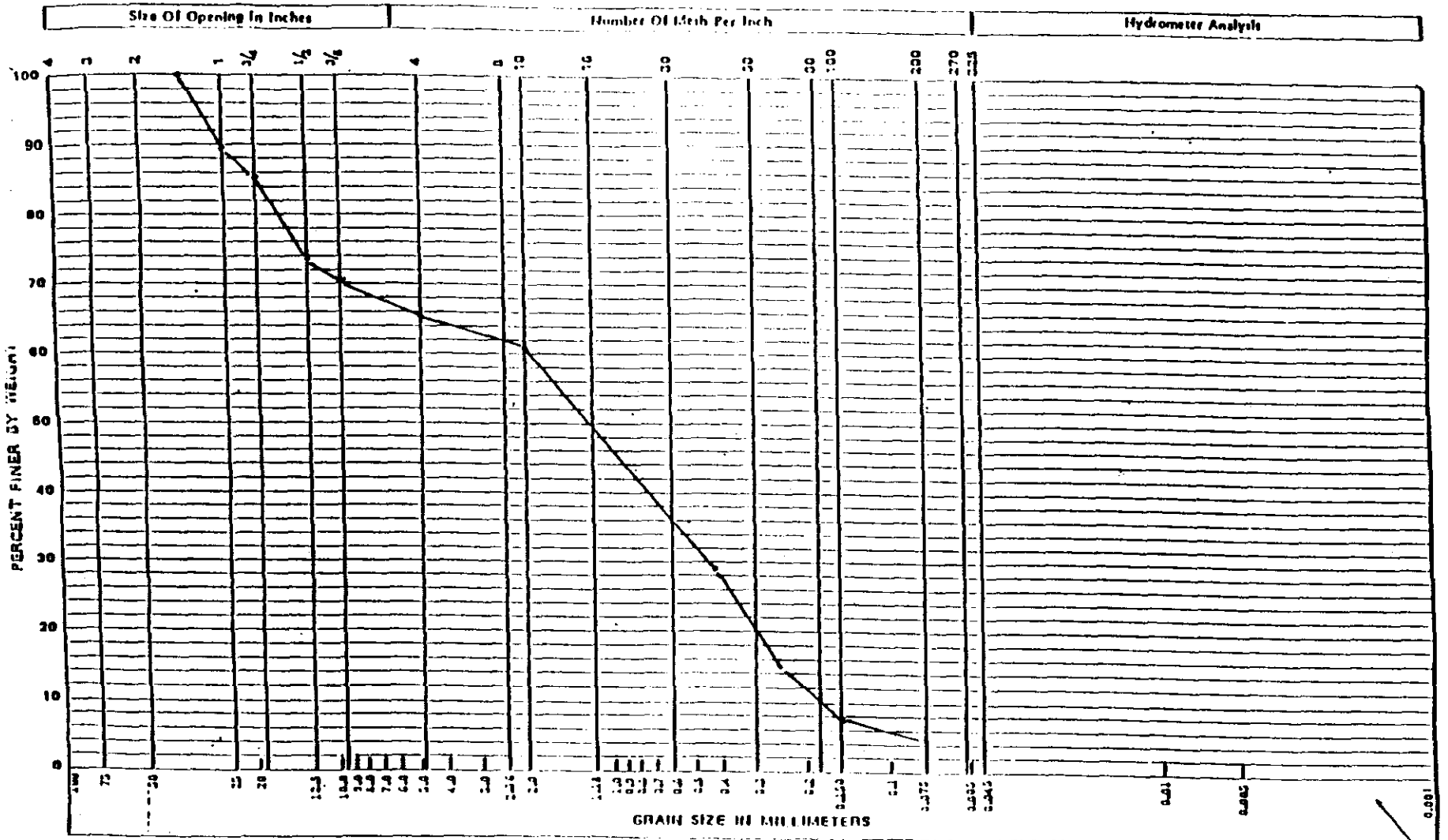
Specimen No. 9-095 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-5-3

Plotted by: R.G ALEXANDER 1-10-90

Checked by: HL Bennyz

GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-096 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

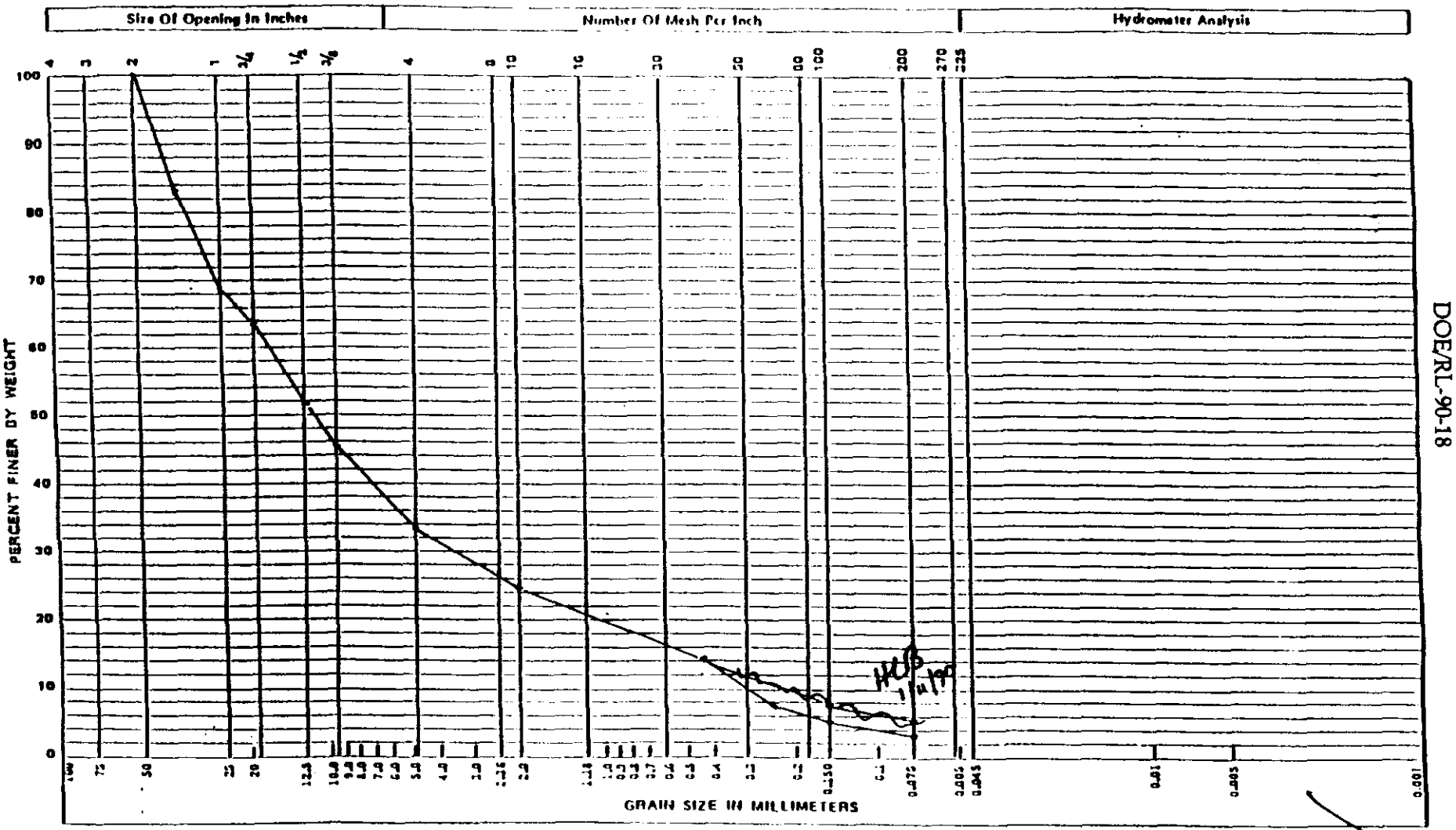
Sample Description: Sandy Gravel MW-5-4

Plotted by: RG Alexander Date: 1-8-90

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

9 1 1 1 0 3 5 1 3 3 0

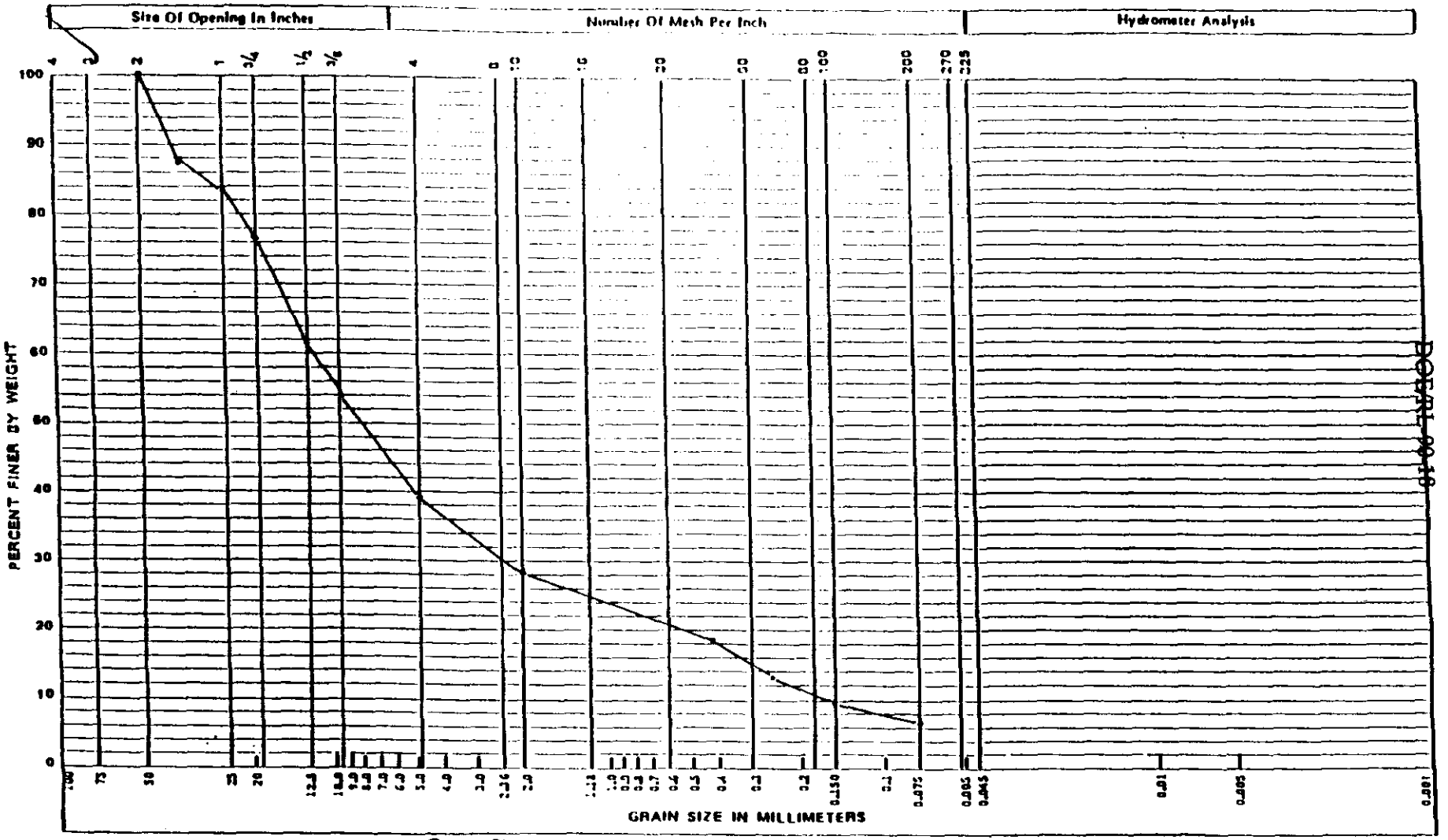
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-097 Procedure No ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: MW-5-5	Plotted by: R.G Alexander	Checked by: HL Benny

GRAIN SIZE ANALYSIS PLOT

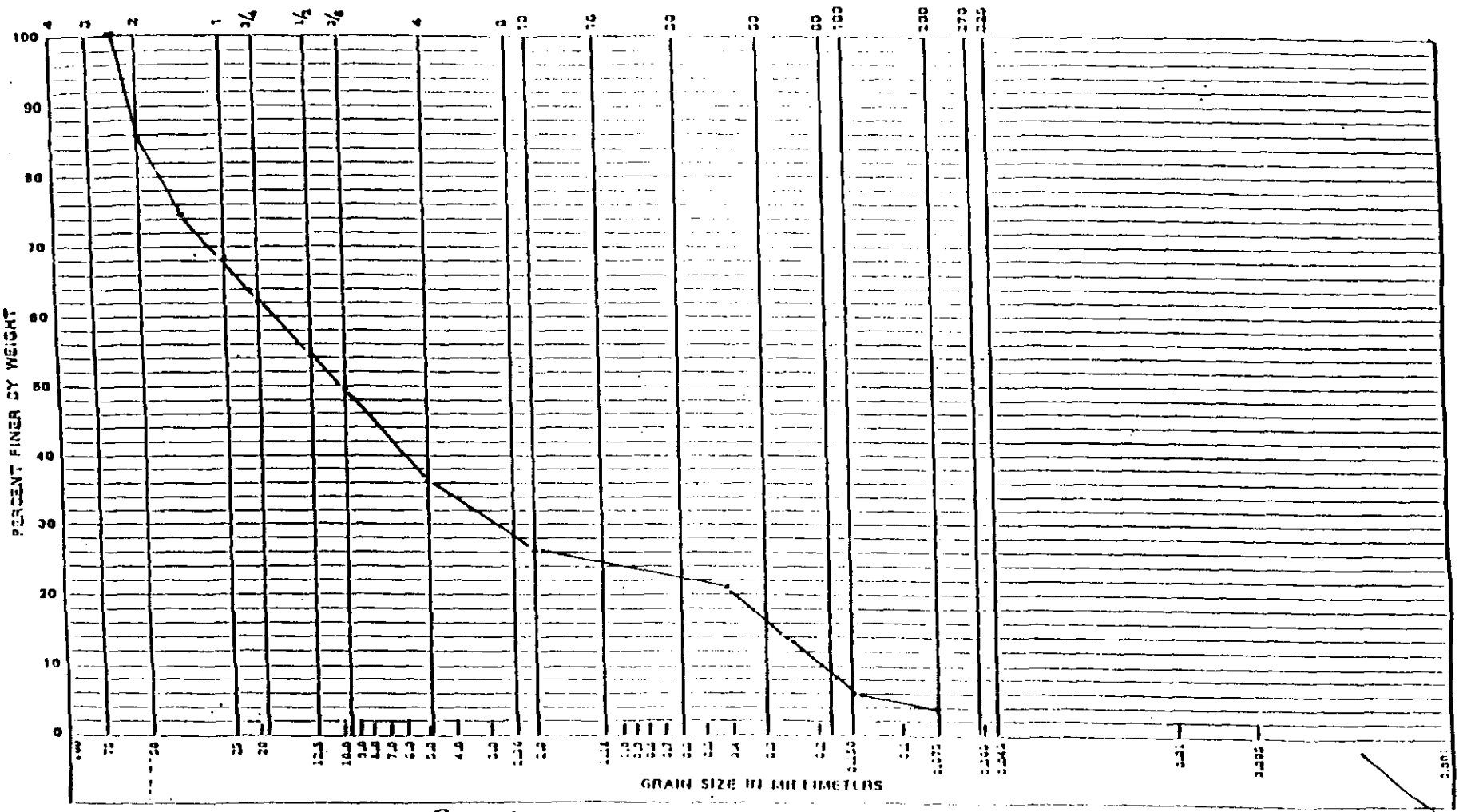


Specimen No. 9-098 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-5-6	Plotted by: R.G. ALEXANDER Date: 1-11-90	Checked by: Harold L. Bonney Date: 1-11-90

BD 6400-136 (9 85)

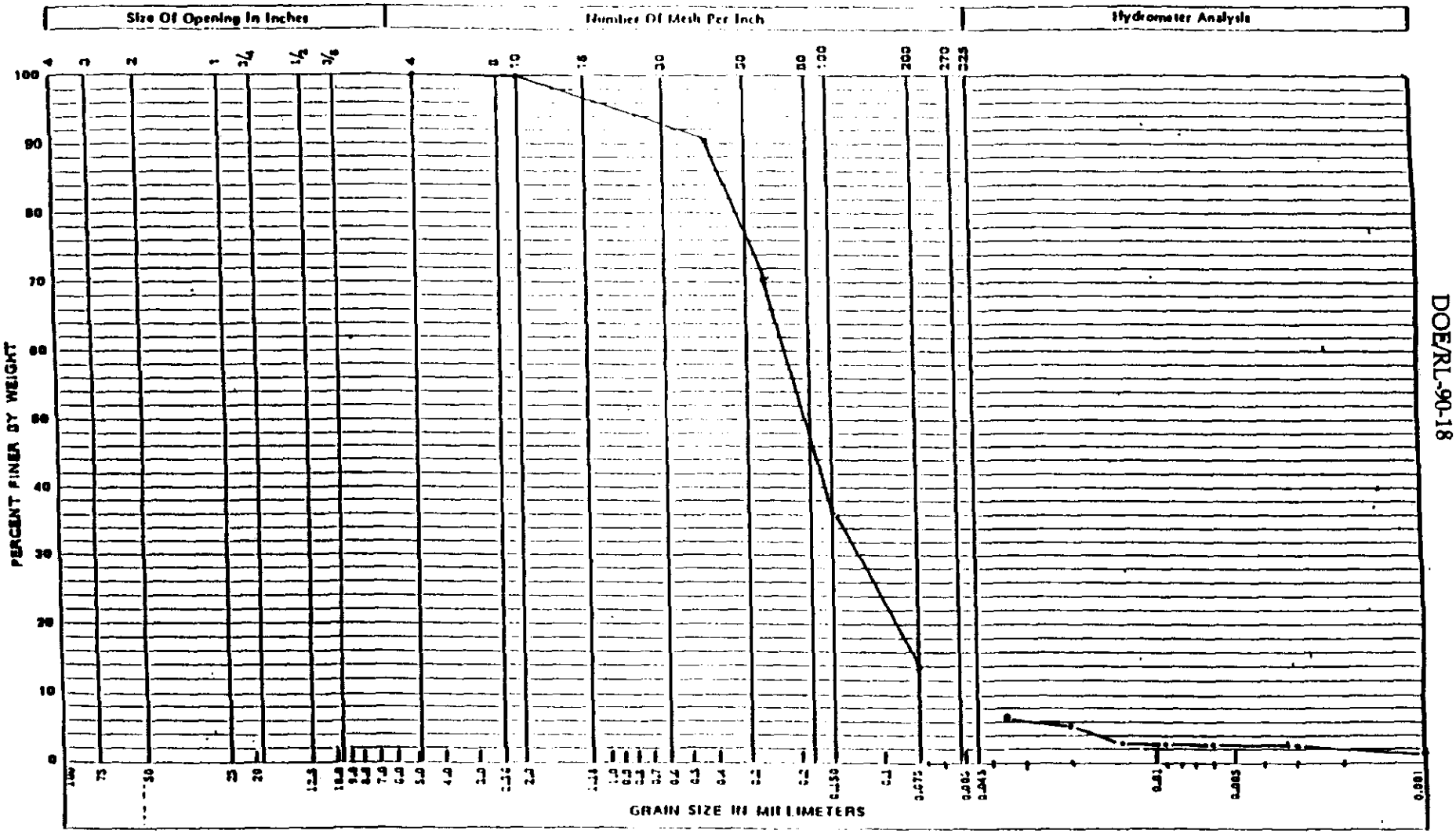
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-099 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

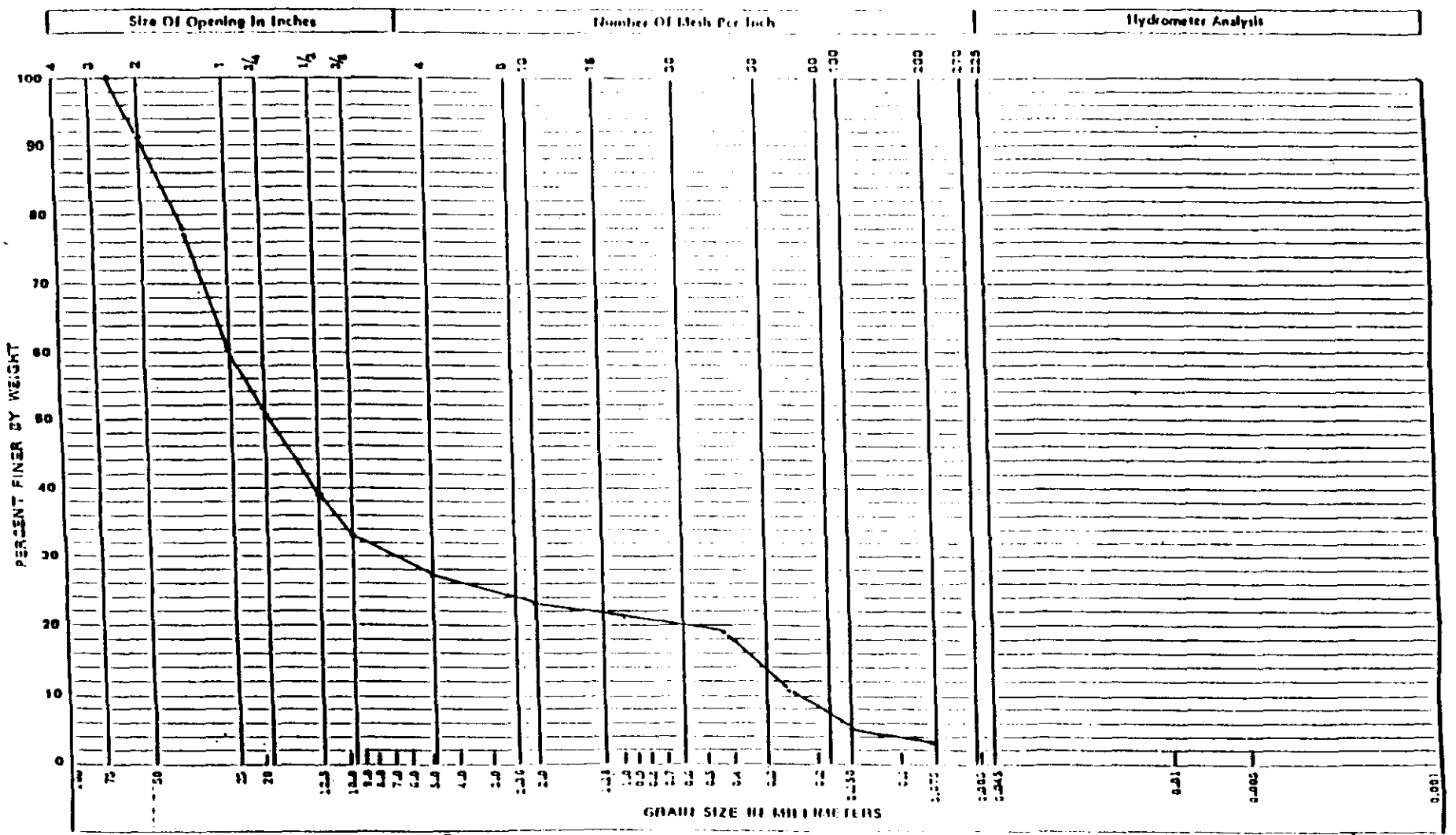
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-100 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SAND MW-5-8	Plotted by: RG ALEXANDER Date: 1-12-90	Checked by: J F Relyea Date: 1-18-90

GRAIN SIZE ANALYSIS PLOT



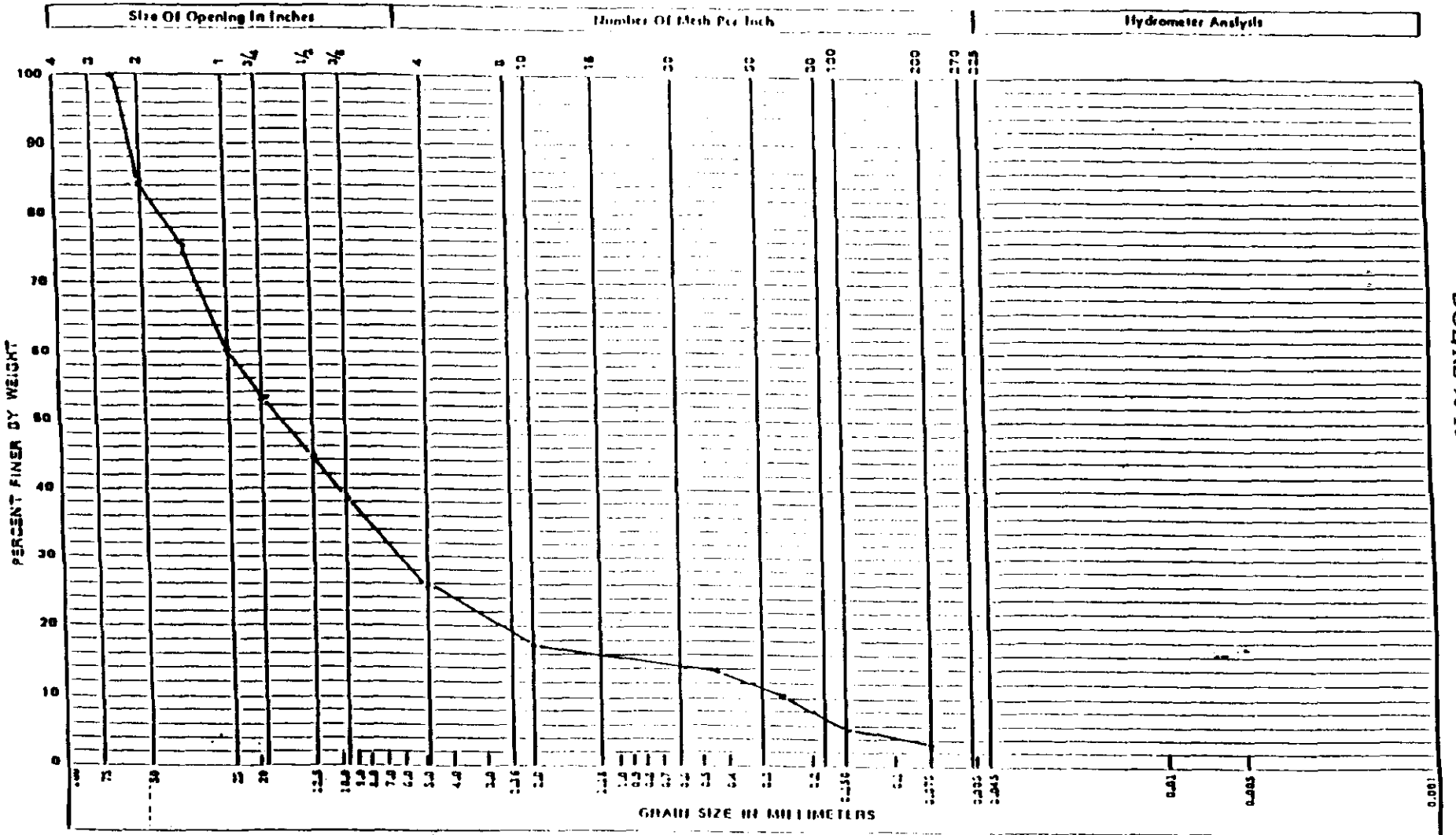
Specimen No. 9-101 Procedure No ETHL-07 Rev. 1 Date Issued 11-15-84

Sample Description: SANDY GRAVEL

Plotted by: R.G ALEXANDER

Checked by: [illegible]

GRAIN SIZE ANALYSIS PLOT



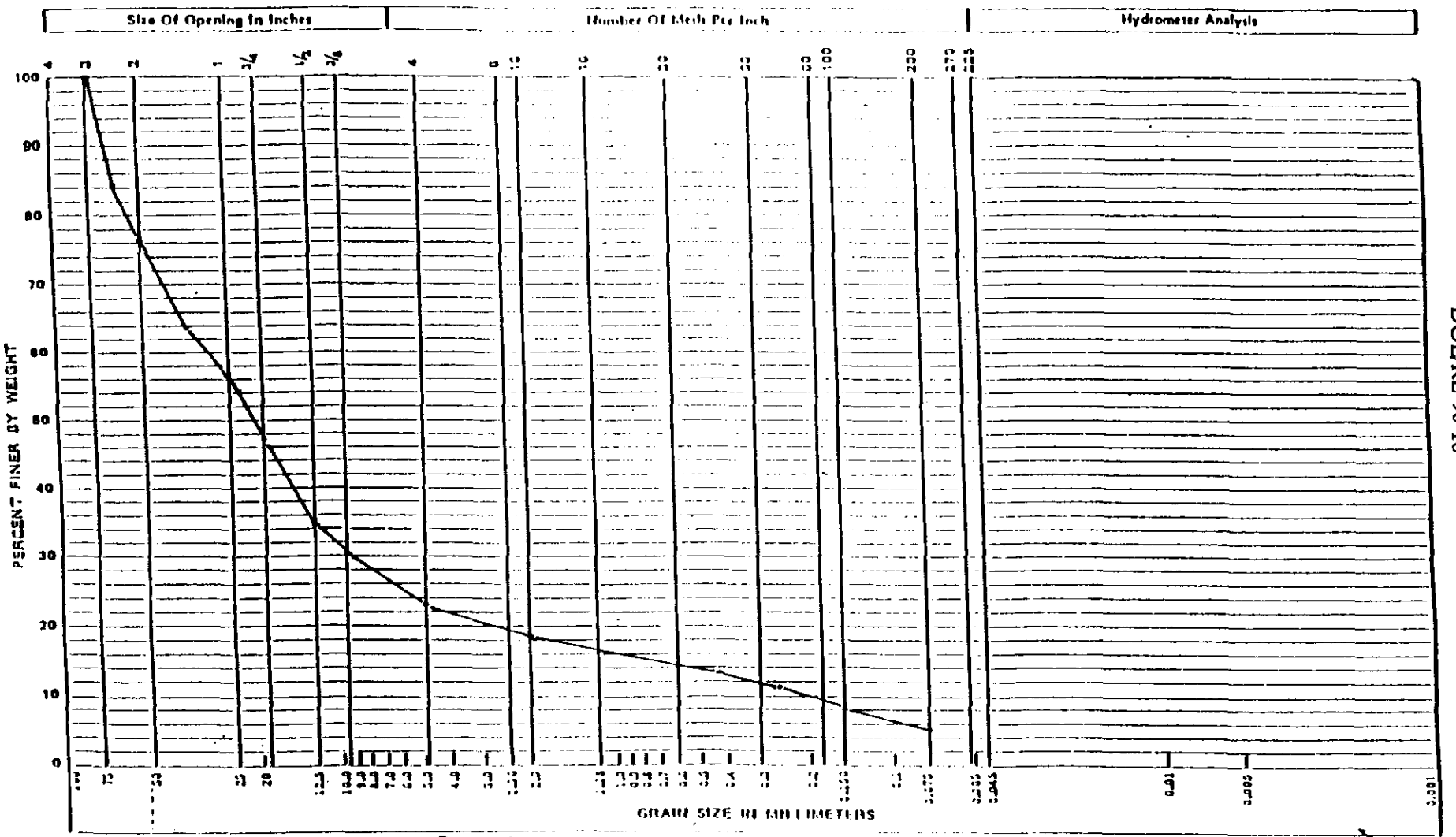
Specimen No. 9-102 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-5-10

Plotted by: R.G. ALEXANDER Date: 1-12-90

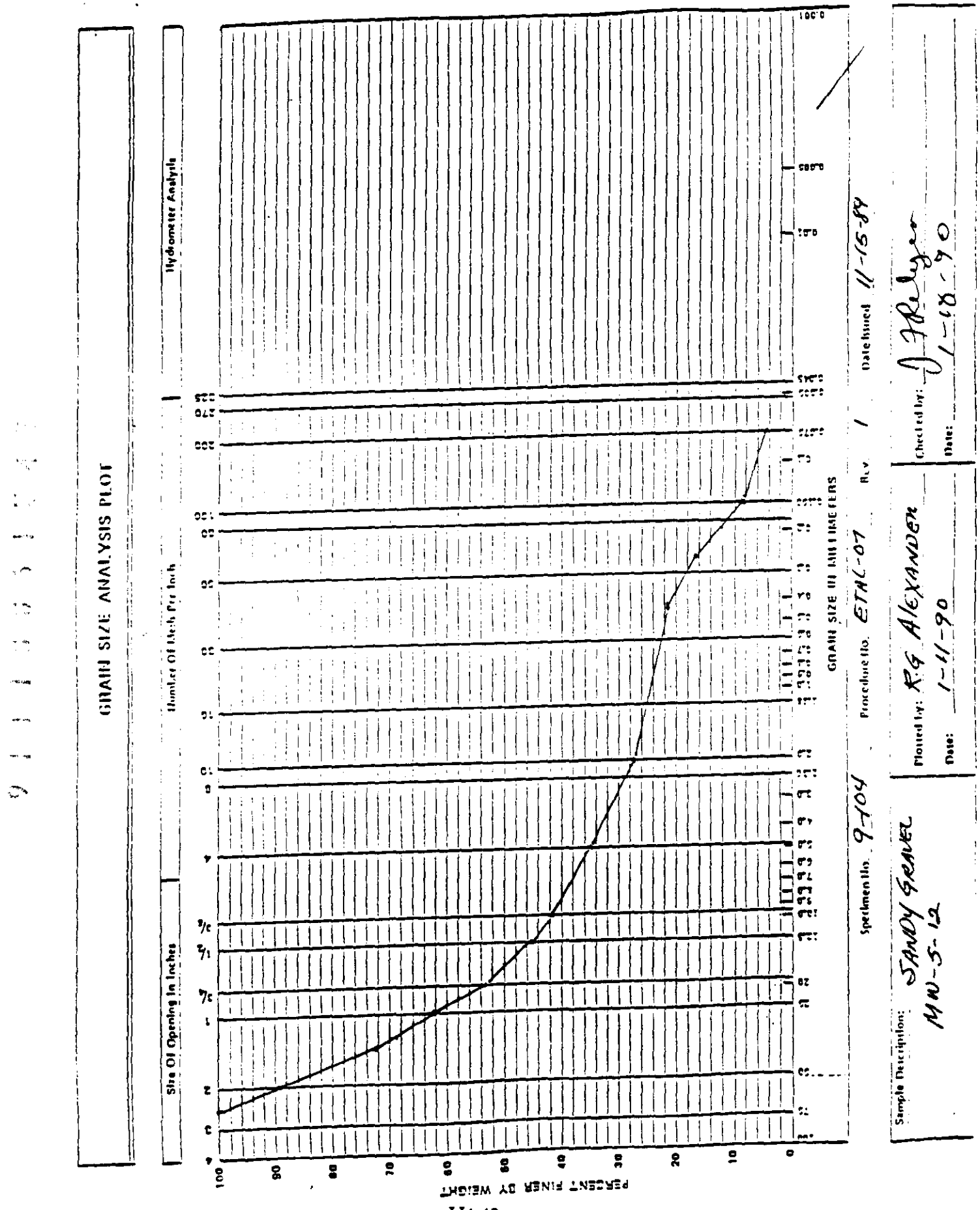
Checked by: J F Relyea Date: 1-18-90

GRAIN SIZE ANALYSIS PLOT

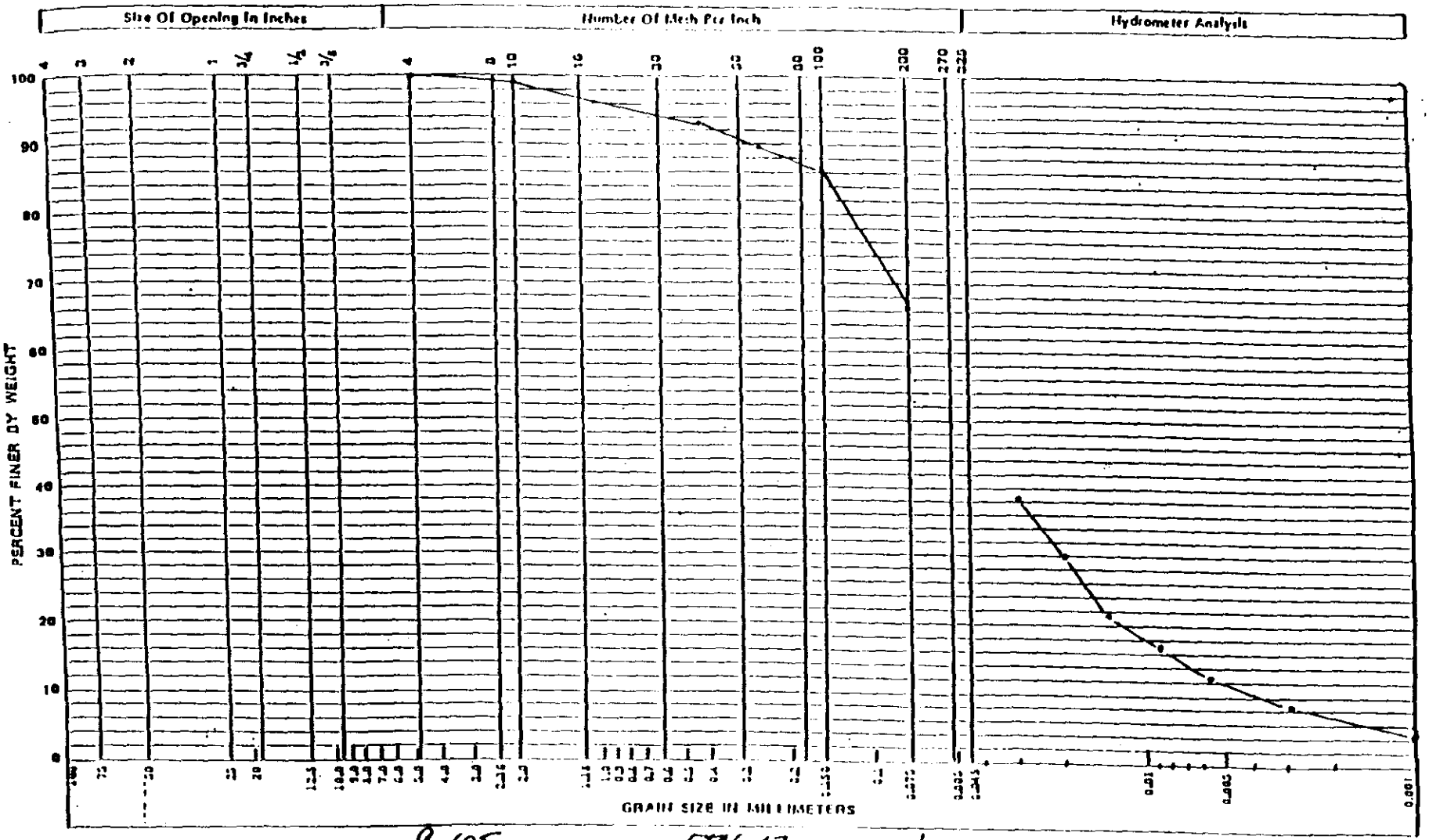


Specimen No. 9-103 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL | Plotted by: R.G. ALEXANDER | Checked by: J F Rehyea


GRAIN SIZE ANALYSIS PLOT
Hydrometer Analysis
Number Of Mesh Per Inch
Size Of Opening In Inches
PERCENT FINER BY WEIGHT
GRAIN SIZE IN MILLIMETERS
Specimen No. 9-104
Procedure No. ETHL-07
Rev. 1
Date Issued 11-15-89
Sample Description: SANDY GRAVEL MW-5-12
Prepared by: R.G. ALEXANDER
Date: 1-11-90
Checked by:
Date: 1-18-90

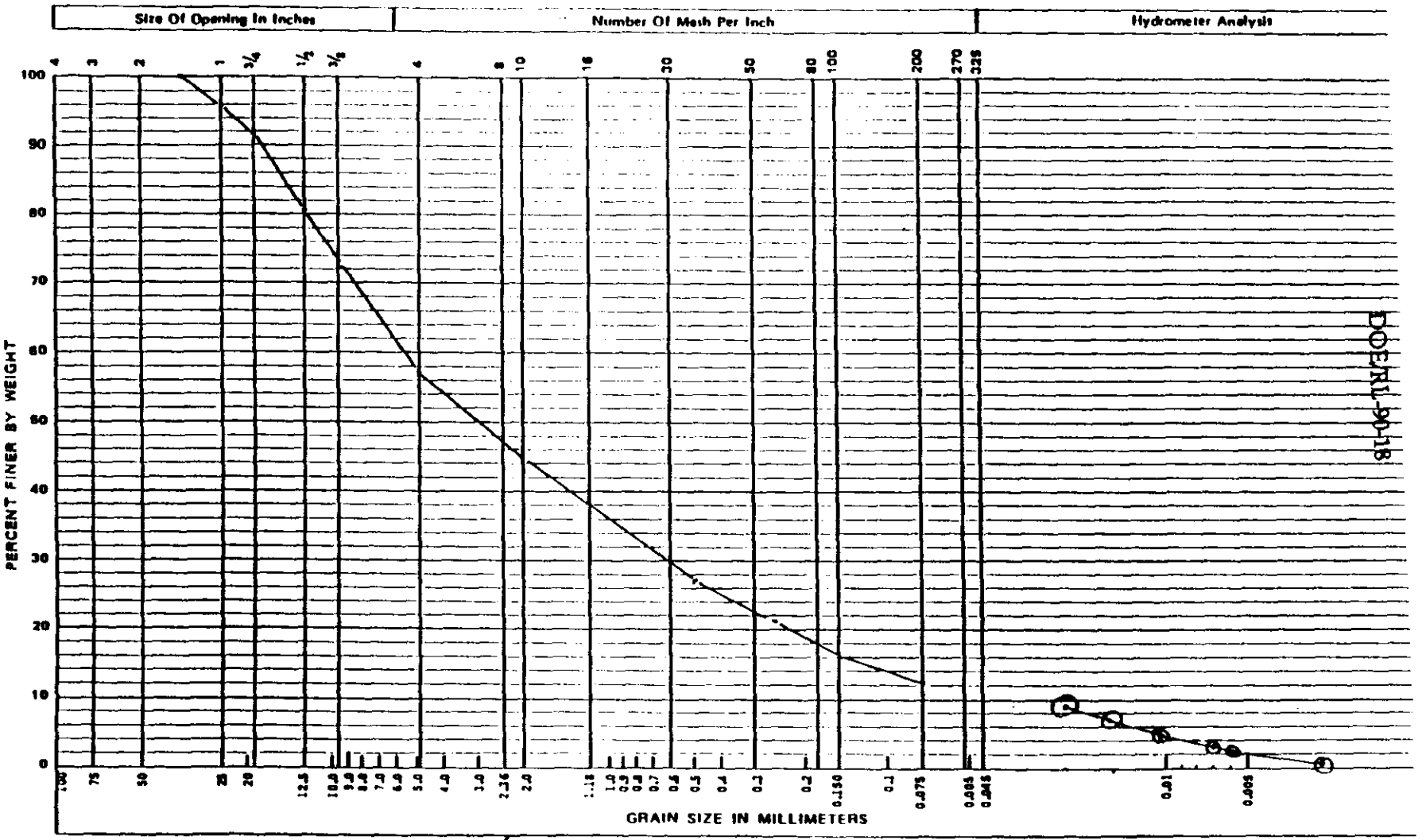
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-105 Procedure No. ETAL-67 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

GRAIN SIZE ANALYSIS PLOT

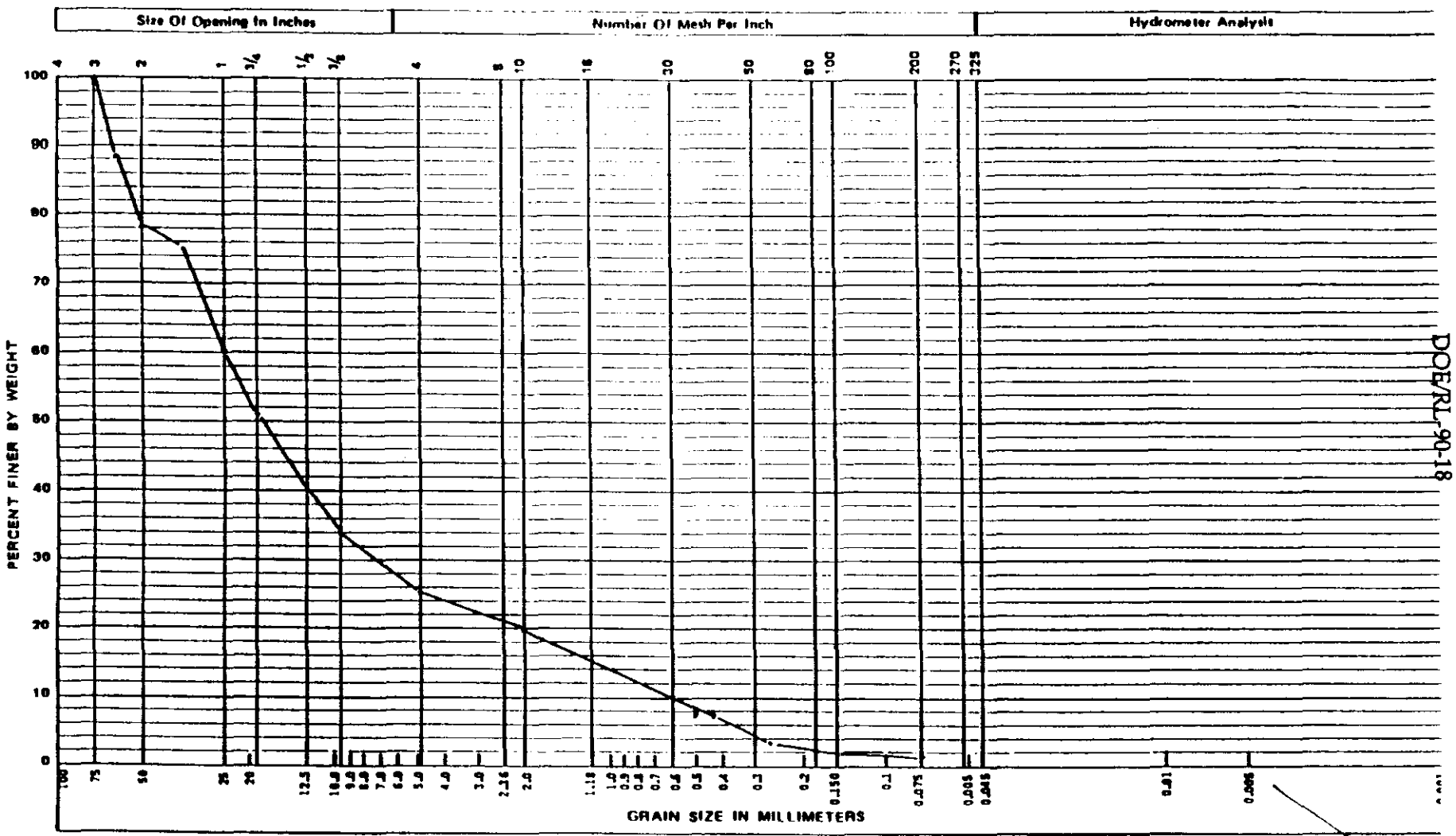


Specimen No 9-064 Procedure No ETAL-07 Rev Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-6-1	Plotted by: R.G ALEXANDER Date: 12-5-89	Checked by: J F Relyea Date: 12-8-89

DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT



Specimen No 9-065 Procedure No ETBL-07 Rev Ø Date Issued 11-15-89

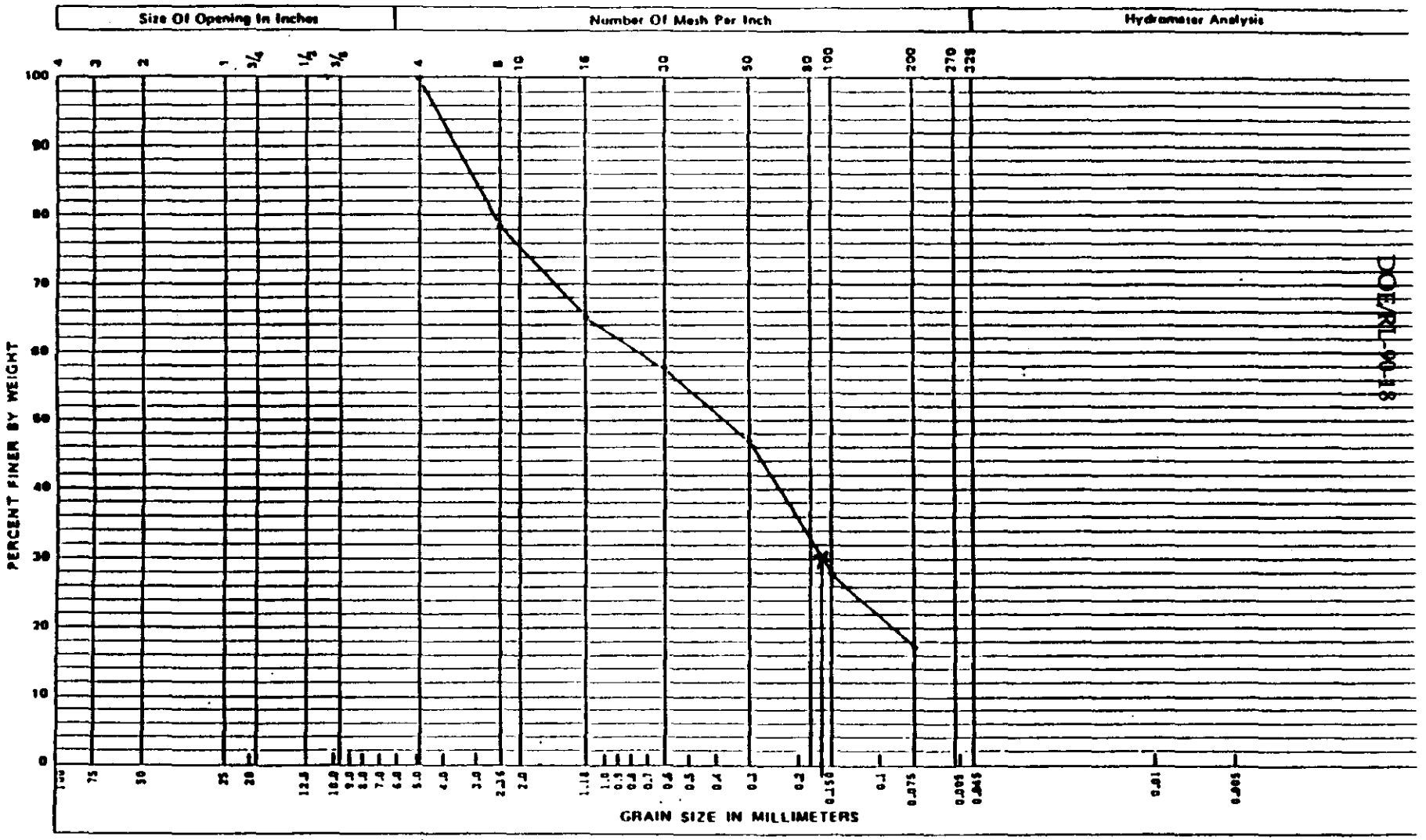
Sample Description: SANDY GRAVEL MW-6-2

Plotted by: R.G ALEXANDER Date: 12-6-89

Checked by: J Relyea Date: 12-8-89

9 1 1 1 3 8 1 3 4 9

GRAIN SIZE ANALYSIS PLOT



Specimen No 9-057 Procedure No. ETAL-07 Rev. 0 Date Issued 11-15-89

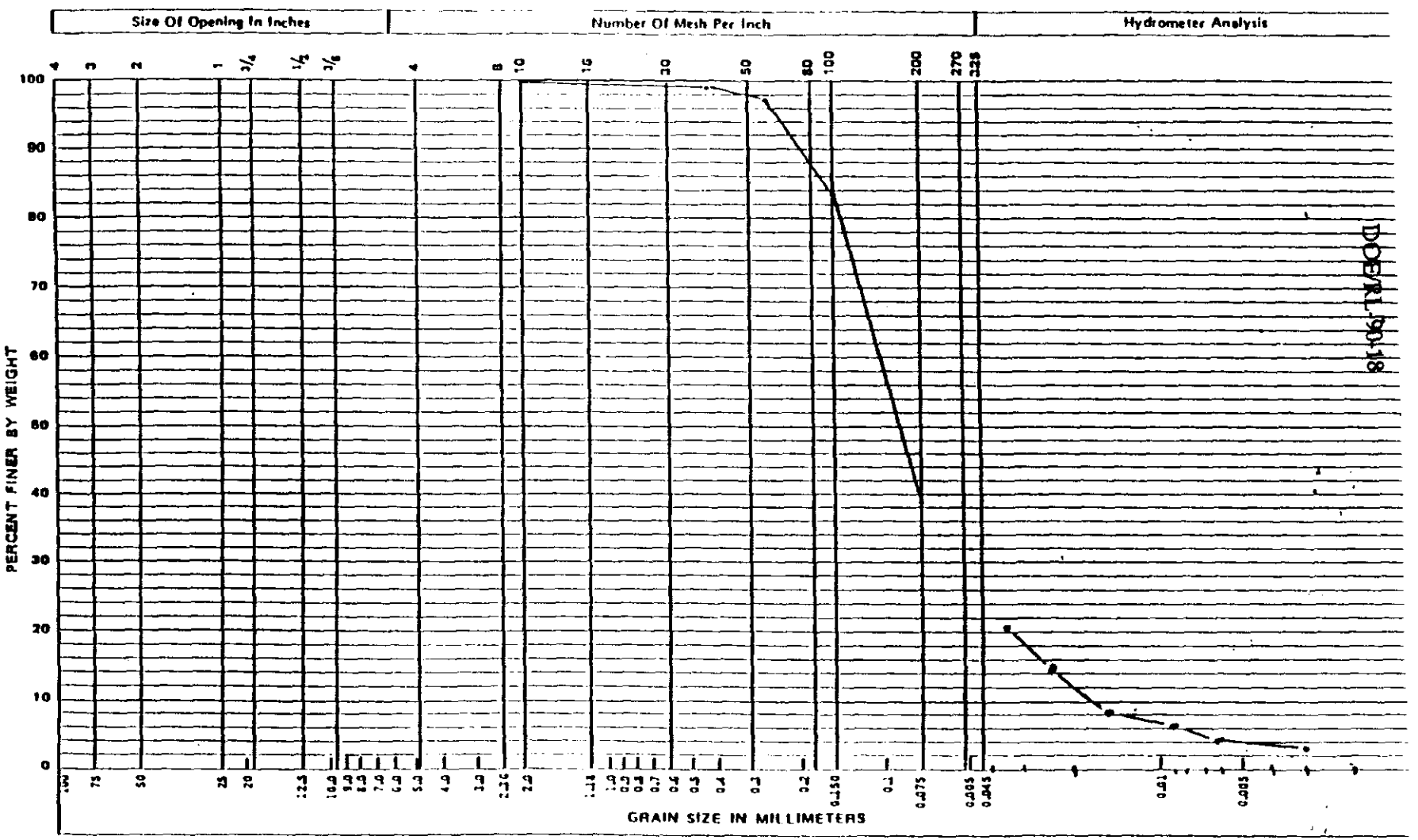
Sample Description: SANDY GRAVEL 30% = 0.16 mm

Plotted by: R.G ALEXANDER

Checked by: J. F Relyea

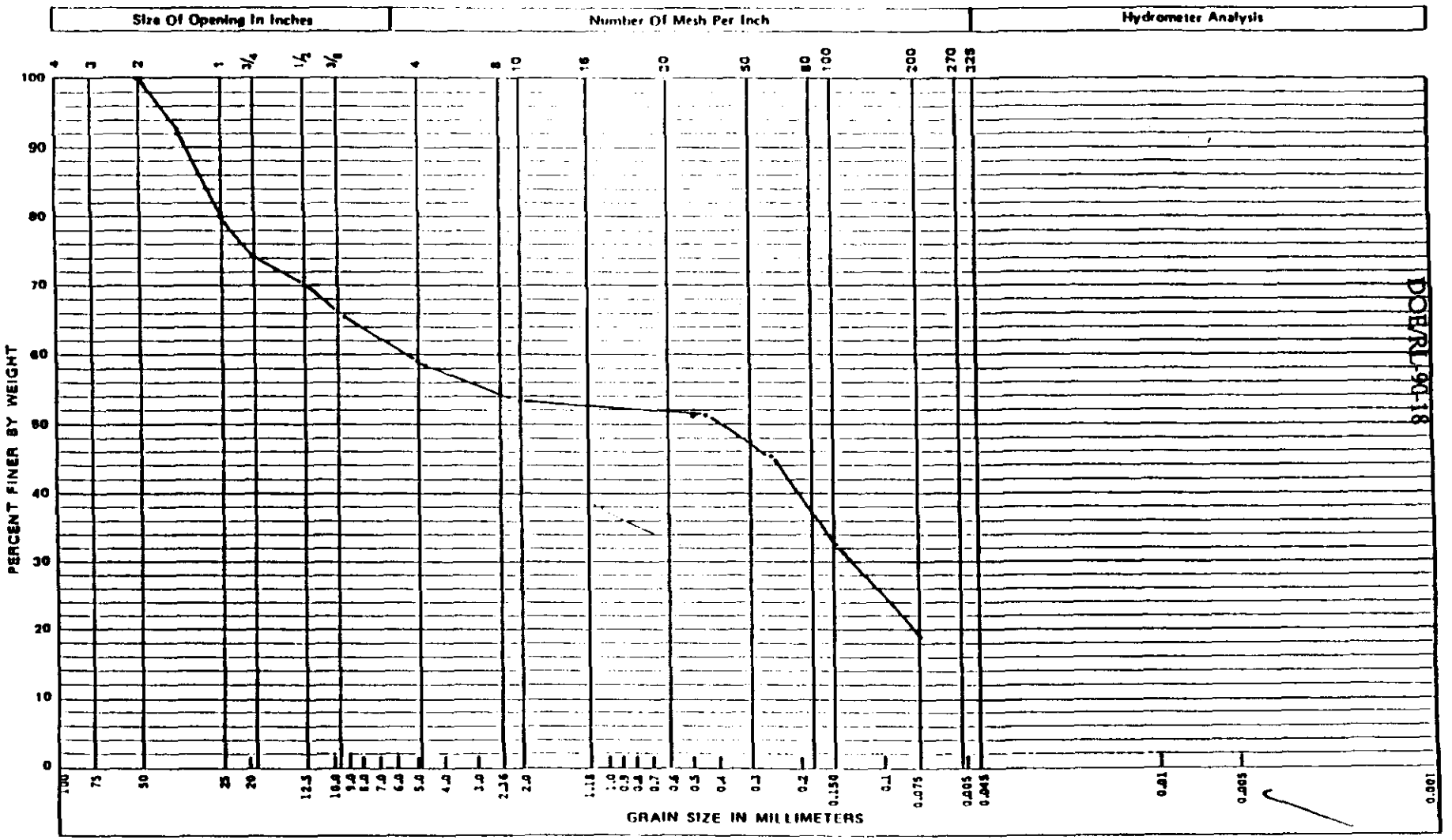
DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-067 Procedure No. ETHL-07 Rev. Ø Date Issued 11-15-89

GRAIN SIZE ANALYSIS PLOT



Specimen No 9-068 Procedure No ETAL-07 Rev Ø Date Issued 11-15-89

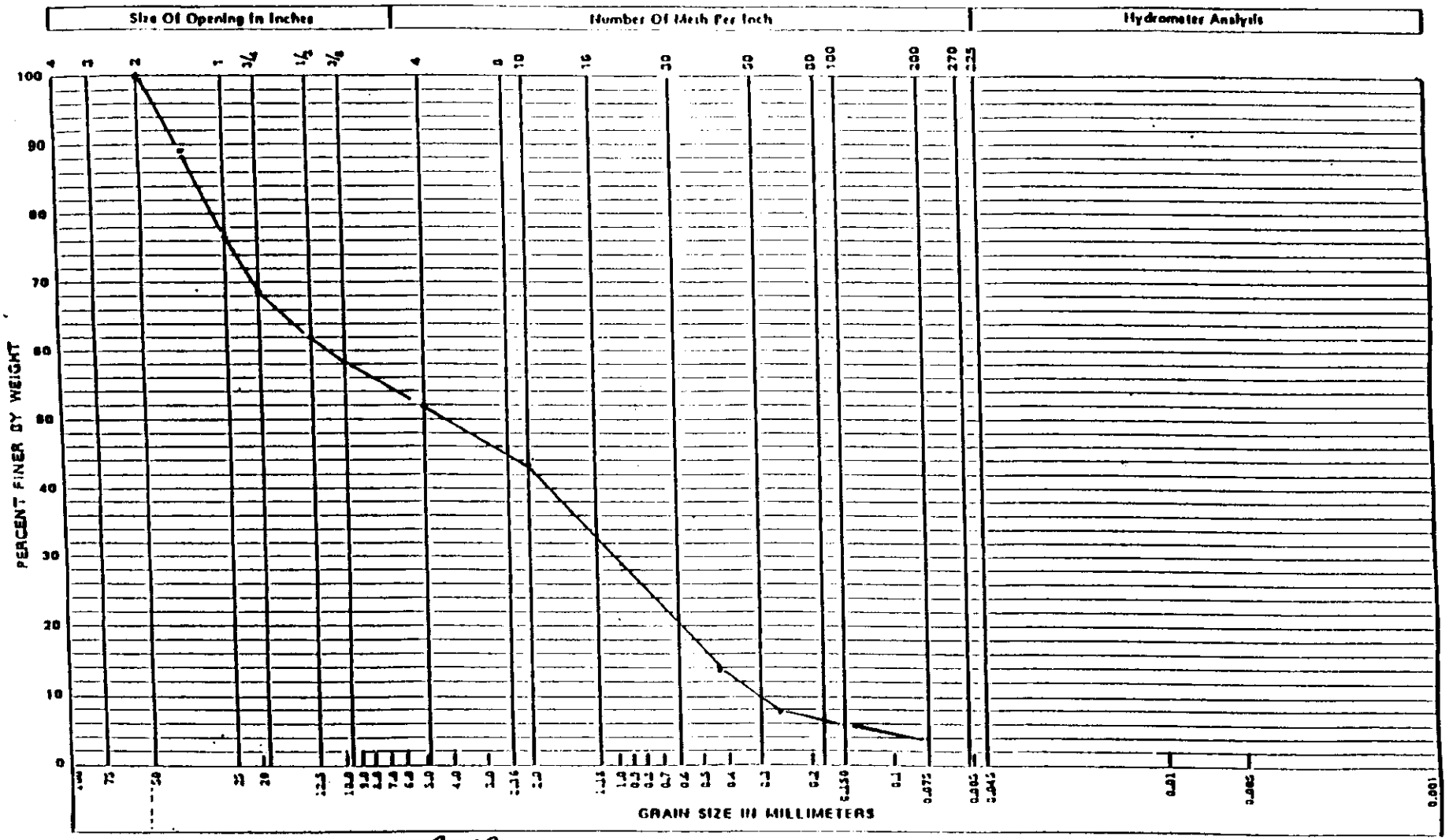
Sample Description: SANDY GRAVEL MW-6-5

Plotted by: R.G ALEXANDER Date: 12-6-89

Checked by: [signature] Date: 12-8-89

DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT



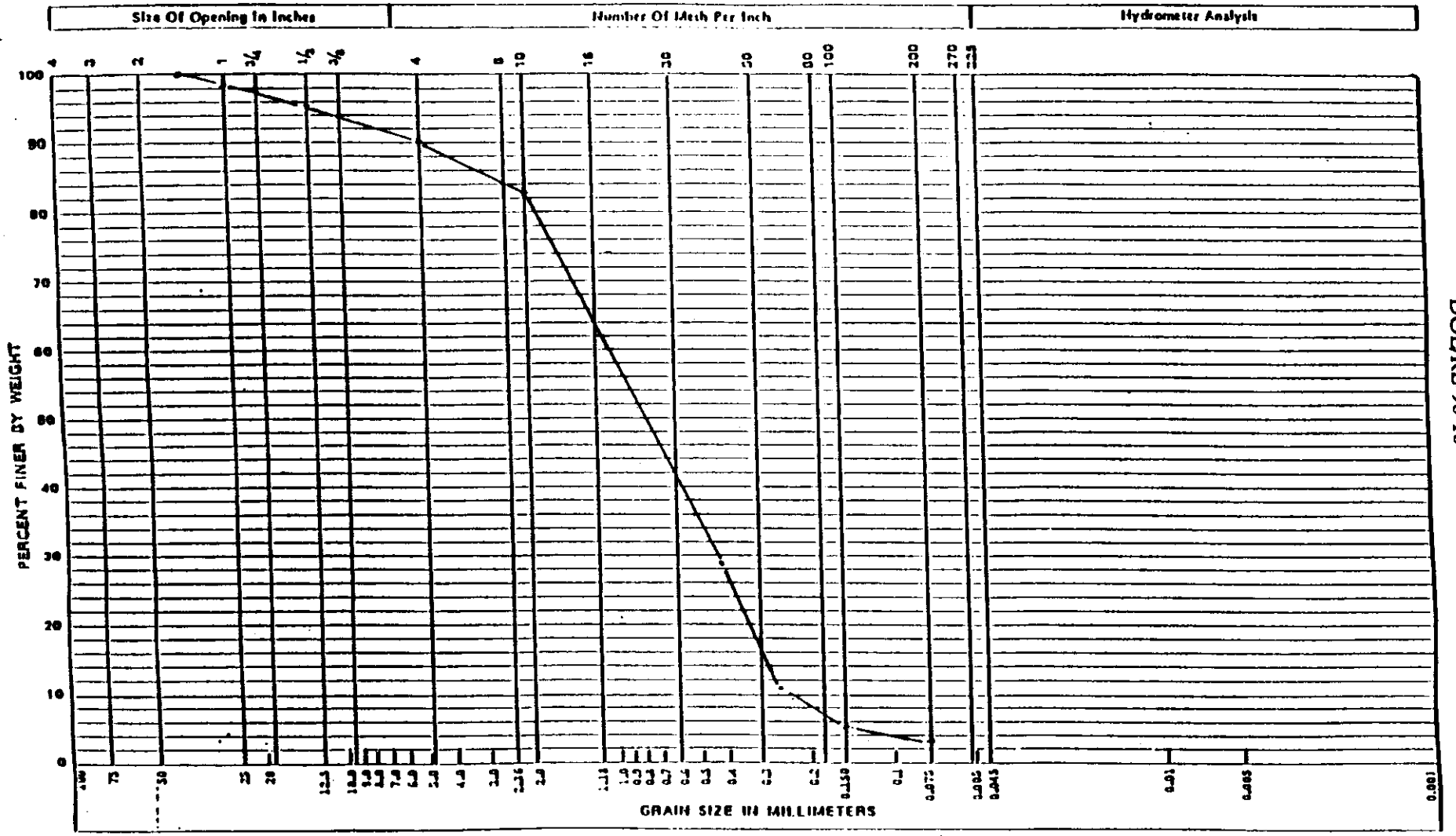
Specimen No. 9-090 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

Plotted by: R.G. ALEXANDER

Checked by: [signature]

GRAIN SIZE ANALYSIS PLOT



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

Sample Description: SANDY GRAVEL MW-7-2

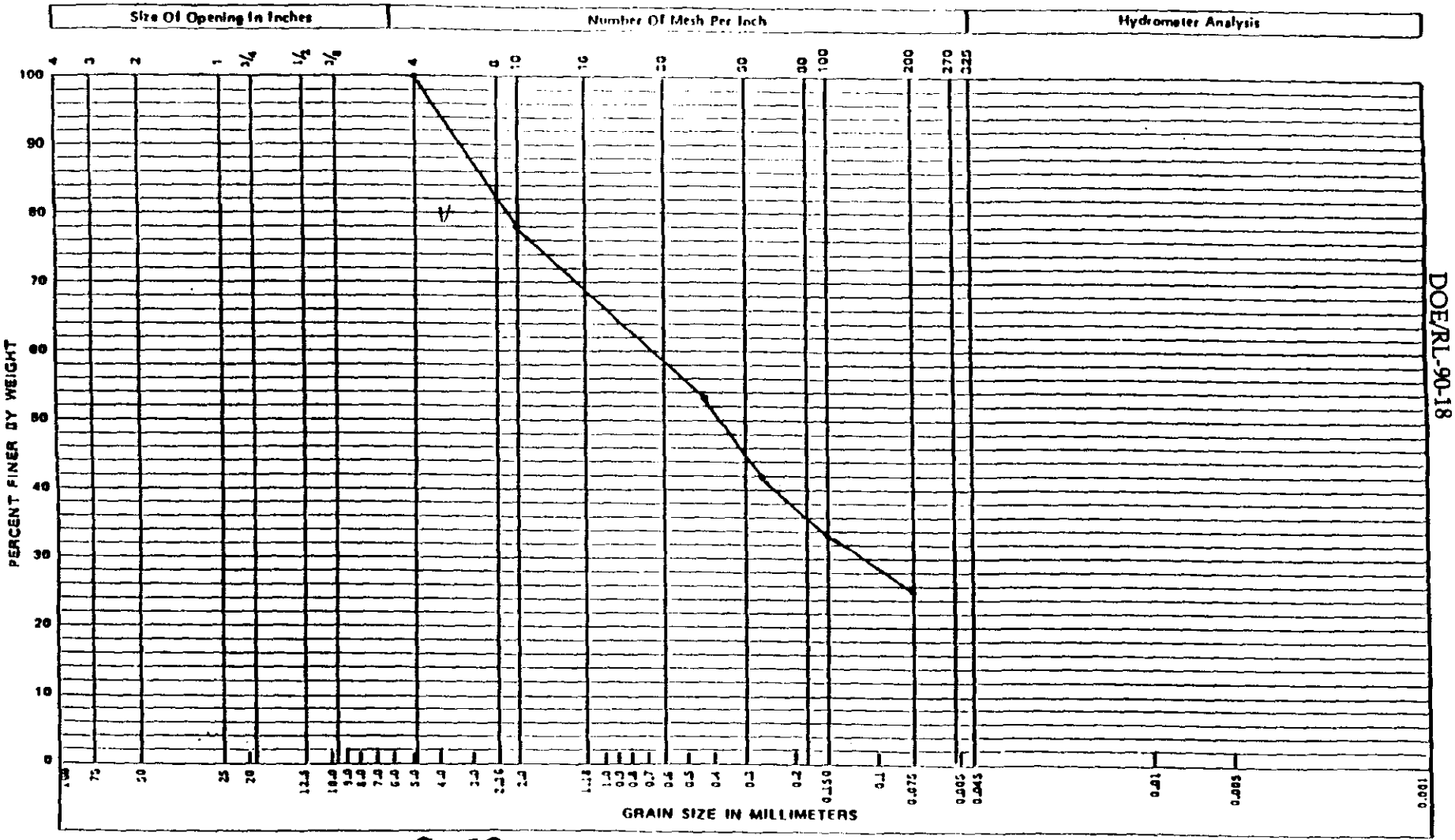
Plotted by: R.G ALEXANDER

Date: 1-3-90 RGA 1-5-90

Checked by: J F Relyea

Date: 5 Jan 90

GRAIN SIZE ANALYSIS PLOT

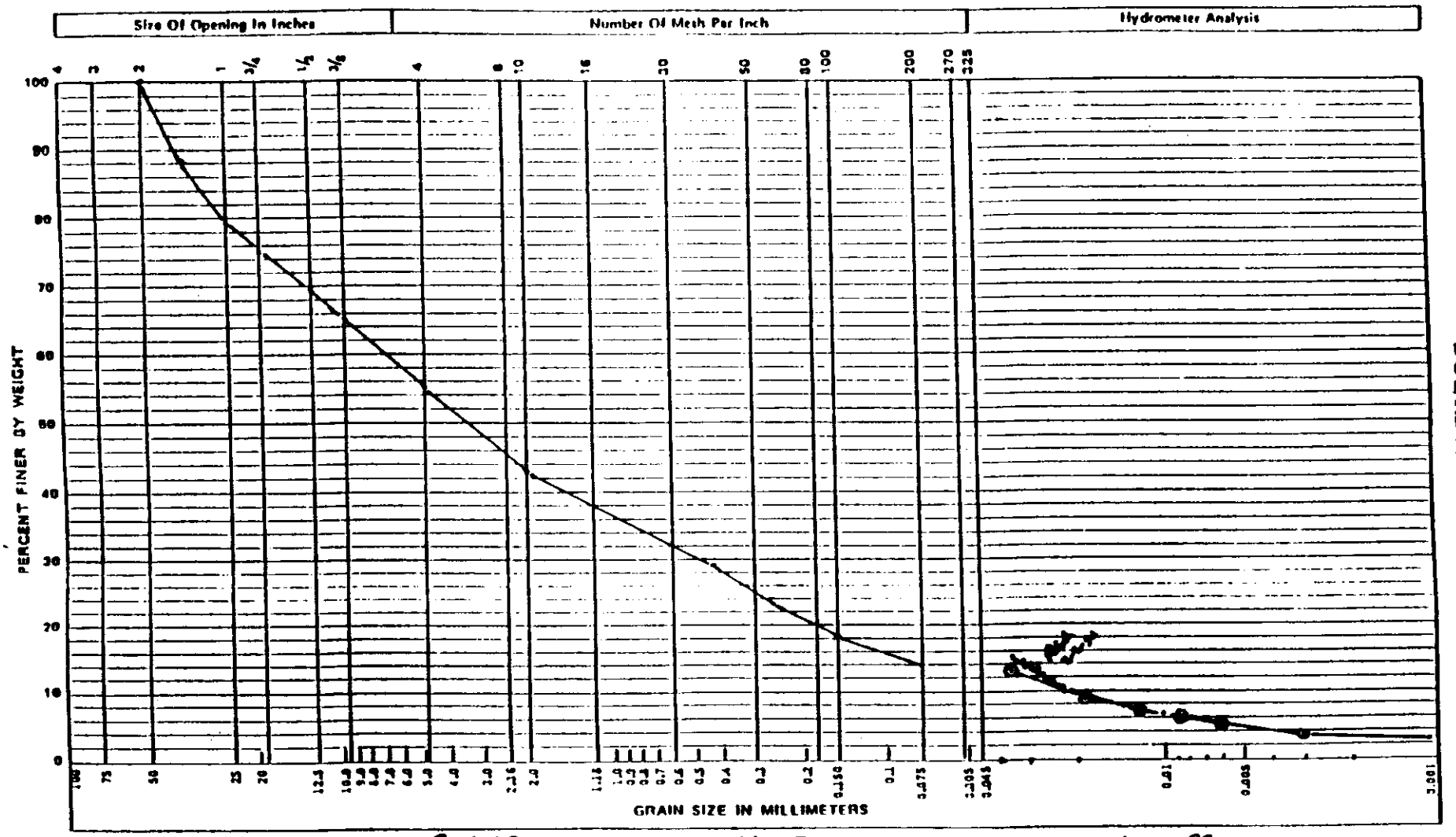


Specimen No. 9-078 Procedure No ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description: #4 SAND/SILT MW-7-3

Plotted by: R.G ALEXANDER

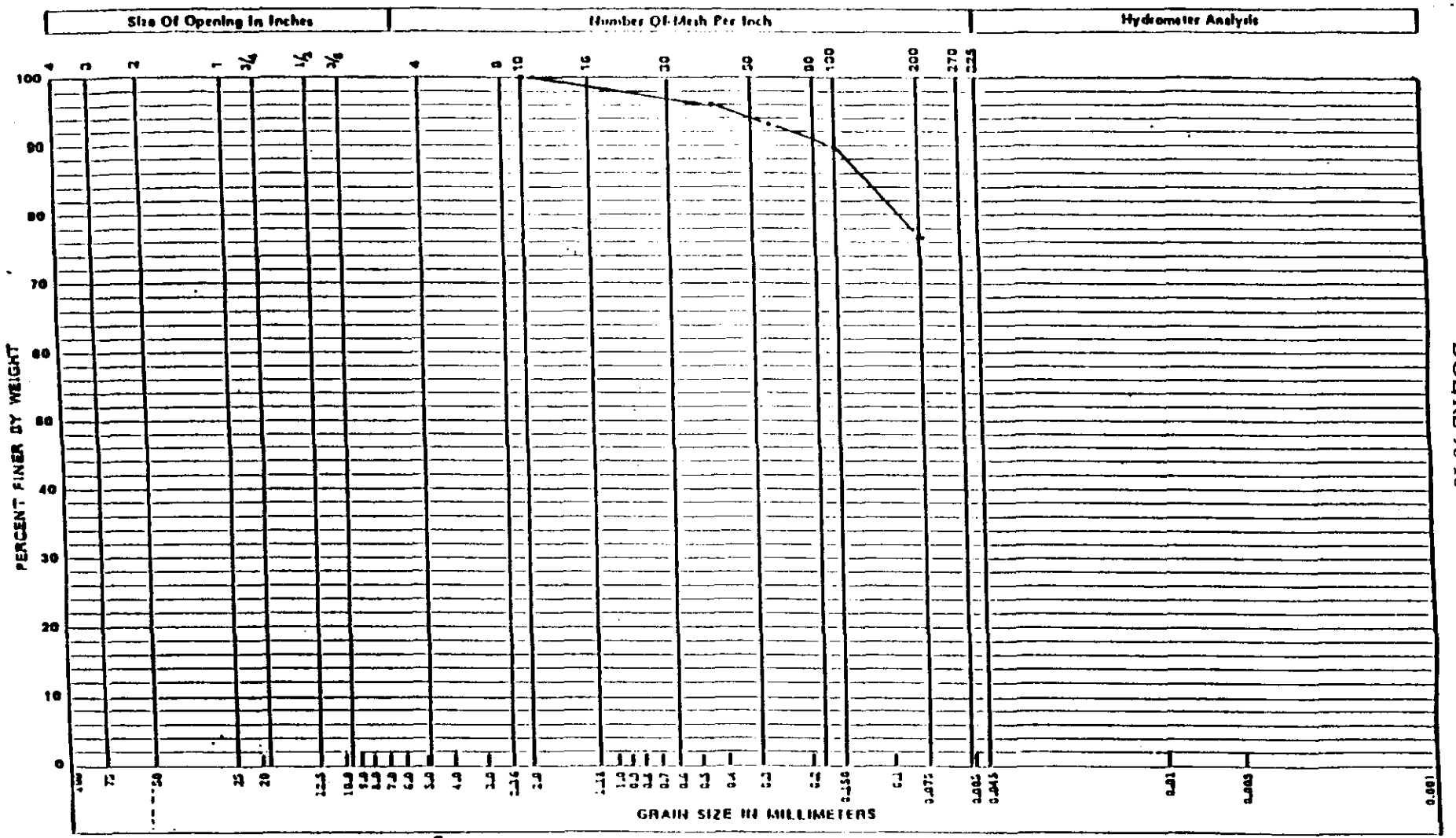
GRAIN SIZE ANALYSIS PLOT



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

Sample Description: SANDY GRAVEL MW-7-3	Plotted by: RG ALEXANDER Date: 12-12-89	Checked by: J J Relyea Date: 12 Dec 89

GRAIN SIZE ANALYSIS PLOT

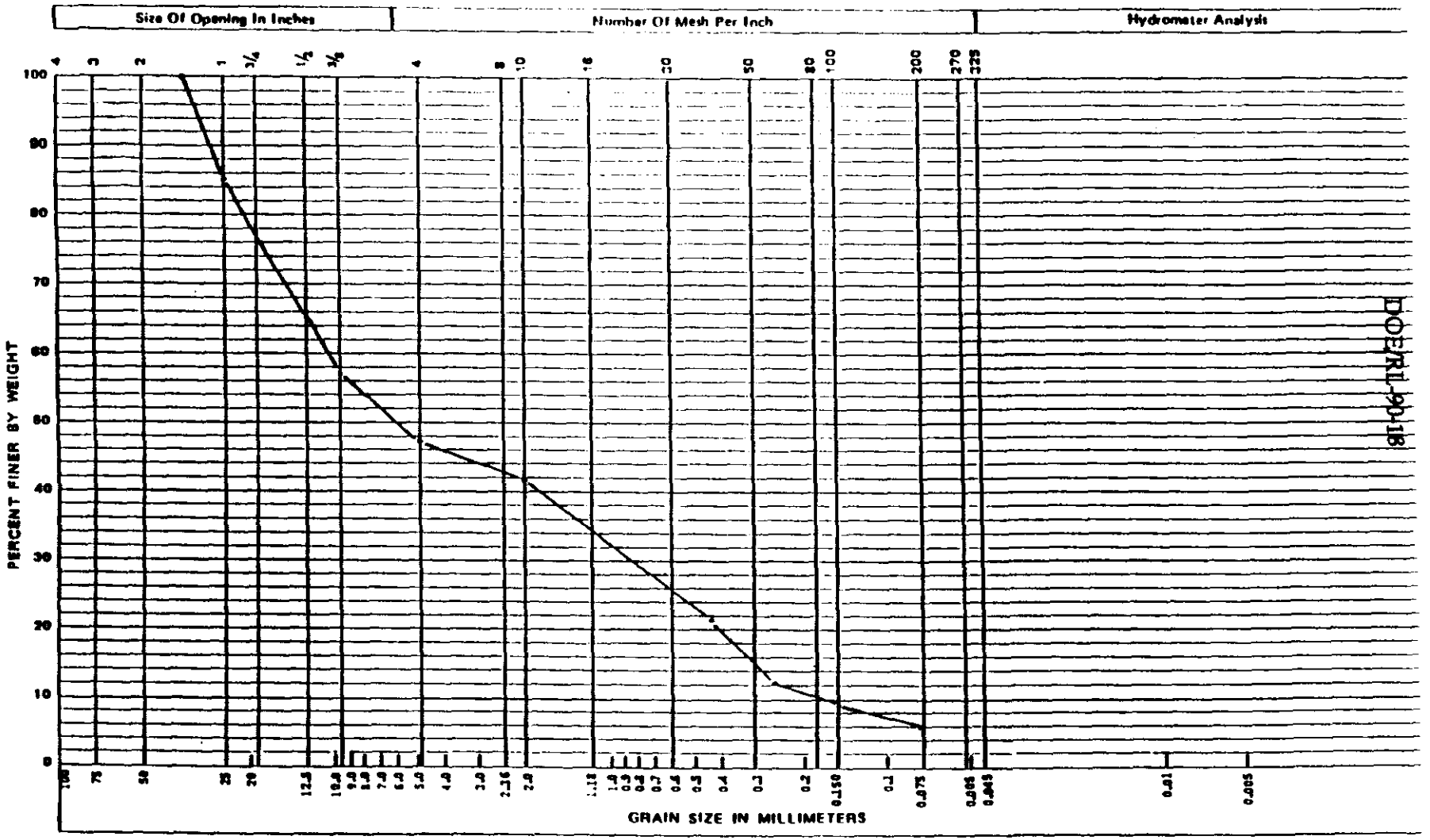


Specimen No. 9-092 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

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

9 1 1 1 3 3 1 5 7 7

GRAIN SIZE ANALYSIS PLOT

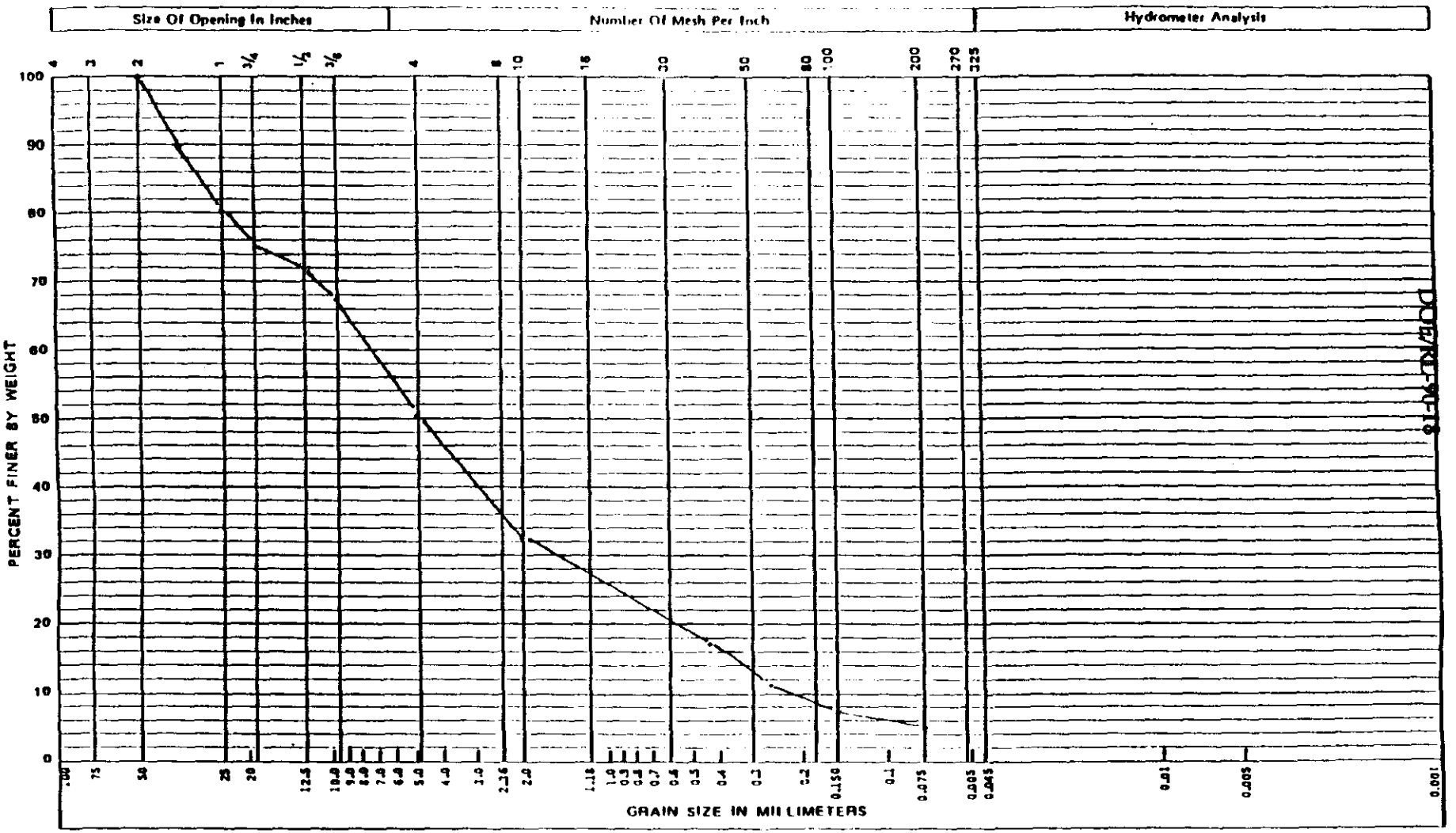


Specimen No 9-069 Procedure No ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-8-1	Plotted by: R.G ALEXANDER Date: 12-7-89	Checked by: J F Relyea Date: 12-8-89

DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-070 Procedure No ETAL-07 Rev Ø Date Issued 11-15-89

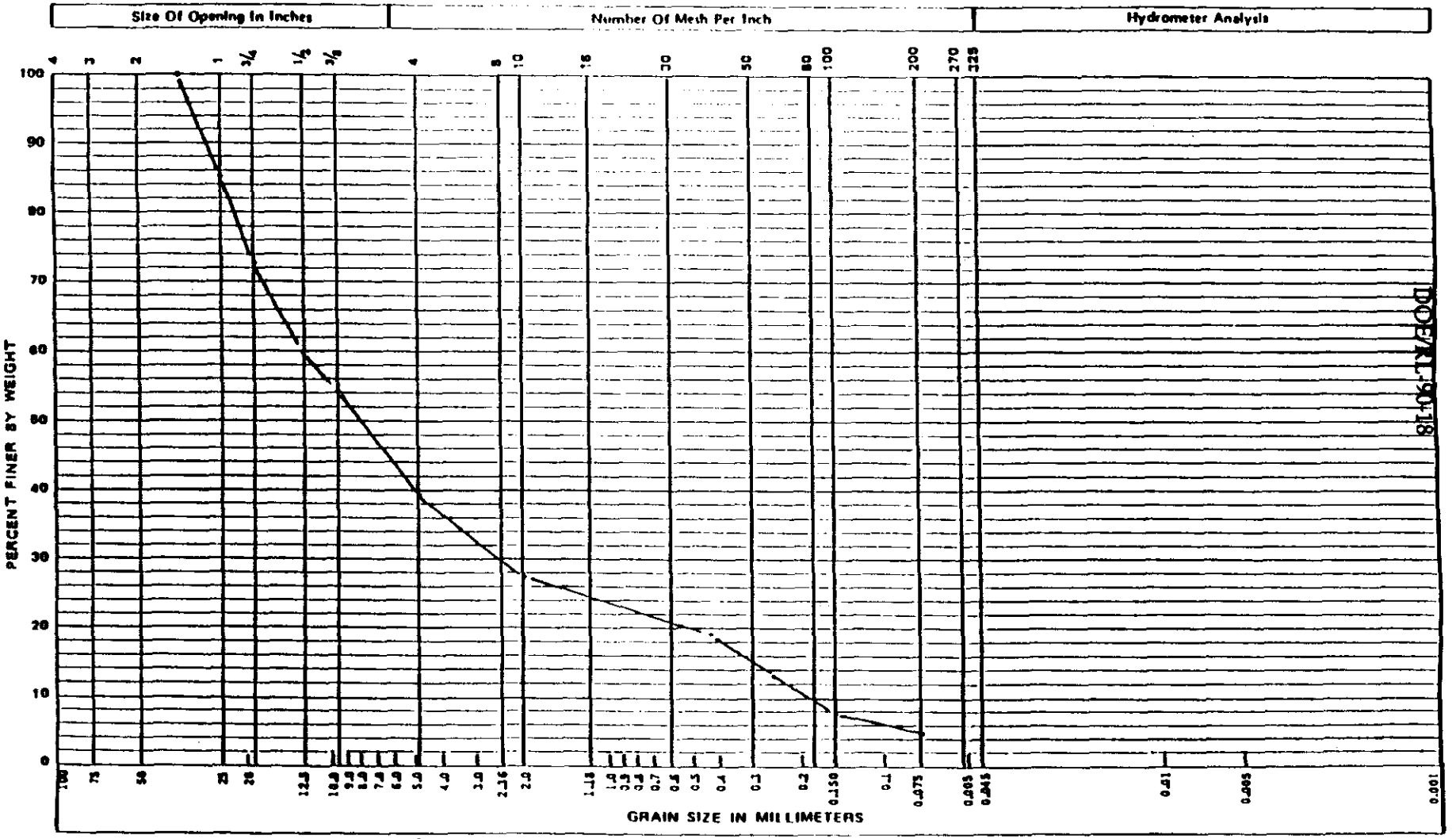
Sample Description: SANDY GRAVEL

Plotted by: R.G ALEXANDER

Checked by: J A Rehyea

DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-071 Procedure No. ETAL-07 Rev Ø Date Issued 11-15-89

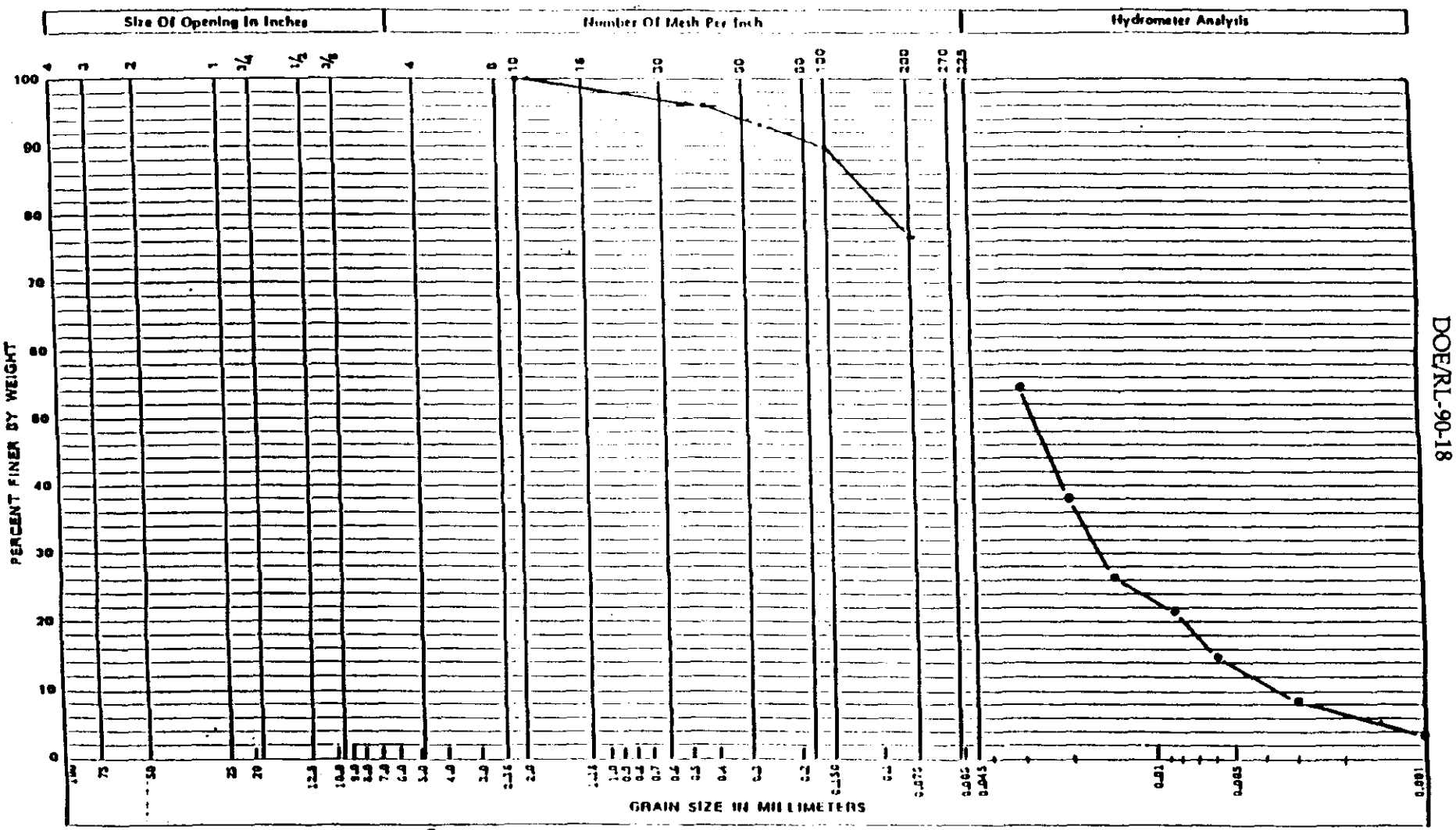
Sample Description: SANDY GRAVEL MW-8-3

Plotted by: R.G Alexander Date: 12-7-89

Checked by: J T Relyea Date: 12-8-89

DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT



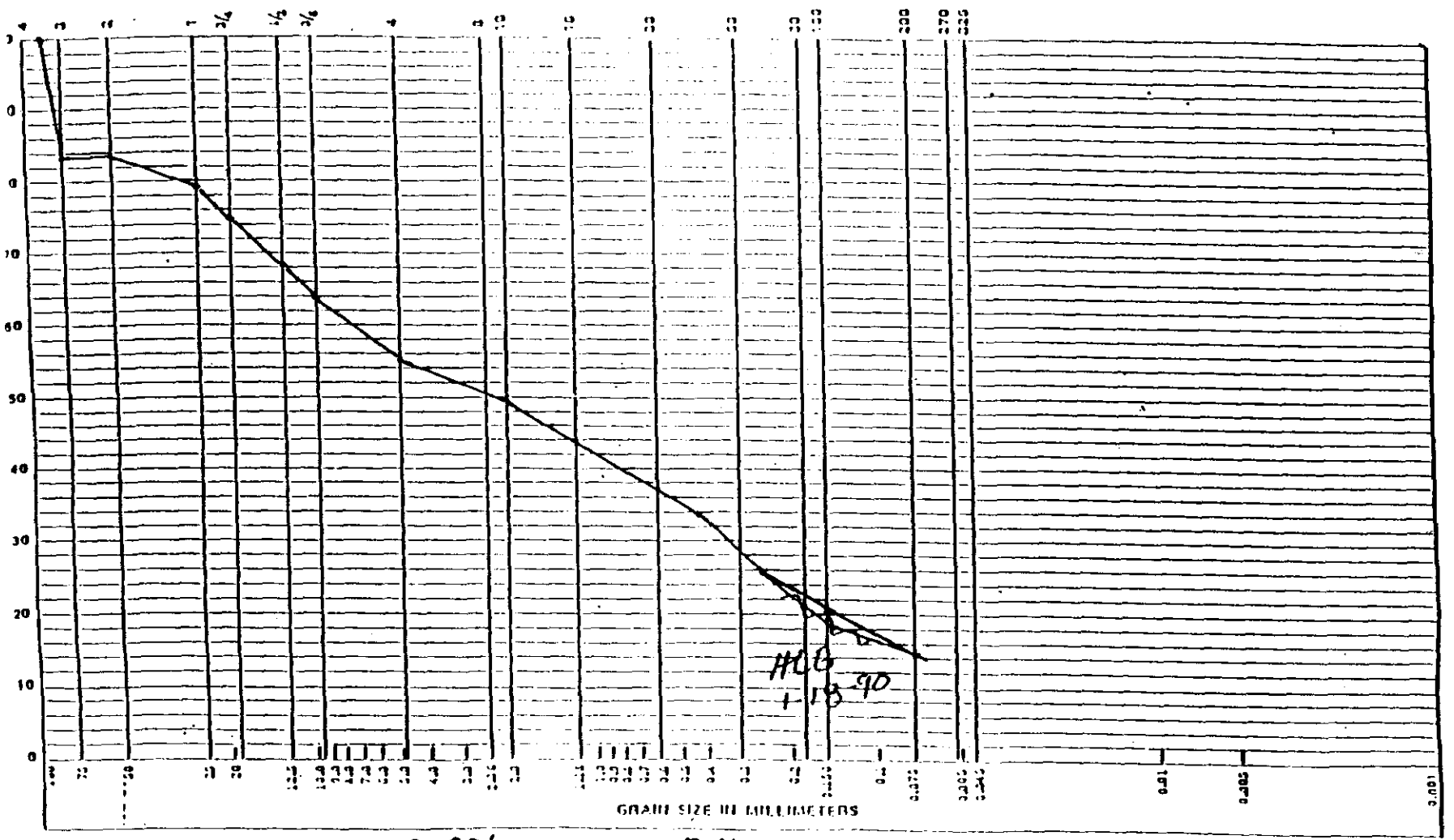
Specimen No. 9-092 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY SILT MW-7-4

Plotted by: R.G. Alexander 12-28-89

Checked by: HC Benny

GRAIN SIZE ANALYSIS PLOT



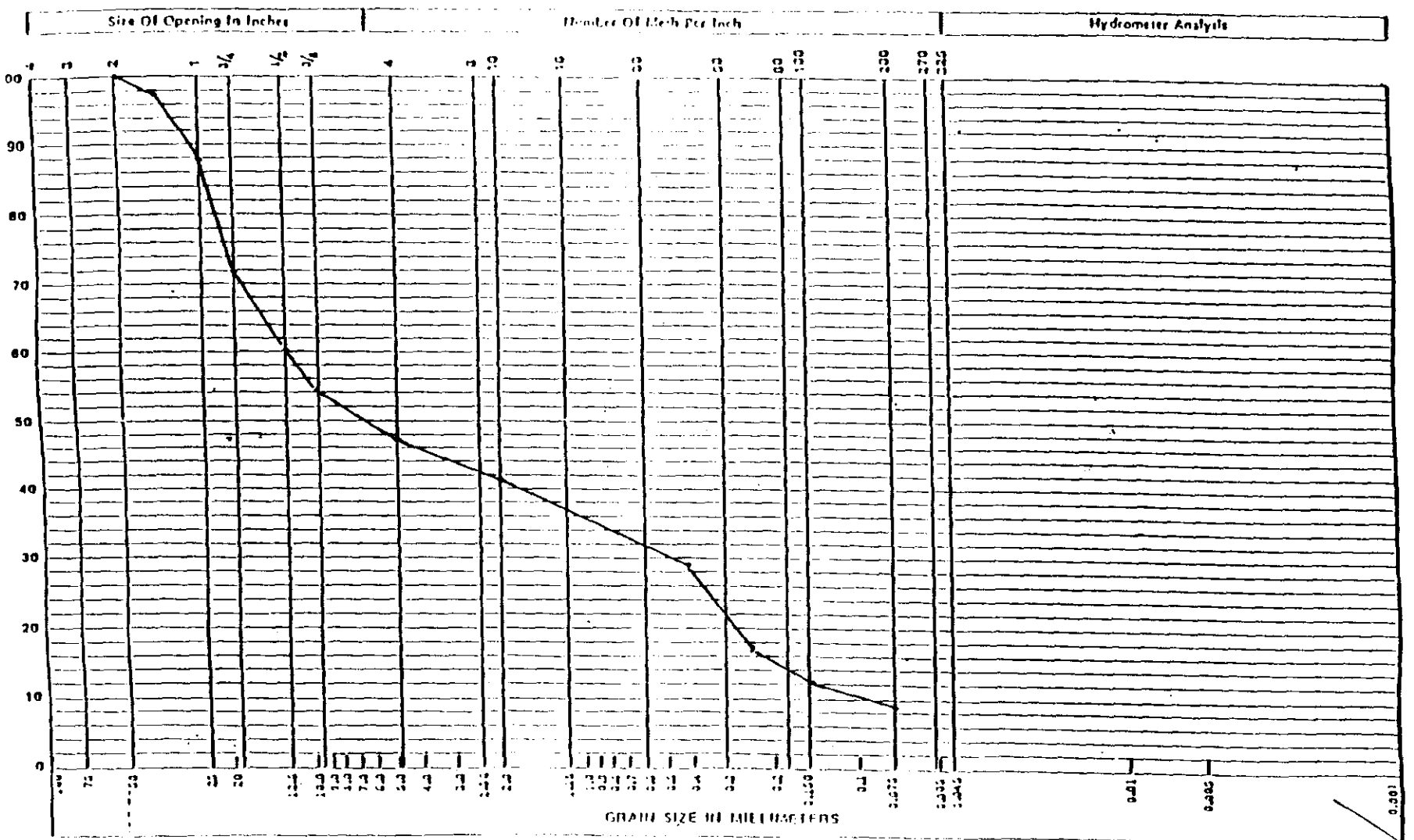
Specimen No. 0-001 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-9-1

Plotted by: R.G. ALEXANDER Date: 1-16-90

Checked by: HLBenny Date: 1-18-90

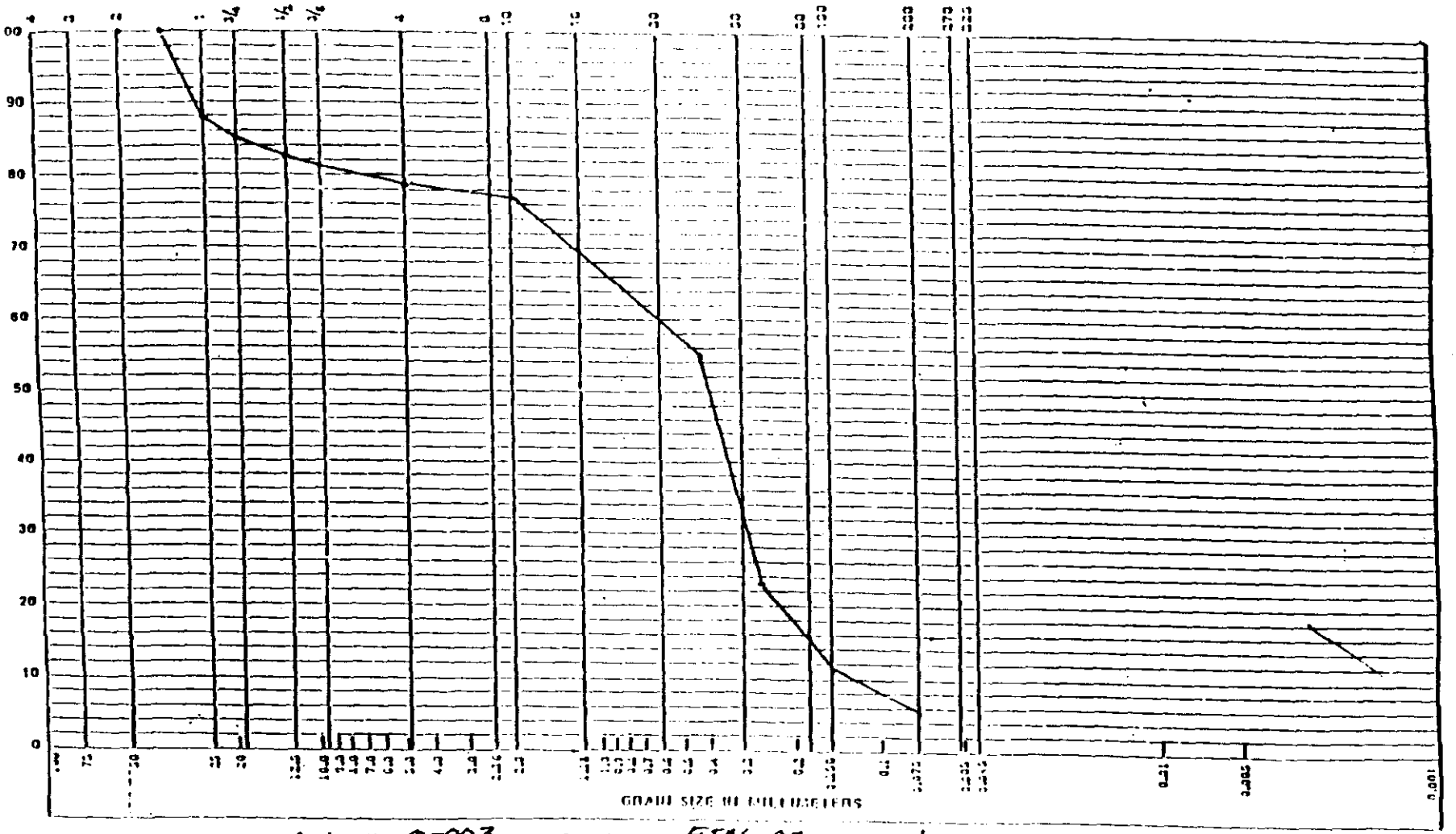
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-002 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SAND/GRAVEL

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-003 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-9-3

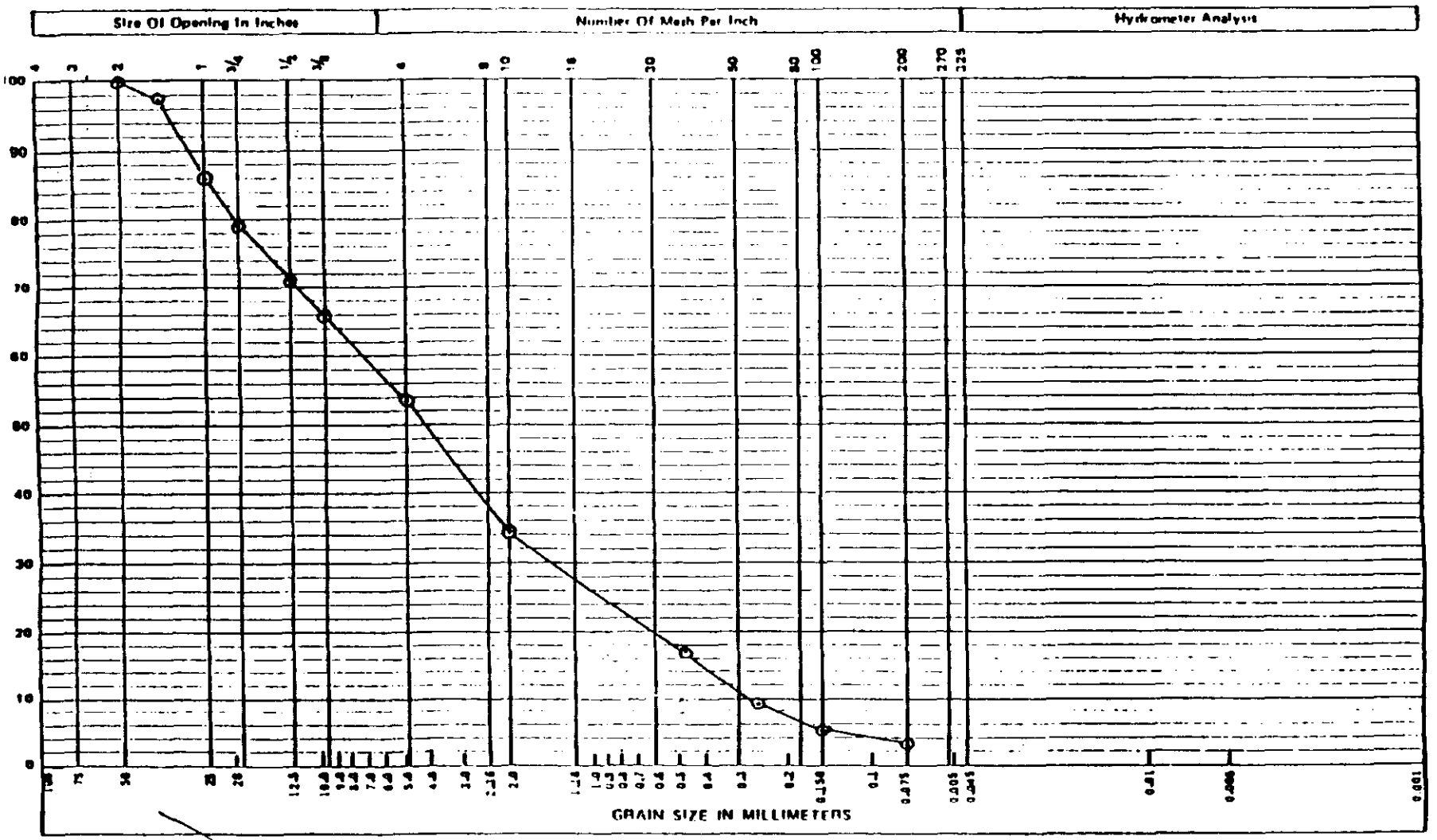
Plotted by: R.G ALEXANDER

Date: 1-16-90

Checked by: HL Benny

Date: 1-10-9

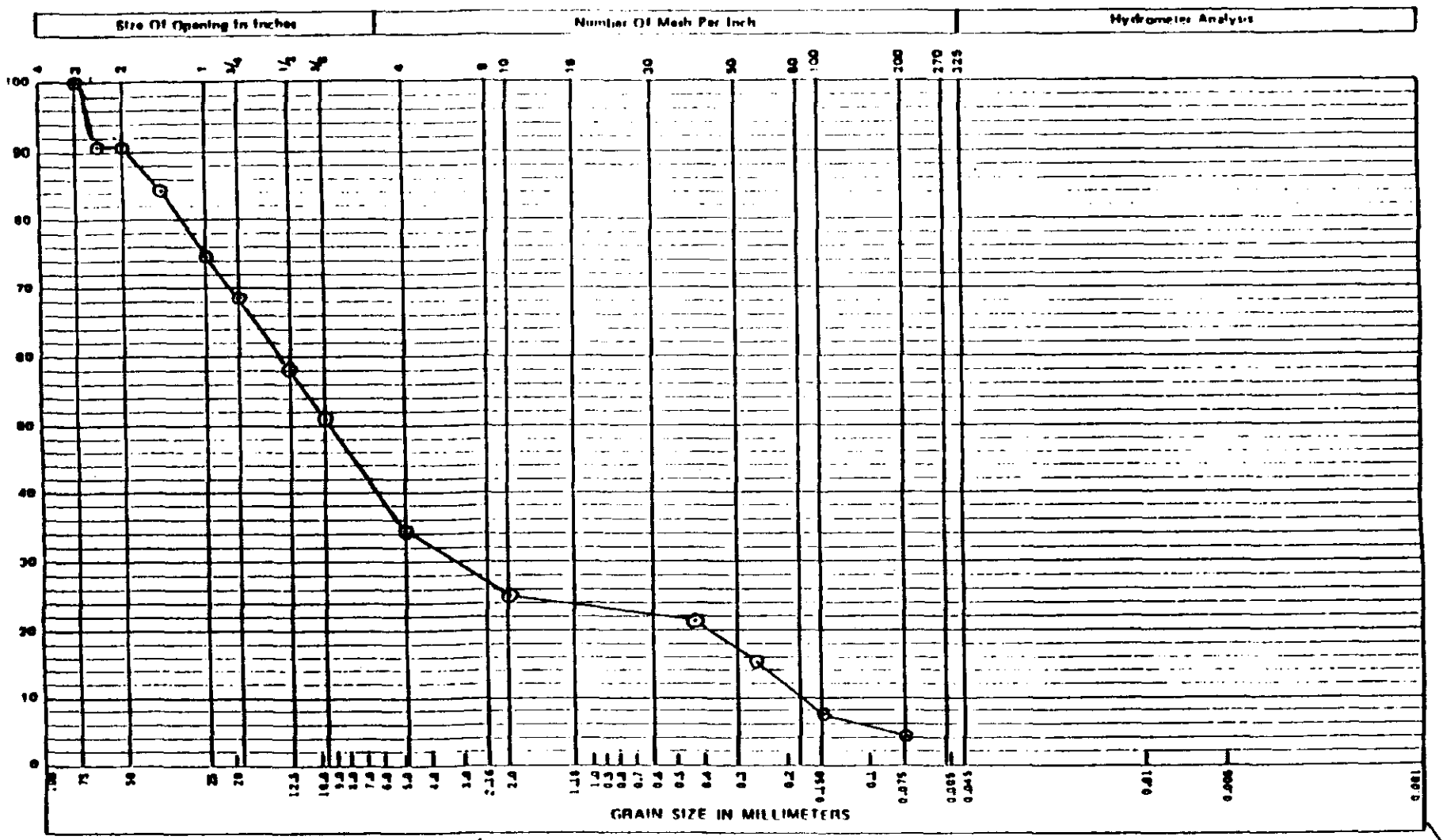
GRAIN SIZE ANALYSIS PLOT



Specimen No 0-044 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description:	Plotted by	Checked by
SANDY GRAVEL MW-9-4	RG ALEXANDER 7-1-90	HL Benny 7-7-90

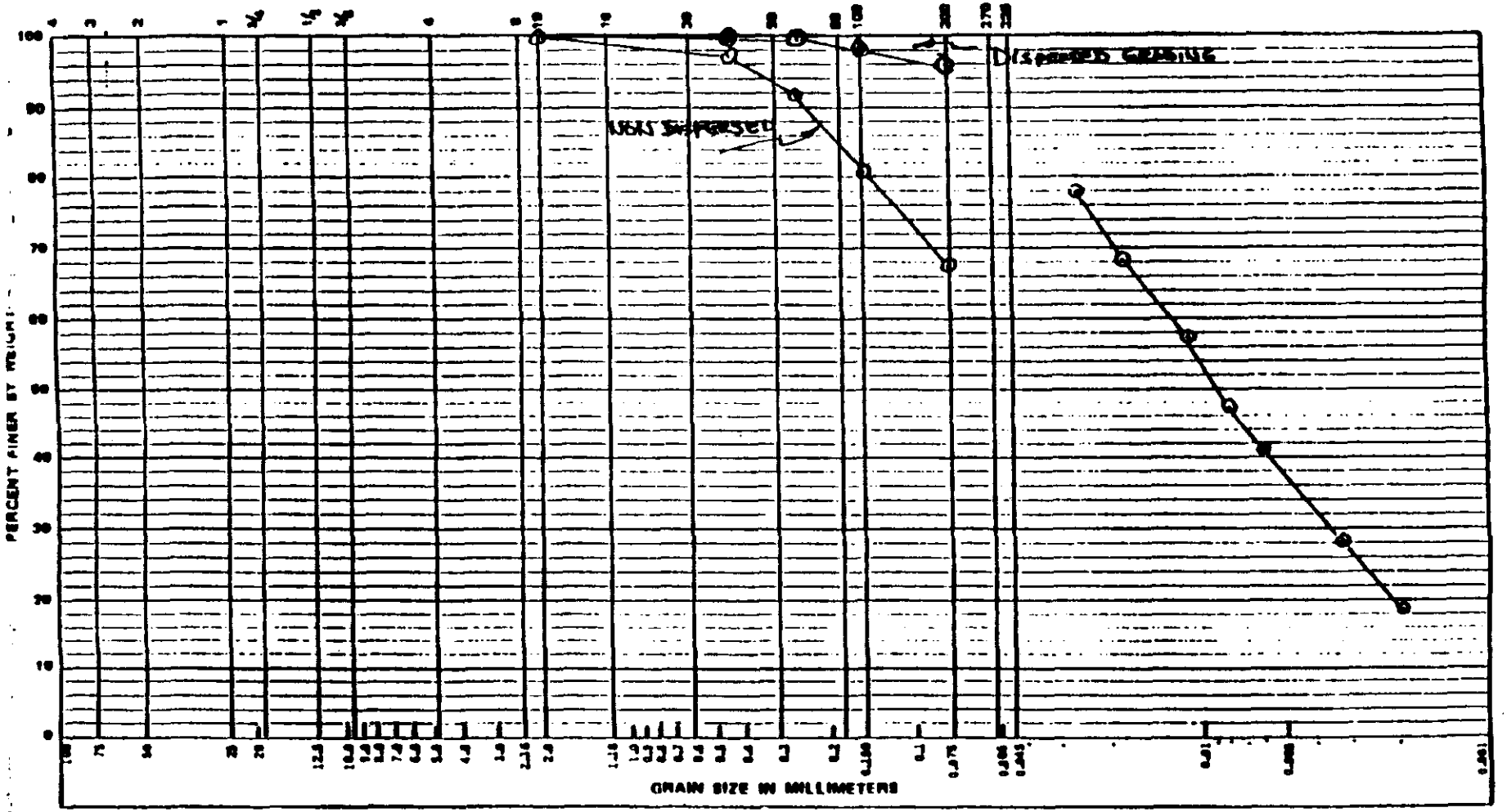
GRAIN SIZE ANALYSIS PLOT



Specimen No 0-045 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description	Plotted by	Checked by
SANDY GRAVEL MW-9-5	R.G. ALEXANDER	HLBenny
	Date: 2-1-90	Date: 2-2-90

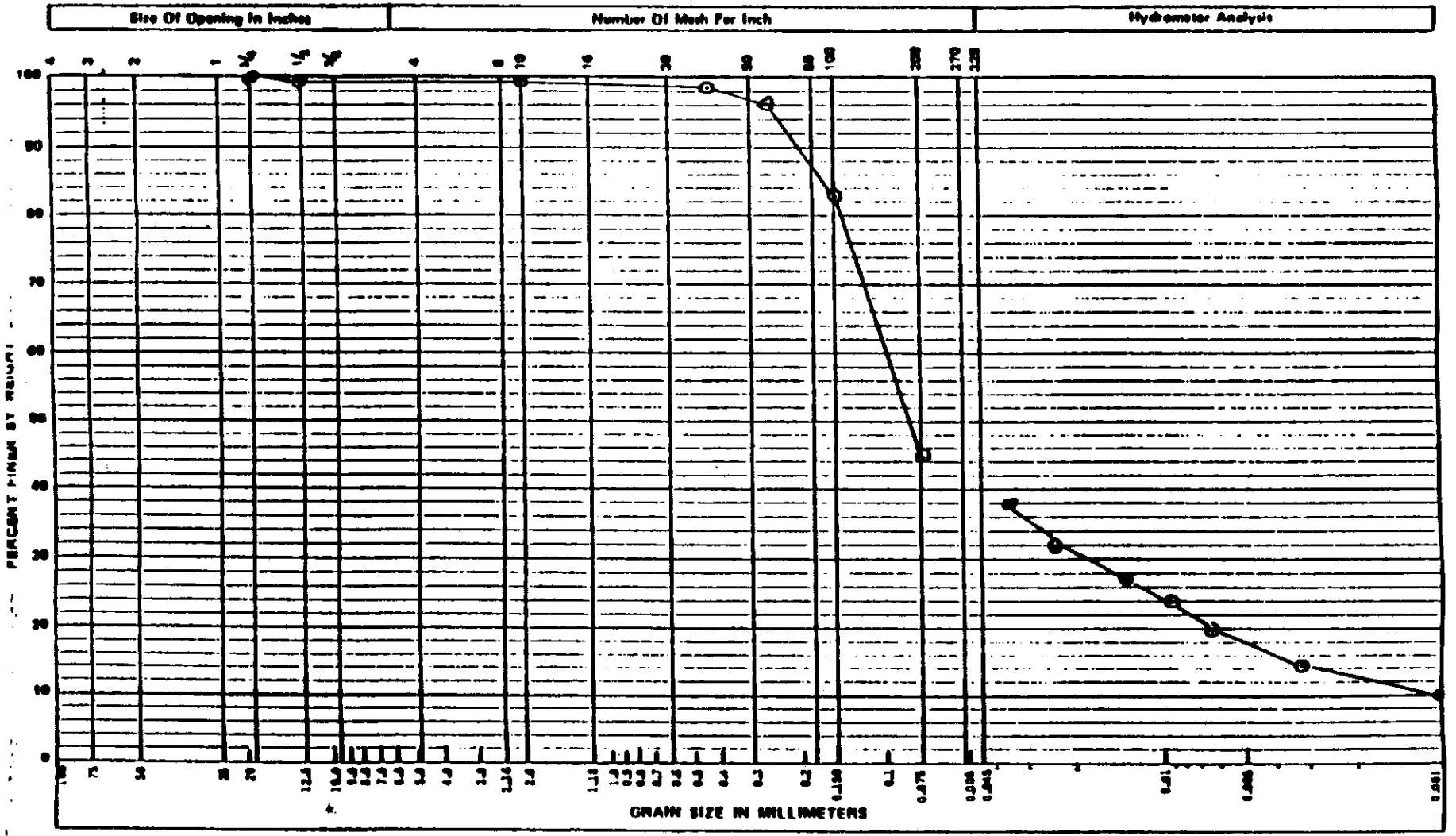
GRAIN SIZE ANALYSIS PLOT



Specimen No 0-046 Procedure No ETAL-07 Rev 1 Date Issued 11-1689

Sample Description: SA-101 [illegible]

GRAIN SIZE ANALYSIS PLOT



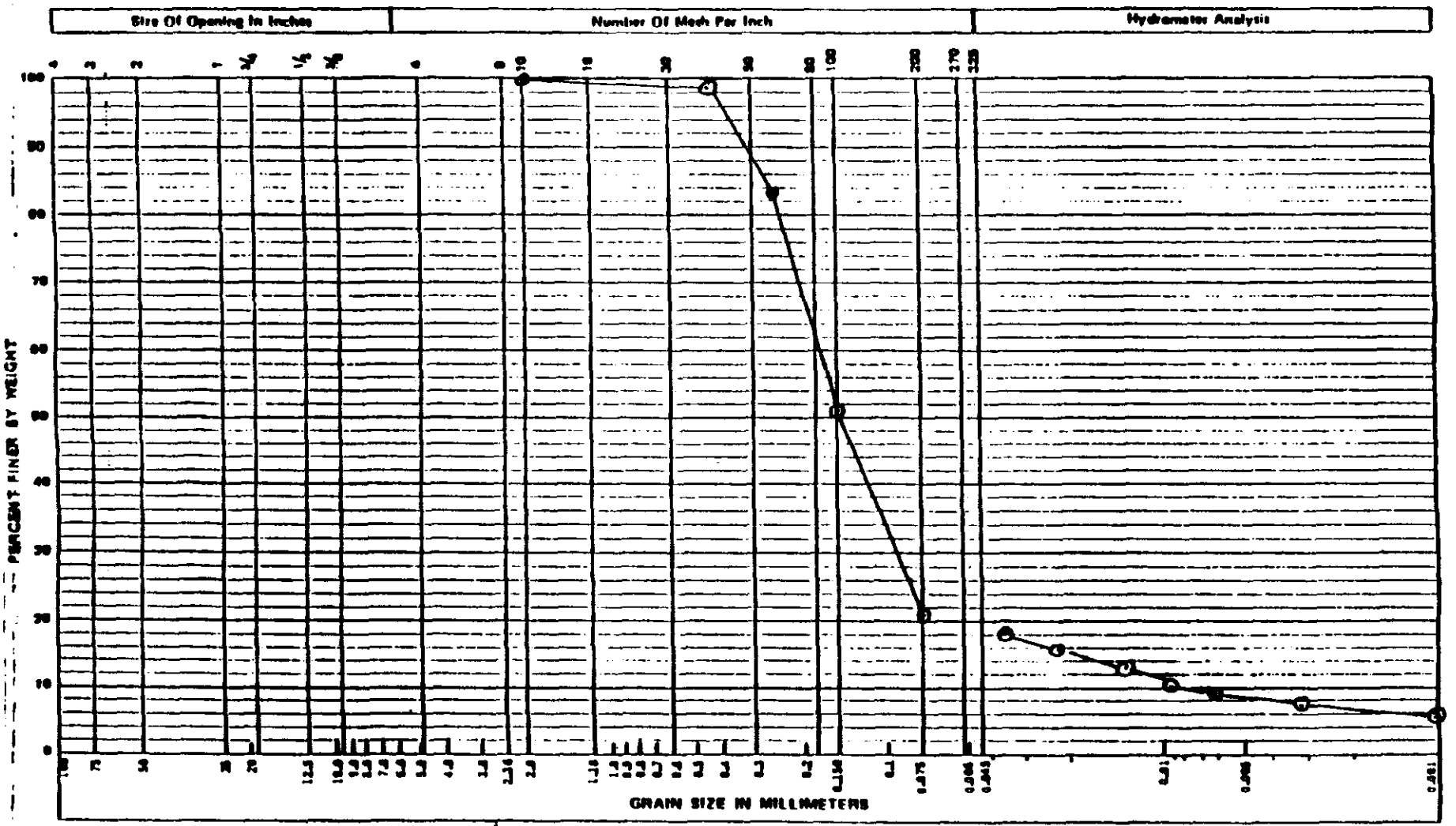
Specimen No 0-047 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: MW-9-7 SANDY GRAVEL RGA 1-31-90

Plotted by: R G ALEXANDER Date: 2-1-90

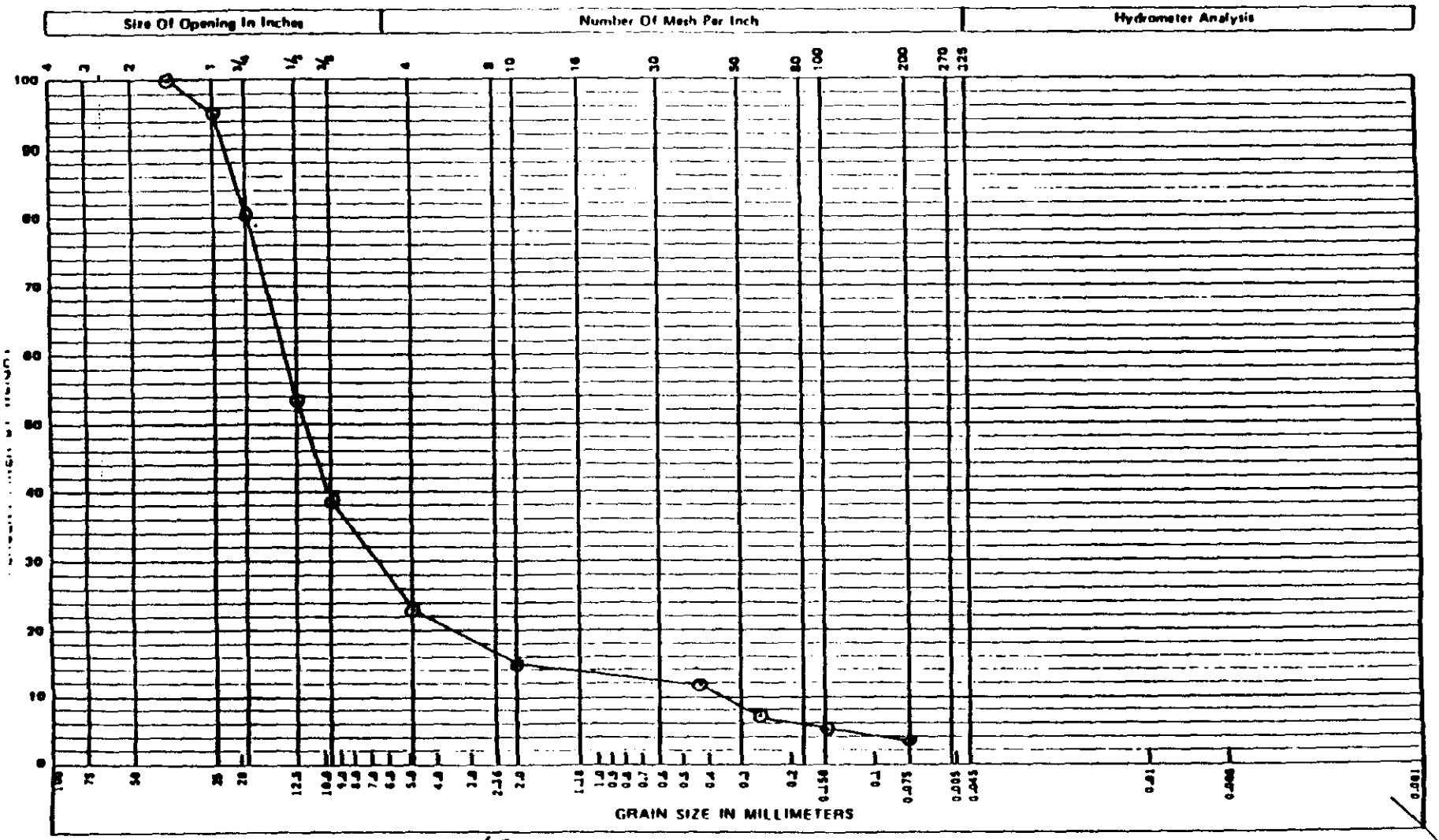
Checked by: H L Berry Date: 2-2-90

GRAIN SIZE ANALYSIS PLOT



Specimen No 0-048 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

GRAIN SIZE ANALYSIS PLOT



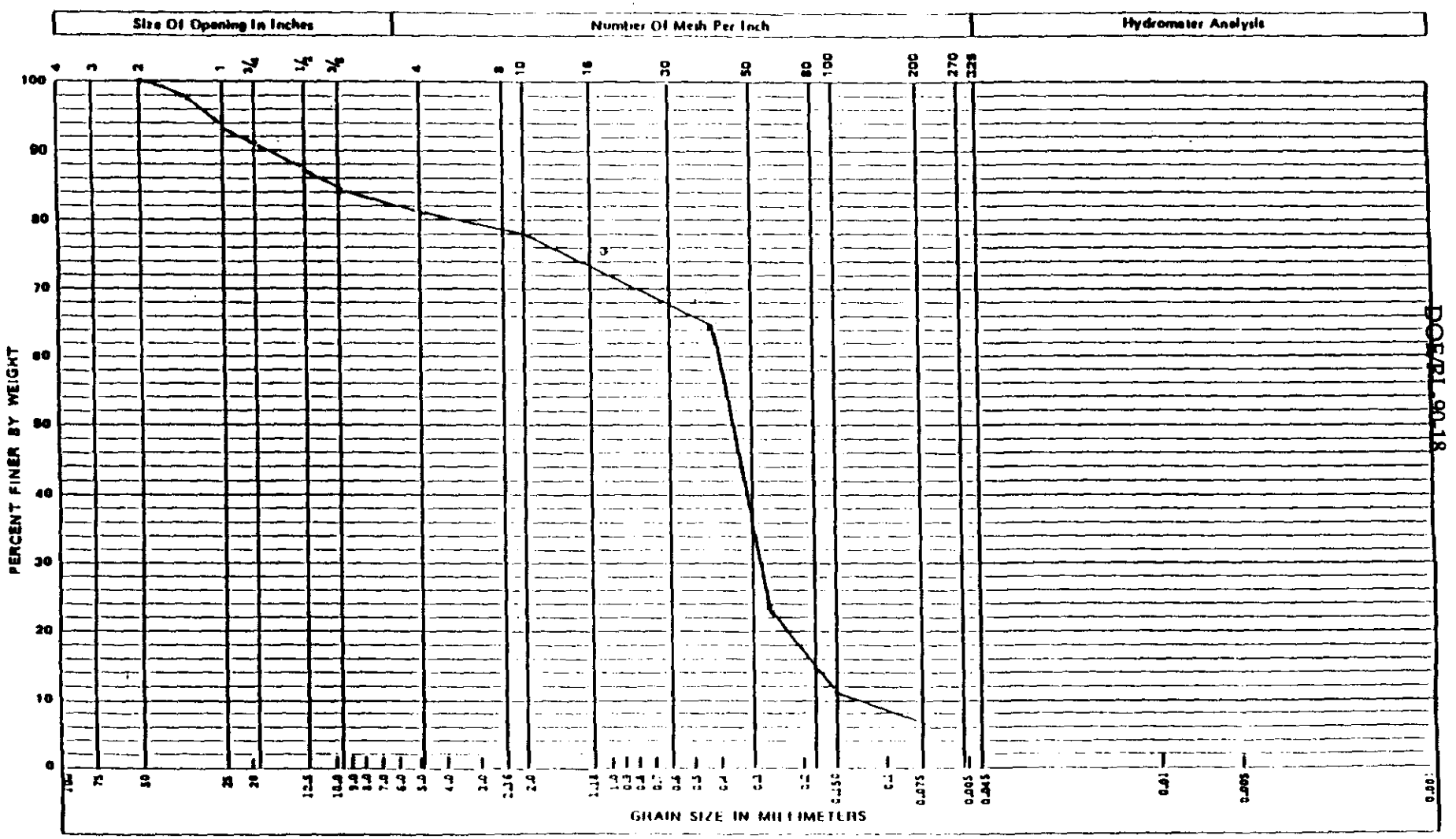
Specimen No 0-049 Procedure No ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MN-9-9

Plotted by: R.G. ALEXANDER

Checked by: H.L. Benny

GRAIN SIZE ANALYSIS PLOT



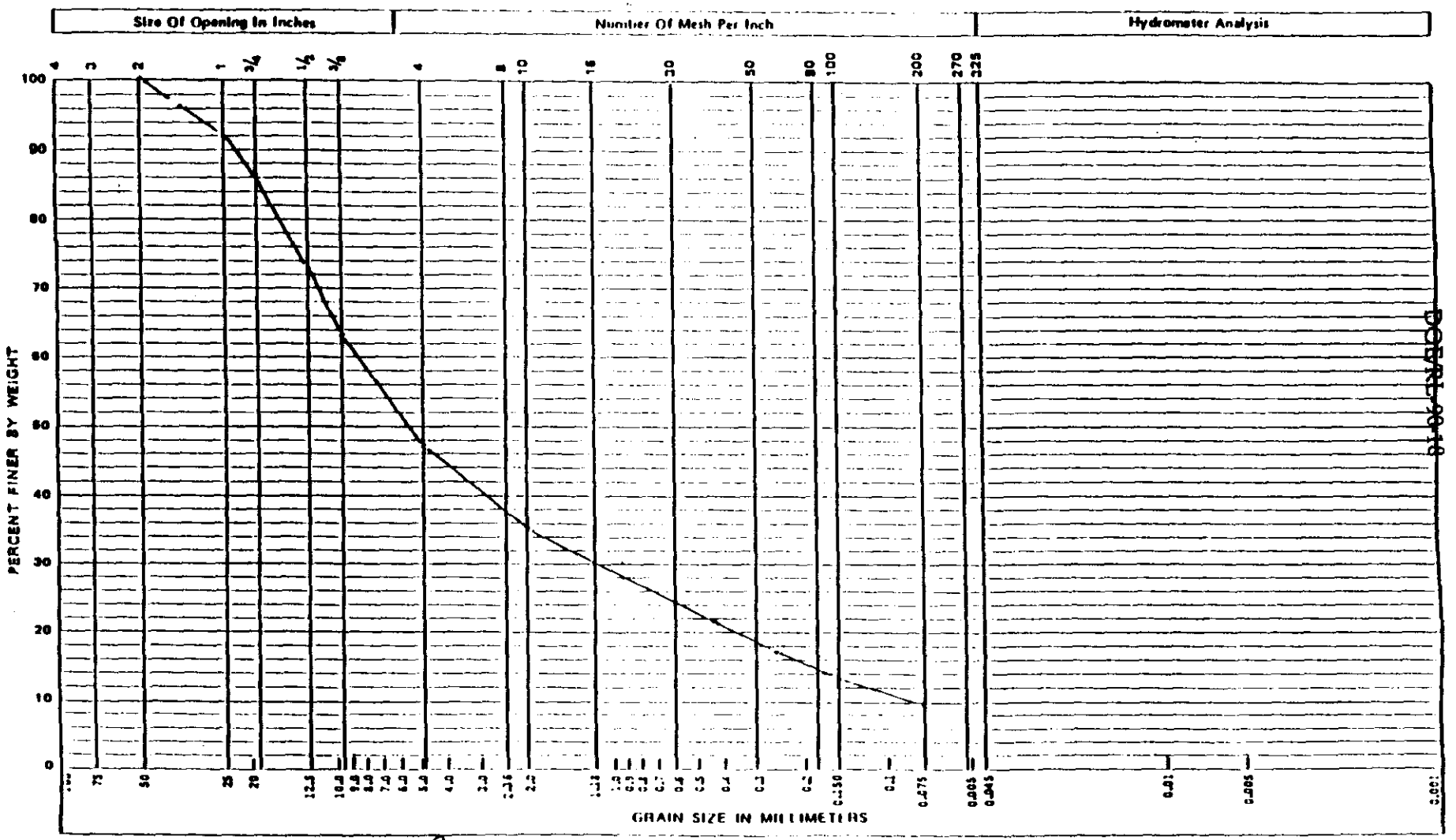
Specimen No 9-072 Procedure No ETAL-07 Rev Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-10-1 gravelly

Plotted by: R G ALEXANDER

Checked by: J Z Relyea

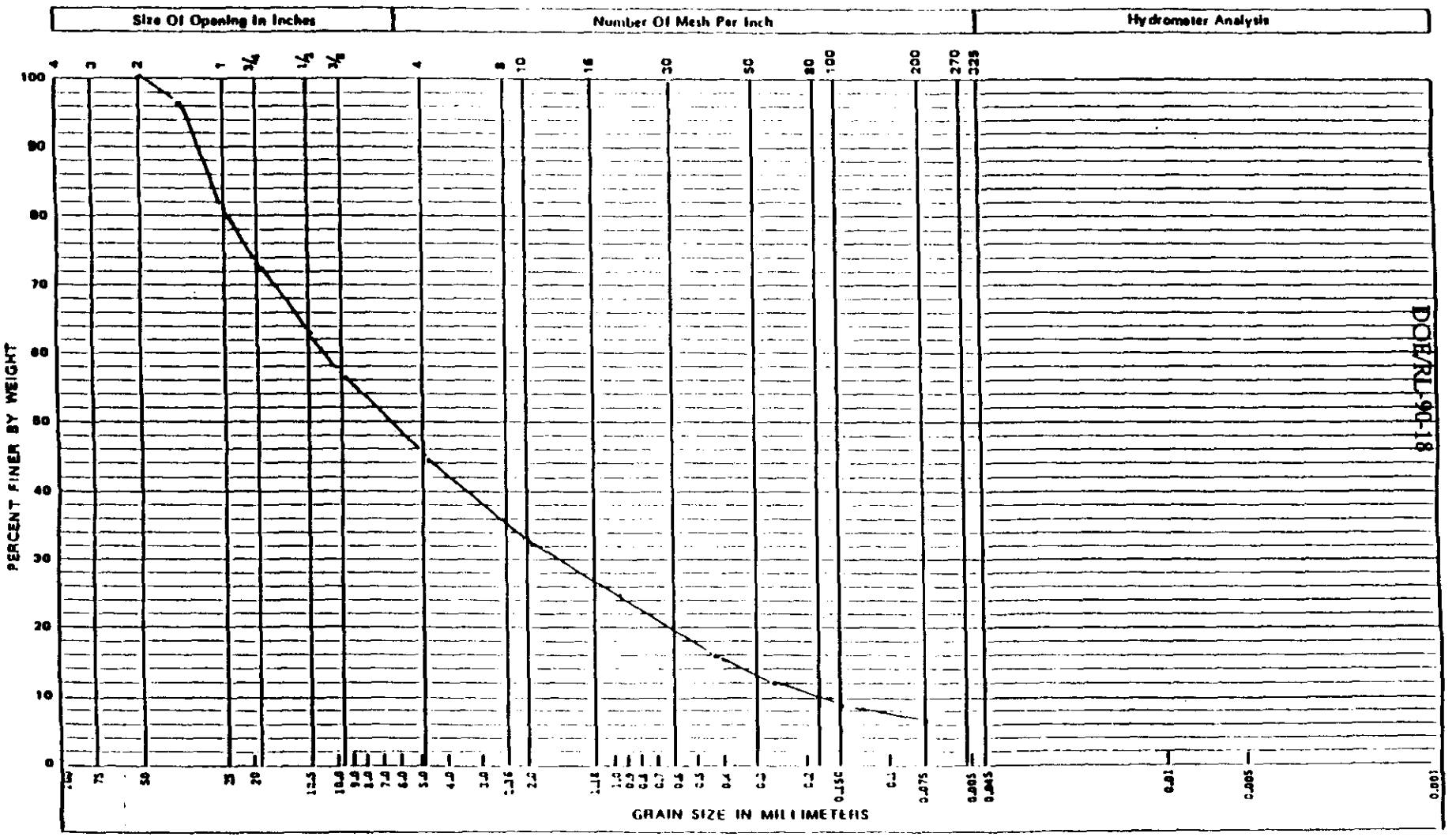
GRAIN SIZE ANALYSIS PLOT



Specimen No 9-073 Procedure No ETAL-07 Rev Ø Date Issued 11-15-89

Sample Description:	Plotted by:	Checked by:
SANDY GRAVEL MW-10-2	R.G. Alexander	J.J. Relyea
	Date: 12-8-89	Date: 12-Dec 89

GRAIN SIZE ANALYSIS PLOT



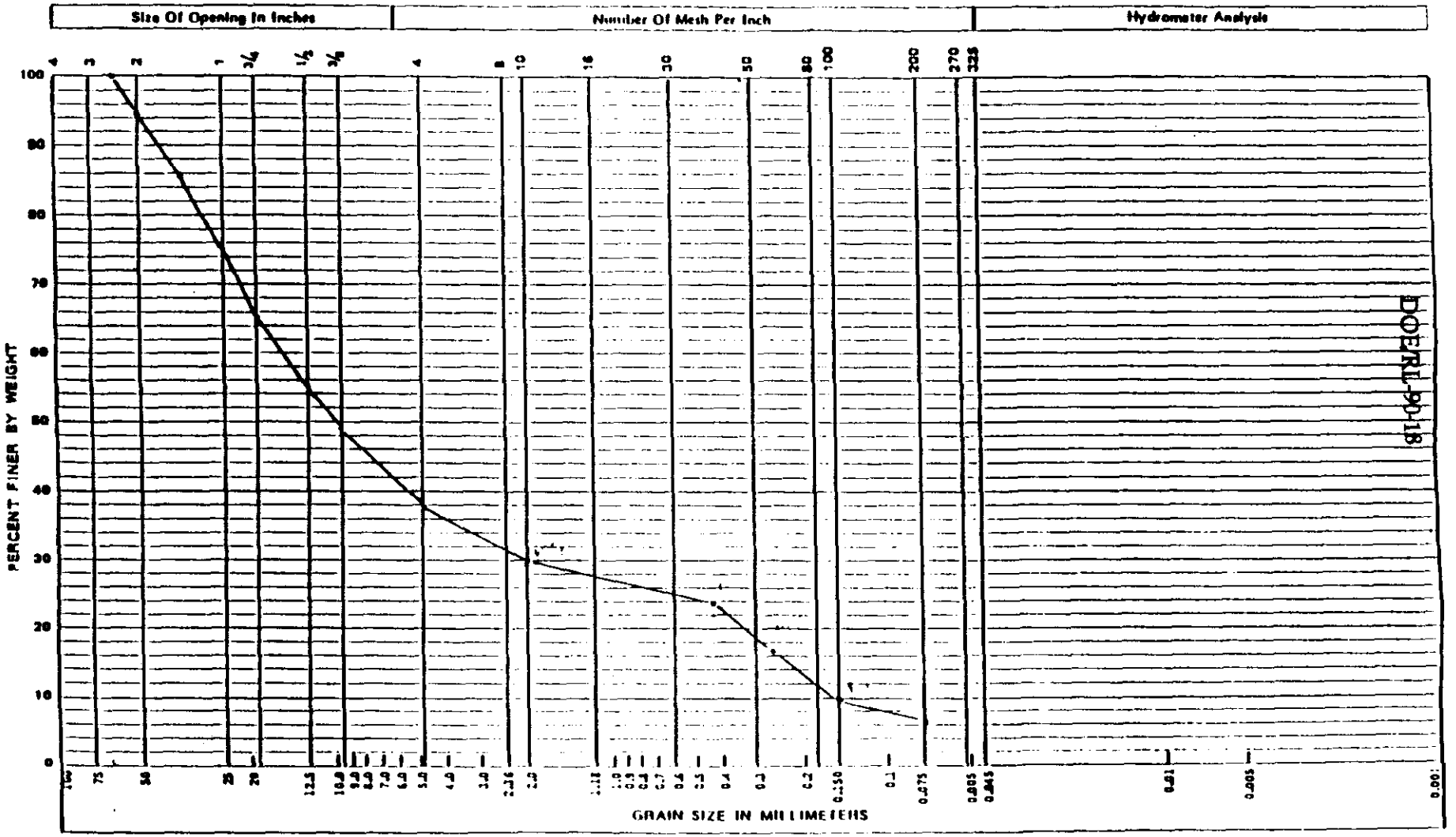
Specimen No 9-074 Procedure No ETAL-07 Rev Ø Date Issued 11-15-91

Sample Description: SANDY GRAVEL MW-10-3

Plotted by: RG ALEXANDER

Checked by: [signature]

GRAIN SIZE ANALYSIS PLOT



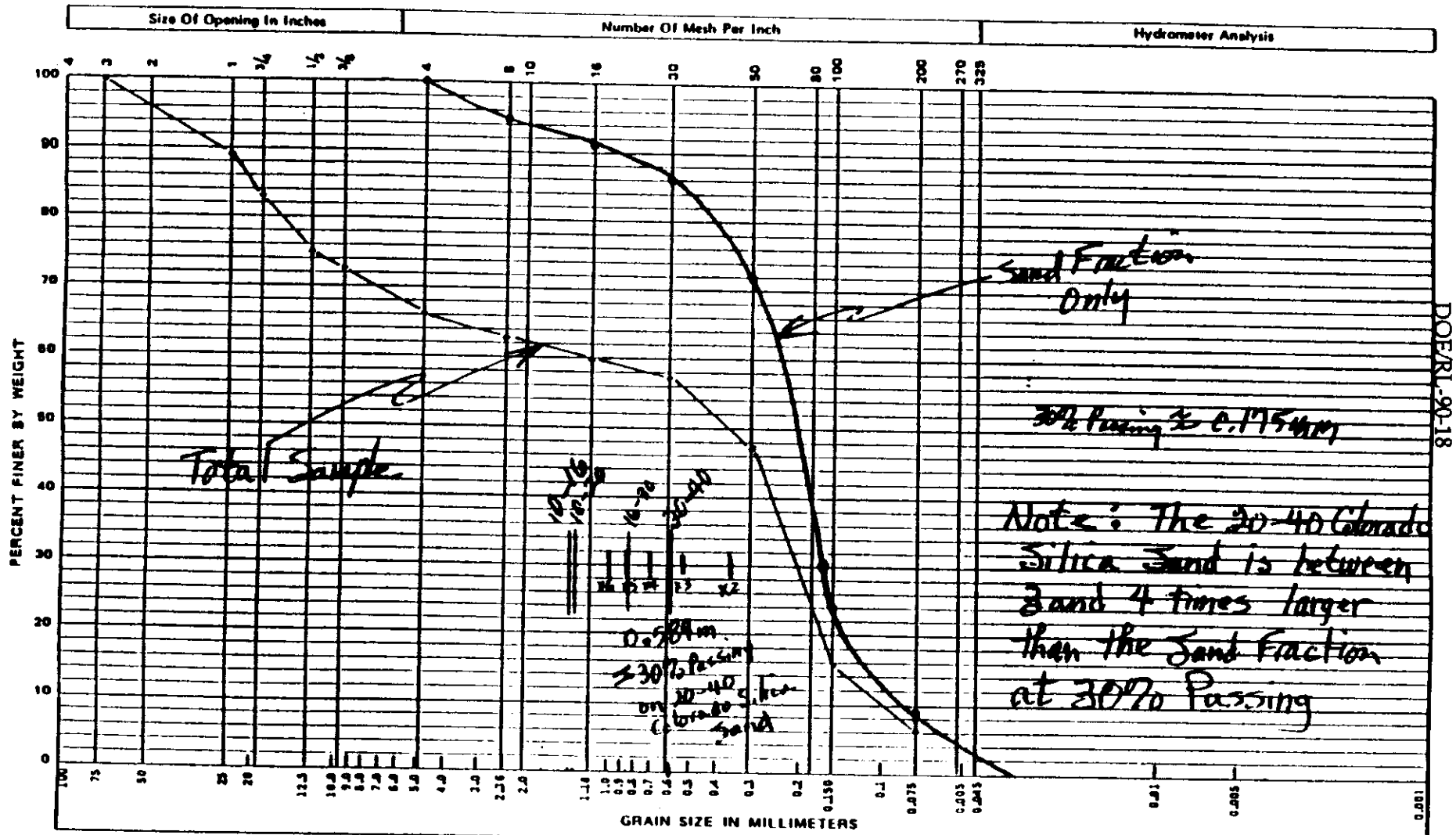
Specimen No 9-075 Procedure No ETAL-07 Rev Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-10-4	Plotted by: R.G. ALEXANDER Date: 12-8-89	Checked by: J F Redyca Date: 12-Dec 89

DOE/RL-90-18

9 1 1 1 3 3 5 1 3 7 4

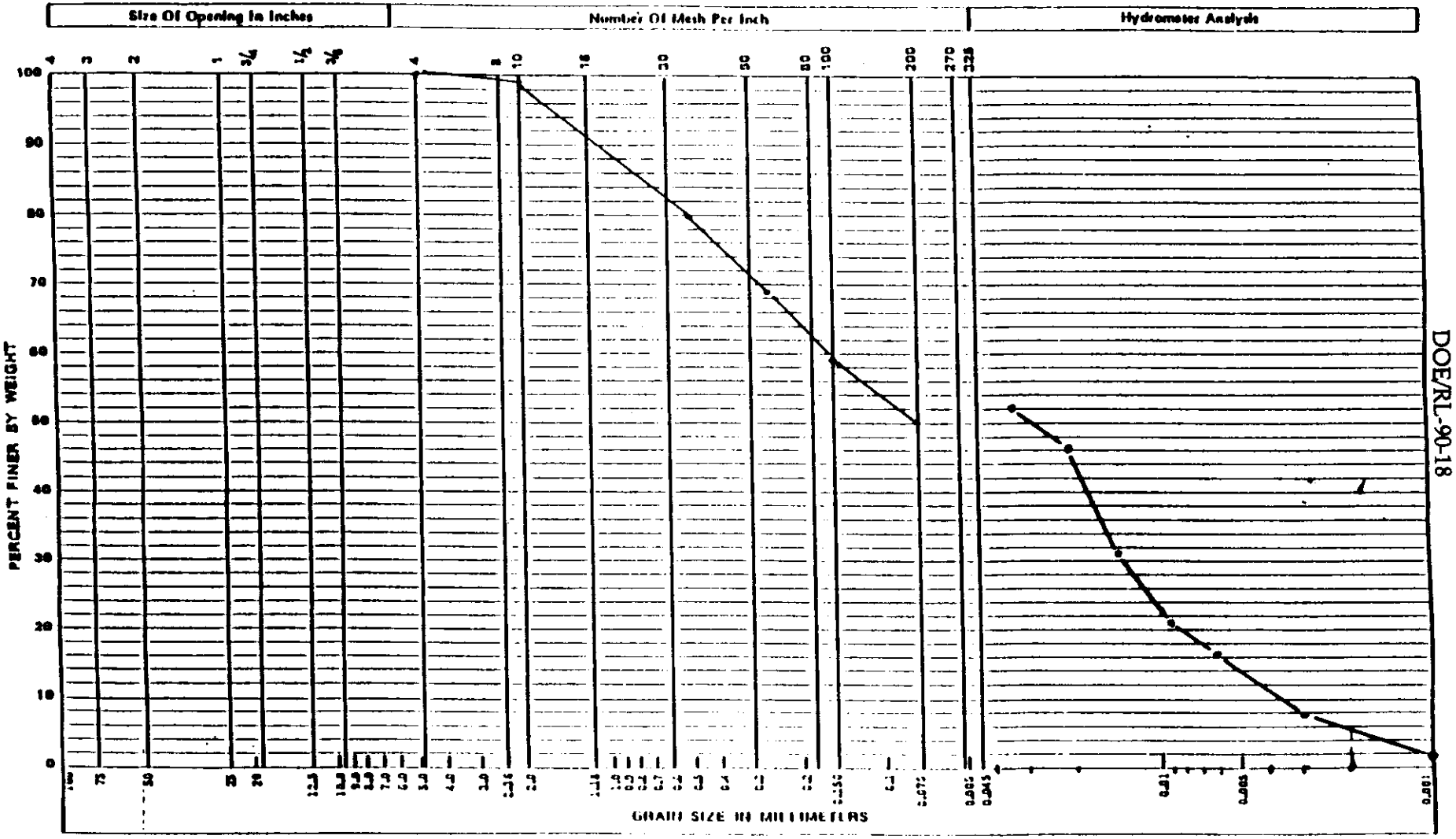
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-055 Procedure No. LDE-EEG-07 / ETAL-07 Rev Ø Date Issued 7-10-89

Sample Description:

GRAIN SIZE ANALYSIS PLOT

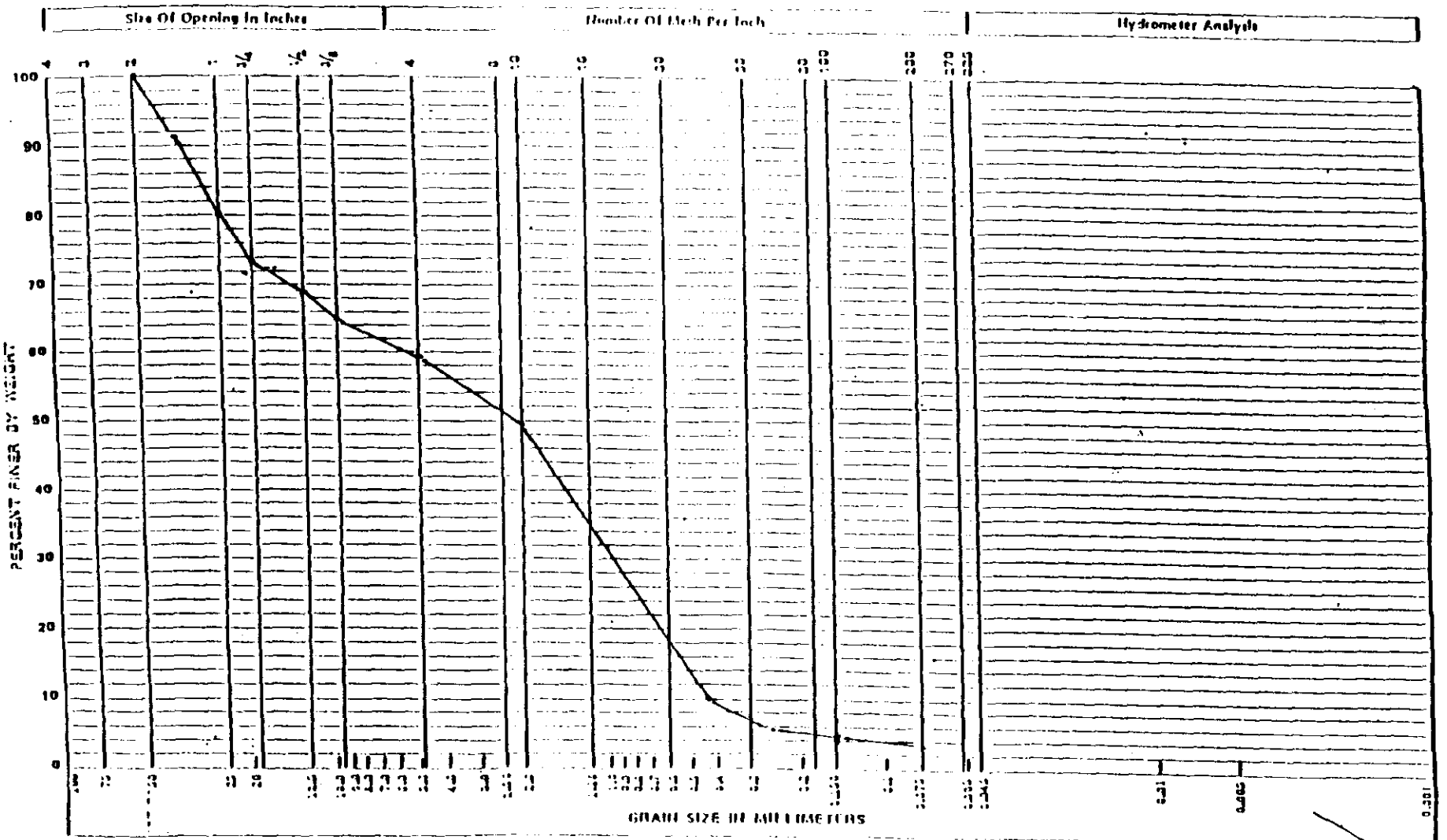


Specimen No. 9-076 Procedure No. ETAL-07 Rev. 1 Date Issued 11-13-89

Sample Description:	Plotted by:	Checked by:
SILTY SAND MW-10-6 FROM HYD. COND. SAMPLE.	R.G. ALEXANDER Date: 12-22-89	H.L. Banny Date: 1-11-90

RD 6400 136 (9 85)

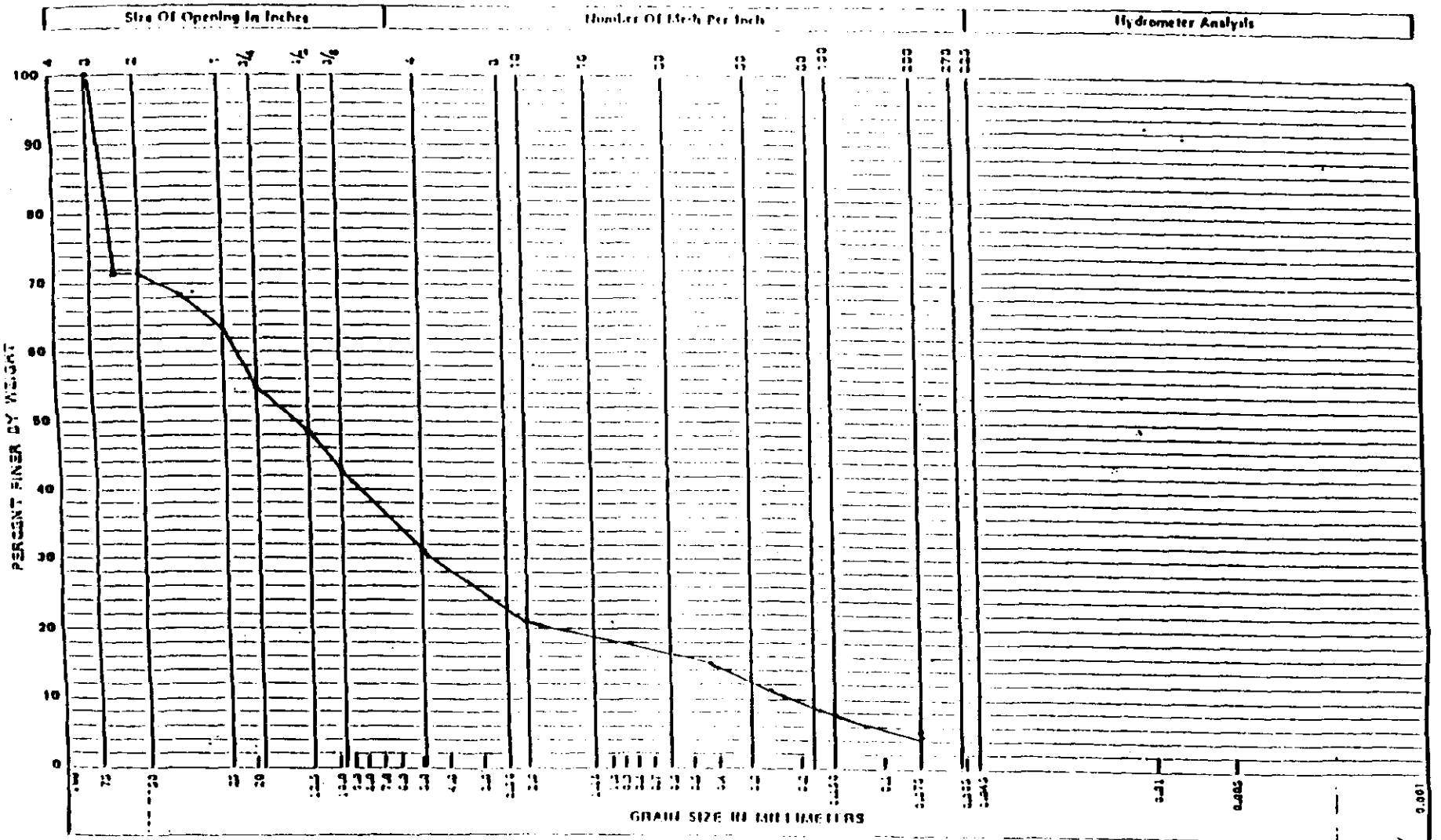
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-004 Procedure No. ETAC-7 Rev. 1 Date Issued 11-15-89

Sample Description: Sandy Gravel

GRAIN SIZE ANALYSIS PLOT



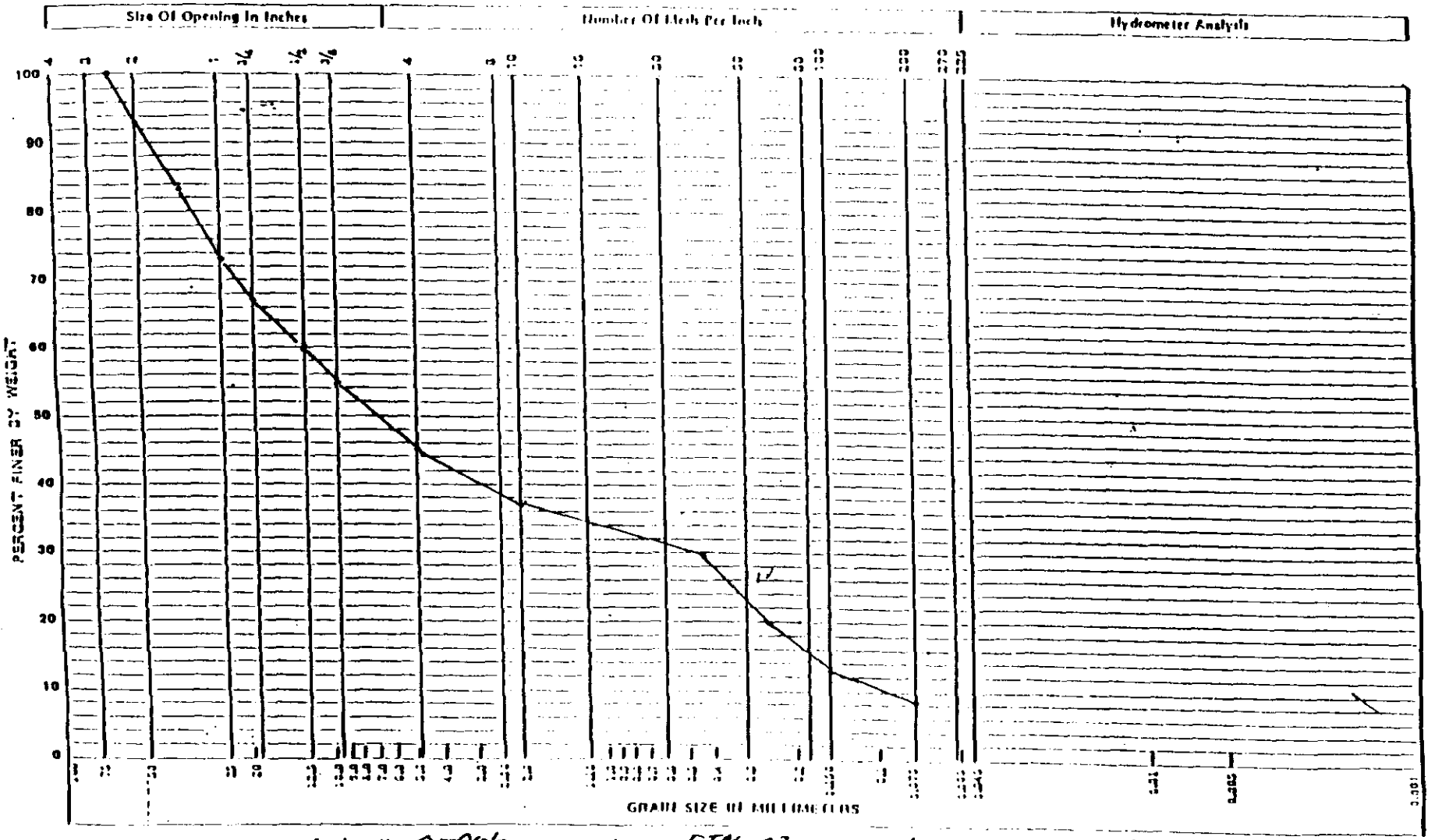
Specimen No. 0-005 Procedure No. ETAC-67 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-11-2

Plotted by: R.G ALEXANDER Date: 1-17-90

Checked by: J A Relyea Date: 1-18-90

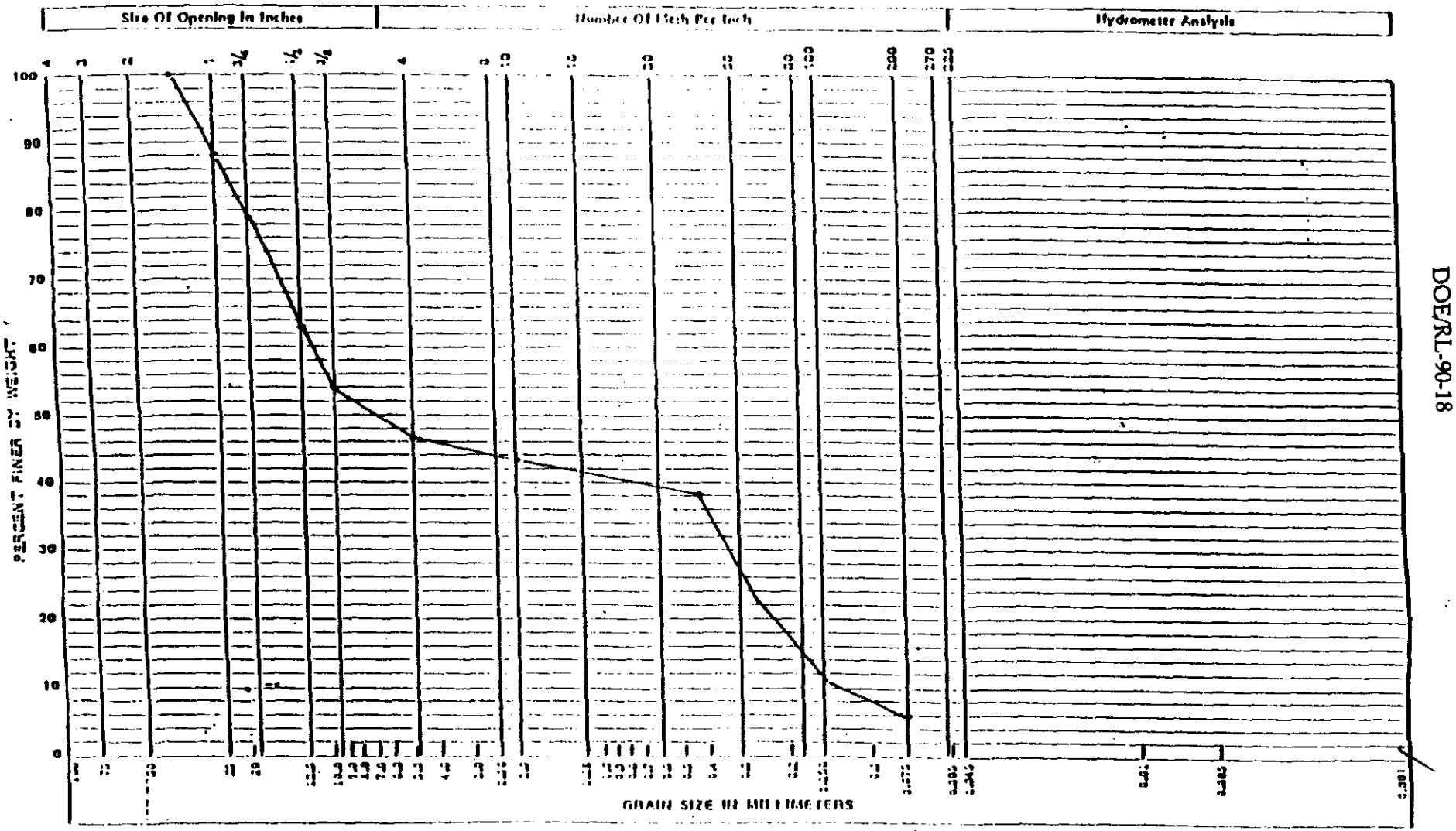
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-006 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: [illegible]

GRAIN SIZE ANALYSIS PLOT



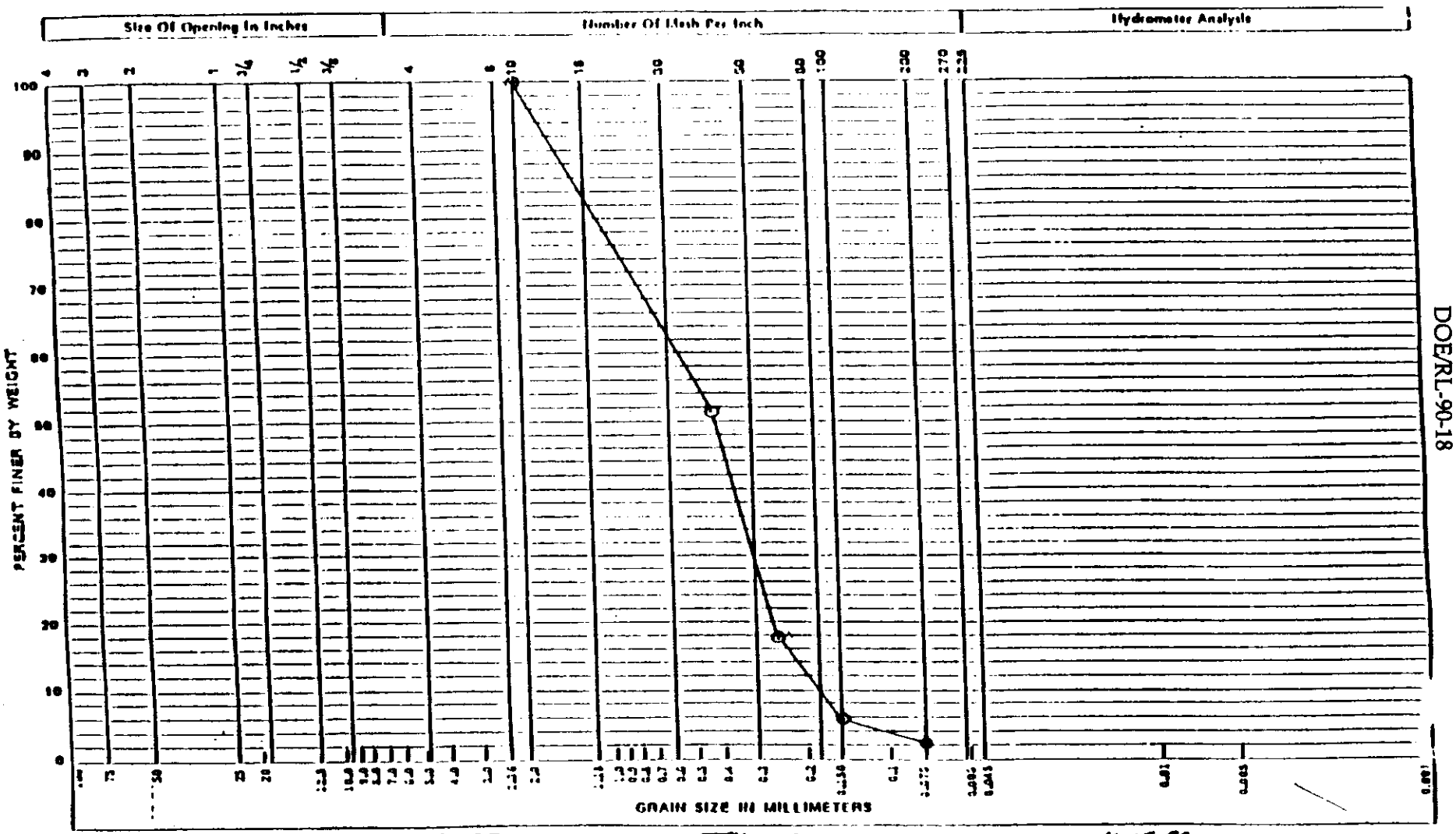
Specimen No. 0-007 Procedure No. ETAC-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-11-4

Plotted by: R.G. ALEXANDER Date: 1-17-90

Checked by: J. Relyea Date: 1-18-90

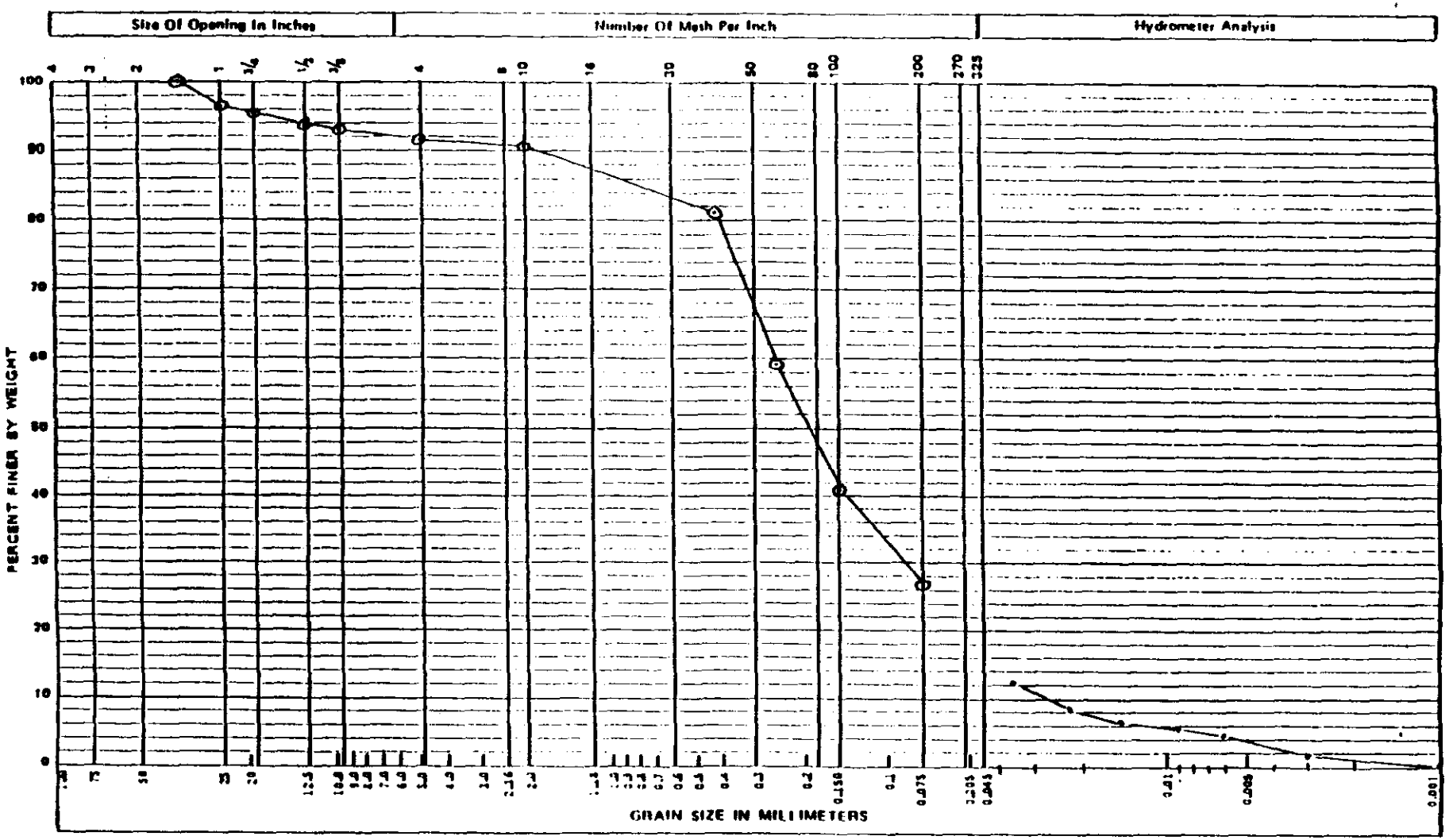
GRAIN SIZE ANALYSIS PLOT



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

Sample Description: Sandy Gravel | Plotted by: K.G. Alexander | Checked by: H L Benny

GRAIN SIZE ANALYSIS PLOT

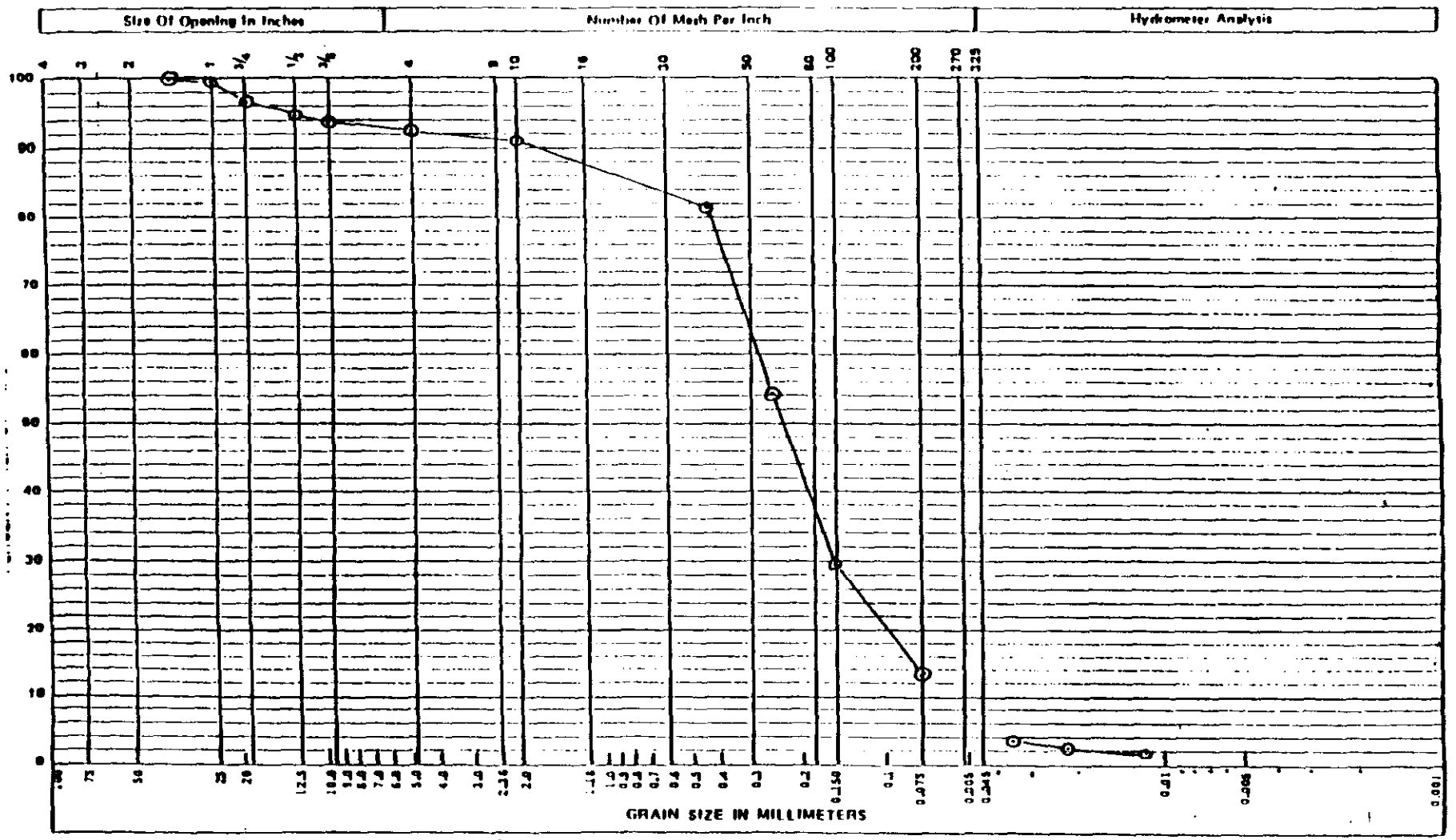


Specimen No 0-033 Procedure No ETAL-07 Rev 1 Date Issued 11-1589

Sample Description: SAND

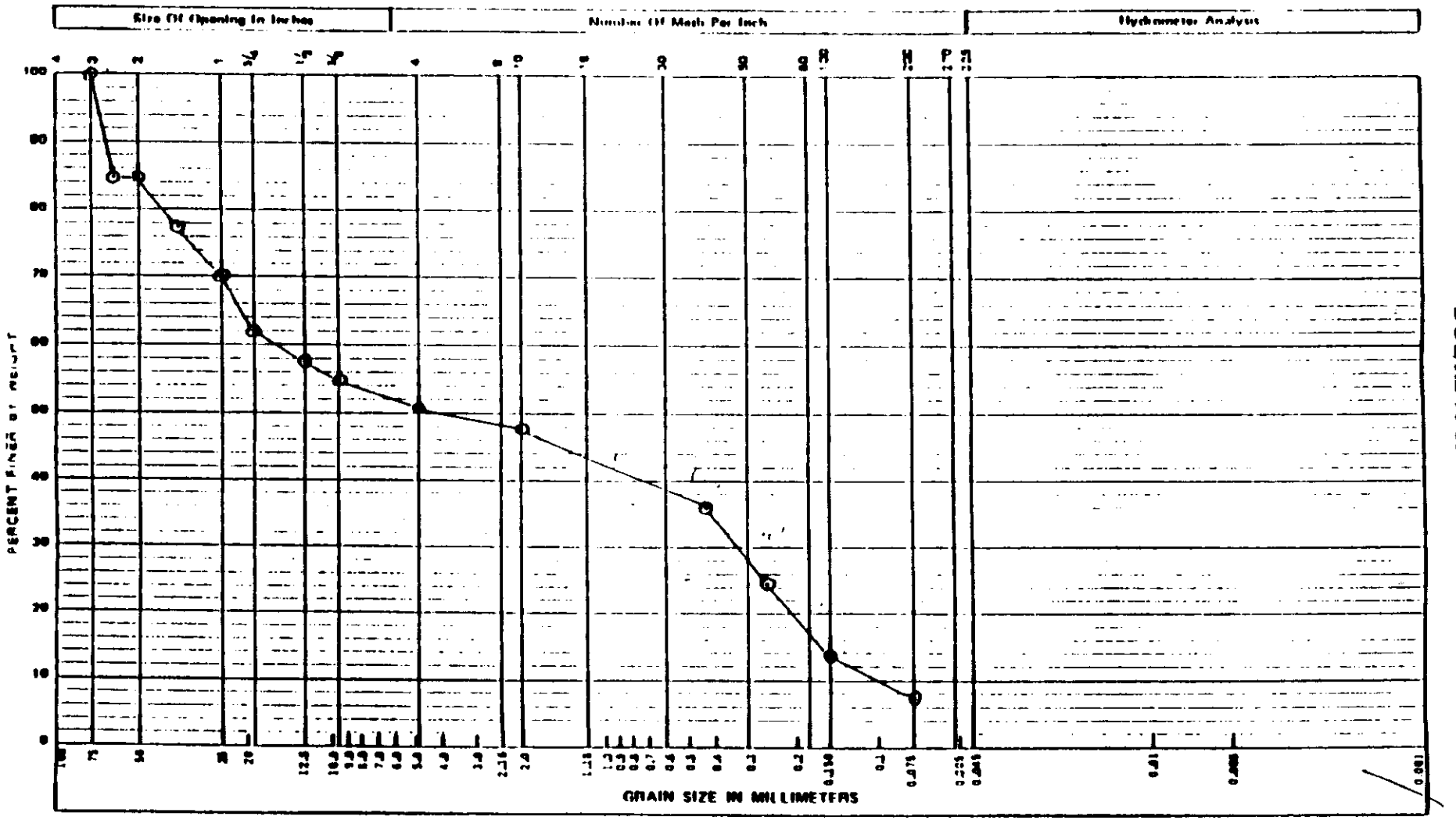
Plotted by: R.G ALEXANDER

GRAIN SIZE ANALYSIS PLOT



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

GRAIN SIZE ANALYSIS PLOT



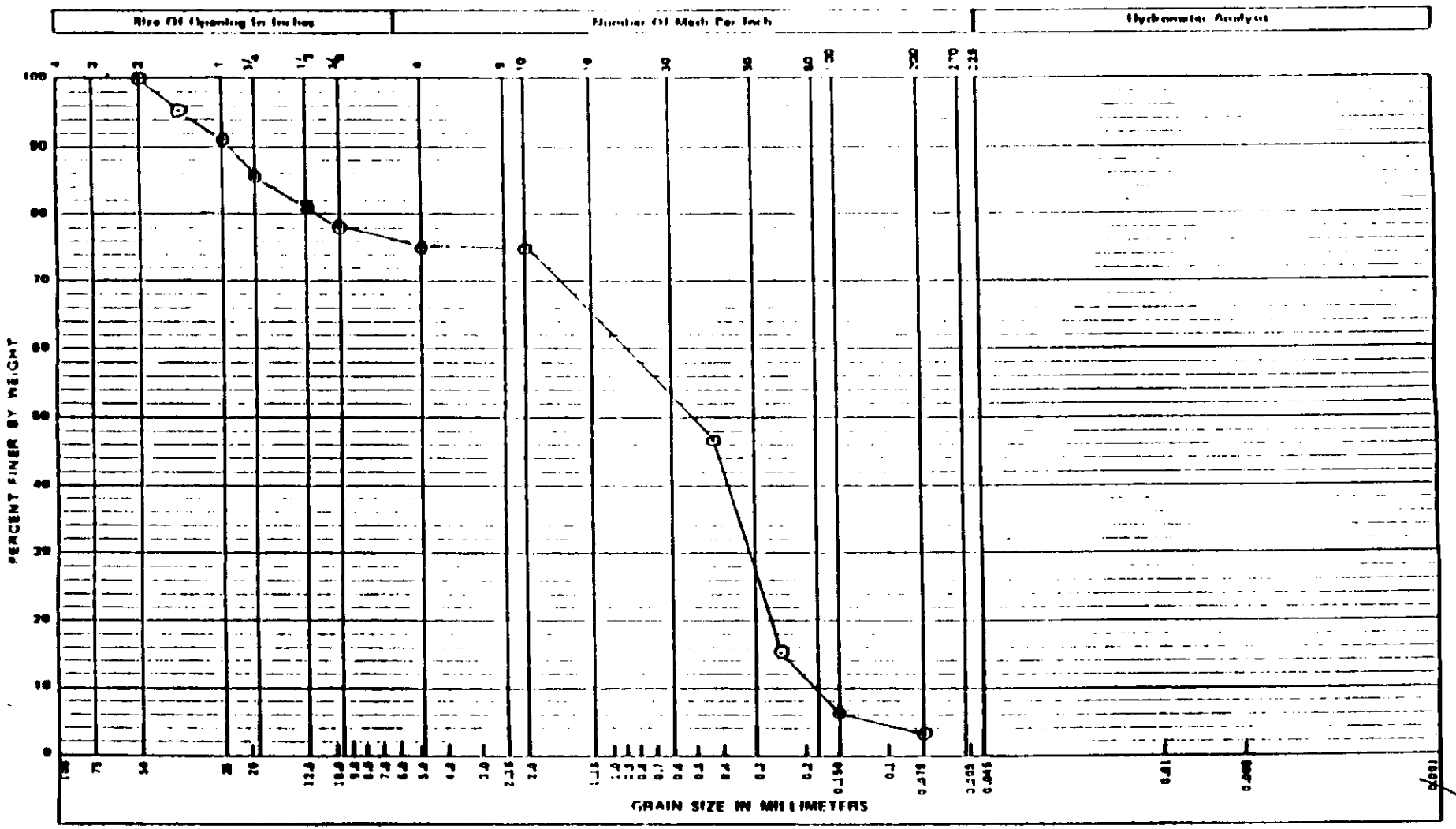
Specimen No D-035 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: Sandy Gravel MW-12-4

Plotted by: RG Alexander Date: 1-29-90

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

GRAIN SIZE ANALYSIS PLOT



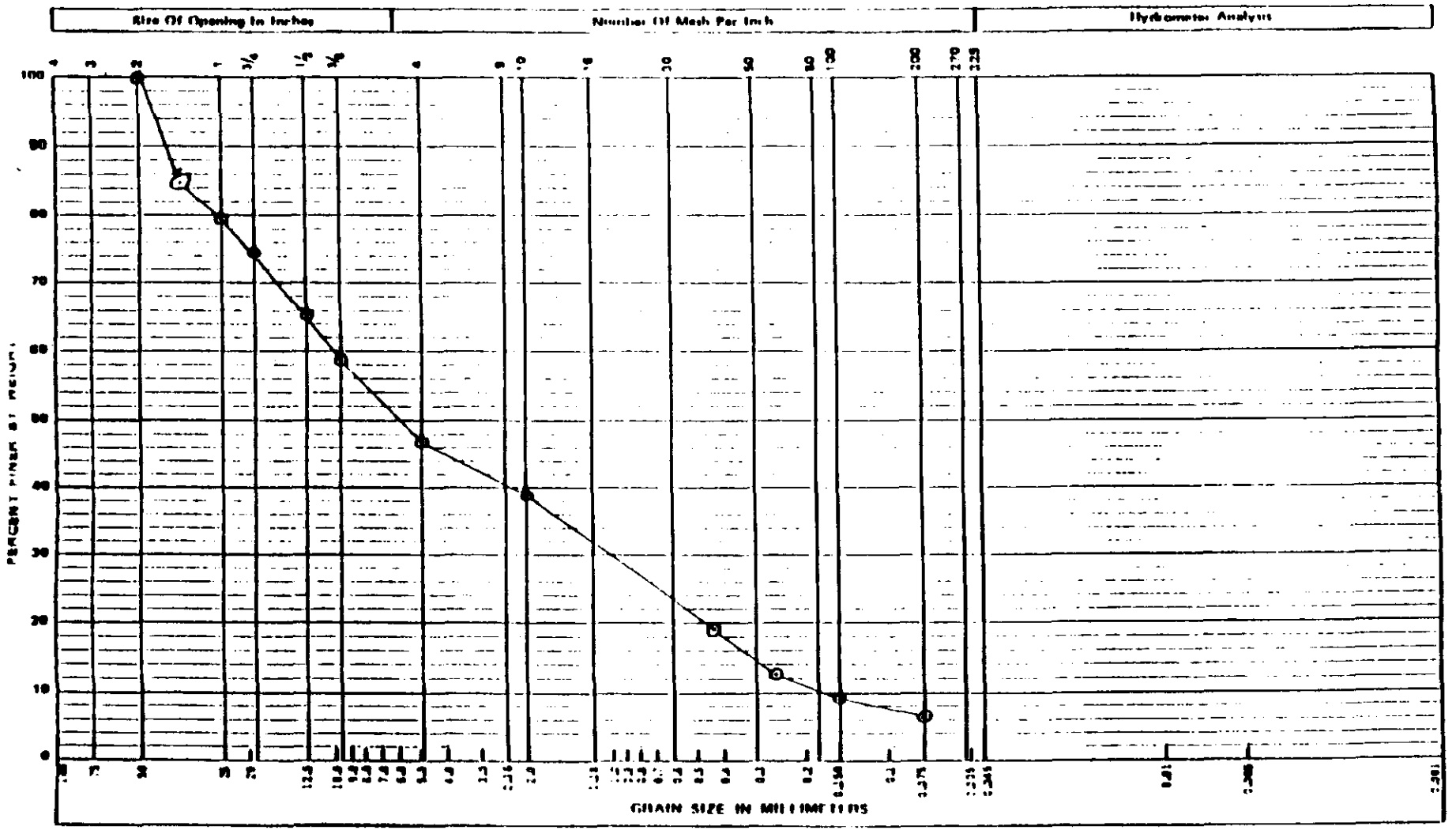
Specimen No 0-036 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

R.G. ALEXANDER

Checked by: HL Benn

GRAIN SIZE ANALYSIS PLOT



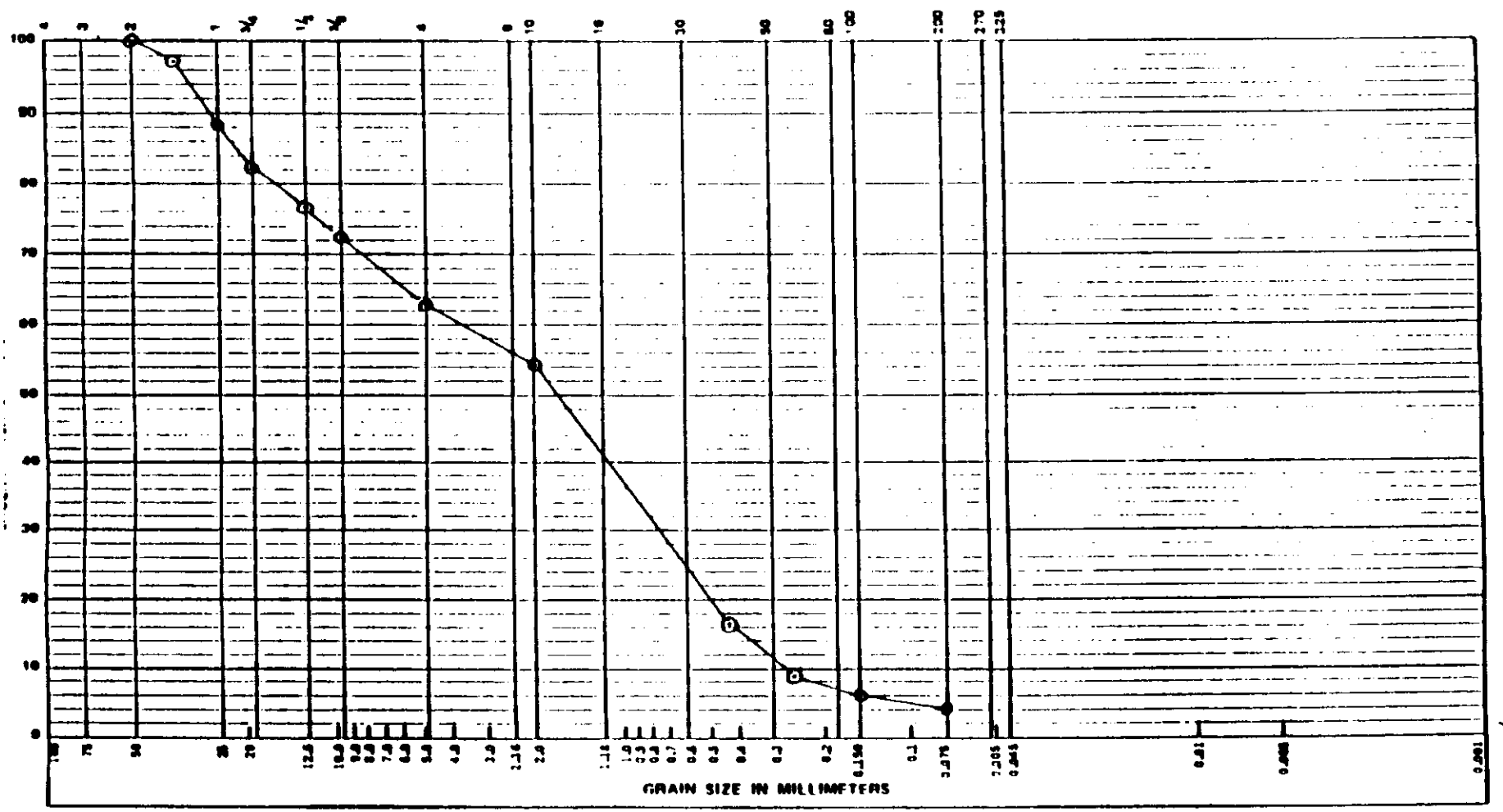
Specimen No O-031 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-12-6

Plotted by RG ALEXANDER Date 1-29-90

Checked by HL Benny Date 1-31-90

GRAIN SIZE ANALYSIS PLOT



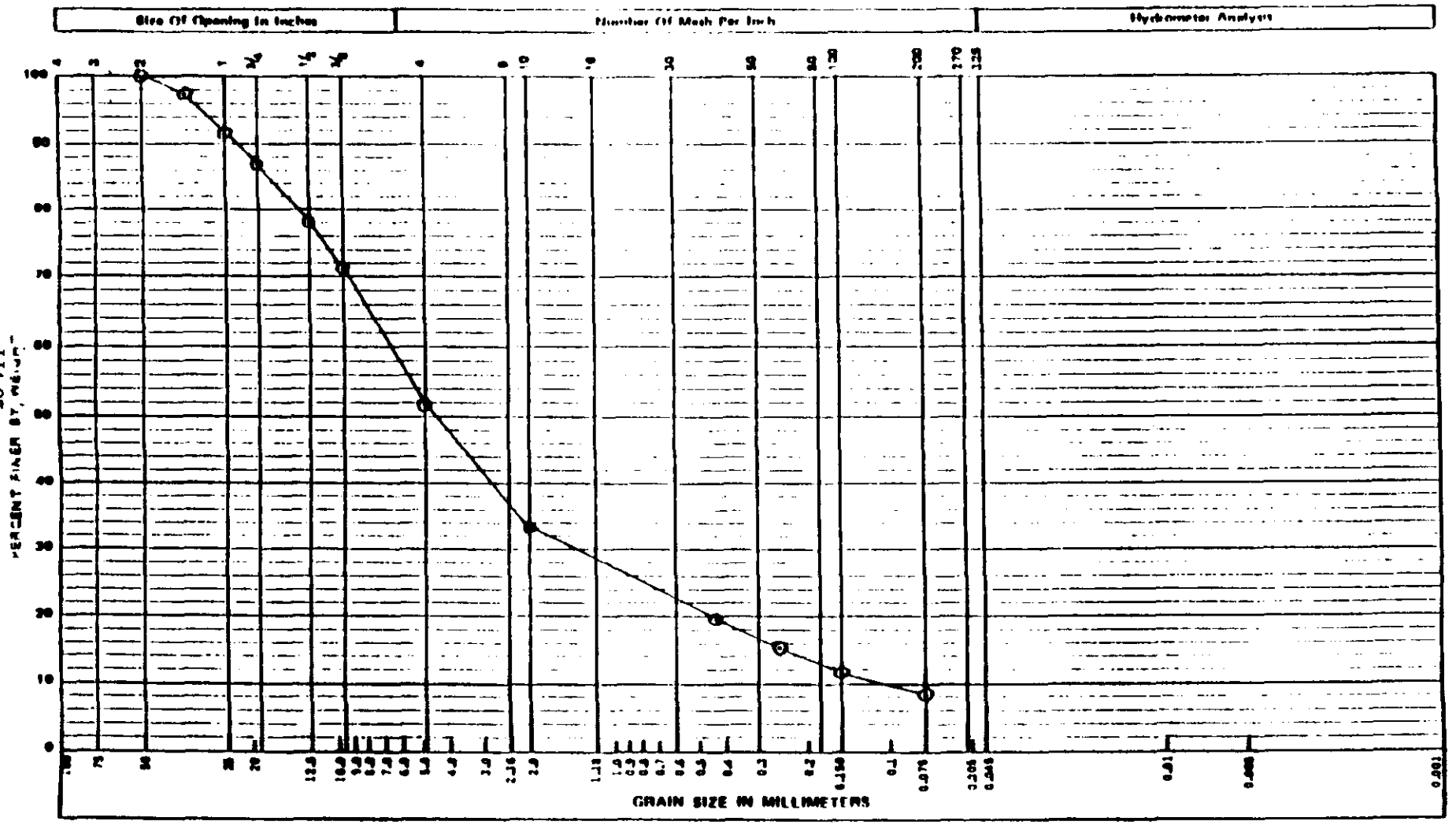
Specimen No 0-078 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

Plotted by R.G. ALEXANDER

Checked by HL Benny

GRAIN SIZE ANALYSIS PLOT



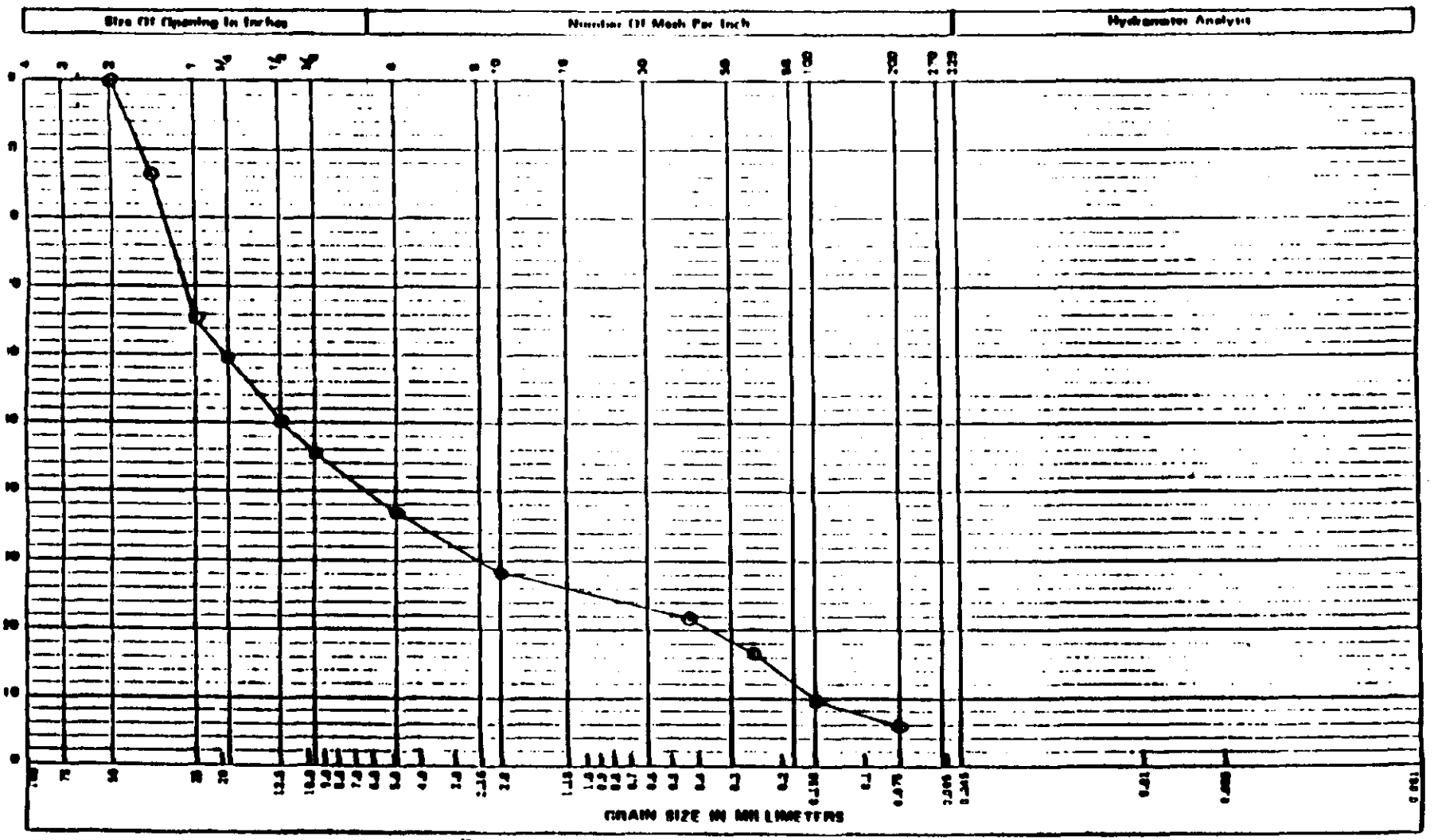
Specimen No D-039 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-12-8

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

Checked by HL Benny Date: 1-31-90

GRAIN SIZE ANALYSIS PLOT

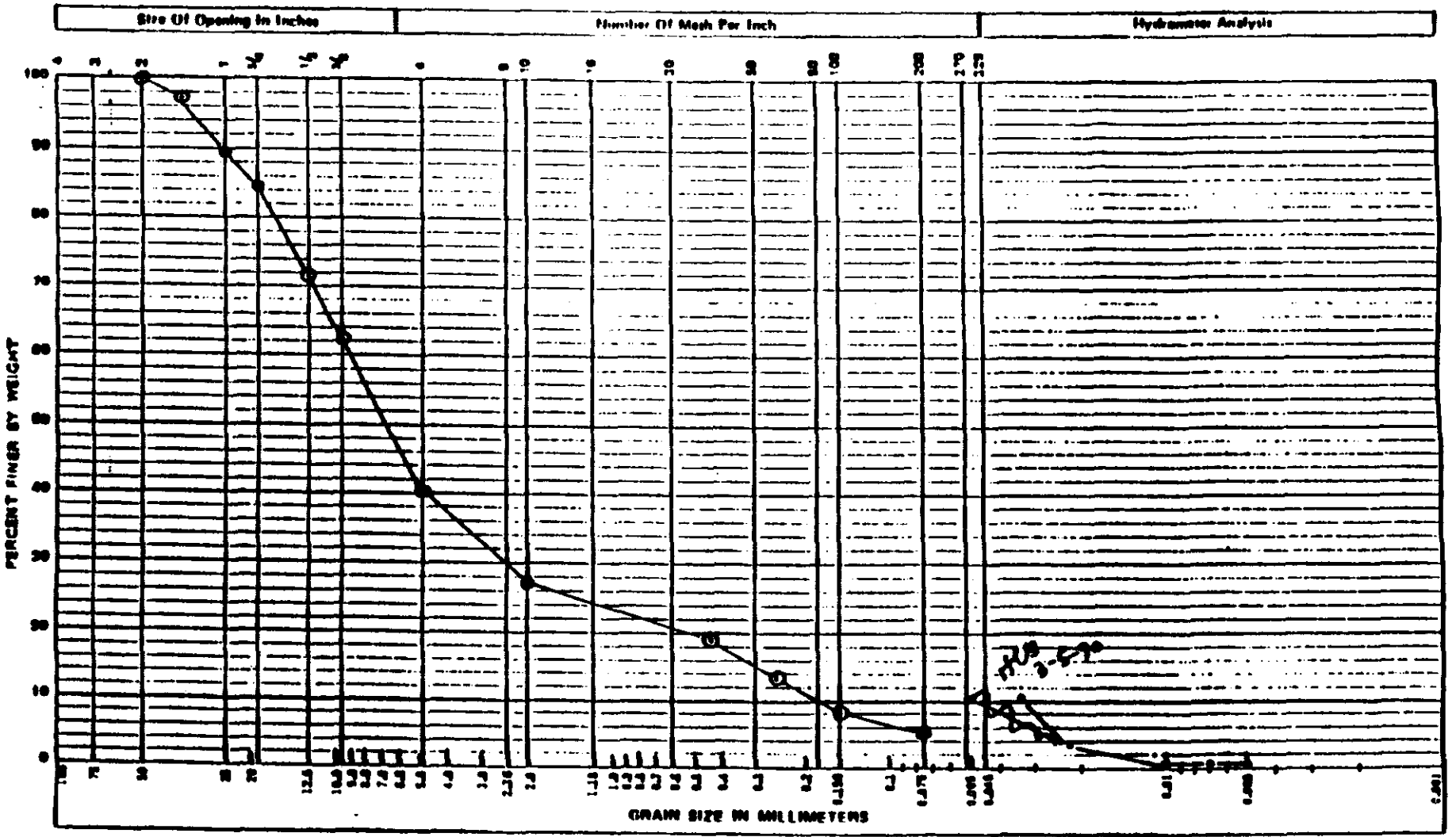


Specimen No. 0-040 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

Plotted by R.G. ALEXANDER Checked by:

GRAIN SIZE ANALYSIS PLOT



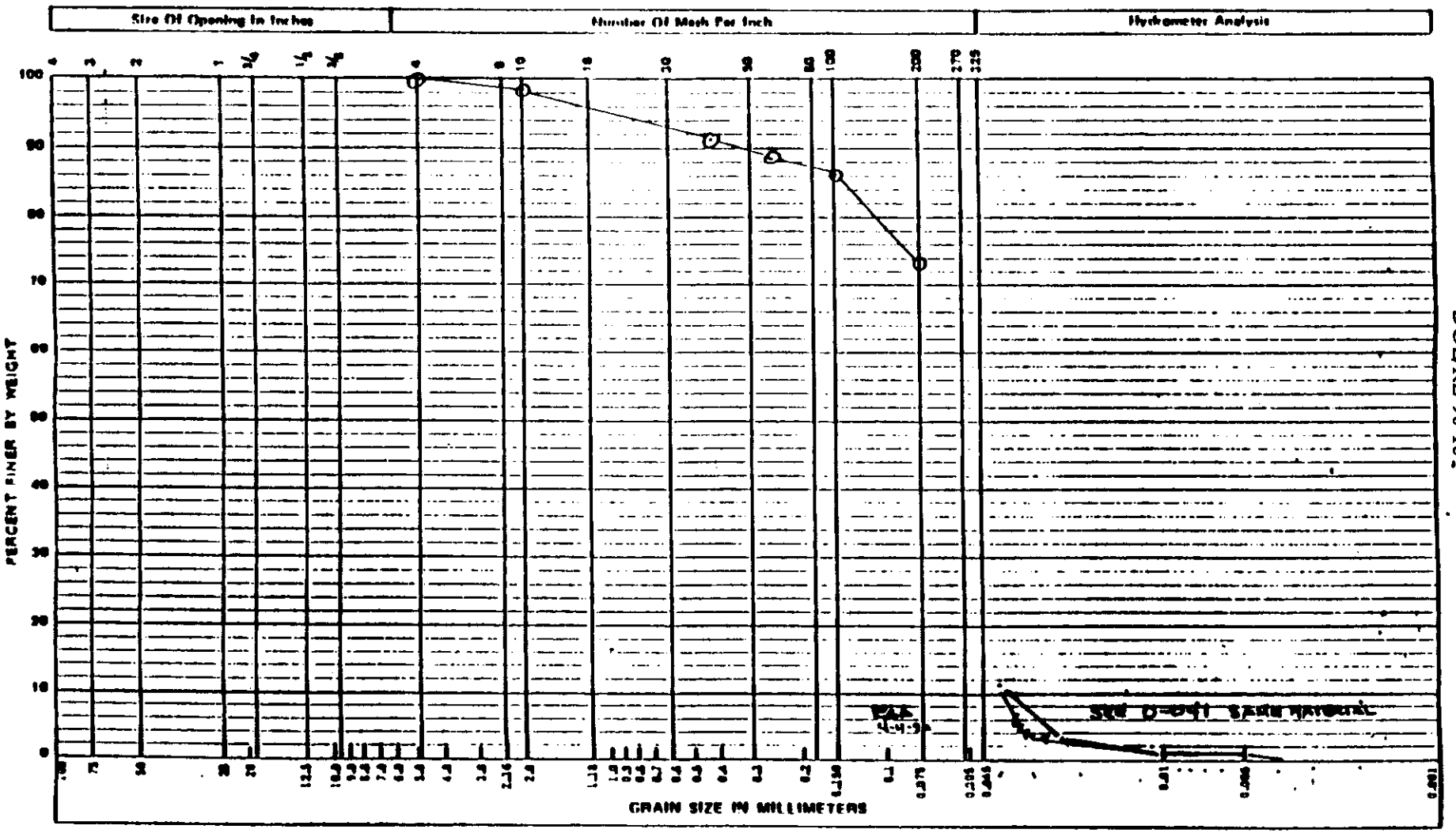
Specimen No 0-041 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-12-10

Planted by: R.G ALEXANDER Date: 1-31-90

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

GRAIN SIZE ANALYSIS PLOT



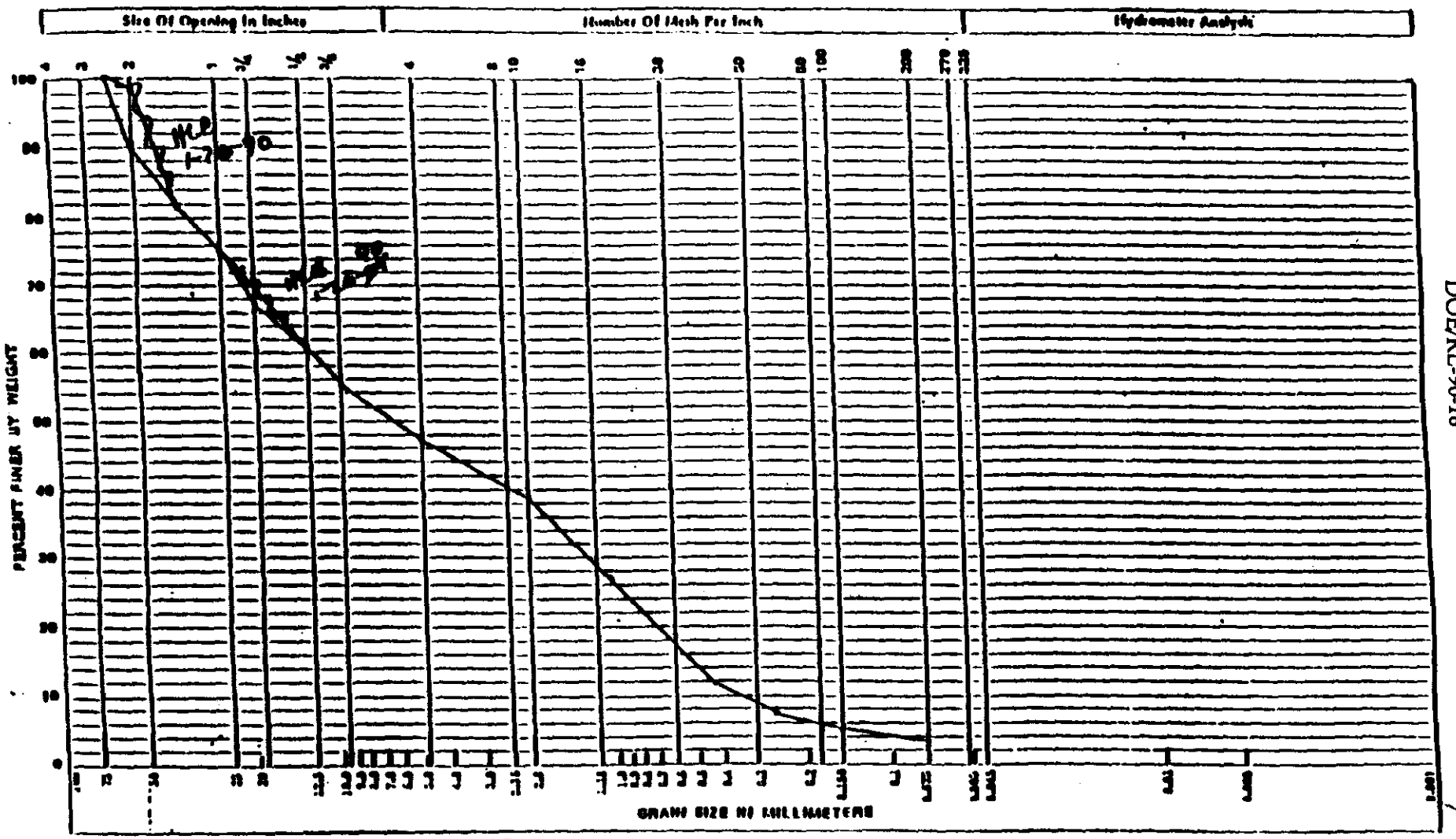
Specimen No 0-042 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SICT MW-12-11

Plotted by: RG ALEXANDER

Checked by: HL BENNY

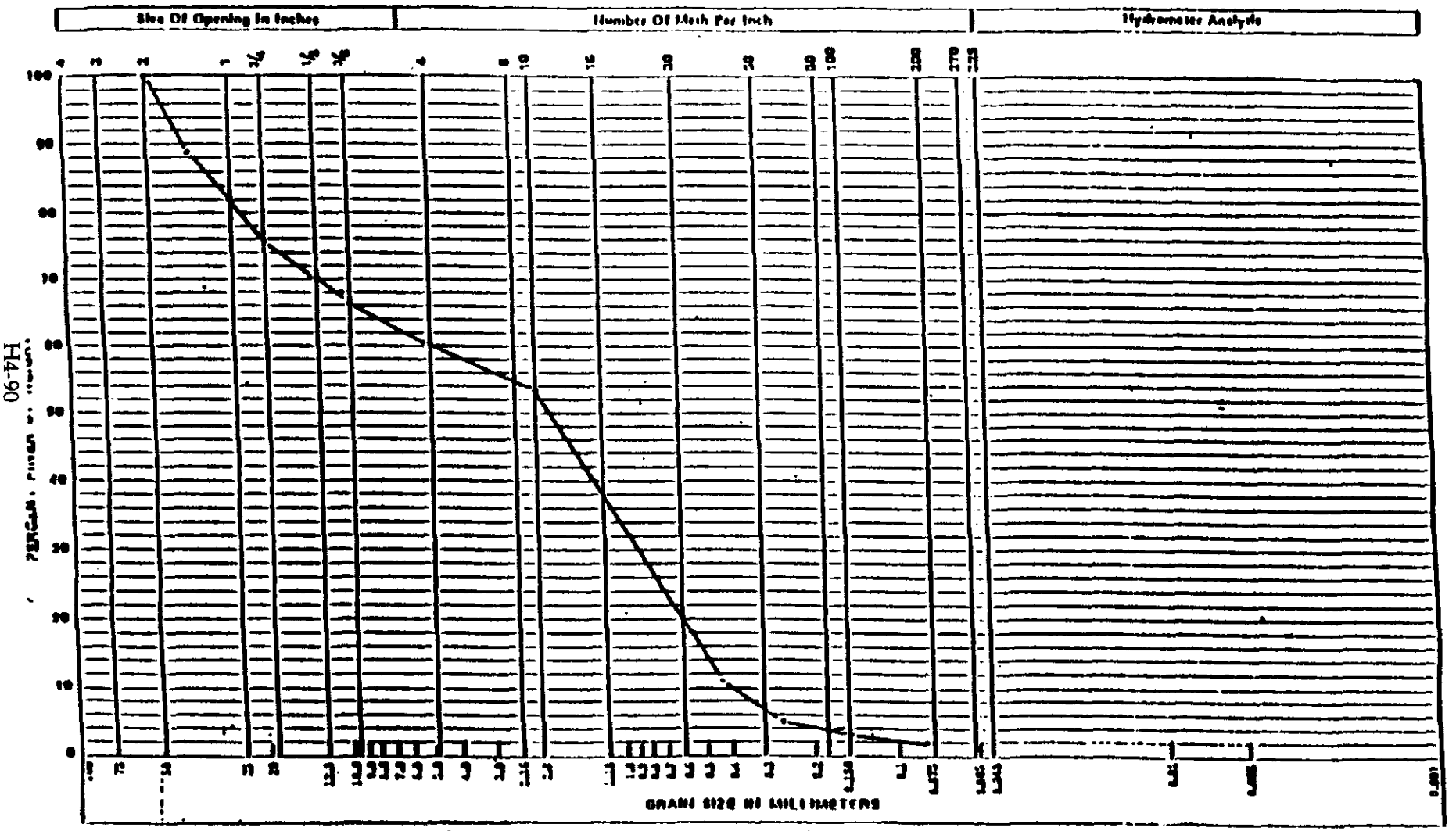
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-019 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-13-1	Plotted by: R.G. ALEXANDER Date: 1-28-90	Checked by: HL Berry Date: 1-26-1990

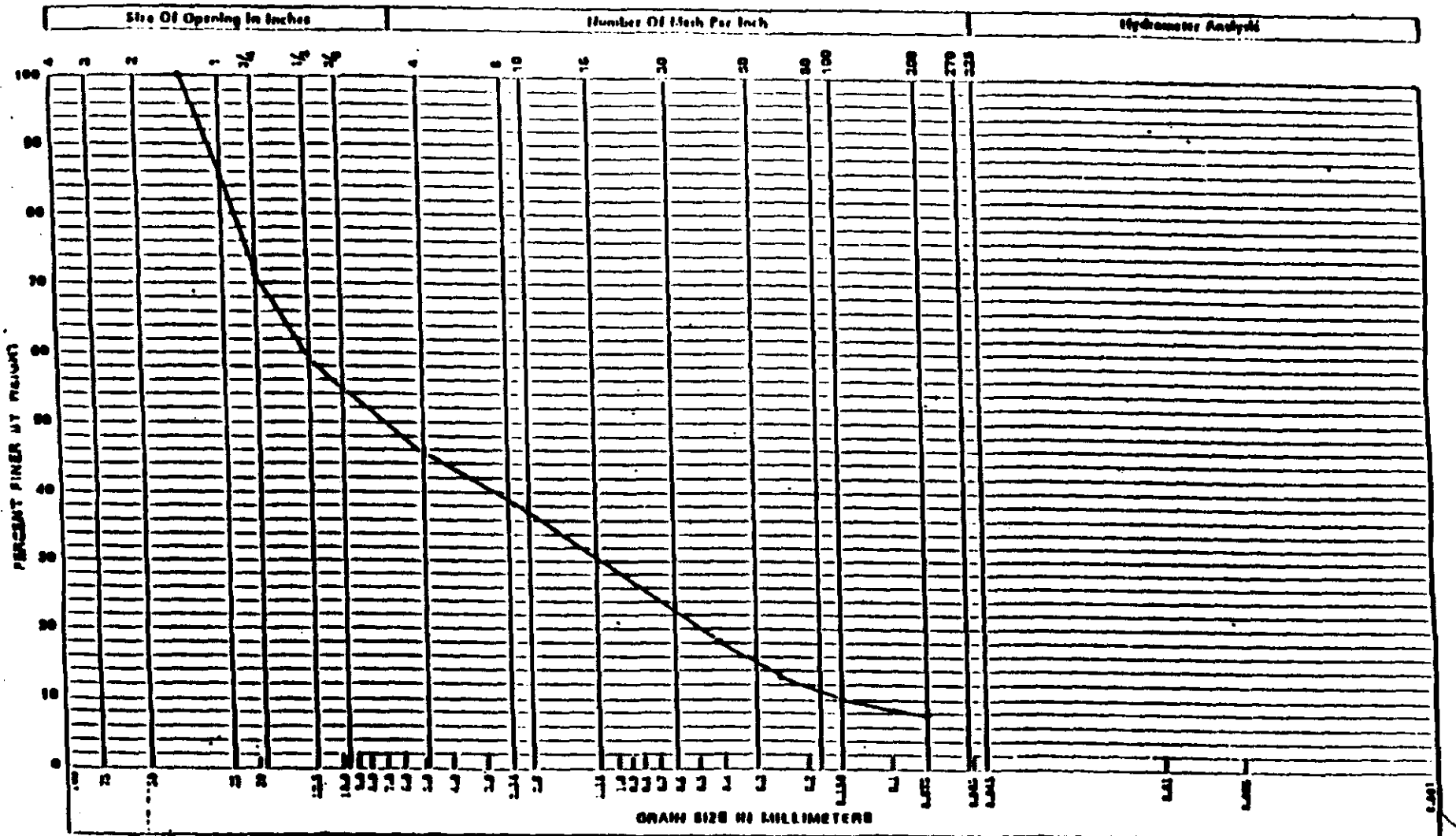
GRAIN SIZE ANALYSIS PLOT



Specimen No. O-020 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL | Plotted by: R.G. ALEXANDER | Checked by: HL B...

GRAIN SIZE ANALYSIS PLOT



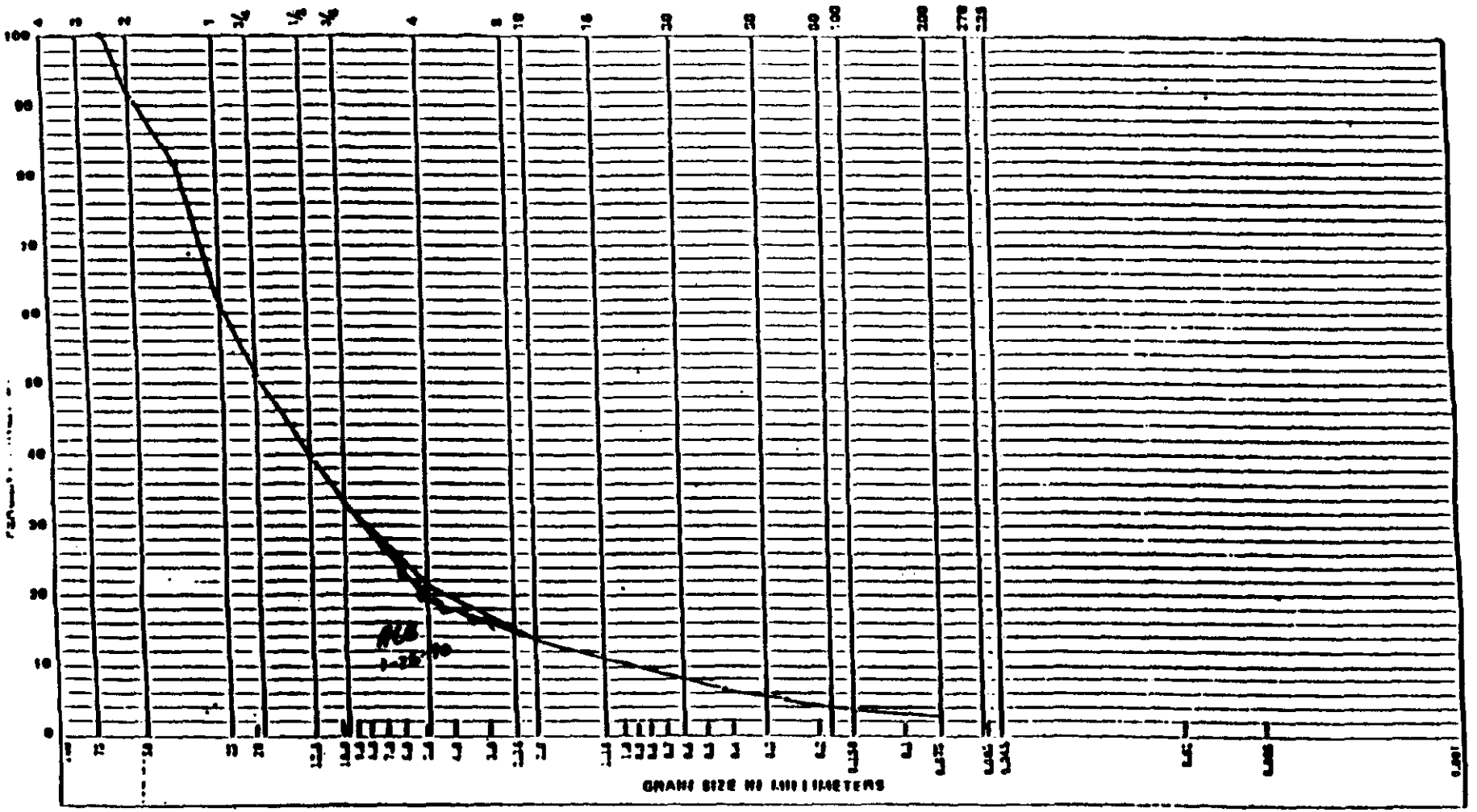
Specimen No. D-021 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-13-3

Plotted by: R.G. ALEXANDER Date: 1-23-90

Checked by: H.L. Beang Date: 1-26-90

GRAIN SIZE ANALYSIS PLOT



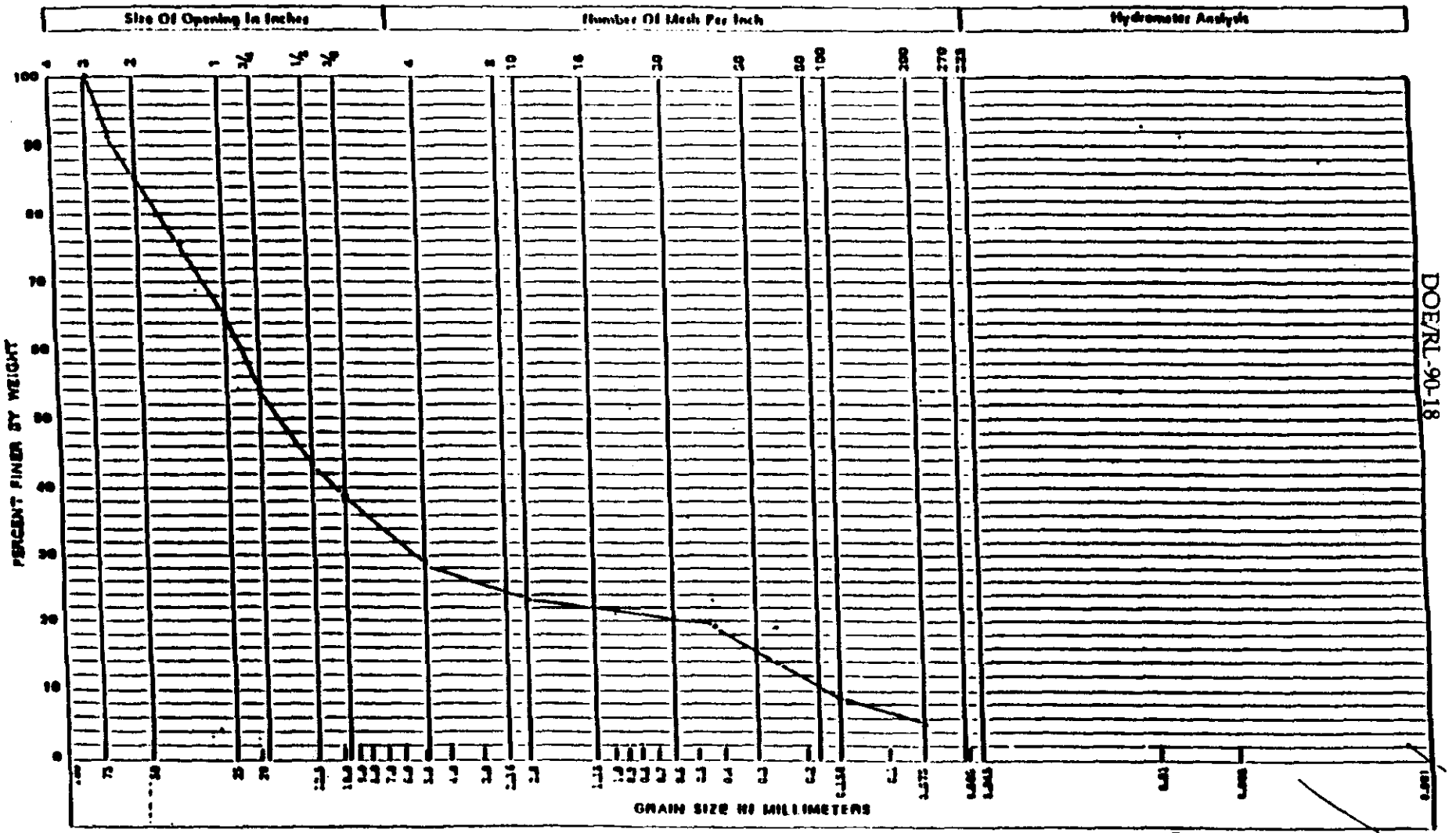
Specimen No. D-022 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

Plotted by: R.G. ALEXANDER

Checked by: HL Benn...

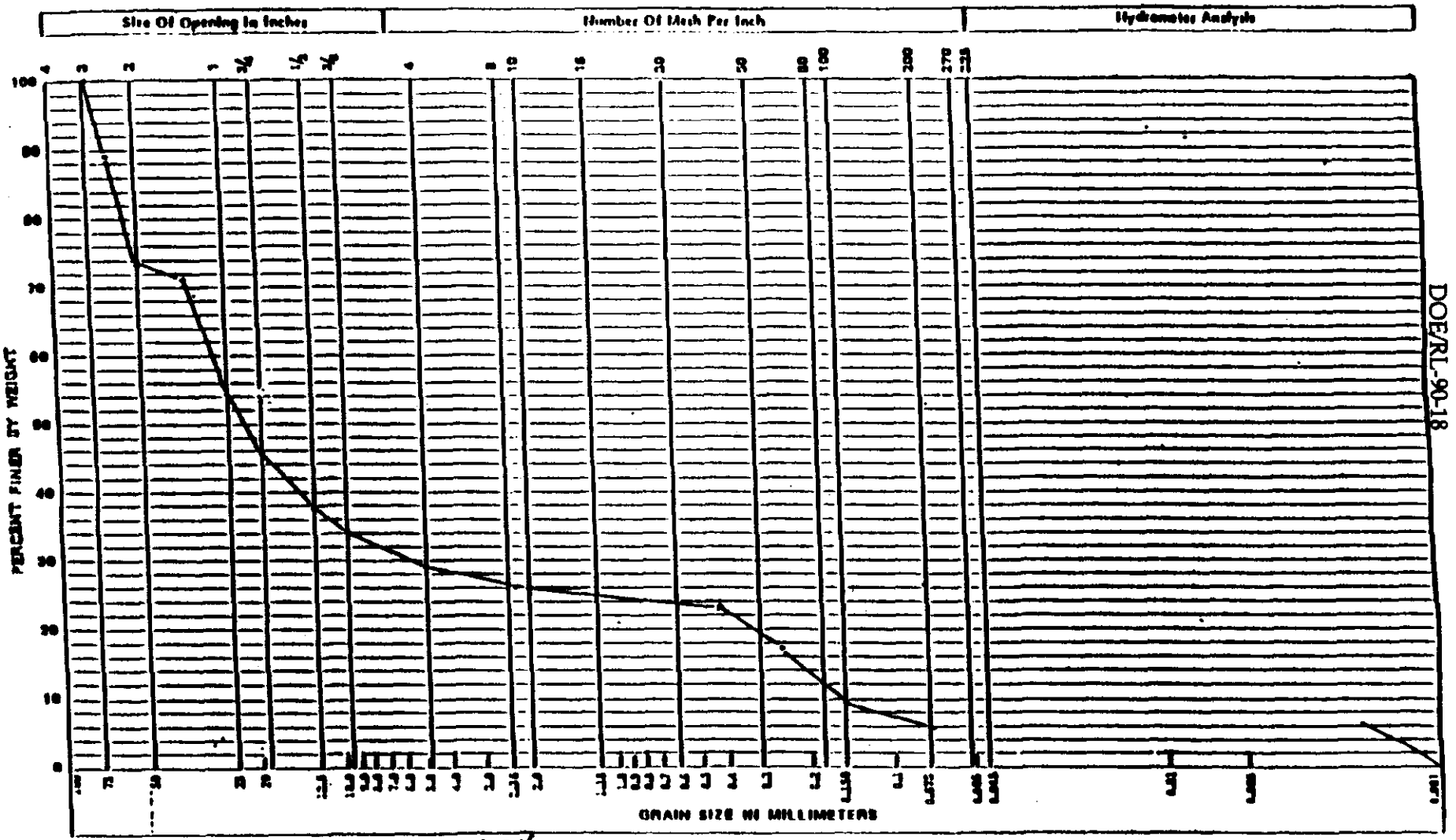
GRAIN SIZE ANALYSIS PLOT



Specimen No. O-023 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-13-5	Plotted by: R.G. ALEXANDER Date: 1-23-90	Checked by: H.L. Benny Date: 1-29-90

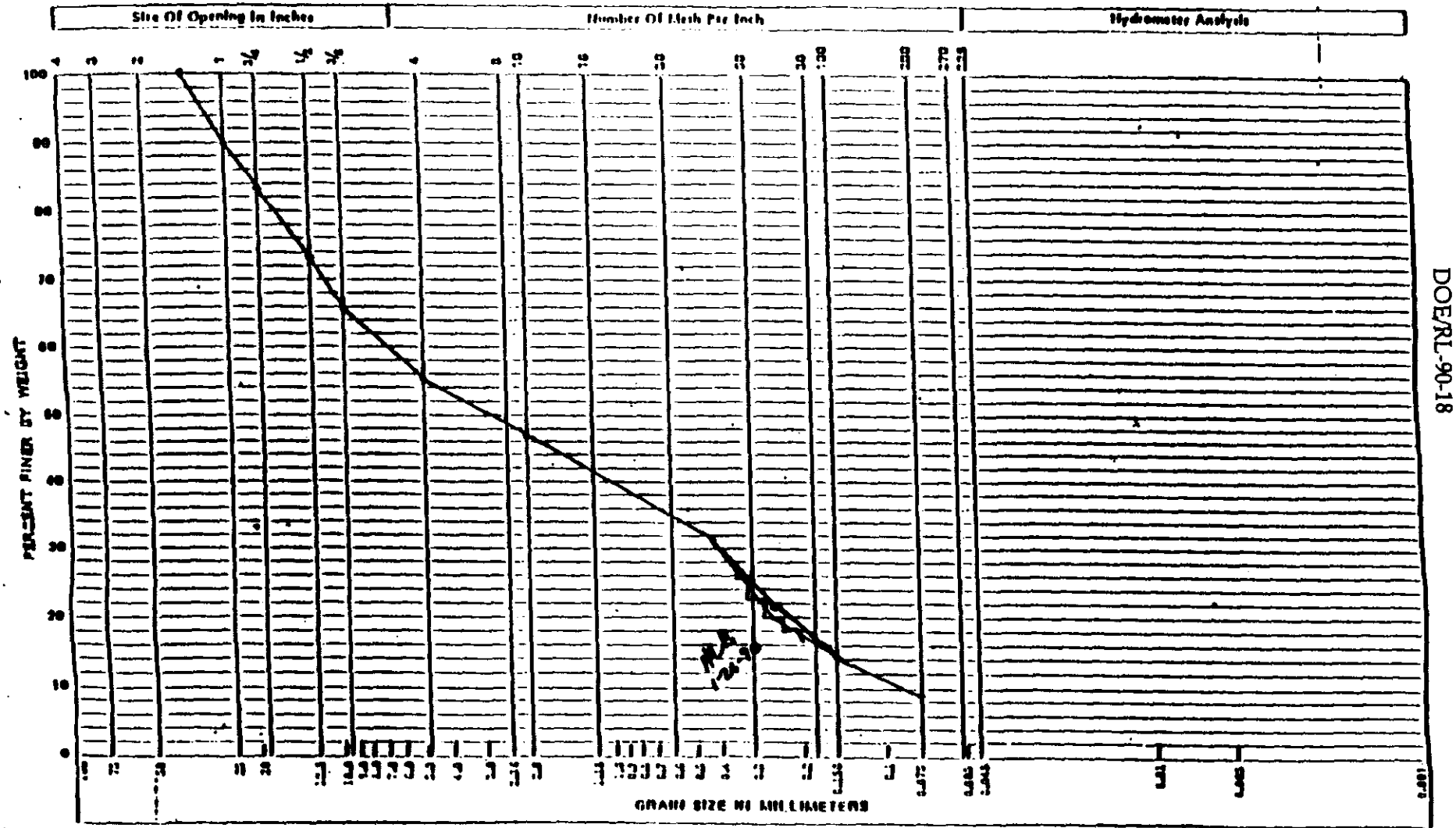
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-024 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

GRAIN SIZE ANALYSIS PLOT

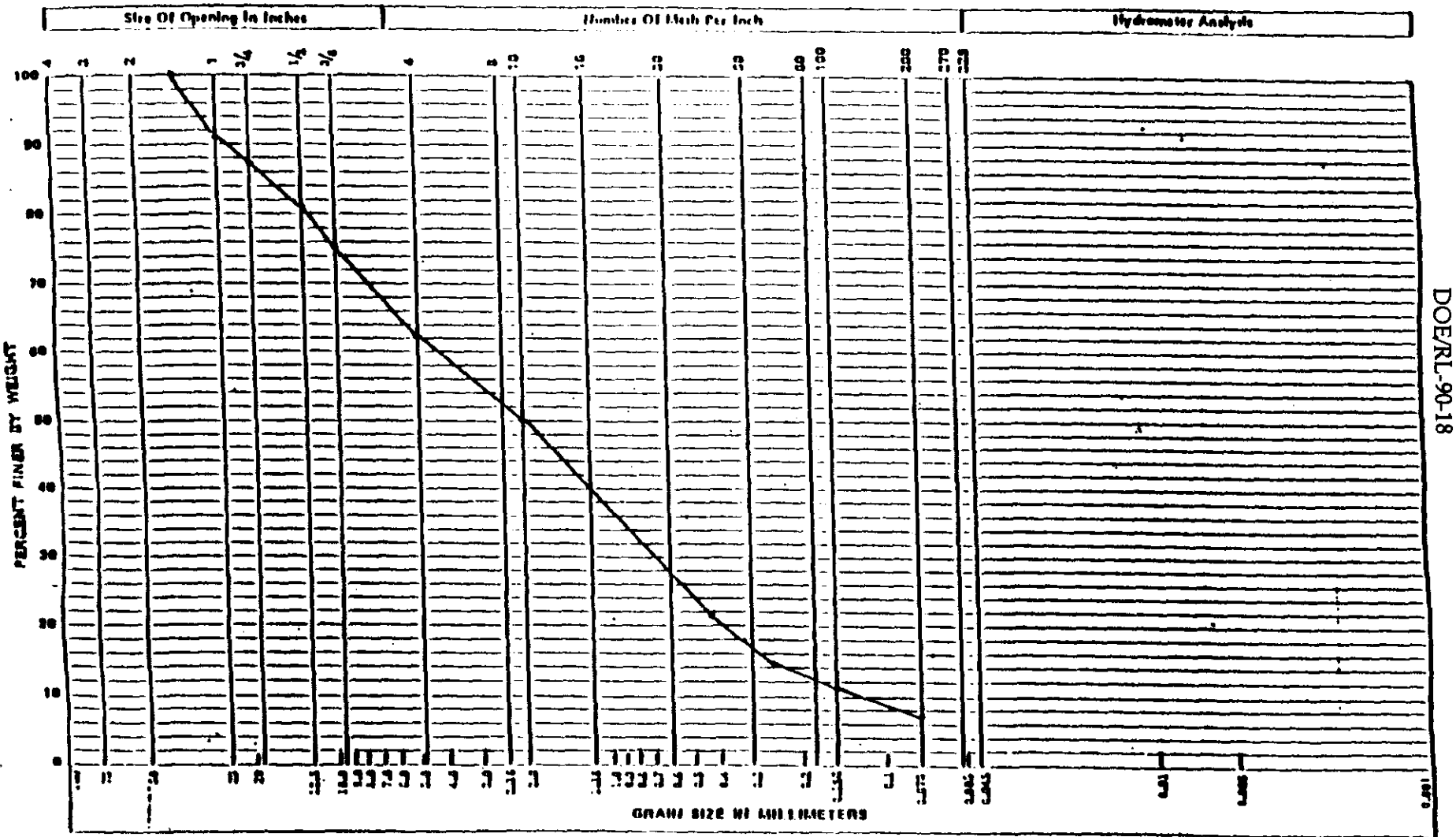


Specimen No. 0-008 Procedure No. ETM-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-14-1	Plotted by: R.G. ALEXANDER Date: 1-22-90	Checked by: HL Beary Date: 1-26-90

9 1 1 1 3 8 5 1 3 9 3

GRAIN SIZE ANALYSIS PLOT



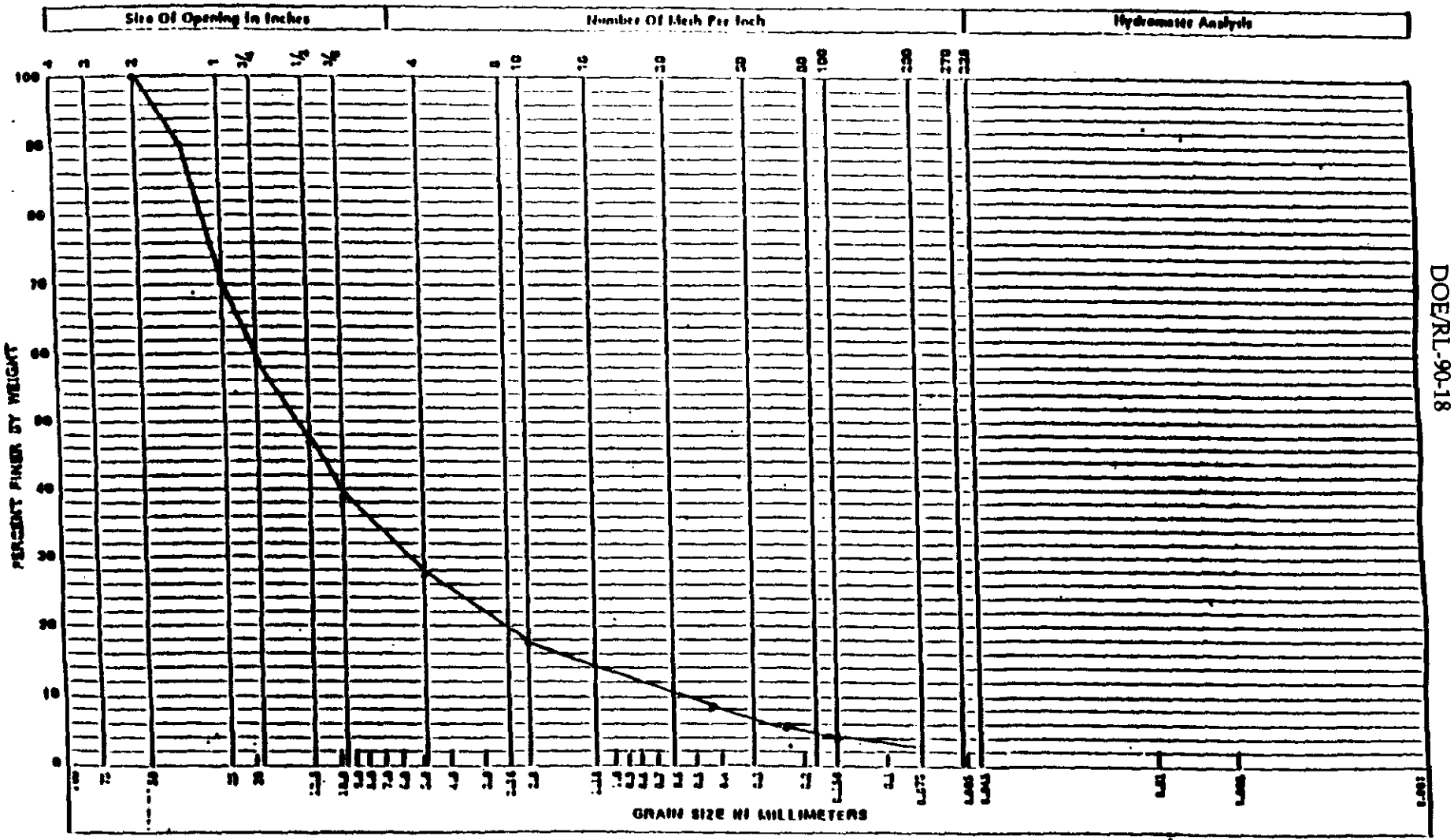
Specimen No. 0-009 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-14-7

Plotted by: R.S. ALEXANDER

Checked by: HL R...

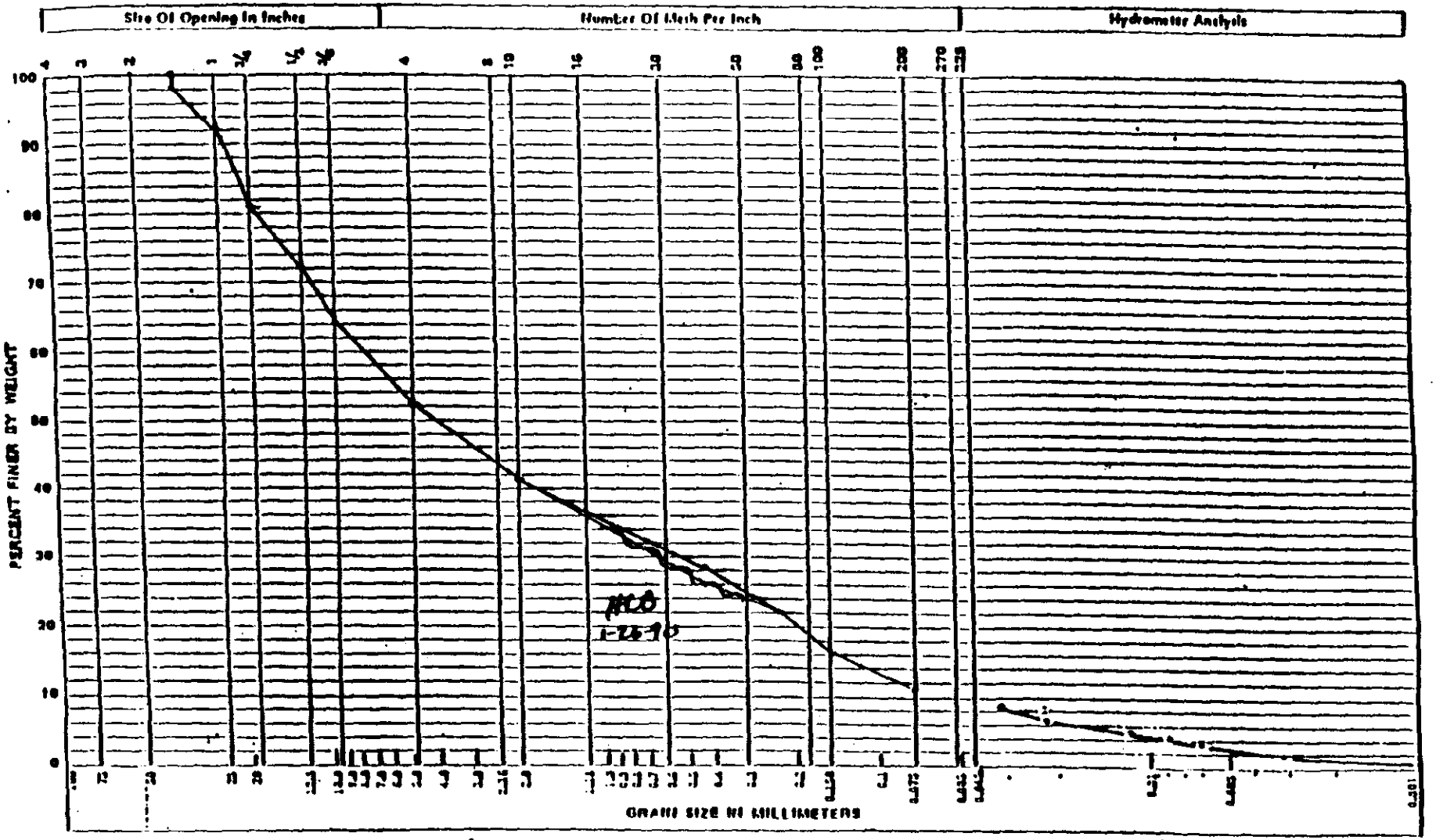
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-010 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: Sandy Gravel MW-14-3	Plotted by: JR Payne Date: 1-22-90	Checked by: HC Benna Date: 1-22-90

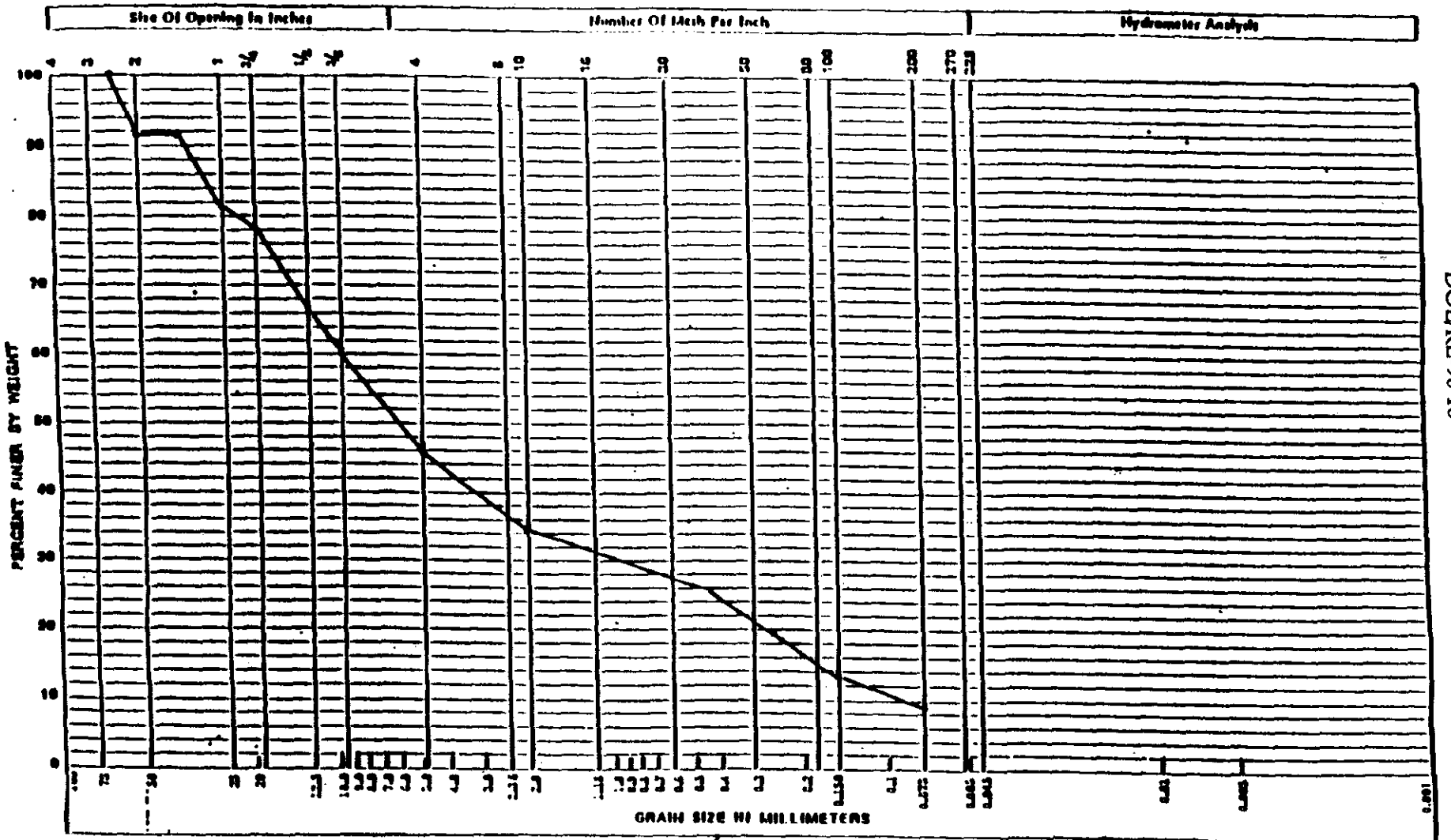
GRAIN SIZE ANALYSIS PLOT



Specimen No. D-011 Procedure No. ETRL-07 Rev. 1 Date Issued 11-15-89

Sample Description:

GRAIN SIZE ANALYSIS PLOT



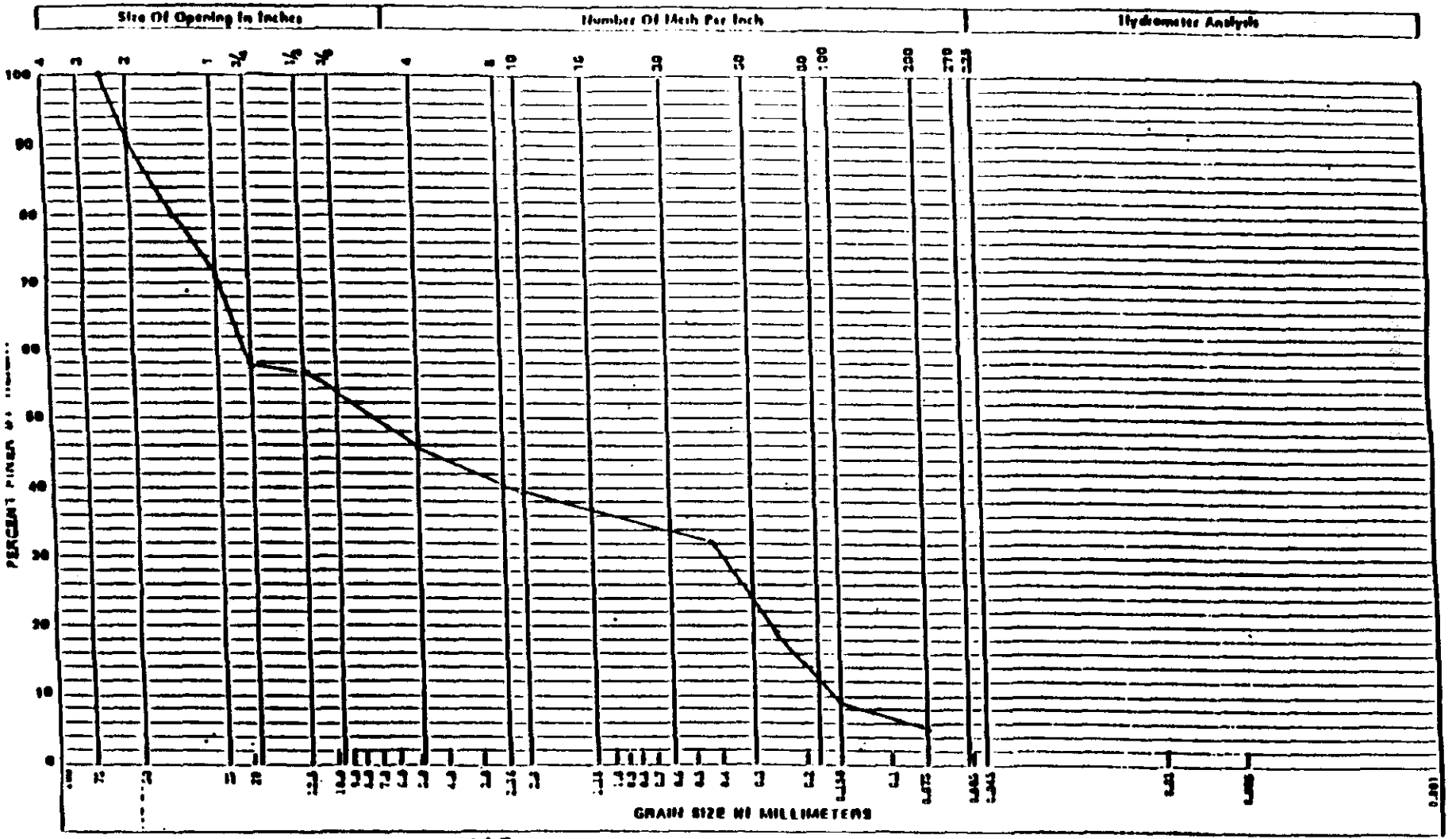
Specimen No. 0-012 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-14-5

Plotted by: R.G. ALEXANDER Date: 1-22-90

Checked by: HL Beam Date: 1-26-90

GRAIN SIZE ANALYSIS PLOT

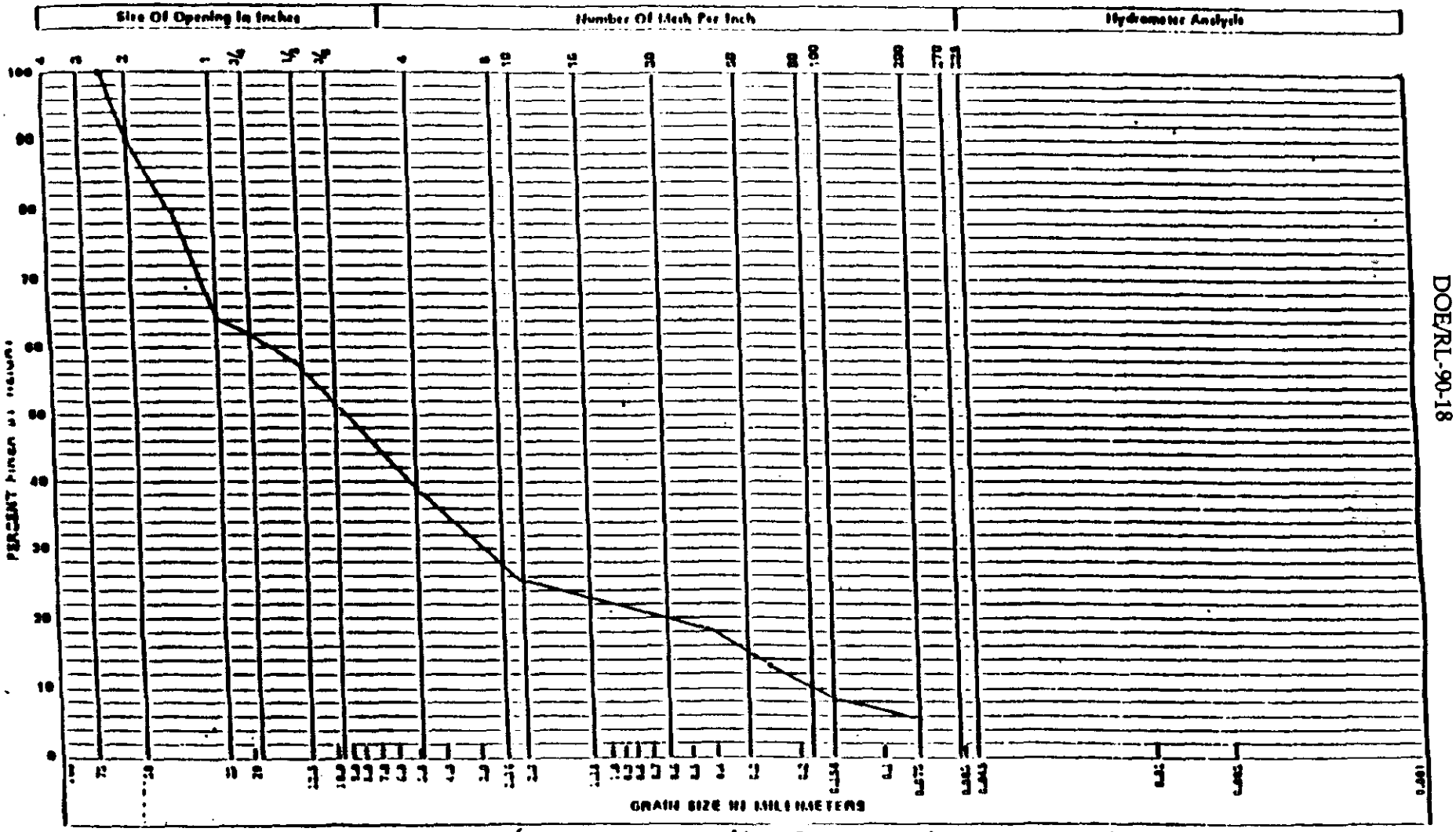


Specimen No. 0-013 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

Plotted by: RG Alexander Checked by: HL Benny

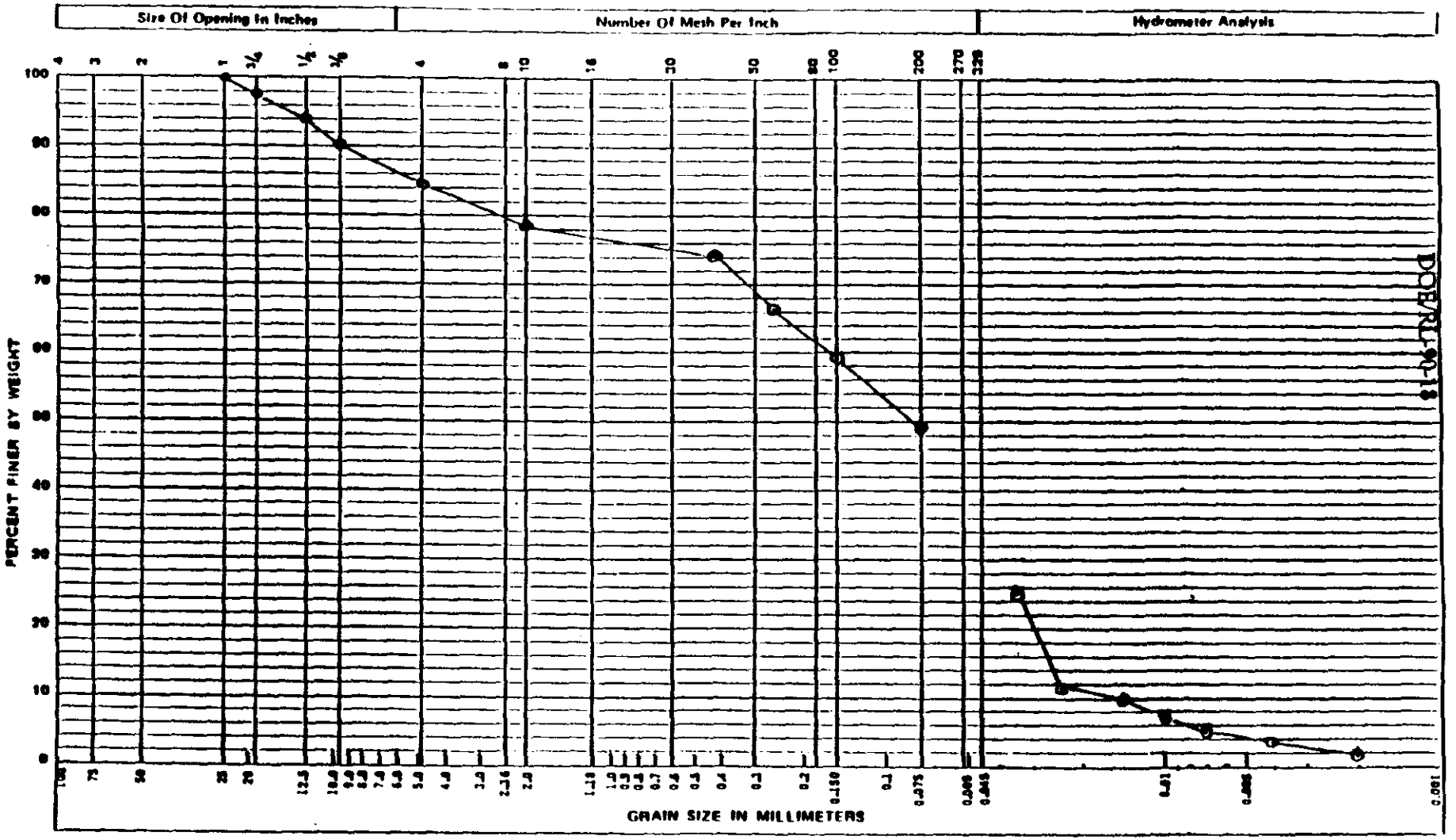
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-014 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-90

Sample Description: SANDY GRAVEL MW-14-7	Plotted by: R.G ALEXANDER Date: 1-22-90	Checked by: HL BENNY Date: 1-26-90

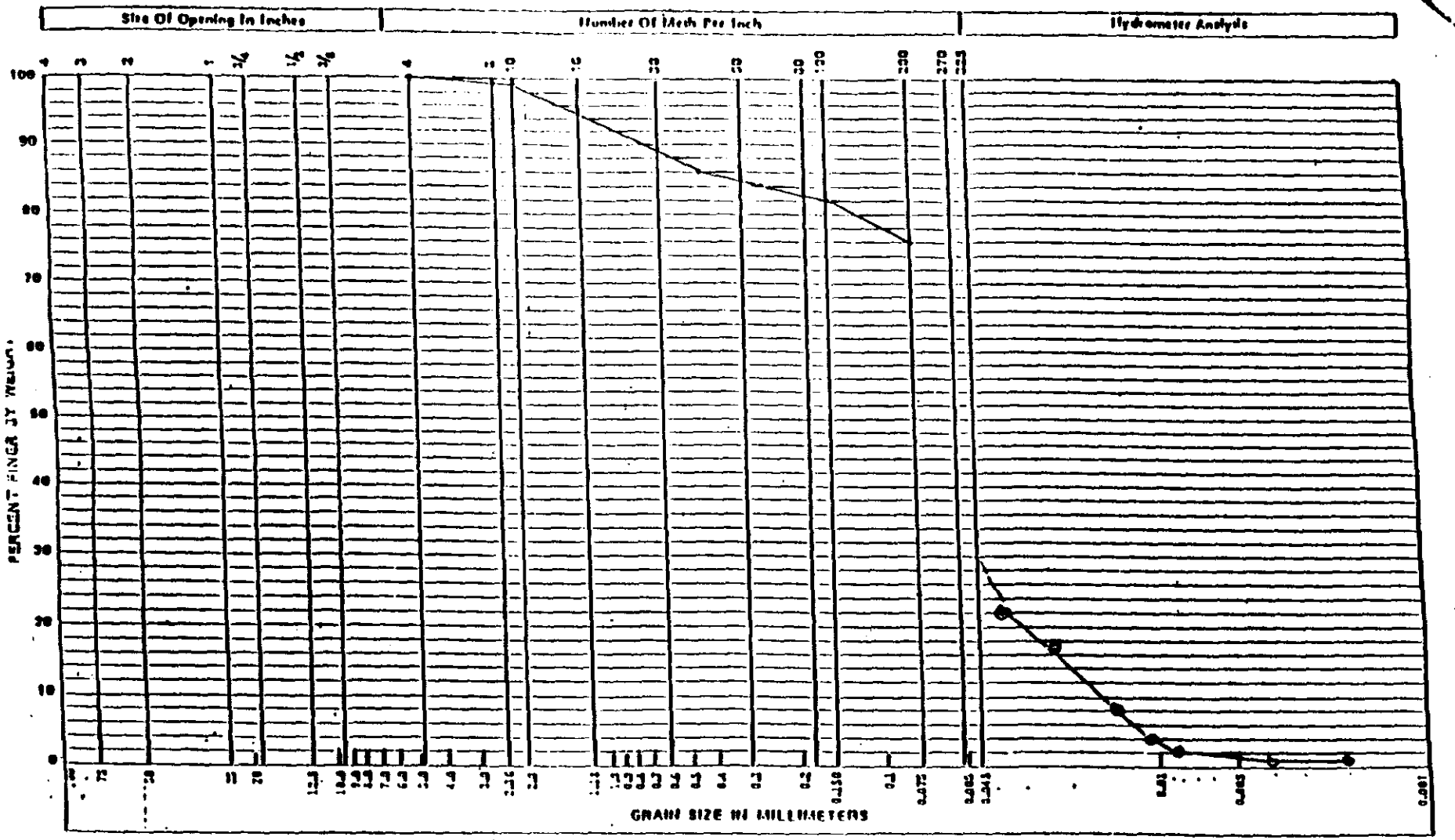
GRAIN SIZE ANALYSIS PLOT



Specimen No 0-016 Procedure No ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description:

GRAIN SIZE ANALYSIS PLOT

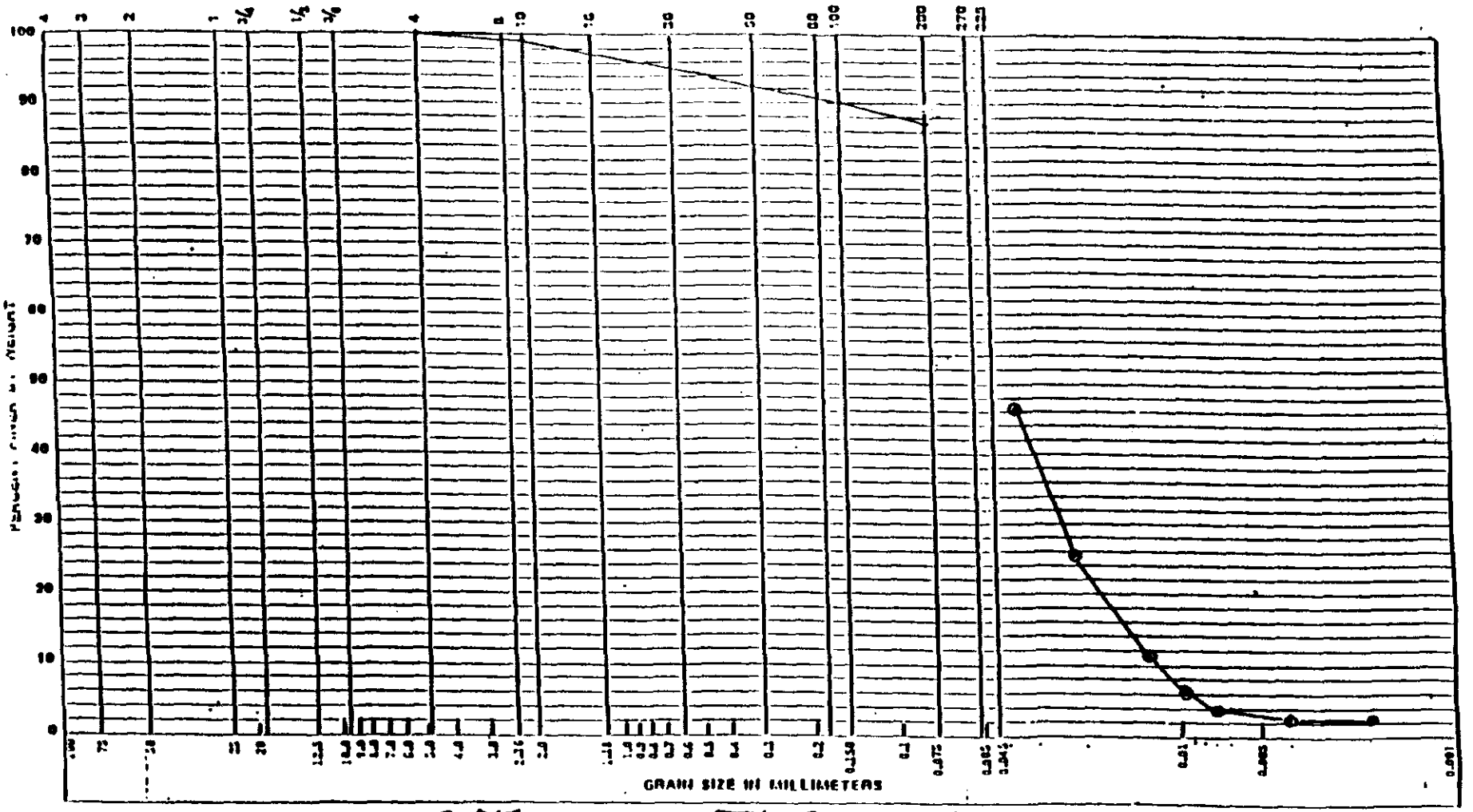


Specimen No. 0-016 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: Silty-Sand MW-14-9	Plotted by: R.G. Alexander Date: 1-23-90	Checked by: HL Benny Date: 1-26-90 4/12/90

H4-103

GRAIN SIZE ANALYSIS PLOT



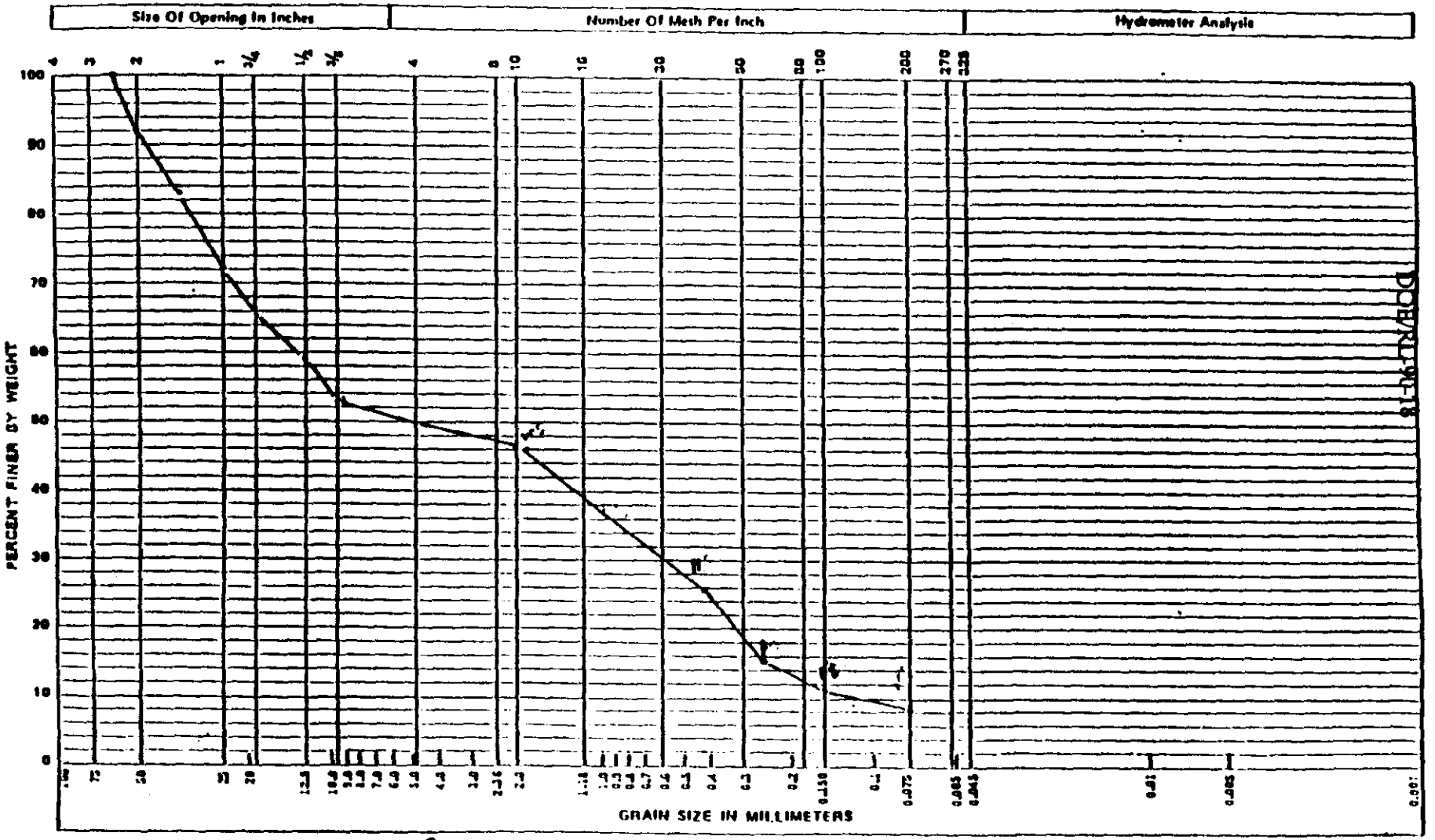
Specimen No. 0-017 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SILTY SAND

Planned by: R.G. ALEXANDER

9 1 1 1 3 3 5 1 4 0 7

GRAIN SIZE ANALYSIS PLOT

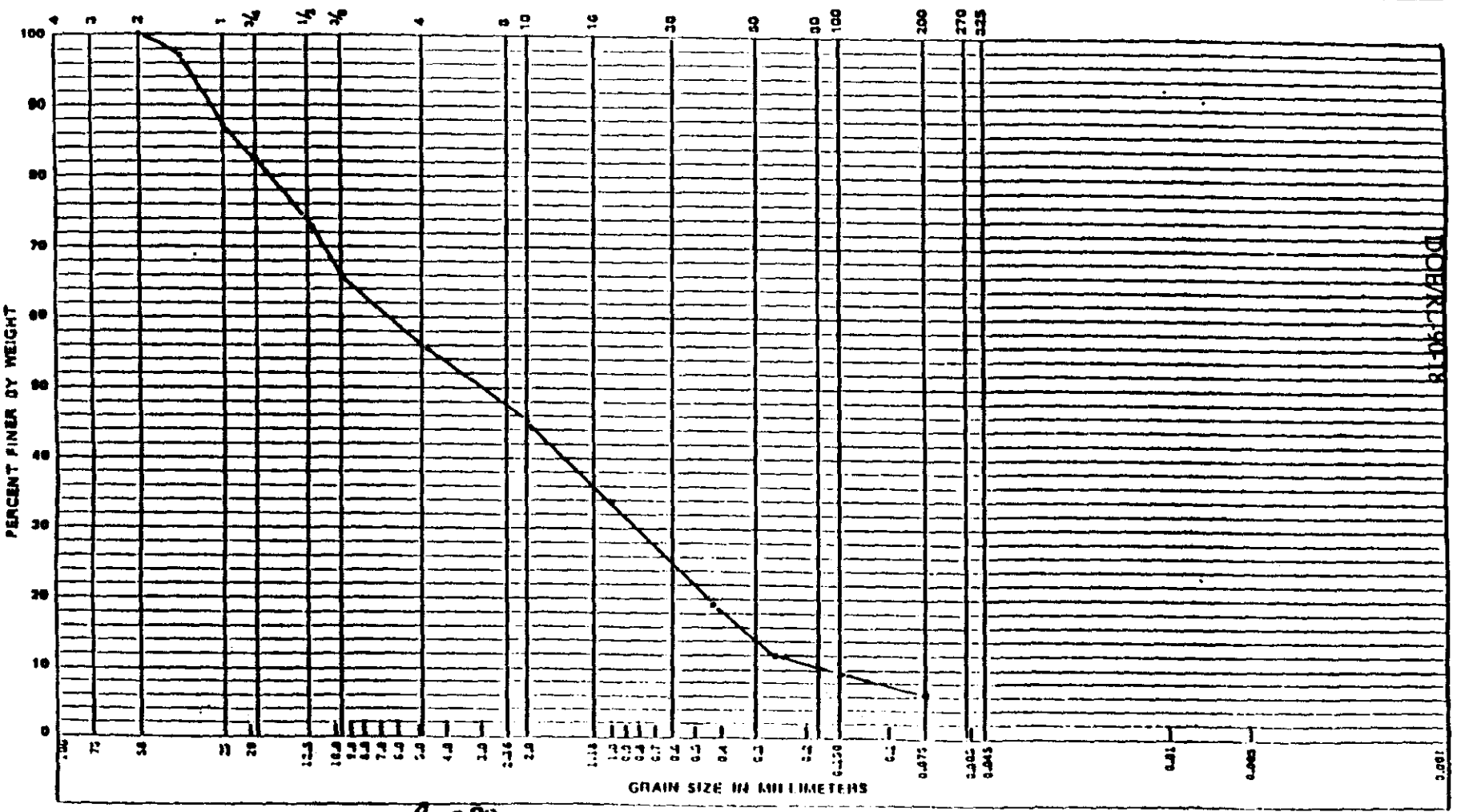


Specimen No. 9-079 Procedure No. ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-15-1	Plotted by: R.G ALEXANDER Date: 12-14-89	Checked by: J F Relyea Date: 15-Dec 89

DOE/RL-90-18

GRAIN SIZE ANALYSIS PLOT

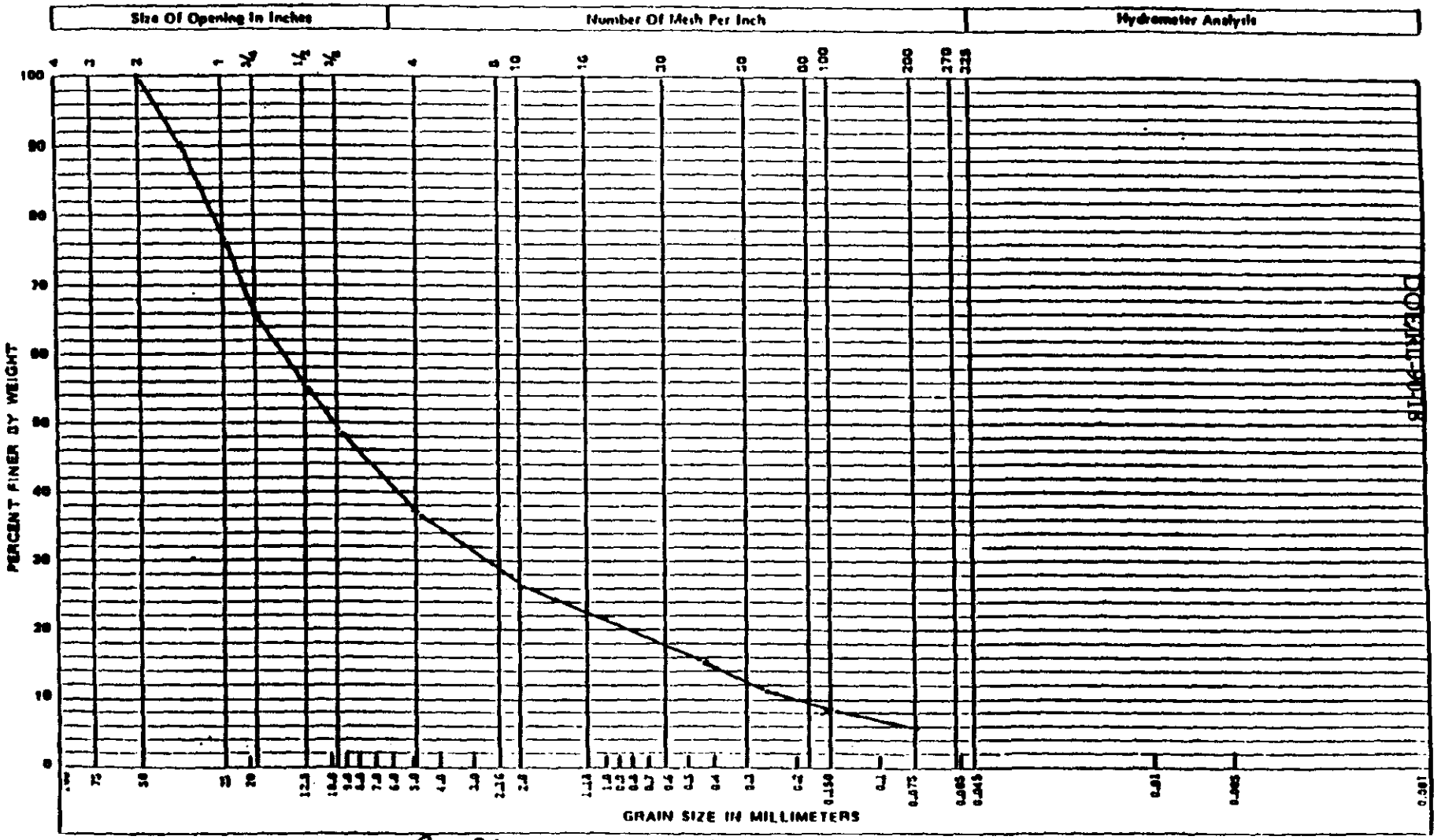


Specimen No. 9-080 Procedure No. ETAL-07 Rev. 0 Date Issued 11-15-89

Sample Description: SANDY GRAVEL

DOE/RL/90-18

GRAIN SIZE ANALYSIS PLOT

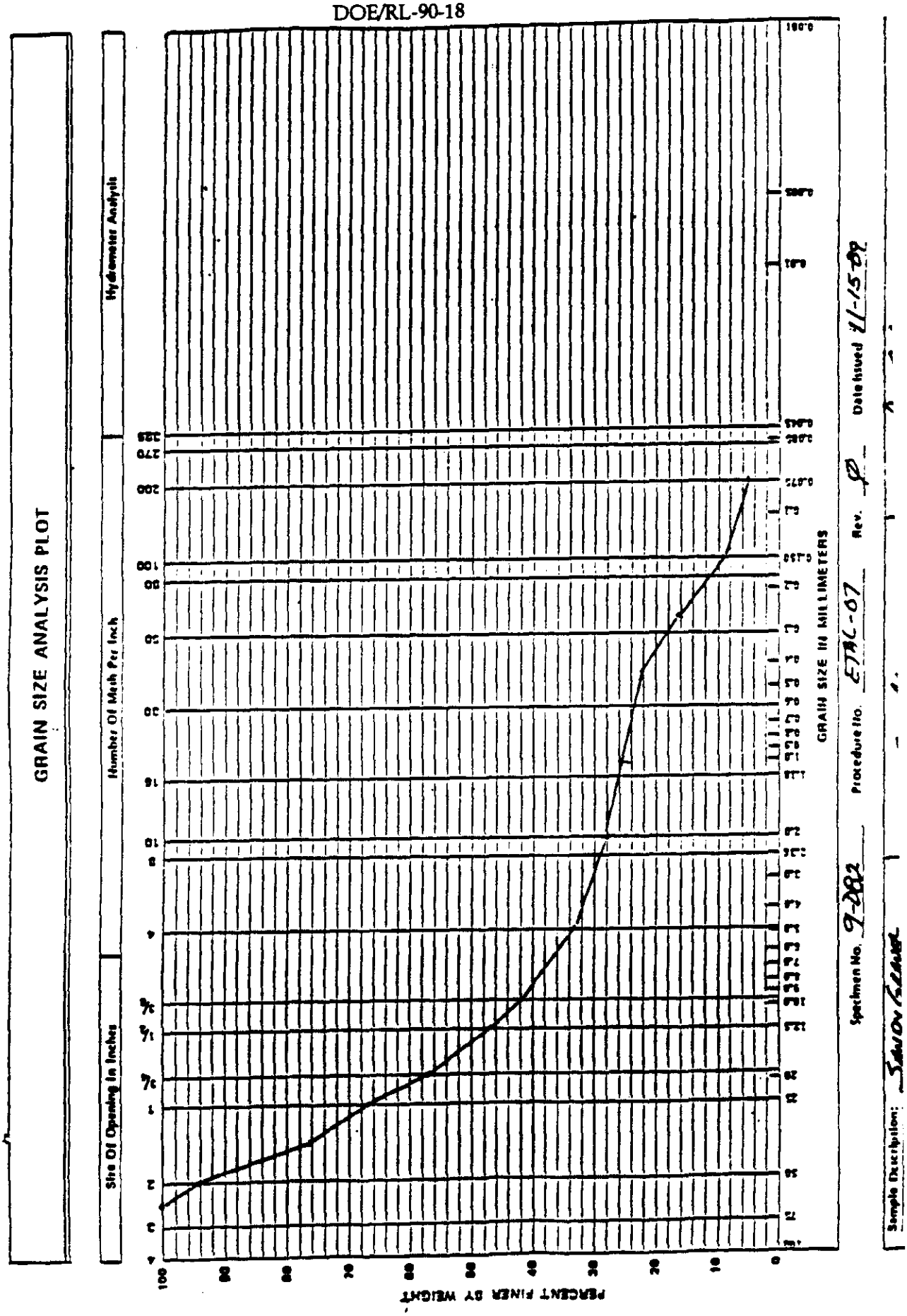


Specimen No. 9-081 Procedure No. ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-15-3

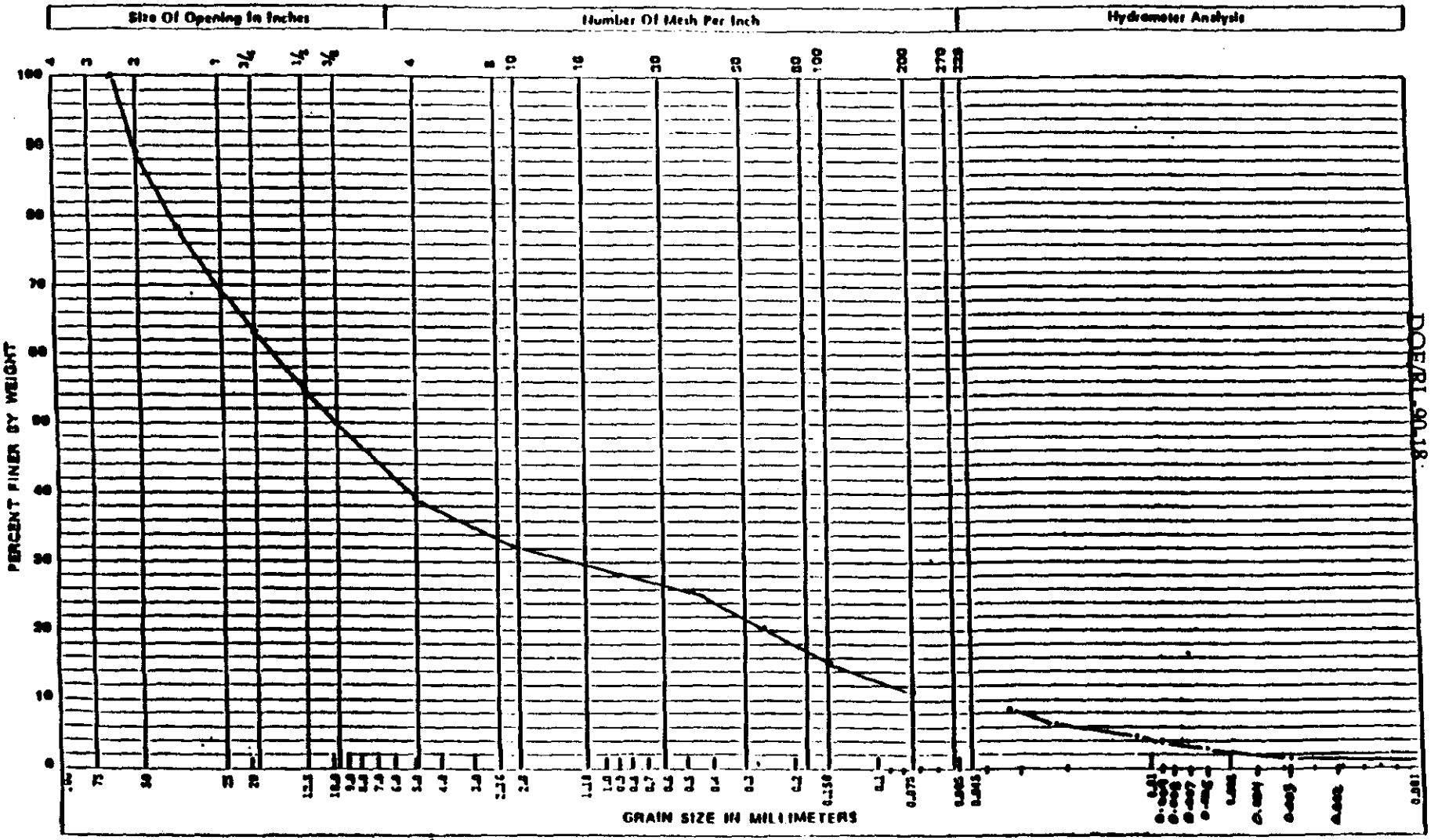
Plotted by: R.G ALEXANDER Date: 12-15-89

Checked by: J.F Relyea Date: 15 Dec 89


GRAIN SIZE ANALYSIS PLOT
Hydrometer Analysis
Number Of Mesh Per Inch
Size Of Opening In Inches
GRAIN SIZE IN MILLIMETERS
PERCENT FINER BY WEIGHT
Specimen No. 9-D82
Procedure No. ETAL-07
Rev. 0
Date Issued 11-15-89
Sample Description: Sandy Gravel

9 1 1 1 8 8 5 1 4 1 1

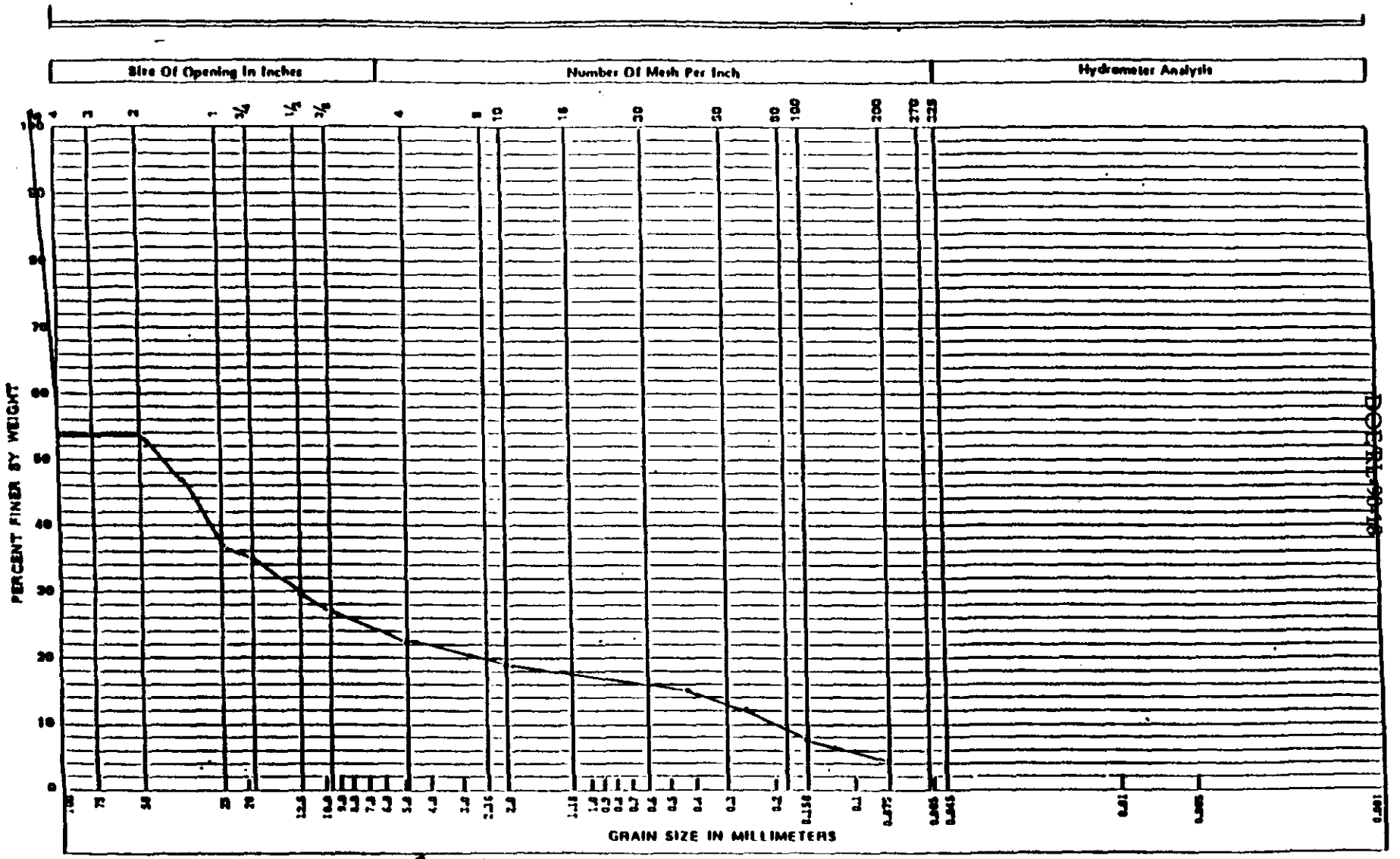
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-083 Procedure No. ETAL-07 Rev. Ø Date Issued 11-16-89

Sample Description: SANDY GRAVEL MW-15-5	Plotted by: R.G ALEXANDER Date: 12-18-89	Checked by: HL Banny Date: 1/3/90

DOE/RL-90-18



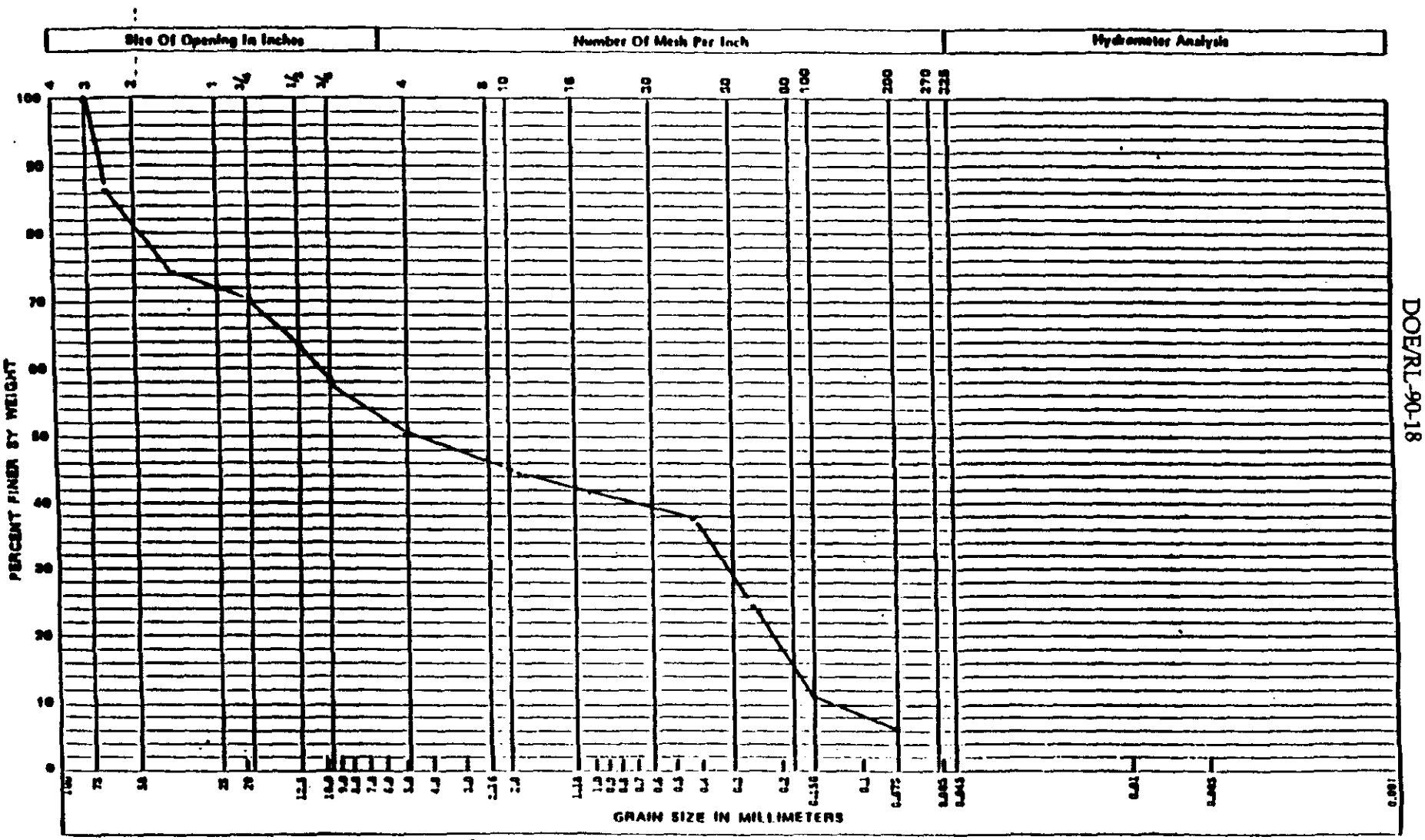
Specimen No. 9-084 Procedure No. ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-15-6

Plotted by: R.G ALEXANDER Date: 12-18-89

Checked by: HL Benny Date: 1/3/90

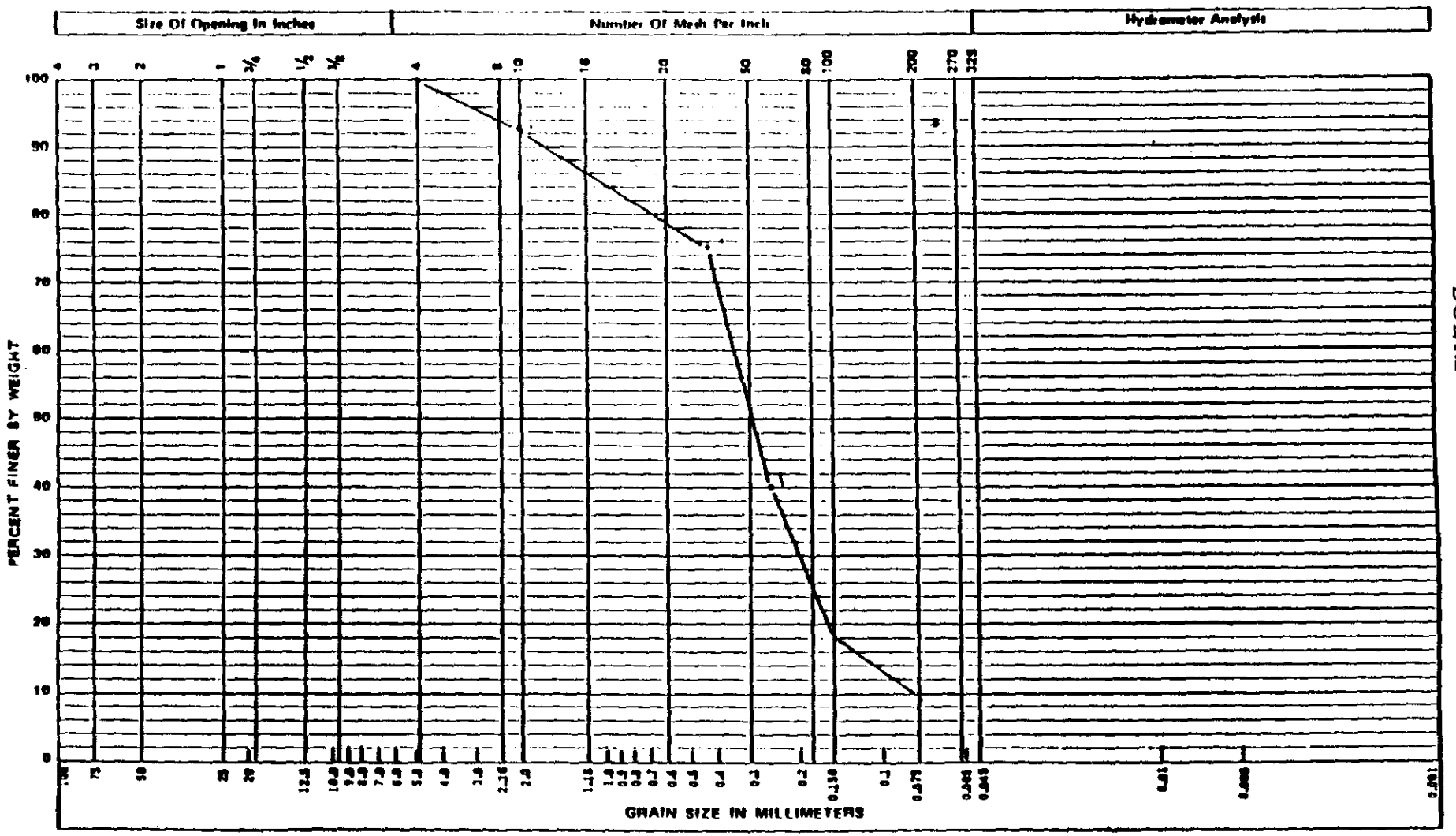
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-085 Procedure No. ETAL-07 Rev. 00 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-15-7	Plotted by: R.G ALEXANDER Date: 12-18-89	Checked by: H.L Banning Date: 1/3/90

GRAIN SIZE ANALYSIS PLOT



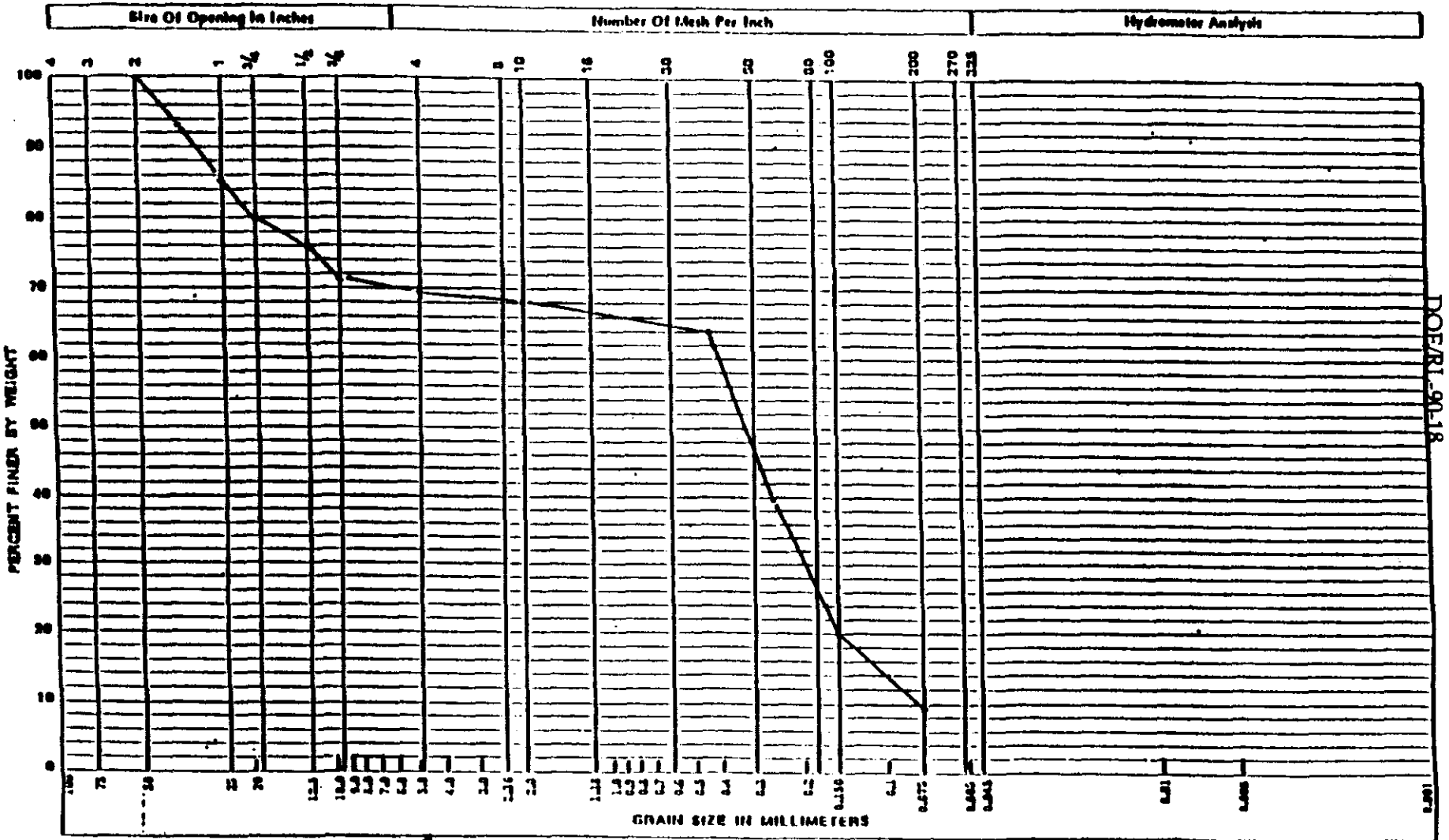
Specimen No. 9-077 Procedure No. ETAL-07 Rev. Ø Date Issued 11-15-89

Sample Description: SANDY GRAVEL MIL... 2nd Pass

Plotted by: R.G. ALEXANDER

Checked by: [signature]

GRAIN SIZE ANALYSIS PLOT



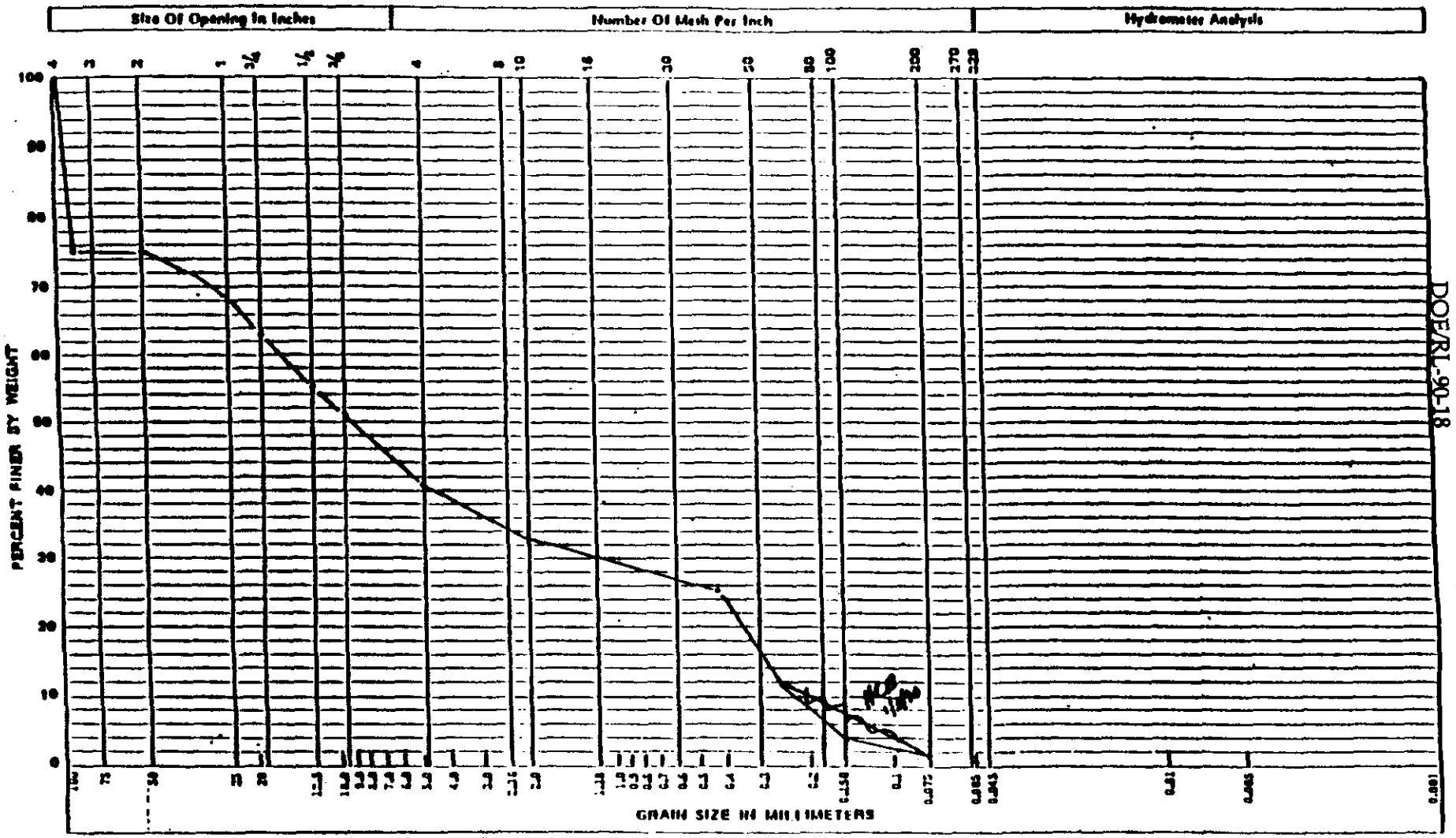
Specimen No. 9-086 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-15-9

Plotted by: R.G. ALEXANDER Date: 12-22-89

Checked by: H.L. Bennett Date: 1/3/90

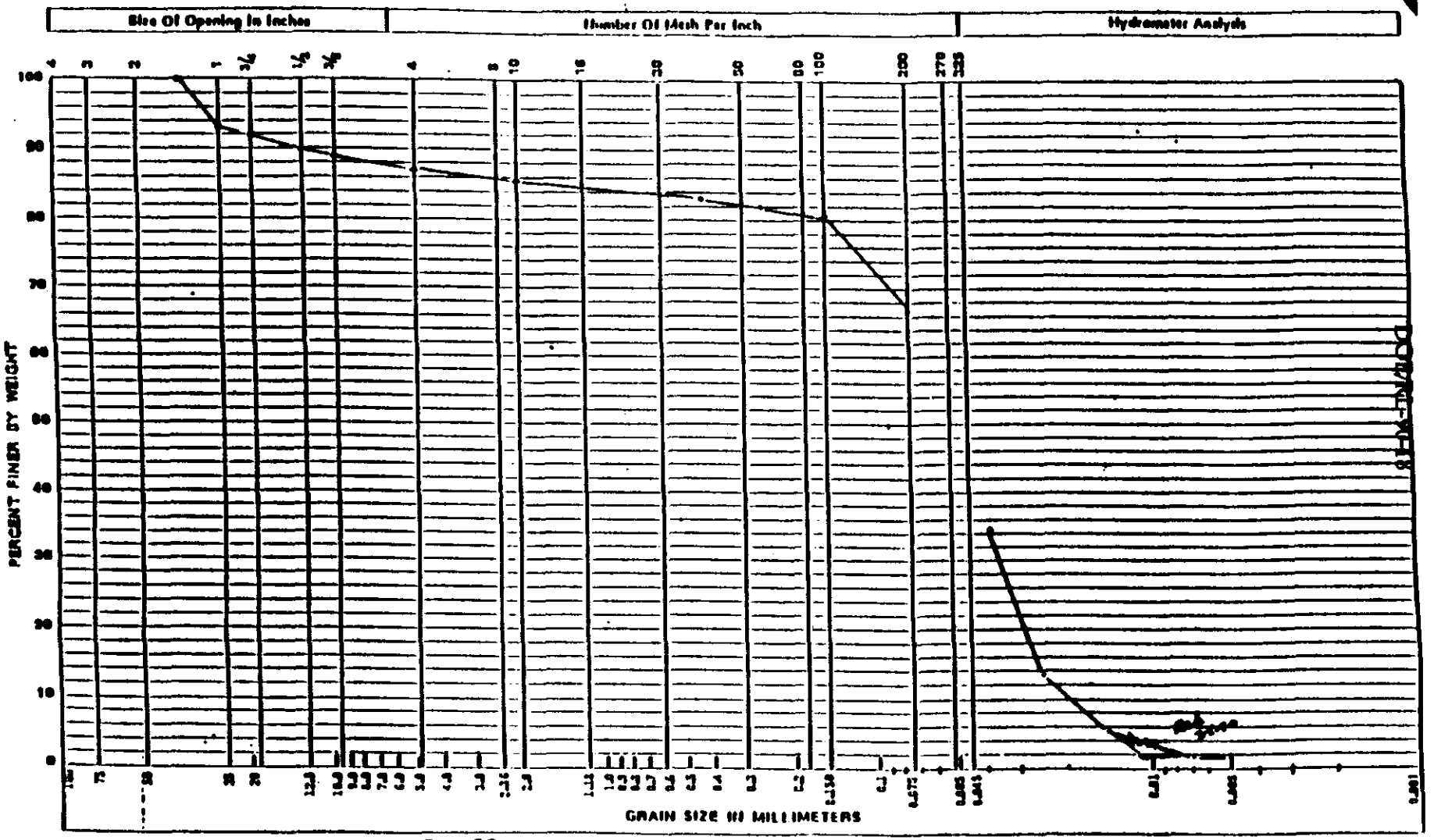
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-087 Procedure No. ETAL-07 Rev. 1 Date Issued 11-16-89

Sample Description: SANDY GRAVEL

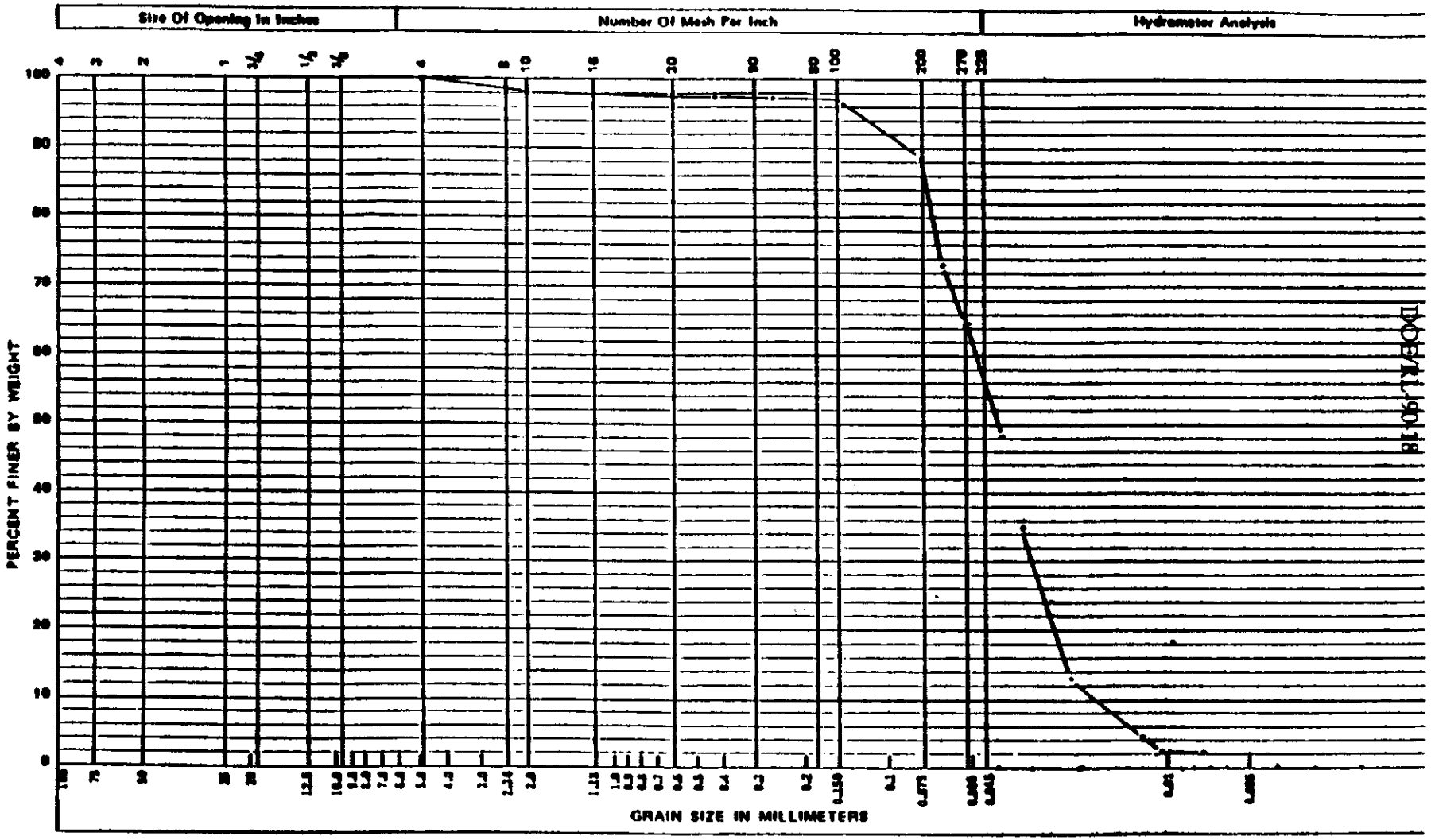
GRAIN SIZE ANALYSIS PLOT



Specimen No. 9-088 Procedure No. EAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: Silty Sand MW-15-H	Plotted by: R.G Alexander Date: 12-28-89	Checked by: HC Benny Date: 1/4/90

GRAIN SIZE ANALYSIS PLOT



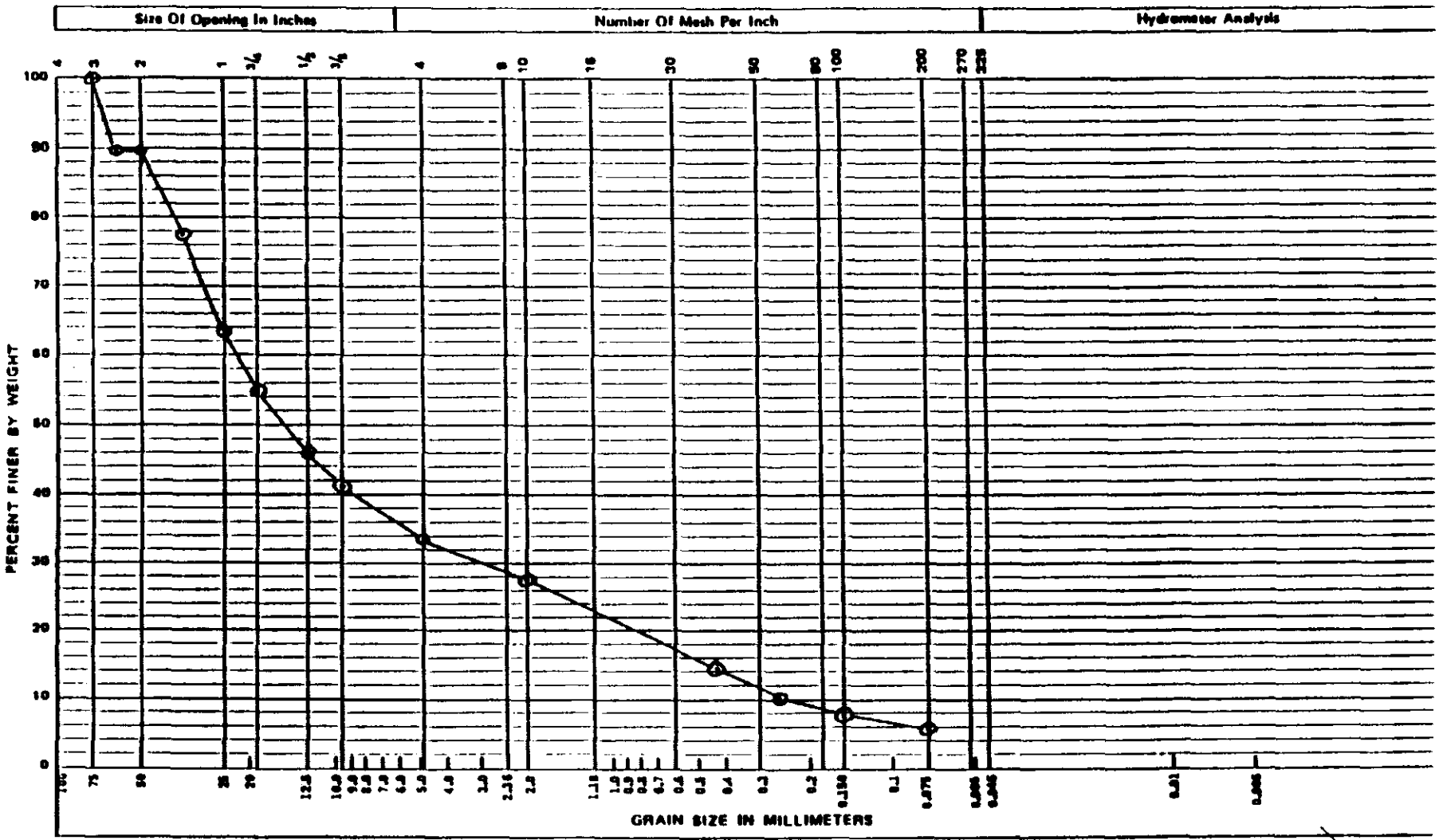
Specimen No 9-089 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SILTY SAND

Plotted by: R.G ALEXANDER Checked by: HL Barry

DOE/RL/90-18

GRAIN SIZE ANALYSIS PLOT

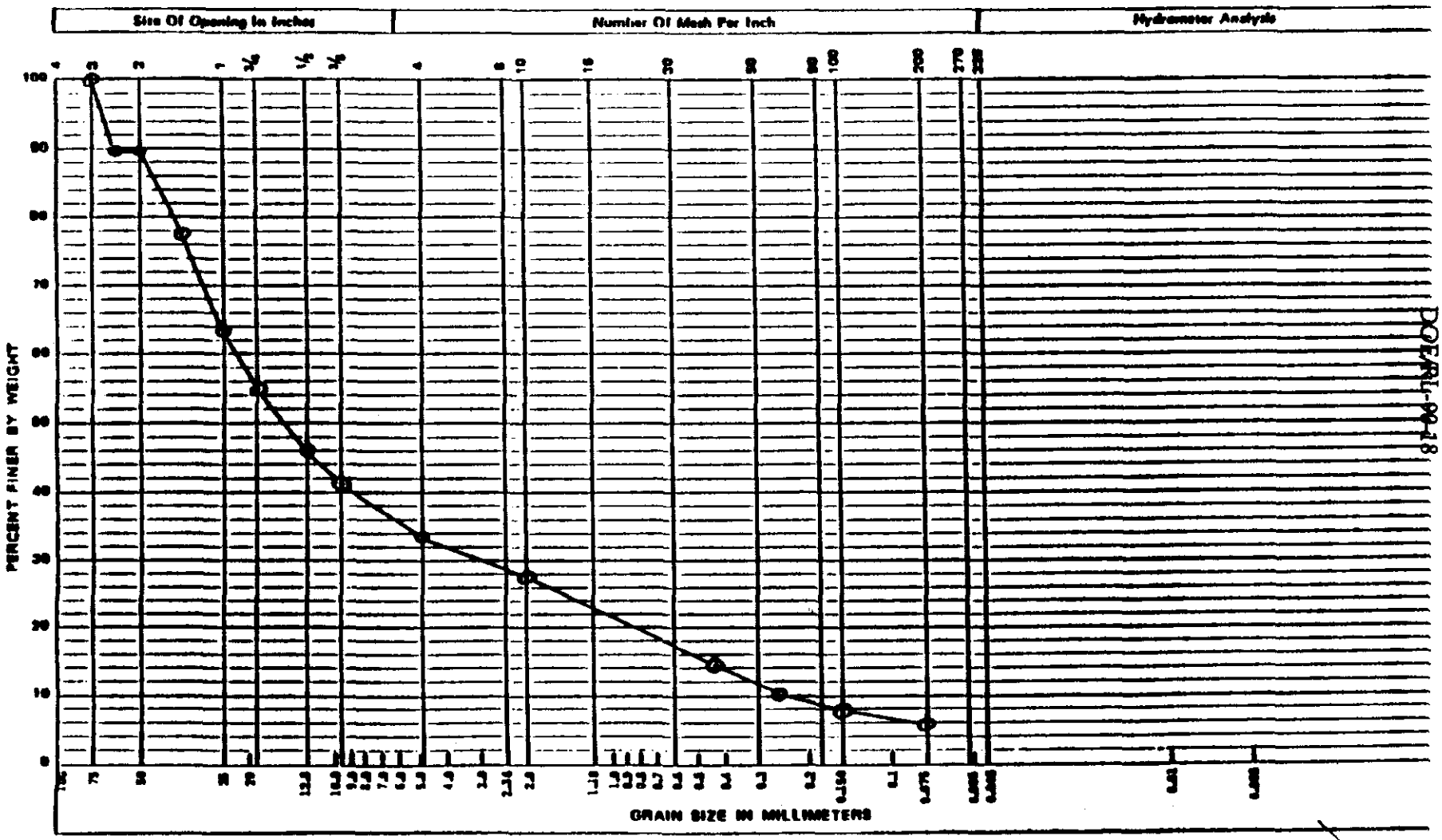


Specimen No D-056 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-17-2	Plotted by: R.G. ALEXANDER Date: 2-12-90	Checked by: H.C. Benny Date: 2-13-90	Approved by: NA Date

9 1 1 1 3 3 5 1 4 2 9

GRAIN SIZE ANALYSIS PLOT



Specimen No D-056 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL	Plotted by: R.G. ALEXANDER	Checked by: [illegible]	Approved by: NA

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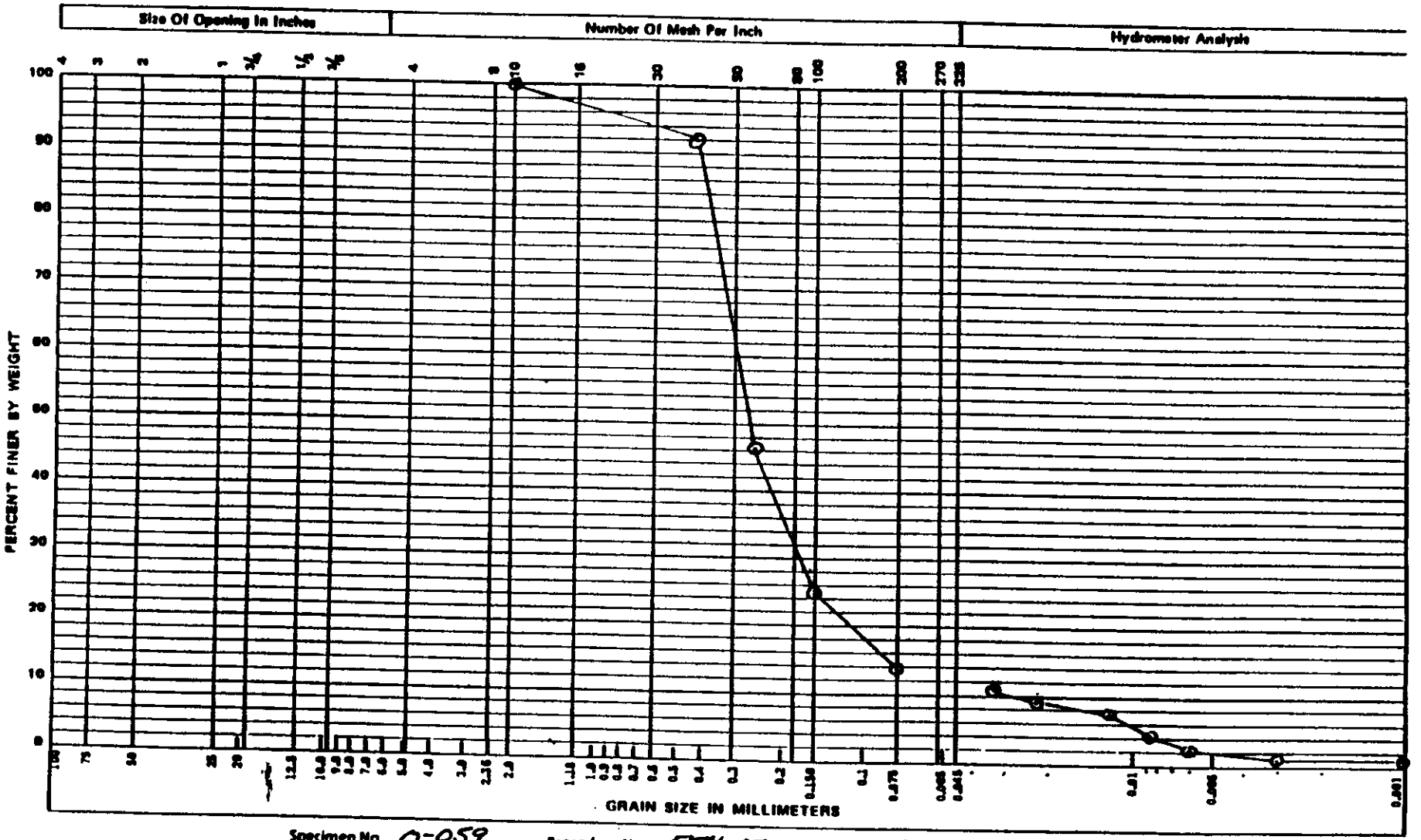
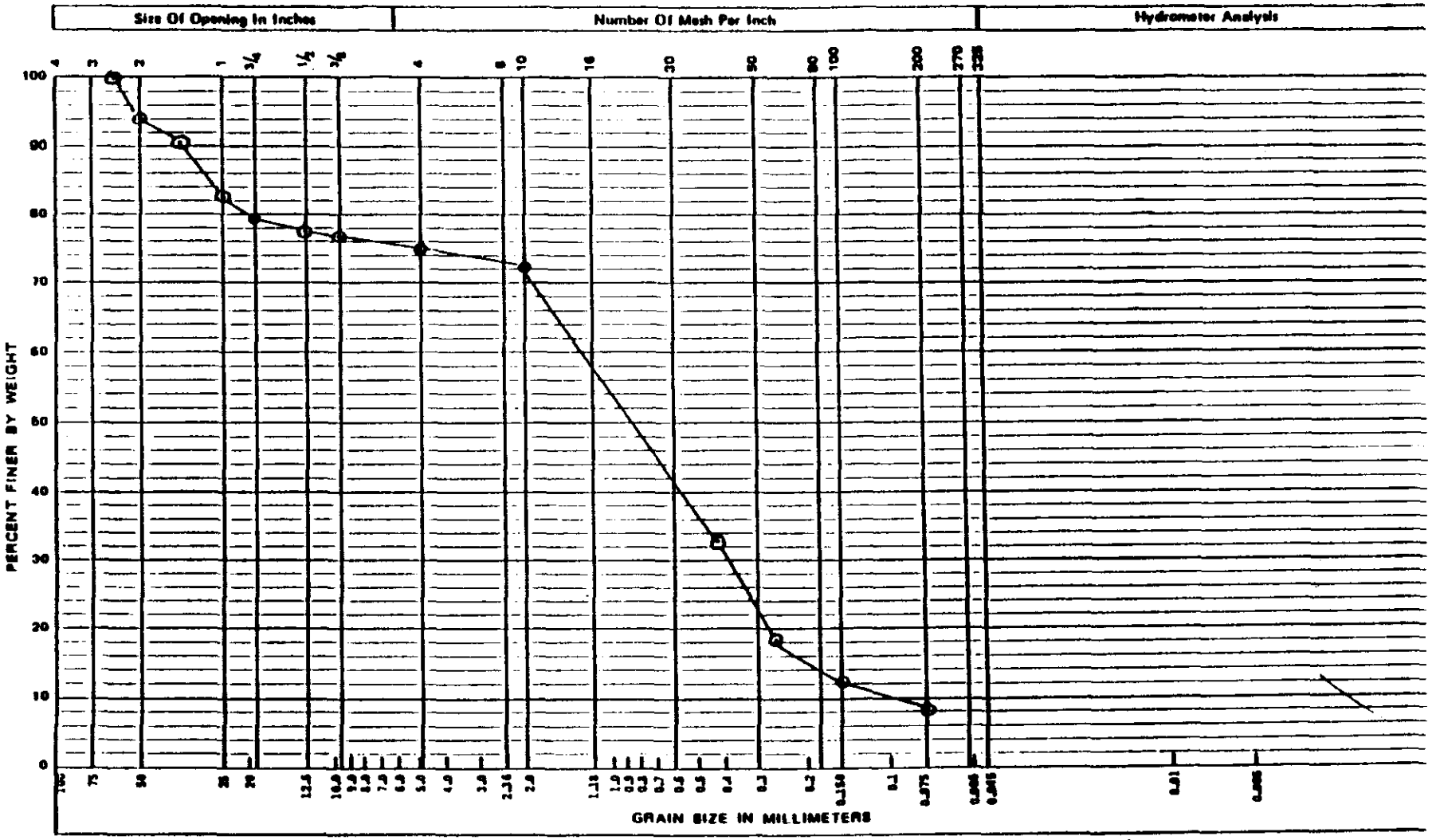
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-059 Procedure No. ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description:

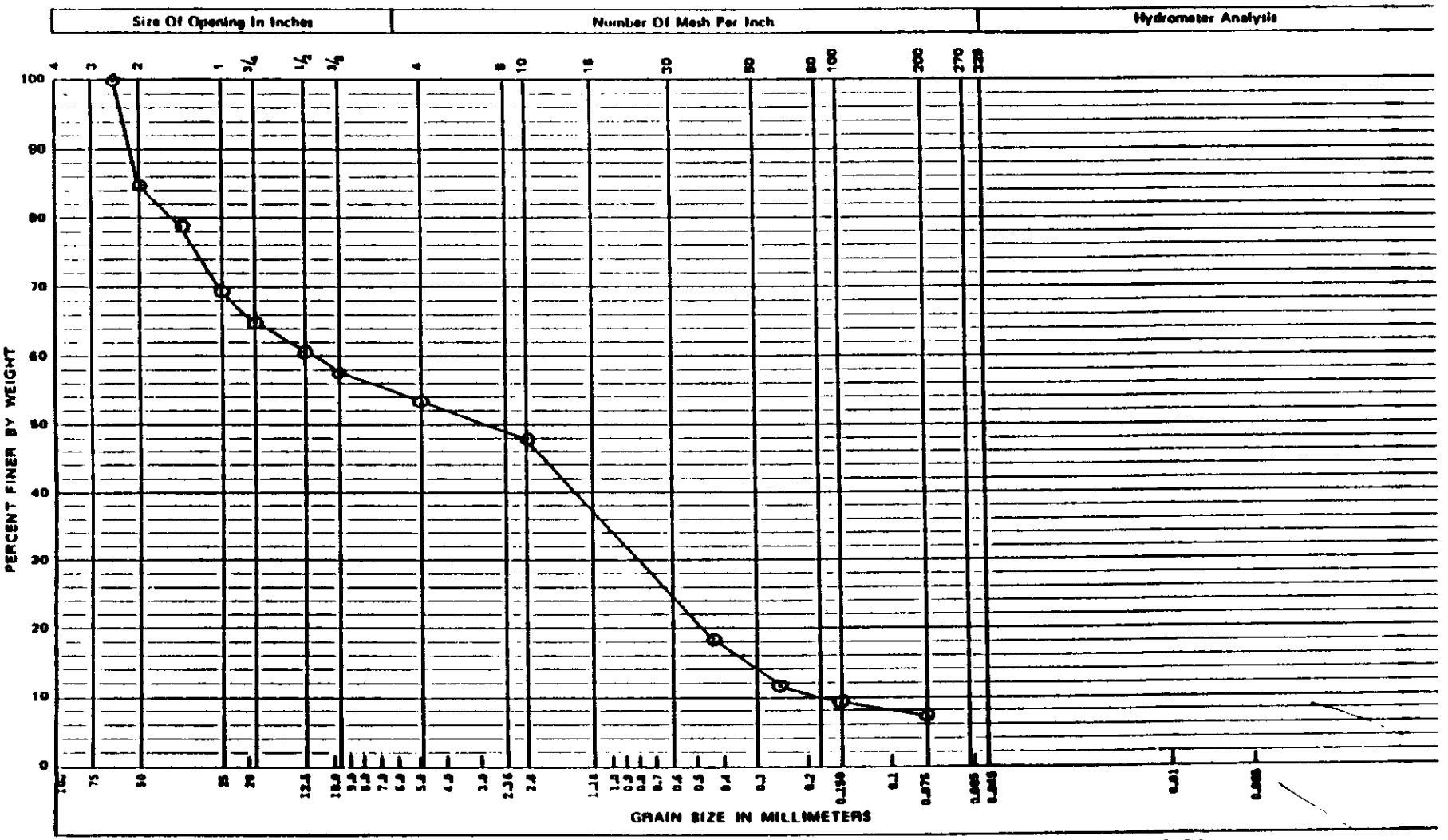
GRAIN SIZE ANALYSIS PLOT



Specimen No 0-060 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SANDY GRAVEL MW-17-6	Plotted by: R. G. ALEXANDER Date: 2-12-90	Checked by: HL Benny Date: 2-12-90	Approved by: N/A Date

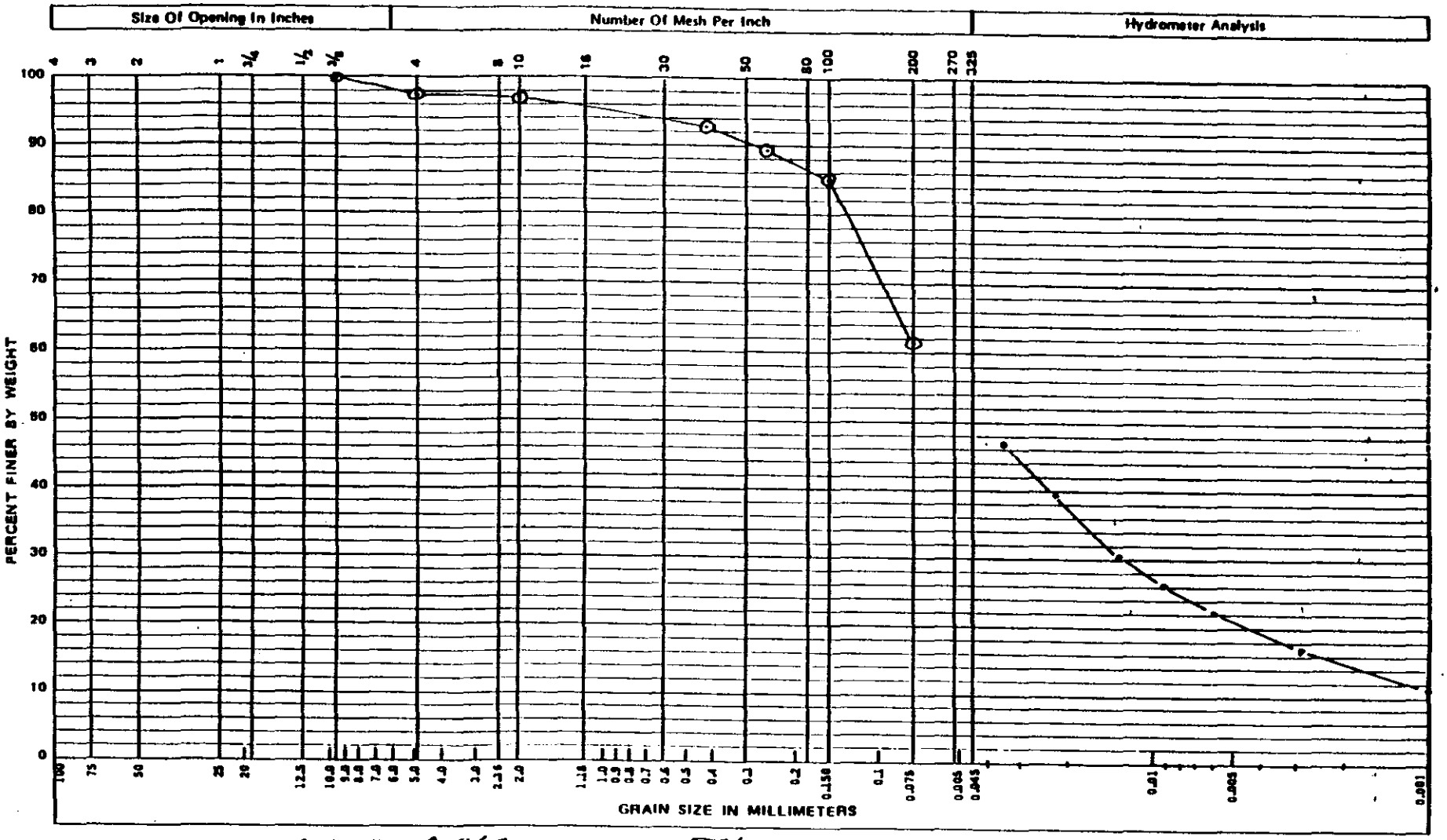
GRAIN SIZE ANALYSIS PLOT



Specimen No 0-061 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description:	Plotted by:	Checked by:	Approved by:
~~Sandy~~ GRAVEL SANDY [illegible]	R.G. ALEXANDER	HC Benny	N/A

GRAIN SIZE ANALYSIS PLOT



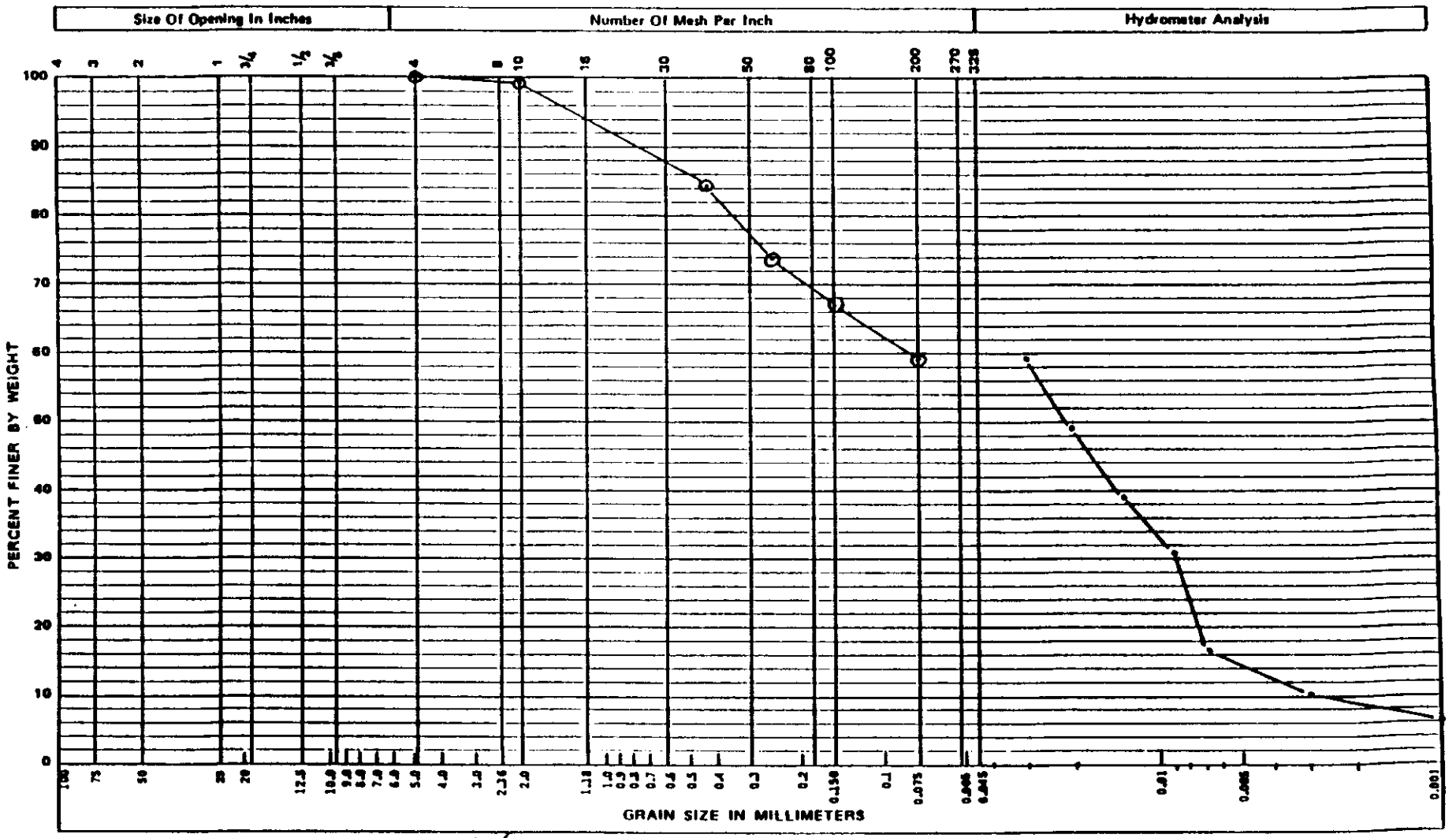
Specimen No. 0-06C Procedure No. ETAC-07 Rev 1 Date Issued 11-15-89

Sample Description: SILTY SAND MW 17-8

Plotted by: RG ALEXANDER Date: 2-13-90

Checked by: HL Beany Date: 2-13-90

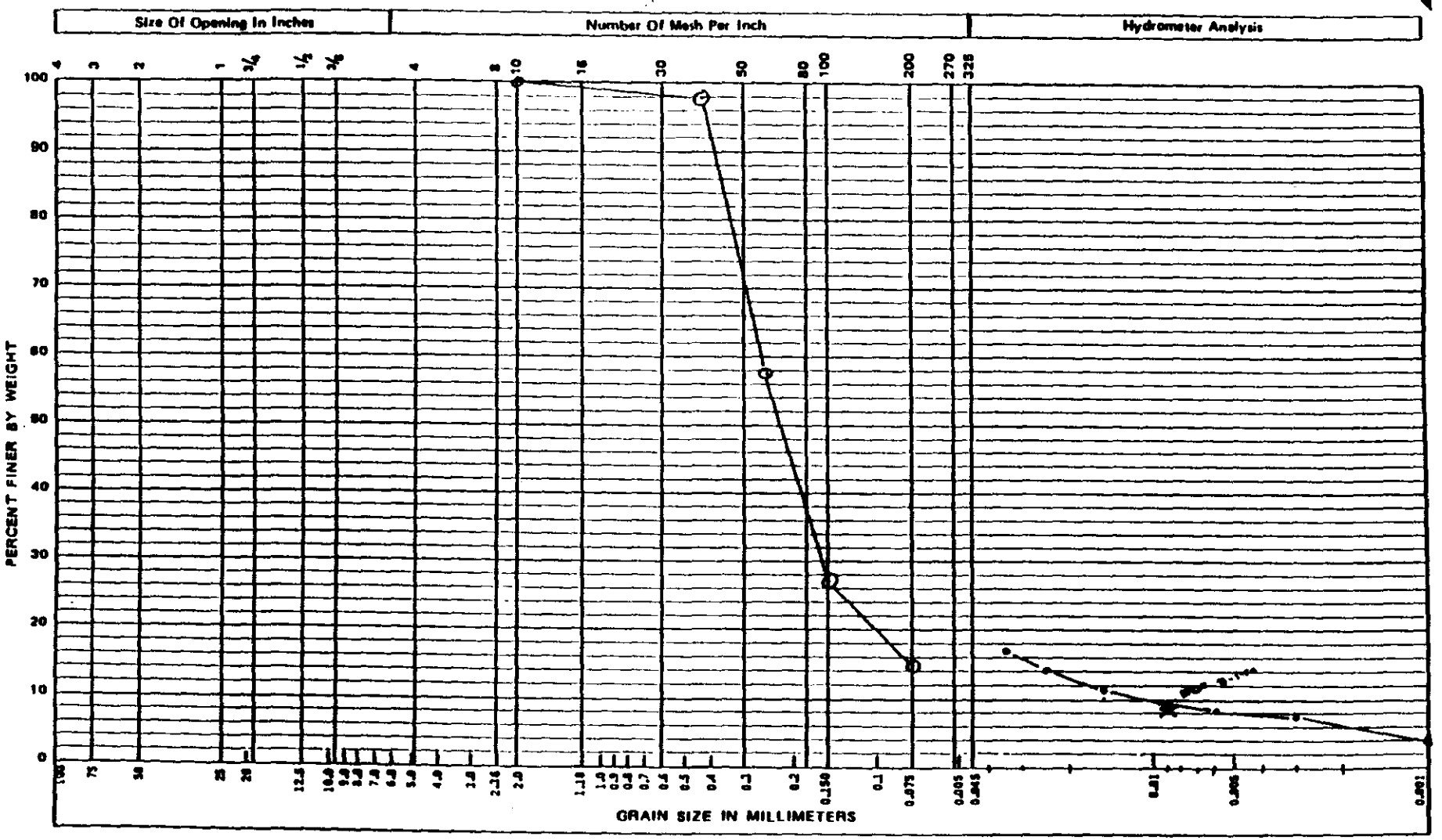
GRAIN SIZE ANALYSIS PLOT



Specimen No 0-064 Procedure No ETAL-07 Rev 1 Date Issued 11-15-89

Sample Description: SILTY SAND | R.G ALEXANDER | H.L Bonn

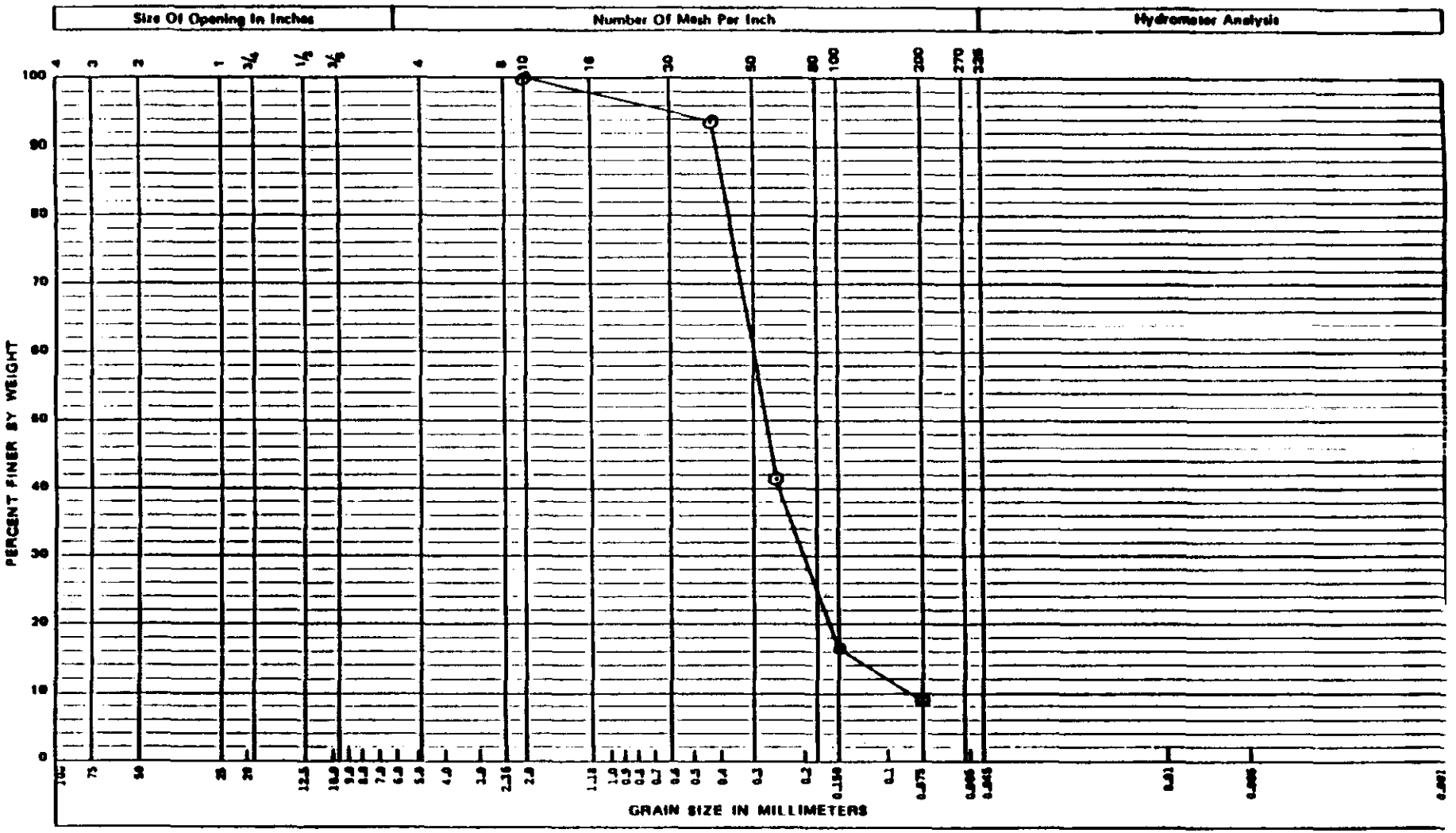
GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-065 Procedure No ETAL-07 Rev. 1 Date Issued 11-15-89

Sample Description: SILTY SAND MW 17-11	Plotted by: R.G ALEXANDER Date: 2-13-90	Checked by: HC Benny Date: 2-13-90

GRAIN SIZE ANALYSIS PLOT



Specimen No. 0-066 Procedure No. ETAL-01 Rev. 1 Date Issued 11-15-89

Sample Description: SILTY SAND Plotted by: R.G. ALEXANDER Checked by: H.L. Benny

APPENDIX I
SOIL CHEMICAL ANALYTICAL RESULTS

Surface and subsurface soil chemical analyses were completed by Weyerhaeuser Analytical and Testing Services. The Westinghouse Hanford Office of Sample Management provided the validated data summarized in this appendix. A complete set of data is available in the DOE-RL 1100-EM-1 Administrative Record. The DOE-RL 1100-EM-1 Administrative Record is managed by Westinghouse Hanford's Department of Engineering Environmental Information Management Center, and is located at the following address:

U.S. Department of Energy-Richland Operations Office
Administrative Record Center
345 Hills Street
Richland, WA 99352

This appendix is divided into subappendices: one for background results, one for each operable subunit, one for results from miscellaneous locations within the operable unit, and one for target parameters analyzed for and not detected. Results within each subappendix are presented as either surface or subsurface results. Surface soils are considered to be those within uppermost 0.6m (2ft) of the soil column.

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APPENDIX I
DATA QUALIFIERS

ORGANIC DATA QUALIFIERS

U The material was analyzed for, but was not detected. The associated value is the sample quantitation limit (SQL).

J The associated value is an estimated quantity.

UJ The material was analyzed for, but was not detected. The SQL is an estimated quantity.

R The data are unusable.

ND Corresponding TIC was not detected.

NR Not reported and/or not requested.

INORGANIC DATA QUALIFIERS

U The material was analyzed for, but was not detected above the level of the associated value.

J The associated value is an estimated quantity.

UJ The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

R The data are unusable.

NR Not reported and/or not requested.

E Value is estimated due to matrix interference.

N Spiked sample recovery not within control limits.

S Reported value was determined by the Method of Standard Additions (MSA).

W Post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is <50% of spike absorbance.

---

* Duplicate analysis was not within control limits.
\+ Correlation coefficient for MSA was <0.995.

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	Surface Organics	I1-2
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	Subsurface Organics	I2-3
Subappendix I-3	1100-2 Soil Chemical Analytical Results	
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SUBAPPENDIX I-1
BACKGROUND SOIL CHEMICAL ANALYTICAL RESULTS

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INORGANIC SAMPLING RESULTS FOR 1100-EM-1 BACKGROUND NEAR SURFACE SOIL SAMPLES

1100-EM-1 BACKGROUND	SAMPLE NUMBER DEPTH (ft)											
SDG #	A1901S										A1912S	
PARAMETER	AH217S 0.0-0.5 (mg/kg)		AH218S 0.0-0.5 (mg/kg)		AH222S 0.0-0.5 (mg/kg)		AH223S 0.0-0.5 (mg/kg)		AH224S 0.0-0.5 (mg/kg)		AH225S 0.0-0.5 (mg/kg)	
INORGANICS												
Aluminum	6050		6830		6180		6600		5480		6410	
Antimony	3.3	UJ	3.6	UJ	3.7	UJ	3.4	UJ	3.3	UJ	3.1	UJ
Arsenic	0.74		1.6		1.6		1.6	J	0.15		1.6	
Barium	71.2	J	81.4	J	69.0	J	67.5	J	52.3	J	65.2	
Beryllium	0.34		0.47		0.39		0.42		0.23		0.42	
Cadmium	0.32	U	0.44		0.35	U	0.50		0.32	U	0.29	U
Calcium	3380		3370		2930		2840		2000		2460	
Chromium	8.3	J	10.0	J	7.9	J	9.7	J	7.8	J	8.6	
Cobalt	9.8		11.0		9.5		10.7		6.1		7.3	
Copper	12.1	J	11.8	J	10.2	J	10.6	J	6.9	J	9.1	J
Iron	19000		20500		18400		20100		13200		15200	
Lead	4.1	J	8.1	J	4.4	J	6.2	J	0.25	J	9.5	
Magnesium	4200		4580		3680		3640		2780		3180	
Manganese	325	J	367	J	308	J	309	J	211	J	252	
Mercury	0.10	U	0.08	U	0.09	U	0.10	U	0.08	U	0.09	U
Nickel	9.8		10.8		8.7		9.9		5.9		6.9	U
Potassium	1260		1550		1290		1240		1040		1200	
Selenium	0.17	U	0.16	U	0.17	U	0.15	U	0.15	U	0.39	R
Silver	0.71		1.3		1.3		1.5		0.48		1.0	
Sodium	153	UJ	164	UJ	142	UJ	155	UJ	133	UJ	190	J
Thallium	0.24	U	0.16	U	0.35	U	0.22	U	0.15	U	0.15	U
Vanadium	43.9		46.6		42.1		52.1		29.6		24.4	
Zinc	37.4	J	42.3	J	36.8	J	39.8	J	27.2	J	32.1	J
Cyanide	0.51	U	0.52	U	0.52	U	0.51	U	0.52	U	0.51	U

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 BACKGROUND NEAR SURFACE SOIL SAMPLES

1100-EM-1 BACKGROUND		SAMPLE NUMBER DEPTH (ft)											
	SDG #	A1901S										AH225S	
PARAMETER	TIC	AH217S		AH218S		AH222S		AH223S		AH224S		AH225S	
	RETENTION	0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
	TIME	(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)	
VOLATILE ORGANICS													
MeCl2		5	U	5	U	5	U	5	U	5	U	NR	
VOLATILE ORGANIC TICs													
UNKNOWN	23.92	ND		ND		ND		ND		ND		NR	
SEMI-VOLATILE ORGANICS													
benzoic acid		3300	U	3300	U	3300	U	3300	U	380	J	3300	U
phenol		690	U	690	U	690	U	690	U	34000	J	690	U
bis(2-ethylhexyl)phthalate		690	U	690	U	690	U	690	U	660	U	690	U
SEMI-VOLATILE ORGANIC TICs													
UNKNOWN	5.28	ND		ND		ND		ND		ND		ND	
UNKNOWN	5.71	ND		ND		ND		ND		ND		ND	
2-ethoxyethyl acetate	6.20	ND		ND		ND		ND		ND		ND	
6-(acetyloxy)-2-hexanone	6.23	920	J	1100	J	1400	J	1500	J	ND		ND	
UNKNOWN	7.01	ND		ND		ND		ND		ND		ND	
5,5-dimethyl-2(5H)-furanone	7.03	ND		ND		ND		ND		ND		ND	
benzaldehyde	7.12	ND		ND		ND		ND		16000	J	ND	
UNKNOWN	7.15	ND		ND		ND		ND		ND		880	J
2,4-dimethyl-3-heptanone	7.81	1000	J	720	J	1200	J	880	J	ND		ND	
UNKNOWN	7.91	ND		ND		ND		ND		ND		ND	
2,4-dimethyl-3-heptanone	8.12	ND		ND		ND		ND		ND		980	J
UNKNOWN	9.01	3500	J	2100	J	2600	J	3200	J	ND		ND	
UNKNOWN	9.07	ND		ND		ND		ND		ND		ND	
UNKNOWN	9.32	ND		ND		ND		ND		ND		1800	J
UNKNOWN	10.79	300	J	340	J	580	J	440	J	ND		ND	
UNKNOWN	10.87	ND		ND		ND		ND		ND		ND	
cyclopentasiloxane, decameth	11.05	ND		ND		ND		ND		ND		ND	
UNKNOWN	11.84	ND		ND		ND		ND		ND		ND	
UNKNOWN	13.64	ND		ND		ND		ND		ND		ND	
dodecanamide, N,N-bis(2-hyd	18.47	ND		ND		ND		ND		180000	J	ND	
ethanone, 2-bromo-1,2-diphen	22.57	ND		ND		ND		ND		8300	J	ND	
1,1'-biphenyl, 2,4',5-trichl	23.07	ND		ND		ND		ND		ND		ND	

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 BACKGROUND NEAR SURFACE SOIL SAMPLES

1100-EM-1 BACKGROUND		SAMPLE NUMBER DEPTH (ft)					
	SDG #	A1901S					AH225S
PARAMETER	TIC RETENTION TIME	AH217S 0.0-0.5 (µg/kg)	AH218S 0.0-0.5 (µg/kg)	AH222S 0.0-0.5 (µg/kg)	AH223S 0.0-0.5 (µg/kg)	AH224S 0.0-0.5 (µg/kg)	AH225S 0.0-0.5 (µg/kg)
UNKNOWN	23.57	ND	ND	ND	ND	ND	ND
hexadecanoic acid	23.79	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3,3',5'-tet	23.97	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,5'-tet	24.09	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, tetrachloro-	24.15	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,4'-tet	24.52	ND	ND	ND	ND	ND	ND
arochlor 1248	24.61	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',4,5'-tet	24.82	ND	ND	ND	ND	ND	ND
UNKNOWN	25.41	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3',4',5-tet	25.51	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,4-tetr	25.62	ND	ND	ND	ND	ND	ND
UNKNOWN	26.01	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',6,6'-tet	26.02	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,5,5'-p	26.16	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3,3',4',6-p	26.29	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,4',5'-	26.69	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,3',6-p	26.82	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3',4,4',5-p	27.07	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3',4,5,5'-p	27.69	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, pentachloro-	28.34	ND	ND	ND	ND	ND	ND
UNKNOWN	29.19	ND	ND	ND	ND	ND	ND
UNKNOWN	29.26	ND	ND	ND	ND	2900 J	ND
UNKNOWN	30.69	ND	ND	ND	ND	ND	ND
hexasiloxane, tetradecamethy	30.76	ND	ND	ND	ND	ND	ND
UNKNOWN	30.76	ND	ND	ND	ND	ND	ND
UNKNOWN	31.57	ND	ND	ND	ND	3900 J	ND
UNKNOWN	32.04	ND	ND	ND	ND	ND	ND
heptasiloxane, hexadecamethy	32.22	ND	ND	ND	ND	ND	ND
UNKNOWN	32.22	ND	ND	ND	ND	ND	ND
UNKNOWN	33.38	ND	ND	ND	ND	ND	ND
UNKNOWN	33.52	ND	ND	ND	ND	12000 J	ND
UNKNOWN	33.68	ND	ND	ND	ND	ND	ND
pentatriacontane	33.92	ND	ND	ND	ND	ND	470 J
UNKNOWN	34.07	420 J	670 J	ND	ND	ND	ND
pentasiloxane, dodecamethyl-	34.64	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 BACKGROUND NEAR SURFACE SOIL SAMPLES

1100-EM-1 BACKGROUND		SAMPLE NUMBER DEPTH (ft)											
	SDG #	A1901S										AH225S	
PARAMETER	TIC RETENTION TIME	AH217S 0.0-0.5 (µg/kg)		AH218S 0.0-0.5 (µg/kg)		AH222S 0.0-0.5 (µg/kg)		AH223S 0.0-0.5 (µg/kg)		AH224S 0.0-0.5 (µg/kg)		AH225S 0.0-0.5 (µg/kg)	
UNKNOWN	35.17	ND		ND		ND		ND		ND		ND	
UNKNOWN	35.77	ND		ND		ND		ND		ND		200	J
heptadiomane, hexadecamethy	35.89	ND		ND		ND		ND		ND		ND	
UNKNOWN	37.19	ND		ND		ND		ND		ND		ND	
UNKNOWN	38.57	ND		ND		ND		ND		ND		ND	
PESTICIDES													
aroclor 1248		170	U	170	U	170	U	160	U	160	U	170	U
delta-BHC		17	U	17	U	17	U	16	U	2.8	J	17	U
gamma-chlordane		170	U	170	U	170	U	160	U	3.2	J	170	U
4,4'-DDE		33	U	33	U	33	U	33	U	32	U	33	U
endrin		33	U	33	U	33	U	33	U	32	U	33	U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 BOREHOLE BAP-2 (BACKGROUND)

1100-EM-1 (BACKGROUND) BOREHOLE BAP-2	SAMPLE NUMBER DEPTH(ft)								
PARAMETER	A0201S 0.5-2.0 (mg/kg)	A0203S 9.3-9.8 (mg/kg)	A0204S 11.5-13.0 (mg/kg)	A0206S 17.5-19.0 (mg/kg)	A0207S 17.5-19.0 (mg/kg)	A0208S 19.5-21.0 (mg/kg)	A0209S 26.0-26.65 (mg/kg)	A0210S 34.4-35.4 (mg/kg)	A0211S 44.36-45.55 (mg/kg)
INORGANICS									
Aluminum	8530	5540	4130	3760	3760	3860	3780	4270	3000
Antimony	2.7 U N	2.9 U N	2.6 U N	3.1 U N	3.0 U N	2.8 U N	3.1 U N	3.1 U N	2.7 U N
Arsenic	2.7	1.8	0.69	0.63	0.67	0.64	0.31 U W	0.81	0.59
Barium	102.0	90.3	66.3	66.3	65.6	64.1	64.9	68.6	59.7
Beryllium	0.24	0.17 U	0.16 U	0.18 U	0.19 U	0.16 U	0.18 U	0.18 U	0.16 U
Cadmium	0.31 U	0.34 U	0.31 U	0.36 U	0.36 U	0.33 U	0.36 U	0.36 U	0.32 U
Calcium	3860	5430	6070	5180	5430	6100	5510	7020	5160
Chromium	10.8 *	18.3 *	11.3 *	7.3 *	12.7 *	48.3 *	9.0 *	9.0 *	3.0 *
Cobalt	13.4	13.1	13.7	13.5	14.2	14.8	13.1	14.2	11.7
Copper	14.9	18.8	15.7	14.9	16.7	15.7	16.3	17.0	14.7
Iron	24600	23300	23200	23000	23200	24000	26200	26600	21100
Lead	6.5 S	4.5 S	2.3	2.1	2.4	2.4 S	1.3 S	2.4	1.9
Magnesium	5080	4180	3680	3810	3840	3810	3880	4340	3800
Manganese	443 N	325 N	285 N	285 N	281 N	298 N	292 N	323 N	251
Mercury	0.10 U	0.09 U	0.09 U	0.10 U	0.09 U	0.09 U	0.10 U	0.10 U	0.08 U
Nickel	13.2	15.2	9.8	9.1	10.4	25.3	5.9	10.9	4.0
Potassium	1610	891	721	557	639	579	547	806	423
Selenium	0.39 U	0.39 U	0.26 U	0.38 U W	0.35 U W	0.34 U	0.31 U	0.33 U	0.33 U
Silver	0.47 U	0.51 U	0.47 U	0.54 U	0.54 U	0.49 U	0.54 U	0.54 U	0.48 U W
Sodium	125 E	261 E	380 E	322 E	305 E	318 E	304 E	321 E	188 E
Thallium	0.39 U W	0.39 U W	0.26 U W	0.38 U W	0.35 U W	0.34 U W	0.31 U	0.33 U	0.33 U W
Vanadium	58.0 N	60.6 N	68.7 N	65.4 N	62.2 N	74.9 N	65.6 N	70.2 N	49.9 N
Zinc	49.8 E	42.7 E	43.3 E	42.6 E	41.8 E	44.1 E	41.8 E	46.5 E	37.3 E
Cyanide	0.51 U	0.51 U	0.49 U	0.50 U	0.50 U	0.50 U	0.50 U	0.51 U	0.50 U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 BOREHOLE HRL-1 (BACKGROUND)

1100-EM-1 (BACKGROUND) BOREHOLE HRL-1	SAMPLE NUMBER DEPTH (ft)					
PARAMETER	A0302 7.0-7.98 (mg/kg)			A0306 12.2-13.7 (mg/kg)		
INORGANICS						
Aluminum	4730			5510		
Antimony	2.9	U	N	3.1	U	N
Arsenic	1.4			2.6		
Barium	73.5			143		
Beryllium	0.24			0.20		
Cadmium	0.35	U		0.36	U	
Calcium	4170			4130		
Chromium	11.2		*	8.9		*
Cobalt	10.1			10.3		
Copper	15.6			14.2		
Iron	17900			18400		
Lead	3.6		N*	2.4		N*
Magnesium	3450			4200		
Manganese	250		N	303		N
Mercury	0.09	U		0.09	U	
Nickel	10.1			10.4		
Potassium	609			618		
Selenium	0.41	U	N	0.35	U	N
Silver	0.52	U		0.54	U	
Sodium	360		E	238		E
Thallium	0.41	U	W	0.35	U	
Vanadium	49.5			46.3		
Zinc	35.1		E	37.6		E
Cyanide	0.48	U		0.51	U	

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 BOREHOLE DP-7 (BACKGROUND)

1100-EM-1 (BACKGROUND) BOREHOLE DP-7	SAMPLE NUMBER DEPTH (ft)				
PARAMETER	A0101 0.5–2.0 (mg/kg)	A0104 11.5–13.5 (mg/kg)	A0105 16.5–18.0 (mg/kg)	A0109S 28.5–30.0 (mg/kg)	A0111 40.0–40.8 (mg/kg)
INORGANICS					
Aluminum	7440	4040	3630	3600	3950
Antimony	2.7 U N	2.3 U N	2.2 U N	2.7 U N	2.9 U N
Arsenic	2.1	0.9	0.74	0.83	1.2
Barium	79.7	67.1	61.5	229.0	62.1
Beryllium	0.16 U	0.14 U	0.13 U	0.16 U	0.17 U
Cadmium	0.32 U	0.28 U	0.26 U	0.32 U	0.35 U
Calcium	3810	5710	4870	5690	6790
Chromium	10.4	10.2	9.5	5.1	5.1
Cobalt	12.3	12.5	12.4	13.2	14.6
Copper	13.4	16.7	16.1	17.2	15.4
Iron	22600	21800	21300	23400	25300
Lead	4.3	2.8	2.6	2.4	2.7
Magnesium	4710 E	3910 E	3630 E	4020 E	4160 E
Manganese	367	277	259	294	303
Mercury	0.06 U	0.06 U	0.06 U	0.09 U	0.05 U
Nickel	10.3	6.8	7.5	8.9	5.1
Potassium	1380	632	582	549	602
Selenium	0.31 U W	0.28 U	0.33 U W	0.29 U	0.32 U
Silver	0.46 U	0.41 U	0.39 U	0.48 U	0.52 U
Sodium	136	312 E	319 E	251 E	257 E
Thallium	0.31 U	0.28 U W	0.33 U W	0.29 U W	0.32 U
Vanadium	88.6	85.9	81.5	86.0	78.0
Zinc	46.1 E	38.4 E	38.5 E	41.3 E	46.9 E
Cyanide	0.50 U	0.49 U	0.50 U	0.50 U	0.50 U

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 BOREHOLE BAP-2 (BACKGROUND)

1100-EM-1 BOREHOLE BAP-2 (BACKGROUND)		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A0201S 0.5-2.0 (µg/kg)	A0203S 8.3-9.6 (µg/kg)	A0204S 11.5-13.0 (µg/kg)	A0206S 17.5-19.0 (µg/kg)	A0207S 17.5-19.0 (µg/kg)	A0208S 19.5-21.0 (µg/kg)	A0209S 25.5-26.6 (µg/kg)	A0210S 34.3-35.4 (µg/kg)	A0211S 44.4-45.6 (µg/kg)
VOLATILE ORGANICS								NO COMPOUNDS DETECTED		
1,1,1-Trichloroethane					3 J					
Acetone					22					
SEMI-VOLATILE ORGANIC TICs										
Unknown	5.83	12000 J	15000 J			13000 J			13000 J	18000 J
Unknown	5.87			12000 J	13000 J		14000 J			
Unknown	7.03		250 J							280 J
Unknown	7.05	270 J		250 J	230 J	250 J	280 J		240 J	
Unknown	8.54		120 J							130 J
Unknown	8.55	110 J		120 J	120 J	120 J	120 J		110 J	
Cyclohexadiazine, dodecamet	16.25	52 J								
Benzophenone	20.37									81
Benzophenone	20.38			72 J						
Unknown	33.19	200 J								
Unknown	35.21		130 J							
Unknown	35.22	250 J								

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 BOREHOLE HRL-1 (BACKGROUND)

1100-EM-1 BOREHOLE HRL-1 (BACKGROUND)		SAMPLE NUMBER DEPTH (ft)		
PARAMETER	TIC RETENTION TIME	A0301S 1.0-2.0 (µg/kg)	A0302S 7.0-7.8 (µg/kg)	A0306S 12.2-13.7 (µg/kg)
VOLATILE ORGANICS				
Acetone		43	11	
Methylene chloride			1 J	
VOLATILE ORGANIC TICs				
Hexane	3.82	7.3 J		
SEMI-VOLATILE ORGANIC TICs				
Unknown	5.07		1100 J	
Unknown	5.15	1400 J		
Unknown	5.17			720 J
Unknown	5.70		13000 J	
Unknown	5.72			13000 J
Unknown	5.73	17000 J		
Unknown	6.97		190 J	
Unknown	6.99			170 J
Unknown	7.00	230 J		
2-Butanol, 3-methyl-, acetat	8.45		90 J	
2-Butanol, 3-methyl-, acetat	8.47			89 J
Unknown	33.19	170 J		
Unknown	34.24		220 J	
Unknown	34.49		350 J	
Unknown	35.22	570 J		

ORGANIC SAMPLE RESULTS FOR 1100-EM-1 BOREHOLE DP-7 (BACKGROUND)

1100-EM-1 DP-7 (BACKGROUND)		SAMPLE NUMBER DEPTH (ft)					
PARAMETER	TIC RETENTION TIME	A0101 0.5–2.0 (µg/kg)	A0104S 11.0–13.5 (µg/kg)	A0105S 16.5–18.0 (µg/kg)	A0108S 16.5–18.0 (µg/kg)	A0109S 28.5–30.0 (µg/kg)	A0111S 40.0–40.8 (µg/kg)
VOLATILE ORGANICS							
Acetone			13				
SEMI-VOLATILE ORGANICS							
bis (2-Ethylhexyl) phthalate		39 J					
SEMI-VOLATILE ORGANIC TICs							
Unknown	5.47			11000 J			
Unknown	5.48				10000 J	10000 J	
Unknown	5.52						13000 J
Unknown	5.55		12000 J				
Unknown	6.25	280 J					
Unknown	6.88				130 J	130 J	210 J
Unknown	6.90		150 J				
Unknown	21.75						64 J
Unknown	34.17	130 J					

SUBAPPENDIX I-2
1100-1 OPERABLE SUBUNIT SOIL CHEMICAL ANALYTICAL RESULTS

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INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 1 BOREHOLE BAP-1

1100-EM-1 SUB-UNIT 1 BOREHOLE BAP-1	SAMPLE NUMBER DEPTH(ft)						
PARAMETER	A1001S 1.5-2.0 (mg/kg)	A1002S 2.2-4.2 (mg/kg)	A1003S 2.2-4.2 (mg/kg)	A1004S 5.3-6.10 (mg/kg)	A1010S 8.8-9.6 (mg/kg)	A1011S 11.4-11.9 (mg/kg)	A1014S 13.9-15.8 (mg/kg)
INORGANICS							
Aluminum	7130	3650	3250	5860	5810	4890	4310
Antimony	5.5 U	5.7 U	5.7 U	5.8 U	5.4 U	5.4 U	5.5 U
Arsenic	2.7	2.0	1.8	3.2 S	1.2	0.95	1.4
Barium	80.8	71.2	70.5	85.9	72.0	72.5	59.7
Beryllium	0.17 U	0.18 U	0.18 U	0.18 U	0.17 U	0.17 U	0.17 U
Cadmium	0.69 U	0.72 U	0.71 U	0.72 U	0.67 U	0.67 U	0.69 U
Calcium	8690	3900	3600	5120	5920	6240	5670
Chromium	10.6	7.6	7.1	13.5	12.6	14.6	10.1
Cobalt	13.2	7.8	6.0	8.2	11.4	10.3	8.8
Copper	37.9	20.7	19.8	25.0	21.5	19.7	17.4
Iron	21100	25200	25000	34700	23500	23400	24500
Lead	266 N	191 N	126 N	132 N	35.3 *	3.8 S*	2.3 *
Magnesium	6430	1410	1430	2980	3860	2540	3190
Manganese	464	90.6	79.3	172	249	202	174
Mercury	0.22	0.39	0.11	0.15	0.08 U	0.07 U	0.09 U
Nickel	20.9	5.0 U	5.0 U	8.5	7.3	9.5	5.9
Potassium	850 E	3780 E	4260 E	4880 E	824 E	931 E	742 E
Selenium	0.34 U NW	1.80 U EN	1.70 U NW	1.80 U NW	0.33 U NW	0.33 U NW	0.34 U NW
Silver	0.51 U	0.54 U	0.53 U	0.54 U	0.50 U	0.50 U	0.52 U
Sodium	479	307	302	539	549	653	808
Thallium	0.34 U	0.35 U	0.35 U	0.37 U	0.33 U	0.33 U	0.34 U
Vanadium	32.5	63.5	56.2	118.0	65.3	71.8	77.2
Zinc	92.0	62.7	63.4	100.0	52.8	44.3	42.1
Cyanide	0.50 U	0.53 U	0.51 U	0.53 U	0.50 U	0.50 U	0.51 U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 1 BOREHOLE BAP-1

1100-EM-1 SUB-UNIT 1 BOREHOLE BAP-1	SAMPLE NUMBER DEPTH (ft)					
PARAMETER	A1015S 16.3-17.5 (mg/kg)			A1016S 18.1-19.8 (mg/kg)		
INORGANICS						
Aluminum	4590			4440		
Antimony	5.4	U		5.4	U	
Arsenic	0.98			0.94		
Barium	72.8			68.2		
Beryllium	0.17	U		0.17	U	
Cadmium	0.67	U		0.68	U	
Calcium	6050			5480		
Chromium	6.3			5.5		
Cobalt	11.8			9.4		
Copper	19.3			16.1		
Iron	25800			21200		
Lead	2.3		*	2.0		*+
Magnesium	3760			3570		
Manganese	214			187		
Mercury	0.10	U		0.08	U	
Nickel	7.6			4.9		
Potassium	717		E	622		E
Selenium	0.33	U	NW	0.34	U	NW
Silver	0.51	U		0.51	U	
Sodium	383			193		
Thallium	0.33	U	W	0.34	U	
Vanadium	77.3			46.6		
Zinc	42.6			35.7		
Cyanide	0.50	U		0.50	U	

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 1 BOREHOLE BAP-1

1100-EM-1 SUB-UNIT 1 BOREHOLE BAP-1		SAMPLE NUMBER								
		DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A1001 1.5-2.0 (µg/kg)	A1002 2.2-4.2 (µg/kg)	A1003 2.7-4.2 (µg/kg)	A1004 5.3-6.1 (µg/kg)	A1010 7.9-8.8 (µg/kg)	A1011 11.4-11.9 (µg/kg)	A1014 13.9-15.8 (µg/kg)	A1015 16.3-17.5 (µg/kg)	A1016 19.1-19.8 (µg/kg)
VOLATILE ORGANICS										
2-Butanone							9 J			
Acetone					4 J	19	26		6 J	4 J
VOLATILE ORGANIC TICs										
2-Pentanamine, 4-methyl-	1.10		33 J							
.alpha.-D-Glucopyranoside, m	1.10			25 J						
Ethane, 1,1,2-trichloro-1,2,	2.07			16 J						
Ethane, 1,1,2-trichloro-1,2,	2.08		7.5 J							
SEMI-VOLATILE ORGANICS										
Benzo (b) fluoranthene		150 J		74 J						
bis (2-Ethylhexyl) phthalate		380 J								
Chrysene		100 J								
Fluoranthene		110 J		110 J	98 J					
Pyrene		97 J		80 J	84 J	78 J				
SEMI-VOLATILE ORGANIC TICs										
Unknown	5.23	28000 J								
Unknown	5.25					24000 J				
Unknown	5.27								28000 J	28000 J
Unknown	5.28			25000 J	28000 J		31000 J	28000 J		
Unknown	5.30		30000 J							
2-Hexanone, 6-(acetyloxy)-	6.43									400 J
2-Hexanone, 6-(acetyloxy)-	6.45					380 J	500 J	400 J	400 J	
Unknown	7.08						620 J	770 J	600 J	620 J
Unknown	7.13	3000 J				3300 J				
Unknown	7.19			2800 J						
Unknown	7.20		2800 J		3300 J					
Unknown	7.30					340 J				
Benzaldehyde (ACN)(DOT)	7.33									
Unknown	7.37		1200 J	1400 J	540 J					
3-Heptanone, 2,4-dimethyl-	8.02						430 J	460 J		
3-Heptanone, 2,4-dimethyl-	8.07					2600 J				
3-Heptanone, 2,4-dimethyl-	8.08	3500 J								
3-Heptanone, 2,4-dimethyl-	8.12		2300 J	1800 J	2000 J					
Unknown	8.44					210 J				
Unknown	8.47	680 J								
Unknown	8.62		200 J							

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 1 BOREHOLE BAP-1

1100-EM-1 SUB-UNIT 1 BOREHOLE BAP-1		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A1001 1.6-2.0 (µg/kg)	A1002 2.2-4.2 (µg/kg)	A1003 2.2-4.2 (µg/kg)	A1004 5.3-6.1 (µg/kg)	A1010 7.8-8.6 (µg/kg)	A1011 11.4-11.9 (µg/kg)	A1014 13.9-16.8 (µg/kg)	A1015 16.3-17.5 (µg/kg)	A1016 18.1-19.8 (µg/kg)
Unknown	11.04					730 J				
Unknown	11.10			710 J						
Unknown	11.12		740 J							
Undecane, 3,6-dimethyl-	15.62	740 J								
Dodecane, 2,7,10-trimethyl-	17.49	1200 J								
Hexadecane	19.05	1700 J								
Heptadecane	20.55	1400 J								
Unknown	20.64	1300 J								
Unknown	21.97	1300 J								
Unknown	22.10	1100 J								
Unknown	23.32	1100 J								
Unknown	25.98	1300 J								
Unknown	26.59							280 J		
Unknown	26.60		410 J	410 J	350 J					
Unknown	26.81					420 J	340 J	410 J		380 J
Unknown	26.89		580 J	610 J	550 J					
Unknown	26.91								2600 J	
Unknown	26.92					4600 J	4200 J	5000 J		5200 J
Unknown	26.94	3600 J								
Unknown	28.69			5600 J	5100 J					
Unknown	29.01		5600 J							
Unknown	32.52	630 J								
Unknown	33.11	1800 J								
Unknown	33.48	470 J								
Unknown	33.54			110 J	160 J					
Unknown	33.86	680 J								
Unknown	33.97	420 J								
Unknown	34.27	870 J								
Unknown	34.57		490 J	380 J	230 J					
PESTICIDES										
4,4'-DDE		6.8 J								
alpha-Chlordane		6.5 J			1.1 J	1.3 J				
Aroclor-1260		280 J								
gamma-Chlordane		6.2 J								

SUBAPPENDIX I-3
1100-2 OPERABLE SUBUNIT SOIL CHEMICAL ANALYTICAL RESULTS

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INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SAMPLES

1100-EM-1 SUB-UNIT 2	SAMPLE NUMBER DEPTH (ft)							
PARAMETER	A2113S 0.0-0.5 (mg/kg)	A2114S 0.0-0.5 (mg/kg)	A2115S 0.0-0.5 (mg/kg)	A2116S 0.0-0.5 (mg/kg)	A2117S 0.0-0.5 (mg/kg)	A2118S 0.0-0.5 (mg/kg)	A2119S 0.0-0.5 (mg/kg)	A2120S 0.0-0.5 (mg/kg)
INORGANICS								
Aluminum	5830	4820	5160	4840	5510	5840	5930	6210
Antimony	4.5 U N	4.8 U N	5.3 U N	4.9 U N	5.0 U N	5.1 U N	4.8 U N	5.4 U N
Arsenic	2.0	1.7	2.1	1.4	1.6	2.2	1.6 W	2.0
Barium	64.9	65.8	69.4	62.6	72.9	73.4	81.6	81.5
Beryllium	0.37	0.38	0.32	0.26	0.33	0.35	0.35	0.36
Cadmium	0.56 U	0.59 U	0.66 U	0.62 U	0.63 U	0.64 U	0.60 U	0.67 U
Calcium	3740	5390	3120	5900	4070	3190	3070	3210
Chromium	9.1 *	8.3 *	7.1 *	5.5 *	7.1 *	7.9 *	8.3 *	8.6 *
Cobalt	10.7	11.8	8.6	8.6	10.6	9.8	9.8	10.5
Copper	13.2	17.3	9.9	13.6	12.2	11.4	9.7	10.0
Iron	20800	22100	17500	16500	21000	19900	19800	20900
Lead	84.4	3.8	4.4	3.6	5.1	4.9	4.9	4.9
Magnesium	4130	4160	3900	3880	4350	4250	4110	4250
Manganese	293 N	305 N	311 N	261 N	325 N	337 N	349 N	356 N
Mercury	0.10 U	0.09 U	0.09 U	0.10 U	0.09 U	0.09 U	0.10 U	0.10 U
Nickel	9.0	9.0	9.4	8.3	9.6	9.7	8.7	8.3
Potassium	1240 E	760 E	1250 E	942 E	1340 E	1320 E	1780 E	1910 E
Selenium	0.17 U NW	0.17 U N	0.17 U NW	0.17 U N	0.15 U NW	0.17 U N	0.16 U NW	0.16 U NW
Silver	0.42 U	0.45 U	0.49 U	0.46 U	0.47 U	0.48 U	0.45 U	0.50 U
Sodium	170	130	115	132	110	102	90.1	92.4
Thallium	0.34 U	0.33 U	0.33 U	0.33 U	0.31 U	0.34 U	0.32 U	0.32 U
Vanadium	52.9	51.0	34.7	26.6	46.2	45.0	46.2	50.0
Zinc	48.5 E	40.6 E	34.3 E	32.5 E	40.7 E	39.1 E	42.4 E	43.5 E
Cyanide	0.50 U	0.51 U	0.50 U	0.51 U	0.50 U	0.50 U	0.50 U	0.50 U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SAMPLES

1100-EM-1 SUB-UNIT 2	SAMPLE NUMBER DEPTH (ft)							
PARAMETER	A2125S 0.0-0.5 (mg/kg)	A2126S 0.0-0.5 (mg/kg)	A2127S 0.0-0.5 (mg/kg)	A2128S 0.0-0.5 (mg/kg)	A2129S 0.0-0.5 (mg/kg)	A2130S 0.0-0.5 (mg/kg)	A2131S 0.0-0.5 (mg/kg)	A2132S 0.0-0.5 (mg/kg)
INORGANICS								
Aluminum	5430	8300	5890	5290	5650	4920	6090	6050
Antimony	5.4 U N	5.4 U N	5.2 U N	4.7 U N	5.1 U N	5.3 U N	5.4 U N	5.3 U N
Arsenic	2.3	1.4	1.6	1.7	1.1	1.6	1.7	1.7
Barium	81.0	91.5	69.4	69.9	64.3	64.6	64.3	84.5
Beryllium	0.25	0.49	0.46	0.30	0.51	0.37	0.36	0.38
Cadmium	0.67 U	0.68 U	0.65 U	0.59 U	0.63 U	0.66 U	0.68 U	0.66 U
Calcium	3710	6480	6110	3450	5000	4280	4760	3390
Chromium	9.7 *	11.0 *	6.4 *	6.5 *	7.5 *	8.9 *	8.9 *	7.8 *
Cobalt	8.6	10.7	10.3	8.7	13.7	9.8	10.1	8.9
Copper	10.7	14.2	16.1	11.0	16.0	14.3	11.9	11.1
Iron	16100	20800	19600	16800	26600	19400	19900	17400
Lead	5.5	9.0	6.8	4.6	3.3	56.7	16.9	5.1
Magnesium	4140	5210	4340	3840	4640	3770	4180	4200
Manganese	346 N	289 N	292 N	299 N	342 N	293 N	310 N	347 N
Mercury	0.09 U	0.10 U	0.09 U	0.09 U	0.10 U	0.07 U	0.09 U	0.08 U
Nickel	9.6	15.0	11.2	8.1	10.3	10.5	10.9	10.3
Potassium	1540 E	2060 E	1130 E	1360 E	1370 E	971 E	1110 E	1460 E
Selenium	0.17 U NW	0.17 U NW	0.17 U NW	0.17 U NW	0.15 U NW	0.16 U NW	0.16 U NW	0.17 U N
Silver	0.51 U	0.51 U	0.49 U	0.44 U	0.48 U	0.49 U	0.51 U	0.50 U
Sodium	89.6	137	153	114	172	135	196	93.5
Thallium	0.33 U W	0.34 U	0.34 U	0.33 U	0.31 U	0.48	0.33 U	0.33 U
Vanadium	25.7	38.8	35.5	31.4	69.6	46.3	49.6	30.4
Zinc	34.4 E	47.8 E	39.0 E	35.1 E	49.0 E	44.4 E	42.4 E	36.6 E
Cyanide	0.50 U	0.50 U	0.48 U	0.49 U	0.50 U	0.51 U	0.51 U	0.50 U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SAMPLES

1100-EM-1 SUB-UNIT 2	SAMPLE NUMBER DEPTH (ft)					
PARAMETER	A2133S 0.0-0.5 (mg/kg)	A2134S 0.0-0.5 (mg/kg)	S3136A 0.0-0.5 (mg/kg)	S3137A 0.0-0.5 (mg/kg)	S3138A 0.0-0.5 (mg/kg)	S3140A 0.0-0.5 (mg/kg)
INORGANICS						
Aluminum	4670	5960	5700	6610	6480	7010
Antimony	5.0 U N	5.3 U N	5.8 U N	6.3 U N	5.8 U N	6.0 U N
Arsenic	1.4	1.5	1.8	1.8	1.8	1.9
Barium	68.6	70.0	73.9	77.8	76.5	84.5
Beryllium	0.22	0.38	0.18 U	0.20 U	0.22	0.29
Cadmium	0.62 U	0.67 U	0.73 U	0.78 U	0.72 U	0.75 U
Calcium	3870	4900	3250	4800	3330	3300
Chromium	7.0 *	7.9 *	8.2	8.1	8.7	9.6
Cobalt	8.0	9.8	9.4	11.6	10.5	10.7
Copper	11.0	14.7	10.9	14.1	11.6	11.2
Iron	16200	18600	18700	20700	20700	21400
Lead	34.1	25.3	4.8	6.0	8.2	5.7
Magnesium	3750	4110	3950	4540	4300	4390
Manganese	267 N	302 N	313	347	349	365
Mercury	0.08 U	0.10 U	0.07 U	0.08 U	0.07 U	0.06 U
Nickel	8.0	10.4	8.3	9.0	7.6	9.8
Potassium	959 E	1110 E	1260	1330	1480	1910
Selenium	0.17 U N	0.17 U N	0.35 U	0.38 U	0.34 U	0.37 U
Silver	0.47 U	0.50 U	0.54 U	0.59 U	0.54 U	0.56 U
Sodium	150	208	81.7	110	94	93.6
Thallium	0.33 U	0.34 U	0.35 U	0.38 U	0.34 U	0.37 U
Vanadium	30.9	40.3	42.3 *	42.4 *	48.8 *	50.4 *
Zinc	36.7 E	39.5 E	39.4 E	42.9 E	44.8 E	45.9 E
Cyanide	0.51 U	0.51 U	0.50 U	0.50 U	0.50 U	0.50 U

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 2		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A2113S 0.0-0.5 (µg/kg)	A2113SRE 0.0-0.5 (µg/kg)	A2114S 0.0-0.5 (µg/kg)	A2115S 0.0-0.5 (µg/kg)	A2116S 0.0-0.5 (µg/kg)	A2117S 0.0-0.5 (µg/kg)	A2118S 0.0-0.5 (µg/kg)	A2119S 0.0-0.5 (µg/kg)	A2120S 0.0-0.5 (µg/kg)
VOLATILE ORGANICS										
1,1,1-Trichloroethane							2 J	2 J	2 J	2 J
1,1-Dichloroethene								3 J	1 J	5
2-Butanone										
4-Methyl-2-pentanone										
Acetone							8 J		11	10
Chlorobenzene								4 J	2 J	6
Methylene chloride		4 J								
Toluene							2 J	4 J	4 J	11
Trichloroethene								3 J	1 J	8
Xylene(total)										
SEMI-VOLATILE ORGANICS										
1,2,4-Trichlorobenzene								120 J		
1,3-Dichlorobenzene								120 J		
1,4-Dichlorobenzene								120 J		
2-Chlorophenol					81 J		85 J	230 J	80 J	
4-Chloro-3-Methylphenol								160 J		
Acenaphthene								110 J		
Benzoic acid										
Benzo(a)Pyrene					110 J				63 J	
Benzo(b)Fluoranthene					79 J					
Benzo(g,h,i)Perylene				110 J	330 J				160 J	
Benzo(k)Fluoranthene					120 J				61 J	
bis(2-Ethylhexyl)phthalate				67 J		120 J		160 J	290 J	82 J
Dibenz(a,h)Anthracene					300 J					
Di-n-Octyl Phthalate										
Indeno(1,2,3-cd)Pyrene					300 J					
N-Nitroso-Di-n-Propylamine								110 J		
Phenol					94 J				88 J	
Pyrene								120 J		
SEMI-VOLATILE ORGANIC TICs										
Octane, 2-methyl	5.00									
Octane, 2-methyl	5.10									
Heptane, 4-(1-methylethyl)-	5.20									

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 2		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A2113S 0.0-0.5 (µg/kg)	A2113SRE 0.0-0.5 (µg/kg)	A2114S 0.0-0.5 (µg/kg)	A2115S 0.0-0.5 (µg/kg)	A2116S 0.0-0.5 (µg/kg)	A2117S 0.0-0.5 (µg/kg)	A2118S 0.0-0.5 (µg/kg)	A2119S 0.0-0.5 (µg/kg)	A2120S 0.0-0.5 (µg/kg)
Heptane, 4-(1-methylethyl)-	5.22									
Heptane, 4-(1-methylethyl)-	5.23									
Unknown	6.70									
Unknown	6.72									
1,3-Dioxolane-2-Ethanol, 2-M	7.50								310 J	
3-Heptanone, 2,4-Dimethyl-	7.58									
3-Heptanone, 2,4-Dimethyl-	7.60									
3-Heptanone, 2,4-Dimethyl-	7.62									
Unknown	8.74									
Unknown	10.55									
Trifluralin (acn)	19.84							520 J		
Trifluralin (acn)	19.85				410 J					
Aldrin-R	23.84						320 J			
Aldrin-R	23.85			330 J	1400 J			3700 J		
Unknown	25.99									
Unknown	26.00									
Unknown	26.01								830 J	300 J
Unknown	26.02			550 J	580 J	850 J	1100 J	750 J		
Unknown	26.17									
Dodecanamide	26.22									
Unknown	26.24									800 J
Unknown	26.27									
Unknown	26.29									
Unknown	26.31	13000 J								
Unknown	26.32									7800 J
Unknown	26.34									
Unknown	26.36			10000 J	13000 J	18000 J	21000 J	18000 J	18000 J	
Unknown	26.37									
Unknown	26.54									
Unknown	26.56								420 J	
Unknown	26.57			240 J	310 J	450 J	540 J	380 J		
Unknown	31.72								310 J	
Unknown	31.81							400 J	880 J	
Unknown	32.42									
Unknown	33.01									
Unknown	33.02									170 J

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 2		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A2113S 0.0-0.5 (µg/kg)	A2113SRE 0.0-0.5 (µg/kg)	A2114S 0.0-0.5 (µg/kg)	A2115S 0.0-0.5 (µg/kg)	A2116S 0.0-0.5 (µg/kg)	A2117S 0.0-0.5 (µg/kg)	A2118S 0.0-0.5 (µg/kg)	A2119S 0.0-0.5 (µg/kg)	A2120S 0.0-0.5 (µg/kg)
Unknown	33.14									
Unknown	33.54									
Unknown	33.61									
Unknown	33.62				270 J	440 J	340 J	230 J	620 J	
Unknown	33.84									
Unknown	34.71									
Unknown	34.91									
Unknown	35.47					250 J				
Unknown	35.47									
Unknown	35.49									
Unknown	36.24									
PESTICIDES										
4,4'-DDD										
4,4'-DDE										
4,4'-DDT			4.3 J							
Aldrin			9.6 J							0.83 J
Endrin ketone										
Heptachlor										

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 2		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A2125S 0.0-0.5 (µg/kg)	A2126S 0.0-0.5 (µg/kg)	A2127S 0.0-0.5 (µg/kg)	A2128S 0.0-0.5 (µg/kg)	A2129S 0.0-0.5 (µg/kg)	A2130S 0.0-0.5 (µg/kg)	A2131S 0.0-0.5 (µg/kg)	A2132S 0.0-0.5 (µg/kg)	A2133S 0.0-0.5 (µg/kg)
VOLATILE ORGANICS										
1,1,1-Trichloroethane		1 J								
1,1-Dichloroethene										
2-Butanone			10 J							
4-Methyl-2-pentanone						1 J				
Acetone		7 J				6 J	10 J	19		
Chlorobenzene										
Methylene chloride										8
Toluene							8			
Trichloroethene										
Xylene(total)							8			
SEMI-VOLATILE ORGANICS										
1,2,4-Trichlorobenzene										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										
2-Chlorophenol										
4-Chloro-3-Methylphenol										
Acenaphthene										
Benzoic acid										
Benzo(a)Pyrene										
Benzo(b)Fluoranthene										
Benzo(g,h,i)Perylene										
Benzo(k)Fluoranthene										
bis(2-Ethylhexyl)phthalate										
Dibenz(a,h)Anthracene										
Di-n-Octyl Phthalate						67 J				
Indeno(1,2,3-cd)Pyrene										
N-Nitroso-Di-n-Propylamine										
Phenol										
Pyrene										
SEMI-VOLATILE ORGANIC TICs										
Octane, 2-methyl	5.08									
Octane, 2-methyl	5.10									
Heptane, 4-(1-methylethyl)-	5.20									

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 2		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A2125S 0.0-0.5 (µg/kg)	A2126S 0.0-0.5 (µg/kg)	A2127S 0.0-0.5 (µg/kg)	A2128S 0.0-0.5 (µg/kg)	A2129S 0.0-0.5 (µg/kg)	A2130S 0.0-0.5 (µg/kg)	A2131S 0.0-0.5 (µg/kg)	A2132S 0.0-0.5 (µg/kg)	A2133S 0.0-0.5 (µg/kg)
Heptane, 4-(1-methylethyl)-	5.22									
Heptane, 4-(1-methylethyl)-	5.23									
Unknown	6.70									
Unknown	6.72									
1,3-Dioxolane-2-Ethanol, 2-M	7.50									
3-Heptanone, 2,4-Dimethyl-	7.58									
3-Heptanone, 2,4-Dimethyl-	7.60									
3-Heptanone, 2,4-Dimethyl-	7.62									
Unknown	8.74									
Unknown	19.55									
Trifluralin (acn)	19.84									
Trifluralin (acn)	19.85									
Aldrin-R	23.94									
Aldrin-R	23.95									
Unknown	25.98		380 J	520 J	330 J					
Unknown	25.99	610 J								
Unknown	26.01									
Unknown	26.02					690 J	520 J	670 J	620 J	680 J
Unknown	26.17		540 J		530 J					
Dodecanamide	26.22									
Unknown	26.24									
Unknown	26.27				7300 J					
Unknown	26.29		7500 J							
Unknown	26.31			10000 J						
Unknown	26.32									
Unknown	26.34	14000 J								
Unknown	26.36					15000 J	11000 J	13000 J	13000 J	14000 J
Unknown	26.37									
Unknown	26.54	350 J								
Unknown	26.56									
Unknown	26.57					380 J	290 J	330 J	270 J	340 J
Unknown	31.72									
Unknown	31.81									
Unknown	32.42						380 J			
Unknown	33.01	170 J								
Unknown	33.02						380 J			

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 2		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A2125S 0.0-0.5 (µg/kg)	A2126S 0.0-0.5 (µg/kg)	A2127S 0.0-0.5 (µg/kg)	A2128S 0.0-0.5 (µg/kg)	A2129S 0.0-0.5 (µg/kg)	A2130S 0.0-0.5 (µg/kg)	A2131S 0.0-0.5 (µg/kg)	A2132S 0.0-0.5 (µg/kg)	A2133S 0.0-0.5 (µg/kg)
Unknown	33.14						720 J			
Unknown	33.54						390 J			
Unknown	33.61	250 J								
Unknown	33.62									
Unknown	33.64						230 J	360 J		300 J
Unknown	34.71									
Unknown	34.81						380 J			
Unknown	35.47						520 J			
Unknown	35.47									
Unknown	35.49							250 J		
Unknown	38.24						640 J			
PESTICIDES										
4,4'-DDD										
4,4'-DDE			1.7 J					4 J		8.1 J
4,4'-DDT										
Aldrin		0.72 J								
Endrin ketone										
Heptachlor										1.2 J

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 2		SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	A2134S 0.0-0.5 (µg/kg)	S3136A 0.0-0.5 (µg/kg)	S3137A 0.0-0.5 (µg/kg)	S3138A 0.0-0.5 (µg/kg)	S3140A 0.0-0.5 (µg/kg)
VOLATILE ORGANICS						
1,1,1-Trichloroethane						
1,1-Dichloroethene						
2-Butanone						
4-Methyl-2-pentanone						
Acetone						
Chlorobenzene						
Methylene chloride						
Toluene						3 J
Trichloroethene						
Xylene(total)						
SEMI-VOLATILE ORGANICS						
1,2,4-Trichlorobenzene						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
2-Chlorophenol						
4-Chloro-3-Methylphenol						
Acenaphthene						
Benzoic acid						
Benzo(a)Pyrene						
Benzo(b)Fluoranthene						
Benzo(g,h,i)Perylene						
Benzo(k)Fluoranthene						
bis(2-Ethylhexyl)phthalate						
Dibenz(a,h)Anthracene						
Di-n-Octyl Phthalate						
Indeno(1,2,3-cd)Pyrene						
N-Nitroso-Di-n-Propylamine						
Phenol						
Pyrene						
SEMI-VOLATILE ORGANIC TICs						
Octane, 2-methyl	5.08		1500 J		980 J	
Octane, 2-methyl	5.10			1500 J		1500 J
Heptane, 4-(1-methylethyl)-	5.20				580 J	

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 2		SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	A2134S 0.0-0.5 (µg/kg)	S3136A 0.0-0.5 (µg/kg)	S3137A 0.0-0.5 (µg/kg)	S3138A 0.0-0.5 (µg/kg)	S3140A 0.0-0.5 (µg/kg)
Heptane, 4-(1-methylethyl)-	5.22		880 J			
Heptane, 4-(1-methylethyl)-	5.23			830 J		940 J
Unknown	6.70		1600 J	2400 J		2100 J
Unknown	6.72				3400 J	
1,3-Dioxolane-2-Ethanol, 2-M	7.50					
3-Heptanone, 2,4-Dimethyl-	7.58		590 J	800 J		
3-Heptanone, 2,4-Dimethyl-	7.60					1400 J
3-Heptanone, 2,4-Dimethyl-	7.62				2600 J	
Unknown	8.74				800 J	
Unknown	10.55			650 J	550 J	700 J
Trifluralin (ocn)	19.84					
Trifluralin (ocn)	19.85					
Aldrin-R	23.94					
Aldrin-R	23.95					
Unknown	25.00					
Unknown	25.08					
Unknown	26.01					
Unknown	26.02	530 J	620 J	490 J	740 J	790 J
Unknown	26.17					
Dodecanamide	26.22					
Unknown	26.24					
Unknown	26.27					
Unknown	26.29					
Unknown	26.31					
Unknown	26.32					
Unknown	26.34					
Unknown	26.36	11000 J	13000 J	11000 J		
Unknown	26.37				15000 J	17000 J
Unknown	26.54					
Unknown	26.56					
Unknown	26.57		300 J		380 J	380 J
Unknown	31.72					
Unknown	31.81					
Unknown	32.42					
Unknown	33.01					
Unknown	33.02					

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 2		SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	A2134S 0.0-0.5 (µg/kg)	S3138A 0.0-0.5 (µg/kg)	S3137A 0.0-0.5 (µg/kg)	S3138A 0.0-0.5 (µg/kg)	S3140A 0.0-0.5 (µg/kg)
Unknown	33.14					
Unknown	33.54					
Unknown	33.61					
Unknown	33.62		190 J	190 J	320 J	180
Unknown	33.64					
Unknown	34.71	330 J				
Unknown	34.91					
Unknown	35.47					
Unknown	35.47					
Unknown	35.49					
Unknown	38.24					
PESTICIDES						
4,4'-DDD						
4,4'-DDE						
4,4'-DDT						
Aldrin			1.1 J			
Endrin ketone						
Heptachlor		0.71 J				

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-4

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-4	SAMPLE NUMBER DEPTH(ft)							
PARAMETER	A0402S 0.8-1.9 (mg/kg)	A0404S 1.9-3.3 (mg/kg)	A0406S 3.3-5.1 (mg/kg)	A0407S 5.9-7.1 (mg/kg)	A0408S 7.2-8.6 (mg/kg)	A0409S 9.7-10.7 (mg/kg)	A0411S 12.9-14.4 (mg/kg)	A0413S 18.5-20 (mg/kg)
INORGANIC								
Aluminum	6340	5690	4910	6220	4530	4410	3750	3400
Antimony	5.8 U N	5.8 U N	5.6 U N	6.2 U N	6.0 U N	6.1 U N	5.9 U N	5.5 U N
Arsenic	1.5	0.95	1.2	1.2	0.97	0.80	0.96	0.78
Barium	75.6	68.5	58.3	74.6	76.3	62.3	56.6	57.8
Beryllium	0.18 U	0.18 U	0.17 U	0.19 U	0.19 U	0.19 U	0.18 U	0.17 U
Cadmium	0.73 U	0.72 U	0.70 U	0.77 U	0.75 U	0.76 U	0.73 U	0.69 U
Calcium	4300	4180	3910	5300	5960	6260	5430	5540
Chromium	9.0	8.5	6.9	10.0	7.2	6.5	4.2	3.8
Cobalt	11.4	11.3	8.2	11.5	11.0	13.2	11.7	11.5
Copper	14.1	13.2	11.6	16.7	18.5	14.8	13.9	13.8
Iron	23300	21200	16800	22500	21000	24300	22200	21700
Lead	24.3 *	22.7 *	34.6 *	45.9 *	16.8 *	8.3 *	2.1 *	2.1 S*
Magnesium	4280	4080	3740	4080	4020	3810	3830	3970
Manganese	332 N	304 N	274 N	294 N	276 N	283 N	261 N	268 N
Mercury	0.04 U	0.05 U	0.02 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Nickel	9.4	9.7	7.6	7.6	13.0	8.9	7.6	5.9
Potassium	1160	1060	848	1060	688	553	516	492
Selenium	0.34 U W	0.32 U W	0.31 U	0.33 U W	0.36 U	0.37 U	0.35 U	0.36 U W
Silver	0.54 U	0.54 U	0.52 U	0.58 U	0.56 U	0.57 U	0.55 U	0.52 U
Sodium	237 E	258 E	222 E	397 E	347 E	458 E	282 E	271 E
Thallium	0.34 U	0.32 U	0.31 U	0.33 U	0.36 U	0.37 U	0.35 U	0.36 U
Vanadium	62.2	57.9	39.3	65.3	46.1	72.0	59.7	51.4
Zinc	48.7	44.7	41.6	49.7	54.9	46.3	39.4	39.3
Cyanide	0.50 U N	0.51 U N	0.51 U N	0.51 U N	0.50 U N	0.50 U N	0.50 U N	0.50 U N

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5	SAMPLE NUMBER DEPTH (ft)					
PARAMETER	A0501S 0.5-2.0 (mg/kg)	A0504S 4.5-6.0 (mg/kg)	A0506S 8.2-9.7 (mg/kg)	A0510S 12.3-14.0 (mg/kg)	A0513S 16.4-18.0 (mg/kg)	A0514S 18.2-20.0 (mg/kg)
INORGANICS						
Aluminum	5070	5230	4310	3650	2700	3500
Antimony	5.8 U N	5.6 U N	5.0 U N	4.4 U N	4.5 U N	4.1 U N
Arsenic	1.5	1.8	1.0	0.95	0.65	0.78
Barium	61.5	65.7	64.4	57.6	62.2	62.0
Beryllium	0.18 U	0.17 U	0.16 U	0.14 U	0.14 U	0.13 U
Cadmium	0.72 U	0.70 U	0.62 U	0.55 U	0.56 U	0.52 U
Calcium	4090	3850	5100	5740	5490	6200
Chromium	8.1	7.6	5.8	3.8	3.6	3.2
Cobalt	8.4	9.6	10.8	10.3	9.2	12.4
Copper	14.7	11.3	23.6	13.3	13.6	14.7
Iron	16100	18400	20400	19300	18200	23100
Lead	65.9 N	18.1 N	9.0 N	4.6 N	1.8 N	2.0 N
Magnesium	3520	3980	3670	3290	3640	3980
Manganese	257 E	292 E	277 E	226 E	258 E	271 E
Mercury	0.06 U	0.07 U	0.05 U	0.03 U	0.03 U	0.04 U
Nickel	9.8	9.4	8.6	7.3	6.1	6.8
Potassium	770	1110	644	642	292	319
Selenium	0.34 U N	0.32 U N	0.32 U N	0.27 U N	0.24 U N	0.28 U N
Silver	0.54 U	0.52 U	0.47 U	0.41 U	0.42 U	0.39 U
Sodium	261 E	170 E	187 E	188 E	158 E	235 E
Thallium	0.34 U	0.32 U	0.32 U	0.27 U	0.24 U	0.28 U W
Vanadium	35.2	42.5	47.3	47.1	30.0	59.1
Zinc	42.0	40.6	42.6	36.1	30.0	41.1
Cyanide	0.51 U N	0.51 U N	0.52 U N	0.52 U N	0.49 U N	0.49 U N

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-6

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-6	SAMPLE NUMBER DEPTH (ft)																	
PARAMETER	A0602S 0.5-2.0 (mg/kg)			A0605S 4.2-5.7 (mg/kg)			A0608S 6.3-7.9 (mg/kg)			A0610S 10.5-11.8 (mg/kg)			A0612S 14.0-15.8 (mg/kg)			A0615S 18.2-20.0 (mg/kg)		
INORGANICS																		
Aluminum	2820			7010			5820			3760			3710			3970		
Antimony	5.2	U	N	5.8	U	N	4.9	U	N	5.1	U	N	5.1	U	N	5.3	U	N
Arsenic	1.9			1.7			1.7			0.75			0.88			0.66		
Barium	41.4			75.1			78.9			64.6			63.4			62.1		
Beryllium	0.16	U		0.18	U		0.15	U		0.16	U		0.16	U		0.17	U	
Cadmium	0.65	U		0.73	U		0.61	U		0.64	U		0.64	U		0.67	U	
Calcium	2010			4200			4540		*	6270		*	5990		*	6450		*
Chromium	3.7			9.0			10.3			5.9			5.4			5.6		
Cobalt	5.6			12.1			12.0			11.9			12.1			12.3		
Copper	6.4			13.6			21.9			20.1			17.5			16.0		
Iron	10400			23400			22600			22000			22700			22500		
Lead	5.2		N	4.5		N	3.7		*	2.3		*	2.8		*	2.3		*
Magnesium	2150			4620			4500			3910			4080			4080		
Manganese	176		E	307		E	366			256			278			270		
Mercury	0.06	U		0.07	U		0.07	U	N	0.08	U	N	0.09	U	N	0.09	U	N
Nickel	5.3			13.8			9.8			8.3			8.4			8.7		
Potassium	811			1200			949			544			526			569		
Selenium	0.36	U	N	0.36	U	N	0.32	U		0.30	U		0.32	U		0.32	U	
Silver	0.49	U		0.55	U		0.46	U		0.48	U		0.48	U		0.50	U	
Sodium	55.4		E	194		E	200			222			248			230		
Thallium	0.36	U		0.36	U		0.32	U		0.30	U	W	0.32	U		0.32	U	
Vanadium	26.9			60.7			58.3			51.8			54.6			56.6		
Zinc	24.3			45.9			45.3		E	39.2		E	39.9		E	40.7		E
Cyanide	0.50	U	N	0.52	U	N	0.52	U	N	0.50	U	N	0.53	U	N	0.51	U	N

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9	SAMPLE NUMBER DEPTH (ft)																							
PARAMETER	A1101S 1.0-2.0 (mg/kg)			A1103S 5.8-6.8 (mg/kg)			A1105S 7.5-9.0 (mg/kg)			A1108S 9.2-11.5 (mg/kg)			A1111S 11.7-13.4 (mg/kg)			A1115S 20.3-21.8 (mg/kg)			A1118S 22.8-24.5 (mg/kg)			A1121S ?-? (mg/kg)		
INORGANICS																								
Aluminum	7580		E	7470		E	5460		E	5640		E	6320		E	4460		E	4340		E	5360		E
Antimony	1.8	U	N	2.1	U	N	2.1	U	N	1.8	U	N	1.7	U	N	2.1	U	N	2.1	U	N	1.9	U	N
Arsenic	1.7			1.8			1.0			0.98			1.2			0.9			0.9		W	0.9		
Barium	86.8		E	84.4		E	67.4		E	79.5		E	96.6		E	74.8			62.0			61.8		
Beryllium	0.17	U		0.19	U		0.19	U		0.16	U		0.15	U		0.19	U		0.19	U		0.17	U	
Cadmium	0.33	U		0.39	U		0.37	U		0.33	U		0.30	U		0.37	U		0.37	U		0.34	U	
Calcium	6370		E	4810		E	6420		E	8540		E	7730		E	9330			6730			13000		
Chromium	16.8		*	9.2		*	5.6		*	5.3		*	9.8		*	5.5			5.3			6.6		
Cobalt	13.9		E	12.3		E	15.3		E	13.6		E	13.7		E	12.5			13.3			11.3		
Copper	24.4		E	16.0		E	17.2		E	16.6		E	16.3		E	16.5			14.9			13.5		
Iron	25900			22700			27100			24600			25400			23000			24100			20600		
Lead	94.6		*	14.4		*	4.4		*	2.4		S*	3.1		S*	2.9		N	1.4		N	1.3		N
Magnesium	4830			4130			4280			4650			4900			4160			4070			4040		
Manganese	357			345			316			291			342			312			280			273		
Mercury	0.10	U	N	0.09	U	N	0.09	U	N	0.07	U	N	0.09	U	N	0.08	U		0.08	U		0.08	U	
Nickel	12.7			10.3			9.1			8.4			10.7			7.3			7.0			6.5		
Potassium	1240			1200			674			749			885			605			686			803		
Selenium	0.35	U	N	0.38	U	N	0.32	U	N	0.34	U	N	0.30	U	N	0.36	U		0.32	U		0.37	U	
Silver	0.33	U		0.39	U		0.37	U		0.33	U		0.30	U		0.37	U		0.37	U		0.34	U	
Sodium	374		E	296		E	373		E	343		E	443		E	397		E	361		E	366		E
Thallium	0.35	U		0.38	U		0.32	U		0.34	U		0.30	U		0.36	U		0.32	U		0.37	U	
Vanadium	73.4			58.3			80.2			64.8			69.8			64.0		*	69.0		*	55.7		*
Zinc	56.6			46.6			51.4			47.5			48.5			42.4			44.8			39.2		
Cyanide	0.10	U		0.10	U		0.10	U		0.10	U		0.10	U		0.51	U		0.51	U		0.51	U	

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9	SAMPLE NUMBER DEPTH (ft)								
PARAMETER	A1123S 33.8-35.3 (mg/kg)			A1125S 36.9-38.1 (mg/kg)			A1126S 38.1-39.8 (mg/kg)		
INORGANICS									
Aluminum	4650		E	3780		E	5380		E
Antimony	3.0		N	1.7	U	N	1.9	U	N
Arsenic	0.9			0.7			1.0		
Barium	67.4			49.4			88.0		
Beryllium	0.17	U		0.15	U		0.17	U	
Cadmium	0.33	U		0.3	U		0.34	U	
Calcium	6870			5290			7000		
Chromium	7.0			6.7			9.6		
Cobalt	14.4			9.6			10.8		
Copper	16.0			11.1			13.7		
Iron	26000			17300			19900		
Lead	1.5		N	1.4		N+	1.3		N
Magnesium	4010			2900			4010		
Manganese	326			219			284		
Mercury	0.10	U		0.07	U		0.07	U	
Nickel	5.6			5.8			11.0		
Potassium	579			460			624		
Selenium	0.33	U		0.31	U		0.34	U	
Silver	0.33	U		0.3	U		0.34	U	
Sodium	447		E	306		E	390		E
Thallium	0.33	U		0.31	U		0.34	U	
Vanadium	73.7		*	50.8		*	54.6		*
Zinc	47.7			32.4			37.6		
Cyanide	0.51	U		0.52	U		0.52	U	

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-4

1100-EM-1 SUB-UNIT 2 DP-4						SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	A0402S 0.8-1.9 (µg/kg)	A0403S 0.8-1.9 (µg/kg)	A0404S 1.9-3.3 (µg/kg)	A0406S 3.3-5.1 (µg/kg)	A0407S 5.9-7.1 (µg/kg)	A0408S 7.2-8.6 (µg/kg)	A0409S 9.7-10.7 (µg/kg)	A0411S 12.9-14.4 (µg/kg)	A0413S 18.5-20.0 (µg/kg)
SEMI-VOLATILE ORGANIC TICs										
unk	5.02					470 J				
Acetic acid, 1-methylethyl E	5.07		1800 J							
Acetic acid, 1-methylethyl E	5.08	1800 J								
Unknown	5.23					4600 J				
Unknown	5.37					9000 J				
Unknown	5.50					68 J				
Unknown	5.57			28000 J	26000 J		25000 J	24000 J		
Unknown	5.69									25000 J
Unknown	5.82	31000 J							27000 J	
Unknown	5.83		28000 J							
Unknown	8.17					110 J				
Unknown	20.89					100 J				
Unknown	26.82					320 J				
Unknown	27.07			110 J						
Unknown	27.09				140 J					
Unknown	27.11						200 J			
Unknown	27.12								110 J	
Unknown	27.14					370 J				
Unknown	27.31			170 J	220 J					
Unknown	27.32						280 J			
Unknown	27.34							160 J	170 J	120 J
Unknown	27.38	160 J	170 J							
Unknown	29.28					2700 J				
Unknown	29.42			2300 J						
Unknown	29.44				2800 J					
Unknown	29.46						3300 J	2400 J		
Unknown	29.47	2100 J	2200 J						2500 J	1800 J
Unknown	32.52					380 J				
Unknown	32.87					230 J				
Unknown	33.44					640 J				
Unknown	33.88					250 J				
Unknown	34.22					650 J				
Unknown	34.37					340 J				
Unknown	34.69					420 J				
Unknown	36.38					820 J				
Unknown	36.84					700 J				

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-4

1100-EM-1 SUB-UNIT 2 DP-4						SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	A0402S 0.8–1.9 (µg/kg)	A0403S 0.8–1.9 (µg/kg)	A0404S 1.9–3.3 (µg/kg)	A0406S 3.3–5.1 (µg/kg)	A0407S 5.9–7.1 (µg/kg)	A0408S 7.2–8.6 (µg/kg)	A0409S 9.7–10.7 (µg/kg)	A0411S 12.9–14.4 (µg/kg)	A0413S 18.5–20.0 (µg/kg)
PESTICIDES										
4,4'-DDE		24 J	42	19 J	11 J	39	3.7 J			
4,4'-DDT		32 J	57	27 J	23 J	82	6.4 J			
Aroclor-1260		160 J	300 J	160 J	47 J	46 J	33 J			
Dieldrin		1.3 J								
Endrin ketone						22 J	4.3 J			

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A0501S 0.5-2.0 (µg/kg)	A0502S 0.5-2.0 (µg/kg)	A0502SRE 0.5-2.0 (µg/kg)	A0504S 4.5-6.0 (µg/kg)	A0506S 8.2-8.7 (µg/kg)	A0510S 12.3-14.0 (µg/kg)	A0510SRE 12.3-14.0 (µg/kg)	A0513S 16.4-18.0 (µg/kg)	A0514S 18.2-20.0 (µg/kg)
VOLATILE ORGANICS										
2-Butanone							7 J			
Acetone		7 J				13				
Methylene chloride							2 J			
Tetrachloroethene							3 J			
SEMI-VOLATILE ORGANICS										
2-Butanone									8 J	
Pyrene						290 J				
SEMI-VOLATILE ORGANIC TICs										
Unknown	5.45	24000 J								
Unknown	5.80			40000 J		30000 J	25000 J	32000 J	28000 J	
Unknown	5.52		23000 J							
Unknown	5.53				27000 J					
Unknown	5.55									28000 J
1,1'-Biphenyl, 2,4-dimethyl	21.32					380 J				
Unknown	23.25					160 J				
Unknown	23.92					170 J		700 J		
Unknown	23.94						490 J			
Unknown	24.10							380 J		
Unknown	24.14						190 J			
Unknown	24.82							280 J		
Unknown	25.52							260 J		
Unknown	25.59							270 J		
Unknown	25.94							380 J		
Unknown	25.99						450 J			
Unknown	26.31							130 J		
Unknown	26.69								84 J	
Unknown	26.92							560 J		
Unknown	26.94						450 J			
Unknown	27.04				110 J					
Unknown	27.06		160 J							140 J
Unknown	27.07	190 J		180 J						
Unknown	27.11								290 J	
Unknown	27.16					250 J		730 J		

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A0501S 0.5-2.0 (µg/kg)	A0502S 0.5-2.0 (µg/kg)	A0502SRE 0.5-2.0 (µg/kg)	A0504S 4.5-6.0 (µg/kg)	A0506S 8.2-9.7 (µg/kg)	A0510S 12.3-14.0 (µg/kg)	A0510SRE 12.3-14.0 (µg/kg)	A0513S 16.4-18.0 (µg/kg)	A0514S 18.2-20.0 (µg/kg)
Unknown	27.17						660 J			
Unknown	27.26				180 J					
Unknown	27.27		260 J							240 J
Unknown	27.29	250 J		270 J						
Unknown	27.32								330 J	
Phenanthrene, 2,3,5-trimethy	27.39					620 J				
Unknown	27.39							520 J		
Unknown	28.07								120 J	
Unknown	28.12					620 J	910 J		67 J	
Unknown	28.14							1600 J		
Unknown	28.16						520 J			
Unknown	28.37							260 J		
Unknown	28.39						260 J			
Pyrene, 2-methyl-	28.47					310 J				
Pyrene, 2-methyl-	28.67								320 J	
Pyrene, 4-methyl-	28.76					250 J				
11H-benzo[b]fluorene	28.77								110 J	
Unknown	28.84					220 J				
Unknown	28.89								240 J	
Unknown	29.04					260 J	840 J	680 J		
Unknown	29.39				2400 J					
Unknown	29.41		2700 J							
Unknown	29.42	2900 J		3300 J						3300 J
Unknown	29.46						3000 J			
Unknown	29.47								3700 J	
Unknown	29.49							2700 J		
Unknown	29.51					2000 J				
Unknown	29.72								150 J	
Unknown	29.87					520 J				
Unknown	29.89								150 J	
Pyrene, 1,3-dimethyl-	30.09								230 J	
Unknown	30.17					720 J				
Unknown	31.31						1200 J			
Unknown	31.32								110 J	
Unknown	31.41					340 J				
Unknown	31.57						1500 J			

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A0501S 0.5-2.0 (µg/kg)	A0502S 0.5-2.0 (µg/kg)	A0502SRE 0.5-2.0 (µg/kg)	A0504S 4.5-6.0 (µg/kg)	A0506S 9.2-9.7 (µg/kg)	A0510S 12.3-14.0 (µg/kg)	A0510SRE 12.3-14.0 (µg/kg)	A0513S 16.4-18.0 (µg/kg)	A0514S 18.2-20.0 (µg/kg)
Unknown	32.29					410 J				
Unknown	32.74						420 J			
Unknown	33.49								190 J	
Unknown	33.59	230 J								
Unknown	33.61		770 J							
Unknown	33.69					1100 J				
Unknown	33.84			260 J						
Unknown	33.97		320 J							
Unknown	34.02	220 J		220 J						
Unknown	34.37		1100 J							
Unknown	34.39			640 J						
Unknown	34.41						480 J			
Unknown	34.44	330 J								
Unknown	34.46					780 J		800 J		
Unknown	34.76				140 J					
Unknown	34.77		540 J							
Unknown	34.82			210 J			480 J			
Unknown	34.89	320 J								
Unknown	35.67						380 J			
Unknown	35.98	170 J		210 J						
Unknown	36.12		210 J							
Unknown	36.16						450 J			
Unknown	36.21			270 J						
Unknown	36.27	210 J			240 J					
Unknown	36.31		440 J							
Unknown	36.39			370 J						
Unknown	36.46	260 J								
Unknown	36.51							480 J		
Unknown	36.58				140 J					
Unknown	36.74		670 J							
Unknown	36.81	260 J								
Unknown	36.92						560 J			
Unknown	36.94			320 J						
Unknown	37.07							840 J		
Unknown	37.11		810 J			550 J				
Unknown	37.69		840 J							

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-5		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A0501S 0.5-2.0 (µg/kg)	A0502S 0.5-2.0 (µg/kg)	A0502SRE 0.5-2.0 (µg/kg)	A0504S 4.5-6.0 (µg/kg)	A0506S 8.2-8.7 (µg/kg)	A0510S 12.3-14.0 (µg/kg)	A0510SRE 12.3-14.0 (µg/kg)	A0513S 16.4-18.0 (µg/kg)	A0514S 18.2-20.0 (µg/kg)
Unknown	37.91						1200 J			
Unknown	38.07							940 J		
Unknown	38.11					450 J				
PESTICIDES										
4,4'-DDD						3.6 J				
4,4'-DDE					3.4 J					
4,4'-DDT		6.2 J	6.6 J		3.5 J	14 J				
Aroclor-1260		9.4 J	13 J							

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-6

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-6		SAMPLE NUMBER DEPTH (ft)						
PARAMETER	TIC RETENTION TIME	A0602S 0.5-2.0 (µg/kg)	A0605S 4.2-6.7 (µg/kg)	A0608S 6.3-7.9 (µg/kg)	A0610S 10.5-11.8 (µg/kg)	A0612S 14.0-15.8 (µg/kg)	A0613S 14.0-15.8 (µg/kg)	A0615S 18.2-20.0 (µg/kg)
VOLATILE ORGANICS								
2-Butanone		6 J						
Tetrachloroethene			1 J					
SEMI-VOLATILE ORGANICS								
Di-n-butylphthalate						37 J		
SEMI-VOLATILE ORGANIC TICs								
Acetic acid, 1-methylethyl e	5.07						3000 J	
Unknown	5.07					2300 J		
Acetic acid, 1-methylethyl e	5.08							2200 J
Unknown	5.40	8100 J						
Unknown	5.55	19000 J	28000 J					
Unknown	5.57			28000 J				
Unknown	5.60				32000 J		34000 J	
Unknown	5.62					32000 J		37000 J
Unknown	6.82			800 J				
Unknown	15.84		180 J					
Unknown	17.28		370 J					
Unknown	17.60		240 J					
Hexadecane	19.49		340 J					
Heptadecane	21.00		470 J					
Unknown	21.10		1300 J					
Unknown	22.42		410 J					
Unknown	22.57		850 J					
Unknown	23.67		250 J					
Unknown	23.77		470 J					
Eicosane	25.07		470 J					
Unknown	26.31		440 J					
Unknown	27.08	120 J	260 J					
Unknown	27.27	180 J	290 J					
Unknown	27.49		410 J					
Unknown	28.62		270 J					
Unknown	29.41	2700 J						
Unknown	29.42		2800 J					
Unknown	34.94	120 J						

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A1101S 1.0-2.0 (µg/kg)	A1101SRE 1.0-2.0 (µg/kg)	A1103S 5.8-6.8 (µg/kg)	A1105S 7.6-9.0 (µg/kg)	A1106S 9.2-11.5 (µg/kg)	A1111S 11.7-13.4 (µg/kg)	A1114S 16.5-18.8 (µg/kg)	A1115S 20.3-21.8 (µg/kg)	A1116S 20.3-21.8 (µg/kg)
VOLATILE ORGANICS										
Acetone									26	6 J
Ethylbenzene					2 J					
Methylene chloride			42	2 J		61			7	
Tetrachloroethene		35		16	5 J					
Toluene					3 J					
VOLATILE ORGANIC TICs										
Hexane	4.16					5.2 J			12 J	
Furan, tetrahydro	5.97					31 J				
SEMI-VOLATILE ORGANICS										
bis (2-Ethylhexyl) phthalate						3600			210 J	
SEMI-VOLATILE ORGANIC TICs										
Unknown	4.46								570 J	
Unknown	4.77									
Unknown	4.78									
Unknown	4.80								110000 J	
Unknown	4.82				120000 J		99000 J	110000 J		100000 J
Heptane, 2,3-dimethyl-	4.83									
Unknown	4.83					130000 J				
Unknown	4.86									
Unknown	5.30							290 J		
Unknown	6.56									
Unknown	6.57	430 J		730 J	700 J		600 J		230 J	490 J
Unknown	6.59	360 J								
Unknown	26.17			3000 J	2400 J	3500 J	2600 J	2400 J		
Unknown	26.19	5100 J								
Unknown	29.96									
1,2-Benzenedicarboxylic acid	30.54									
Unknown	30.99									
Unknown	30.97									
Unknown	31.12									
Unknown	31.67			980 J					380 J	
Unknown	32.39				800 J		750 J	580 J		

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A1101S 1.0-2.0 (µg/kg)	A1101SRE 1.0-2.0 (µg/kg)	A1103S 5.8-6.8 (µg/kg)	A1105S 7.5-9.0 (µg/kg)	A1106S 9.2-11.5 (µg/kg)	A1111S 11.7-13.4 (µg/kg)	A1114S 16.5-18.8 (µg/kg)	A1115S 20.3-21.8 (µg/kg)	A1116S 20.3-21.8 (µg/kg)
Unknown	32.41	1700 J		1400 J		940 J				
Unknown	33.01	1200 J								
Unknown	34.56	480 J								
PESTICIDES										
4,4'-DDT		5 J								
Endrin ketone		2 J								
Aldrin						16 J				
Aroclor-1260							63 J			

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9		SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	A1118S 22.8-24.5 (µg/kg)	A1121S 29.3-30.5 (µg/kg)	A1123S 33.8-35.3 (µg/kg)	A1125S 38.9-38.1 (µg/kg)	A1126S 38.1-39.8 (µg/kg)
VOLATILE ORGANICS						
Acetone			6 J	6 J		
Ethylbenzene						
Methylene chloride						
Tetrachloroethene						
Toluene						
VOLATILE ORGANIC TICs						
Hexane	4.15					
Furan, tetrahydro	5.97					
SEMI-VOLATILE ORGANICS						
bis (2-Ethylhexyl) phthalate					2600	
SEMI-VOLATILE ORGANIC TICs						
Unknown	4.46					
Unknown	4.77					110000 J
Unknown	4.78				94000 J	
Unknown	4.80		100000 J	98000 J		
Unknown	4.82	120000 J				
Heptane, 2,3-dimethyl-	4.83					660 J
Unknown	4.83		550 J		460 J	
Unknown	4.86			490 J		
Unknown	5.39					
Unknown	6.56					450 J
Unknown	6.57				380 J	
Unknown	6.59					
Unknown	28.17					
Unknown	28.19					
Unknown	29.99				290 J	
1,2-Benzenedicarboxylic acid	30.54				1500 J	
Unknown	30.69				520 J	
Unknown	30.97				510 J	
Unknown	31.12				1400 J	
Unknown	31.67				7200 J	
Unknown	32.39					

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9

1100-EM-1 SUB-UNIT 2 BOREHOLE DP-9		SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	A1118S 22.8-24.5 (µg/kg)	A1121S 29.3-30.5 (µg/kg)	A1123S 33.8-35.3 (µg/kg)	A1125S 36.9-38.1 (µg/kg)	A1126S 38.1-39.8 (µg/kg)
Unknown	32.41					
Unknown	33.01					
Unknown	34.56					
PESTICIDES						
4,4'-DDT						
Endrin ketone						
Aldrin						
Aroclor-1260						

SUBAPPENDIX I-4
1100-3 OPERABLE SUBUNIT SOIL CHEMICAL ANALYTICAL RESULTS

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INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 3	SAMPLE NUMBER DEPTH (ft)							
PARAMETER	S2139A 0.0-0.5 (mg/kg)	A3101S 0.0-0.5 (mg/kg)	A3102S 0.0-0.5 (mg/kg)	A3103S 0.0-0.5 (mg/kg)	A3104S 0.0-0.5 (mg/kg)	A3105S 0.0-0.5 (mg/kg)	A3106S 0.0-0.5 (mg/kg)	A3107S 0.0-0.5 (mg/kg)
INORGANICS								
Aluminum	9770	5380	5020	4430	5970	6070	4060	6690
Antimony	5.6 U N	5.0 U N	5.4 U N	5.6 U N	5.0 U N	5.4 U N	5.4 U N	5.3 U N
Arsenic	3.4	1.7	1.5	1.3	1.5	1.6	1.1	1.7
Barium	106.0	70.2	81.5	77.3	84.9	78.3	65.2	88.8
Beryllium	0.44	0.39	0.25	0.24	0.30	0.38	0.28	0.38
Cadmium	0.71 U	0.63 U	0.67 U	0.70 U	0.63 U	0.67 U	0.68 U	0.66 U
Calcium	5100	6370	4310	5000	5180	6810	5060	3480
Chromium	12.5	4.6	6.3	8.1	6.9	6.8	14.0	9.2
Cobalt	14.1	11.4	8.1	8.6	9.0	10.0	8.8	9.1
Copper	22.8	17.4	13.9	14.7	14.3	18.1	15.9	12.4
Iron	25500	21800	15700	17300	18300	18500	16800	18700
Lead	7.7	5.0	26.4	6.8	4.8	4.9	2.7	5.2
Magnesium	6170	4350	3730	4040	4380	4620	3720	4620
Manganese	438	307	325	281	335	333	238	350
Mercury	0.09 U	0.07 U	0.07 U	0.07 U	0.08 U	0.10 U	0.09 U	0.08 U
Nickel	14.9	7.5	10.6	10.2	11.4	8.3	13.5	10.4
Potassium	1310	764	1180	1070	1520	1150	761	1730
Selenium	0.38 U	0.16 U NW	0.16 U NW	0.17 U NW	0.16 U NW	0.16 U N	0.16 U N	0.16 U NW
Silver	0.53 U	0.47 U	0.50 U	0.52 U	0.47 U	0.50 U	0.51 U	0.49 U
Sodium	170	227	178	190	148	170	144	120
Thallium	0.38 U	0.33 U	0.33 U	0.34 U	0.31 U	0.32 U	0.32 U	0.33 U
Vanadium	51.3 *	45.4 N	26.9 N	26.1 N	28.3 N	31.3 N	22.7 N	34.0 N
Zinc	49.9 E	38.1 E	43.4 E	59.0 E	44.9 E	39.5 E	30.5 E	38.6 E
Cyanide	0.50 U	0.50 U	0.50 U	0.52 U	0.50 U	0.50 U	0.51 U	0.50 U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 3	SAMPLE NUMBER DEPTH (ft)		
PARAMETER	A3109S 0.0-0.5 (mg/kg)	A3111S 0.0-0.5 (mg/kg)	A3112S 0.0-0.5 (mg/kg)
INORGANICS			
Aluminum	5330	7270	5380
Antimony	5.2 U N	5.4 U N	5.1 U N
Arsenic	1.7	2.2	1.9
Barium	74.6	101.0	76.9
Beryllium	0.16	0.41	0.28
Cadmium	0.65 U	0.68 U	0.64 U
Calcium	3060	4730	2930
Chromium	8.0	7.7	7.0
Cobalt	7.3	10.7	8.4
Copper	9.2	10.3	9.0
Iron	15800	19700	16700
Lead	5.4	7.1	6.0
Magnesium	3700	5060	3720
Manganese	365	377	318
Mercury	0.07 U	0.10 U	0.09 U
Nickel	9.4	12.8	8.1
Potassium	1310	1160	1370
Selenium	0.16 U NW	0.16 U NW	0.17 U NW
Silver	0.49 U	0.51 U	0.48 U
Sodium	161	135	108
Thallium	0.32 U	0.32 U W	0.40
Vanadium	26.3 N	29.9 N	34.9 N
Zinc	34.7 E	38.0 E	38.8 E
Cyanide	0.59 U	0.61 U	0.60 U

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 3		SAMPLE NUMBER DEPTH (ft)										
PARAMETER	TIC RETENTION TIME	S2139A 0.0-0.5 (µg/kg)	A3101S 0.0-0.5 (µg/kg)	A3102S 0.0-0.5 (µg/kg)	A3103S 0.0-0.5 (µg/kg)	A3104S 0.0-0.5 (µg/kg)	A3105S 0.0-0.5 (µg/kg)	A3106S 0.0-0.5 (µg/kg)	A3107S 0.0-0.5 (µg/kg)	A3108S 0.0-0.5 (µg/kg)	A3111S 0.0-0.5 (µg/kg)	A3112S 0.0-0.5 (µg/kg)
VOLATILE ORGANICS												
2-Butanone									17			10
Acetone				92								
Methylene chloride			7	26	2 J		2 J	2 J		9	120	12
Toluene											4 J	6
SEMI-VOLATILE ORGANICS												
Benzo(a)Anthracene					120 J							
Benzo(a)Pyrene					150 J							
Benzo(b)Fluoranthene					180 J							
Benzo(g,h,i)Perylene					230 J							
Benzo(k)Fluoranthene					160 J							
Bis(2-Ethylhexyl)phthalate							940		98 J		150 J	92 J
Chrysene					170 J							
Dibenz(a,h)Anthracene					110 J							
Fluoranthene					220 J							
Indeno(1,2,3-cd)Pyrene					230 J							
Pentachlorophenol											99 J	
Phenanthrene					130 J							
Pyrene					250 J							
SEMI-VOLATILE ORGANIC TICs												
Unknown	4.09								42000 J			
Unknown	4.82									54000 J		
Octane, 2-methyl	5.08	1300 J			910 J							
Heptane, 4-Propyl-	5.22				500 J							
Heptane, 4-(1-methylethyl)-	5.22	710 J										
Unknown	6.09								400 J			
2-Hexanone, 6-(Acetyloxy)-	6.97				750 J							
Unknown	6.33			760 J								
Unknown	6.62		720 J						300 J	530 J		
Unknown	6.97						610 J					840 J
Unknown	6.98			1200 J							1000 J	
Unknown	6.73				4000 J							
Unknown	6.76	5600 J										
Unknown	7.60											360 J
3-Heptanone, 2,4-Dimethyl-	7.63		630 J									

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 3		SAMPLE NUMBER DEPTH (ft)										
PARAMETER	TIC RETENTION TIME	S2139A 0.0-0.5 (µg/kg)	A3101S 0.0-0.5 (µg/kg)	A3102S 0.0-0.5 (µg/kg)	A3103S 0.0-0.5 (µg/kg)	A3104S 0.0-0.5 (µg/kg)	A3105S 0.0-0.5 (µg/kg)	A3106S 0.0-0.5 (µg/kg)	A3107S 0.0-0.5 (µg/kg)	A3108S 0.0-0.5 (µg/kg)	A3111S 0.0-0.5 (µg/kg)	A3112S 0.0-0.5 (µg/kg)
3-Heptanone, 2,4-Dimethyl-	7.58			490 J			280 J					
3-Heptanone, 2,4-Dimethyl-	7.63	3000 J			3600 J							
Unknown	8.70			580 J								
Unknown	8.75	1500 J										
Unknown	8.79				2100 J							
Unknown	10.55	1000 J										
Bromacil (ACN)	23.87				2600 J							
Unknown	25.98		310 J					350 J	240 J	240 J		
Unknown	29.02	680 J										740 J
Unknown	29.04			550 J	690 J		550 J				870 J	
Unknown	29.09					690 J						
Unknown	29.17		510 J									
Unknown	29.19							820 J	370 J	410 J		
Dodecanamide	29.20			830 J			720 J					870 J
1-Butanamine, N-Methyl-N-Nit	29.27										1100 J	
Dodecanamide	29.27				870 J							
Dodecanamide	29.29					820 J						
Unknown	29.27									5700 J		
Unknown	29.27		7100 J									
Unknown	29.29	0 0	0 0					7000 J	8200 J			
Unknown	29.38	13000 J										
Unknown	29.37			11000 J	13000 J		10000 J				16000 J	14000 J
Unknown	29.41					9600 J						
Unknown	29.57	320 J										380 J
Unknown	29.59			300 J	310 J		270 J				410 J	
Unknown	30.67					1000 J						
Unknown	30.71						940 J					
Unknown	31.61					6400 J						
Unknown	31.74										860 J	
Unknown	31.82						3600 J					
Unknown	31.89						290 J					
Unknown	32.67					8500 J						
Unknown	32.39			580 J								
Unknown	32.44			520 J								
Unknown	32.71										700 J	
Unknown	32.77			630 J								
Unknown	33.04										230 J	
Unknown	33.09					1100 J						

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 3		SAMPLE NUMBER DEPTH (ft)										
PARAMETER	TIC RETENTION TIME	B2138A 0.0-0.5 (µg/kg)	A3101S 0.0-0.5 (µg/kg)	A3102S 0.0-0.5 (µg/kg)	A3103S 0.0-0.5 (µg/kg)	A3104S 0.0-0.5 (µg/kg)	A3105S 0.0-0.5 (µg/kg)	A3106S 0.0-0.5 (µg/kg)	A3107S 0.0-0.5 (µg/kg)	A3108S 0.0-0.5 (µg/kg)	A3111S 0.0-0.5 (µg/kg)	A3112S 0.0-0.5 (µg/kg)
Unknown	33.16			550 J								
Unknown	33.22					1800 J						
Unknown	33.32					490 J						
Unknown	33.52				450 J							
Unknown	33.54			1200 J								
Unknown	33.62	310 J										
Eicosane, 7-Hexyl-	33.64						1300 J					
Unknown	33.84										880 J	200 J
Unknown	33.99					1300 J						
Unknown	34.21			1100 J								
Unknown	34.22				650 J							
Unknown	34.32					2700 J						
Unknown	34.42					480 J						
Unknown	34.79				470 J							
Unknown	34.84					1300 J						
Unknown	34.94			840 J	380 J							
Unknown	34.99					1300 J						
Unknown	35.04					570 J						
Unknown	35.34				460 J							
Unknown	35.39			650 J								
Unknown	35.42					1300 J						
Unknown	35.47			1000 J	1300 J							
Unknown	35.51						360 J					
Unknown	35.54					3000 J						
Unknown	36.14			600 J								
Unknown	36.26			600 J	840 J							
Unknown	36.32					2400 J						
Unknown	37.21				460 J							
Unknown	37.29					480 J						
Unknown	37.32				770 J							
Unknown	40.62										1400 J	
PESTICIDES												
Aldrin		1.1 J										
Aroclor-1260						150 J						

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-1

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-1	SAMPLE NUMBER DEPTH (ft)					
PARAMETER	A0901S 1.0–4.0 (mg/kg)	A0903S 5.5–6.9 (mg/kg)	A0906S 8.0–10.5 (mg/kg)	A0907S 9.9–12.2 (mg/kg)	A0909S 14.1–16.6 (mg/kg)	A0912S 18.0–20.0 (mg/kg)
INORGANICS						
Aluminum	5370	4050	3490	4470	3290	4820
Antimony	5.4 U N	5.4 U N	5.5 U N	5.5 U N	5.5 U N	5.4 U N
Arsenic	1.2	0.81	0.78 W	1.5 W	1.2 W	1.8 S
Barium	84.4	85.3	87.9	85.6	58.5	84.1
Beryllium	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
Cadmium	0.68 U	0.67 U	0.69 U	0.69 U	0.69 U	0.68 U
Calcium	6650	5020	7230	7230	6220	6910
Chromium	6.9	5.3	3.9	8.3	3.0	5.2
Cobalt	12.6	13.7	10.9	12.4	9.6	10.8
Copper	19.7	15.7	15.7	31.7	14.4	14.4
Iron	23800	25300	20200	24600	18800	22700
Lead	4.7	2.4	2.1	3.1	2.5	2.9
Magnesium	4330	4430	3770	5030	3880	4820
Manganese	312	303	245	340	258	300
Mercury	0.10 U	0.09 U	0.10 U	0.10 U	0.10 U	0.09 U
Nickel	8.7	8.2	7.9	8.0	8.4	7.7
Potassium	683	635	491	725	441	691
Selenium	0.33 U N	0.33 U N	0.34 U N	0.35 U N	0.33 U N	0.34 U N
Silver	0.51 U	0.50 U	0.51 U	0.52 U	0.52 U	0.51 U
Sodium	222	283	278	211	202	216
Thallium	0.33 U	0.33 U	0.34 U	0.35 U	0.33 U	0.34 U
Vanadium	52.7	62.4	39.5	55.8	27.4	49.4
Zinc	47.8	48.3	37.6	49.5	34.1	46.2
Cyanide	0.49 U N	0.51 U N	0.51 U N	0.50 U N	0.50 U N	0.47 U N

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-2

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-2	SAMPLE NUMBER DEPTH (ft)														
PARAMETER	A0803S 4.5-6.0 (mg/kg)			A0806S 8.5-10.2 (mg/kg)			A0807S 12.6-14.3 (mg/kg)			A0810S 16.0-17.0 (mg/kg)			A0811S 17.6-20.0 (mg/kg)		
INORGANICS															
Aluminum	4140			3750			3250			3680			3940		
Antimony	5.4	U	N	5.3	U	N	5.6	U	N	5.3	U	N	5.3	U	N
Arsenic	1.0			0.8			1.2			0.95			1.1		
Barium	68.10			68.60			61.30			62.40			55.80		
Beryllium	0.17	U		0.17	U		0.17	U		0.16	U		0.17	U	
Cadmium	0.68	U		0.66	U		0.69	U		0.66	U		0.68	U	
Calcium	6130			5770			6080			6020			6080		
Chromium	5.7			4.5			3.8			6.4			6.7		
Cobalt	12.3			11.9			10.3			11.4			11.8		
Copper	24.2			20.1			18.1			18.9			14.2		
Iron	23400			23000			20800			22200			22600		
Lead	3.0			2.2			2.8			2.6			2.6		
Magnesium	4430			4350			4030			4060			4350		
Manganese	298			291			270			290			283		
Mercury	0.10	U		0.10	U		0.09	U		0.10	U		0.09	U	
Nickel	8.2			8.5			8.7			8.4			8.3		
Potassium	692			627			658			705			718		
Selenium	0.33	U	NW	0.33	U	N	0.32	U	N	0.34	U	N	0.35	U	N
Silver	0.51	U		0.50	U		0.52	U		0.49	U		0.68	U	
Sodium	298			280			218			310			227		
Thallium	0.33	U	W	0.33	U		0.32	U		0.34	U		0.35	U	
Vanadium	46.4			47.9			33.2			45.6			51.7		
Zinc	47.8			46.1			38.8			42.3			43.5		
Cyanide	0.49	U	N	0.49	U	N	0.51	U	N	0.50	U	N	0.50	U	N

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-3

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-3	SAMPLE NUMBER DEPTH (ft)																	
PARAMETER	A0702S 1.25-2.0 (mg/kg)			A0704S 4.4-5.6 (mg/kg)			A0706S 8.2-10.1 (mg/kg)			A0708S 11.6-13.0 (mg/kg)			A0711S 15.2-16.9 (mg/kg)			A0713S 17.6-20.0 (mg/kg)		
INORGANICS																		
Aluminum	7400			4510			3710			3990			3990			3480		
Antimony	5.3	U	N	6.00	U	N	5.90	U	N	5.70	U	N	5.90	U	N	5.40	U	N
Arsenic	1.7			0.94			1.10			0.42			0.76			0.79		
Barium	84.2			67.1			58.0			56.7			61.8			60.8		
Beryllium	0.17	U		0.18	U		0.19	U		0.18	U		0.19	U		0.17	U	
Cadmium	0.68	U		0.75	U		0.74	U		0.72	U		0.74	U		0.67	U	
Calcium	4400		*	7450		*	6180		*	6000		*	6140		*	6510		*
Chromium	9.1			5.3			5.7			5.6			5.8			5.2		
Cobalt	12.7			12.7			12.3			12.6			15.1			13.6		
Copper	19.6			17.0			14.3			13.9			13.7			14.7		
Iron	23300			22700			22500			23200			27000			24000		
Lead	5.2		*	2.8		*	2.5		*	1.1		*	2.3		*	2.4		*
Magnesium	4710			3870			3760			4050			4200			4020		
Manganese	308			294			275			281			313			299		
Mercury	0.09	U	N	0.08	U	N	0.08	U	N	0.08	U	N	0.08	U	N	0.08	U	N
Nickel	10			7.7			8.3			7.2			8.6			8.5		
Potassium	1020			820			794			878			765			730		
Selenium	0.3	U		0.39	U		0.38	U		0.35	U		0.35	U		0.35	U	
Silver	0.5	U		0.58	U		0.56	U		0.54	U		0.56	U		0.59	U	
Sodium	192			244			234			341			328			241		
Thallium	0.3	U		0.39	U	W	0.38	U		0.35	U		0.35	U		0.35	U	
Vanadium	88.7			57.0			58.4			58.1			60.0			70.5		
Zinc	47.8		E	43.6		E	41.4		E	48.7		E	50.5		E	46.0		E
Cyanide	0.59	U	N	0.50	U	N	0.49	U	N	0.51	U	N	0.50	U	N	0.59	U	N

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INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-8

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-8	SAMPLE NUMBER DEPTH (ft)								
PARAMETER	A1201S 1.0–2.5 (mg/kg)	A1203S 4.5–6.3 (mg/kg)	A1205S 7.2–8.9 (mg/kg)	A1208S 10.8–12.5 (mg/kg)	A1210S 13.3–15.0 (mg/kg)	A1213S 16.8–18.3 (mg/kg)	A1215S 20.5–22.2 (mg/kg)	A1216S 23.9–26.4 (mg/kg)	A1221S 32.0–34.0 (mg/kg)
INORGANICS									
Aluminum	6830 E*	6620 E*	6690 E*	7400 E*	6380 E*	7150 E*	7020 E*	6670 E*	6490 E*
Antimony	1.9 U N	1.7 U N	1.7 U N	1.6 U N	1.9 U N	2.0 U N	2.0 U N	1.9 U N	22.6 N
Arsenic	1.0	0.77	0.69	0.88	0.81	0.86	0.71	0.69	0.86
Barium	83.8 N	70.8 N	80.4 N	76.6 N	85.9 N	72.6 N	77.3 N	78.6 N	71.3 N
Beryllium	0.16 U	0.15 U	0.16 U	0.17 U	0.17 U	0.16 U	0.17 U	0.17 U	0.16 U
Cadmium	0.32 U	0.30 U	0.32 U	0.35 U	0.35 U	0.31 U	0.33 U	0.34 U	0.32 U
Calcium	5460 *	7320 *	8350 *	9090 *	7960 *	8270 *	8660 *	8240 *	7950 *
Chromium	7.5 *	6.5 *	13.6 *	8.4 *	6.4 *	9.2 *	9.7 *	7.2 *	4.7 *
Cobalt	13.5	16.2	16.7	17.4	16.0	16.0	17.8	17.8	16.2
Copper	16.3 *	16.9 *	16.9 *	18.5 *	15.3 *	16.2 *	16.0 *	16.2 *	15.7 *
Iron	24800 *	28100 *	29600 *	31500 *	28300 *	30200 *	31700 *	31300 *	29100 *
Lead	3.8 S	2.2	2.5	2.9	2.5	2.4	2.3	1.9	2.7 S
Magnesium	4410 *	4540 *	4960 *	5200 *	4700 *	4900 *	5020 *	4970 *	4300 *
Manganese	335 *	330 *	352 *	377 *	334 *	358 *	381 *	359 *	320 *
Mercury	0.09 U	0.10 U	0.08 U	0.09 U	0.08 U	0.08 U	0.08 U	0.09 U	0.08 U
Nickel	7.9 *	6.9 *	11.3 *	7.2 *	8.5 *	7.7 *	8.1 *	8.1 *	8.1 *
Potassium	1120	570	742	755	547	671	702	627	460
Selenium	0.33 U NW	0.33 U NW	0.33 U NW	0.31 U NW	0.30 U NW	0.32 U NW	0.31 U NW	0.33 U NW	0.35 U NW
Silver	0.32 U	0.30 U	0.32 U	0.35 U	0.35 U	0.31 U	0.33 U	0.34 U	0.32 U
Sodium	405 E	999 E	943 E	916 E	865 E	994 E	980 E	940 E	880 E
Thallium	0.33 U W	0.33 U W	0.33 U	0.31 U	0.30 U W	0.32 U W	0.31 U	0.33 U	0.35 U W
Vanadium	79.2 *	89.1 *	91.4 *	98.2 *	87.1 *	94.7 *	98.9 *	103.0 *	88.8 *
Zinc	49.9 E*	52.8 E*	54.4 E*	56.2 E*	52.1 E*	56.9 E*	57.5 E*	60.0 E*	52.9 E*
Cyanide	0.50 U	0.51 U	0.50 U	0.52 U	0.52 U	0.51 U	0.51 U	0.51 U	0.54 U

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ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-1

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-1		SAMPLE NUMBER DEPTH (ft)						
PARAMETER	TIC RETENTION TIME	A0901S 1.0–4.0 (µg/kg)	A0903S 5.5–6.9 (µg/kg)	A0906S 8.8–10.2 (µg/kg)	A0907S 9.9–12.2 (µg/kg)	A0908S 14.1–16.6 (µg/kg)	A0910S 14.1–16.6 (µg/kg)	A0912S 19.0–20.0 (µg/kg)
VOLATILE ORGANICS								
Acetone			2 J		7 J		5 J	
SEMI-VOLATILE ORGANICS								
bis (2-Ethylhexyl) phthalate		98 J	240 J	950				
SEMI-VOLATILE ORGANIC TICs								
Unknown	5.02	820 J	2800 J	1500 J	1600 J	1400 J	2800 J	800 J
Unknown	5.27							18000 J
Unknown	5.32	31000 J						
Unknown	5.35			33000 J	30000 J	33000 J		
Heptane, 2,3-dimethyl-	5.38	880 J						
Unknown	5.38		31000 J				32000 J	
Heptane, 2,3-dimethyl-	5.40				530 J	600 J		410 J
Unknown	5.40			580 J				
Unknown	5.43		520 J				510 J	
Octane, 2-methyl-	5.55							
Octane, 2-methyl-	5.57							
Octane, 2-methyl-	5.58							
Heptane, 4-(1-methylethyl)-	5.68							
Heptane, 4-(1-methylethyl)-	5.70							
2-Hexanone, 6-(acetyloxy)-	5.70							
Heptane, 4-(1-methylethyl)-	5.72							
2-Hexanone, 6-(acetyloxy)-	6.57							
Unknown	6.57				400 J			160 J
2-Hexanone, 6-(acetyloxy)-	6.58							
2-Hexanone, 6-(acetyloxy)-	6.60							
Unknown	6.67	730 J						
Unknown	7.22				790 J			
Unknown	7.23			790 J		670 J	650 J	300 J
Unknown	7.26		1600 J					
Unknown	7.27	3300 J						
Benzaldehyde (ACID)(DOT)	7.48							
Unknown	7.48					410 J		
Benzaldehyde (ACID)(DOT)	7.59							
3-Heptanone, 2,4-dimethyl-	8.15							

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-1

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-1		SAMPLE NUMBER DEPTH (ft)						
PARAMETER	TIC RETENTION TIME	A0901S 1.9–4.0 (µg/kg)	A0903S 5.5–6.9 (µg/kg)	A0906S 8.8–10.2 (µg/kg)	A0907S 9.9–12.2 (µg/kg)	A0909S 14.1–16.6 (µg/kg)	A0910S 14.1–16.6 (µg/kg)	A0912S 18.9–20.6 (µg/kg)
Unknown	8.15					280 J		
3-Heptanone, 2,4-dimethyl-	8.17							
Unknown	8.17			380 J				
3-Heptanone, 2,4-dimethyl-	8.20							
Unknown	9.39	2800 J						
Unknown	10.70	99 J						
Unknown	11.20				210 J			
Unknown	11.22	270 J	340 J	190 J			140 J	
Benzene, 1,4-difluoro-2-iso	14.40	73 J						
Unknown	24.37	270 J						
Unknown	24.46		69 J					
Unknown	26.77				350 J			
Unknown	26.79	290 J	380 J	200 J		320 J	370 J	
Unknown	27.01	510 J			540 J	500 J		120 J
Unknown	27.02		600 J	380 J			600 J	
Unknown	29.12				6300 J			2300 J
Unknown	29.14	6700 J		5300 J		6300 J	6700 J	
Unknown	30.94			190 J				
Unknown	31.37			240 J				
Unknown	31.84			660 J				
Unknown	32.01			380 J				
Unknown	32.17			990 J				
Unknown	32.74		660 J	4500 J				

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-2

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-2		SAMPLE NUMBER DEPTH (ft)						
PARAMETER	TIC RETENTION TIME	A08018 1.3-2.0 (µg/kg)	A08035 4.5-6.0 (µg/kg)	A08085 9.5-10.2 (µg/kg)	A08075 12.6-14.3 (µg/kg)	A08085 12.6-14.3 (µg/kg)	A08105 16.0-17.0 (µg/kg)	A08115 17.6-20.0 (µg/kg)
VOLATILE ORGANICS								
Acetone		6 J	8 J	7 J	7 J			
Methylene Chloride				3 J				
SEMI-VOLATILE TICs								
Unknown	5.02		3000 J	2900 J	940 J	3200 J	3000 J	3100 J
Heptane, 3,5-dimethyl-	5.18	850 J						
Unknown	5.20					8800 J		
Unknown	5.32				33000 J			
Unknown	5.37		31000 J			24000 J	32000 J	
Unknown	5.38							33000 J
Heptane, 2,3-dimethyl-	5.40				370 J			
Heptane, 2,3-Dimethyl-	5.43		800 J				800 J	800 J
Unknown	5.43			38000 J		430 J		
Unknown	5.48			150 J		230 J		
Benzenamine, 2,3-dimethyl-	5.55				750 J			
Unknown	5.65	32000 J						
Unknown	5.69	210 J						
Unknown	5.85	130 J						
Cyclohexanone (ACN)	6.18			44 J				
Unknown	6.59			43 J				
Unknown	6.62			670 J				
2-Hexanone, 6-(acetyloxy)-	6.77	160 J						
Unknown	6.88		1100 J					
Unknown	7.00	2800 J						
Unknown	7.23				1100 J		1100 J	
Unknown	7.25			770 J		1300 J		1600 J
Unknown	7.30		4100 J					
Unknown	7.45	1200 J						
3-Heptanone, 2,6-dimethyl-	8.17			320 J				
2H-Pyran-2,3-diol, tetrahydr	8.28	1300 J						
Unknown	9.50		2700 J					
Unknown	9.60		1900 J					
Unknown	9.72	1700 J						
Unknown	10.72		150 J					
Unknown	11.22		370 J		250 J	480 J	300 J	180 J

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-2

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-2		SAMPLE NUMBER DEPTH (ft)						
PARAMETER	TIC RETENTION TIME	A08018 1.3-2.0 (µg/kg)	A08038 4.5-6.0 (µg/kg)	A08058 8.5-10.2 (µg/kg)	A08078 12.6-14.3 (µg/kg)	A08098 12.6-14.3 (µg/kg)	A08108 16.0-17.0 (µg/kg)	A08118 17.0-20.0 (µg/kg)
Unknown	11.79		100 J					
Unknown	24.45		81 J					
Unknown	26.79		280 J		310 J		340 J	370 J
Unknown	26.81			350 J				
Unknown	27.01				530 J	610 J	580 J	610 J
Unknown	27.02		490 J	550 J				
Unknown	27.06	180 J						
Unknown	27.27	330 J						
Unknown	29.14		6000 J				6500 J	6800 J
Unknown	29.30							86 J
Unknown	29.42	3600 J						
Unknown	29.79					330 J		
Unknown	31.37			110 J				
Unknown	31.88			100 J				
Unknown	32.17			110 J				
Unknown	32.74			750 J				

ORGANIC SAMPLING RESUTLS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-3

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-3		SAMPLE NUMBER DEPTH (ft)						
PARAMETER	TIC RETENTION TIME	A0702S 1.2-2.0 (µg/kg)	A0704S 4.4-6.8 (µg/kg)	A0706S 8.2-10.1 (µg/kg)	A0708S 11.0-13.0 (µg/kg)	A0709S 11.0-13.0 (µg/kg)	A0711S 15.2-17.8 (µg/kg)	A0713S 17.8-20.0 (µg/kg)
VOLATILE ORGANICS								
2-Butanone				NO	8 J	11		
Acetone				COMPOUNDS		6 J	3 J	20
Methylene chloride		13	3 J	DETECTED			3 J	
SEMI-VOLATILE ORGANIC TICs								
Acetic acid, 1-methylethyl E	5.07	1900 J						
Heptane, 2,6-dimethyl-	5.07					850 J		
Unknown	5.08				900 J			900 J
Heptane, 2,3,6-trimethyl-	5.20					1000 J		
Unknown	5.22				1000 J		800 J	630 J
Unknown	5.50					27000 J		
Unknown	5.53				29000 J			
Unknown	5.55		33000 J				29000 J	25000 J
Heptane, 2,5-dimethyl-	5.69					330 J	260 J	
Unknown	5.69	31000 J						
Heptane, 2,5-dimethyl-	5.62				380 J			310 J
Unknown	5.75						170 J	
2-Hexanone, 6-(acetyloxy)-	5.77				190 J	170 J		

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-8

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-8		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A1201S 1.0–2.5 (µg/kg)	A1203S 4.5–6.3 (µg/kg)	A1205S 7.2–8.9 (µg/kg)	A1208S 10.8–12.5 (µg/kg)	A1210S 13.3–15.0 (µg/kg)	A1213S 16.8–18.3 (µg/kg)	A1215S 20.5–22.2 (µg/kg)	A1216S 23.9–26.4 (µg/kg)	A1217S 23.9–26.4 (µg/kg)
VOLATILE ORGANICS										
Acetone				6 J		8 J			6 J	9 J
Methylene chloride		4 J	3 J	7	2 J	7	5 J	5 J	4 J	16
SEMI-VOLATILE ORGANIC TICs										
Unknown	4.63	180000 J	160000 J							
Unknown	4.67						2700 J	1600 J		
Acetic acid, 1-methylethyl e	5.08						11000 J	12000 J		
Hexane, 4-ethyl-2-methyl-	5.13								1200 J	
Hexane, 4-ethyl-2-methyl-	5.15									
Unknown	5.47								130000 J	
Unknown	5.50									
Unknown	5.52									140000 J
Heptane, 2,3-dimethyl-	5.63								910 J	
Unknown	5.65			210000 J						
Unknown	5.67					230000 J				
Octane, tetramethyl-	5.69						230000 J	220000 J		
Unknown	5.69				290000 J					
Octane, 2-methyl-	5.70								1300 J	
Heptane, 4-(1-methylethyl)-	5.93								800 J	
2-Hexanone, 6-(acetyloxy)-	5.97	1100 J	980 J							
Unknown	6.57	580 J								
Hydrogen azide	6.73						120 J	120 J		
Unknown	6.77									1100 J
Unknown	6.80				3000 J				1100 J	
2-Hexanone, 6-(acetyloxy)-	6.82					2900 J				
Unknown	6.82			2500 J						
4-Penten-2-one, 4-methyl-	6.83						3100 J			
4-Penten-2-one, 4-methyl-	6.85							3100 J		
Unknown	7.47									880 J
Unknown	7.48								1100 J	
Benzaldehyde (ACID)(DOT)	7.70									340 J
Benzaldehyde (ACID)(DOT)	7.73								380 J	
Cyclotetrasiloxane, octameth	8.37									1100 J
Cyclotetrasiloxane, octameth	8.39				520 J					
3-Heptanone, 2,4-dimethyl-	8.42								800 J	

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-8

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-8		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	A1201S 1.0-2.5 (µg/kg)	A1203S 4.5-6.3 (µg/kg)	A1205S 7.2-8.9 (µg/kg)	A1208S 10.8-12.5 (µg/kg)	A1210S 13.3-15.0 (µg/kg)	A1213S 16.8-18.3 (µg/kg)	A1215S 20.5-22.2 (µg/kg)	A1216S 23.9-26.4 (µg/kg)	A1217S 23.9-26.4 (µg/kg)
Unknown	10.35									
Unknown	29.17	3200 J	2500 J							
Unknown	29.32				5600 J					
Unknown	29.34									5500 J
Unknown	29.36			4800 J		4300 J			6800 J	
9-Octadecenamide, (z)-	29.37						4200 J	5400 J		
1,2-Benzenedicarboxylic acid	31.30						3000 J	3600 J		
1,2-Benzenedicarboxylic acid	31.72				260 J					
Unknown	31.76				290 J					
Unknown	32.34				580 J					
Unknown	32.39	400 J	620 J							
Unknown	32.66				1200 J					
Unknown	33.66				1300 J					
Unknown	33.67									1600 J
Unknown	33.71							1500 J		
Unknown	33.72			750 J					1100 J	
PESTICIDES										
Heptachlor			0.54 J	0.58 J						

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-8

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-8		SAMPLE NUMBER DEPTH (ft)	
PARAMETER	TIC RETENTION TIME	A1219S 27.4–28.0 (µg/kg)	A1221S 32.0–34.0 (µg/kg)
VOLATILE ORGANICS			
Acetone		NOT ANALYZED	
Methylene chloride			9
SEMI-VOLATILE ORGANIC TICs			
Unknown	4.83		
Unknown	4.97		
Acetic acid, 1-methylethyl e	5.00		
Hexane, 4-ethyl-2-methyl-	5.13		
Hexane, 4-ethyl-2-methyl-	5.16		1300 J
Unknown	5.47		
Unknown	5.59		120000 J
Unknown	5.62		
Heptane, 2,3-dimethyl-	5.63		
Unknown	5.66		890 J
Unknown	5.67		
Octane, tetramethyl-	5.69		
Unknown	5.69		
Octane, 2-methyl-	5.70		1300 J
Heptane, 4-(1-methylethyl)-	5.83		850 J
2-Hexanone, 6-(acetyloxy)-	5.87		
Unknown	5.87		
Hydrogen azide	5.73		
Unknown	5.77		
Unknown	5.80		
2-Hexanone, 6-(acetyloxy)-	5.82		
Unknown	5.82		
4-Penten-2-one, 4-methyl-	5.83		
4-Penten-2-one, 4-methyl-	5.85		
Unknown	7.47		
Unknown	7.48		1100 J
Benzaldehyde (ACR)(DOT)	7.70		
Benzaldehyde (ACR)(DOT)	7.73		500 J
Cyclotetrasiloxane, octameth	8.37		
Cyclotetrasiloxane, octameth	8.39		
3-Heptanone, 2,4-dimethyl-	8.42		

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUBUNIT 3 BOREHOLE DP-8

1100-EM-1 SUB-UNIT 3 BOREHOLE DP-8		SAMPLE NUMBER DEPTH (ft)	
PARAMETER	TIC RETENTION TIME	A1219S 27.4–29.9 (µg/kg)	A1221S 32.0–34.0 (µg/kg)
Unknown	10.35		3800 J
Unknown	28.17		
Unknown	29.32		
Unknown	29.34		
Unknown	29.36		5200 J
9-Octadecenamide, (z)-	29.37		
1,2-Benzenedicarboxylic acid	31.39		
1,2-Benzenedicarboxylic acid	31.72		
Unknown	31.79		
Unknown	32.34		
Unknown	32.39		
Unknown	32.66		
Unknown	33.66		
Unknown	33.67		
Unknown	33.71		
Unknown	33.72		780 J
PESTICIDES			
Heptachlor			

SUBAPPENDIX I-5
1100-4 OPERABLE SUBUNIT SOIL CHEMICAL ANALYTICAL RESULTS

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INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 4 BOREHOLE ATS-1 SAMPLES

1100-EM-1 SUB-UNIT 4 BOREHOLE ATS-1	SAMPLE NUMBER DEPTH (ft)													
SDG #	AH1301S												AH1308S	AH1309S
PARAMETER	A1301S 1.2-2.7 (mg/kg)		A1302S 4.1-5.6 (mg/kg)	A1303S 4.1-5.6 (mg/kg)	A1304S 6.1-7.4 (mg/kg)		A1306S 8.5-9.7 (mg/kg)		A1307S 10.9-11.6 (mg/kg)	A1312S 15.9-16.5 (mg/kg)
INORGANICS										
Aluminum	7320		NR	NR	6680		4990		NR	NR
Antimony	1.9	UJ	NR	NR	2.0	UJ	1.9	UJ	NR	NR
Arsenic	2.8		NR	NR	2.1		2.3		NR	NR
Barium	80.9		NR	NR	74.1		55.0		NR	NR
Beryllium	0.25		NR	NR	0.27		0.18	U	NR	NR
Cadmium	0.35	UJ	NR	NR	0.36	UJ	0.35	UJ	NR	NR
Calcium	9710		NR	NR	5370		4010		NR	NR
Chromium	11.3	J	NR	NR	9.9	J	5.6	J	NR	NR
Cobalt	11.4		NR	NR	12.1		11.3		NR	NR
Copper	14.4	J	NR	NR	12.8	J	10.2	J	NR	NR
Iron	23300		NR	NR	22300		16700		NR	NR
Lead	5.0		NR	NR	4.9		4.4		NR	NR
Magnesium	4880		NR	NR	4830		3530		NR	NR
Manganese	336	J	NR	NR	329	J	240	J	NR	NR
Mercury	0.10	U	NR	NR	0.09	U	0.10	U	NR	NR
Nickel	9.8		NR	NR	10.7		7.2		NR	NR
Potassium	1210	J	NR	NR	1030	J	825	J	NR	NR
Selenium	0.35	UJ	NR	NR	0.35	UJ	0.35	UJ	NR	NR
Silver	0.35	U	NR	NR	0.36	U	0.35	U	NR	NR
Sodium	413	J	NR	NR	252	J	192	J	NR	NR
Thallium	0.35	U	NR	NR	0.35	U	0.35	U	NR	NR
Vanadium	61.8	J	NR	NR	51.9	J	38.7	J	NR	NR
Zinc	46.9	J	NR	NR	41.1	J	31.4	J	NR	NR
Cyanide	0.51	UJ	NR	NR	0.52	UJ	0.51	UJ	NR	NR

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 1100-4 BOREHOLE ATS-1 SAMPLES

1100-EM-1 SUB-UNIT 4 BOREHOLE ATS-1		SAMPLE NUMBER DEPTH (ft)									
	SDG #	A1301S					A1307S				A1312S
	TIC	A1301S	A1302S	A1303S	A1304S	A1306S	A1307S	A1308S	A1309S	A1311S	A1312S
PARAMETER	RETENTION	1.2-2.7	4.1-5.6	4.1-5.6	6.1-7.4	8.5-9.7	10.9-11.6	11.9-12.9	12.9-14.3	15.9-15.8	15.8-16.5
	TIME	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
VOLATILE ORGANICS											
acetone		6 J	NR	NR	5 U	6 J	NR	ETHYLENE	NR	ETHYLENE	NR
chloroform		5 U	NR	NR	5 U	5 U	NR	GLYCOL	NR	GLYCOL	NR
MeCl2		5 U	NR	NR	5 U	5 U	NR	ANALYSIS	NR	ANALYSIS	NR
toluene		5 U	NR	NR	5 U	5 U	NR	ONLY	NR	ONLY	NR
SEMI-VOLATILE ORGANICS											
benzoic acid		3300 U	3300 U	3200 U	3400 U	3300 U	3200 U	NR	3300 U	NR	3300 U
dibenzofuran		690 U	690 U	660 U	690 U	690 U	670 U	NR	690 U	NR	690 U
2-methylnaphthalene		690 U	690 U	660 U	690 U	690 U	670 U	NR	690 U	NR	690 U
naphthalene		690 U	690 U	660 U	690 U	690 U	670 U	NR	690 U	NR	690 U
4-nitrophenol		3300 U	3300 U	3200 U	3400 U	3300 U	3200 U	NR	3300 U	NR	3300 U
phenanthrene		690 U	690 U	660 U	690 U	690 U	670 U	NR	690 U	NR	690 U
pyrene		690 U	690 U	660 U	690 U	690 U	670 U	NR	690 U	NR	690 U
SEMI-VOLATILE ORGANIC TICs											
UNKNOWN	4.97	ND	ND	ND	ND	ND	6300 J	NR	ND	NR	ND
1-methyethyl-acetic acid	5.03	1200 J	ND	7200 J	ND	7500 J	ND	NR	ND	NR	ND
UNKNOWN	5.03	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	5.05	ND	8600 J	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	5.08	ND	ND	ND	ND	ND	2500 J	NR	ND	NR	ND
4-ethyl-2-methylhexane	5.10	ND	ND	ND	1300 UJ	ND	ND	NR	ND	NR	ND
UNKNOWN	5.12	ND	ND	1200 J	ND	1800 J	ND	NR	ND	NR	ND
UNKNOWN	5.22	ND	ND	ND	ND	ND	ND	NR	ND	NR	87000 J
UNKNOWN	5.55	ND	210000 U	200000 U	210000 U	270000 U	ND	NR	ND	NR	ND
2-methylcetane	5.67	ND	1700 J	1600 J	1500 J	2100 J	ND	NR	ND	NR	ND
UNKNOWN	5.75	440000 J	ND	ND	ND	ND	ND	NR	ND	NR	ND
4-(1-methylethyl)heptane	5.80	970 UJ	1100 UJ	1000 UJ	910 UJ	1200 UJ	ND	NR	ND	NR	ND
UNKNOWN	5.80	ND	ND	ND	ND	ND	820000 J	NR	ND	NR	ND
.alpha.-pinene (ACN)	6.07	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	6.18	ND	ND	ND	ND	ND	190 J	NR	ND	NR	ND
UNKNOWN	6.47	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	6.68	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	6.72	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
6-(acetyloxy)-2-hexanone	6.78	ND	2200 J	2000 J	1700 J	ND	ND	NR	ND	NR	ND

DOE/RL-90-18

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 1100-4 BOREHOLE ATS-1 SAMPLES

1100-EM-1 SUB-UNIT 4 BOREHOLE ATS-1		SAMPLE NUMBER DEPTH (ft)									
	SDG #	A1301S					A1307S				A1312S
PARAMETER	TIC RETENTION TIME	A1301S 1.2-2.7 (µg/kg)	A1302S 4.1-5.6 (µg/kg)	A1303S 4.1-5.6 (µg/kg)	A1304S 6.1-7.4 (µg/kg)	A1306S 8.5-9.7 (µg/kg)	A1307S 10.9-11.9 (µg/kg)	A1308S 11.9-12.9 (µg/kg)	A1309S 12.9-14.3 (µg/kg)	A1311S 15.9-16.8 (µg/kg)	A1312S 15.9-16.5 (µg/kg)
UNKNOWN	6.82	2200 J	ND	ND	ND	2000 J	ND	NR	ND	NR	ND
UNKNOWN	6.85	ND	ND	ND	ND	ND	3700 J	NR	ND	NR	ND
UNKNOWN	6.92	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	7.11	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	7.13	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
decane	7.33	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
2,4-dimethyl-3-heptanone	7.42	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
2,4-dimethyl-3-heptanone	7.43	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	7.43	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	7.48	2600 J	2500 J	1600 U	1200 U	3800 U	ND	NR	ND	NR	ND
2,4-dimethyl-3-heptanone	8.17	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
2,4-dimethyl-3-heptanone	8.37	2000 J	1700 J	580 J	ND	1200 J	ND	NR	ND	NR	ND
UNKNOWN	8.39	ND	ND	ND	ND	ND	880 J	NR	ND	NR	ND
UNKNOWN	8.84	350 J	ND	ND	ND	340 J	ND	NR	ND	NR	ND
UNKNOWN	8.85	ND	ND	ND	ND	ND	210 J	NR	ND	NR	ND
UNKNOWN	8.89	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	9.42	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
1,2,3-propanetriol, monoacet	9.85	ND	ND	510 J	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	9.57	ND	ND	ND	ND	ND	1500 J	NR	ND	NR	ND
UNKNOWN	9.89	3000 J	1100 J	ND	ND	1400 J	ND	NR	ND	NR	ND
UNKNOWN	10.27	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	11.12	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	11.39	ND	770 J	530 J	ND	1000 J	ND	NR	ND	NR	ND
UNKNOWN	11.48	ND	ND	ND	ND	ND	170 J	NR	ND	NR	ND
UNKNOWN	12.39	1300 J	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	12.40	ND	ND	ND	ND	ND	4200 J	NR	ND	NR	ND
3,8-dimethylundecane	14.89	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	17.57	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	17.71	ND	ND	ND	ND	ND	2700 J	NR	ND	NR	ND
1,4,6-trimethylnaphthalene	18.20	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	18.57	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	18.19	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	19.39	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
1,6-dimethyl-4-naphthalene	19.61	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
2,7,10-trimethyldodecane	19.65	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 1100-4 BOREHOLE ATS-1 SAMPLES

1100-EM-1 SUB-UNIT 4 BOREHOLE ATS-1		SAMPLE NUMBER DEPTH (ft)									
	SDG #	A1301S					A1307S				A1312S
PARAMETER	TIC RETENTION TIME	A1301S 1.2-2.7 (µg/kg)	A1302S 4.1-5.6 (µg/kg)	A1303S 4.1-5.6 (µg/kg)	A1304S 6.1-7.4 (µg/kg)	A1306S 8.5-9.7 (µg/kg)	A1307S 10.9-11.9 (µg/kg)	A1308S 11.9-12.9 (µg/kg)	A1309S 12.9-14.3 (µg/kg)	A1311S 15.9-15.9 (µg/kg)	A1312S 16.9-16.5 (µg/kg)
UNKNOWN	19.65	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
1,5-dimethyl-4-naphthalene	19.94	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	19.99	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
2,6-dimethyl-heptadecane	20.04	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	20.05	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
2,6,10-trimethyldodecane	20.07	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
5-propyltridecane	20.07	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	20.89	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	21.15	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	21.45	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	21.49	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	22.32	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	22.42	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	22.81	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
hexadecanoic acid	23.25	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
hexadecanoic acid	23.59	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	23.61	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	24.84	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	25.42	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	25.47	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	25.51	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	25.69	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
2,6,10,15-tetrahepta decane	26.62	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	27.21	ND	ND	260 J	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	27.58	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	27.59	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	28.06	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	28.22	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	28.46	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	28.68	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
hexanedioic acid, mono(2-ethy)	28.74	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	28.74	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
dodecanamide	28.81	ND	ND	ND	ND	ND	ND	NR	ND	NR	4200 J
1-phenanthrenecarbonylic	29.24	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	29.29	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 1100-4 BOREHOLE ATS-1 SAMPLES

1100-EM-1 SUB-UNIT 4 BOREHOLE ATS-1		SAMPLE NUMBER DEPTH (ft)									
	SDG #	A1301S					A1307S				A1312S
PARAMETER	TIC RETENTION TIME	A1301S 1.2-2.7 (µg/kg)	A1302S 4.1-5.6 (µg/kg)	A1303S 4.1-5.6 (µg/kg)	A1304S 6.1-7.4 (µg/kg)	A1306S 8.5-9.7 (µg/kg)	A1307S 10.9-11.8 (µg/kg)	A1308S 11.9-12.9 (µg/kg)	A1309S 12.9-14.3 (µg/kg)	A1311S 15.8-16.8 (µg/kg)	A1312S 15.8-16.5 (µg/kg)
UNKNOWN	29.32	3900 U	6400 U	6200 U	5200 U	3800 U	ND	NR	ND	NR	ND
UNKNOWN	29.71	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	30.31	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	30.42	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	30.72	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	30.82	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	31.27	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
1,2-benzenedicarboxylic acid	31.29	ND	ND	ND	ND	ND	210 J	NR	ND	NR	ND
UNKNOWN	31.29	ND	ND	ND	ND	ND	210 J	NR	ND	NR	ND
UNKNOWN	31.38	240 J	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	31.39	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	31.67	260 J	ND	ND	ND	ND	ND	NR	ND	NR	ND
octacosane	31.71	ND	ND	ND	ND	ND	ND	NR	880 J	NR	ND
UNKNOWN	31.71	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	31.79	380 J	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	31.87	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	32.61	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	32.68	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	32.89	ND	ND	ND	ND	ND	ND	NR	ND	NR	1400 J
UNKNOWN	33.07	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	33.17	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
octacosane	33.19	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	33.21	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	33.29	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	33.59	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	33.61	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
nonacosane	33.62	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	33.69	ND	2000 U	1900 U	1600 U	1700 U	ND	NR	ND	NR	ND
ethane	33.67	2000 J	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	33.81	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
octacosane	33.87	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	33.97	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	34.11	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	34.17	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	34.29	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 1100-4 BOREHOLE ATS-1 SAMPLES

1100-EM-1 SUB-UNIT 4 BOREHOLE ATS-1		SAMPLE NUMBER DEPTH (ft)									
	SDG #	A1301S					A1307S				A1312S
PARAMETER	TIC RETENTION TIME	A1301S 1.2-2.7 (µg/kg)	A1302S 4.1-5.8 (µg/kg)	A1303S 4.1-5.8 (µg/kg)	A1304S 6.1-7.4 (µg/kg)	A1306S 8.5-9.7 (µg/kg)	A1307S 10.9-11.8 (µg/kg)	A1308S 11.9-12.9 (µg/kg)	A1309S 12.9-14.3 (µg/kg)	A1311S 15.6-16.6 (µg/kg)	A1312S 15.6-16.5 (µg/kg)
UNKNOWN	34.36	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	34.56	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	34.79	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	34.97	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	35.02	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	35.18	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	35.47	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	35.54	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
Iron, trisarbonyl(N-(phenyl-	35.62	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	35.84	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	35.98	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	36.01	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	36.19	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	36.32	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	36.34	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	36.44	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	36.69	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	36.82	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	37.01	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	37.31	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	37.44	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	37.72	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
UNKNOWN	38.12	ND	ND	ND	ND	ND	ND	NR	ND	NR	ND
PESTICIDES											
aldrin		16 U	17 U	16 U	17 U	17 U	16 U	NR	16 U	NR	16 U
aroclor-1260		330 U	330 U	330 U	340 U	340 U	330 U	NR	330 U	NR	330 U
alpha-chlordane		160 U	170 U	160 U	170 U	170 U	160 U	NR	160 U	NR	160 U
gamma-chlordane		160 U	170 U	160 U	170 U	170 U	160 U	NR	160 U	NR	160 U
4'4-DDE		33 U	33 U	33 U	34 U	34 U	33 U	NR	33 U	NR	33 U
4,4'-DDD		33 U	33 U	33 U	34 U	34 U	33 U	NR	33 U	NR	33 U
4,4'-DDT		33 U	33 U	33 U	34 U	34 U	33 U	NR	33 U	NR	33 U
methoxychlor		160 U	170 U	160 U	170 U	170 U	160 U	NR	160 U	NR	160 U

INORGANIC ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELL MW-3 SOILS

1100-EM-1 MONITORING WELL MW-3	SAMPLE ID									
PARAMETER	A2402S (ppb)	A2404S (ppb)	A2405S (ppb)	A2407S (ppb)	A2409S (ppb)	A2411S (ppb)	A2414S (ppb)	A2416S (ppb)	A2417S (ppb)	A2418S (ppb)
Aluminum	4950 J	5120 J	3200 J	5040 J	4300 J	5540 J	4410	4660	4870	4710
Antimony	3.0 UJ	3.5 UJ	3.1 UJ	4.0 UJ	3.1 UJ	3.8 UJ	3.1 UJ	3.3 UJ	3.0 UJ	3.2 UJ
Arsenic	2.3	0.99	0.95	1.2	1.2 J	0.76 J	2.2 J	2.0 J	2.2 J	5.8 J
Barium	63.8 J	64.2 J	40.3 J	64.6 J	56.6 J	76.6 J	55.7	68.7	72.0	68.3
Beryllium	0.48 J	0.75 J	0.47 J	0.64 J	0.56 J	0.93 J	0.51	0.81	0.79	0.81
Cadmium	0.47 J	0.34 UJ	0.30 UJ	0.38 UJ	0.30 UJ	0.34 UJ	0.29 U	0.32 U	0.29 U	0.42 U
Calcium	4820 J	5460 J	3580 J	10600 J	5690 J	6790 J	5930	5300	6330	7250
Chromium	7.4 J	7.6 J	6.0 J	7.2 J	5.5 J	8.3 J	4.9 J	13.2 J	5.5 J	6.6 J
Cobalt	10.1 J	13.0 J	8.2 J	11.5 J	10.8 J	16.5 J	10.5	13.5	11.4	14.3
Copper	14.9 J	16.0 J	11.1 J	19.0 J	18.2 J	16.0 J	17.7 J	15.1 J	19.8 J	15.6 J
Iron	19800	21600	14580	20300	18900	26700	19800	23200	20100	20100
Lead	4.4	1.8	2.5	2.5	2.3	2.0	4.8 J	5.7 J	5.4 J	4.7 J
Magnesium	4540 J	3910 J	2670 J	3450 J	3530 J	3800 J	3420	3380	4030	4440
Manganese	200 J	270 J	187 J	279 J	237 J	319 J	231 J	278 J	254 J	316 J
Mercury	0.11 U	0.08 U	0.08 U	0.07 U	0.07 U	0.08 U	0.087 U	0.08 U	0.08 U	0.09 U
Nickel	12.3 J	8.0 J	7.6 J	7.4 J	10.7 J	8.4 J	5.7	8.8	8.5	7.5
Potassium	880	795	488	775	558	680	524	800	842	710
Selenium	0.31 U	0.31 U	0.29 U	0.32 U	0.38 U	0.34 U	0.15 U	0.17 J	0.17 U	0.16 U
Silver	1.7	1.0	1.2	1.8	1.7	2.0	1.0 U	2.5 U	2.0 U	2.4 U
Sodium	387 J	481 J	285 U	620 J	608 J	720 J	386 J	480 J	312 J	320 J
Thallium	0.38 J	0.10 U	0.15 U	0.48	0.18 U	0.26 J	0.15 J	0.17 U	0.17 U	0.15 U
Vanadium	40.8 J	62.1 J	43.3 J	53.6 J	44.1 J	82.4 J	47.1	70.2	40.0	68.7
Zinc	33.2 J	37.4 J	23.8 J	32.7 J	30.0 J	63.8 J	30.9 J	39.5 J	31.2 J	40.5 J
Cyanide	0.51 U	0.49 U	0.49 U	0.52 U	0.50 U	0.49 U	0.50 U	0.50 U	0.54 U	0.52 U
SDG #	A2401W						A2414S			

ORGANIC ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELL MW-3 SOILS

1100-EM-1 SUMMARY TABLE MONITORING WELL MW-3		SDG #									
		SAMPLE ID									
PARAMETER	TIC RETENTION TIME	B0007T						A2414S			
		A2402S (ppb)	A2404S (ppb)	A2405S (ppb)	A2407S (ppb)	A2409S (ppb)	A2411S (ppb)	A2414S (ppb)	A2416S (ppb)	A2417S (ppb)	A2418S (ppb)
VOLATILE ORGANICS											
acetone		10 U	13 U	12 U	10 U	11 U	10 U	7 J	10 U	11 U	9 J
chloroform		5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	6 U
MeCl2		5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	6 U
tetrachloroethene		5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	6 U
1,1,1-trichloroethane		5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	6 U
trichloroethene		5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	6 U
SEMI-VOLATILE ORGANICS											
bis(2-ethylhexyl)phthalate		680 U	680 U	680 U	670 U	740 U	690 U	690 U	680 U	680 U	730 U
VOLATILE ORGANIC TICs											
trifluoromethane	2.13	J	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-trichloro-1,2-ethane	2.73	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANIC TICs											
3-(methoxy)-2-hexanone	9.37	970 J	900 J	1300 J	1200 J	1300 J	1300 J	1200 J	1300 J	1100 J	1200 J
2,4-dimethyl-3-heptanone	9.12	360 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	10.66	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclopentadiene, decameth	10.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	10.94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexadiene, dodecamet	14.14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ethanol, 2-chloro-, phosphat	21.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	22.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	23.87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	26.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SUBAPPENDIX I-6
1100-6 OPERABLE SUBUNIT SOIL CHEMICAL ANALYTICAL RESULTS

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INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6	SAMPLE NUMBER DEPTH (ft)								
PARAMETER	S6141A 0.0-0.5 (mg/kg)	S6142A 0.0-0.5 (mg/kg)	S6143A 0.0-0.5 (mg/kg)	S6144A 0.0-0.5 (mg/kg)	S6145A 0.0-0.5 (mg/kg)	S6146A 0.0-0.5 (mg/kg)	S6147A 0.0-0.5 (mg/kg)	S6148A 0.0-0.5 (mg/kg)	S6149A 0.0-0.5 (mg/kg)
INORGANICS									
Aluminum	6780	6550	6750	7350	6740	6700	6610	5620	6550
Antimony	5.5 U N	5.1 U N	6.0 U N	5.6 U N	5.9 U N	5.8 U N	5.9 U N	5.7 U N	5.5 U N
Arsenic	2.4	2.2	2.4	2.6	2.5	2.1	2.3	1.7	2.7
Barium	81.6	70.1	77.8	83.5	79.1	80.0	82.3	78.9	79.3
Beryllium	0.32	0.31	0.24	0.32	0.30	0.31	0.28	0.21	0.33
Cadmium	0.69 U	0.64 U	0.75 U	0.70 U	0.73 U	0.72 U	0.73 U	0.71 U	0.69 U
Calcium	3970	3970	3340	3790	3300	3590	3490	4180	4140
Chromium	8.4	10.2	9.1	9.7	8.2	8.5	9.0	6.4	8.0
Cobalt	11.4	11.4	10.6	12.2	11.1	11.3	10.2	10.2	10.9
Copper	16.0	10.7	12.3	16.2	12.1	12.8	11.1	14.1	12.9
Iron	20700	22800	20800	22700	21000	21400	20700	19100	21000
Lead	7.3 S	6.0	6.5	6.8	5.9	5.6	6.0	7.3	5.0
Magnesium	4380	4550	4630	4770	4380	4650	4490	3990	4580
Manganese	367	346	361	383	355	347	355	339	346
Mercury	0.08 U	0.07 U	0.08 U	0.06 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Nickel	9.4	8.4	9.5	10.1	9.4	10.3	8.7	6.8	11.5
Potassium	1290	1760	1440	1470	1700	1400	1570	1330	1400
Selenium	16.90 U	0.33 U	0.35 U	0.34 U	0.36 U	3.60 U	3.50 U	3.40 U	3.60 U
Silver	0.51 U	0.48 U	0.56 U	0.53 U	0.55 U	0.54 U	0.55 U	0.53 U	0.52 U
Sodium	98.4	94.9	92.4	107.0	84.3	107.0	89.7	143.0	105.0
Thallium	0.34 U	0.33 U	0.35 U	0.34 U	0.36 U	0.36 U	0.35 U	0.34 U	0.36 U
Vanadium	44.4 *	60.8 *	45.8 *	51.6 *	48.7 *	49.0 *	46.8 *	39.6 *	44.6 *
Zinc	41.3 E	45.7 E	43.9 E	44.4 E	41.7 E	43.0 E	43.7 E	40.2 E	42.9 E
Cyanide	0.49 U	0.49 U	0.50 U	0.51 U	0.50 U	0.50 U	0.50 U	0.49 U	0.50 U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6	SAMPLE NUMBER DEPTH (ft)					
PARAMETER	S6150A 0.0-0.5 (mg/kg)	S6151A 0.0-0.5 (mg/kg)	S6152A 0.0-0.5 (mg/kg)	S6153A 0.0-0.5 (mg/kg)	S6154A 0.0-0.5 (mg/kg)	S6155A 0.0-0.5 (mg/kg)
INORGANICS						
Aluminum	8680	5600	7240	5520	5740	6280
Antimony	5.3 U	5.3 U	5.2 U	4.9 U	5.3 U	5.4 U
Arsenic	2.4	1.9	2.0	2.0	2.3	2.1
Barium	99.2	68.3	81.6	70.9	77.5	80.1
Beryllium	0.40	0.23	0.33	0.21	0.20	0.26
Cadmium	0.67 U	0.66 U	0.65 U	0.61 U	0.66 U	0.67 U
Calcium	3430	2820	2850	2800	3070	3050
Chromium	10.9	7.8	10.0	7.0	7.7	10.4
Cobalt	11.3	9.2	9.8	8.9	9.4	10.6
Copper	15.9	11.4	12.9	11.5	13.7	13.9
Iron	23500	18700	20800	17700	18700	21100
Lead	12.9 N	13.4 N	14.1 N	12.0 N	15.6 NS	22.1 NS
Magnesium	4840	3800	4210	3810	3940	4060
Manganese	359	293	277	288	312	298
Mercury	0.08 U N	0.07 U N	0.06 U N	0.07 U N	0.08 U N	0.08 U N
Nickel	10.4	8.1	9.2	8.8	9.7	12.9
Potassium	1950	1060	1360	1150	1190	1170
Selenium	0.33 U N	0.31 U N	0.33 U N	0.33 U N	0.33 U N	0.33 U N
Silver	0.50 U	0.50 U	0.49 U	0.46 U	0.49 U	0.50 U
Sodium	131.0	91.8	109	83.9000	100	124
Thallium	0.33 U	0.31 U	0.33 U	0.33 U	0.33 U	0.33 U
Vanadium	55.1	45.3	49.6	40.6	41.4	55.7
Zinc	70.0 E	77.6 E	65.1 E	61.7 E	67.6 E	111.0 E
Cyanide	0.50 U	0.50 U	0.49 U	0.49 U	0.50 U	0.49 U

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	S8141A 0.0-0.5 (µg/kg)	S8142A 0.0-0.5 (µg/kg)	S8143A 0.0-0.5 (µg/kg)	S8144A 0.0-0.5 (µg/kg)	S8145A 0.0-0.5 (µg/kg)	S8146A 0.0-0.5 (µg/kg)	S8147A 0.0-0.5 (µg/kg)	S8148A 0.0-0.5 (µg/kg)	S8149A 0.0-0.5 (µg/kg)
VOLATILE ORGANICS										
1,1,1-Trichloroethane										
2-Butanone										
2-Hexanone										
Acetone										
Methylene chloride			4 J			4 J	2 J			
Toluene		7	6	2 J	3 J	4 J	6			
VOLATILE ORGANIC TICs										
Hexane	4.32		6 J							
Hexane	4.33	5.1 J								
1,3-Propanediol	15.32									
4-Heptanone	19.69									
3-Heptanone	20.49									
3-Hexanone, 5-methyl-	20.64									
3-Heptanone	20.67									
3-Heptanone	20.74									
3-Heptanone	20.76									
3-Heptanone	20.84									
1-Hexanol, 2-ethyl-	21.12									
2-Heptanone	21.14									
2-Heptanone	21.24									
1-Hexanol, 2-ethyl-	22.66									
4-Heptanone, 3-methyl-	22.66									
4-Heptanone, 3-methyl-	22.76									
4-Heptanone, 3-methyl-	22.99									
1-Hexanol, 2-ethyl-	23.17									
1-Hexanol, 2-ethyl-	23.20									
1-Hexanol, 2-ethyl-	23.24									
1-Hexanol, 2-ethyl-	23.29									
2-Nonen-4-one, 2-methyl-	23.35									
2-Hepten-4-one, 2-methyl-	23.55									
7-Oxabicyclo[4.1.0]heptane	23.55									
2-Nonen-4-one, 2-methyl-	23.57									
2-Hepten-4-one, 2-methyl-	23.62									
2-Nonen-4-one, 2-methyl-	23.62									
2-Nonen-4-one, 2-methyl-	23.69									
2-Heptanone, 3-methyl-	23.77									
2-Nonen-4-one, 2-methyl-	23.77									

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	S8141A 0.0-0.5 (µg/kg)	S8142A 0.0-0.5 (µg/kg)	S8143A 0.0-0.5 (µg/kg)	S8144A 0.0-0.5 (µg/kg)	S8145A 0.0-0.5 (µg/kg)	S8146A 0.0-0.5 (µg/kg)	S8147A 0.0-0.5 (µg/kg)	S8148A 0.0-0.5 (µg/kg)	S8149A 0.0-0.5 (µg/kg)
2-Heptanone, 3-methyl-	23.95									
3-Buten-2-ol	23.99									
SEMI-VOLATILE ORGANICS										
1,2,4-Trichlorobenzene										83 J
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										88 J
2-Chlorophenol									79 J	170 J
4-Chloro-3-methylphenol									67 J	95 J
Acenaphthene										77 J
bis(2-Chloroethyl)Ether										
bis(2-Ethylhexyl)phthalate										
Di-n-Octyl Phthalate										
N-Nitroso-di-N-Propylamine										79 J
Pyrene										84 J
SEMI-VOLATILE ORGANIC TICs										
Hydrochloric acid (DOT)	4.97									
Unknown	4.97									
Hydrochloric acid (DOT)	5.03									
Hydrochloric acid (DOT)	5.05									
Hydrochloric acid (DOT)	5.07									
Unknown	5.07									
Hydrochloric acid (DOT)	5.08									
Octane, 2-methyl-	5.09	1400 J				1500 J	1400 J			
Octane, 2-methyl-	5.10		1500 J	1500 J	1400 J			1100 J		
Heptane, 4-(1-methylethyl)-	5.22	820 J				810 J	740 J		370 J	
Heptane, 4-(1-methylethyl)-	5.23			810 J	960 J			630 J		
Octane, 3-methyl-	5.23		1100 J							
2-Hexanone, 6-(Acetyloxy)-	6.65									
2-Hexanone, 6-(Acetyloxy)-	6.67									
Unknown	6.70					2600 J	1800 J	1600 J	2200 J	
Unknown	6.72			3800 J						
Unknown	6.73	4500 J	4300 J		4100 J					
Unknown	6.90	410 J								
3-Heptanone, 2,4-Dimethyl-	7.58					1100 J	510 J	720 J	1100 J	
3-Heptanone, 2,4-Dimethyl-	7.60		2100 J		1700 J					
3-Heptanone, 2,4-Dimethyl-	7.62			2300 J						
3-Heptanone, 2,4-Dimethyl-	7.63	9800 J								

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	S8141A 0.0-0.5 (µg/kg)	S8142A 0.0-0.5 (µg/kg)	S8143A 0.0-0.5 (µg/kg)	S8144A 0.0-0.5 (µg/kg)	S8145A 0.0-0.5 (µg/kg)	S8146A 0.0-0.5 (µg/kg)	S8147A 0.0-0.5 (µg/kg)	S8148A 0.0-0.5 (µg/kg)	S8149A 0.0-0.5 (µg/kg)
Unknown	7.90	240 J								
Unknown	8.72			630 J					680 J	
Unknown	8.74		830 J		960 J					
Unknown	8.75	2200 J								
1-Octyn-3-ol, 4-Ethyl-	9.10									
2-Decene, 8-Methyl-, (Z)-	9.19									
Unknown	10.56		760 J	1100 J	880 J	800 J			880 J	
Undecane, 4,7-Dimethyl-	12.52									
1,2-Benzenedicarboxylic acid	14.62									
1,2-Benzenedicarboxylic acid	14.64									
Phthalic anhydride	14.84									
2-Propenoic acid, octyl este	20.62									
Decane, 1-Fluoro-	20.62									
Unknown	20.62	680 J	740 J	480 J	610 J	790 J	600 J			
Dodecanamide	20.24									
Unknown	20.32							3800 J	4300 J	4200 J
Unknown	20.39	14000 J	15000 J	11000 J	13000 J	17000 J	13000 J			
Unknown	20.57	330 J	350 J	270 J	300 J	410 J	320 J			
1,2-Benzenedicarboxylic acid	20.62									
Unknown	20.34									
9-Octadecenamide, (Z)-	20.39									
Pentanamide, 4-Methyl-	20.39									
Unknown	20.39									
1,2-Benzenedicarboxylic acid	20.74									
1,2-Benzenedicarboxylic acid	20.76									
Unknown	20.87									
Unknown	20.89									
Unknown	20.47									
Unknown	30.62									
Benzenamine, 4-(9-Methyl-2-D	30.76									
1,2-Benzenedicarboxylic acid	30.88									
1,2-Benzenedicarboxylic acid	30.87									
Unknown	30.87									
Octane, 2-Bromo-	32.54									
Unknown	32.54							850 J	1800 J	1400 J
Unknown	32.58									
1-Pentanol, 4-methyl-2-Propy	32.68									
Unknown	32.68									
Unknown	32.67									
Unknown	32.69									

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER								
		DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	S6141A 0.0-0.5 (µg/kg)	S6142A 0.0-0.5 (µg/kg)	S6143A 0.0-0.5 (µg/kg)	S6144A 0.0-0.5 (µg/kg)	S6145A 0.0-0.5 (µg/kg)	S6146A 0.0-0.5 (µg/kg)	S6147A 0.0-0.5 (µg/kg)	S6148A 0.0-0.5 (µg/kg)	S6149A 0.0-0.5 (µg/kg)
1,2-Benzenedicarboxylic acid	32.77									
Unknown	32.77									
Unknown	32.82									
Unknown	32.84									
Unknown	32.88									
Unknown	33.12									
Unknown	33.14									
Heptadecane, Hexadecamethy	33.19							380 J		
Unknown	33.32									
Unknown	33.34									
Unknown	33.38									
Unknown	33.41									
Unknown	33.42									
Octacosane	33.64								1400 J	
Unknown	33.64									200 J
9-Octadecenamide, (Z)-	33.69									
Unknown	33.69									
9-Octadecenamide, (Z)-	33.71									
Unknown	33.71									
Unknown	34.38									
Unknown	34.37									
Unknown	34.40							650 J		
Unknown	36.51								940 J	
Unknown	36.79							760 J		
Unknown	37.12							840 J		
Unknown	38.71							720 J		
PESTICIDES										
4,4'-DDE										
Aldrin									1.1 J	1.3 J
alpha-Chlordane										
delta BHC (Lindane)										
Dieldrin										2.3 J
Endrin ketone										1.3 J
gamma-BHC (Lindane)										0.77 J
gamma-Chlordane										
Heptachlor								0.77 J	0.88 J	0.94 J

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	S8150A 0.0-0.5 (µg/kg)	S8150ADL 0.0-0.5 (µg/kg)	S8151A 0.0-0.5 (µg/kg)	S8151ADL 0.0-0.5 (µg/kg)	S8152A 0.0-0.5 (µg/kg)	S8153A 0.0-0.5 (µg/kg)	S8153ADL 0.0-0.5 (µg/kg)	S8153ARE 0.0-0.5 (µg/kg)	S8154A 0.0-0.5 (µg/kg)
VOLATILE ORGANICS										
1,1,1-Trichloroethane									34	
2-Butanone				23						69
2-Hexanone										53
Acetone		130		38		33	22		94	190
Methylene chloride		20 J		4 J		11	5			
Toluene										
VOLATILE ORGANIC TICs										
Hexane	4.32									
Hexane	4.33									
1,3-Propanediol	16.32					6 J				
4-Heptanone	19.69					5 J				
3-Heptanone	20.40	60 J								
3-Hexanone, 5-methyl-	20.64								35 J	
3-Heptanone	20.67									80 J
3-Heptanone	20.74					29 J				
3-Heptanone	20.75						18 J			
3-Heptanone	20.84			11 J						
1-Hexanol, 2-ethyl-	21.12						82 J			
2-Heptanone	21.14					8 J				
2-Heptanone	21.24			6 J						
1-Hexanol, 2-ethyl-	22.65					140 J				
4-Heptanone, 3-methyl-	22.65	60 J								
4-Heptanone, 3-methyl-	22.75									
4-Heptanone, 3-methyl-	22.99						5 J			
1-Hexanol, 2-ethyl-	23.17									
1-Hexanol, 2-ethyl-	23.20								170 J	
1-Hexanol, 2-ethyl-	23.24									
1-Hexanol, 2-ethyl-	23.29									
2-Nonen-4-one, 2-methyl-	23.35	60 J								
2-Hepten-4-one, 2-methyl-	23.55									
7-Oxabicyclo[4.1.0]heptane	23.55									
2-Nonen-4-one, 2-methyl-	23.57								35 J	
2-Hepten-4-one, 2-methyl-	23.62									
2-Nonen-4-one, 2-methyl-	23.62									65 J
2-Nonen-4-one, 2-methyl-	23.69						16 J			
2-Heptanone, 3-methyl-	23.77	110 J								
2-Nonen-4-one, 2-methyl-	23.77			4 J						

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	S6150A 0.0-0.5 (µg/kg)	S6150ADL 0.0-0.5 (µg/kg)	S6151A 0.0-0.5 (µg/kg)	S6151ADL 0.0-0.5 (µg/kg)	S6152A 0.0-0.5 (µg/kg)	S6153A 0.0-0.5 (µg/kg)	S6153ADL 0.0-0.5 (µg/kg)	S6153ARE 0.0-0.5 (µg/kg)	S6154A 0.0-0.5 (µg/kg)
2-Heptanone, 3-methyl-	23.95									
3-Buten-2-ol	23.99								25 J	
SEMI-VOLATILE ORGANICS										
1,2,4-Trichlorobenzene										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										
2-Chlorophenol										
4-Chloro-3-methylphenol										
Acenaphthene										
bis(2-Chloroethyl)Ether										
bis(2-Ethylhexyl)phthalate		10000000 E	25000000 D	4500000 E	6700000 D	7500000 E	4000000 E	11000000 D		5000000 E
Di-n-Octyl Phthalate		5100 J		46000 J						
N-Nitroso-di-N-Propylamine										
Pyrene										
SEMI-VOLATILE ORGANIC TICs										
Hydrochloric acid (DOT)	4.97									
Unknown	4.97	100000 J		120000 J		150000 J	120000 J			120000 J
Hydrochloric acid (DOT)	5.93	69000 J								
Hydrochloric acid (DOT)	5.95			70000 J		74000 J				
Hydrochloric acid (DOT)	5.97						64000 J			
Unknown	5.97									
Hydrochloric acid (DOT)	5.98									67000 J
Octane, 2-methyl-	5.98									
Octane, 2-methyl-	6.10									
Heptane, 4-(1-methylethyl)-	6.22									
Heptane, 4-(1-methylethyl)-	6.23									
Octane, 3-methyl-	6.23									
2-Hexanone, 6-(Acetyloxy)-	6.65									
2-Hexanone, 6-(Acetyloxy)-	6.67									
Unknown	6.70									
Unknown	6.72									
Unknown	6.73									
Unknown	6.80									
3-Heptanone, 2,4-Dimethyl-	7.58									
3-Heptanone, 2,4-Dimethyl-	7.60									
3-Heptanone, 2,4-Dimethyl-	7.62									

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	S8150A 0.0-0.5 (µg/kg)	S8150ADL 0.0-0.5 (µg/kg)	S8151A 0.0-0.5 (µg/kg)	S8151ADL 0.0-0.5 (µg/kg)	S8152A 0.0-0.5 (µg/kg)	S8153A 0.0-0.5 (µg/kg)	S8153ADL 0.0-0.5 (µg/kg)	S8153ARE 0.0-0.5 (µg/kg)	S8154A 0.0-0.5 (µg/kg)
Unknown	7.90									
Unknown	8.72									
Unknown	8.74									
Unknown	8.75									
1-Octyn-3-ol, 4-Ethyl-	9.10			24000 J			43000 J			41000 J
2-Decene, 5-Methyl-, (Z)-	9.10	34000 J				68000 J				
Unknown	10.56									
Undecane, 4,7-Dimethyl-	12.62									
1,2-Benzenedicarboxylic acid	14.82	19000 J								
1,2-Benzenedicarboxylic acid	14.84			12000 J						
Phthalic anhydride	14.84					45000 J	20000 J			20000 J
2-Propenoic acid, octyl ester	20.82			14000 J						
Decane, 1-Fluoro-	20.82									
Unknown	20.82									
Dodecanamide	20.24									
Unknown	20.32									
Unknown	20.38									
Unknown	20.57									
1,2-Benzenedicarboxylic acid	20.62					38000 J				
Unknown	20.34	350000 J								
9-Octadecenamide, (Z)-	20.38									
Pentanamide, 4-Methyl-	20.38						400000			
Unknown	20.38					450000 J				
1,2-Benzenedicarboxylic acid	20.74					35000 J	20000			
1,2-Benzenedicarboxylic acid	20.70									20000 J
Unknown	20.87					210000 J	100000 J			92000 J
Unknown	20.89									
Unknown	30.47									
Unknown	30.62									
Benzenamine, 4-(9-Methyl-2-B	30.70			190000 J						
1,2-Benzenedicarboxylic acid	30.80			140000 J						
1,2-Benzenedicarboxylic acid	30.87					350000 J				210000 J
Unknown	30.87	510000 J					100000 J			
Octane, 2-Bromo-	32.54			84000 J						
Unknown	32.54									
Unknown	32.86	210000 J				310000 J	130000 J			100000 J
1-Pentanol, 4-methyl-2-Propy	32.88			43000 J						
Unknown	32.88						73000 J			
Unknown	32.87	110000 J				140000 J				67000 J
Unknown	32.89									

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)								
PARAMETER	TIC RETENTION TIME	S8150A 0.0-0.5 (µg/kg)	S8150ADL 0.0-0.5 (µg/kg)	S8151A 0.0-0.5 (µg/kg)	S8151ADL 0.0-0.5 (µg/kg)	S8152A 0.0-0.5 (µg/kg)	S8153A 0.0-0.5 (µg/kg)	S8153ADL 0.0-0.5 (µg/kg)	S8153ARE 0.0-0.5 (µg/kg)	S8154A 0.0-0.5 (µg/kg)
1,2-Benzenedicarboxylic acid	32.77	71000 J								
Unknown	32.77			30000 J		120000 J	53000 J			42000 J
Unknown	32.92			110000 J						
Unknown	32.94	310000 J					190000 J			160000 J
Unknown	32.98					430000 J				
Unknown	33.12	49000 J								
Unknown	33.14					43000 J				
Heptadecane, Hexadecamethy	33.19									
Unknown	33.32			370000 J			620000 J			540000 J
Unknown	33.34	1100000 J								
Unknown	33.38					1400000 J				
Unknown	33.41			29000 J						
Unknown	33.42						22000 J			
Octacosane	33.64									
Unknown	33.64									
9-Octadecenamide, (Z)-	33.69									
Unknown	33.69			160000 J						
9-Octadecenamide, (Z)-	33.71									
Unknown	33.71					180000 J				170000 J
Unknown	34.36					72000 J				
Unknown	34.37									
Unknown	34.48									
Unknown	35.51									
Unknown	36.79									
Unknown	37.12									
Unknown	38.71									
PESTICIDES										
4,4'-DDE		170 J		63 J		120 J	69 J			68 J
Aldrin				9.6 J						
alpha-Chlordane		1000 J		310 J		880 J	460 J			520 J
delta BHC (Lindane)				13 J						
Dieldrin										
Endrin ketone										
gamma-BHC (Lindane)										
gamma-Chlordane		880 J		290 J		800 J				440 J
Heptachlor		65 J				65 J				32 J

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	S6154ADL 0.0-0.5 (µg/kg)	S6154ARE 0.0-0.5 (µg/kg)	S6155A 0.0-0.5 (µg/kg)	S6155ADL 0.0-0.5 (µg/kg)	S6155ARE 0.0-0.5 (µg/kg)
VOLATILE ORGANICS						
1,1,1-Trichloroethane			35			15 J
2-Butanone						
2-Hexanone						
Acetone			80	86		
Methylene chloride				7 J		
Toluene						
VOLATILE ORGANIC TICs						
Hexane	4.32					
Hexane	4.33					
1,3-Propanediol	15.32					
4-Heptanone	19.89					
3-Heptanone	20.40					
3-Hexanone, 5-methyl-	20.64					
3-Heptanone	20.67					
3-Heptanone	20.74					
3-Heptanone	20.75					
3-Heptanone	20.84					
1-Hexanol, 2-ethyl-	21.12					
2-Heptanone	21.14					
2-Heptanone	21.24					
1-Hexanol, 2-ethyl-	22.56					
4-Heptanone, 3-methyl-	22.66					
4-Heptanone, 3-methyl-	22.75		45 J			
4-Heptanone, 3-methyl-	22.80					
1-Hexanol, 2-ethyl-	23.17		280 J			
1-Hexanol, 2-ethyl-	23.20					
1-Hexanol, 2-ethyl-	23.24					280 J
1-Hexanol, 2-ethyl-	23.29			600 J		
2-Nonen-4-one, 2-methyl-	23.35					
2-Hepten-4-one, 2-methyl-	23.55					35 J
7-Oxabicyclo[4.1.0]heptane	23.55		30 J			
2-Nonen-4-one, 2-methyl-	23.57					
2-Hepten-4-one, 2-methyl-	23.62			60 J		
2-Nonen-4-one, 2-methyl-	23.62					
2-Nonen-4-one, 2-methyl-	23.69					
2-Heptanone, 3-methyl-	23.77					
2-Nonen-4-one, 2-methyl-	23.77					

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	S8154ADL 0.0-0.5 (µg/kg)	S8154ARE 0.0-0.5 (µg/kg)	S8155A 0.0-0.5 (µg/kg)	S8155ADL 0.0-0.5 (µg/kg)	S8155ARE 0.0-0.5 (µg/kg)
2-Heptanone, 3-methyl-	23.95					75 J
3-Buten-2-ol	23.99					
SEMI-VOLATILE ORGANICS						
1,2,4-Trichlorobenzene						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
2-Chlorophenol						
4-Chloro-3-methylphenol						
Acenaphthene						
bis(2-Chloroethyl)Ether						
bis(2-Ethylhexyl)phthalate		13000000 D		6600000 E	14000000 D	
Di-n-Octyl Phthalate				10000 J		
N-Nitroso-di-N-Propylamine						
Pyrene						
SEMI-VOLATILE ORGANIC TICs						
Hydrochloric acid (DOT)	4.97			140000 J		
Unknown	4.97					
Hydrochloric acid (DOT)	5.03					
Hydrochloric acid (DOT)	5.06					
Hydrochloric acid (DOT)	5.07					
Unknown	5.07			69000 J		
Hydrochloric acid (DOT)	5.08					
Octane, 2-methyl-	5.09					
Octane, 2-methyl-	5.10					
Heptane, 4-(1-methylethyl)-	5.22					
Heptane, 4-(1-methylethyl)-	5.23					
Octane, 3-methyl-	5.23					
2-Hexanone, 6-(Acetyloxy)-	6.66					
2-Hexanone, 6-(Acetyloxy)-	6.67					
Unknown	6.70					
Unknown	6.72					
Unknown	6.73					
Unknown	6.89					
3-Heptanone, 2,4-Dimethyl-	7.58					
3-Heptanone, 2,4-Dimethyl-	7.59					
3-Heptanone, 2,4-Dimethyl-	7.62					
3-Heptanone, 2,4-Dimethyl-	7.63					

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	S8154ADL 0.0-0.5 (µg/kg)	S8154ARE 0.0-0.5 (µg/kg)	S8155A 0.0-0.5 (µg/kg)	S8155ADL 0.0-0.5 (µg/kg)	S8155ARE 0.0-0.5 (µg/kg)
Unknown	7.90					
Unknown	8.72					
Unknown	8.74					
Unknown	8.75					
1-Octyn-3-ol, 4-Ethyl-	9.16			77000 J		
2-Decene, 6-Methyl-, (Z)-	9.16					
Unknown	10.55					
Undecane, 4,7-Dimethyl-	12.52			8700 J		
1,2-Benzenedicarboxylic acid	14.52					
1,2-Benzenedicarboxylic acid	14.94			47000 J		
Phthalic anhydride	14.94					
2-Propenoic acid, octyl ester	20.02					
Decane, 1-Fluoro-	20.02			13000 J		
Unknown	20.02					
Dodecanamide	20.24					
Unknown	20.32					
Unknown	20.39					
Unknown	20.57					
1,2-Benzenedicarboxylic acid	20.62					
Unknown	20.34					
9-Octadecenamide, (Z)-	20.39					
Pentanamide, 4-Methyl-	20.39					
Unknown	20.39					
1,2-Benzenedicarboxylic acid	20.74					
1,2-Benzenedicarboxylic acid	20.70			38000 J		
Unknown	20.67					
Unknown	20.69			250000 J		
Unknown	30.47			18000 J		
Unknown	30.62			23000 J		
Benzenamine, 4-(9-Methyl-2-B	30.70					
1,2-Benzenedicarboxylic acid	30.90					
1,2-Benzenedicarboxylic acid	30.87					
Unknown	30.87			320000 J		
Octane, 2-Bromo-	32.54					
Unknown	32.54					
Unknown	32.59			430000 J		
1-Pentanol, 4-methyl-2-Propy	32.69					
Unknown	32.69					
Unknown	32.67					
Unknown	32.69			220000 J		

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 SUB-UNIT 6 NEAR SURFACE SOIL SAMPLES

1100-EM-1 SUB-UNIT 6		SAMPLE NUMBER DEPTH (ft)				
PARAMETER	TIC RETENTION TIME	S9154ADL 0.0-0.5 (µg/kg)	S9154ARE 0.0-0.5 (µg/kg)	S9155A 0.0-0.5 (µg/kg)	S9155ADL 0.0-0.5 (µg/kg)	S9155ARE 0.0-0.5 (µg/kg)
1,2-Benzenedicarboxylic acid	32.77					
Unknown	32.77			180000 J		
Unknown	32.92					
Unknown	32.94					
Unknown	32.99			660000 J		
Unknown	33.12					
Unknown	33.14			50000 J		
Heptadecane, Hexadecamethy	33.19					
Unknown	33.32					
Unknown	33.34					
Unknown	33.39			1800000 J		
Unknown	33.41					
Unknown	33.42					
Octacosane	33.64					
Unknown	33.64					
9-Octadecenamide, (Z)-	33.69					
Unknown	33.69					
9-Octadecenamide, (Z)-	33.71					
Unknown	33.71			250000 J		
Unknown	34.38					
Unknown	34.37			81000 J		
Unknown	34.49					
Unknown	35.61					
Unknown	35.79					
Unknown	37.12					
Unknown	38.71					
PESTICIDES						
4,4'-DDE				46 J		
Aldrin						
alpha-Chlordane				380 J		
delta BHC (Lindane)						
Dieldrin						
Endrin ketone						
gamma-BHC (Lindane)						
gamma-Chlordane				200 J		
Heptachlor				32 J		

SUBAPPENDIX I-7
HORN RAPIDS LANDFILL OPERABLE SUBUNIT SOIL CHEMICAL ANALYTICAL RESULTS

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INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL	SAMPLE NUMBER DEPTH (ft)																					
SDG #	AH168S																					
PARAMETER	AH168S 0.0-0.5 (mg/kg)		AH169S 0.0-0.5 (mg/kg)		AH170S 0.0-0.5 (mg/kg)		AH171S 0.0-0.5 (mg/kg)		AH172S 0.0-0.5 (mg/kg)		AH173S 0.0-0.5 (mg/kg)		AH174S 0.0-0.5 (mg/kg)		AH175S 0.0-0.5 (mg/kg)		AH176S 0.0-0.5 (mg/kg)		AH177S 0.0-0.5 (mg/kg)	
INORGANICS																						
Aluminum	10900		8200		6490		10600		13500		3620		5060		5420		5900		9160	
Antimony	2.1	UJ	2.0	UJ	1.9	UJ	2.1	UJ	1.9	UJ	2.3	UJ	1.7	UJ	1.8	UJ	1.9	UJ	1.9	UJ
Arsenic	0.65	J	1.5	J	1.8	J	2.1	J	1.9		0.67		1.1	J	1.6		1.1		1.7	
Barium	430	J	358	J	92	J	389	J	1320	J	47.7	J	65.8	J	60.0	J	71.7	J	128	J
Beryllium	0.46		0.18	U	0.17	U	0.42		0.79		0.21	U	0.16	U	0.16	U	0.17	U	0.22	
Cadmium	0.38	U	0.36	U	0.34	U	0.39	U	0.35	U	0.42	U	0.31	U	0.33	U	0.34	U	0.34	U
Calcium	12600		5920		3880		27000		86700		2230		5440		4910		5420		4470	
Chromium	5.9		9.2		8.3		13.0		14.2		5.8		7.0		7.6		8.5		11.4	
Cobalt	7.4		10.7		9.2		10.1		4.4		9.1		11		9.5		12.0		10.7	
Copper	15.0		17.4		12.5		19.2		33.4		8.7		16.5		13.3		16.5		14.4	
Iron	12600		17100		19000		25600		21600		11500		21700		16700		23200		21600	
Lead	0.38	UJ	34.0	J	9.2	J	19.6	J	67.8	J	27.2	J	3.7	J	7.1	J	5.9	J	26.1	
Magnesium	1500	J	3720	J	4240	J	10300	J	25000	J	2450	J	4790	J	4120	J	4360	J	4670	J
Manganese	175		306		295		329		83.5		138		392		270		322		343	
Mercury	0.10	UJ	0.12	J	0.09	UJ	0.10	UJ	0.11	UJ	0.12	UJ	0.08	UJ	0.08	UJ	0.09	UJ	0.10	UJ
Nickel	9.2		11.2		10.9		14.3		9.2		5.4		11.1		10.9		9.1		10.2	
Potassium	270		1110		1230		1300		1390		404		766		695		987		1600	
Selenium	0.55	J	0.36	UJ	0.34	UJ	0.35	UJ	0.92	J	0.41	UJ	0.34	UJ	0.33	UJ	0.34	UJ	0.34	UJ
Silver	0.38	U	0.36	U	0.34	U	0.39		2.1		0.42	U	0.31	U	0.33	U	0.34	U	0.34	U
Sodium	437	UJ	269	UJ	250	UJ	435	UJ	1650	J	210	UJ	247	UJ	214	UJ	287	UJ	313	UJ
Thallium	0.19	U	0.18	U	0.17	U	0.17	U	0.20		0.2	UJ	0.17	U	0.17	U	0.23		0.17	U
Vanadium	18.6		30.8		38.9		47.3		27.4		25.1		46.4		41.9		49.5		48.9	
Zinc	29.7		62.8		41.6		53.0		77.5		30.1		40.8		37.4		87.0		129	
Cyanide	0.58	U	0.53	U	0.50	U	0.52	U	0.53	U	0.63	U	0.51	U	0.51	U	0.51	U	0.51	U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL	SAMPLE NUMBER DEPTH (ft)																	
SDG #	AH168S				AH180S								AH186S					
PARAMETER	AH178S 0.0-0.5 (mg/kg)		AH179S 0.0-0.5 (mg/kg)		AH180S 0.0-0.5 (mg/kg)		AH181S 0.0-0.5 (mg/kg)		AH184S 0.0-0.5 (mg/kg)		AH185S 0.0-0.5 (mg/kg)		AH186S 0.0-0.5 (mg/kg)		AH187S 0.0-0.5 (mg/kg)		AH188S 0.0-0.5 (mg/kg)	
INORGANICS																		
Aluminum	8170		8400		4760		13800		15700		11900		7560	J	7520	J	7630	J
Antimony	1.9	UJ	1.8	UJ	1.9	R	2.1	R	2.0	R	2.2	R	1.9	UJ	1.9	UJ	2.0	UJ
Arsenic	0.98	J	1.0	J	0.62		2.3		0.87		3.6		1.1		1.3		1.1	
Barium	108	J	102	J	70.5		466		930		647		81.1	J	75.5	J	71.6	J
Beryllium	0.20		0.17	U	0.17	U	0.83		1.3		0.67		0.18	U	0.17	U	0.18	U
Cadmium	0.34	U	0.33	U	0.35	U	0.37	U	0.37	U	2.0		0.35	U	0.34	U	0.36	U
Calcium	7460		6340		3610		55400		77800		47900		6890	J	6000	J	6360	J
Chromium	7.5		9.5		6.7		17.1		15.0		13.9		9.3		8.4		8.0	
Cobalt	10.1		12.5		10.8		4.4		5.7		6.6		10.5		13.8		15.6	
Copper	13.5		15.4		14.0	UJ	44.4	J	36.0	J	22.4	UJ	13.3		14.6		15.3	
Iron	20500		23300		21700		18800		26000		20500		21100		26100		26100	
Lead	17.8	J	16.7	J	6.7	J	122	J	73.5	J	26.1	J	6.6		6.3		2.7	
Magnesium	4810	J	4760	J	3960		6920		15700		15600		3870	J	4330	J	5070	J
Manganese	281		297		260		119		119		186		273		322		376	
Mercury	0.08	UJ	0.08	UJ	0.11	U	0.12	U	1.3		0.10	U	0.09	U	0.08	U	0.09	U
Nickel	9.7		12.1		9.1		11.3		8.7		10.4		10.1		11.0		13.6	
Potassium	1210		735		668	J	294	J	607	J	899	J	1230		943		744	
Selenium	0.34	UJ	0.34	UJ	0.18	UJ	0.49	UJ	0.39	UJ	0.20	UJ	0.19	UJ	0.17	UJ	0.18	UJ
Silver	0.34	U	0.33	U	0.35	U	4.5		1.9		0.87		0.36	U	0.34	U	0.36	U
Sodium	401	UJ	353	UJ	292	UJ	5140	J	3890	J	1510	J	672	UJ	794	J	793	J
Thallium	0.17	U	0.17	U	0.18	U	0.20	U	0.19	U	0.20	U	0.19	U	0.17	U	0.18	U
Vanadium	47.1		59.4		52.0	J	29.2	J	30.9	J	31.9	J	58.3		73.4		84.7	
Zinc	60.8		165		56.0	J	68.8	J	38.6	J	41.2	J	44.1		49.6		49.7	
Cyanide	0.50	U	0.50	U	0.50	U	0.60	U	0.58	U	0.59	U	0.53	U	0.52	U	0.52	U

1100-EM-1 HORN RAPIDS LANDFILL	SAMPLE NUMBER DEPTH (ft)																	
SDG #	AH186S																	
PARAMETER	AH189S 0.0–0.5 (mg/kg)		AH190S 0.0–0.5 (mg/kg)		AH191S 0.0–0.5 (mg/kg)		AH192S 0.0–0.5 (mg/kg)		AH193S 0.0–0.5 (mg/kg)		AH194S 0.0–0.5 (mg/kg)		AH195S 0.0–0.5 (mg/kg)		AH196S 0.0–0.5 (mg/kg)		AH197S 0.0–0.5 (mg/kg)	
INORGANICS																		
Aluminum	10600	J	9850	J	8410	J	7410	J	5280	J	7730	J	9150	J	8640	J	7600	J
Antimony	2.1	UJ	2.0	UJ	1.8	UJ	1.7	UJ	2.0	UJ	2.1	UJ	2.1	UJ	1.8	UJ	1.9	UJ
Arsenic	1.6		2.1		1.4		1.5		1.2		1.1		1.8		1.8		1.7	
Barium	95.9	J	151	J	85.5	J	77.4	J	67.4	J	78.2	J	89.9	J	85.7	J	68.7	J
Beryllium	0.19	U	0.18	U	0.16	U	0.16	U	0.18	U	0.19	U	0.19	U	0.17	U	0.17	U
Cadmium	0.38	U	0.91	U	0.35	U	0.31	U	0.37	U	0.38	U	0.38	U	0.33	U	0.39	U
Calcium	4670	J	5690	J	6610	J	5290	J	4050	J	6070	J	5630	J	5530	J	3450	J
Chromium	12.1		14.2		7.6		7.6		7.1		8.2		12.2		8.2		8.9	
Cobalt	12.6		13.0		15.4		12.9		8.6		14.0		11.4		12.9		9.1	
Copper	13.7		58.6		15.8		13.0		13.0		13.8		16.9		16.6		11.2	
Iron	25800		29800		29800		25500		18400		25900		23100		25400		19000	
Lead	1.7		102		6.5		2.5		6.2		5.7		20.3		105		5.6	
Magnesium	4900	J	4370	J	4920	J	4300	J	3380	J	4540	J	4740	J	4060	J	3510	J
Manganese	392		364		377		323		240		337		332		299		260	
Mercury	0.11	U	0.10	U	0.09	U	0.09	U	0.09	U	0.09	U	0.09	U	0.09	U	0.09	U
Nickel	13.8		174		11.2		11.3		8.9		11.9		11.3		9.8		10.7	
Potassium	2060		1950		1480		1080		1090		1370		1930		1080		1480	
Selenium	0.19	UJ	0.18	UJ	0.17	UJ	0.18	UJ	0.17	UJ	0.19	UJ	0.18	UJ	0.18	UJ	0.18	UJ
Silver	0.38	U	4.0		0.33	U	0.31	U	0.37	U	0.38	U	0.38	U	0.33	U	0.34	U
Sodium	576	UJ	652	J	740	J	565	UJ	347	UJ	795	J	573	UJ	778	J	413	UJ
Thallium	0.19	U	0.18	U	0.21		0.18	U	0.17	U	0.19	U	0.18	U	0.18	U	0.18	U
Vanadium	62.9		62.6		80.6		73.9		43.5		74.6		57.5		70.1		48.4	
Zinc	52.8		399		52.5		46.6		34.5		51.6		54.6		48.4		37.7	
Cyanide	0.57	U	0.55	U	0.54	U	0.53	U	0.53	U	0.54	U	0.56	U	0.52	U	0.51	U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL	SAMPLE NUMBER DEPTH (ft)																	
SDG #	AH198S																AH206S	
PARAMETER	AH198S 0.0-0.5 (mg/kg)		AH199S 0.0-0.5 (mg/kg)		AH200S 0.0-0.5 (mg/kg)		AH201S 0.0-0.5 (mg/kg)		AH202S 0.0-0.5 (mg/kg)		AH203S 0.0-0.5 (mg/kg)		AH204S 0.0-0.5 (mg/kg)		AH205S 0.0-0.5 (mg/kg)		AH206S 0.0-0.5 (mg/kg)	
INORGANICS																		
Aluminum	8240	J	6950	J	7770	J	5590	J	11700	J	6970	J	7730	J	8340	J	8060	
Antimony	2.0	UJ	1.8	UJ	1.7	UJ	1.6	UJ	1.8	UJ	1.5	UJ	1.7	UJ	2.0	UJ	3.6	R
Arsenic	2.2		1.3		1.5		0.92		1.9		0.71		1.9		1.8		1.9	J
Barium	80.2	J	65.9	J	73.0	J	75.0	J	105	J	70.8	J	75.2	J	75.6	J	77.0	
Beryllium	0.18	U	0.17	U	0.16	U	0.14	U	0.16	U	0.14	U	0.16	U	0.16	U	0.62	
Cadmium	0.37	U	0.33	U	0.32	U	0.29	U	0.33	U	0.28	U	0.32	U	0.36	U	0.34	U
Calcium	5630	J	4840	J	5410	J	5260	J	4010	J	7140	J	3600	J	3220	J	5410	
Chromium	9.7		8.2		9.9		5.6		13.7		6.9		8.7		11.0		8.2	
Cobalt	13.8		9.8		11.6		11.8		11.9		15.5		8.7		9.2		10.3	
Copper	14.4		11.0		13.1		13.9		12.5		14.5		11.2		10.7		13.8	J
Iron	26200		18400		23600		22300		25400		28700		18700		20400		18300	
Lead	13.2		13.0		18.2	J	3.3		6.6		6.6		5.9		5.1		13.3	J
Magnesium	4290	J	3090	J	4450	J	3450	J	4510	J	4620	J	3460	J	4070	J	3860	
Manganese	343		242		320		242		423		346		370		318		281	
Mercury	0.09	U	0.10	U	0.10	U	0.09	U	0.12	U	0.13		0.10	U	0.12	U	0.11	J
Nickel	11.2		8.7		9.3		8.1		14.0		12.0		9.1		12.1		10.2	
Potassium	1230		1060		1630		557		2230		767		1400		1700		1060	
Selenium	0.18	UJ	0.16	UJ	0.17	UJ	0.19	UJ	0.19	UJ	0.17	UJ	0.17	UJ	0.18	UJ	0.17	UJ
Silver	0.37	U	0.65		0.32	U	0.29	U	0.33	U	0.28	U	0.32	U	0.36	U	1.7	
Sodium	701	J	748	J	525	UJ	760	J	511	UJ	874	J	513	UJ	276	UJ	955	J
Thallium	0.18	U	0.16	U	0.17	U	0.19	U	0.19	U	0.17	U	0.17	U	0.28		0.42	J
Vanadium	72.6		53.4		62.2		62.8		59.6		87.3		46.9		47.9		44.4	
Zinc	60.7		48.8		60.0		39.4		52.1		51.8		38.3		38.8		39.3	J
Cyanide	0.54	U	0.54	U	0.52	U	0.52	U	0.54	U	0.50	U	0.52	U	0.53	U	0.53	

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL	SAMPLE NUMBER DEPTH (ft)																
SDG #	AH206S																
PARAMETER	AH207S 0.0-0.5 (mg/kg)		AH208S 0.0-0.5 (mg/kg)		AH209S 0.0-0.5 (mg/kg)		AH210S 0.0-0.5 (mg/kg)		AH211S 0.0-0.5 (mg/kg)		AH212S 0.0-0.5 (mg/kg)		AH213S 0.0-0.5 (mg/kg)		AH214S 0.0-0.5 (mg/kg)		AH216S 0.0-0.5 (mg/kg)
INORGANICS																	
Aluminum	9620		8050		8190		8100		10000		11200		9790		9940		NR
Antimony	4.2	R	3.7	R	3.7	R	3.4	R	3.9	R	3.7	R	3.8	R	3.5	R	NR
Arsenic	1.2	J	1.6	J	1.2	J	1.1	J	1.9	J	1.8	J	1.4	J	2.1	J	NR
Barium	78.2		83.9		110		86.8		120		117		106		92.3		NR
Beryllium	1.1		1.0		0.94		0.93		0.85		0.98		1.0		0.52		NR
Cadmium	0.40	U	0.88		1.3		0.32	U	0.37	U	0.36	U	0.37	U	0.33	U	NR
Calcium	6260		7160		7330		5610		4440		6640		8100		3430		NR
Chromium	6.4		5.1		6.7		6.4		10.4		11.2		10.4		10.5		NR
Cobalt	13.2		14.7		11.9		12.3		11.7		13.9		14.6		8.6		NR
Copper	16.3	J	17.1	J	17.4	J	16.2	J	20.2	J	16.7	J	17.8	J	16.0	J	NR
Iron	22900		26700		22200		21900		22500		27000		26800		17700		NR
Lead	15.2	J	3.9	J	16.9	J	4.3	J	482	J	5.8	J	4.3	J	4.3	J	NR
Magnesium	4040		4210		4320		4030		4720		5230		5660		3800		NR
Manganese	295		320		298		322		399		421		368		311		NR
Mercury	0.10	J	0.09	J	0.08	J	0.10	J	0.09	J	0.11	J	0.09	J	0.10	J	NR
Nickel	8.7		7.8		5.4		8.1		13.2		10.0		12.2		8.5		NR
Potassium	823		670		886		1050		1750		1720		904		1780		NR
Selenium	0.16	UJ	0.18	UJ	0.21	J	0.28	J	0.40	J	0.18	UJ	0.27	J	0.17	UJ	NR
Silver	2.4		1.9		2.4		1.9		2.3		2.7		2.5		1.4		NR
Sodium	1210	J	1240	J	1140	J	884	J	578	J	786	J	1060	J	557	J	NR
Thallium	0.20		0.18		0.21	J	0.17		0.18		0.18		0.31		0.24		NR
Vanadium	62.2		65.8		55.0		51.5		48.4		64.6		63.1		38.8		NR
Zinc	49.6	J	46.1	J	46.4	J	38.4	J	408	J	49.5	J	47.2	J	36.9	J	NR
Cyanide	0.54		0.52		0.52		0.49		0.56		0.53		0.54		0.53		NR

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	A1307S											
PARAMETER	TIC RETENTION TIME	AH168S 0.0-0.5 (µg/kg)	AH169S 0.0-0.5 (µg/kg)	AH170S 0.0-0.5 (µg/kg)	AH171S 0.0-0.5 (µg/kg)	AH172S 0.0-0.5 (µg/kg)	AH173S 0.0-0.5 (µg/kg)	AH174S 0.0-0.5 (µg/kg)	AH175S 0.0-0.5 (µg/kg)	AH176S 0.0-0.5 (µg/kg)	AH177S 0.0-0.5 (µg/kg)	AH178S 0.0-0.5 (µg/kg)	AH179S 0.0-0.5 (µg/kg)
VOLATILE ORGANICS													
acetone		56 R	53 U	10 U	64 U	53 U	12 U	10 U	10 U	10 U	10 U	10 U	10 U
chloroform		28 R	27 U	5 U	26 U	26 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
MeCl2		28 R	27 U	5 U	43	26 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
tetrachloroethane		28 R	27 U	5 U	26 U	26 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U
toluene		28 R	27 U	5 U	26 U	13 J	6 U	5 U	5 U	5 U	5 U	5 U	5 U
VOLATILE ORGANIC TICs													
1,1,2-trichloro-1,2-ethane	2.62	ND	37 J	ND	ND	ND	ND	ND	ND	ND	ND	5.2 J	5.7 J
SEMI-VOLATILE ORGANICS													
benzoic acid		3500 R	3400 U	3300 U	3300 U	3400 U	220 J	3200 U	3200 U	3200 U	3200 U	3200 U	3200 U
benzo(a)anthracene		710 R	700 U	670 U	680 U	690 U	810 U	660 U	670 U	660 U	660 U	670 U	660 U
benzo(a)pyrene		710 R	700 U	670 U	680 U	690 U	810 U	660 U	670 U	660 U	660 U	670 U	660 U
benzo(b)fluoranthene		710 R	700 U	670 U	680 U	690 U	810 U	660 U	670 U	660 U	660 U	670 U	660 U
benzo(g,h,i)perylene		710 R	700 U	670 U	680 U	690 U	810 U	660 U	670 U	660 U	660 U	670 U	660 U
benzo(k)fluoranthene		710 R	700 U	670 U	680 U	690 U	810 U	660 U	670 U	660 U	660 U	670 U	660 U
chrysene		710 R	700 U	670 U	680 U	690 U	810 U	660 U	670 U	660 U	660 U	670 U	660 U
dibenzofuran		710 R	700 U	670 U	680 U	130 J	810 U	660 U	670 U	660 U	660 U	670 U	660 U
fluoranthene		710 R	700 U	670 U	680 U	690 U	810 U	660 U	670 U	660 U	660 U	670 U	660 U
indeno(1,2,3-cd)pyrene		710 R	700 U	670 U	680 U	690 U	810 U	660 U	670 U	660 U	660 U	670 U	660 U
2-methylnaphthalene		710 R	700 U	670 U	110 J	670 J	810 U	660 U	670 U	660 U	660 U	83 J	660 U
naphthalene		710 R	700 U	670 U	95 J	470 J	810 U	660 U	670 U	660 U	660 U	670 U	660 U
4-nitrophenol		3500 R	3500 U	3300 U	3300 U	91 J	3900 U	3200 U	3200 U	3200 U	3200 U	3200 U	3200 U
phenanthrene		710 R	700 U	670 U	680 U	250 J	810 U	660 U	670 U	660 U	660 U	670 U	660 U
pyrene		710 R	700 U	670 U	680 U	98 J	810 U	660 U	670 U	660 U	660 U	670 U	660 U
SEMI-VOLATILE ORGANIC TICs													
UNKNOWN	4.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.03	60000 R	66000 J	ND	54000 J	54000 J	12000 J	59000 J	52000 J	53000 J	51000 J	34000 J	52000 J
UNKNOWN	5.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.80	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha.-pinene (ACN)	6.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER											
		DEPTH (ft)											
	SDG #	A13678											
PARAMETER	TIC RETENTION TIME	AH168S 0.0-0.5 (µg/kg)	AH169S 0.0-0.5 (µg/kg)	AH170S 0.0-0.5 (µg/kg)	AH171S 0.0-0.5 (µg/kg)	AH172S 0.0-0.5 (µg/kg)	AH173S 0.0-0.5 (µg/kg)	AH174S 0.0-0.5 (µg/kg)	AH175S 0.0-0.5 (µg/kg)	AH176S 0.0-0.5 (µg/kg)	AH177S 0.0-0.5 (µg/kg)	AH178S 0.0-0.5 (µg/kg)	AH179S 0.0-0.5 (µg/kg)
UNKNOWN	6.47	ND	1200 J	ND	ND	ND	ND	ND	ND	ND	710 J	950 J	990 J
UNKNOWN	6.58	ND	ND	1500 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.73	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.92	600 R	1900 J	ND	1600 J	3600 J	ND	1100 J	1500 J	1900 J	1900 J	1700 J	1600 J
UNKNOWN	7.11	ND	ND	ND	ND	ND	ND	ND	ND	470 J	ND	ND	ND
UNKNOWN	7.13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
decane	7.33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	7.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	7.43	ND	ND	670 J	1100 J	ND	ND	ND	700 J	830 J	800 J	880 J	810
UNKNOWN	7.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.86	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.89	ND	3200 J	ND	2100 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	10.27	ND	ND	300 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	11.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	11.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	11.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	12.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,9-dimethylundecane	14.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	17.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	17.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4,9-trimethylnaphthalene	18.29	ND	ND	ND	ND	2000 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	18.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,9-dimethyl-4-naphthalene	19.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	A1307S											
PARAMETER	TIC RETENTION TIME	AH168S 0.0-0.5 (ug/kg)	AH169S 0.0-0.5 (ug/kg)	AH170S 0.0-0.5 (ug/kg)	AH171S 0.0-0.5 (ug/kg)	AH172S 0.0-0.5 (ug/kg)	AH173S 0.0-0.5 (ug/kg)	AH174S 0.0-0.5 (ug/kg)	AH175S 0.0-0.5 (ug/kg)	AH176S 0.0-0.5 (ug/kg)	AH177S 0.0-0.5 (ug/kg)	AH178S 0.0-0.5 (ug/kg)	AH179S 0.0-0.5 (ug/kg)
2,7,10-trimethyldodecane	19.65	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.65	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,6-dimethyl-4-naphthalene	19.94	ND	ND	ND	860 J	4000 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-dimethyl-heptadecane	20.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	600 J	ND
UNKNOWN	20.05	ND	ND	ND	840 J	ND	ND	ND	ND	ND	ND	ND	ND
2,6,10-trimethyldodecane	20.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5-propyltridecane	20.07	ND	ND	ND	ND	3500 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	20.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	21.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	21.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	21.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	22.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	22.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	22.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
hexadecanoic acid	23.26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
hexadecanoic acid	23.59	380 R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	23.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	24.94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6,10,15-tetramethylheptadecan	26.62	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	26.62	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
dodecanamide	26.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.58	ND	ND	ND	250 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.68	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.00	ND	ND	270 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.48	4100 R	4200 J	ND	3600 J	2000 J	ND	2700 J	2300 J	2200 J	2200 J	2600 J	2600 J
UNKNOWN	28.69	ND	ND	ND	ND	1200 J	ND	ND	ND	ND	ND	570 J	ND
hexanedioic acid, mono(2-et	28.74	ND	ND	ND	ND	ND	ND	ND	ND	280 J	ND	ND	ND
UNKNOWN	28.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	A1387S											
PARAMETER	TIC RETENTION TIME	AH168S 0.0-0.5 (ug/kg)	AH169S 0.0-0.5 (ug/kg)	AH170S 0.0-0.5 (ug/kg)	AH171S 0.0-0.5 (ug/kg)	AH172S 0.0-0.5 (ug/kg)	AH173S 0.0-0.5 (ug/kg)	AH174S 0.0-0.5 (ug/kg)	AH175S 0.0-0.5 (ug/kg)	AH176S 0.0-0.5 (ug/kg)	AH177S 0.0-0.5 (ug/kg)	AH178S 0.0-0.5 (ug/kg)	AH179S 0.0-0.5 (ug/kg)
dodecanamide	28.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-phenanthrenecarboxylic	29.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.71	ND	ND	ND	550 J	2800 J	1400 J	ND	ND	ND	ND	880 J	ND
UNKNOWN	30.31	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.72	ND	ND	ND	580 J	2800 J	ND	ND	ND	670 J	ND	890 J	ND
UNKNOWN	30.82	ND	ND	ND	ND	ND	ND	ND	ND	470 J	ND	ND	ND
UNKNOWN	31.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-benzenedicarboxylic acid	31.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.39	ND	ND	ND	ND	ND	ND	ND	ND	820 J	ND	ND	ND
octacosane	31.71	ND	ND	ND	1100 J	3800 J	2400 J	280 J	ND	ND	ND	3800 J	ND
UNKNOWN	31.71	ND	550 J	ND	ND	5200 J	1200 J	ND	ND	ND	480 J	1800 J	ND
UNKNOWN	31.87	ND	ND	ND	ND	ND	ND	ND	ND	1800 J	ND	ND	ND
9,10-anthracenedione, 1,8-d	31.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.69	930 R	2000 J	ND	1800 J	ND	ND	ND	ND	730 J	880 J	ND	810 J
UNKNOWN	32.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.07	ND	440 J	ND	ND	ND	ND	ND	ND	ND	230 J	ND	ND
UNKNOWN	33.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
octacosane	33.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.21	ND	380 J	340 J	ND	ND	1400 J	ND	ND	ND	ND	ND	ND
UNKNOWN	33.29	ND	220 J	ND	ND	ND	1700 J	ND	ND	ND	ND	ND	ND
3,7,11-tridecatrienenitrile	33.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.59	ND	ND	ND	ND	ND	1300 J	ND	ND	ND	ND	ND	ND
UNKNOWN	33.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.91	ND	1100 J	ND	970 J	ND	2400 J	220 J	340 J	230 J	840 J	ND	800 J
nonacosane	33.92	ND	ND	ND	ND	4000 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.81	ND	ND	ND	ND	ND	1400 J	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER											
		DEPTH (ft)											
	SDG #	A1307S											
	TIC	AH168S	AH169S	AH170S	AH171S	AH172S	AH173S	AH174S	AH175S	AH176S	AH177S	AH178S	AH179S
PARAMETER	RETENTION	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
	TIME	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
octacosane	33.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
octacosane	33.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
pentatriacontane	33.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.17	ND	440 J	ND	480 J	ND	1200 J	ND	ND	ND	ND	1100 J	ND
UNKNOWN	34.29	ND	410 J	ND	ND	2400 J	1200 J	ND	ND	ND	ND	ND	ND
UNKNOWN	34.38	ND	ND	ND	ND	ND	2000 J	ND	ND	ND	ND	ND	ND
UNKNOWN	34.69	ND	ND	ND	ND	2300 J	3300 J	ND	ND	ND	ND	790 J	240
UNKNOWN	34.79	ND	680 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.87	ND	440 J	440 J	ND	ND	2200 J	ND	ND	ND	ND	ND	ND
UNKNOWN	35.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.19	ND	380 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.47	ND	1000 J	ND	900 J	3300 J	2400 J	ND	470 J	290 J	880 J	3000 J	330
UNKNOWN	35.54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
iran, trisarbonyl[N-(phenyl-	35.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
iran, trisarbonyl[N-(phenyl-	35.84	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.84	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.01	ND	ND	ND	810 J	4700 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.32	ND	740 J	ND	880 J	3000 J	1800 J	ND	ND	ND	ND	810 J	380 J
UNKNOWN	36.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.44	ND	ND	ND	ND	ND	1000 J	ND	ND	ND	ND	ND	ND
UNKNOWN	36.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.69	ND	ND	ND	630 J	2300 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.82	ND	ND	ND	460 J	2000 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.01	ND	ND	ND	ND	2300 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.31	ND	ND	ND	ND	ND	1300 J	ND	ND	ND	ND	ND	ND
UNKNOWN	37.44	ND	ND	ND	ND	ND	1700 J	ND	ND	ND	ND	820 J	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER											
		DEPTH (ft)											
	SDG #	A13078											
PARAMETER	TIC RETENTION TIME	AH168S 0.0-0.5 (ug/kg)	AH169S 0.0-0.5 (ug/kg)	AH170S 0.0-0.5 (ug/kg)	AH171S 0.0-0.5 (ug/kg)	AH172S 0.0-0.5 (ug/kg)	AH173S 0.0-0.5 (ug/kg)	AH174S 0.0-0.5 (ug/kg)	AH175S 0.0-0.5 (ug/kg)	AH176S 0.0-0.5 (ug/kg)	AH177S 0.0-0.5 (ug/kg)	AH178S 0.0-0.5 (ug/kg)	AH179S 0.0-0.5 (ug/kg)
UNKNOWN	37.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	38.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
.gamma.-sitosterol	38.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	38.28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	38.62	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
stigmast-4-en-3-one	39.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PESTICIDES													
aldrin		16 U	17 U	16 U	17 U	17 U	20 U	16 U	16 U	16 U	16 U	16 U	8.6
aroclor-1248		160 U	170 U	160 U	170 U	170 U	200 U	160 U	160 U	160 U	160 U	160 U	160
aroclor-1254		320 U	340 U	320 U	330 U	340 U	400 U	320 U	320 U	320 U	320 U	320 U	320
aroclor-1260		320 U	340 U	320 U	330 U	340 U	400 U	320 U	320 U	320 U	320 U	320 U	320
gamma-BHC (lindane)		16 U	17 U	16 U	17 U	17 U	20 U	16 U	16 U	16 U	16 U	16 U	16
alpha-chlordane		160 U	170 U	160 U	170 U	1.4 J	200 U	160 U	160 U	160 U	1.3 J	13 J	2.1
gamma-chlordane		160 U	170 U	160 U	170 U	170 U	200 U	160 U	160 U	160 U	1.2 J	0.3 J	160
4,4'-DDD		32 U	34 U	32 U	33 U	34 U	40 U	32 U	33 U	32 U	32 U	33 U	32
4,4'-DDE		32 U	34 U	32 U	33 U	34 U	40 U	32 U	33 U	32 U	32 U	33 U	32 U
4,4'-DDT		32 U	34 U	32 U	33 U	34 U	35 J	32 U	33 U	32 U	32 U	9 J	32 U
heptachlor		16 U	17 U	16 U	17 U	17 U	20 U	16 U	16 U	16 U	16 U	16 U	16 U
methoxychlor		160 U	170 U	160 U	170 U	170 U	6.8 J	160 U	160 U	160 U	160 U	160 U	160 U

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER											
		DEPTH (ft)											
	SDG #	A1312S				AH186S							
	TIC	AH180S	AH181S	AH184S	AH185S	AH186S	AH187S	AH188S	AH189S	AH190S	AH191S	AH192S	AH193S
PARAMETER	RETENTION	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
	TIME	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
VOLATILE ORGANICS													
acetone		84 U	56 U	60 U	12 U	11 U	11 U	11 U	14 U	11 U	11 U	11 U	11 U
chloroform		27 U	28 U	30 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U
MeCl2		27 U	28 U	30 U	6 U	5 U	5 U	5 U	6 U	5 U	3 J	3 J	5 U
tetrachloroethane		27 U	28 U	30 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U
toluene		27 U	16 J	14 J	6 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U
VOLATILE ORGANIC TICs													
1,1,2-trichloro-1,2-ethane	2.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANICS													
benzoic acid		3400 U	18000 U	3800 U	3800 U	3400 U	3500 U	3300 U	3600 U	3600 U	3400 U	3600 U	3400 U
benzo(a)anthracene		700 U	3200 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
benzo(a)pyrene		700 U	3200 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
benzo(b)fluoranthene		700 U	3200 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
benzo(g,h,i)perylene		700 U	3200 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
benzo(k)fluoranthene		700 U	3200 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
chrysene		700 U	3200 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
dibenzofuran		700 U	3200 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
fluoranthene		700 U	3200 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
indeno(1,2,3-cd)pyrene		700 U	3200 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
2-methylnaphthalene		700 U	7100 J	230 J	330 J	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
naphthalene		700 U	1100 J	100 J	360 J	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
4-nitrophenol		3400 U	18000 U	3800 U	3800 J	3400 U	3500 U	3300 U	3600 U	3600 U	3400 U	3600 U	3400 U
phenanthrene		700 U	3700 U	700 U	88 J	680 U	720 U	670 U	710 U	720 U	710 U	710 U	700 U
pyrene		700 U	3700 U	700 U	700 U	680 U	720 U	670 U	710 U	720 U	710 U	710 U	86 J
SEMI-VOLATILE ORGANIC TICs													
UNKNOWN	4.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
.alpha.-pinene (ACN)	6.07	ND	ND	1600 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER											
		DEPTH (ft)											
	SDG #	A13123				AH186S							
PARAMETER	TIC RETENTION TIME	AH186S 0.0-0.5 (ug/kg)	AH191S 0.0-0.5 (ug/kg)	AH194S 0.0-0.5 (ug/kg)	AH185S 0.0-0.5 (ug/kg)	AH186S 0.0-0.5 (ug/kg)	AH187S 0.0-0.5 (ug/kg)	AH188S 0.0-0.5 (ug/kg)	AH189S 0.0-0.5 (ug/kg)	AH190S 0.0-0.5 (ug/kg)	AH191S 0.0-0.5 (ug/kg)	AH192S 0.0-0.5 (ug/kg)	AH193S 0.0-0.5 (ug/kg)
UNKNOWN	6.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.68	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.73	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1200 J
UNKNOWN	6.86	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.22	ND	ND	ND	ND	3700 J	2200 J	ND J	1600 J	2300 J	3700 J	1600 J	2600 J
decane	7.39	ND	ND	ND	1600 J	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	7.42	420 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	7.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.66	ND	ND	ND	ND	ND	ND	ND J	ND	ND	ND	ND	ND
UNKNOWN	8.67	ND	ND	ND	ND	ND	ND	ND J	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.17	ND	ND	ND	ND	1500 J	2000 J	ND J	3000 J	2500 J	1600 J	2200 J	1300 J
UNKNOWN	8.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.66	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.39	ND	ND	ND	ND	6000 J	6000 J	ND J	4000 J	6000 J	4000 J	6000 J	4400 J
UNKNOWN	9.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	10.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	11.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	11.27	ND	ND	ND	ND	700 J	ND	ND J	ND	ND	600 J	ND	ND
UNKNOWN	11.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	12.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,6-dimethylundecane	14.69	ND	ND	ND	1100 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	17.57	ND	30000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	17.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4,6-trimethylnaphthalene	18.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	18.57	ND	60000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.19	ND	40000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.39	ND	50000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,6-dimethyl-4-naphthalene	19.51	ND	ND	1600 J	1600 J	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	A13128				AH186S							
PARAMETER	TIC RETENTION TIME	AH186S 0.0-0.5 (ug/kg)	AH181S 0.0-0.5 (ug/kg)	AH184S 0.0-0.5 (ug/kg)	AH185S 0.0-0.5 (ug/kg)	AH186S 0.0-0.5 (ug/kg)	AH187S 0.0-0.5 (ug/kg)	AH188S 0.0-0.5 (ug/kg)	AH189S 0.0-0.5 (ug/kg)	AH190S 0.0-0.5 (ug/kg)	AH191S 0.0-0.5 (ug/kg)	AH192S 0.0-0.5 (ug/kg)	AH193S 0.0-0.5 (ug/kg)
2,7,10-trimethyldodecane	19.65	ND	ND	2100 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.65	ND	ND	ND	2200 J	ND	ND	ND	ND	ND	ND	ND	ND
1,6-dimethyl-4-naphthalene	19.94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.99	ND	51000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-dimethyl-heptadecane	20.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	20.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6,10-trimethyldodecane	20.07	ND	45000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-propyltridecane	20.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	20.09	ND	210000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	21.15	ND	15000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	21.45	ND	20000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	21.49	ND	12000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	22.32	ND	170000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	22.42	ND	75000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	22.51	ND	22000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
hexadecanoic acid	23.25	4000 J	ND	15000 J	5000 J	ND	ND	ND	ND	ND	ND	ND	ND
hexadecanoic acid	23.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	23.61	ND	65000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	24.04	ND	65000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.42	3700 J	ND	ND	2000 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.47	1200 J	ND	4000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.51	ND	ND	1000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.69	ND	20000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6,10,15-tetramethylheptadecane	26.02	ND	37000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	26.02	ND	ND	ND	ND	ND	220 J	ND	ND	ND	ND	ND	ND
dodecanamide	26.74	ND	ND	ND	ND	ND	250 J	ND	ND	200 J	ND	ND	ND
UNKNOWN	27.21	ND	20000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.59	ND	10000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.22	ND	ND	4000 J	1200 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
hexanedioic acid, mono(2-et	29.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.74	ND	ND	11000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER											
		DEPTH (ft)											
	SDG #	A1312S				AH186S							
PARAMETER	TIC RETENTION TIME	AH186S 0.0-0.5 (ug/kg)	AH191S 0.0-0.5 (ug/kg)	AH194S 0.0-0.5 (ug/kg)	AH195S 0.0-0.5 (ug/kg)	AH186S 0.0-0.5 (ug/kg)	AH187S 0.0-0.5 (ug/kg)	AH188S 0.0-0.5 (ug/kg)	AH189S 0.0-0.5 (ug/kg)	AH190S 0.0-0.5 (ug/kg)	AH191S 0.0-0.5 (ug/kg)	AH192S 0.0-0.5 (ug/kg)	AH193S 0.0-0.5 (ug/kg)
dodecanamide	29.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-phenanthrenecarboxylic	29.24	ND	ND	14000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.29	ND	ND	2000 J	2400 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.31	ND	ND	1600 J	1700 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.42	ND	23000 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.27	300 J	ND	3000 J	3000 J	ND	ND	ND	ND	ND	ND	ND	ND
1,2-benzenedicarboxylic acid	31.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
octacosane	31.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9,10-anthracenedione, 1,8-d	31.99	ND	ND	ND	ND	ND	ND	ND	200 J	ND	ND	ND	320
UNKNOWN	32.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.09	ND	ND	ND	ND	ND	510 J	ND	ND	ND	ND	220 J	ND
UNKNOWN	32.41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.17	700 J	ND	2500 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
octacosane	33.19	ND	ND	ND	2300 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,7,11-trideoxytetronitrile	33.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
nonacosane	33.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	A1312S				AH196S							
PARAMETER	TIC RETENTION TIME	AH189S 0.0-0.5 (ug/kg)	AH181S 0.0-0.5 (ug/kg)	AH184S 0.0-0.5 (ug/kg)	AH185S 0.0-0.5 (ug/kg)	AH186S 0.0-0.5 (ug/kg)	AH187S 0.0-0.5 (ug/kg)	AH188S 0.0-0.5 (ug/kg)	AH189S 0.0-0.5 (ug/kg)	AH190S 0.0-0.5 (ug/kg)	AH191S 0.0-0.5 (ug/kg)	AH192S 0.0-0.5 (ug/kg)	AH193S 0.0-0.5 (ug/kg)
octacosane	33.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.07	ND	ND	ND	ND	ND	ND	ND	270 J	270 J	200 J	ND	300 J
octacosane	33.09	ND	ND	ND	ND	ND	700 J	ND	ND	ND	ND	650 J	ND
pentatriacontane	33.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.11	ND	ND	ND	1200 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.38	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.02	700 J	ND	1900 J	2400 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.54	ND	ND	ND	2200 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron, triacetato(3-)-, phenyl-	35.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron, triacetato(3-)-, phenyl-	35.84	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.99	ND	ND	ND	1900 J	ND	1900 J	ND	ND	ND	ND	1200 J	600 J
UNKNOWN	36.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.19	ND	ND	ND	1400 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.34	ND	ND	ND	1400 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.31	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	A13128				AH198S							
PARAMETER	TIC RETENTION TIME	AH180S 0.0-0.5 (ug/kg)	AH181S 0.0-0.5 (ug/kg)	AH184S 0.0-0.5 (ug/kg)	AH185S 0.0-0.5 (ug/kg)	AH186S 0.0-0.5 (ug/kg)	AH187S 0.0-0.5 (ug/kg)	AH188S 0.0-0.5 (ug/kg)	AH189S 0.0-0.5 (ug/kg)	AH190S 0.0-0.5 (ug/kg)	AH191S 0.0-0.5 (ug/kg)	AH192S 0.0-0.5 (ug/kg)	AH193S 0.0-0.5 (ug/kg)
UNKNOWN	37.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.74	ND	ND	ND	ND	ND	320 J	ND	ND	ND	ND	880 J	ND
UNKNOWN	38.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
.gamma.-sitosterol	38.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	38.28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	38.62	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
stigmast-4-en-3-one	38.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PESTICIDES													
aldrin		17 U	100 U	19 U	19 U	17 U	17 U	17 U	18 U	0.80 J	17 U	17 U	17 U
aroclor-1248		170 U	1000 U	190 U	190 U	170 U	170 U	170 U	200	43 J	170 U	170 U	170 U
aroclor-1254		340 U	2000 U	380 U	380 U	340 U	350 U	330 U	200 J	47 J	340 U	350 U	340 U
aroclor-1260		340 U	2000 U	380 U	19 J	340 U	350 U	330 U	65 J	39 J	340 U	350 U	340 U
gamma-BHC (lindane)		17 U	100 U	19 U	19 U	17 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U
alpha-chlordane		170 U	100 J	24 J	1.0 J	170 U	170 U	170 U	180 U	170 U	170 U	170 U	170 U
gamma-chlordane		170 U	92 J	5.0 J	190 U	170 U	170 U	170 U	180 U	170 U	170 U	170 U	170 U
4,4'-DDD		34 U	200 J	38 U	38 U	34 U	35 U	33 U	35 U	35 U	34 U	35 U	34 U
4,4'-DDE		34 U	200 U	38 U	38 U	34 U	35 U	33 U	14 J	35 U	34 U	35 U	34 U
4,4'-DDT		34 U	450	38 U	38 U	34 U	34 U	33 U	35 U	35 U	34 U	35 U	34 U
heptachlor		17 U	100 U	19 U	19 U	17 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U
methoxychlor		170 U	1000 U	190 U	190 U	170 U	170 U	170 U	180 U	170 U	170 U	170 U	170 U

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	AH193S											
PARAMETER	TIC RETENTION TIME	AH194S 0.0-0.5 (µg/kg)	AH195S 0.0-0.5 (µg/kg)	AH196S 0.0-0.5 (µg/kg)	AH197S 0.0-0.5 (µg/kg)	AH198S 0.0-0.5 (µg/kg)	AH199S 0.0-0.5 (µg/kg)	AH200S 0.0-0.5 (µg/kg)	AH201S 0.0-0.5 (µg/kg)	AH202S 0.0-0.5 (µg/kg)	AH203S 0.0-0.5 (µg/kg)	AH204S 0.0-0.5 (µg/kg)	AH205S 0.0-0.5 (µg/kg)
VOLATILE ORGANICS													
acetone		11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	10 U	14 U	11 U
chloroform		5 U	6 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
MeCl2		3 J	4 J	5 J	5 J	2 J	5 J	5 J	5 J	5 J	5 J	5 J	5 J
tetrachloroethene		5 U	2 J	5 J	5 J	6 U	5 J	5 J	5 J	5 J	5 J	5 J	5 J
toluene		5 U	6 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
VOLATILE ORGANIC TICs													
1,1,2-trichloro-1,2-ethane	2.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANICS													
benzoic acid		3500 U	3500 U	3400 U	3400 U	3500 U	3500 U	3400 U	3300 U	3400 U	3200 U	3400 U	3400 U
benzo(a)anthracene		730 U	100 J	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
benzo(a)pyrene		730 U	200 J	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
benzo(b)fluoranthene		730 U	250 J	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
benzo(g,h,i)perylene		730 U	150 J	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
benzo(k)fluoranthene*		730 U	160 J	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
chrysene		730 U	240 J	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
dibenzofuran		730 U	730 U	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
fluoranthene		730 U	160 J	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
indeno(1,2,3-cd)pyrene		730 U	170 J	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
2-methylnaphthalene		730 U	730 U	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
naphthalene		730 U	730 U	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
4-nitrophenol		3500 U	3500 U	3400 U	3400 U	3500 U	3500 U	3400 U	3300 U	3400 U	3200 U	3400 U	3400 U
phenanthrene		730 U	730 U	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
pyrene		730 U	220 J	680 U	680 U	730 U	720 U	700 U	680 U	710 U	670 U	700 U	680 U
							ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANIC TICs													
UNKNOWN	4.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	5.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
.alpha.-pinene (ACN)	6.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	AH196S											
PARAMETER	TIC RETENTION TIME	AH194S 0.0-0.5 (ug/kg)	AH195S 0.0-0.5 (ug/kg)	AH196S 0.0-0.5 (ug/kg)	AH197S 0.0-0.5 (ug/kg)	AH198S 0.0-0.5 (ug/kg)	AH199S 0.0-0.5 (ug/kg)	AH200S 0.0-0.5 (ug/kg)	AH201S 0.0-0.5 (ug/kg)	AH202S 0.0-0.5 (ug/kg)	AH203S 0.0-0.5 (ug/kg)	AH204S 0.0-0.5 (ug/kg)	AH205S 0.0-0.5 (ug/kg)
UNKNOWN	6.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.58	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.73	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.86	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.22	2200 J	1400 J	ND	1100 J	480 J	1200 J	1400 J	1400 J	1100 J	1100 J	1200 J	1800 J
decane	7.33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	7.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	7.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.17	1400 J	640 J	ND	ND	380 J	280 J	440 J	410 J	370 J	380 J	ND	ND
UNKNOWN	8.38	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.66	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.39	4800 J	2800 J	ND	1100 J	1400 J	1500 J	1300 J	480 J	840 J	ND	780 J	910 J
UNKNOWN	9.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	10.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	11.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	11.27	ND	ND	ND	ND	ND	ND	470 J	670 J	440 J	620 J	890 J	ND
UNKNOWN	11.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	12.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,8-dimethylundecane	14.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	17.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	17.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4,6-trimethylnaphthalene	18.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	18.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,8-dimethyl-4-naphthalene	19.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	AH193S											
PARAMETER	TIC RETENTION TIME	AH194S 0.0-0.5 (µg/kg)	AH195S 0.0-0.5 (µg/kg)	AH196S 0.0-0.5 (µg/kg)	AH197S 0.0-0.5 (µg/kg)	AH198S 0.0-0.5 (µg/kg)	AH199S 0.0-0.5 (µg/kg)	AH200S 0.0-0.5 (µg/kg)	AH201S 0.0-0.5 (µg/kg)	AH202S 0.0-0.5 (µg/kg)	AH203S 0.0-0.5 (µg/kg)	AH204S 0.0-0.5 (µg/kg)	AH205S 0.0-0.5 (µg/kg)
2,7,10-trimethyldodecane	19.65	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.85	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,6-dimethyl-4-naphthalene	19.94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	19.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-dimethyl-heptadecane	20.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	20.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6,10-trimethyldodecane	20.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6-propyltridecane	20.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	20.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	21.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	21.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	21.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	22.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	22.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	22.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
hexadecanoic acid	23.25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
hexadecanoic acid	23.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	23.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	24.84	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6,10,15-tetramethylheptadecan	26.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	26.02	ND	ND	ND	ND	ND	ND	ND	320 J	ND	ND	ND	ND
dodecanamide	26.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.69	ND	ND	1500 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
hexanedioic acid, mono(2-et	28.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	AH198S											
	TIC	AH194S	AH195S	AH196S	AH197S	AH198S	AH199S	AH200S	AH201S	AH202S	AH203S	AH204S	AH205S
PARAMETER	RETENTION	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
	TIME	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
dodecanamide	28.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-phenanthrenecarbonylfe	29.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.31	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-benzenedicarbonylfe acd	31.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
octacosane	31.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9,10-anthracenedione, 1,8-d	31.89	ND	880 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.01	ND	ND	910 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.09	880 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	480 J
UNKNOWN	32.41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	230 J
UNKNOWN	32.61	ND	ND	910 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.81	ND	ND	910 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.17	ND	ND	2400 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
octacosane	33.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,7,11-trideca(trienenitrile	33.44	ND	ND	ND	ND	ND	ND	ND	ND	240 J	ND	ND	ND
UNKNOWN	33.55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.57	ND	ND	1700 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
nonacosane	33.62	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.74	ND	ND	880 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER											
		DEPTH (ft)											
	SDG #	AH193S											
PARAMETER	TIC RETENTION TIME	AH194S 0.0-0.5 (ug/kg)	AH195S 0.0-0.5 (ug/kg)	AH196S 0.0-0.5 (ug/kg)	AH197S 0.0-0.5 (ug/kg)	AH198S 0.0-0.5 (ug/kg)	AH199S 0.0-0.5 (ug/kg)	AH200S 0.0-0.5 (ug/kg)	AH201S 0.0-0.5 (ug/kg)	AH202S 0.0-0.5 (ug/kg)	AH203S 0.0-0.5 (ug/kg)	AH204S 0.0-0.5 (ug/kg)	AH205S 0.0-0.5 (ug/kg)
octacosane	33.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.97	ND	1400 J	1500 J	380 J	ND	ND	ND	300 J	260 J	ND	340 J	ND
octacosane	33.99	ND	1400 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
pentahexacontane	33.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	770 J
UNKNOWN	34.04	ND	ND	690 J	ND	330 J	440 J	ND	ND	ND	ND	ND	ND
UNKNOWN	34.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.27	ND	ND	610 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.34	ND	ND	1100 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.71	ND	ND	610 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron, tricarbonyl(N-phenyl-	35.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron, tricarbonyl(N-phenyl-	35.84	ND	ND	ND	ND	ND	650 J	ND	ND	ND	ND	430 J	ND
UNKNOWN	35.94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.99	3400 J	3200 J	690 J	ND	560 J	ND	380 J	320 J	ND	ND	ND	880 J
UNKNOWN	36.01	ND	ND	840 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.01	ND	ND	1200 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.57	ND	ND	1600 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.69	ND	ND	690 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	36.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.31	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)											
	SDG #	AH198S											
PARAMETER	TIC RETENTION TIME	AH194S 0.0-0.5 (ug/kg)	AH195S 0.0-0.5 (ug/kg)	AH196S 0.0-0.5 (ug/kg)	AH197S 0.0-0.5 (ug/kg)	AH198S 0.0-0.5 (ug/kg)	AH199S 0.0-0.5 (ug/kg)	AH200S 0.0-0.5 (ug/kg)	AH201S 0.0-0.5 (ug/kg)	AH202S 0.0-0.5 (ug/kg)	AH203S 0.0-0.5 (ug/kg)	AH204S 0.0-0.5 (ug/kg)	AH205S 0.0-0.5 (ug/kg)
UNKNOWN	37.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.74	1500 J	1500 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	38.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
.gamma.-sitosterol	38.24	ND	740 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	38.29	1200 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	430 J
UNKNOWN	38.82	880 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
stigmast-4-en-3-one	39.71	700 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PESTICIDES													
aldrin		18 U	18 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	20 U	17 U	17 U
aroclor-1248		180 U	180 U	170 U	170 U	180 U	170 U	170 U	170 U	170 U	2000 J	170 U	170 U
aroclor-1254		360 U	350 U	340 U	340 U	350 U	350 U	340 U	330 U	350 U	530 U	340 U	340 U
aroclor-1260		260 J	350 U	340 U	340 U	350 U	350 U	340 U	330 U	350 U	47 J	340 U	340 U
gamma-BHC (lindane)		18 U	18 U	17 U	1.0 J	18 U	1.8 J	17 U	17 U	6 J	20 U	17 U	1.1 J
alpha-chlordane		180 U	180 U	170 U	170 U	180 U	170 U	170 U	170 U	170 U	200 U	170 U	170 U
gamma-chlordane		180 U	180 U	170 U	170 U	180 U	170 U	170 U	170 U	170 U	200 U	170 U	170 U
4,4'-DDD		36 U	35 U	34 U	34 U	35 U	35 U	34 U	33 U	35 U	53 U	34 U	34 U
4,4'-DDE		36 U	35 U	34 U	6.0 J	35 U	35 U	34 U	33 U	35 U	42 J	34 U	34 U
4,4'-DDT		36 U	35 U	34 U	34 U	35 U	35 U	34 U	33 U	35 U	53 U	34 U	34 U
heptachlor		18 U	18 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	20 J	17 U	17 U
methoxychlor		180 U	180 U	170 U	170 U	180 U	170 U	170 U	170 U	170 U	200 U	170 U	170 U

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)									
	SDG #	AH206S									
PARAMETER	TIC RETENTION TIME	AH206S 0.0-0.5 (µg/kg)	AH207S 0.0-0.5 (µg/kg)	AH208S 0.0-0.5 (µg/kg)	AH209S 0.0-0.5 (µg/kg)	AH210S 0.0-0.5 (µg/kg)	AH211S 0.0-0.5 (µg/kg)	AH212S 0.0-0.5 (µg/kg)	AH213S 0.0-0.5 (µg/kg)	AH214S 0.0-0.5 (µg/kg)	AH216S 0.0-0.5 (µg/kg)
VOLATILE ORGANICS											
acetone		11 U	11 U	10 U	17 U	12 U	11 U	11 U	11 U	11 U	10 U
chloroform		5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U
MeCl2		5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U
tetrachloroethane		5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U
toluene		5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U
VOLATILE ORGANIC TICs											
1,1,2-trichloro-1,2-ethane	2.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANICS											
benzoic acid		3400 U	3400 U	3300 U	3500 U	3400 U	3500 U	5000 U	3400 U	3400 U	NR
benzo(a)anthracene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
benzo(a)pyrene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
benzo(b)fluoranthene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
benzo(g,h,i)perylene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
benzo(k)fluoranthene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
chrysene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
dibenzofuran		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
fluoranthene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
indeno(1,2,3-cd)pyrene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
2-methylnaphthalene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
naphthalene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
4-nitrophenol		3400 U	3400 U	3300 U	3500 U	3400 U	3500 U	5000 U	3400 U	3400 U	NR
phenanthrene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
pyrene		700 U	710 U	680 U	720 U	700 U	720 U	1000 U	680 U	700 U	NR
SEMI-VOLATILE ORGANIC TICs											
UNKNOWN	4.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	5.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	5.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	5.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	5.60	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
.alpha.-pinene (ACN)	6.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	6.18	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)									
	SDG #	AH296S									
	TIC	AH296S	AH297S	AH298S	AH299S	AH210S	AH211S	AH212S	AH213S	AH214S	AH215S
PARAMETER	RETENTION	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
	TIME	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
UNKNOWN	6.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	6.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	6.72	ND	700 J	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	6.73	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	6.85	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	6.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	7.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	7.13	ND	ND	ND	ND	ND	ND	ND	ND	1000 J	NR
UNKNOWN	7.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
decane	7.33	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
2,4-dimethyl-3-heptanone	7.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
2,4-dimethyl-3-heptanone	7.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	7.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	8.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	8.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
2,4-dimethyl-3-heptanone	8.17	1700 J	1300 J	1300 J	1400 J	1300 J	2000 J	800 J	600 J	1300 J	NR
2,4-dimethyl-3-heptanone	8.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	8.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	8.85	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	8.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	9.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	9.42	2800 J	2800 J	3000 J	3100 J	3400 J	3800 J	1100 J	910 J	ND	NR
UNKNOWN	9.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	10.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	11.12	ND	ND	ND	ND	ND	ND	ND	ND	300 J	NR
UNKNOWN	11.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	11.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	12.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
3,9-dimethylundecane	14.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	17.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	17.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
1,4,6-trimethylnaphthalene	18.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	18.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	19.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	19.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
1,8-dimethyl-4-naphthalene	19.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)									
	SDG #	AH206S									
PARAMETER	TIC RETENTION TIME	AH206S 0.0-0.5 (ug/kg)	AH207S 0.0-0.5 (ug/kg)	AH208S 0.0-0.5 (ug/kg)	AH209S 0.0-0.5 (ug/kg)	AH210S 0.0-0.5 (ug/kg)	AH211S 0.0-0.5 (ug/kg)	AH212S 0.0-0.5 (ug/kg)	AH213S 0.0-0.5 (ug/kg)	AH214S 0.0-0.5 (ug/kg)	AH215S 0.0-0.5 (ug/kg)
2,7,10-trimethyldodecane	19.65	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	19.65	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
1,6-dimethyl-4-naphthalene	19.94	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	19.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
2,6-dimethyl-heptadecane	20.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	20.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
2,6,10-trimethyldodecane	20.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
6-propylhexadecane	20.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	20.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	21.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	21.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	21.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	22.32	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	22.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	22.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
hexadecanoic acid	23.26	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
hexadecanoic acid	23.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	23.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	24.94	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	25.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	25.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	25.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	25.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
2,6,10,15-tetramethylheptadecan	26.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	26.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
dodecanamide	26.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	27.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	27.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	27.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	27.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	28.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	28.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	28.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	28.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
hexanedioic acid, mono(2-et	28.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	28.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)									
	SDG #	AH206S									
PARAMETER	TIC RETENTION TIME	AH206S 0.0-0.5 (µg/kg)	AH207S 0.0-0.5 (µg/kg)	AH208S 0.0-0.5 (µg/kg)	AH209S 0.0-0.5 (µg/kg)	AH210S 0.0-0.5 (µg/kg)	AH211S 0.0-0.5 (µg/kg)	AH212S 0.0-0.5 (µg/kg)	AH213S 0.0-0.5 (µg/kg)	AH214S 0.0-0.5 (µg/kg)	AH215S 0.0-0.5 (µg/kg)
dodecanamide	29.61	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
1-phenanthrenecarboxylic	29.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	29.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	29.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	30.31	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	30.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	30.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	30.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	31.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
1,2-benzenedicarboxylic acid	31.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	31.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	31.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
octacosane	31.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	31.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	31.87	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
9,10-anthracenedione, 1,8-d	31.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	32.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	32.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	32.41	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	32.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	32.91	949 J	310 J	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	32.98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	32.91	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	32.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	33.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	33.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
galaxolide	33.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	33.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	33.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
3,7,11-tridecatrienonitrile	33.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	33.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	33.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	33.91	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
nonacosane	33.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	33.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	33.91	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)									
	SDG #	AH206S									
PARAMETER	TIC RETENTION TIME	AH206S 0.0-0.5 (ug/kg)	AH207S 0.0-0.5 (ug/kg)	AH208S 0.0-0.5 (ug/kg)	AH209S 0.0-0.5 (ug/kg)	AH210S 0.0-0.5 (ug/kg)	AH211S 0.0-0.5 (ug/kg)	AH212S 0.0-0.5 (ug/kg)	AH213S 0.0-0.5 (ug/kg)	AH214S 0.0-0.5 (ug/kg)	AH215S 0.0-0.5 (ug/kg)
octacosane	33.97	640 J	ND	ND	ND	ND	ND	ND	ND	440 J	NR
UNKNOWN	33.97	ND	320 J	320 J	ND	460 J	520 J	ND	ND	460 J	NR
octacosane	33.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
pentatriacontane	33.99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	34.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	34.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	34.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	34.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	34.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	34.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	34.79	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	34.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	35.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	35.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	35.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	35.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	35.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	35.64	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	35.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
Iron, tricarbonyl[(1-4)-phenyl-	35.82	ND	460 J	460 J	ND	ND	ND	ND	ND	ND	NR
Iron, tricarbonyl[(1-4)-phenyl-	35.84	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	35.84	1200 J	ND	760 J	ND	1100 J	ND	ND	ND	ND	NR
UNKNOWN	35.88	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	35.91	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	36.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	36.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	36.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	36.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	36.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	36.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	36.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	36.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	36.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	37.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	37.31	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	37.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR

ORGANIC ANALYSIS RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL NEAR SURFACE SOIL SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL		SAMPLE NUMBER DEPTH (ft)									
	SDG #	AH206S									
	TIC	AH206S	AH207S	AH208S	AH209S	AH210S	AH211S	AH212S	AH213S	AH214S	AH215S
PARAMETER	RETENTION	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
	TIME	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
UNKNOWN	37.72	330 J	ND	ND	ND	460 J	ND	ND	ND	ND	NR
UNKNOWN	37.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	38.12	ND	ND	ND	ND	ND	ND	ND	ND	630 J	NR
.gamma.-sitosterol	38.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	38.28	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
UNKNOWN	38.62	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
stigmast-4-en-3-one	39.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR
PESTICIDES											
aldrin		17 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	NR
aroclor-1248		170 U	170 U	170 U	180 U	170 U	170 U	170 U	170 U	170 U	NR
aroclor-1254		340 U	340 U	340 U	350 U	340 U	350 U	350 U	340 U	340 U	NR
aroclor-1260		39 J	340 U	340 U	41 J	340 U	350 U	350 U	340 U	340 U	NR
gamma-BHC (lindane)		17 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	NR
alpha-chlordane		1.3 J	170 U	170 U	1.1 J	170 U	170 U	170 U	170 U	170 U	NR
gamma-chlordane		2.4 J	170 U	170 U	1.6 J	170 U	170 U	170 U	170 U	170 U	NR
4,4'-DDD		3.1 J	34 U	34 U	35 U	34 U	35 U	35 U	34 U	34 U	NR
4,4'-DDE		6.7 J	34 U	34 U	3.7 J	34 U	35 U	35 U	34 U	34 U	NR
4,4'-DDT		10 J	34 U	34 U	4.7 J	34 U	35 U	35 U	34 U	34 U	NR
heptachlor		17 U	17 U	17 U	18 U	17 U	17 U	17 U	17 U	17 U	NR
methoxychlor		170 U	170 U	170 U	180 U	170 U	170 U	170 U	170 U	170 U	NR

INORGANIC SAMPLING RESULTS 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-2 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-2	SAMPLE NUMBER / DEPTH (ft)															
SDG #	A1615S															
PARAMETER	A1602S 0.0-2.5 (mg/kg)		A1604S 5.1-7.9 (mg/kg)		A1605S 5.1-7.9 (mg/kg)		A1607S 9.8-12.3 (mg/kg)		A1610S 13.0-16.2 (mg/kg)		A1612S 17.7-19.9 (mg/kg)		A1614S 23.0-25.3 (mg/kg)	
INORGANICS														
Aluminum	6460	J	5520	J	5370	J	5120	J	4020	J	4580	J	3990	J
Antimony	3.2	U	2.9	U	3.2		2.9	U	3.5	U	3.5	U	3.8	U
Arsenic	1.7	J	1.3	J	1.1	J	0.67	J	0.67	J	0.58	J	1.2	J
Barium	75.8		83.1		89.2		83.9		66.9		65.9		38.1	
Beryllium	0.42		0.52		0.55		0.57		0.55		0.62		0.29	
Cadmium	0.31	U	0.28	U	0.28	U	0.28	U	0.34	U	0.33	U	0.38	U
Calcium	3300		7840		7970		6430		4920		6330		17100	
Chromium	9.6	J	8.8	J	6.0	J	5.1	J	7.3	J	8.4	J	7.5	J
Cobalt	8.3		14.4		14.6		15.1		14.0		10.3		4.9	
Copper	12.6	J	10.6	J	17.1	J	17.4	J	14.8	J	15.8	J	8.3	J
Iron	17400	J	23500	J	24000	J	20600	J	23000	J	27700	J	10400	J
Lead	3.8		2.9		4.1		1.6		1.7		1.8		2.4	
Magnesium	3990		3980		4070		3980		3980		4190		3440	
Manganese	287	J	283	J	295	J	389	J	268	J	331	J	167	J
Mercury	0.09	U	0.08	U	0.08	U	0.09	U	0.09	U	0.07	U	0.08	U
Nickel	8.1	J	8.3	J	8.4	J	7.6	J	8.4	J	8.9	J	9.2	J
Potassium	1340		659		587		585		644		852		713	
Selenium	0.17	UJ	0.61	UJ	0.16	UJ	0.16	UJ	0.16	UJ	0.17	UJ	0.19	UJ
Silver	1.5		1.8		1.9		2.1		1.9		2.4		0.71	
Sodium	194	UJ	441	J	443	J	580	J	441	J	512	J	277	J
Thallium	0.17	UJ	0.19	U	0.15	U	0.16	U	0.18		0.17	U	0.19	U
Vanadium	41.0	J	71.0	J	68.2	J	79.5	J	65.8	J	78.2	J	21.2	J
Zinc	31.9	J	41.5	J	39.8	J	43.0	J	37.7	J	46.3	J	19.3	J
Cyanide	0.52	U	0.51	U	0.51	U	0.50	U	0.51	U	0.51	U	0.59	U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-3 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-3	SAMPLE NUMBER DEPTH (ft)													
SDG #	A1001S													
PARAMETER	A2002S 0.9-2.5 (mg/kg)		A2004S 4.6-7.5 (mg/kg)		A2005S 4.6-7.5 (mg/kg)		A2007S 10.8-13.0 (mg/kg)		A2008S 14.5-17.0 (mg/kg)		A2012S 19.4-20.7 (mg/kg)		A2014S 23.2-25.1 (mg/kg)	
INORGANICS														
Aluminum	6200		6070		4900		3090		4470		4350		3660	
Antimony	3.6	UJ	3.1	UJ	3.3	UJ	3.3	UJ	3.5	UJ	3.6	UJ	3.5	UJ
Arsenic	2.2		1.3		1.8		1.4	J	1.4		0.98		0.6	
Barium	81.8	J	71.7	J	64.3	J	66.1	J	64.1	J	62.4	J	63.0	J
Beryllium	0.59		0.56		0.69		0.62		0.78		0.60		0.42	
Cadmium	0.53		0.34		0.56		0.32	U	0.40		0.34	U	0.68	
Calcium	7990		8250		6310		5290		4600		4820		4630	
Chromium	13.2	J	7.6	J	6.6	J	4.6	J	7.0	J	6.1	J	4.7	J
Cobalt	12.8		14.7		13.3		14.7		15.0		16.0		13.2	
Copper	17.1	J	16.7	J	15.5	J	16.0	J	14.0	J	16.7	J	15.4	J
Iron	22200		23700		21400		24100		23200		25400		20600	
Lead	4.8	J	3.2	J	3.7	J	2.1	J	2.4	J	1.9	J	1.6	J
Magnesium	6300		4830		3740		3700		3770		3830		3600	
Manganese	374	J	317	J	262	J	281	J	275	J	297	J	284	J
Mercury	0.10	U	0.09	U	0.09	U	0.08	U	0.09	U	0.08	U	0.11	U
Nickel	12.2		11.9		7.8		8.1		9.6		8.9		10.0	
Potassium	1300		780		723		601		600		614		400	
Selenium	0.15	U	0.17	U	0.16	U	0.14	U	0.16	U	0.15	U	0.16	U
Silver	1.3		1.5		1.6		1.9		1.8		2.0		1.6	
Sodium	276	UJ	263	UJ	298	UJ	351	UJ	381	J	305	UJ	391	UJ
Thallium	0.24	U	0.40	U	0.30	U	0.20	U	0.19	U	0.15	UJ	0.40	U
Vanadium	55.6		64.5		60.2		64.1		71.6		75.1		69.3	
Zinc	40.0	J	42.0	J	30.7	J	39.4	J	39.6	J	41.7	J	35.0	J
Cyanide	0.52	U	0.51	U	0.51	U	0.51	U	0.52	U	0.51	U	0.55	U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-4 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-4	SAMPLE NUMBER DEPTH (ft)													
SDG #	A1912S												A2214S	
PARAMETER	A2202S 0.0-2.8 (mg/kg)		A2204S 5.4-8.0 (mg/kg)		A2205S 5.4-8.0 (mg/kg)		A2207S 10.5-13.6 (mg/kg)		A2210S 14.6-16.9 (mg/kg)		A2212S 19.4-21.3 (mg/kg)		A2214S 23.2-25.1 (mg/kg)	
INORGANICS														
Aluminum	5940		5800		5240		6760		7130		5320		6320	
Antimony	3.3	UJ	3.5	UJ	2.9	UJ	2.9	UJ	3.6	UJ	3.4	UJ	4.2	UJ
Arsenic	0.82	J	1.5		1.1		1.0		1.7		1.3		1.7	J
Barium	69.2		77.6		79.5		82.8		78.0		61.3		64.6	
Beryllium	0.85		0.97		0.87		1.1		1.1		0.65		0.58	
Cadmium	0.31	U	0.33	U	0.27	U	0.28	U	0.34	U	0.32	U	0.40	U
Calcium	5600		12100		11400		7300		7860		4680		8450	
Chromium	4.1		7.4		6.2		10.0		1250		10.8		7.4	
Cobalt	14.3		16.9		14.3		16.5		24.2		10.7		9.9	
Copper	17.5	J	17.0	J	17.2	J	18.9	J	38.1	J	16.2	J	19.4	J
Iron	24100		24600		24200		27700		35200		18000		17000	
Lead	3.9		2.2		2.6		2.3		2.8		3.0		2.2	
Magnesium	3520		4130		3940		3960		5080		3140		3500	
Manganese	276		294		278		324		496		280		351	J
Mercury	0.07	U	0.07	U	0.44		0.10	U	0.07	U	0.10	U	0.12	U
Nickel	7.8	U	9.7		8.8	U	7.6	U	557		10.4		6.8	
Potassium	536		626		667		672		783		597		810	
Selenium	2.9	R	3.3	R	3.3	R	0.30	R	0.33	R	0.33	R	0.41	UJ
Silver	1.5		1.5		1.5		1.6		2.5		1.3		0.86	
Sodium	582	J	716	J	675	J	675	J	784	J	580	J	465	J
Thallium	0.14	U	0.16	U	0.22	U	0.15	U	0.16	U	0.16	U	0.25	
Vanadium	69.2		79.7		77.8		90.0		101		48.9		41.5	
Zinc	38.3	J	42.2	J	40.1	J	44.8	J	50.5	J	29.6	J	32.8	U
Cyanide	0.50	U	0.49	U	0.49	U	0.49	U	0.51	U	0.53	U	0.50	J

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-5 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-5	SAMPLE NUMBER DEPTH (ft)																	
SDG #	A1501W																	
PARAMETER	A1502S 0.0-2.1 (mg/kg)		A1503S 3.8-6.0 (mg/kg)		A1504S 6.4-8.6 (mg/kg)		A1506S 9.4-11.6 (mg/kg)		A1507S 9.4-11.6 (mg/kg)		A1509S 13.1-15.5 (mg/kg)		A1512S 16.0-17.6 (mg/kg)		A1513S 19.9-21.5 (mg/kg)		A1515S 23.0-25.0 (mg/kg)	
INORGANICS																		
Aluminum	6800	J	5830	J	6270	J	7000	J	6700	J	7860	J	7910	J	6870	J	8380	J
Antimony	3.4	UJ	3.6	UJ	3.5	UJ	3.5	UJ	3.4	UJ	3.6	UJ	3.4	UJ	4.0	UJ	3.2	UJ
Arsenic	1.1	J	0.56	J	0.71	J	0.79	J	0.79	J	0.76	J	1.5	J	1.1	J	1.6	J
Barium	109	J	74.2	J	80.9	J	79.1	J	77.1	J	97.5	J	94.1	J	184	J	59.6	J
Beryllium	0.58		0.54		0.71		0.80		0.66		0.73		0.35		0.20		0.15	U
Cadmium	0.33	U	0.34	U	0.33	U	0.33	U	0.32	U	0.34	U	0.33	U	0.38	U	0.31	U
Calcium	6840	J	6860	J	7430	J	7900	J	7460	J	7460	J	6180	J	4960	J	9110	J
Chromium	5.7	J	4.1	J	5.2	J	6.1	J	6.2	J	81.5	J	15.8	J	19.9	J	26.2	J
Cobalt	15.0		13.2		14.9		18.2		16.0		14.5		11.0		7.9		6.2	
Copper	19.8	J	17.0	J	15.4	J	17.7	J	16.7	J	26.3	J	18.4	J	23.0	J	11.7	J
Iron	26500	J	24100	J	25300	J	32800	J	28700	J	26700	J	19500	J	14700	J	12400	J
Lead	3.7		1.4		1.7	J	1.9		2.0		2.3		3.8		2.4		2.8	
Magnesium	4280	J	4610	J	3960	J	5380	J	4430	J	3960	J	4540	J	3820	J	3210	J
Manganese	325	J	281	J	294	J	394	J	328	J	308	J	497	J	288	J	199	J
Mercury	0.07	U	0.09	U	0.09	U	0.09	U	0.08	U	0.09	U	0.09	U	0.09	U	0.09	U
Nickel	9.6	UJ	7.8	UJ	8.5	UJ	10.5	UJ	11.7	UJ	39.0	J	16.0	J	18.4	J	24.4	J
Potassium	750	U	805	U	601	U	617	U	590	U	750	U	1190	J	981	J	972	J
Selenium	0.18	UJ	0.17	U	0.16	U	0.17	U	0.16	U	0.16	U	0.17		0.20		0.31	
Silver	1.8		1.9		1.8		1.8		1.7		1.9		1.3		1.0		0.66	
Sodium	743	J	1010	J	1100	J	1110	J	1070	J	1230	J	740	J	580	UJ	608	UJ
Thallium	0.28		0.27		0.16	U	0.17	U	0.16	U	0.30		0.20		0.16		0.30	J
Vanadium	74.8	J	61.0	J	74.6	J	81.5	J	83.0	J	88.1	J	80.9	J	38.4	J	22.6	J
Zinc	45.5	J	37.9	J	43.8	J	53.1	J	46.6	J	44.2	J	37.5	J	32.3	J	21.7	J
Cyanide	0.49	U	0.49	U	0.50	U	0.51	U	0.50	U	0.51	U	0.51	U	0.50	U	0.54	U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-6 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-6	SAMPLE NUMBER DEPTH (ft)																	
SDG #	A1501W														A1615S			
PARAMETER	A1601S 2.4-4.6 (mg/kg)		A1602S 4.8-7.1 (mg/kg)		A1604S 7.1-9.4 (mg/kg)		A1606S 9.4-11.6 (mg/kg)		A1607S 11.6-13.9 (mg/kg)		A1608S 11.6-13.9 (mg/kg)		A1613S 24.2-25.0 (mg/kg)		A1615S 25.0-25.2 (mg/kg)		A1616S 25.8-27.8 (mg/kg)	
INORGANICS																		
Aluminum	4260	J	4790	J	3960	J	4020	J	8860	J	4560	J	7350	J	7060	J	5350	J
Antimony	3.2	UJ	3.5	UJ	3.1	UJ	3.2	UJ	3.1	UJ	3.7	UJ	3.2	UJ	3.0	U	3.4	U
Arsenic	0.67	J	0.81	J	0.72	J	0.91	J	0.57	J	0.72	J	1.1	J	1.2	J	0.92	J
Barium	57.9	J	52.8	J	66.3	J	61.2	J	81.6	J	69.8	J	77.3	J	73.2		45.4	
Beryllium	0.38		0.58		0.48		0.33		0.59		0.52		0.33		0.42		0.21	
Cadmium	0.30	U	0.33	U	0.30	U	0.31	U	0.30	U	0.35	U	1.0		0.63		0.33	U
Calcium	5580	J	5490	J	5810	J	5090	J	7660	J	6130	J	8100	J	7570		7960	
Chromium	7.9	J	7.8	J	4.8	J	5.8	J	13.7	J	8.0	J	44.5	J	69.8	J	12.7	J
Cobalt	12.3		13.0		17.6		9.6		13.9		14.2		13.1		14.9		5.9	
Copper	15.3	J	13.9	J	18.3	J	17.1	J	15.5	J	15.3	J	32.4	J	22.5	J	16.1	J
Iron	22900	J	23300	J	23300	J	16900	J	22700	J	25100	J	19900	J	21600	J	11800	J
Lead	1.9		1.7		3.0		2.0		2.4		2.1		24.0		5.5		2.9	
Magnesium	4490	J	4650	J	3900	J	3460	J	4070	J	3910	J	4640	J	4530		3320	
Manganese	300	J	293	J	268	J	201	J	297	J	279	J	297	J	308	J	240	J
Mercury	0.09	U	0.10	U	0.08	U	0.10	U	0.09	U	0.09	U	0.10	U	0.10	U	0.09	U
Nickel	13.9	J	12.3	UJ	7.5	UJ	11.1	UJ	14.9	J	9.2	UJ	50.5	J	48.4	J	9.4	J
Potassium	571	U	637	U	587	U	775	U	976	J	668	U	1030	J	968		729	
Selenium	0.19		0.14	U	0.18		0.19	U	0.14	U	0.18		0.24	J	0.17	UJ	0.18	UJ
Silver	1.7		1.4		1.8		1.2		2.2		1.9		7.7		4.2		0.94	
Sodium	319	UJ	378	UJ	449	UJ	407	UJ	1690	J	595	UJ	733	J	587	J	298	J
Thallium	0.31		0.14	U	0.35		0.33		0.21		0.18	U	0.15	U	0.22		0.18	U
Vanadium	57.7	J	61.3	J	55.9	J	32.9	J	58.1	J	59.9	J	41.9	J	49.9	J	29.8	J
Zinc	39.2	J	40.5	J	39.5	J	30.1	J	52.1	J	40.5	J	34.3	J	33.5	J	20.7	J
Cyanide	0.49	U	0.49	U	0.48	U	0.49	U	0.49	U	0.51	U	0.49	U	0.50	U	0.54	U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-7 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-7	SAMPLE NUMBER DEPTH (ft)						
SDG #	A2214S						
PARAMETER	A2301S 0.0-2.5 (mg/kg)	A2303S 4.8-7.2 (mg/kg)	A2304S 4.8-7.2 (mg/kg)	A2306S 8.9-11.2 (mg/kg)	A2310S 12.7-15.1 (mg/kg)	A2312S 16.9-19.0 (mg/kg)	A2314S 22.7-25.0 (mg/kg)
INORGANICS							
Aluminum	6630	2780	4710	5270	6940	6490	5880
Antimony	4.2 UJ	4.0 UJ	3.4 UJ	3.0 UJ	4.0 UJ	3.5 UJ	3.7 UJ
Arsenic	1.3 J	0.94 J	0.82 J	4.2 J	0.97 J	1.3 J	1.3 J
Barium	70.6	42.9	64.6	69.6	84.9	63.2	107
Beryllium	0.69	0.28	0.54	0.78	0.61	0.27	0.24
Cadmium	0.58 U	0.38 U	0.32 U	0.29 U	0.38 U	0.33 U	0.35 U
Calcium	6220	3540	5340	5580	7370	8240	6380
Chromium	8.8	7.8	9.7	6.5	9.1	14.6	12.6
Cobalt	13.5	7.9	12.1	14.0	11.9	5.2	2.6
Copper	18.9 J	10.2 J	16.3 J	16.3 J	15.0 J	12.7 J	9.1 J
Iron	24800	12400	20800	23700	21200	11600	6930
Lead	4.7	2.2	2.1	2.5	2.6	3.5	2.7
Magnesium	4200	2120	3650	4050	3680	3340	2780
Manganese	323 J	166 J	250 J	285 J	308 J	251 J	237 J
Mercury	0.10 U	0.08 U	0.10 U	0.09 U	0.09 U	0.09 U	0.08 U
Nickel	7.6	7.0	7.0	7.8	7.5	11.0	9.5
Potassium	927	438	631	686	855	1160	881
Selenium	0.38 J	0.39 UJ	0.36 UJ	0.35 UJ	0.30 UJ	0.30 UJ	0.44 UJ
Silver	2.1	0.78	1.2	1.6	1.1	0.66	0.48
Sodium	400 J	311 J	548 J	580 J	762 J	690 J	483 J
Thallium	0.20	0.45	0.18	0.20	3.1	0.16	0.40
Vanadium	65.0	38.0	62.1	63.9	58.1	23.1	15.9
Zinc	45.2 U	21.8 U	35.2 U	38.6 U	41.7 U	24.2 U	17.9 U
Cyanide	0.50 J	0.51 J	0.51 J	0.49 J	0.50 J	0.49 J	0.52 J

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-8 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-8	SAMPLE NUMBER / DEPTH (ft)																	
SDG #	A1401W																	
PARAMETER	A1402S 0.9–2.5 (mg/kg)		A1404S 5.9–7.4 (mg/kg)		A1406S 8.7–10.9 (mg/kg)		A1408S 10.9–12.8 (mg/kg)		A1409S 15.0–17.3 (mg/kg)		A1411S 20.7–22.9 (mg/kg)		A1412S 20.7–22.9 (mg/kg)		A1414S 23.1–24.9 (mg/kg)		A1415S 26.3–28.1 (mg/kg)	
INORGANICS																		
Aluminum	7460	J	7320	J	10600	J	9370	J	9620	J	5.9	J	6960	J	9940	J	7140	J
Antimony	3.3	UJ	3.3	UJ	3.2	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.2	UJ	3.4	UJ
Arsenic	1.0		0.73		0.20		0.45		1.1		2.1		0.19		1.6		0.80	J
Barium	84.8	J	75.7	J	102	J	113	J	81.0	J	53.5	J	75.2	J	60.4	J	80.6	J
Beryllium	0.65		0.73		1.0		0.89		1.0		0.14	U	0.70		0.40		0.38	
Cadmium	0.28	U	0.27	U	0.28	U	0.40		0.29	U	0.28	U	0.28	U	0.27	U	0.29	U
Calcium	7650	J	8240	J	10100	J	8740	J	8470	J	6830	J	7110	J	9070	J	8030	J
Chromium	18.2		11.4		284		72.0		119		0.30		27.2		40.5		24.5	
Cobalt	14.6		13.9		17.0		12.1		12.6		1.0		9.6		5.9		5.6	
Copper	18.3	J	18.6	J	22.4	J	18.1	J	18.1	J	0.28	UJ	18.8	J	12.8	J	15.1	J
Iron	27400		28600		31100		24200		24300		2.8		18800		13400		11500	
Lead	3.6	J	2.4	J	0.14	UJ	2.6	J	2.4	J	2.8	J	1.4	J	3.8	J	3.1	J
Magnesium	4740		4790		5220		4120		4840		3830		3320		4130		3480	
Manganese	333		355		401		328		384		8.7		298		271		226	
Mercury	0.08	U	0.09	U	0.10	U	0.10	U	0.08	U	0.08	U	0.10	U	0.09	U	0.10	U
Nickel	17.4		11.2	U	135		38.0		56.6		7.5	U	18.2		18.1		15.5	
Potassium	1020		888		1140		1250		1320		1110		921		1540		1070	
Selenium	0.14	UJ	0.14	UJ	0.14	UJ	0.14	UJ	0.14	UJ	0.14	UJ	0.14	UJ	0.13	UJ	0.14	UJ
Silver	2.1		2.0		2.6		2.0		1.5		0.28	U	1.1		0.88		0.87	
Sodium	677	UJ	683	UJ	1430	J	1220	J	1060	J	548	UJ	737	UJ	888	UJ	397	UJ
Thallium	0.14	U	0.28		0.32		0.22		0.27		0.36		0.17		0.13	U	0.21	
Vanadium	75.1		75.8		79.4		85.3		88.5		0.82	U	46.9		27.9		23.9	
Zinc	46.1	J	40.3	J	50.4	J	42.4	J	48.9	J	10.6	J	33.4	J	23.8	J	24.1	J
Cyanide	0.51	U	0.51	U	0.50	U	0.52	U	0.52	U	0.52	U	0.52	U	0.51	U	0.53	U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-9 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-9	SAMPLE NUMBER DEPTH (ft)															
SDG #	A1615S															
PARAMETER	A1701S 0.0-2.5 (mg/kg)		A1704S 3.7-4.0 (mg/kg)		A1708S 6.8-9.1 (mg/kg)		A1707S 9.8-9.1 (mg/kg)		A1709S 10.9-13.3 (mg/kg)		A1712S 16.7-19.2 (mg/kg)		A1714S 21.7-23.8 (mg/kg)		A1715S 24.3-27.0 (mg/kg)	
INORGANICS																
Aluminum	4440	J	4260	J	4950	J	3810	J	4180	J	5480	J	3410	J	3880	J
Antimony	3.6	U	3.3	U	3.4	U	3.7	U	3.5	U	3.7	U	3.4	U	3.4	U
Arsenic	0.76	J	0.46	J	0.58	J	0.37	J	0.48	J	1.4	J	0.77	J	0.51	J
Barium	43.2		61.3		61.5		60.8		65.6		100		54.0		52.1	
Beryllium	0.44		0.51		0.62		0.48		0.42		0.43		0.29		0.30	
Cadmium	0.34	U	0.31	U	0.32	U	0.36	U	0.33	U	0.36	U	0.33	U	0.32	U
Calcium	4870		6100		7050		4810		5580		4640		3430		2630	
Chromium	5.0	J	24.9	J	14.0	J	13.2	J	4.7	J	15.8	J	14.9	J	11.5	J
Cobalt	11.5		12.9		15.9		10.6		9.1		9.8		6.8		6.3	
Copper	13.9	J	25.0	J	18.6	J	17.0	J	13.1	J	17.6	J	12.4	J	9.4	J
Iron	20800	J	21300	J	27000	J	20200	J	17000	J	18800	J	12800	J	13300	J
Lead	3.2		3.0		2.0		1.5		2.4		4.0		3.1		2.9	
Magnesium	3400		3410		4210		3010		2800		2800		2130		2650	
Manganese	241	J	265	J	321	J	226	J	206	J	330	J	212	J	253	J
Mercury	0.10	U	0.09	U	0.10	U	0.09	U	0.10	U	0.09	U	0.09	U	0.10	U
Nickel	6.6	J	17.2	J	12.0	J	10.7	J	4.8	J	10.4	J	7.8	J	8.0	J
Potassium	838		580		570		534		535		642		674		618	
Selenium	0.18	UJ	0.22	J	0.17	UJ	0.16	J	0.18	UJ	0.32	J	0.26	J	0.36	J
Silver	1.7		1.6		2.0		1.7		1.6		1.2		0.80		0.95	
Sodium	349	J	500	J	646	J	482	J	349	J	421	J	269	J	300	J
Thallium	0.18	U	0.20		0.17	U	0.16		0.34		0.18		0.18		0.18	U
Vanadium	53.7	J	52.5	J	76.2	J	46.0	J	46.3	J	49.0	J	26.0	J	30.1	J
Zinc	34.5	J	32.8	J	41.5	J	28.2	J	26.7	J	33.1	J	24.9	J	20.6	J
Cyanide	0.49	U	0.47	U	0.50	U	0.51	U	0.51	U	0.51	U	0.52	U	0.58	U

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-10 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-10	SAMPLE NUMBER DEPTH (ft)													
SDG #	A1901S												A1912S	
PARAMETER	A1901S 0.0–2.3 (mg/kg)		A1902S 2.3–4.9 (mg/kg)		A1905S 6.9–9.1 (mg/kg)		A1906S 6.9–9.1 (mg/kg)		A1910S 16.9–17.8 (mg/kg)		A1911S 17.8–20.1 (mg/kg)		A1912S 25.9–27.9 (mg/kg)	
INORGANICS														
Aluminum	7360		8850		5660		5700		3860		4710		7130	
Antimony	3.7	UJ	3.5	UJ	3.5	UJ	3.3	UJ	3.5	UJ	3.3	UJ	3.4	UJ
Arsenic	1.9		1.7		1.5		1.8		2.0		1.2		1.4	
Barium	78.8	J	93.9	J	65.1	J	62.7	J	50.5	J	71.6	J	79.5	
Beryllium	0.37		0.61		0.69		0.60		0.42		0.63		0.54	
Cadmium	0.45		0.80		0.43		0.32	U	0.56		0.57		0.33	U
Calcium	2680		4850		6610		6460		5050		5860		12600	
Chromium	10.8	J	17.6	J	9.9	J	9.6	J	41.8	J	11.1	J	13.2	
Cobalt	9.4		12.4		21.5		23.7		15.1		19.8		42.5	
Copper	11.8	J	22.0	J	20.8	J	87.9	J	41.7	J	124	J	48.9	J
Iron	17800		21600		25300		26800		22000		25800		18000	
Lead	5.9	J	5.3	J	2.8	J	3.2	J	5.4	J	15.0	J	5.6	
Magnesium	3460		4850		4700		4700		3210		3710		3220	
Manganese	322	J	364	J	334	J	342	J	283	J	297	J	380	
Mercury	0.07	U	0.07	U	0.09	U	0.07	U	0.09	U	0.09	U	0.08	U
Nickel	8.7		13.9		12.3		12.0		30.6		13.8		20.8	
Potassium	1940		1440		680		743		606		742		742	
Selenium	0.15	U	0.14	U	0.15	U	0.16	U	0.15	U	0.17	U	0.34	R
Silver	1.1		1.3		2.3		3.2		3.2		3.3		2.4	
Sodium	184	UJ	242	UJ	515	J	549	J	394	J	429	J	688	J
Thallium	0.38	U	0.40	U	0.32	U	0.39	U	0.16	U	0.39	U	0.17	U
Vanadium	39.1		52.7		69.6		77.8		56.4		75.0		45.4	
Zinc	34.8	J	40.6	J	46.6	J	48.4	J	35.3	J	79.1	J	48.2	J
Cyanide	0.51	U	0.52	U	0.51	U	0.52	U	0.52	U	0.52	U	0.52	U

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-2 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-2		SAMPLE NUMBER DEPTH (ft)						
	SDG #	A1615S						
PARAMETER	TIC	A1802S	A1804S	A1805S	A1807S	A1810S	A1812S	A1814S
	RETENTION	0.0–2.5	5.1–7.9	5.1–7.9	9.8–12.3	13.9–16.2	17.7–19.9	23.0–25.3
	TIME	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
VOLATILE ORGANICS								
chloroform		5 U	5 U	5 U	5 U	5 U	5 U	6 U
MeCl2		5 U	5 U	1 J	5 U	5 U	5 U	6 U
VOLATILE ORGANIC TICs								
UNKNOWN	21.74	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	23.65	8.3 J	28 J	23 J	38 J	ND	15 J	ND
SEMI-VOLATILE ORGANIC TICs								
3-methylcetane	5.40	100 J	94 J	100 J	120 J	120 J	110 J	84 J
cyclotetrasiloxane, octameth	7.90	ND	ND	47 J	ND	130 J	110 J	76 J
2-methylcetane	5.28	200 J	ND	ND	ND	240 J	ND	ND
1,3-dimethylbenzene	5.85	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	6.25	ND	ND	ND	ND	ND	ND	ND
5,5-dimethyl-2(5H)-furanone	6.98	ND	ND	ND	ND	ND	ND	ND
7-oxabicyclo[4.1.0]heptane	6.98	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.05	220 J	120 J	ND	ND	110 J	ND	ND
UNKNOWN	7.23	ND	ND	81 J	ND	ND	ND	ND
3,4-epoxy-3-ethyl-2-butanone	7.77	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	7.87	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.92	ND	ND	ND	88 J	ND	ND	ND
UNKNOWN	8.05	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	8.77	ND	ND	ND	ND	ND	ND	ND
cyclopentasiloxane, decameth	11.95	150 J	94 J	100 J	100 J	120 J	110 J	61 J
cyclohexasiloxane, dodecamet	14.29	ND	ND	88 J	ND	ND	ND	ND
UNKNOWN	27.54	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.74	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.89	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.11	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.19	150 J	ND	ND	ND	ND	ND	ND
UNKNOWN	28.54	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.06	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.32	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.71	ND	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-2 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-2		SAMPLE NUMBER DEPTH (ft)						
	SDG #	A1615S						
PARAMETER	TIC RETENTION TIME	A1802S 0.0–2.5 (µg/kg)	A1804S 5.1–7.9 (µg/kg)	A1805S 5.1–7.9 (µg/kg)	A1807S 9.9–12.3 (µg/kg)	A1810S 13.9–16.2 (µg/kg)	A1812S 17.7–19.9 (µg/kg)	A1814S 23.9–26.3 (µg/kg)
UNKNOWN	30.52	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.69	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.11	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.58	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.72	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.84	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.26	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.02	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	39.18	ND	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-3 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-3		SAMPLE NUMBER DEPTH (ft)						
	SDG #	A1901S						
PARAMETER	TIC RETENTION TIME	A2002S 0.0-2.5 (µg/kg)	A2004S 4.6-7.5 (µg/kg)	A2005S 4.6-7.5 (µg/kg)	A2007S 10.8-13.0 (µg/kg)	A2009S 14.5-17.0 (µg/kg)	A2012S 19.4-20.7 (µg/kg)	A2014S 23.2-25.1 (µg/kg)
VOLATILE ORGANICS								
MeCl2		8	5 U	5 U	5 U	5 U	4 J	6 U
VOLATILE ORGANIC TICs								
UNKNOWN	23.92	ND	45 J	12 J	ND	ND	12 J	ND
SEMI-VOLATILE ORGANICS								
benzoic acid		3300 U	3300 U	3200 U	3200 U	3300 U	4100 U	3600 U
phenol		690 U	670 U	670 U	660 U	680 U	850 U	730 U
SEMI-VOLATILE ORGANIC TICs								
UNKNOWN	5.28	ND	ND	ND	ND	ND	ND	240 J
UNKNOWN	5.71	ND	ND	ND	ND	ND	110 J	160 J
2-ethoxyethyl acetate	6.20	620 J	ND	ND	ND	ND	ND	ND
6-(acetyloxy)-2-hexanone	6.23	840 J	700 J	830 J	790 J	810 J	ND	ND
UNKNOWN	7.01	ND	ND	ND	ND	ND	ND	ND
5,5-dimethyl-5(5H)-furanone	7.03	ND	ND	ND	ND	ND	400 J	400 J
benzaldehyde	7.12	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	7.81	ND	ND	310 J	ND	ND	ND	ND
UNKNOWN	7.91	ND	ND	ND	ND	ND	ND	140 J
UNKNOWN	9.01	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.07	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	10.79	ND	880 J	840 J	760 J	1000 J	ND	ND
UNKNOWN	10.87	ND	ND	ND	ND	ND	130 J	200 J
cyclopentasiloxane, decameth	11.05	ND	ND	ND	ND	ND	130 J	170 J
UNKNOWN	11.84	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	13.64	ND	ND	ND	ND	ND	ND	ND
dodecanamide, N,N-bis(2-hyd	18.47	ND	ND	ND	ND	ND	ND	ND
ethanone, 2-bromo-1,2-diphen	22.57	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	23.57	ND	ND	ND	ND	ND	ND	ND
hexadecanoic acid	23.79	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	26.01	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.28	ND	ND	ND	ND	ND	ND	ND
hexasiloxane, tetradecamethy	30.76	ND	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-3 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-3		SAMPLE NUMBER DEPTH (ft)						
	SDG #	A1901S						
	TIC	A2002S	A2004S	A2005S	A2007S	A2009S	A2012S	A2014S
PARAMETER	RETENTION	0.0–2.5	4.6–7.5	4.6–7.5	10.8–13.0	14.5–17.0	19.4–20.7	23.2–25.1
	TIME	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
UNKNOWN	30.76	ND	ND	ND	ND	ND	260 J	ND
UNKNOWN	31.57	ND	ND	ND	ND	ND	ND	ND
heptasiloxane, hexadecamethy	32.22	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.22	ND	ND	ND	ND	ND	530 J	ND
UNKNOWN	33.52	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.66	ND	ND	ND	ND	ND	690 J	ND
UNKNOWN	34.07	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.17	ND	ND	ND	ND	ND	ND	ND
PESTICIDES								
delta-BHC		17 U	16 U	16 U	16 U	17 U	21 U	16 U
gamma-chlordane		170 U	160 U	160 U	160 U	170 U	210 U	160 U
endrin		34 U	32 U	33 U	32 U	33 U	41 U	36 U

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-4 SAMPLE RESULTS

1100-EM-1 HORN RAPIDS LANDFILL HRL-4		SAMPLE NUMBER DEPTH (ft)						
	SDG #	AH225S						A2214S
PARAMETER	TIC RETENTION TIME	A2202S 0.0-2.8 (µg/kg)	A2204S 5.4-8.0 (µg/kg)	A2205S 5.4-8.0 (µg/kg)	A2207S 10.6-13.8 (µg/kg)	A2210S 14.6-16.9 (µg/kg)	A2212S 19.2-21.3 (µg/kg)	A2214S 23.2-25.1 (µg/kg)
VOLATILE ORGANICS								
2-butanone		NR	NR	NR	NR	NR	NR	11 U
acetone		NR	NR	NR	NR	NR	NR	11 U
MeCl2		NR	NR	NR	NR	NR	NR	5 J
trichloroethene		NR	NR	NR	NR	NR	NR	5 U
VOLATILE ORGANIC TICs								
UNKNOWN	23.79	NR	NR	NR	NR	NR	NR	ND
SEMI-VOLATILE ORGANICS								
bis(2-ethylhexyl)phthalate		660 U	660 U	660 U	670 U	660 U	660 U	720 U
butylbenzylphthalate		660 U	660 U	660 U	670 U	660 U	660 U	720 U
fluoranthene		660 U	660 U	660 U	670 U	660 U	660 U	720 U
pyrene		660 U	660 U	660 U	670 U	660 U	660 U	720 U
SEMI-VOLATILE ORGANIC TICs								
UNKNOWN	7.15	1100 J	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.12	960 J	ND	ND	ND	ND	ND	ND
UNKNOWN	9.32	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,4',5-trichl	23.97	2700 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3,3',5'-tet	23.97	3000 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,5'-tet	24.09	1700 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, tetrachloro-	24.15	820 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,4'-tet	24.52	2500 J	ND	ND	ND	ND	ND	ND
aroclor 1248	24.61	860 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',4,5'-tet	24.92	2100 J	ND	ND	ND	ND	ND	ND
UNKNOWN	25.41	1200 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3',4',5-tet	25.51	2700 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,4-tetr	25.62	2800 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',6,6'-tet	26.02	3300 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,5,5'-p	26.18	2000 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3,3',4',6-p	26.28	820 J	ND	ND	ND	ND	ND	ND
octadecanoic acid	26.64	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,4',5'-	26.69	640 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,3',6-p	26.82	880 J	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-4 SAMPLE RESULTS

1100-EM-1 HORN RAPIDS LANDFILL HRL-4		SAMPLE NUMBER DEPTH (ft)						
	SDG #	AH225S						A2214S
PARAMETER	TIC RETENTION TIME	A2202S 0.0–2.8 (µg/kg)	A2204S 5.4–8.0 (µg/kg)	A2205S 5.4–8.0 (µg/kg)	A2207S 10.5–13.0 (µg/kg)	A2210S 14.0–16.9 (µg/kg)	A2212S 19.2–21.3 (µg/kg)	A2214S 23.2–26.1 (µg/kg)
1,1'-biphenyl, 2,3',4,4',5-p	27.07	1800 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3',4,5,5'-p	27.69	1400 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, pentachloro-	28.34	820 J	ND	ND	ND	ND	ND	ND
UNKNOWN	28.77	ND	ND	ND	ND	ND	ND	ND
octadecanoic acid, 2-methyp	28.92	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.19	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.06	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.99	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.04	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.97	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.38	ND	ND	ND	ND	ND	ND	ND
pentatriacontane	33.92	ND	ND	ND	ND	ND	ND	ND
pentadiacane, dodecamethyl-	34.64	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	35.77	ND	ND	ND	ND	ND	ND	ND
heptadiacane, hexadecamethy	35.89	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.19	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	38.57	ND	ND	ND	ND	ND	ND	ND
PESTICIDES								
aroclor 1248		85000 J	610	640	28 J	170 U	170 U	87 U
4,4'-DDE		1200 J	14 J	14 J	32 U	33 U	34 U	17 U

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-5 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-5		SAMPLE NUMBER DEPTH (ft)								
	SDG #	A1501W								
PARAMETER	TIC RETENTION TIME	A1502S 0.0-2.1 (µg/kg)	A1503S 3.9-6.0 (µg/kg)	A1504S 6.4-8.6 (µg/kg)	A1506S 9.4-11.6 (µg/kg)	A1507S 9.4-11.6 (µg/kg)	A1509S 13.1-15.5 (µg/kg)	A1512S 16.0-17.0 (µg/kg)	A1513S 19.9-21.5 (µg/kg)	A1515S 23.6-25.6 (µg/kg)
VOLATILE ORGANICS										
2-butanone		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U
chloroform		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
MeCl2		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
VOLATILE ORGANIC TICs										
UNKNOWN	1.78	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-trichloro-1,2,2-trifluo	2.82	ND	46 J	29 J	57 J	23 J	120 J	ND	29 J	ND
nonane	18.17	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-methyl-nonane	21.72	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	23.79	ND	ND	ND	ND	ND	ND	ND	ND	ND
decane	23.84	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANICS										
butylbenzylphthalate		99 J	690 U	690 U	670 U	670 U	670 U	690 U	690 U	720 U
SEMI-VOLATILE ORGANIC TICs										
UNKNOWN	7.12	1400	ND	ND	ND	ND	ND	ND	ND	ND
benzaldehyde	7.28	ND	ND	270 J	370 J	470 J	ND	ND	ND	7.28 J
2,4-dimethyl-3-heptanone	8.03	690 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.24	1400	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	11.06	570	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	20.42	260	ND	ND	ND	ND	ND	ND	ND	ND
dodecanamide	20.92	250 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.01	ND	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.11	ND	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-6 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-6		SAMPLE NUMBER DEPTH (ft)																	
	SDG #	A1501W																	
PARAMETER	TIC RETENTION TIME	A1601S 2.4-4.8 (µg/kg)		A1602S 4.8-7.1 (µg/kg)		A1604S 7.1-9.4 (µg/kg)		A1606S 9.4-11.6 (µg/kg)		A1607S 11.6-13.9 (µg/kg)		A1608S 11.6-13.9 (µg/kg)		A1612S 23.0-24.2 (µg/kg)		A1613S 24.2-25.0 (µg/kg)	
VOLATILE ORGANICS																			
2-butanone		NR		10	U	10	U	10	U	8	J	10	U	NR		10	U
chloroform		NR		5	U	5	U	5	U	5	U	5	U	NR		5	U
MeCl2		NR		5	U	5	U	5	U	5	U	5	U	NR		5	U
VOLATILE ORGANIC TICs																			
UNKNOWN	1.78	NR		ND		ND		ND		ND		ND		NR		ND	
1,1,2-trichloro-1,2,2-trifluo	2.82	NR		17	J	ND		ND		ND		ND		NR		ND	
nonane	16.17	NR		ND		ND		ND		ND		ND		NR		ND	
2-methyl-nonane	21.72	NR		ND		ND		ND		ND		ND		NR		ND	
UNKNOWN	21.74	NR		ND		ND		ND		ND		ND		NR		ND	
UNKNOWN	23.65	NR		ND		ND		ND		ND		ND		NR		ND	
UNKNOWN	23.79	NR		ND		ND		ND		7.1	J	ND		NR		40	J
decane	23.84	NR		ND		ND		ND		ND		ND		NR		ND	
SEMI-VOLATILE ORGANICS																			
butylbenzylphthalate		720	U	670	U	670	U	680	U	670	U	670	U	680	U	670	U
SEMI-VOLATILE ORGANIC TICs																			
2-methylactane	5.28	ND		ND		ND		ND		ND		ND		ND		ND	
3-methylactane	5.40	ND		ND		ND		ND		ND		ND		ND		ND	
1,3-dimethylbenzene	6.85	ND		ND		ND		ND		ND		ND		ND		ND	
UNKNOWN	6.25	ND		ND		ND		ND		ND		ND		ND		ND	
5,6-dimethyl-2(5H)-furanone	6.98	ND		ND		ND		ND		ND		ND		ND		ND	
7-oxabicyclo[4.1.0]heptane	6.98	ND		ND		ND		ND		ND		ND		ND		ND	
UNKNOWN	7.05	ND		ND		ND		ND		ND		ND		ND		ND	
UNKNOWN	7.12	870	J	ND		ND		ND		ND		ND		ND		ND	
UNKNOWN	7.23	ND		ND		ND		ND		ND		ND		ND		ND	
benzaldehyde	7.28	290	J	ND		ND		430	J	ND		400	J	ND		ND	
3,4-epoxy-3-ethyl-2-butanone	7.77	ND		ND		ND		ND		ND		ND		ND		ND	
2,4-dimethyl-3-heptanone	7.87	ND		ND		ND		ND		ND		ND		ND		ND	
cyclotetrasiloxane, octameth	7.90	ND		ND		ND		ND		ND		ND		ND		ND	
UNKNOWN	7.92	ND		ND		ND		ND		ND		ND		ND		ND	
2,4-dimethyl-3-heptanone	8.03	ND		ND		ND		ND		ND		ND		ND		ND	

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-6 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-6		SAMPLE NUMBER DEPTH (ft)							
	SDG #	A1501W							
PARAMETER	TIC RETENTION TIME	A1601S 2.4-4.8 (µg/kg)	A1602S 4.8-7.1 (µg/kg)	A1604S 7.1-9.4 (µg/kg)	A1606S 9.4-11.6 (µg/kg)	A1607S 11.6-13.9 (µg/kg)	A1608S 11.6-13.9 (µg/kg)	A1612S 23.6-24.2 (µg/kg)	A1613S 24.2-25.6 (µg/kg)
UNKNOWN	9.05	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.24	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.77	ND	ND	ND	ND	ND	ND	ND	ND
cyclopentadiene, decameth	11.05	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	11.05	500 J	ND	ND	ND	ND	ND	ND	ND
cyclohexadiene, dodecamet	14.29	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	20.42	ND	ND	ND	ND	ND	ND	ND	ND
dodecanamide	20.62	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.54	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.74	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.89	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.11	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.19	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.54	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.06	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.32	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.71	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.52	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.99	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.01	ND	ND	820 J	ND	ND	ND	ND	ND
UNKNOWN	31.11	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.58	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.72	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.84	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.11	ND	ND	2100 J	ND	ND	ND	ND	ND
UNKNOWN	32.28	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	37.02	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	39.19	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-6 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-6		SAMPLE NUMBER DEPTH (ft)			
	SDG #	A1615S			
PARAMETER	TIC RETENTION TIME	A1615S 25.0-25.2 (µg/kg)		A1616S 25.8-27.8 (µg/kg)	
VOLATILE ORGANICS					
2-butanone		10	U	11	U
chloroform		5	U	5	U
MeCl2		5	U	5	U
VOLATILE ORGANIC TICs					
UNKNOWN	1.78	ND		ND	
1,1,2-trichloro-1,2,2-trifluo	2.82	ND		ND	
nonane	18.17	ND		ND	
2-methyl-nonane	21.72	ND		ND	
UNKNOWN	21.74	ND		24	J
UNKNOWN	23.65	ND		ND	
UNKNOWN	23.79	ND		ND	
decane	23.84	ND		ND	
SEMI-VOLATILE ORGANICS					
butylbenzylphthalate		600	U	700	U
SEMI-VOLATILE ORGANIC TICs					
2-methyloctane	5.28	ND		ND	
3-methyloctane	5.40	96	J	ND	
1,3-dimethylbenzene	5.85	ND		ND	
UNKNOWN	6.25	ND		71	J
5,5-dimethyl-2(5H)-furanone	6.98	ND		ND	
7-oxabicyclo[4.1.0]heptane	6.98	ND		660	J
UNKNOWN	7.05	ND		ND	
UNKNOWN	7.12	ND		ND	
UNKNOWN	7.23	ND		ND	
benzaldehyde	7.28	ND		ND	
3,4-epoxy-3-ethyl-2-butanone	7.77	ND		ND	
2,4-dimethyl-3-heptanone	7.87	ND		ND	
cyclotetrasiloxane, octameth	7.90	ND		ND	
UNKNOWN	7.92	ND		ND	
2,4-dimethyl-3-heptanone	8.03	ND		ND	

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-6 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-6		SAMPLE NUMBER DEPTH (ft)	
	SDG #	A1615S	
PARAMETER	TIC RETENTION TIME	A1615S 25.0-25.2 (µg/kg)	A1616S 25.8-27.8 (µg/kg)
UNKNOWN	9.05	ND	ND
UNKNOWN	9.24	ND	ND
UNKNOWN	9.77	ND	ND
cyclopentadiene, decameth	11.05	ND	ND
UNKNOWN	11.05	ND	ND
cyclohexadiene, dodecamet	14.29	ND	ND
UNKNOWN	26.42	ND	ND
dodecanamide	26.62	ND	ND
UNKNOWN	27.54	ND	ND
UNKNOWN	27.74	ND	ND
UNKNOWN	27.99	ND	ND
UNKNOWN	28.11	ND	ND
UNKNOWN	28.19	ND	ND
UNKNOWN	28.54	ND	ND
UNKNOWN	29.08	ND	ND
UNKNOWN	29.32	ND	ND
UNKNOWN	29.71	ND	ND
UNKNOWN	30.02	ND	ND
UNKNOWN	30.69	ND	ND
UNKNOWN	31.01	ND	ND
UNKNOWN	31.11	ND	ND
UNKNOWN	31.69	ND	ND
UNKNOWN	31.72	ND	ND
UNKNOWN	31.84	ND	ND
UNKNOWN	32.11	ND	ND
UNKNOWN	32.28	620 J	ND
UNKNOWN	37.02	ND	ND
UNKNOWN	39.19	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-7 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-7		SAMPLE NUMBER DEPTH (ft)						
	SDG #	A2214S						
PARAMETER	TIC RETENTION TIME	A2301S 0.0-2.5 (µg/kg)	A2303S 4.8-7.2 (µg/kg)	A2304S 4.8-7.2 (µg/kg)	A2308S 8.8-11.2 (µg/kg)	A2310S 12.7-15.1 (µg/kg)	A2312S 16.8-18.0 (µg/kg)	A2314S 22.7-25.0 (µg/kg)
VOLATILE ORGANICS								
acetone		10 U	63	26 U	13 U	120	66	200
2-butanone		10 U	10 U	10 U	10 U	10 U	23	15
MeCl2		5 U	4 J	5 U	2 J	5 U	5 U	5 U
trichloroethene		5 U	5 U	5 U	5 U	5 U	5 U	5 U
VOLATILE ORGANIC TICs								
UNKNOWN	23.79	4.1 J	5.2 J	ND	70 J	24 J	31 J	ND
SEMI-VOLATILE ORGANICS								
butylbenzylphthalate		95 J	680 U	680 U	680 U	680 U	670 U	700 U
fluoranthene		110 J	680 U	680 U	680 U	680 U	670 U	700 U
pyrene		81 J	680 U	680 U	680 U	680 U	670 U	700 U
SEMI-VOLATILE ORGANIC TICs								
octadecanoic acid	26.84	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	28.77	2200 J	ND	ND	ND	ND	ND	ND
octadecanoic acid, 2-methyp	28.92	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	30.69	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.97	960 J	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-8 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-8	SAMPLE NUMBER DEPTH (ft)								
SDG #	A1401W								
PARAMETER / TIC RETENTION TIME	A1402S 0.0-2.5 (ug/kg)	A1404S 5.9-7.4 (ug/kg)	A1406S 9.7-10.9 (ug/kg)	A1408S 10.9-12.8 (ug/kg)	A1409S 15.0-17.3 (ug/kg)	A1411S 20.7-22.0 (ug/kg)	A1412S 20.7-22.0 (ug/kg)	A1414S 23.1-24.0 (ug/kg)	A1415S 26.3-28.1 (ug/kg)
VOLATILE ORGANICS									
2-butanone	11 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U	11 U
chloroform	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
MeCl2	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
SEMI-VOLATILE ORGANICS									
1,2,4-trichlorobenzene	680 U	670 U	190 J	680 U	680 U	680 U	680 U	680 U	720 U
1,4-dichlorobenzene	680 U	670 U	170 J	680 U	680 U	680 U	680 U	680 U	720 U
2,4-dinitrotoluene	680 U	670 U	92 J	680 U	680 U	680 U	680 U	680 U	720 U
2-chlorophenol	680 U	670 U	320 J	70 J	680 U	680 U	680 U	680 U	720 U
4-chloro-3-methylphenol	680 U	670 U	290 J	680 U	680 U	680 U	680 U	680 U	720 U
4-nitrophenol	3300 U	3300 U	310 J	3300 U	3300 U	3300 U	3300 U	3200 U	3500 U
acenaphthene	680 U	670 U	190 J	680 U	680 U	680 U	680 U	680 U	720 U
bis(2-ethylhexyl)phthalate	680 U	670 U	11000	680 U	680 U	680 U	680 U	680 U	720 U
N-nitroso-Di-n-propylamine	680 U	670 U	170 J	680 U	680 U	680 U	680 U	680 U	720 U
pentachlorophenol	3300 U	3300 U	260 J	3300 U	3300 U	3300 U	3300 U	3200 U	3500 U
pyrene	680 U	670 U	180 J	680 U	680 U	680 U	680 U	680 U	720 U
SEMI-VOLATILE ORGANIC TICs									
UNKNOWN 7.68	ND	330 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN 9.37	1700 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN 11.22	670 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN 27.01	ND	ND	3600 J	ND	ND	ND	ND	ND	ND
hexanedioic acid, dioctyl es 29.14	ND	ND	650 J	ND	ND	ND	ND	ND	ND
UNKNOWN 30.21	ND	ND	750 J	ND	ND	ND	ND	ND	ND
UNKNOWN 30.58	ND	ND	1100 J	ND	ND	ND	ND	ND	ND
UNKNOWN 31.01	ND	ND	810 J	ND	ND	ND	ND	ND	ND
1,2-benzenedicarboxylic acid 31.06	ND	ND	950 J	ND	ND	ND	ND	ND	ND
UNKNOWN 31.17	ND	ND	5700 J	ND	ND	ND	ND	ND	ND
UNKNOWN 31.32	ND	ND	810 J	ND	ND	ND	ND	ND	ND
UNKNOWN 31.57	ND	ND	950 J	ND	ND	ND	ND	ND	ND
UNKNOWN 31.61	ND	ND	2000 J	ND	ND	ND	ND	ND	ND
UNKNOWN 31.79	ND	ND	6100 J	ND	ND	ND	ND	ND	ND
1,2-benzenedicarboxylic acid 31.87	ND	ND	1400 J	ND	ND	ND	ND	ND	ND
UNKNOWN 32.29	ND	ND	23000 J	ND	ND	ND	ND	ND	ND
UNKNOWN 33.21	ND	ND	430 J	ND	ND	ND	ND	ND	ND
3,7,11-trideoxytrienonitrile 33.42	ND	ND	ND	ND	ND	ND	290 J	ND	330 J
UNKNOWN 33.97	620 J	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN 34.17	ND	ND	810 J	ND	ND	ND	ND	ND	ND
UNKNOWN 38.82	290 J	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-9 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-9		SAMPLE NUMBER DEPTH (ft)							
	SDG #	A1615S							
PARAMETER	TIC RETENTION TIME	A1701S 0.0-2.5 (µg/kg)	A1704S 3.7-4.6 (µg/kg)	A1706S 6.9-9.1 (µg/kg)	A1707S 8.8-9.1 (µg/kg)	A1709S 10.9-13.3 (µg/kg)	A1712S 16.7-19.2 (µg/kg)	A1714S 21.7-23.8 (µg/kg)	A1715S 24.3-27.0 (µg/kg)
VOLATILE ORGANICS									
chloroform		5 U	5 U	5 U	5 U	5 U	5 U	5 U	NR
MeCl2		5 U	5 U	2 J	3 J	2 J	1 J	1 J	NR
VOLATILE ORGANIC TICs									
UNKNOWN	21.74	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	23.65	ND	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANIC TICs									
2-methylactane	5.28	ND	ND	ND	ND	ND	ND	ND	ND
3-methylactane	5.40	ND	ND	ND	ND	ND	ND	ND	ND
1,3-dimethylbenzene	5.85	ND	88 J	99 J	ND	ND	ND	ND	ND
UNKNOWN	6.26	ND	ND	ND	ND	ND	ND	ND	ND
5,5-dimethyl-dihydro-furanone	6.98	ND	ND	ND	ND	250 J	ND	260 J	ND
7-oxabicyclo[4.1.0]heptane	6.99	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.06	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.23	ND	ND	ND	ND	ND	ND	ND	ND
3,4-epoxy-3-ethyl-2-butanone	7.77	ND	ND	ND	ND	ND	ND	150 J	ND
2,4-dimethyl-3-heptanone	7.87	360 J	ND	ND	ND	ND	ND	210 J	ND
cyclotetrasiloxane, octameth	7.90	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.92	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.05	630 J	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.77	ND	1600 J	ND	ND	ND	ND	ND	ND
cyclopentasiloxane, decameth	11.05	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexasiloxane, dodecamet	14.29	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.54	ND	ND	ND	ND	ND	ND	150 J	ND
UNKNOWN	27.74	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	27.99	ND	ND	ND	ND	ND	ND	360 J	ND
UNKNOWN	28.11	ND	ND	ND	ND	ND	ND	150 J	ND
UNKNOWN	28.19	ND	ND	ND	ND	ND	ND	260 J	ND
UNKNOWN	28.54	ND	ND	ND	ND	ND	ND	200 J	ND
UNKNOWN	29.08	ND	ND	ND	ND	ND	200 J	ND	ND
UNKNOWN	29.32	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.71	ND	ND	ND	ND	ND	ND	2600 J	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-9 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-9		SAMPLE NUMBER DEPTH (ft)							
	SDG #	A1615S							
PARAMETER	TIC	A1701S	A1704S	A1706S	A1707S	A1708S	A1712S	A1714S	A1715S
	RETENTION	0.0–2.5	3.7–4.6	6.8–9.1	9.8–9.1	10.9–13.3	16.7–19.2	21.7–23.8	24.3–27.9
	TIME	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
UNKNOWN	30.52	ND	ND	ND	ND	ND	250 J	ND	ND
UNKNOWN	30.99	ND	ND	ND	ND	ND	450 J	ND	ND
UNKNOWN	31.11	ND	ND	ND	ND	ND	1600 J	ND	ND
UNKNOWN	31.50	ND	ND	ND	ND	ND	550 J	ND	ND
UNKNOWN	31.72	ND	ND	ND	ND	ND	1100 J	ND	ND
UNKNOWN	31.84	ND	ND	ND	ND	ND	310 J	ND	ND
UNKNOWN	32.28	ND	ND	ND	ND	440 J	5100 J	ND	ND
UNKNOWN	37.02	ND	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	38.19	ND	ND	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-10 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-10		SAMPLE NUMBER DEPTH (ft)						
	SDG #	A1901S						AH225S
PARAMETER	TIC RETENTION TIME	A1901S 0.0-2.3 (µg/kg)	A1902S 2.3-4.0 (µg/kg)	A1905S 0.0-0.1 (µg/kg)	A1906S 6.0-6.1 (µg/kg)	A1910S 16.0-17.0 (µg/kg)	A1911S 17.0-20.1 (µg/kg)	A1912S 26.0-27.0 (µg/kg)
VOLATILE ORGANICS								
MeCl2		5 U	5 U	5 U	5 U	5 U	6 U	NR
VOLATILE ORGANIC TICs								
UNKNOWN	23.92	ND	27 J	19 J	13 J	ND	ND	NR
SEMI-VOLATILE ORGANICS								
benzoic acid		3500 U	3300 U	3200 U	3300 U	3200 U	3200 U	3400 U
phenol		720 U	680 U	670 U	670 U	680 U	670 U	700 U
bis(2-ethylhexyl)phthalate		720 U	680 U	670 U	670 U	670 U	670 U	200 J
SEMI-VOLATILE ORGANIC TICs								
UNKNOWN	5.28	ND	ND	210 J	200 J	190 J	200 J	ND
UNKNOWN	5.71	ND	97 J	ND	ND	90 J	91 J	ND
2-ethoxyethyl acetate	6.20	ND	69 J	ND	ND	ND	ND	ND
6-(acetyloxy)-2-hexanone	6.23	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.01	ND	2500 J	210 J	190 J	ND	ND	ND
5,5-dimethyl-2(3H)-furanone	7.03	ND	ND	ND	ND	270 J	ND	ND
benzaldehyde	7.12	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	7.15	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	7.81	1300 J	1600 J	ND	ND	ND	ND	ND
UNKNOWN	7.91	ND	ND	ND	ND	120 J	65 J	ND
2,4-dimethyl-3-heptanone	8.12	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	9.01	2400 J	ND	ND	ND	ND	ND	ND
UNKNOWN	9.67	ND	200 J	ND	ND	ND	ND	ND
UNKNOWN	9.32	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	10.79	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	10.87	ND	1100 J	ND	ND	ND	120 J	ND
cyclopentasiloxane, decameth	11.05	ND	ND	ND	ND	110 J	ND	ND
UNKNOWN	11.84	ND	68 J	ND	ND	79 J	ND	ND
UNKNOWN	13.64	ND	59 J	ND	ND	ND	ND	ND
dodecanamide, N,N-bis(2-hyd	18.47	ND	ND	ND	ND	ND	ND	ND
ethanone, 2-bromo-1,2-diphen	22.57	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,4',5-trichl	23.07	ND	ND	ND	ND	ND	ND	ND

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-10 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-10		SAMPLE NUMBER DEPTH (ft)						
	SDG #	A1901S						A1912S
PARAMETER	TIC RETENTION TIME	A1901S 0.0-2.3 (µg/kg)	A1902S 2.3-4.0 (µg/kg)	A1905S 0.0-0.1 (µg/kg)	A1906S 0.0-0.1 (µg/kg)	A1910S 16.0-17.8 (µg/kg)	A1911S 17.8-20.1 (µg/kg)	A1912S 25.0-27.0 (µg/kg)
UNKNOWN	23.57	440 J	ND	ND	ND	ND	ND	ND
hexadecanoic acid	23.79	440 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3,3',5'-tet	23.97	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,5'-tet	24.09	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, tetrachloro-	24.15	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,4'-tet	24.52	ND	ND	ND	ND	ND	ND	ND
aroclor 1248	24.61	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',4,5'-tet	24.82	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	25.41	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3',4',5-tet	25.51	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,4-tetr	25.62	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	26.01	1600 J	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',6,6'-tet	26.02	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,5,5'-p	26.18	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3,3',4',5-p	26.29	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,4',5'-	26.69	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,2',3,3',5-p	26.82	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3',4,4',5-p	27.07	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, 2,3',4,5,5'-p	27.69	ND	ND	ND	ND	ND	ND	ND
1,1'-biphenyl, pentachloro-	28.34	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	29.19	ND	ND	ND	ND	ND	ND	770 J
UNKNOWN	29.28	ND	ND	180 J	ND	ND	ND	ND
UNKNOWN	30.69	ND	ND	ND	ND	ND	ND	1000 J
hexadiene, tetradecamethy	30.76	ND	ND	380 J	ND	ND	ND	ND
UNKNOWN	30.78	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	31.57	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	32.04	ND	ND	ND	ND	ND	ND	2900 J
heptadiene, hexadecamethy	32.22	ND	ND	620 J	ND	ND	ND	ND
UNKNOWN	32.22	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	33.38	ND	ND	ND	ND	ND	ND	4300 J
UNKNOWN	33.52	ND	ND	ND	ND	240 J	ND	ND
UNKNOWN	33.68	ND	ND	680 J	ND	ND	ND	ND
pentatriacontane	33.92	ND	ND	ND	ND	ND	ND	ND
UNKNOWN	34.07	430 J	ND	ND	ND	ND	ND	ND
pentadiene, dodecamethyl-	34.64	ND	ND	ND	ND	ND	ND	3600 J

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 HORN RAPIDS LANDFILL BOREHOLE HRL-10 SAMPLES

1100-EM-1 HORN RAPIDS LANDFILL HRL-10		SAMPLE NUMBER DEPTH (ft)						
	SDG #	A1901S						AH225S
PARAMETER	TIC RETENTION TIME	A1901S 0.0-2.3 (µg/kg)	A1902S 2.3-4.0 (µg/kg)	A1905S 6.9-8.1 (µg/kg)	A1906S 8.9-9.1 (µg/kg)	A1910S 16.9-17.8 (µg/kg)	A1911S 17.9-20.1 (µg/kg)	A1912S 26.9-27.9 (µg/kg)
UNKNOWN	35.17	ND	ND	500 J	ND	ND	ND	ND
UNKNOWN	35.77	ND	ND	ND	ND	ND	ND	ND
heptasiloxane, hexadecamethy	35.89	ND	ND	ND	ND	ND	ND	2700 J
UNKNOWN	37.19	ND	ND	ND	ND	ND	ND	1800 J
UNKNOWN	38.57	ND	ND	ND	ND	ND	ND	820 J
PESTICIDES								
aroclor 1248		170 U	170 U	160 U	160 U	160 U	160 U	160 U
delta-BHC		17 U	17 U	16 U	16 U	16 U	16 U	16 U
gamma-chlordane		170 U	170 U	160 U	160 U	160 U	160 U	160 U
4,4'-DDE		35 U	33 U	33 U	33 U	32 U	32 U	32 U
endrin		35 U	33 U	33 U	33 U	32 U	32 U	32 U

SUBAPPENDIX I-8
MISCELLANEOUS SOIL CHEMICAL ANALYTICAL RESULTS

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INORGANIC SAMPLING RESULTS FOR 1100-EM-1 PIT 1 NEAR SURFACE SOIL SAMPLES

1100-EM-1 PIT 1	SAMPLE NUMBER DEPTH (ft)														
PARAMETER	S6157A 0.0-0.5 (mg/kg)			S6158A 0.0-0.5 (mg/kg)			S6159A 0.0-0.5 (mg/kg)			S6160A 0.0-0.5 (mg/kg)			S6161A 0.0-0.5 (mg/kg)		
INORGANICS															
Aluminum	5690			4300			5080			6250			5070		
Antimony	5.4	U		5.3	U		5.2	U		5.2	U		5.3	U	
Arsenic	2.3			0.98			2.2			2.3			1.8		
Barium	61.9			49.0			65.5			69.1			62.6		
Beryllium	0.30			0.17	U		0.31			0.27			0.18		
Cadmium	0.67	U		0.66	U		0.65	U		0.64	U		0.66	U	
Calcium	5350			4730			4890			4860			3830		
Chromium	8.6			10.6			6.8			8.7			8.1		
Cobalt	10.0			9.7			10.1			9.9			9.8		
Copper	10.9			15.0			12.7			12.8			18.0		
Iron	20500			18500			19700			19700			18000		
Lead	4.6		N	43.1		N	38.1		N	11.1		N	21.5		NS
Magnesium	4630			3800			3940			4450			4020		
Manganese	310			232			293			310			266		
Mercury	0.08	U	N	0.09	U	N	0.08	U	N	0.09	U	N	0.08	U	N
Nickel	10.4			12.3			8.7			10.6			9.4		
Potassium	999			511			888			1220			988		
Selenium	0.32	U	N	0.31	U	N	0.32	U	N	0.33	U	N	0.34	U	N
Silver	0.50	U		0.50	U		0.49	U		0.48	U		0.50	U	
Sodium	318			458			201			190			163		
Thallium	0.32	U		0.31	U		0.32	U		0.33	U		0.34	U	
Vanadium	51.5			46.2			48.4			44.8			44.9		
Zinc	40.8		E	54.0		E	51.5		E	43.4		E	53.5		E
Cyanide	0.50	U		0.49	U		0.50	U		0.50	U		0.52	U	

INORGANIC SAMPLING RESULTS FOR 1100-EM-1 EPHEMERAL POOL NEAR SURFACE SOIL SAMPLES

1100-EM-1 EPHEMERAL POOL	SAMPLE NUMBER DEPTH (ft)					
PARAMETER	S9164A 0.0-0.5 (mg/kg)			S9165A 0.0-0.5 (mg/kg)		
INORGANICS						
Aluminum	5810			5060		
Antimony	5.4	U		5.2	U	
Arsenic	2.6			1.8		
Barium	72.30			54.10		
Beryllium	0.20			0.16	U	
Cadmium	0.60	U		0.60	U	
Calcium	3000			3030		
Chromium	7.7			7.1		
Cobalt	10.3			9.0		
Copper	13.0			15.2		
Iron	18000			16200		
Lead	35.0		N	54.2		N
Magnesium	3000			4200		
Manganese	354			268		
Mercury	0.09	U	N	0.08	U	N
Nickel	10.3			12.5		
Potassium	1140			737		
Selenium	0.33	U	N	0.34	U	N
Silver	0.51	U		0.49	U	
Sodium	188			216		
Thallium	0.33	U		0.34	U	
Vanadium	44.4			39.7		
Zinc	49.1		E	67.5		E
Cyanide	0.52	U		0.51	U	

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 PIT 1 NEAR SURFACE SOIL SAMPLES

1100-EM-1 PIT 1		SAMPLE NUMBER DEPTH (ft)					
PARAMETER	TIC RETENTION TIME	S8157A 0.0-0.5 (µg/kg)	S8158A 0.0-0.5 (µg/kg)	S8159A 0.0-0.5 (µg/kg)	S8159ARE 0.0-0.5 (µg/kg)	S8160A 0.0-0.5 (µg/kg)	S8161A 0.0-0.5 (µg/kg)
VOLATILE ORGANICS							
Methylene chloride					13		
VOLATILE ORGANIC TICs							
1-Hexanol, 2-ethyl-	23.07						210 J
SEMI-VOLATILE ORGANICS							
bis(2-Ethylhexyl)phthalate				450 J			
SEMI-VOLATILE ORGANICS TICs							
Unknown	4.97	18000 J	19000 J	15000 J		13000 J	22000 J
Unknown	5.03					5700 J	
Butane, 2-Azido-2,3,3-Trimet	5.12			1800 J			
1-Hexene, 3,5,5-Trimethyl-	5.15	1600 J					
Heptane, 2-Bromo-	5.15		1600 J				
Hydroperoxide, 1,1-Dimethyle	5.33					66000 J	
Hydroperoxide, 1,1-Dimethyle	5.35	130000 J					
Hydroperoxide, 1,1-Dimethyle	5.37		200000 J				200000 J
Heptane, 2,3-Dimethyl-	5.65	2300 J	1300 J				
Hexane, 2,3,4-Trimethyl-	5.68			1500 J			
Hexane, 2,3,4-Trimethyl-	5.70	1600 J					
Octane, 2-Methyl-	5.70		1600 J				
Octane, 3-Methyl-	5.82			870 J			
Heptane, 4-(1-Methylethyl)-	5.83	1000 J	1200 J				
2-Propyn-1-ol, Acetate	6.82		1100 J				
2-Butanone, 3-Methyl-	7.05			5700 J			
Hexane, 2-Bromo-	7.07		4200 J				
5-Hexen-2-one, 5-Methyl-	7.47		8100 J				
2(5H)-Furanone, 5,5-Dimethyl	7.48			2300 J			
5-Hexen-2-one, 5-Methyl-	7.68	12000 J					
3-Heptanone, 2,4-Dimethyl-	8.39		5300 J				
1,2-Ethanediol, Monoacetate	9.57	2900 J	5600 J				
Benzene, Isothiocyanato-	14.69	1100 J					
Ether, Heptyl hexyl	15.79						6300 J
Octane, 2,4,6-Trimethyl-	16.17						16000 J
Undecane, 2,6-Dimethyl-	17.24						13000 J
Dodecane, 2,6,11-Trimethyl-	17.65						24000 J
1-Decanol, 2,2-Dimethyl-	18.87						6300 J
Hexadecane	19.44						16000 J

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 PIT 1 NEAR SURFACE SOIL SAMPLES

1100-EM-1 PIT 1		SAMPLE NUMBER DEPTH (ft)					
PARAMETER	TIC RETENTION TIME	S8157A 0.0-0.5 (µg/kg)	S8158A 0.0-0.5 (µg/kg)	S8159A 0.0-0.5 (µg/kg)	S8159ARE 0.0-0.5 (µg/kg)	S8160A 0.0-0.5 (µg/kg)	S8161A 0.0-0.5 (µg/kg)
Tridecane, 5-Propyl-	20.19						8100 J
Heptadecane	20.84						15000 J
Dodecane, 2,7,10-Trimethyl-	21.02						17000 J
1-Decanol, 2-Ethyl-	21.64						1800 J
Nonane, 3-Methyl-5-Propyl-	22.59						9800 J
Pentadecane, 2-Methyl-	23.62						3100 J
Decane, 2,9-Dimethyl-	23.72						13000 J
Decane, 2,3,7-Trimethyl-	25.02						13000 J
Undecane, 2,10-Dimethyl-	26.24						20000 J
Undecane, 3,8-Dimethyl-	27.44						18000 J
Unknown	28.67						11000 J
Silane, Trichlorooctadecyl-	29.30		3000 J				
Unknown	29.38					2200 J	
Decane, 3-Ethyl-5-Methyl-	29.67						8300 J
1,2-Benzenedicarboxylic acid	31.37			2000 J			
7-Oxabicyclo[2.2.1]Heptane,	32.44			1800 J			
Unknown	32.64			2800 J			
Unknown	32.72			1500 J			
Unknown	33.01			1700 J			
Unknown	33.29			3700 J			
Unknown	33.31	4700 J					
Bicyclo[4.1.0]Heptane, 2-Met	33.89			2800 J			
Unknown	34.34			6700 J			
Dodecane, 1-Iodo-	34.67			3200 J			
Unknown	36.24			3300 J			
Unknown	36.79			5000 J			
Unknown	37.72			4100 J			
PESTICIDES							
4,4'-DDE			12 J				
4,4'-DDT			26 J			7.5 J	8.4 J
Aldrin			3.5 J			4.9 J	
alpha-Chlordane			3.3 J			13 J	3.3 J
Aroclor-1260			440			26 J	34 J
Endrin Ketone							4.6 J
gamma-Chlordane			2.9 J			13 J	2.7 J

ORGANIC SAMPLING RESULTS FOR 1100-EM-1 EPHEMERAL POOL NEAR SURFACE SAMPLES

1100-EM-1 EPHEMERAL POOL		SAMPLE NUMBER DEPTH (ft)	
PARAMETER	TIC RETENTION TIME	S6164A 0.0-0.5 (µg/kg)	S6165A 0.0-0.5 (µg/kg)
VOLATILE ORGANICS			
Methylene chloride			4 J
VOLATILE ORGANIC TICs			
1-Hexanol, 2-ethyl-	23.19	150 J	
SEMI-VOLATILE ORGANIC TICs			
Unknown	4.97	24000 J	24000 J
Hydroperoxide, 1,1-Dimethyle	5.37	290000 J	290000 J
4-Penten-2-one, 4-Methyl-	6.82	2600 J	2200 J
Unknown	29.36	3700 J	4500 J
PESTICIDES			
Aroclor -1260		4700	300 J
alpha-Chlordane		260 J	
Endosulfan II		160 J	
alpha-Chlordane			950 J
Endrin		30 J	20 J
gamma-Chlordane		220 J	880 J
Heptachlor			20 J

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SUBAPPENDIX I-9
TARGET PARAMETERS ANALYZED FOR AND NOT DETECTED

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Subappendix I-9. Target Parameters Analyzed For and Not Detected.

Parameter		SQL Range (µg/kg)
Volatile Organics	chloromethane	10-50
	bromomethane	10-50
	vinyl chloride	5-25
	chloroethane	10-50
	carbon disulfide	5-25
	1,1-dichloroethane	5-25
	1,2-dichloroethene (total)	5-25
	1,2-dichloroethane	5-25
	carbon tetrachloride	5-25
	vinyl acetate	10-50
	bromodichloromethane	5-25
	1,2-dichloropropane	5-25
	cis-1,3-dichloropropene	5-25
	dibromochloromethane	5-25
	1,1,2-trichloroethane	5-25
	benzene	5-25
	trans-1,3-dichloropropene	5-25
	bromoform	5-25
	1,1,2,2-tetrachloroethane	5-25
	ethylbenzene	5-25
	styrene	5-25
Semivolatile Organics	benzyl alcohol	330-49000
	1,2-dichlorobenzene	330-49000
	2-methylphenol	330-49000
	bis(2-chloroisopropyl)ether	330-49000
	4-methylphenol	330-49000
	hexachloroethane	330-49000
	nitrobenzene	330-49000
	isophorone	330-49000
	2-nitrophenol	330-49000
	2,4-dimethylphenol	330-49000
	bis(2-chloroethoxy)methane	330-49000
	2,4-dichlorophenol	330-49000
	4-chloroaniline	330-49000
	hexachlorobutadiene	330-49000
	hexachlorocyclopentadiene	330-49000
	2,4,6-trichlorophenol	330-49000
	2,4,5-trichlorophenol	1600-240000
	2-chloronaphthalene	330-49000
	2-nitroaniline	1600-240000

Subappendix I-9. Target Parameters Analyzed For and Not Detected.

Parameter		SQL Range (µg/kg)
	dimethylphthalate	330–49000
	acenaphthylene	330–49000
	2,6-dinitrotoluene	330–49000
	3-nitroaniline	1600–240000
	2,4-dinitrophenol	1600–240000
	diethylphthalate	330–49000
	4-chlorophenyl-phenylether	330–49000
	fluorene	330–49000
	4-nitroaniline	1600–240000
	4,6-dinitro-2-methylphenol	1600–240000
	N-nitrosodiphenylamine (1)	330–49000
	4-bromophenyl-phenylether	330–49000
	hexachlorobenzene	330–49000
	anthracene	330–49000
	di-n-butylphthalate	330–49000
	3,3'-dichlorobenzidine	1600–240000
Pesticides Organics	alpha-BHC	8–16000
	beta-BHC	8–16000
	heptachlor epoxide	8–16000
	endosulfan I	8–16000
	endrin	16–3200
	endosulfan sulfate	16–3200
	toxaphene	160–320000
	aroclor-1016	80–160000
	aroclor-1221	80–160000
	aroclor-1232	80–160000
	aroclor-1242	80–160000
Other Organics	ethylene glycol	2000
Asbestos	asbestos fibers	1%

APPENDIX J
WELL INVENTORY

The purpose of this appendix is to provide information on ground-water wells located in the 1100-EM-1 operable unit vicinity. Table J-1 lists wells on file with the Washington State Department of Ecology. Table J-2 lists wells identified by McGahn (1989) and Advanced Nuclear Fuels Corp. (1990). Figure 3-36 in the text shows the location of the wells listed in this appendix.

McGhan, V.L., 1989, *Hanford Wells*, PNL-6907, Pacific Northwest Laboratory, Richland, Washington.

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Appendix J Contents

Table	Description	Page
J-1	Summary of Ground-Water Wells on File at Department of Ecology	J-1
J-2	Summary of Ground-Water Wells Compiled by the Department of Energy	J-2

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Table J-1. Summary of Ground-Water Wells in the Vicinity of the 1100-EM-1 Operable Unit on File at Department of Ecology

Well ID Figure 3-36	Well Owner	Installation Date (MM/YY)	Total Depth (meters)	Location Section	¼-¼ Section	Well Use
001	Allied Nuclear	05/88	11.4	22	N of NW	Hydrogeologic Testing
002	Ballard, Bill	03/88	42.7	23	NW of SW	Irrigation Supply
003	Stredwick, John	07/88	11.7	25	NE of NE	Domestic Supply
004	Bosch, Gary	04/74	8.5	26	NW of SE	Domestic Supply
005	Bond, Fredrick	01/81	16.2	26	S of E	Domestic Supply
006	Schelky, Dale	04/88	18.3	26	NE of NE	Domestic Supply
007	Richland School District	02/73	18.3	26	NW of NE	Irrigation Supply
008	General Telephone Co.	09/77	61.3	26	NW of NW	Unknown
009	Wiser Co. Inc	05/89	13.1	27	SE of NW	Hydrogeologic Testing
010	Wiser Co. Inc	04/89	25.9	27	SE of NW	Hydrogeologic Testing
011	Pederson, Herbert	02/78	39.6	27	SW of NW	Domestic Supply
014	Nensen, Pete	09/89	24.4	34	NW of NW	Domestic Supply
015	Rural Sales Inc.	06/70	29.9	34	NE of NE	Irrigation Supply
016	Roy, Norman	12/79	11.3	35	SW of NE	Domestic Supply
017	Gailey, John	11/79	13.4	35	SE of NE	Domestic Supply
018	Raymond, John	11/79	15.2	35	NE of NW	Domestic Supply
019	Fleischman, Rod	12/84	15.5	35	NW	Domestic Supply
020	Middlefence Irrigation Coop.	05/80	16.5	35	NW of NW	Domestic Supply
021	Strachan, Dennis and Marietta	08/81	20.1	35	NW of NW	Domestic Supply
022	Payton, D.B.	02/74	25.9	35	NW	Domestic and Irrigation Supply
023	McCaulley	05/78	57.9	36	SW of SW	Domestic Supply

NOTES: All wells are located within T.9.N, R.28.E of Benton County. (Source: Washington State Department of Ecology)

Table J-2. Summary of Ground-Water Wells in the Vicinity of the 1100-EM-1 Operable Unit Compiled by the Department of Energy (sheet 1 of 2)

Well ID Figure 3-36	Formal Hanford Well ID	Installation Date (MM/YY)	Total Depth (meters)	Well Coordinates Latitude	Longitude	Type	Well Use
040	699-S27-E14	04/48	50.3	27286 S	13673 E	H	Unknown
041	699-S29-E12	11/71	24.1	29392 S	12065 E	H	Resource Protection Monitoring
042	699-S30-E14	08/62	66.8	30380 S	14497 E	H	Resource Protection Monitoring
043	699-S30-E15A	10/71	24.4	30257 S	14838 E	H	Resource Protection Monitoring
044	699-S30-E15B	10/71	28.3	30286 S	14831 E	H	Resource Protection Monitoring
045	699-S31-E13	10/79	30.5	31000 S	13000 E	H	Resource Protection Monitoring
046	699-S32-E13A	09/79	30.5	32000 S	13000 E	H	Resource Protection Monitoring
047	699-S32-E13B	10/79	30.5	32000 S	13000 E	H	Unknown
048	699-S36-E12A	10/79	31.1	35667 S	12353 E	H	Unknown
049	699-S36-E12B	10/79	30.5	36182 S	12350 E	H	Unknown
050	699-S36-E13A	09/79	30.5	36000 S	13000 E	H	Unknown
051	699-S36-E13B	10/79	30.5	36195 S	12846 E	H	Unknown
052	699-S30-E15C	--/70	1079.0	30383 S	15232 E	H	Hydrogeologic Testing
057	11-33-18B	06/48	23.5	32564 N	18161 E	OR	Unknown (owner: City of Richland)
058	11-34-13	03/48	31.4	34026 N	13203 E	OR	Unknown
059	11-34-15A	09/48	36.6	33750 N	14700 E	OR	Unknown (owner: City of Richland)
060	11-34-15B	--	26.2	34000 N	15000 E	OR	Unknown (owner: City of Richland)
061	11-34-19	10/47	18.9	34260 N	18598 E	OR	Unknown (owner: Private Residence)
062	11-35-16	--	0.0	35225 N	16313 E	OR	Unknown (owner: Private Residence)
063	11-37-16	--	12.2	37450 N	15700 E	OR	Resource Protection Monitoring
064	11-38-11	09/44	27.4	37856 N	10621 E	OR	Unknown
065	11-38-16	--	18.0	38300 N	15800 E	OR	Unknown (owner: City of Richland)
066	11-39-10A	09/44	30.5	38585 N	9526 E	OR	Unknown
067	11-39-10B	08/44	16.5	39072 N	10160 E	OR	Unknown
068	11-39-15	--	21.6	39300 N	15400 E	OR	Municipal Well, City of Richland
069	11-39-16A	08/48	18.9	38831 N	15904 E	OR	Municipal Well, City of Richland

Table J-2. Summary of Ground-Water Wells in the Vicinity of the 1100-EM-1 Operable Unit Compiled by the Department of Energy (sheet 2 of 2)

Well ID Figure 3-36	Formal Hanford Well ID	Installation Date (MM/YY)	Total Depth (meters)	Well Coordinates Latitude	Longitude	Type	Well Use
070	11-39-16B	03/48	33.5	38808 N	15848 E	OR	Unknown
071	11-39-16C	05/48	22.9	39097 N	15621 E	OR	Resource Protection Monitoring
072	11-39-16D	05/48	19.5	39300 N	15945 E	OR	Municipal Well, City of Richland
073	11-39-16E	--	25.3	38900 N	15500 E	OR	Municipal Well, City of Richland
074	11-40-15	04/48	26.8	40088 N	15442 E	OR	Municipal Well, City of Richland
075	11-40-16B	05/48	27.4	40087 N	15977 E	OR	Municipal Well, City of Richland
076	11-40-16C	--	17.1	39600 N	15950 E	OR	Municipal Well, City of Richland
077	11-41-13A	06/43	19.2	40796 N	13256 E	OR	Unknown
078	11-41-13B	06/43	19.8	40949 N	13351 E	OR	Unknown
079	11-41-13C	03/44	29.0	41030 N	13259 E	OR	Resource Protection Monitoring
080	11-41-15	10/49	22.6	40767 N	15184 E	OR	Resource Protection Monitoring
081	30-41-14	02/48	20.7	40907 N	14022 E	OR	Electrical Grounding
082	30-41-14B	--	0.0	41000 N	14000 E	OR	Unknown
083	30-42-16	10/44	40.8	41572 N	16180 E	OR	Resource Protection Monitoring
084	30-45-16	--	19.8	45108 N	16386 E	OR	Resource Protection Monitoring
085	30-47-18B	12/48	21.6	47120 N	17686 E	OR	Resource Protection Monitoring
ANF-14	--	--	--	373393.8N	1943512.6E	NAD	Resource Protection Monitoring
ANF-15	--	--	--	373389.7N	1943652.1E	NAD	Resource Protection Monitoring
ANF-16	--	--	--	373393.2N	1943816.8E	NAD	Resource Protection Monitoring

NOTES: Coordinates are listed according to type, H = Hanford Site, OR = Old Richland, and NAD = NAD '83.
Both coordinate systems use units of feet (meters = feet / 3.28).
(Source: McGhan 1989 and Advanced Nuclear Fuels Corp. 1990).

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APPENDIX K
CITY OF RICHLAND WELL FIELDS WATER USE RATES

The purpose of this appendix is to provide City of Richland Water System Reports for 1988 and 1989. The two columns circled represent water production rates, million gallons per day, for the 3,000 Area wells and the Filter Plant. The monthly total production rates for the City of Richland Well Field and Filter Plant are presented in Figure 4-43 in the text.

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RICHLAND WATER SYSTEM REPORT

9 1 1 1 3 3 5 1 6 1 2

RICHLAND WATER SYSTEM REPORT

FEBRUARY 1988

Date	Temp (°F)			Control - Analysis: Unfiltered Water			Filtered Water			Chemical Dosage: Alum	Sodium	Carbon	Lime	Plant Chlorine			Wide Chlorine (mg/dal)							Plant Flow			Consumption
1	39	30	36	340.3	-	8.0	6.5		7.3															7.6	-	6.98	6.60
2	37	33	9	339.1	-	7.8	0.3		7.7																		4.29
3	37	33	16	340.0	-	8.0	7.8 0.3	0.4	7.5	7.7				0.91	55	0.6	-	-		-		-	—				6.28
4	36	32	37	340.3	-	8.2	7.5 0.5		7.8	7.6																	6.48
5	37	30	30	341.8	-	7.8	7.9 0.5		7.5	7.5																	6.18
6	37	34	32	340.0	-	7.9	- 0.5		7.3																		6.42
7	37	34	30	340.4		7.9	- 0.6	-	7.6																		5.95
8	37	34	30	340.0		8.9	0.5		7.4																		6.51
9	38	52	32	340.6		8.2	0.5		7.6																		6.36
10	38	36	31	339.9		8.0	0.6		7.6																		6.52
11	38	50	35	339.6		8.2	0.4		7.9																		6.22
12	38	53	30	339.8		8.0	0.3		7.6																		6.18
13	39	53	41	339.8		8.0	0.7		7.9																		6.5
14	39	51	35	340.0		7.8	0.3	0.3	7.5	7.6																	4.98
15	39	53	42	339.6		7.5	0.5		7.5																		5.65
16	39	54	36	339.6		7.9	0.5		7.5																		6.28
17	38	55	35	341.0	-	8.0	0.4	0.4	7.6	7.6																	6.19
18	39	56	29	341.0	-	8.0	0.4	0.4	7.5	7.7																	6.29
19	39	61	31	340.5	-	8.0	0.5	0.4	7.6	7.6																	6.59
20	39	61	37	340.7	-	8.1	8.0 0.5	0.4	7.6	7.7																	6.94
21	39	59	31	340.5	-	8.0	8.0 0.5	0.4	7.5	7.5																	6.05
22	39	56	28	339.8		8.0	0.8		7.5																		6.88
23	39	55	25	339.5		7.9	0.7		7.6																		7.07
24	39	51	31	339.8	-	7.9	7.9 0.6		7.5	7.6																	6.22
25	40	53	34	339.0	-	8.0	7.9 0.6	0.8	7.5	7.5																	6.27
26	39	55	25	340.1	-	7.9	7.9 0.6	0.6	7.5	7.5																	6.42
27	40	52	28	340.1	-	8.0	0.6		7.5																		7.42
28	40	54	34	339.3	-	8.2	8.6 0.4	0.4	7.5	7.7																	7.02
29	41	54	42	340.1	-	8.0	0.4		7.5																		7.27
30																											
31																											
Total															1755		72	68	-	25	-	5					187.2
Avg						0.8	0.8							1.01	105	0.8	11	15		4		3					7.42
Max						0.3	0.1							0.88	35	0.1	-	-		-		-					4.90
Min						0.4	0.4							1.21	60.5	0.7	2.48	2.34		0.86	-	0.17					6.46

(0.62)

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RICHLAND WATER SYSTEM REPORT

March 1988

Date	Control - Analyses: Impounded Water				Control - Analyses: Filtered Water				Chemical Dosage: Alum		Chemical Dosage: Sodium		Chemical Dosage: Carbon		Chemical Dosage: Lime		Plant Chlorine			Wtr. Chlorine (lbs/day)							Plant Flow				Consumption	
1	56	57	58	308.5	7.9			7.5				0.37					0.76	95	0.7	6	–		10	–	–	–	7.08	–	7.18	–	7.31	
2	61	57	58	309.5	8.1	8.1	8.5	7.8	7.6	8.10		0.23					0.82	75	0.5	6	–		2	–	3	1	6.64	–	6.71	–	7.43	
3	61	57	60	310.5	8.2	8.1	8.9	7.7	7.7	8.10		0.18					0.92	60	0.6	–	–		–	–	–	–	7.53	0.07	7.61	–	7.43	
4	61	57	57	310.8	8.5	7.7	8.5	7.7	7.7	8.05		0.27					0.93	50	0.6	–	–		3	–	–	–	6.00	–	6.51	–	6.49	
5	60	58	58	310.1	8.2		8.9	7.7		8.07		0.30					1.11	60	0.7	2	–		1	–	–	–	6.96	0.22	6.71	–	6.86	7.09
6	61	57	58	310.5	7.9	–	8.6	–	7.6	–	8.0	–					1.31	70	0.8	–	5		3	–	–	2	0.44	5.68	0	5.83	6.93	6.70	
7	60	59	58	310.9	8.2		8.7	7.9		8.05		0.31					1.61	90	0.8	8	–		1	–	7	–		6.61	0.07	6.81	–	7.41	
8	61	61	56	311.0	8.5		8.6	7.4		8.05		0.37					1.06	60	0.7	–	8		1	–	–	–		6.81	0.05	6.97	–	7.08	
9	59	53	58	312.5	8.0	8.1	8.5	7.9	7.9	8.07	7.9	0.27					1.13	100	0.5	–	–		1	–	–	–	–	7.10	0.41	7.21	–	7.12	
10	59	59	55	310.5	8.1		8.7	7.5		8.0		0.39					1.02	60	0.7	4	–		2		1	–		7.07	–	7.18	–	7.09	
11	61	55	56	310.8	7.9		8.5	7.3		8.15		0.26					1.11	70	0.6	–			2	–	–	–		7.57		7.40		7.69	
12	61	58	57	310.5	8.0		8.5	7.5		8.10		0.14					1.30	45	0.6	–	–	–	–	–	–	–		8.04		8.16		8.30	7.37
13	61	61	51	311.8	8.1	8.3	8.5	7.4	7.5	8.17	7.8	0.14					1.87	170	0.8	13	5		4		3	3	0.86	10.5		11.0		8.73	
14	62	63	57	311.9	8.1		8.5	7.6		8.15		0.18					1.01	60	0.7	8	5		1				0.71	7.10	0.60	7.85		8.29	
15	61	58	59	312.4	7.9		8.5	7.5		8.15		0.31					1.37	85	0.7	–	5	–	3		2	–	4.11	8.07	0.07	7.98	–	8.29	
16	58	59	61	312.9	8.2	8.2	8.6	7.5	7.8	8.15	7.7	0.33					1.33	90	0.7	8	5		2		1		0.10	8.12	–	8.22	8.93	8.91	
17	60	61	56	312.5	8.1	8.2	8.6	7.6	7.6	8.15	7.8	0.31					1.44	90	0.7	8	10		2		–	–	0.92	7.87	–	7.23	8.95	8.98	
18	60	65	58	312.5	8.1	8.2	8.7	7.6	7.4	8.20	7.8	0.36					1.15	70	0.7	10	10		3	–	2	–	1.13	7.99	–	7.55	9.13	9.22	
19	61	63	57	310.0	8.2		8.7	7.5		8.15		0.49					1.22	100	0.6	5	–		2				–	9.00	0.00	9.00	–	10.0	9.15
20	61	63	52	312.0	8.1	8.1	8.6	7.5	7.5	8.15	7.8	0.33					1.57	100	0.7	4	–	–	3	–	2	–	–	8.7	0.0	8.8	–	10.0	
21	59	56	61	311.8	8.1	8.4	8.6	7.5	7.6	8.20	7.8	0.35					1.67	125	0.8	7			2		1			8.96	–	8.56	–	9.40	
22	61	58	60	311.7	8.1	8.3	8.5	7.5	7.3	8.15	7.8	0.36					1.50	115	0.7	6	5		7		1		0.32	9.11	0.05	9.05	2.01	9.86	
23	60	57	55	310.4	8.1	8.0	8.1	8.0	7.2	8.5	7.8	0.40					1.87	125	0.8	–	–	–	–	–	–	–		8.65	0.08	8.05	–	8.72	
24	63	56	60	310.2	7.9	8.2	8.1	8.7	7.6	8.5	7.9	0.50					1.96	105	0.8	2.0	–		3			2		8.04	–	8.62	–	9.22	
25	62	63	55	310.1	8.1	8.0	8.1	8.7	7.8	8.0	7.8	0.61					1.94	85	0.8	4	–		2		–	–		9.1	0.77	9.0	–	10.2	
26	60	58	57	310.5	8.0		8.0	7.8	7.8	8.3	7.8	0.39					2.21	95	0.8	–	–		2		–	–		5.81	–	6.06	1.40	7.68	9.30
27	63	63	58	310.8	7.9	8.1	8.7	8.1	7.8	8.7	7.8	0.52					2.07	155	0.8	8	5		4		3	–	4.07	8.37	–	8.84	2.51	8.57	
28	62	63	57	309.9	–	8.2	8.5	8.5	7.9	8.0	7.8	0.63					1.83	125	0.8	4	–		2		–	–		8.25	0.19	8.18	–	9.05	
29	63	65	58	309.5	8.0	8.3	8.5	8.5	7.3	8.2	7.8	0.79					1.99	125	0.8	–	5		3		–	–	4.14	7.65	–	7.28	4.31	8.14	
30	63	67	60	309.5	8.0	8.3	8.3	8.7	7.8	8.3	7.8	0.56					1.77	110	0.7	–	–		3		–	–		8.79	–	8.87	–	8.22	
31	63	67	57	309.1	–	8.0	8.1	8.1	8.0	8.0	7.8	0.79					1.87	125	0.6	6	–		2			1	–	8.0	–	8.1	–	10.9	
Avg.												13.7						340		137	10		76		31	8	10.0	9.94	1.25	9.74	0.14	222.0	
Max.					8.5	8.7	8.9	8.8	7.9	8.7	8.0	1.91					2.31	175	0.8	20	10				8.0	2	1.33	11.2	1.89	11.1	4.97	10.9	
Min.					7.7	8.0	7.8	7.5	7.3	7.9	7.8	0.14					0.76	45	0.5	–	–				–	–	–	5.4	–	5.3	–	6.49	
Avg.					8.1	8.2	8.2	8.0	7.8	8.1	7.9	0.44					1.46	98	0.7	4.9	1.4		2.4		1.0	0.25	0.32	7.98	0.05 (0.22)	7.85	0.92	8.45	

DOE/RL-88-18

RICHLAND WATER SYSTEM REPORT

April 1988

Date	Temp. (°F)					Control - Analysis: Unfiltered Water						Control - Analysis: Filtered Water						Chemical Dosage: Alum			Depragon			Carbon			Lime			Plant Chlorine			Misc. Chlorine (lbs/day)								Plant Flow				Consumption	
1	46	74	35	319.1	–	8.1	8.2	8.0	0.8	1.0	0.2	7.9	7.4	7.4																0.10																	
2	46	60	50	339.8	TR	8.3	8.0		1.0	0.2		7.4	7.1																	0.49																	
3	45	59	47	333.3		7.7		8.1	1.3		0.2	7.3		7.3																0.57																	
4	46	60	40	357.7	–	8.0	8.1		1.2	1.1		7.3		7.3																0.33																	
5	46	61	41	340.1	–	8.1	7.3		0.3	0.9		7.4	7.3																	0.38																	
6	46	63	50	330.0	–	8.3		8.3	0.9		0.2	7.1		7.3																0.90																	
7	47	58	38	329.6		7.1	7.3	8.5	1.1	1.0	0.4	7.3	7.9	7.1																0.33																	
8	49	58	31	339.5		8.1	8.7	8.3	1.3	1.2	0.1	7.9	7.9	7.2																0.43																	
9	48	65	27	339.4		7.4	8.4		1.3	1.1		7.4	7.0																	0.57																	
10	49	70	33	339.8		8.1	8.0		1.5	1.1		7.3	7.4																	0.73																	
11	50	78	38	339.8		8.3	8.5		1.9	1.2	0.4	7.5	7.3																	0.59																	
12	51	81	42	339.6		8.2	8.5		1.5	1.5		7.4	7.5																	0.80																	
13	51	78	56	339.1		8.3	8.7	8.7	1.5	1.6	0.7	7.5	7.1	7.5																0.77																	
14	50	73	47	339.1		7.7	8.3	8.5	1.7	1.8		7.5	7.9	7.0																0.81																	
15	51	77	50	339.8		8.3	8.4	8.7	1.8	1.7	0.8	7.4	7.5	7.5																0.61																	
16	51	81	41	339.5		8.1	8.7		1.8	1.8		7.5	7.5																	0.87																	
17	51	81	40	339.4		8.1	8.4		1.9	1.7		7.4	7.4																	0.65																	
18	50	67	41	339.3		8.2	8.4		1.7	1.8		7.4	7.4																	0.83																	
19	53	69	44	339.3	–	8.3	8.0		1.7	2.0		7.5	7.4																	0.75																	
20	50	59	49	340.0	–	8.3	8.7	8.3	1.9	1.8	0.7	7.3	7.4	7.4																0.60																	
21	51	70	41	340.3		8.3	8.7	8.4	1.9	1.3	0.7	7.3	7.7	7.4																0.76																	
22	57	56	45	340.3	–	8.3	8.7	8.4	1.7	1.9	1.9	7.5	7.4	7.4																0.48																	
23	57	62	47	340.5	–	8.2		8.3	2.0		1.9	7.4		7.4																0.48																	
24	51	57	42	340.9		8.2	8.7	8.2	1.8		1.3	7.4		7.5																1.38																	
25	54	62	36	340.0	TR	8.4		8.6	2.1		1.0	7.2		7.4																1.62																	
26	52	63	33	339.0	–	8.4		8.7	2.8		1.1	7.2		7.5																1.67																	
27	53	77	39	339.2	–	8.4	8.9	8.6	2.8	2.2	0.1	7.3	7.4	7.4																1.01																	
28	52	72	52	339.0		8.7	8.8	8.7	2.6	2.2	0.5	7.3	7.4	7.4																1.38																	
29	52	63	39	340.0		8.4	8.8	8.7	2.6	2.2	0.5	7.3	7.4	7.4																1.54																	
30	52	58	35	340.7	TR	8.5	8.1		2.9	2.9		7.4	7.5																	1.19																	
31																																															
Avg.																															5176		112	150		63		3	4									
Max.						8.7	8.9	8.8	2.9	2.9	0.7	7.9	7.9	7.9																2.61	280	0.9	10	29		5		2	1								
Min.						7.7	7.0	8.0	1.3	1.0	0.1	7.1	7.1	7.1																1.70	95	0.6	1	5		1		1	1								
Avg.						8.5	8.1	8.4	1.9	1.6	0.7	7.5	7.5	7.5																1.93	193	0.7	5.3	9.4		3.1		1.5									

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RICHLAND WATER SYSTEM REPORT

May 1988

Day	Water Temp	Air Temp	Wind Dir	Water Level	Rainfall	Control – Analysis: Unfiltered Water pH	Unfiltered Water Turb.	Filtered Water pH	Filtered Water Turb.	Chemical Dosage: Alum	Soda Ash	Chlorine	Lime	Plant Chlorine	Well Chlorine	Plant Flow	Consumption	Water Level
1	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	15.5	
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	13.2	
3	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	14.8	
4	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	16.2	
5	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	16.8	
6	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	15.9	
7	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	16.5	18.9
8	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	18.7	
9	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	17.6	
10	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	20.6	
11	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	21.6	
12	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	22.8	
13	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	16.0	
14	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	20.4	
15	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	22.7	
16	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	17.6	
17	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	19.1	
18	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	20.0	
19	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	21.2	
20	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	22.0	16.9
21	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	23.0	
22	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	21.2	
23	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	19.1	
24	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	21.5	
25	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	20.9	
26	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	17.3	
27	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	12.8	17.5
28	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	16.6	
29	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	16.7	
30	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	15.0	
Total																	576.4	
Avg.	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	19.0	
Max.	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	22.7	
Min.	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	11.2	
Std. Dev.	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	18.6	

PNL-6-8615

PNL-MA-90-18

K-5

RICHLAND WATER SYSTEM REPORT

June 1988

Date	Temp.					Control - Analysis: Unfiltered Water						Filtered Water						Alum			Sodium			Carbon			Lime			Chemical Dosage: Alum			Alum Chlorine			Use Chlorine (lbs/day)								Plant Flow				Consumption	
1	63	63	61	291.8																																													
2	56	59	59	311.5																																													
3	55	63	63																																														
4	56	64	60	339.6																																													
5	56	61	60	339.0																																													
6	56	63	60	346.0																																													
7	57	66	64	338.0																																													
8	60	69	72	350.0	–																																												
9	54	70	73	349.0																																													
10	57	73	75	346.1	–																																												
11	57	70	73	353.2	–																																												
12	58	70	74	339.5	–																																												
13	63	74	52	339.1	–																																												
14	63	70	59	339.1	–																																												
15	63	73	61	338.9																																													
16	60	75	61	339.0	–																																												
17	62	65	63	337.2	–																																												
18	61	67	59	339.0	–																																												
19	62	70	60	339.0	–																																												
20	66	70	60	339.1	–																																												
21	66	72	63	339.1	–																																												
22	65	71	63	339.0	–																																												
23	65	70	60	339.0	–																																												
24	66	71	61	339.4	–																																												
25	67	70	60	339.0	–																																												
26	67	70	61	339.1	–																																												
27	67	70	61	339.1	–																																												
28	67	70	61	339.1	–																																												
29	67	70	61	339.1	–																																												
30																																																	
31																																																	
Total																																																	
Avg.	62	70	60	341.8																																													
Max.	65	77	66	350.0																																													
Min.	60	59	55																																														

(177)

9 1 1 1 3 3 5 1 5 1 7

K-7

RICHLAND WATER SYSTEM REPORT

July (month) 1988

Date	Temp River Water	Temp Max	Temp Min	River Elevation	Precip.	Unfiltered pH			Unfiltered Turb			Filtered pH			Filtered Turb			Alum			Separan*			Separan ppm
1	65	87	65	340.3	–	8.0	8.7	8.3	6.7	9.6	1.5	6.9	7.1	6.9	.10	.10	.10	11.9	11.7	11.7	.050	.051	.051	8.66
2	65	85	55	340.1		8.0	8.6		1.0	1.0		6.9	7.1		.11	.13		11.7	11.9		.051	.046		6.11
3	64	75	53	340.0		7.9	8.7		1.1	1.2		6.9	7.3		.16	.13		11.2	10.9		.048	.047		6.58
4	64	75	54	339.7		7.9	8.6		1.2	1.8		6.9	7.1		.17	.20		11.5	10.9		.050	.047		6.50
5	63	71	49	340.2		7.5	8.6		1.3	1.5		6.9	7.0		.18	.02		11.4	11.2		.047	.041		6.58
6	63	78	49	340.0		7.9	8.6	8.2	1.5	1.3	1.3	6.9	7.2	7.0	.16	.05	.38	11.4	11.6	11.5	.048	.046	.051	7.97
7	65	86	52	340.3		8.0	8.7	8.3	1.4	1.2	1.3	7.0	7.2	7.0	.21	.13	[illegible]	11.9	11.3	11.1	.05	.050	.049	7.30
8	66	92	57	340.6		7.9	–	8.3	1.2	1.2	1.2	7.0	7.0	7.0	[illegible]	[illegible]	[illegible]	12.1	11.5	11.3	.048	.051	.041	6.50
9	67	94	58	340.3	–	7.0	8.0		1.6	1.4		7.0	7.0		.18	.19		11.6	11.7		.046	.047		7.18
10	65	83	65	340.7		8.0	8.5		–	1.4		7.0	7.0		.09	.09		11.1	11.4		.045	.046		7.65
11	65	77	57	340.7		7.7	8.1		1.3	1.3		6.9	7.2		.10	.10		11.3	11.3		.052	.049		8.42
12	65	72	61	340.6		8.0	8.6		1.9	1.5		7.0	7.1		.13	.15		[illegible]	[illegible]		.053	[illegible]		7.40
13	64	75	57	337.0	[illegible]	7.9	8.3	8.3	1.6	1.7		7.1	7.5	6.9	.20	.22		12.3	11.6	12.4	.048	[illegible]	.051	7.23
14	65	80	58	341.0		7.7	8.1	8.1	1.7	1.7	1.7	6.9	7.0	7.0	.18	.16	[illegible]	12.1	11.5	11.6	.048	.050	.047	6.87
15	65	85	55	340.1	–	7.9	8.2	8.0	2.0	1.7	1.5	6.9	7.0	6.9	.17	[illegible]	[illegible]	12.1	11.5	11.5	.048	.047	.049	6.85
16	65	86	56	339.7	–	7.6	8.3		1.8	1.6		6.7	6.5		.10	.09		12.1	12.2		.049	.049		6.65
17	65	84	56	340.5	–	7.6	8.4		1.8	1.7		6.7	6.8		.15	.17		11.2	12.5		.041	.053		8.55
18	66	89	56	340.3	–	7.6	8.5		1.8	1.6		6.7	7.0		.14	.16		11.9	12.2		.049	.050		9.34
19	68	97	59	341.0	–	7.7	8.9		2.2	2.1		6.7	7.0		[illegible]	[illegible]		12.1	12.3		.051	.057		9.15
20	66	98	64	340.4	–	7.9	8.6	8.9	2.4	1.9	2.0	6.9	7.1	7.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.051	10.1
21	66	[illegible]	62	340.5	–	8.2	8.7	8.3	2.2	2.1	1.9	7.1	7.0	7.1	[illegible]	[illegible]	[illegible]	12.8	11.5	11.9	[illegible]	[illegible]	.051	9.54
22	67	96	62	341.0	–	8.2	8.9	8.5	2.0	1.9	[illegible]	7.1	7.1	7.1	[illegible]	[illegible]	[illegible]	11.7	11.9	11.7	.052	.052	.054	10.2
23	67	91	60	341.0		8.1	8.9		2.3	2.1		7.0	7.1		[illegible]	.04		12.0	11.5		[illegible]	.049		10.5
24	67	96	59	341.5		8.1	8.4		2.1	2.0		7.1	7.0		.05	.04		12.0	12.0		.054	.05		7.60
25	71	100	65	341.3		8.2	8.5		2.0	1.9		7.0	7.0		.05	.04		12.0	11.9		.05	[illegible]		10.1
26	69	101	62	341.5	–	8.0	8.1		2.5	1.9		7.4	7.0		.05	.09		12.0	12.4		.051	[illegible]		[illegible]
27	72	96	59	341.5		8.0	8.4	8.1	2.1	2.1	1.9	6.9	7.2	[illegible]	[illegible]	[illegible]	[illegible]	11.9	12.4	12.0	.050	.051	.051	8.91
28	66	91	61	342.3		7.9	8.4	8.3	2.1	1.5	2.7	7.1	7.1	6.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.27
29	69	97	62	342.6		8.2	8.9	8.4	2.1	1.9	2.5	7.0	7.1	7.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.78
30	68	95	64	342.5		8.1	8.6		3.1	3.2		7.0	7.1		.08	.07		12.1	12.1		.049	.045		6.17
31	68	91	59	341.0		8.0	8.6		2.7	1.9		6.9	7.0		.08	.07		11.1	12.9		.049	.047		5.98
Total																		16,390 Gallons						248
Max	70	101	66	342.6		8.2	9.1		3.7	3.2	2.7				.21	.17	.24	12.8	12.7	12.7	.054	.056	.056	10.1
Min	63	71	49	339.[illegible]		7.6	8.4		1.1	1.0	1.3				.07	.04	.07	11.1	11.2	11.7	.04	.04	.04	5.98
Avg	66	85	59	340.7	6.4	7.9	8.5	8.2	2.0	1.7	1.8				.13	.12	.14	12.3	11.9	11.7	.049	.05	.05	7.99

Date	Plant Chlorine 1	Plant Chlorine 2	Plant Chlorine 3	Misc. Chlorine 1	Misc. Chlorine 2	Misc. Chlorine 3	Misc. Chlorine 4	Misc. Chlorine 5	Misc. Chlorine 6	Misc. Chlorine 7	Misc. Chlorine 8	Misc. Chlorine 9	Plant Flow 1	Plant Flow 2	Plant Flow 3	Plant Flow 4	Total
1	1.87	320	0.8	14	25		11	9			.339	4.56	20.5	.930	19.5	4.30	25.5
2	2.09	310	0.8	6	25		9	2			.422	5.21	17.8	.710	17.0	5.25	23.9
3	2.11	295	0.8	5	20		9	0			.711	4.30	16.8	.638	16.1	11.9	22.0
4	2.17	300	0.8	15	25		11	2	4		.346	5.57	16.6	.729	15.8	4.27	22.4
5	2.11	275	0.8	7	25		8	2			.198	3.73	16.8	.734	16.1	4.29	20.9
6	1.73	265	0.7	14	25		10	8		1	.525	5.50	18.4	.706	17.7	4.39	26.0
7	1.66	255	0.8	14	35		1	9		1	[illegible]	5.44	19.9	.876	18.9	4.38	26.7
8	2.10	350	0.8	22	25		4	3		1	.801	6.46	20.0	.890	19.1	4.34	27.2
9	2.04	345	0.8	6	20		9	9	.	0	[illegible]	6.75	20.3	.966	19.4	5.11	27.0
10	1.78	325	0.8	16	40		8	9	–	2	.93	6.31	17.7	[illegible]	16.7	4.8	[illegible]
11	1.95	310	0.6	10	30		8	4	–	–	.94	5.12	19.1	.825	18.4	4.37	[illegible]
12	1.93	290	0.8	6	10		4	7	–	–	[illegible]	[illegible]	18.1	.816	17.3	4.01	[illegible]
13	1.87	260	0.7	16	30		4	5	–	–	[illegible]	[illegible]	17.7	[illegible]	[illegible]	[illegible]	22.8
14	1.97	265	0.7	4	5		7	5	—	–	.459	4.89	19.1	.800	18.6	4.03	[illegible]
15	2.01	280	0.8	12	35		7	3			[illegible]	6.02	16.7	.658	15.9	4.02	25.9
16	1.91	250	0.7	14	35		8	8	–	–	.837	5.61	16.6	.559	15.7	5.30	26.7
17	2.05	310	0.7	14	45		8	6	–	–	.871	10.1	18.1	.833	17.9	11.5	27.4
18	2.22	370	0.7	15	30		8	9	–	–	.862	5.05	20.0	.800	19.1	[illegible]	28.4
19	1.98	325	0.8	15	30		8	6		3	.996	6.52	20.4	.965	19.2	4.87	29.4
20	2.09	375	0.8	15	35		8	7		1	[illegible]	6.81	21.5	1.00	20.3	4.99	30.4
21	2.42	430	0.8	13	40		12	13		1	1.22	8.07	21.3	1.01	[illegible]	9.5	31.1
22	1.37	350	0.8	16	40		12	8		1	.902	8.70	20.3	1.07	19.4	12.4	30.0
23	1.99	350	0.8	4	45		10	11		–	1.05	7.69	20.3	.965	20.3	12.4	28.9
24	2.17	295	0.8	5	35		8	15		1	1.25	9.04	20.3	.955	18.5	12.7	29.7
25	2.31	400	0.8	10	30		10	11		1	1.00	8.04	21.7	1.00	20.6	12.8	30.7
26	1.54	350	0.8	12	35		7	15		–	1.01	8.19	21.6	1.11	20.2	12.6	31.3
27	2.05	400	0.8	7	25		1	17		–	.764	6.03	22.3	.971	21.5	12.9	29.4
28	1.86	340	0.8	6	30		6	5			.809	5.44	21.9	1.01	21.4	12.7	29.1
29	2.01	355	0.8	[illegible]	20		8	16		1	.935	5.96	21.2	.937	20.1	12.1	27.7
30	2.07	[illegible]	0.8	8	35		3	14		3	[illegible]	2.79	19.3	[illegible]	18.2	12.9	[illegible]
31	2.26	345	0.8	–	40		8	15	2	3	1.00	4.61	16.7	.572	16.0	12.7	27.0
Total	–	9162		330	1135		234	250	6	20	24.1	[illegible]	592.4	26.2	565.4	[illegible]	839.7
Max	2.42	430	0.8	23	45		11	15	4	3	1.25	10.1	22.9	1.12	21.5	13.1	31.3
Min	1.34	[illegible]	0.6	4	10		1	2	–	1	.346	3.07	16.1	.554	15.5	4.01	22.0
Avg	1.99	306	0.8	10.9	30		7.6	8.1	0.2	0.7	.782	6.4	19.1	.874	18.3	8.14	27.1

(4.47)

* CHANGED FROM SEPARAN TO PRAESTOL 2515 TR AS A FILTER AID ON JULY [illegible]

RICHLAND WATER SYSTEM REPORT

AUGUST 1988

Date	Temp (°F)					Control - Analysis: Unfiltered Water						Filtered Water						Chemical Dosage: Flow			Coagulant			Carbon			Lime			Plant Chlorine			Misc. Chlorine								Plant Flow				Consu...	
1	69	80	57	339.6	–	7.9	5.9		6.1	1.2		6.1	7.1																																		
2	69	73	65	339.8	–	7.1	5.6		6.7	1.3		7.1	7.3																																		
3	67	81	54	340.2	–	7.7	6.5	8.1	7.6	1.2	1.5	6.1	7.1	6.9																1.96		0.7															
4	68	76	61			7.9	5.3	6.7	7.9	1.2	1.3	6.1	7.1	7.0																			14	40		6	8		–							
5	70	73	51	340.1		7.0	5.5	8.1	7.8	1.3	1.3	7.0	7.1	7.0																			2	20		10	6		–							
6	69	81	53	340.3	–	7.9	5.9		7.7	1.5		7.6	7.0																	1.95		0.7	4	25		9	8		–							
7	69	83	56	340.0	–	8.0	5.0		7.7	1.1		7.0	7.1																				–	25		8	–		–							
8	69	79	61	341.1	–	7.8	5.0	8.1	7.2	1.1	1.3	7.1	7.2	7.1																1.99		0.7		15		9	7	8								
9	70	73	67	339.3		7.7	5.7		7.5	1.3		7.7	7.3																				3	25	–	7	5	1	–							
10	69	81	57	340.0	–	8.0	6.3	8.7	7.6	1.0	1.6	7.1	7.3	7.3																2.01		0.5	5	15		7		–							
11	68	81	59	340.3		7.9	5.7	8.3	7.3	1.3	1.3	7.0	7.3	7.1																			–	5		6	7									
12	68	79	65	340.1		8.3	5.5	8.1	7.7	1.3	1.3	7.1	7.3	7.0																2.03		0.3	0	30		9	6	–	–							
13	68	84	56	340.0		7.6	5.5		7.6	1.3		7.0	7.3																	1.89		0.3	0	10		10	4	–	–							
14	67	85	58	339.3		7.7	5.5		7.4	1.1		6.9	7.3																	2.10		0.0	0	10		9	11	–	–							
15	67	81	60			7.7	5.6		7.7	1.2		7.0	7.1																	2.04		0.0	0	15		9	8	2	–							
16	67	82	57			5.7	5.4		7.6	1.4		7.3	7.1																	2.17		0.3	6	5		4	9	–	–							
17	66	80	54	339.7		8.0	5.5	8.4	7.5	1.4	1.3	7.2	7.2	7.1																2.01		0.0	4	10		6	8	1	–							
18	66	79	53	340.1																										1.93		0.7	6	20		3	7		1							
19	66	81	53	339.8	–	–	5.7	8.3	–	1.3	1.4	–	7.3	7.1	–			–												2.06		0.3	8	10		4	8	–	1							
20	65	80	53	339.8		7.7	5.5		7.3	1.0		7.3	7.3																	2.09		0.0	4	10		11	13	–	–							
21	65	82	49	339.6		7.3			7.3	1.1		7.3	7.3																	2.0		0.8	–	25		5	7		–							
22	66	67	53	339.0		7.7	5.8		7.4	1.0		7.3	7.1																	2.4		0.3	1	15		9	6	1	2							
23	66	73	60	340.1	–	8.1	5.1		7.5	1.2		7.1	7.1																	2.09		0.8	2	15		9	9	–	–							
24	65	79	69	341.0		8.1	5.6		7.5	1.2		7.3	7.3																	2.10		0.8	–	15		4	8	–	–							
25	69	73	56	341.6		7.7	5.7	8.3	7.3	1.3	1.3	7.1	7.3	7.3																1.57		0.8	–	20		4	2	–	–							
26	67	65	65			7.7		8.1	7.5		1.6	7.1	7.2	7.0																1.84		0.8		10		6	10									
27	67	72	55	340.5		7.7			7.5	1.0		7.1	7.1																	1.91		0.8	–	–		4	5		–							
28	68	75	59	340.0		8.0	5.7		7.2	1.0		7.1	7.1																	1.95		0.8		5		7	8	3								
29	69	73	53	340.0		7.8	5.6		7.1	1.0		6.9	7.1																	1.80		0.7		5		4	9									
30	70	62	53	340.4		7.7	5.5		7.1	1.1		6.9	7.2																	1.91		0.8				7	10		1							
31	69	75	53	340.2	–	7.8		8.3	7.2	1.0	1.3	7.3	7.3	7.3																1.85		0.3	–	–		4	8	1	–							
Avg.																															9.00		61	415		21.1	22.6	17	6						383.4	
Max	70	89	67	341.1		8.3	7.7	8.7	7.9	1.5	1.3	7.3	7.3	7.3																2.11		0.7	14	40		11	13	8	2						29.1	
Min	65	79	49	339.5		7.7	5.6	8.1	7.1	1.0	1.2	6.9	7.1	7.1																1.80		0.7	–	–		3	–	–	–						22.1	
Avg.	67	81	56	340.1		8.0	5.8	8.3	7.5	1.3	1.3	7.1	7.1	7.1																2.0		0.2	2	16		6.2	7.3	0.6							25.2	

(3/3)

RICHLAND WATER SYSTEM REPORT

September 1988

Date	Temp					Control – Analysis: Unfiltered Water					Control – Analysis: Filtered Water					Chemical Dosage: Alum			Chemical Dosage: Phosphate				Chemical Dosage: Chlorine			Chemical Dosage: Lime				Plant Chlorine			Line Chlorine								Plant Flow				Consumption	
						pH			Turb.		pH			Turb.																																
1	62	85	51	393.7		7.4	7.7		2.1	1.0		7.2	7.0		0.8	0.8														2.07	390	6.5	—	10		6	1	—	—	0.20	1.12	28.8	30.7	28.3	7.30	28.3	
2	62	75	53	331.7		7.2	7.4	7.3	2.3	2.0	7.3	7.2	7.0																	2.05	395	6.5	·	10		6	—	1	—	—	1.10	25.1	27.9	25.5	7.31	25.2	
3	63	74	53	337.0		7.5	7.7		2.5	2.3		7.5	7.0																	2.06	390	6.7	2	5		8	—	1	—	—	1.00	27.1	28.3	26.7	7.31	26.8	29.0
4	63	80	57	344.4		7.8	7.5		2.3	2.3		7.1	7.1																	2.08	370	6.6	—	—		4	—	—	—	—	1.08	27.5	28.1	27.5	7.4	19.8	
5	68	79	62	344.1		7.7	7.7		2.3	2.2		7.1	7.1																	2.05	385	6.8	—	10		7		—	1	—	1.17	27.3	27.7	27.4	7.31	20.1	
6	68	79	55	347.0		7.7	—		2.3	2.2		7.0	7.3																	2.11	395	6.8	—	10		6	—	12	1	—	1.11	28.5	28.1	28.0	7.08	20.6	
7	67	79	59	350.3		7.8	7.5	7.4	2.3	2.0	7.0	7.3	7.3																	2.10	395	6.7	—	10		6	—	1	—	—	1.05	28.3	28.0	28.7	7.30	21.6	
8	68	82	63	354.1		7.8	7.8	7.8	2.3	2.0	7.0	7.3	7.1																	2.10	390	6.8		20		3				—	1.05	28.5	28.5	28.3	7.07	21.6	
9	66	82	59	358.8		7.7	7.8	7.8	2.0	2.0	7.0	7.3	7.1																	2.03	390	6.8	—	9	—	4	—	—	—	—	1.08	28.4	28.8	28.8	7.33	20.2	
10	66	78	52	360.4		7.7	7.8		2.0	2.5		7.0	7.3																	2.03	395	6.8	—	9	—	6	—	—	—	—	1.0	28.8	29.1	28.9	5.13	18.6	20.3
11	63	76	50	339.7		7.8	7.8		2.0	2.0		7.0	7.0																	2.13	390	6.8	—	—	—	4	—	2	—	—	1.10	28.8	28.7	28.4	7.30	18.9	
12	63	77	54	348.9		7.8	7.8		2.0	1.8		7.1	7.2																	2.08	390	6.9	—	5	—	3	—	—	—	—	1.09	27.9	28.3	27.9	7.00	18.4	
13	67	85	53	371.1		7.8	7.8		2.1	2.2		7.1	7.2																	2.25	395	6.8	—	10		5	—	—	—	—	1.05	28.3	28.3	28.3	7.03	19.7	
14	67	88	51	391.2		7.8	7.8	7.7	2.0	2.2	7.2	7.4	7.4																	2.83	395	6.8	—	10	—	2	—	—	—	—	1.17	28.7	27.8	28.7	7.18	19.7	
15	65	79	47	396.7		7.8	7.8	7.8	2.0	2.0	7.3	7.3	7.3																	2.25	395	6.8	—	5	—	5	—	—	—	—	1.05	28.5	28.7	28.8	7.07	18.8	
16	64	78	54	398.7		7.8	7.8	7.7	2.0	2.0	7.3	7.3	7.3																	2.06	390	6.8	—	—	—	4	—	—	—	—	—	28.1	28.8	28.7	7.30	19.6	
17	64	81	59	400.1		7.8	7.8		2.0	2.0		7.3	7.4																	2.29	395	6.7	—	5	—	3	—	—	—	—	1.00	28.4	28.8	28.8	7.30	18.5	18.6
18	59	80	51	400.0		7.8	7.8		2.0	2.0		7.3	7.5																	2.00	390	6.7	—	5	—	4	—	—	2	—	1.13	28.3	28.7	28.9	7.28	16.6	
19	62	63	57	402.4		7.8	7.8		2.0	2.0		7.3	7.4																	2.02	395	6.7	—	—	—	3	—	—	—	—	—	28.4	28.8	28.9	7.30	11.9	
20	62	67	57	405.9		7.8	7.8		2.1	2.0		7.3	7.4																	2.07	395	6.8	—	—	—	5	—	—	—	—	—	28.7	28.8	28.9	—	12.3	
21	63	72	57	408.9		7.8	7.8	7.8	2.0	2.0	7.3	7.4	7.4																	2.17	390	6.8	—	10	—	4	—	—	—	—	—	28.1	28.0	28.1	7.28	13.5	
22	64	73	57	408.2		7.8	7.8	7.8	2.0	2.0	7.3	7.4	7.4																	2.30	395	6.8	—	8	—	2	—	16	—	—	1.07	28.3	28.8	28.8	7.30	16.3	
23	65	78	59	372.9		7.8	7.8	7.8	2.0	2.0	7.3	7.4	7.4																	2.15	395	6.8		10		4					1.31	28.6	28.8	28.4	7.30	13.5	
24	63	72	56	376.0		7.8	7.8		2.0	2.0		7.3	7.3																	2.20	395	6.8		5		3					1.06	28.1	28.1	28.4	7.10	15.3	14.2
25	63	70	54	378.0		7.8	7.8		2.0	2.0		7.3	7.3																	2.20	395	6.8		15		1					1.00	27.5	27.9	28.0	7.1	13.7	
26	68	70	54	380.2		7.8	7.8		2.0	2.0		7.3	7.3																	2.02	395	6.8		5		3		6			1.02	28.2	28.8	28.0	7.31	14.5	
27	69	80	59	384.0		7.8	7.8		2.0	2.0		7.3	7.3																	2.15	400	6.8		5		3		1			1.05	28.8	28.2	28.7	7.17	12.5	
28	64	79	57	388.4		7.8	7.8	7.8	2.0	2.0	7.3	7.3	7.3																	2.04	400	6.8		5		3		1	3		1.00	28.3	28.3	28.7	7.10	13.2	
29	63	76	53	390.0		7.8	7.8	7.7	2.0	2.0	7.3	7.3	7.3																	2.03	400	6.7	—	6	—	2	—	—	—		1.05	28.8	28.3	28.5	7.15	16.0	
30	63	80	51	392.8		7.8	7.8	7.8	2.0	2.0	7.3	7.3	7.3																	2.03	390	6.7	·	10		4		2	1		1.12	28.6	·	28.6	7.17	16.1	
31																																														
Avg.																														2.12	390	6.7	7	10		4	1	4.3	8	0.20	1.10	28.4	28.3	28.3	7.30	26.5	
—	68	75	52	19.7		7.2	7.2	7.2	2.2	2.5	7.2	7.3	7.3																	2.06	395	6.8	5	30		8		16	3		1.12	28.6	28.7	28.5	7.3	25.2	
—	61	80	50	19.8		7.1	7.2	7.2	2.0	2.5	7.0	7.3	7.1																	2.04	395	6.7	2	5		1		1	1		0.85	28.2	28.1	28.2	7.33	11.8	
—	66	77	54	360.1		7.3	7.3	7.3	2.2	2.0	7.1	7.3	7.3																	2.11	390	6.9		6.3		4.1		1.4	0.3		1.10	28.3	28.3	28.4	7.18	17.6	

(1.98)

DOE/RL-90-18

RICHLAND WATER SYSTEM REPORT

October 1988

Date	Temp (°F)			Water Pumped (Mgal)	Precipitation (in)	Control – Analysis: Unfiltered Water: pH			Turb			Filtered Water: pH			Turb			Chemical Dosage: Alum (lbs)			Sodium (lbs)			Carbon (lbs)			Lime (lbs)			Plant Chlorine (lbs)			Misc Chlorine (lbs/day):								Plant Flow (Mgal):				Consumption (Mgal)	
1	63	86	50	320.9	–	7.9	8.0		2.1	2.9		7.1	7.0																	1.75	175	0.8	–	10	–	2	–	–	–		9.69	12.0	.300	10.8	9.06	12.7	14.5
2	63	80	49	322.8		7.5	7.7		1.4	1.5		7.1	7.1																	1.79	185	0.8		15		4		2			9.99	12.9	.300	12.0	10.3	16.0	
3	65	80	46	318.0	–	7.7	8.0		1.9	1.9		7.1	7.2																	1.71	170	0.8	–	5	–	2	–	1	–		10.00	13.3	.300	13.1	9.20	16.1	
4	64	78	53	313.8		7.4	7.5		1.4	1.5		7.4	7.4																	2.06	170	0.8	–	10	–	2		1	–		10.47	13.2	.300	12.7	9.21	13.8	
5	63	77	52	316.4		7.8	8.0	7.8	1.9	1.7	7.4	7.7	7.7	7.5																1.69	185	0.8	–	–		2		–	–		9.79	13.5	.300	13.0	9.70	14.3	
6	66	77	51	313.2		7.6	8.1	8.0	1.0	1.0	7.9	7.7	7.4																	1.59	177	0.8		10		2		–	–		8.20	13.2	.300	12.7	9.05	14.9	
7	69	80	48	318.8		7.4	7.9	8.0	2.1	1.8	8.1	7.5	7.3	7.0																1.53	170	0.7	–	5	–	4	–	–	–		6.07	13.3	.300	13.0	9.01	14.9	
8	67	82	48	319.7		7.7	7.8		1.5	1.5		7.0	7.0																	1.73	195	0.8	–	–	–	1	–	–	–		–	13.5	.300	13.3	9.00	13.9	14.6
9	69	80	48	319.0		7.7	7.8		1.0	1.0		7.0	7.1																	1.71	195	0.8	–	–	–	2	–	4	–		–	13.7	.300	13.4	9.00	13.3	
10	69	79	57	319.6		7.6	7.7		0.8	0.8		7.0	7.3																	2.11	200	0.9	9	–		2	–	–	–		8.06	13.1	.300	12.7	9.33	12.9	
11	69	78	45	320.2		7.7	8.0		1.7	1.0		7.1	7.0																	1.66	185	0.8	15	–	–	3	–	–	–		–	13.9	.300	13.6	–	14.1	
12	69	78	47	320.7		7.7	8.1	7.8	0.9	0.7	7.8	7.7	7.5	7.5																1.80	190	0.8	13	–		1	–	–	–		–	13.6	.300	13.3	–	13.1	
13	65	73	57	320.2		7.8	7.8	7.7	0.9	0.8	7.7	7.8	7.8																	1.70	170	0.8	13	–	–	3	–	–	–		–	13.0	.300	12.7	–	12.8	
14	67	80	50	320.8		7.9	7.9	7.9	0.9	0.8	7.9	7.9	7.9																	1.80	190	0.8	3			2						13.2	.300	12.9	–	12.0	
15	63	78	57	320.0		7.6	7.9		1.9	0.8		7.1	8.0																	2.11	210	0.8	–	–	–	3	–	–	–	–	–	13.6	.300	13.4	9.33	10.5	10.9
16	67	79	59	318.1		7.6	7.9		1.7	0.9		7.0	7.1																	1.39	170	0.8	–	–	–	3	–		–		–	13.0	.300	12.7	–	11.8	
17	63	65	58	316.4	–	7.6	8.0		1.7	1.0		7.1	7.1																	1.77	185	0.9	–	5		2			1		8.40	13.5	.300	13.2	9.11	12.9	
18	61	63	56	313.6		7.8	7.9		1.0	1.1		7.2	7.8																	1.52	170	0.9	–	–		2			–		–	13.3	.300	13.0	–	10.3	
19	60	75	57	315.8		7.9	8.0	7.8	1.0	0.9	8.0	7.1	7.4	7.0																1.69	190	0.8	13	10		2					1.07	12.7	.300	12.5	9.21	10.7	
20	62	67	58	317.9		7.5	8.0	7.8	1.0	0.8	8.0	7.8	7.6	7.4																1.83	190	0.8	12	5		2		4			8.83	13.0	.300	12.6	9.61	11.7	
21	61	70	50	320.8		7.6	7.7	7.6	1.0	0.9	8.0	7.9	7.7	7.9																1.71	110	0.8	13	10		4					6.76	12.0	–	12.0	9.00	10.2	
22	61	69	59	316.5		7.5	7.6		1.0	0.9		7.1	7.9																	2.10	195	0.8	13			2					–	13.0	.300	12.8	–	11.4	11.3
23	61	72	57	311.7		7.6	7.9		0.9	0.5		7.6	7.1																	1.67	159	0.7	13	–		1					–	11.1	–	11.1	–	11.0	
24	59	76	50	323.8		7.9	8.0		0.8	0.7		7.1	7.1																	1.86	180	0.8	8	5		2					9.07	13.0	.300	12.7	9.00	11.2	
25	59	72	61	311.0		7.6	7.9		1.0	0.7		7.1	7.1																	1.90	160	0.8	8	–		4		4			–	13.0	–	12.3	–	10.7	
26	60	68	59	311.7		7.6	7.8	7.6	1.0	0.8	7.6	7.6	7.4	7.1																2.17	160	0.8	7	5		3		–			7.70	13.0	.300	12.7	9.08	10.8	
27	58	68	57	311.7		7.5	7.9	7.7	1.0	1.0	8.0	7.1	7.4	7.2																1.90	150	0.8	11	5	–	1	–	–	–		7.00	13.0	.300	12.7	9.33	9.97	
28	57	67	50	312.2		7.7	7.6		1.0	0.8	8.1	7.6	7.1																	1.79	110	0.8	6	–		1		–	–		–	13.0	.300	12.7	–	9.44	
29	66	75	55	311.0		7.5	7.9		1.2	1.0		7.8	7.1																	2.14	110	0.8	–	–		2	–	–	–		1.00	6.80	.300	5.90	5.52	9.41	
30	58	71	59	311.0		7.6	7.8		1.2	1.0		7.0	7.1																	1.30	130	0.7	–	–		–	–	–	–		–	12.0	.300	11.7	–	8.83	
31	58	68	43	312.6		7.5	8.0		1.1	0.8		7.6	7.2																	1.39	170	0.8	3	–		8	–	1	–		–	7.03	.300	7.51	1.53	9.54	
Total																																														73	377.5
Avg	66	80	50	311.7		7.9	8.1	7.8	1.1	1.0	7.9	7.7	7.5	7.3																2.19	220	0.8	17	15		8		4	1		9.99	13.7	.300	13.4	11.3	16.0	
Max	70	85	61	327.0		7.9	8.5	7.9	2.0	1.8	8.1	8.0	8.0	7.9																1.30	110	0.7	3	5		1		1	0		.000	6.18	–	5.90	–	8.57	
Min	62	76	41	300.7		7.6	8.0	7.7	1.1	0.8	7.9	7.1	7.1	7.0																1.77	159	0.8	5.1	3.3		7.3		0.6	.03		0.85	10.9	.021	10.6	2.75	12.2	

(0.00) (2.96)

K-10

DOE/RL-90-18

RICHLAND WATER SYSTEM REPORT

November 1988

Date	Well Water				Control - Analysis: Unfiltered Water pH			Unfiltered Water Turb.			Filtered Water pH			Filtered Water Turb.			Chemical Dosage lb: Alum			Alum				Carbon			Lime			Plant Chlorine			Misc. Chlorine lbs/day								Plant Flow				Consumption	
1	52	66	67	3404																			1.10									90	0.8	8	–		–		–								7.92	
2	57	61	51	3328																			1.21									76	0.8	7	5		1		1								7.36	
3	57	63	47	3416																			1.00									100	0.8	–	–		–		–								6.75	
4	57	62	48	3[illegible]																			0.81									80	0.8	–	–		1		–								7.25	
5	57	60	48	3[illegible]																			0.79									[illegible]	0.7	–	–		2		–	–							[illegible]	7.69
6	54	56	56	[illegible]																			0.61									[illegible]	0.8	7	–		0		1	0							6.95	
7	55	[illegible]	[illegible]	3[illegible]																			0.99									70	0.8	15	–		2		1								7.16	
8	55	55	[illegible]	[illegible]																			0.91									75	0.8	–	–		–		–	–								6.35	
9	55	56	57	3[illegible]																			1.55									85	0.2	1	10		2		–								6.54	
10	55	60	59	3[illegible]																			0.15									90	0.7	5	–		3		–								6.09	
11	[illegible]	[illegible]	[illegible]	3[illegible]																			0.00									90	0.8	5	–		1		–	–							6.76	
12	55	[illegible]	[illegible]	[illegible]																			0.97									90	0.8	–	10		2		–	–							6.99	6.76
13	53	57	57	[illegible]																			[illegible]									90	0.8	4	–		3		4	3							6.67	
14	53	53	57	3[illegible]																			0.79									80	0.8	10	15		1		–	–							7.87	
15	53	54	56	3[illegible]																			0.46									50	0.8	5	–		–			–							6.51	
16	53	49	57	3[illegible]																			0.82									60	0.8	1	–		3		–	–							5.62	
17	54	48	51	–																			0.17									70	0.8	–	–		3		–	–							6.82	
18	54	48	55	3[illegible]																			0.97									95	0.8				1									6.10	
19	53	47	52	3[illegible]																			0.44									70	0.8	7			2									6.40	6.53
20	53	56	59	3[illegible]																			0.85									70	0.7	10			2									6.00	
21	53	53	50	3[illegible]																			0.79									70	0.8				1									5.20	
22	54	56	49	3[illegible]																			0.97									80	0.8				1									4.90	
23	53	49	53	3[illegible]																			1.05									75	0.8				1									4.91	
24	51	50	54	3[illegible]																			[illegible]									60	0.7	2	–		2									4.03	
25	51	47	40	3[illegible]																			[illegible]									15	0.7	–	–		2	–		1							[illegible]	
26	[illegible]	[illegible]	[illegible]	[illegible]																			[illegible]									70	0.8	–			–	–									[illegible]	5.01
27	[illegible]	50	50	[illegible]																			0.95									65	0.7	–	–		2	–									6.16	
28		[illegible]	[illegible]	[illegible]																												23	0.7	8	25		1									6.66	
29		52	51	3[illegible]																														15	30	–	2	–	–	–							6.96	
30		45	46	3[illegible]																														7	25	–	3	–	–	–							6.69	
31																																															
Total																	1960						17.6									895		117	120		45		7	4							190.4	
Avg	57	56	55	3[illegible]																			1.55									115	0.8	15	30		3		4	3							7.92	
Max	59	63	62	3[illegible]																			0.81									95	0.7	–	–		–		–	–							4.53	
Min	51	53	50	3[illegible]																			0.95									75	0.8	3.9	4.0		1.5		0.2	0.13							6.35	

(008)

9 1 1 1 3 8 5 1 6 2 2

RICHLAND WATER SYSTEM REPORT

December 1988

Date	Temp (°F)				Control - Analysis: Unfiltered Water				Filtered Water				Chemical Dosage: Alum			Separan			Carbon			Lime			Plant Chlorine			Use Chlorine							Plant Flow			Consumption	
1	–	32	31	319.2												Plant off												7	30		1					9.10		194	6.89	
2	–	36	36	316.0																								–	35	–	-					–		186	6.02	
3	–	38	30	316.0																								–	35	–	4					–		185	6.49	6.41
4	–	32	29	299.7																								–	36		2					–		184	6.27	
5	–	36	30	301.0																								10	35		–					–		7.36	6.46	
6	–	33	31	300.7																								5	35		–					–		13.5	6.74	
7	–	35	36	300.2																								16	35		2							13.3	7.43	
8		32	37	297.4																								4	30		1							13.1	6.69	
9	–	40	37	301.0																								8	30		2							13.6	6.69	
10	–	37	32	298.0																								6	30		2							13.6	6.63	6.68
11		37	36	297.0																								-	30		1			1				13.3	6.79	
12		40	37	296.0																								8	35		–			1				13.7	6.77	
13	–	33	34	297.0																								–	35		-			–				13.0	6.76	
14		35	35	298.2																								4	30		1			–				13.5	6.52	
15	–	40	38	297.8																								4	40		1			–				13.6	6.87	
16		37	37	297.8																									35		1							13.3	6.92	
17		38	37	298.0																								8	35		1							13.4	6.71	6.74
18		36	35	299.4																								3	35		3							13.7	6.15	
19		38	37	299.8																								–	35		2							13.6	6.15	
20		33	33	296.2																								14	35		2							13.5	6.11	
21		37	35	298.9																								2	35		–							13.6	5.66	
22		37	36	298.0																								7	30		1			–				13.4	6.79	
23		39	36	296.0																								3	35		4			–				13.8	3.85	
24		39	37	295.1																								–	30		1			–				13.3	6.22	6.95
25		39	39	295.3																								4	35		2			–				13.9	6.87	
26		39	39	297.5																								12	35		2			–				13.5	5.46	
27		38	38	298.2																								8	35		0							13.5	6.08	
28		36	34	299.3																								4	30		–			–				13.6	8.94	
29		33	33	301.1																								–	30		–			–				13.6	6.03	
30		31	29	299.4																								–	25		2			–				13.8	6.01	
31		30	28	300.3																								–	25		2			1				13.1	5.98	
Total																												131	950		40			3				187	194.4	
Avg.		37	35	299.0																								16	30		4			1.0				13.7	7.43	

DOE/RL-88-10

9 1 1 1 2 0 5 1 6 2 3

RICHLAND WATER SYSTEM REPORT

January 1989

Date	Temp (°F)					Control – Analysis: Unfiltered Water				Control – Analysis: Filtered Water				Chemical Dosage: Alum			Filter Aid			Cationic			Lime			Plant Chlorine			Misc. Chlorine (lbs/day)							Plant Flow			Consumer
	Air																																						
-	93	20	341.1	-										PLANT OFF														16	25	-	-	-	-	-	4.78		-		13.3	6.51
-	50	39	341.0	-																								-	20		-				5.30				12.6	5.95
-	63	44	341.1	-																								-	20		4				6.10				12.3	6.01
-	60	36	340.9	0.11																								19	35		2				5.32				14.5	6.49
-	41	29	340.6	-																								7	30		1				5.93				14.3	6.40
-	40	26	341.0	[illegible]																								102	30		1			1	5.77				14.6	6.87
-	40	29	340.6	[illegible]																								-	35		1				5.87				14.6	6.53
-	38	29	340.0	[illegible]																								7	35		2				5.00				14.6	6.55
-	40	25	340.0	[illegible]																								9	40		1			-	5.97				14.5	7.37
-	43	31	341.7	-																								14	30		1			1	6.02				14.5	7.68
-	42	32	341.2	-																								12	30		2			-	5.96				14.2	6.[illegible]
-	39	37	341.6	-																								-	35		1				[illegible]				14.0	6.[illegible]
-	46	33	340.1																									-	40		1				6.08				13.9	6.[illegible]
-	46	36	339.5																									5	35		1				5.81				14.1	6.[illegible]
-	51	44	341.0																									-	35		2				5.76				14.1	6.[illegible]
-	55	47	340.2																									1	35		3				6.41				14.2	6.[illegible]
-	56	47	340.0																									-	30		3				6.41				13.8	6.44
-	57	28	340.8																									-	30		1				6.56				14.1	6.58
-	52	25	341.1	-																						-	20	-	5	25		1				6.77	[illegible]	[illegible]	-	14.1	6.6[illegible]
-	52	25	340.7																										2	30		1			1	6.15	.	-	-	13.9	6.10
-	52	25	339.1	[illegible]			1																						5	15		2			1	5.40				13.4	7.11
-	51	22	339.1	[illegible]										Alum															1	40		1			-	7.81				13.3	6.01
-	[illegible]	27	16	339.5	-	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]			[illegible]		1.39							1.93	80	0.7	3	40		1				1.27	[illegible]	-	[illegible]	[illegible]	6.65
-	[illegible]	33	21	340.0		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	1.37							2.27	95	0.7	1	-		4			-	-	6.95	-	6.43	-	6.33
-	[illegible]	[illegible]	[illegible]	340.3		7.7	7.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.53							2.34	105	0.8	-	-		-			-	-	6.53	[illegible]	6.77	-	5.87
-	[illegible]	[illegible]	21	341.0		[illegible]	7.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.59							1.63	80	0.7	3	-		1			-	-	6.00	-	6.37	-	7.14
-	[illegible]	[illegible]	[illegible]	340.6		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.32							2.03	85	0.8	5	-		1			-	-	6.21	[illegible]	[illegible]	-	6.20
-	[illegible]	[illegible]	21	340.5		[illegible]	7.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.28							1.63	70	0.8	6	-		2			-	-	5.0	-	5.01	-	6.55
-	[illegible]	57	[illegible]	340.5		[illegible]	7.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.08							1.79	75	0.8	-	5		1			-	-	[illegible]	[illegible]	[illegible]	-	6.30
-	[illegible]	[illegible]	[illegible]	341.1		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.35							1.61	85	0.8	-	6		2			.	-	6.35	[illegible]	[illegible]	-	6.50
-	[illegible]	[illegible]	[illegible]	341.0		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.19							2.01	100	[illegible]	-	10		1			-	4.96	[illegible]	-	[illegible]	[illegible]	6.57
[illegible]					[illegible]														12								79		124	94		41			4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	200.5
-	40	[illegible]	[illegible]	341.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.53							2.29	105	0.8	11	90		4			1	7.51	[illegible]	[illegible]	[illegible]	[illegible]	7.42
-	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.08							1.21	70	0.7	-	-		-			-	1.27	-	-	-	[illegible]	5.51
-	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.30							1.91	[illegible]	0.8	4.1	139		1.4			1.0	4.30	[illegible]	[illegible]	[illegible]	[illegible]	6.47

* Sample WTP 1-23-89 / 8:30 am

9 1 1 1 3 8 5 1 6 2 4

RICHLAND WATER SYSTEM REPORT

February 1989

Date	Temp (°F) River water	Hi	Lo	River elevation	Precipitation (in.)	Control analysis / Chemical dosage (alum, polymer, carbon, lime)	Plant chlorine feed	Plant chlorine lbs/day	Plant chlorine residual	Misc. chlorine 1	Misc. chlorine 2	Misc. chlorine 3	Misc. chlorine 4	Misc. chlorine 5	Misc. chlorine 6	Misc. chlorine 7	Misc. chlorine 8	Plant flow 1	Plant flow 2	Plant flow 3	Plant flow 4	Consumption total	Weekly average
1	37	16	1	341.6	–	[illegible]	1.98	85	0.6	6	5	–	1	–	–	–	1.34	[illegible]	[illegible]	[illegible]	[illegible]	6.50	
2	34	8	1	341.6	–	[illegible] Plant off 2-2-89	[illegible]	30	0.9	7	13		2			1	[illegible]	[illegible]	.073	[illegible]	[illegible]	7.06	
3	–	0	-4	340.7	–	–				5	35		4			–	[illegible]	–	–	–	[illegible]	6.74	
4	–	12	-1	341.7						10	25		2	–	–	–	[illegible]	–	–	–	[illegible]	7.41	
5	–	20	-1	341.9						4	40		1			1	[illegible]	–	–	–	[illegible]	7.09	
6	–	25	10	340.0						13	25		1			–	[illegible]	–	–	–	[illegible]	6.70	
7	–	28	6	[illegible]						7	25		1			–	[illegible]	–	–	–	[illegible]	7.31	
8		[illegible]	9	[illegible]						7	25		–			–	[illegible]	–	–	–	[illegible]	6.94	
9		34	10	340.2	–					–	35		–				6.77				[illegible]	[illegible]	
10		33	29	340.2						5	30		2				6.71				10.9	[illegible]	
11		37	15	339.4							30		2				[illegible]				[illegible]	[illegible]	7.01
12		41	15	339.6							40		1				7.41				[illegible]	[illegible]	
13		45	35	339.8						–	25		2				[illegible]				[illegible]	[illegible]	
14		44	16	339.7						4	35		0			1	[illegible]		[illegible]		[illegible]	[illegible]	
15	37	46	20	340.1		[illegible]	2.08	120	0.8		5		1			–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.78	
16	36	33	10	339.7		[illegible]	1.41	75	0.7	9	–		1			–	–	[illegible]	[illegible]	[illegible]	–	6.66	
17	[illegible]	[illegible]	25	[illegible]	[illegible]	[illegible]	[illegible]	55	0.7	6	–		1			–	–	[illegible]	–	[illegible]	–	6.27	
18	[illegible]	[illegible]	[illegible]	337.3	[illegible]	[illegible]	[illegible]	[illegible]	0.8	–	–		2			–	–	[illegible]	[illegible]	[illegible]	–	[illegible]	6.1
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.8	8	–		4			–	–	[illegible]	[illegible]	[illegible]		[illegible]	
20	37	[illegible]	[illegible]	[illegible]	–	[illegible]	1.37	[illegible]	0.7	–	–		2			–	–	[illegible]	[illegible]	[illegible]	–	[illegible]	
21	[illegible]	[illegible]	33	[illegible]	[illegible]	[illegible]	1.54	60	0.7	2	–		1			–	–	[illegible]	–	[illegible]		[illegible]	
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.83	70	0.7	5	15		–				[illegible]	[illegible]	–	[illegible]	[illegible]	6.80	
23	[illegible]	50	[illegible]	339.3	–	[illegible]	1.50	[illegible]	0.9	1	–		1				–	[illegible]	[illegible]	[illegible]	–	[illegible]	
24	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	1.54	75	0.8	–	–		–				–	[illegible]	[illegible]	[illegible]	–	6.15	
25	37	44	25	[illegible]	–	[illegible]	1.49	55	0.8	10	5		3			1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.94	[illegible]
26	[illegible]	49	30	[illegible]	–	[illegible]	1.57	90	0.7	–	5		–			–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.53	
27	38	54	36	[illegible]	–	[illegible]	1.61	85	0.8	[illegible]	–		3			–	–	[illegible]	[illegible]	[illegible]	–	6.70	
28	39	[illegible]	28	[illegible]	–	[illegible]	1.64	110	0.8	–	–		–			–	–	[illegible]	[illegible]	[illegible]	–	7.10	
29																							
30																							
31																							
Total						[illegible]		[illegible]		[illegible]	[illegible]		[illegible]			4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Avg.	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	0.8	15	40		4			1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.41	

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RICHLAND WATER SYSTEM REPORT

March 1989

Date	Temp (°F)					Control – Analysis: Unfiltered Water						Filtered Water						Chemical Dosage: Alum			Deposan			Cannon			Lime			Plant Drainage			Misc. Chlorine								Plant Flow				Consumption	
1	38	30	21	390.1	–	7.5	7.3	7.4	0.8	0.2	0.8	6.9	6.6	6.8										1.72						1.65	95	0.8	6	–		2		–	–	–						616.3	
2	37	39	40	391.5		7.4	7.2	7.3	0.9	0.3	0.7													1.19						1.35	90	0.8	–	–		1		1								4.67	
3	36	35	37	392.6	–	7.6	7.1	7.4	0.8	0.1	0.8													1.19						1.15	80	0.8	—	—	—	2		—	—	—						6.13	
4	37	33	33	394.3		7.6	7.5		0.8	0.2		7.1	7.0											1.45						1.66	100	0.8	4	–	–	2	–	–	–	–						7.15	6.71
5	37	39	41	397.6		7.6	7.3		0.8	0.2														0.48						1.00	70	0.8	–	5	–	1	–	–	–	900						6.13	
6	37	39	41	398.5	–	7.5	7.5		0.7	0.7		7.0	7.4											0.36						1.93	110	0.8	1	–	–	1	–	–	–	–						6.90	
7	39	38	39	399.8	–	7.3	7.6		0.7	0.9		7.3	7.0											0.36						1.77	100	0.8	–	–	–	1	–	1	–	–						7.06	
8	39	49	40	400.1		7.8	7.6	7.9	0.7	0.1	0.7													0.36						3.38	70	0.8	7	–		1		–								6.97	
9	39	46	37	401.4		7.6	7.7	7.7	0.8	0.8	0.8													–						1.90	85	0.7	3	–		–		–								6.76	
10	39	65	34	402.7		7.9	7.7	7.7	0.8	0.8	0.9	7.1	6.7	6.9										–						1.35	75	0.7	4					1								6.21	
11	40	68	43	389.8		7.7	–		0.8	–		7.1	–											–	3-1-89	1.82				1.21	35	0.7	9	25						4.87						7.15	6.71
12	–	67	42	390.7		–	–		–	–		–	–											–						–	–	–	2	30						6.95						7.09	
13	41	54	39	390.7		–	7.8		–			–	6.9											0.35	3-13-89					1.73	60	0.8	18	–				2	1	.180						7.44	
14	40	53	41	390.3		7.5	7.5		0.8	0.8		7.0	7.2											0.25						1.39	80	0.8	–	–		–		1		–						6.30	
15	39	49	39	390.6		7.6	8.0	7.8	0.7	0.7	0.7	7.0	7.3	7.1										0.37						1.19	75	0.7	–	–		1		–		–						6.83	
16	40	42	35	391.6		7.8	7.8	7.6	0.7	0.8	0.8	7.2	7.0	7.1										0.41						1.55	95	0.7	3	–		1				–						6.14	
17	39	38	41	389.4		7.4	7.6	7.4	0.8	0.8		6.8	6.8	7.4										0.80						1.83	110	0.8	–	–		–				–						6.61	
18	42	58	35	391.5		7.7	7.8		0.8	0.8		7.0	7.3											1.53						2.01	80	0.7	7	–		1				–						6.55	6.69
19	40	58	33	390.0		7.7	7.7		0.8	0.8		7.1	6.7											0.49						1.99	80	0.7								2.35						6.89	
20	41	61	44	389.3		7.9	7.9		0.8	0.8		6.7	6.6											0.49						2.41	85	0.7	9			8				–						7.37	
21	41	62	38	390.0		7.9	7.6		0.8	0.3		6.8	6.7											0.75						1.77	95	0.7	–			1				–						6.98	
22	41	54	40	389.7		7.3	7.8	7.3	0.8	0.8	0.7	7.1	6.7	6.7										0.40						1.90	80	0.8	5			–				–						6.90	
23	41	66	37	389.8		7.5	7.6	7.6	0.8	0.8		6.8	6.7	6.7										0.70						1.70	70	0.8	8			1										7.61	
24	41	66	40	389.1		7.5	7.6	7.6	0.8	0.8		6.9	6.9	6.8										0.49						1.40	90	0.8	3			2										5.88	
25	41	62	38	393.5		7.5	7.7		0.8	0.8		6.8	6.8											0.69						1.03	75	0.7	–			1										7.11	6.79
26	41	65	44	395.6		7.5	7.5		0.8	0.8		6.8	6.8											0.59						1.45	70	0.8	9	10		–				6.50						7.48	
27	42	50	47	393.9		7.4	7.4	7.6	0.8	0.9		6.8	6.8	7.0										0.77						1.36	80	0.8	5			2				–						6.97	
28	42	62	48	390.5	–	7.6	7.6	7.7	0.7	0.8		6.8	6.7	7.0										0.75						1.81	95	0.8	–	–		1										7.60	
29	45	56	50	389.5		7.9	7.9	7.7	0.8	0.7	0.8	6.8	6.7	6.9										0.98						1.67	80	0.8	2	–		1										7.35	
30	42	51	49	388.6		7.8	7.9	7.8	0.8	0.8	0.8	6.8	6.7	6.9										0.79						1.33	100	0.8	10			1										7.04	
31	42	50	51	388.9		7.8	7.9	7.9	0.8	0.8	0.8	6.7	6.8	6.9										0.85						1.53	90	0.8	20			2										7.69	
Total																								18.28							2895		126	70	–	28		6		97.7						612.3	
Avg.	43	48	44	391.6		7.5	7.6	7.5	0.8	0.8	0.8	7.0	7.0	7.0										0.79						1.24	110	0.9	18	30		2		2		6.98						7.69	
Max.	46	29	36	388.9	–	7.6	7.5	7.5	0.9	0.9	0.9	6.8	6.8	6.9										0.24						1.32	35	0.7	–	–		–		–		3.10						5.58	
Min.	40	53	30	393.1		7.5	7.6	7.7	0.6	0.8	0.6	6.7	6.9	6.7										0.79						1.75	85	0.8	4.4	2.3	–	0.9		1.6		0.97						6.85	

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DOE/RL 90-18

RICHLAND WATER SYSTEM REPORT

April 1989

Date	Temp °F			Water Pumped (Gallons)	Fluoride Treatment	Control – Analysis: Softened Water pH			Softened Water Turb.			Filtered Water pH			Filtered Water Turb.			Chemical Dosage: Alum (Pounds)			Sodium Aluminate (Pounds)			Carbon (Pounds)			Lime (Pounds)			Plant Chlorine (Pounds)			Side Chlorine (Pounds)								Plant Flow (Gallons)				Consumption (Gallons)	
1	55	37	51	327.1																			0.15							1.53	100	0.8	12	–	–	1	–	–	–	–						9.68	9.72
2	56	34	37	[illegible]	–																		0.33							1.36	115	0.4	5	5		2		1		1.10								
3	48	39	43	339.2	–																		0.19							1.47	120	0.7	18			1				–								
4	49	38	47	339.7	–																		0.08							1.91	125	0.7	20	–		1				–								
5	44	61	57	338.2				–			–			–			–			–			–	0.03							1.75	125	0.5	7	–		2				–								
6	46	79	78	370.2																			0.15							1.07	125	0.9	11			1												
7	17	75	72	370.6																			1.21							1.77	140	0.8	23			5												
8	47	67	38	330.7																			1.69							1.32	135	0.7	15	5		3				1.17								
9	45	65	43	349.7																			2.31							1.31	155	0.8	6	15		2				1.01								
10	41	64	50	339.9	–																		1.17							1.18	125	0.7	7	–		3		–		–								
11	45	72	55	337.4	–																		1.97							1.41	125	0.8	15			3		2		–								
12	46	76	58	339.7	–																		1.33							1.85	140	0.8	7			2		–		–								
13	47	78	45	349.8	–																		1.50							1.84	130	0.8	7			2				–								
14	48	75	45	349.4	–																		1.50							1.89	210	0.8	3			8		–		–								
15	48	79	53	337.2	–																		1.35							2.00	110	0.9	6			4				–								
16	52	69	45	340.0	–																		1.16							2.09	115	0.8	17	20		4				[illegible]								
17	55	72	58	338.0	–																		1.69							1.95	240	0.8	11	–		4		–		–								
18	48	78	46	339.0																			1.50							2.10	220	0.8	6	–		5				–								
19	48	76	48	340.8																			1.47							2.28	190	0.8	10	–		5		3		3								
20	48	76	47	340.0																			1.50							2.59	0.8	0.8	–	–		1		–		–								
21	50	59	49	341.1																			0.55							1.46	130	0.8	6	–		3		–		–								
22	48	63	43	341.7	–																		0.79							1.98	130	0.8	2	–		4		2		2.33								
23	48	66	49	340.8	–																		1.40							1.85	185	0.8	8	16		4		–		2.41								
24	49	68	55	341.1																			2.05							2.47	175	0.8	11	–		4		–		–								
25	48	59	46	339.9																			2.09							2.09	100	0.8	5			3		2		–								
26	46	57	56	338.2																			1.73							1.73	160	0.8	1			2		–		–								
27	47	64	46	339.0	–																		0.96							1.86	140	0.8	–	–		3	4	–		–								
28	48	67	50	343.9	–																		0.97							2.07	110	0.7	3	–		4	1	–	–	–								
29	47	70	47	341.1	–																		1.17							1.35	150	0.7	3			4	8			–								
30	47	69	49	340.2	–																		2.10							2.00	200	0.9	16	10		3	12	8	1	2.39	.011							
31																																															
Total																							45										102	65		94	87	12	1	12.7	1.08						364.0	
Avg.	50	59	51	343.9																			2.51							2.00	125	0.8	23	10		8	12	3	1	4.01	.011						46.6	
Max.	62	79	57	339.0	–																		0.55							1.31	100	0.6	–	7		1	–	–	–	–	–						8.5	
Min.	47	60	43	340.3																			1.52							1.83	120	0.8	9.4	10.8		3.1	0.8	0.4	.03	0.96	0.00						12.1	

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DOE/RL-90-18

9 1 1 1 3 5 1 6 2 7

RICHLAND WATER SYSTEM REPORT

May 1989

Date	Temp (°F)				Precipitation (in)	Control – Analyses: Unfiltered Water						Filtered Water						Chemical Dosage: Alum			Sodium			Carbon			Lime				Plant Chlorine			Site Chlorine								Plant Flow				Consumption	
1	50	48	43	272.7	–	7.3	7.5		7.5	7.6		3.0	3.8																	1.80	190	0.9	–	–			–	–	–	–							7.30		
2	50	51	45	242.5	–	7.7	7.5		5.0	5.7		3.9	3.7																	1.99	195	0.8	11	5	–	5	5	–	–								7.00	13.6	
3	50	70	48	255.8	–	7.6	7.5	7.5	6.3	7.6	7.1	3.9	3.6	3.9																1.97	200	0.8	15	10		3	10										7.02	16.2	
4	51	79	48	255.5	–	7.7	7.7	7.5	7.0	7.0	7.5	3.3	3.5	3.8																1.75	210	0.7	9	5		2	10										7.32	19.6	
5	52	52	53	301.4		7.8	7.8	7.7	7.8	7.6	7.9	3.8	3.9	3.0																1.26	215	0.7	8			1	15										7.00	17.6	
6	53	55	61	312.4		7.7	7.8		7.7	7.8		3.3	3.6																	1.86	250	0.7	16				13	5									7.74	18.8	16.2
7	53	62	52	312.0		7.7	7.8		7.7	7.8		3.8	3.6																	1.56	305	0.7	13	10		5	11			3.0							7.97	30.3	
8	55	62	72	341.8		7.7	7.7		7.7	7.8		3.7	3.8																	1.98	305	0.7	10			1	14										7.84	19.3	
9	54	71	70	317.4		7.7	7.7		7.6	7.7		3.8	3.9																	1.55	305	0.7	14			1	7										7.36	17.7	
10	53	67	72	317.1		7.7	7.8	7.7	7.6	7.8	7.8	3.7	3.9	3.8																1.69	310	0.7	13			0	6	2									7.07		
11	52	68	72	342.0		7.7	7.8	7.8	7.6	7.8	7.8	3.7	3.7	3.8																1.56	310	0.8	19	10		3	7		2	1.03							7.33	12.5	
12	53	70	71	320.1		7.7	7.8	7.8	7.6	7.8	7.8	3.8	3.8	3.8																1.48	285	0.8	14	3		3	10	3	–								7.31	18.0	
13	53	73	73	320.0		7.7	7.8		7.6	7.7		3.8	3.8																	2.14	325	0.8	8	5		4	1	1	1								7.61	19.2	17.5
14	55	75	74	337.2	–	7.7	7.7		7.7	7.7		3.9	3.8																	2.67	300	0.8	5	25		2	10	–	–								7.97	20.3	
15	56	79	83	340.2		7.7	7.8		7.7	7.8		3.8	3.8																	1.30	300	0.8	1	5		2	9	–	–								7.13	20.7	
16	56	75	83	347.8		7.7	7.8		7.7	7.8		3.9	3.8																	2.15	300	0.7	8	–		5	10	1	–	–							7.80	18.8	
17	53	69	69	341.1		7.6	7.7	7.8	7.6	7.8	7.8	3.7	3.7	3.7																2.00	275	0.8	12	–		3	3	–	–								7.00	17.1	
18	53	68	67	342.0	–	7.7	7.8	7.8	7.7	7.8	7.8	3.7	3.7	3.6																1.69	300	0.7	2	–		2	7	–	–	–							7.99	17.3	
19	53	68	70	337.8		7.7	7.8	7.8	7.8	7.7	7.8	3.7	3.7	3.6																2.03	305	0.7	11	15		4	1	–	–								7.85	18.8	
20	53	70	69	339.5		7.7	7.8		7.8	7.8		3.7	3.8																	1.99	270	0.8	4	10		4	2	–	–								7.06	20.4	17.0
21	53	70	72	341.4		7.8	7.8		7.8	7.8		3.8	3.7																	1.99	280	0.8	3	20		6	4		1								7.47		
22	50	68	68	344.4		7.6	7.8	7.8	7.8	7.8	7.8	3.8	3.9	3.8																2.03	320	0.8	3	15		4	3		1.0								7.35	18.2	
23	53	69	75	339.1		7.7	7.7		7.7	7.8		3.8	3.8																	2.35	305	0.7	2	10		2	7	–	–								7.49	13.9	
24	53	67	75	339.0		7.6	7.6	7.5	7.7	7.6	7.8	3.8	3.8	3.8	3.7	3.8														2.05	305	0.7	4	10		2	8	–	–								7.36	15.7	
25	53	68	72	342.8	–	7.6	7.8	7.8	7.6	7.8	7.8	3.7	3.8	3.7	3.7	3.8	3.8													1.88	320	0.7	1	20		8	10	–	–								7.21	18.7	
26	55	70	75	338.8		7.6	7.7	7.8	7.6	7.8	7.8	3.8	3.8	3.7	3.7	3.8	3.8													1.67	325	0.8	8	20		3	7	–	–								7.57	12.2	
27	55	67	77	342.9		7.6	7.6		7.6	7.7		3.6	3.7																	1.41	350	0.9	3	10		2	3	–	–								7.15	11.6	16.5
28	57	71	71	338.0	–	7.8	7.7		7.8	7.8		3.7	3.8																	1.41	310	0.9	10	10		3	6	–	–								7.70	11.1	
29	55	62	76	339.4	–	7.6	7.7		7.8	7.8		3.7	3.8																	2.38	320	0.8	9	15		2	1										7.35	13.1	
30	57	72	76	341.5	–	7.6	7.7		7.7	7.8		3.8	3.8																	1.87	300	0.8	14	15		3	11	–	–								7.73	17.1	
31	60	74	62	348.7	–	7.7	7.9		7.7	7.8		3.8	3.9																	2.15	295	0.8	10	10		5	9										7.87	20.9	
Total					0.34																										7000		374	355		90	207	12	16	19.9	16.0	7737	8.3	7700	8.37	5.30	
1	58	85	61	339.0	.50	7.7	7.7	7.7	7.7	7.7	7.7	3.7	3.8	3.8	3.8	3.8	3.8													2.67	310	0.9	19	35		6	15	5	12	5.73	6.16	7.6	9.96	8.2	17.3	20.9	
2	78	59	39	339.0	.16	7.6	7.8	7.8	7.8	7.8	7.8	3.8	3.8	3.8	3.8	3.8	3.8													1.56	290	0.7	2	5		1	1	1	1	.490	.499	6.9	7.37	6.66	7.76	11.1	
3	53	73	47			7.7	7.9	7.9	7.8	7.7	7.8	3.8	3.8	3.8	3.8	3.8	3.8													2.08	290	0.8	7	13		5	7.6	2.9	4	2.56	.565	17.1	.99	13.6	6.75	17.1	

RICHLAND WATER SYSTEM REPORT

June 1989

Date	Flow (mgd)				Control - Analysis: Unfiltered Water						Filtered Water						Chemical Dosage (lb): Flow			Feedstock			Carbon			Lime			Plant Chlorine			Misc. Chlorine							Plant Flow				Consumption	
1	37	39	37	293.6																																									
2	37	37	36	292.6																																										
3	38	37	37	296.5																																									
4	38	37	35	292.3																																									
5	38	37	38	290.7																																									
6	38	38	37	290.3																																									
7	38	38	38	294.4																																									
8	38	38	38	298.9																																									
9	38	38	38	297.6																																									
10	38	38	38	297.4																																									
11	38	38	38	297.6																																									
12	37	37	38	290.3																																									
13	37	38	38	292.9																																									
14	38	—	—	292.0																																									
15	38	38	38	299.1																																									
16	38	38	37	300.1																																									
17	38	38	38	300.0																																									
18	38	38	38	298.5																																									
19	38	38	37	299.1																																									
20	38	38	37	299.3																																									
21	38	38	37	298.9																																									
22	38	38	38	297.0																																									
23	38	38	38	297.5																																									
24	38	38	37	297.5																																									
25	38	38	38	298.7																																									
26	38	38	38	299.0																																									
27	38	38	38	299.5																																									
28	38	38	38	299.3																																									
29	38	38	38	299.0																																									
30																																													
31																																													
Total																																													
Avg.	38	38	38	299.6																																									
Max.	38	38	38	300.1																																									
Min.	37	37	37	290.7																																									

9 1 1 1 3 8 3 1 6 2 0

RICHLAND WATER SYSTEM REPORT

June 19 89

Date	Temp (°F)					Control – Analysis: Unfiltered Water						Filtered Water						Chemical Dosage: Alum			Depression			Carbon			Lime			Plant Chlorine			Use Chlorine (lbs/day)								Plant Flow				Consumption	
1	66	72	59	339.2		8.1	8.1		6.9	6.6		6.6	6.5		0.1	0.1																	17	15		2	16										22.2	25.6
2	66	81	55	339.2		7.9	8.2		6.6	6.6					0.7	0.7																	10	26		2	16	2										23.4	
3	68	83	55	339.0		7.8	8.2		6.5	6.5					0.1	0.1																	19	30		2	8										25.4	
4	67	80	52	338.0		7.6	8.4		7.1	7.0		6.9	6.5		0.2	0.4																	21	30		2	13										25.5	
5	67	80	54	339.1		7.5	8.7	7.9	7.1	7.1	7.0	6.7	6.8	6.7	0.7	0.7	0.9																18	35		2	9										27.1	
6	65	82	52	337.0		7.9	8.0	7.9	7.1	7.2																							25	35		4	10										28.6	
7	66	80	50	339.9		7.5	8.1	8.1	6.8	6.8																							20	35		1	12										26.6	
8	68	70	50	333.6	–	7.8	8.1		7.5	7.3																							15	45		1	12										26.9	26.2
9	66	80	49	339.6		7.4	8.0		7.5	7.5																							17	40		3	14	2	–								26.7	
10	67	80	53	338.6		7.3	8.1		7.1	7.2																							22	45		9	16		1								27.3	
11	66	80	56	339.5		7.4	8.2		7.0	7.1																							17	45		5	17	1	–								28.8	
12	67	79	60	339.3		7.6	8.2	7.8	7.2	7.3																							6	40		5	19	–								28.1	
13	68	80	62	339.3		7.7	8.3	7.4	6.8	6.9																							1	50		3	5	–	–								28.6	
14	68	72	68	338.6		7.7	8.2	8.1	7.5	7.5																							11	50		5	16	–	–								28.5	
15	68	75	64	338.4		7.6	8.1		7.7	7.6																							4	35		4	10	6	–								26.3	27.7
16	66	85	59	337.5		8.7	8.3		8.3	8.4																							4	15		6	8	–	–								28.5	
17	65	71	59	338.0		8.3	8.3		8.8	8.7																							11	15		7	9										27.6	
18	69	80	62	338.0		8.1	8.1		8.4	8.4																							14	35		5	–	–	–								28.3	
19	69	80	64	338.2		8.1	8.4	8.4	8.3	8.3	8.3	7.8	7.8	7.8	0.4	0.4																	11	35		4	10	–	–								28.8	
20	68	79	66	338.0		7.8	8.3		8.1	8.1		7.9	7.8		0.4	0.4																	7	35		5	9	–	1								28.6	
21	69	79	65	338.0		7.7	8.2	8.2	8.0	8.0		7.9	7.8		0.4	0.4																	9	30		6	10		1								27.4	
22	68	80	69	337.5	–	7.6	8.4		8.0	8.0					0.5	0.4																	8	30		5	7	–	–								26.4	26.7
23	68	80	66	338.0	–	7.5	8.4		8.2	8.2																							9	40		5	14	–	–								27.6	
24	71	81	67	339.0	–	7.6	8.4		8.7	8.7																							13	50		7	12										30.1	
25	70	80	66	338.2	–	7.7	8.4		8.7	8.5																							19	45		4	21	3	–								28.3	
26	69	78	66	338.2	–	7.7	7.8		8.8	8.7																							3	36		3	8	–	–								29.3	
27	70	80	66	338.4		7.6	8.1	8.1	8.7	8.7	8.8																						14	40		7	8		1								28.3	
28	71	80	66	338.0	–	7.7	7.9	8.1	8.4	8.4	8.4																						13	30		5	7		1								26.0	
29	70	80	67	338.0	–	7.6	8.1		8.4	8.4																							11	30		5	9		–								26.7	27.5
30	70	79	69	338.0	–	7.7	8.0		8.2	8.2	–																						14	35		4	9		–								26.0	
31	70	79	69	338.0	–	7.7	8.0		8.2	8.2	–																						17	30		5	5										27.7	
Total																																	469	1000		157	395	11	5								832.4	
1	71	75	68	338.0		8.2	8.2	8.2	8.0	8.0	8.0	7.8	7.8	7.8	0.2	0.2	0.2													2.08	350	0.7	33			7	21										30.1	
2	66	70	62	337.5		7.7	7.7	7.7	8.1	8.1	8.1	7.8	7.8	7.8	0.3	0.3	0.3													2.70	295	0.7	1			1	–										18.5	
3	68	72	63	337.2		7.8	8.0	8.0	7.7	7.8	8.0	7.7	7.8	7.8	0.3	0.3	0.3													2.07	300	0.8	15.5	36		4.1	–										24.9	

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DOE/RL-90-18

9.1 1 1 3 8 5 1 6 3 0

RICHLAND WATER SYSTEM REPORT

August 1989

Date	Temp (°F)					Control – Analysis: Unfiltered Water pH			Unfiltered Water Turb.			Filtered Water pH			Filtered Water Turb.			Chemical Dosage: Alum			Depran			Carbon				Lime				Plant Chlorine			Hypo. Chlorine								Plant Flow				Consumption	
1	69	87	58	339.2	–	7.7	7.9		1.1	1.9		7.4	7.3		.8	.9																	1.0	3.10	0.7	8	15		3	5	4									22.8	
2	63	77	54	338.7	–	7.5	7.6	7.7	1.1	1.7	1.5	7.6	7.7	7.7	.09	.09	.07																1.04	3.17	0.8	3	33		5	9	–	–								26.8	
3	68	80	59	338.0	–	7.4	7.7	7.7	2.0	2.7	1.7	7.7	7.7	7.7	.07	.06	.03		–														1.21	3.6	0.8	7	30		4	9	–	1								27.2	
4	71	80	66	337.4	–	7.7	7.6	7.8	1.8	2.7	1.8	7.6	7.7	7.7	.05	.05	.05																1.25	3.70	0.7	12	40		6	11	1	–								23.7	
5	69	85	67	337.4		7.6	7.8		2.1	1.9		7.6	7.7		.05	.06																	1.21	3.60	0.8	4	35		6	10	–	–								26.5	26.2
6	70	82	60	338.1		7.6	7.8		1.8	1.9		7.6	7.7		.05	.06																	1.21	3.60	0.7	8	40		4	14	–	–								31.3	
7	73	87	64	337.0		7.5	7.8		1.8	1.8		7.6	7.7		.05	.05																	1.21	3.70	0.7	26	50		4	18	–	1								30.3	
8	76	78	68	340.7		7.6	7.9		1.6	1.9		7.6	7.7		.05	.05																	1.20	3.80	0.8	8	50		5	12	2	2								25.9	
9	71	88	64	339.5	0.5	7.7	7.9	7.8	2.2	2.0	.8	7.7	7.7	7.7	.05	.05	.05																1.09	3.10	0.7	–	10		5	6	–	–								22.8	
10	72	87	64	340.3		7.5	7.9	7.6	2.2	1.9	1.5	7.7	7.7	7.7	.04	.04	.04																1.21	3.40	0.8	18	35		6	4	–	–								25.6	
11	71	86	55	338.2		7.4	7.8	7.7	2.2	1.9	1.5	7.7	7.7	7.7	.04	.04	.04																1.07	3.00	0.7	9	30		5	8	–	–								25.2	
12	70	81	60	339.6		7.5	7.9		1.8	2.1		7.7	7.7	7.8	.04	.04																	1.12	3.20	0.7	8	30		5	7	–	–								27.1	
13	69	81	60	340.8		7.6	7.8		1.9	1.7		7.7	7.8		.04	.04																	1.21	3.40	0.8	–	40		7	4	1	–								29.8	
14	70	81	59	339.5		7.8	8.0		2.1	1.7		7.7	7.8		.04	.05																	1.09	3.00	0.8	10	30		7	7	–	–								27.0	
15	69	83	57	340.0		7.8	8.1		2.5	2.0		7.7	7.8		.04	.05																	1.21	3.75	0.8	7	45		4	3	–	–								33.9	
16	67	76	59	338.4		8.0	8.1		2.4	2.3		7.7	7.8		.04	.05																	1.30	3.90	0.8	6	30		8	12	1	–								27.2	
17	68	78	55	339.5		7.8	8.1	8.1	2.4	1.9	1.8	7.7	7.8	7.8	.04	.05	.05																1.30	3.80	0.8	9	30		4	3	–	–								25.3	
18	71	83	52	339.0		8.1	8.1	8.1	2.0	2.1	1.9	7.7	7.8	7.8	.04	.05	.05																1.30	3.80	0.8	10	30		6	10	–	–								24.6	
19	71	83	52	338.8		8.0	8.1		2.0	2.1		7.7	7.8		.04	.05																	1.17	3.80	0.8	–	30		4	3	–	–								22.8	24.0
20	71	83	60	338.1		7.7	8.0		2.2	2.1		7.7	7.8		.04	.05																	1.20	3.80	0.8	2	30		8	–	–	–								22.6	
21	70	84	60	337.8		7.5	7.9		2.3	2.0		7.7	7.8		.04	.05																	1.20	3.80	0.8	3	35		5	9	–	–								22.8	
22	69	82	60	338.0		7.5	7.8		2.2	2.0		7.7	7.8		.04	.05																	1.20	3.70	0.8	5	5		4	6	–	2								17.2	
23	69	78	60	338.7	–	7.4	7.8	7.8	2.1	2.1	1.6	7.7	7.8	7.8	.04	.05	.05																1.20	3.70	0.8	7	–		5	6	–	–								18.1	
24	70	79	60	338.7	–	7.6	7.8	7.8	2.1	2.1	1.6	7.7	7.8	7.8	.04	.05	.05																1.17	3.80	0.8	10	–		5	–		–								19.3	
25	70	79	60	338.7		7.6	7.8	7.9	2.1	2.0	1.6	7.7	7.8	7.8	.04	.05	.05																1.17	3.70	0.8	9	–		3	3	–	–								17.2	
26	69	76	60	338.0	–	7.6	7.8		2.0	2.0		7.7	7.8		.04	.05																	1.20	3.85	0.8	6			6	6		–								21.1	20.3
27	71	78	66	338.0		7.6	8.1		2.1	1.8		7.7	7.8		.04	.05																	1.09	3.85	0.8	3			5	3	5									22.1	
28	72	80	65	338.6		7.6	8.2		2.0	2.1		7.7	7.8		.04	.05																	1.21	3.90	0.8	19	15		5											22.6	
29	70	83	62	339.7		7.6	8.2		2.0	2.0		7.7	7.8		.04	.05																	1.21	3.85	0.8	9	10		–	3										20.6	
30	71	80	66	338.7		7.6	8.1	7.8	2.0	2.0	1.6	7.7	7.8	7.8	.04	.05	.05																1.17	3.85	0.8	8	–		6	–										20.3	
31	69	83	59	340.0		7.6	8.1	7.9	2.0	1.9	1.6	7.7	7.8	7.8	.04	.05	.05																1.07	3.70	0.7	10	15		4	4										19.5	
Avg.																																					150	196	14	6								72.6	
1	72	89	58	340.0		7.5	8.0	7.8	2.1	1.7	1.5	7.7	7.8	7.8	.04	.05	.05																1.21	3.90	0.8	24	50		8	10	–	–								30.3	
2	67	76	56	338.0	–	7.6	7.9	7.8	2.1	1.7	1.5	7.7	7.8	7.8	.04	.05	.05																1.15	3.90	0.7	–	–		–	–	–	–								18.1	
3	70	85	55	339.5		7.6	8.1	7.9	2.1	1.9	1.5	7.7	7.8	7.8	.04	.05	.05																1.17	3.11	0.8	7.9	23		4.3	6.3	–	–								23.4	

DOE/RL-90-18

RICHLAND WATER SYSTEM REPORT

September 1989

Date	Temp (°F)					Control – Analysis: Unfiltered Water						Filtered Water						Chemical Dosage: Alum						Ferrous			Carbon			Lime			Plant Chlorine			Disc Chlorine										Plant Flow				Consumption	
1	68	80	91	201.0	–	7.8	7.0	7.0	8.7	7.7	7.0	7.7	8.0	7.0	8.0	8.0	8.0	66	90	80													2.10	310	0.8	–	10		4	3	–	–										
2	68	76	92	210.0	–	7.8	7.0		8.0	8.7		7.8	8.0		8.0	8.0		70	90														2.20	300	0.8	–	10		5	4												
3	66	76	92	210.0	–	7.7	7.0		8.7	8.7		7.7	8.0		8.0	8.0		70	90														1.93	320	0.8	2	20		5	8								18.5	20.5	18.3		
4	67	79	90	210.0	–	7.7	8.1		8.0	8.5		8.7	8.7		8.0	8.0		70	90														2.00	300	0.7	10	15		4	9	–	–						20.0	20.5	21.1		
5	67	80	86	200.0	–	7.8	8.0		8.0	8.7		8.7	8.0		8.0	8.0		70	90														2.15	320	0.8	15	5		5	3	–	–						20.5	20.5	20.7		
6	67	79	90	200.0		7.9	8.1	8.0	8.0	8.2	8.0	7.9	8.5	8.0	8.0	8.0	8.0	70	90	90													1.13	270	0.7	11	15		6	1	–	–						20.4		20.4		
7	67	79	90	200.0		7.8	8.0	8.0	8.0	8.3	8.5	8.0	8.7	8.0	8.0	8.0	8.0	70	90	90													2.00	310	0.8	–	5		8	2								20.7		20.7		
8	67	80	85	200.0		7.8	8.0	8.0	8.0	8.7	8.0	8.0	8.7	8.0	8.0	8.0	8.0	70	90	90													2.10	360	0.8	–	15		5	2								20.6		20.6		
9	67	80	85	200.0		7.8	7.8		8.0	8.7		8.0	8.0		8.0	8.0		70	90														2.00	375	0.8	–	–		6	–	–	–						19.3	20.5	19.3		
10	66	75	90	200.0		8.0	8.0		8.0	8.1		8.0	8.2		8.0	8.0		70	90														2.00	375	0.8	–	10		6	2	4	–						20.9		20.9		
11	65	78	90	200.0		7.8	8.0		8.0	8.1		8.0	8.2		8.0	8.0		70	90														2.00	375	0.8	6	5		6	–	–							20.9		20.9		
12	66	78	90	–		8.0	8.0		8.1	8.1		8.0	8.2		8.0	8.0		70	90														1.95	360	0.8	–	–		2	–	–	–						19.2		19.2		
13	66	80	95	–		8.1	8.2	8.1	8.1	8.2	8.0	8.0	8.2	8.0	8.0	8.0	8.0	70	90	90													2.00	375	0.8	–	–		–	4	6	–	–					19.4		19.4		
14	66	82	92	–	–	7.8	8.0	8.0	8.2	8.2	8.0	7.8	8.2	8.0	8.0	8.0	8.0	70	90	90													2.01	300	0.8	–	–		2	2	2		–					20.0		20.0		
15	67	81	88	–	–	8.0	8.0	8.0	8.0	8.3	8.0	8.0	8.0	8.0	8.0	8.0	8.0	70	90	90													2.25	300	0.8	11	–		3	10	–		–					19.0		19.0		
16	68	81	88	200.0	–	7.8	8.0		8.2	8.2		8.0	8.0		8.0	8.0		70	90														2.00	300	0.8	–	–		6	–	–		–	–				19.3	18.8	19.3		
17	68	80	88	200.0	–	7.8	8.1		8.2	8.2		8.0	8.0		8.0	8.0		70	90														2.00	300	0.8	1	10		8	–	–							18.6		18.6		
18	68	80	87	200.0	–	7.8	8.0		8.2	8.1		8.0	8.0		8.0	8.0		70	90														2.75	320	0.8	7	–		5	–	–	–	–					18.8		18.8		
19	68	78	87	200.0	–	7.9	8.0		8.2	8.2		8.0	8.0		8.0	8.0		70	90														2.00	300	0.8	3	–		7	–		1	–	–				17.0		17.0		
20	68	80	90	201.5	–	7.9	8.0	8.0	8.0	8.2	8.0	8.0	8.0	8.0	8.0	8.0	8.0	70	90	90													2.00	320	0.8	10	10		9	–	–	1	–	–				19.5		19.5		
21	68	78	90	200.0		7.8	8.0	8.0	8.0	8.3	8.0	8.0	8.0	8.0	8.0	8.0	8.0	70	90	90													2.00	320	0.8	6	10		8	–	10							17.2		17.2		
22	66	78	90	200.0		7.8	8.0	8.0	8.2	8.0	10	8.0	8.0	8.0	8.0	8.0	10	70	90	90													2.00	320	0.8	17	10		7					–				18.1		18.1		
23	68	80	90	200.0		7.8	8.0		8.0	8.2		8.0	8.2		8.0	8.0		70	90														2.10	320	0.8	10	–		5					–				17.4	18.3	17.4		
24	70	80	90	200.0		7.8	8.0		8.0	8.0		8.0	8.0		8.0	8.0		70	90														2.00	300	0.8	8	–		7					–				19.0		19.0		
25	68	80	83	200.0		7.8	8.0		8.0	8.0		8.0	8.0		8.0	8.0		70	90														2.05	325	0.8	21	10		6		3							18.8		18.8		
26	68	80	82	200.0		8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0		70	90														1.80	325	0.8	14	5		5									18.3		18.3		
27	68	77	90	200.0		7.8	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	70	90	90													1.88	335	0.8	7	5		6									17.8		17.8		
28	68	78	90	200.0		7.8	8.0	7.8	8.0	8.0		8.0	8.0		8.0	8.0		70	90														2.10	370	0.8	14	10		4									18.6		18.6		
29	68	80	90	200.0		7.8	8.0		8.0	8.0		8.0	8.0		8.0	8.0		70	90														2.00	300	0.8	14	15		8					–				18.6		18.6		
30	68	80	90	200.0		8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0		70	90														1.70	300	0.8	5	7		9									18.7		18.7		
31																																																			
Total					Total																																															
1	70	81	90	201.0		8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	70	90	90													2.10	300	0.8	21	30		9	10	10	–						22.7		22.7		
10	68	80	90	200.0		7.8	7.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	70	90	90													1.80	300	0.7	–	–		–	–	–	–		–				19.7		19.7		
Avg	67	80	90	200.5		7.8	8.0	8.0	8.0	8.3	8.0	8.0	8.2	8.0	8.0	8.0	8.0	70	90	90													2.05	324	0.8	16	20		5.1	1.7	1.0	–	1.3	–				19.1		19.1		

DOE/RL-90-19

9 1 1 1 0 8 5 1 6 3 2

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October 19 89

Date	Temp (°F)					Control - Analysis: Unfiltered Water						Filtered Water						Chemical Dosage: Alum			Sodium			Carbon			Lime			Plant Chlorine			Misc. Chlorine (LB/DAY)							Flow	Plant Flow					Consumption	
1	63	70	59	339.0																																											
2	65	68	59	339.0																																											
3	65	65	55	339.0																																											
4	65	66	56	339.6																																											
5	67	71	62	340.5																																											
6	69	77	73	339.0	—																																										
7	69	79	73	339.6	—																																										
8	69	78	67	340.1	—																																										
9																																															
10				340.0																																											
11	63	77	59	339.0																																											
12	69	80	60	339.5																																											
13	67	85	56	341.2																																											
14	69	82	58	341.5																																											
15	63	85	58	341.0																																											
16	60	60	72	342.9																																											
17	61	61	55	342.5																																											
18	60	66	58	341.2																																											
19	60	67	60	339.3																																											
20	61	67	59	338.5																																											
21	61	69	62	340.7																																											
22	61	60	65	340.3																																											
23	61	64	65	339.7																																											
24	60	63	60	339.2																																											
25	61	59	62	339.7																																											
26	60	60	56	339.9																																											
27	59	59	59	340.1																																											
28	59	62	63	340.7																																											
29	58	62	57	340.9																																											
30	57	57	58	339.2																																											
31	57	60	58	339.2																																											
Total																																															
Avg.	67	70	63	339.9																																											
Max.	67	79	67	340.0																																											
Min.	62	60	51	340.1																																											

RICHLAND WATER SYSTEM REPORT

November 19 89

Date	Temp.			Barometer	Control Analysis / Chemical Dosage (alum, ammonia, carbon, lime)
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	27	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	57	[illegible]	41	[illegible]	[illegible]
5	57	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	38	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	57	52	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	35	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	55	46	39	29.9	[illegible]
19	55	45	40	29.40	[illegible]
20	55	51	41	29.4	[illegible]
21	–	53	39	29.7	PLANT OFF
22	–	[illegible]	[illegible]	[illegible]	
23		[illegible]	31	30.2	
24		[illegible]	[illegible]	[illegible]	
25		[illegible]	[illegible]	[illegible]	
26		51	37	30.1	
27		[illegible]	[illegible]	30.1	
28		[illegible]	[illegible]	30.1	
29		[illegible]	26	[illegible]	
30		31	30	[illegible]	
31					
Total					
Max	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Min	[illegible]	31	[illegible]	[illegible]	[illegible]
Avg	[illegible]	[illegible]	[illegible]	30.3	[illegible]

Date	Plant Chlorine			Aux. Chlorine								Plant Flow				Consumption	Weekly
1	2.6	95	0.7	–	5	–	3		–	–	[illegible]	[illegible]	[illegible]	[illegible]	–	8.06	
2	[illegible]	95	0.7	–	–		7		/		–	[illegible]	[illegible]	[illegible]	[illegible]	7.82	
3	[illegible]	105	0.7	–	–	–	2	–	–	–	–	[illegible]	[illegible]	[illegible]	–	7.13	
4	[illegible]	95	0.7	–	–		1	–	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	7.79	7.82
5	[illegible]	105	0.8	8	–	–	1	–	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	7.47	
6	[illegible]	110	[illegible]	2	–		3		–	–	–	[illegible]	[illegible]	[illegible]	–	7.48	
7	[illegible]	105	0.7	6	–		–				–	[illegible]	[illegible]	[illegible]	–	7.67	
8	[illegible]	105	0.8	6			[illegible]				–	[illegible]	[illegible]	[illegible]	–	7.88	
9	[illegible]	100	0.7	6			1					[illegible]	[illegible]	[illegible]	–	7.77	
10	[illegible]	[illegible]	0.8	4	–		2	–	–	–	–	[illegible]	[illegible]	[illegible]	–	7.57	
11	[illegible]	100	0.8	5	–		2	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.50	7.74
12	2.81	[illegible]	0.8	–			2	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.91	
13	1.67	100	0.8	–	–		2	–		–	–	[illegible]	[illegible]	[illegible]	–	7.10	
14	1.95	110	0.8	–	–		–				–	[illegible]	–	[illegible]	–	6.72	
15	[illegible]	100	0.8	–	–		3			–	–	[illegible]	[illegible]	[illegible]	[illegible]	7.58	
16	2.10	95	0.7	–	–		1			–	–	[illegible]	[illegible]	[illegible]	[illegible]	7.11	
17	1.72	105	0.7		/		1					[illegible]	[illegible]	[illegible]	[illegible]	7.03	
18	1.96	115	0.8				2					[illegible]	[illegible]	[illegible]	[illegible]	7.17	7.09
19	2.31	115	0.8	15	–		1					[illegible]	[illegible]	[illegible]	[illegible]	7.45	
20	2.52	95	0.8	–	5		1			2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.43	
21	–	–	0.5	5	35		1			–	[illegible]	–	–	–	[illegible]	7.81	
22			0.5	5	50		1				[illegible]				[illegible]	7.40	
23			[illegible]	4	20		2				[illegible]				[illegible]	[illegible]	
24			[illegible]	–	30		–				[illegible]	–	–	–	[illegible]	[illegible]	
25			0.5	1	30		2				[illegible]	–	–	–	[illegible]	6.38	6.87
26			0.5	7	40		2				[illegible]	–	–	–	[illegible]	6.19	
27			0.5	–	20	–	2	–	–	–	[illegible]	–	–	–	[illegible]	6.24	
28			0.5	8	80	–	3	–	–	–	[illegible]	–	–	–	[illegible]	6.99	
29			0.6	4	40		2				[illegible]	–	–	–	[illegible]	6.17	
30			0.5	2	30		–				[illegible]	–	–	–	[illegible]	5.73	
31																	
Total		[illegible]		[illegible]	[illegible]		[illegible]		1	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	213.6	
Max	2.91	100	0.8	15	50		7		–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8.50	
Min	1.41	95	0.7	–	–		–		–	–	–	[illegible]	–	[illegible]	–	5.73	
Avg	1.96	[illegible]	0.8	2.97	[illegible]		1.79		–	–	2.4	[illegible]	[illegible]	[illegible]	[illegible]	7.12	

1.77

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Date	Temp. °F				Control - Analysis: Unfiltered Water pH			Unfiltered Water Turb.			Filtered Water pH			Filtered Water Turb.			Chemical Dosage: Alum Dosage			Dosage			Chlorine			Lime			Plant Chlorine			Mol. Chlorine								Plant Flow				Consumption	
1	35	34	342.9																													0.6	3	35	-	2	-	-	-						8.1	6.16	
2	34	33	345.3																													0.5	-	35	-	1	-	-	-						8.1	5.71	6.05
3	36	33	339.7																													0.6	6	40	-	1	-	-	-						8.2	6.51	
4	38	34	339.6																													0.6	6	40	-	2	-	-	-						13.1	6.81	
5	43	36	338.6																													0.6	9	40	-	2	-	-	-						14.0	7.13	
6	54	35	339.1																													0.6	2	40	-	2	-	-	-						10.3	7.44	
7	40	35	338.0																													0.6	1	40		1									10.1	7.34	
8	46	36	334.4																													0.6	7	40	-	1									10.3	6.57	
9	51	38	341.6																													0.6	7	35	-	2	-	-	1						10.5	7.44	6.95
10	49	36	338.8																													0.6	6	35	-	1	-	-	-						10.1	7.28	
11	37	34	331.1																													0.6	5	40	-	1	-	-	-						10.1	7.37	
12	46	38	332.8																													0.6	2	40	-	3	-	-	-						10.5	7.28	
13	34	36	338.0																													0.6	6	40	-	3									10.6	7.12	
14	38	39	338.6																													0.6	7	40	-	2	-	-	-						10.1	7.38	
15	39	37	338.6																													0.6	4	40	-	2	-	-	-						10.0	7.18	
16	41	39	340.0																													0.6	6	40		2			1						10.8	7.40	7.33
17	37	38	336.0																													0.6	1	40		1	-	-	-						10.1	6.87	
18	35	35	338.5	-																												0.6	2	40		2	-	-	-						10.0	7.41	
19	32	38	340.9	-																												0.5	-	50	-	-	-	-	-						10.3	7.46	
20	37	37	338.0	-																												0.6	7	50	-	2	-	-	-						10.5	7.02	
21	36	37	338.7	-																												0.5	8	50	-	2	-	-	-						10.5	7.04	
22	40	38	338.7	-																												0.4	9	35	-	2	-	-	1						10.8	7.34	
23	36	35	338.2	-																												0.3	9	35	-	2	-	-	-						10.7	6.61	7.32
24	35	36	338.0	-																												0.5	8	40	-	3	-	-	-						10.3	6.95	
25	37	33	338.9	-																												0.7	8	40	-	3	-	-	-						10.3	6.67	
26	35	35	338.0	-																												0.4	6	35	-	2	-	-	-						10.0	7.15	
27	37	37	338.5	-																												0.6	7	35	-	3	-	-	-						10.1	7.16	
28	39	39	337.0	-																												0.7	-	35	-	3	-	-	-						10.0	7.00	
29	41	38	336.0	-																												0.5	17	40	-	0	-	-	-						10.7	7.09	
30	31	38	339.0	-																												0.5	6	35	-	3	-	-	1						10.7	5.85	
31	33	39	341.3	-																												0.5	6	35	-	1	-	-	-						10.7	6.09	
Avg.																																	100	37.8		2.4		-	6						10.2	214.7	
1	39	38	338.0																														17	40		3			-						10.1	7.76	
2	30	39	338.6																														-	35		-			-						10.4	5.47	
3	38	39	340.4																														5.0	41		1.8			-						10.8	6.93	

APPENDIX L
AQUIFER TEST RESULTS

This appendix presents the results of Aquifer Testing in the 1100-EM-1 operable unit. The material in this appendix was prepared by Westinghosue Hanford's Geoscience Group.

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Appendix L Contents

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APPENDIX L

RESULTS OF SLUG TESTING IN 1100-EM-1 OPERABLE UNIT

In the course of the ground-water investigation of the 1100-EM-1 Operable Unit, a series of slug tests were conducted in the new wells constructed as part of the investigation. The slug tests involved both injection and withdrawal tests: the injection tests were conducted by inserting a solid cylindrical rod into the well to cause a brief rise in the water level in order to measure the subsequent decline. In the withdrawal tests the cylindrical rod was pulled out of the well to cause a brief decline in the water level with measurements made of the subsequent rise. A pressure transducer and data logger were used to measure and record the change in water levels with time.

Review of the field data indicates that the insertion of the rod in the injection test caused oscillations of the water level such that the data were unsuitable for analysis. The withdrawal test data, however, were suitable for analyses after the first several hundredths of a second. Therefore only withdrawal test data were analyzed for estimates of hydraulic conductivity, K.

The withdrawal test data were analyzed by the method of Bouwer and Rice (Bouwer and Rice, 1976; Bouwer, 1989). As indicated in the title of the first paper referenced, the analysis is appropriate for partially penetrating wells in unconfined aquifers. The data from the data logger were reviewed and a graph of the log of the change in water level, y, vs. time, t, was generated. Data points in which the change in water level, y, were negative or zero were deleted, as were data points in which the change was significantly out of the range of rest of the test data; these data reflect the oscillations of the water level in the first few hundredths of a second of the test. Analyses of the data were carried out using an optimization algorithm (Kemblowski and Klein, 1989) based on the minimization of the square of the difference between the observed and calculated change in the water level.

Graphs of the test data, in the form of the logarithm of the change in water level, log y, vs. time, t, are presented on pages L-4 through L-21. A summary of the estimates of the hydraulic conductivity, K, obtained in the analyses is presented in the Table L.1. Two tests were conducted in wells MW 1, 8 and 15, and one test in the other wells. In constructing the straight line section on the semi-log plot of y vs. t, a section of short time duration early in the test was neglected, if observed, as it was deemed to represent drainage from the sand pack as described in Bouwer, 1989. However in some wells two straight line sections were observed on the log y vs t graph. At this time we are not sure whether this represents additional drainage of the sand pack or another zone in the aquifer. Therefore Table L.1 indicates results for the hydraulic conductivity in feet per day for early time and,

if appropriate, late time. As an aid in the interpretation of the test results, the type of screen is noted in the table since some wells were constructed with a 10 slot stainless steel channel pack screen with a 20 - 40 filter, while other wells had a standard wire-wound stainless steel screen. The standard screens were 10 slot with the exception of well MW 8 which has a 20 slot screen. Table L.1 also indicates the portion of the saturated and screened section estimated to be in the Hanford formation vs. that in the Ringold Formation.

Examination of Table L.1 reveals that there is a generally good correlation between slug test results and the formation contributing to flow in a particular well. That is, wells that are predominately or entirely screened in the Hanford formation tend to have higher values of K than those screened in the Ringold Formation. Also there is generally good correlation between hydraulic conductivity and the type of well screen. Wells with wire-wound screens tend to have values of K greater than wells with channel-pack screens. While these correlations may be described as being generally in good agreement, examination of Table L.1 indicates that this is not always the case. The results obtained in this series of slug tests suggest that hydraulic conductivity is a function of both the geology and type of well screen, and it is unclear as to which is the dominant factor.

Slug testing only provides an approximation of the hydraulic conductivity since only a small area around the well is influenced by the water level fluctuations in the well in the short time period encompassed in a slug test. A further complication is the possible damage to the formation during the construction of the well. In view of the limitations of the method, the results of the slug testing of the 15 wells are considered to be in reasonably good agreement. However, additional evaluation of the slug test method in comparison with longer term pump tests is required before confidence can be placed in the absolute values of the hydraulic conductivities determined from slug tests.

REFERENCES:

Bouwer, H. and R. C. Rice, 1976. "A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells", Water Resources Research, Vol. 12, No. 3, pp.423 -428.

Bouwer, H., 1989. "The Bouwer and Rice slug test - an update", Ground Water, Vol.27, No. 3, pp. 304 -309.

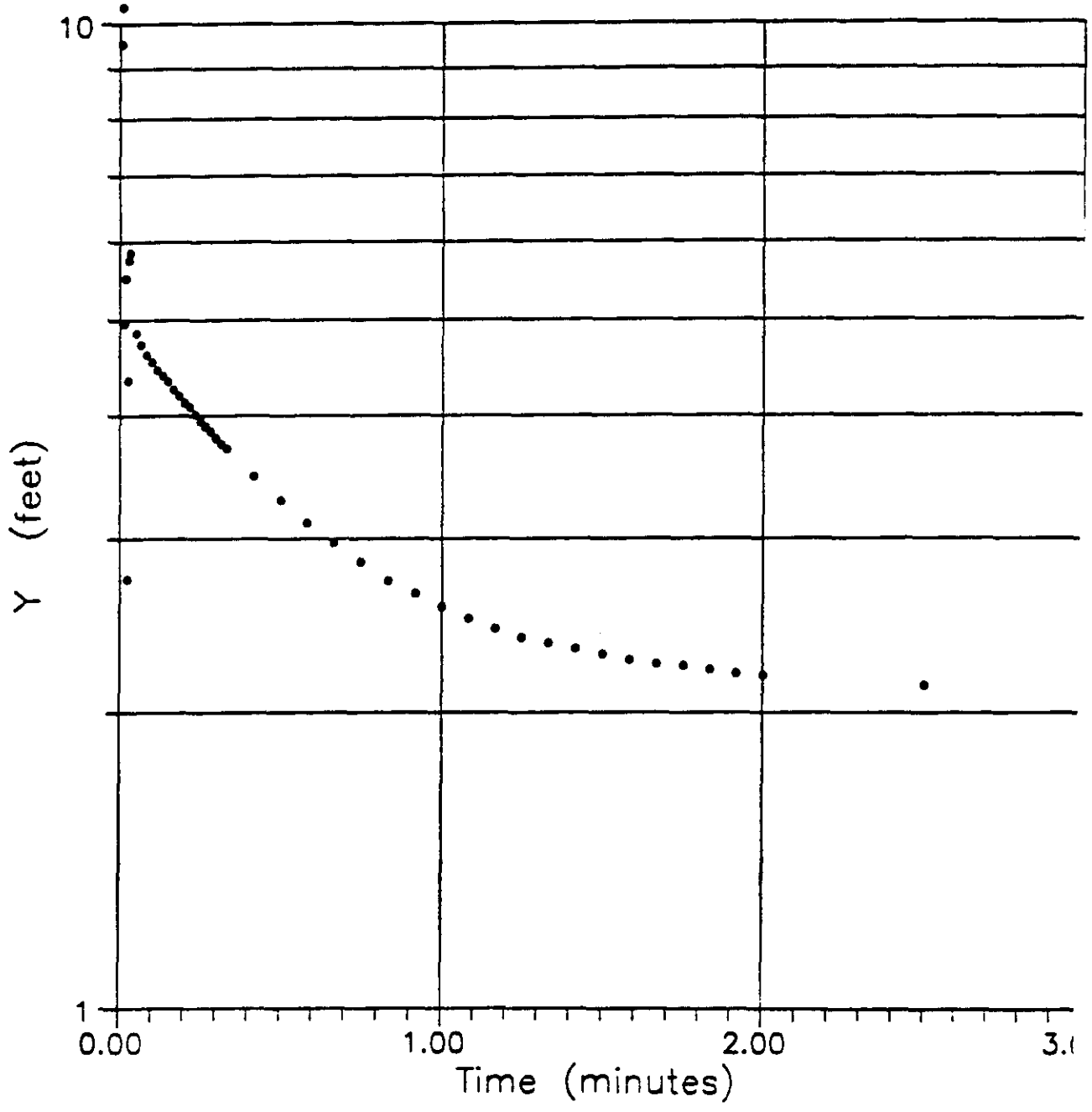
Kemblowski, M. W. and C. L. Klein, 1989. "An automated numerical evaluation of slug test data", Ground Water, Vol. 26, No. 4, pp 435 -438].

RESULTS OF SLUG TESTING IN 1100 AREA

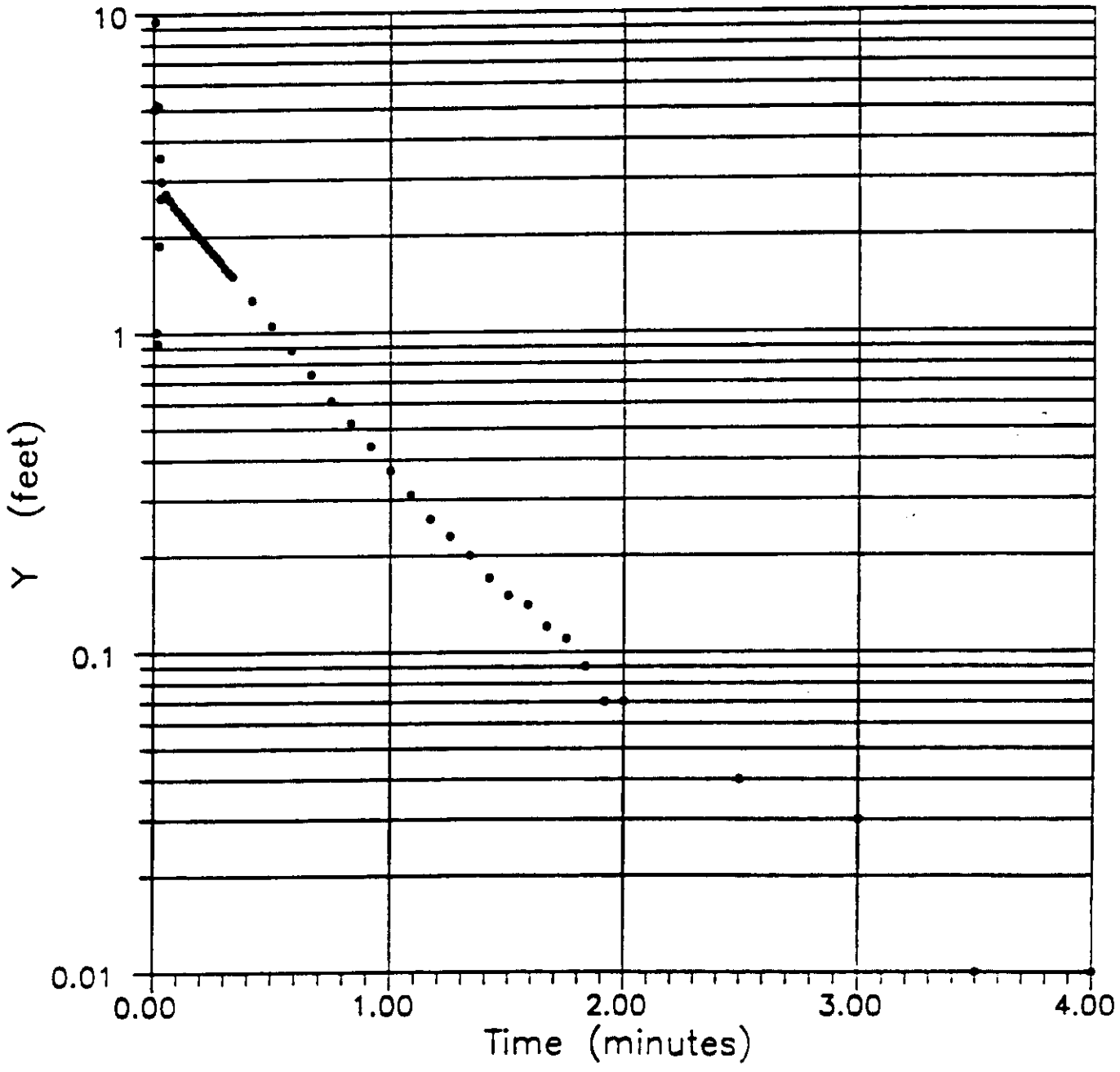
Well No.	Test No.	K (ft/day) Early	K (ft/day) Late	Screen Type *	Formation **
MW 1	1	9		CP	.5 H/.5 R
	2	22			
MW 2		22	31	S 10 slot	.5 H/.5 R
MW 3		88	138	S 10 slot	.6 H/.4 R
MW 4		35		CP	R
MW 5		9		CP	R
MW 6		31	54	CP	H
MW 7		26		CP	H
MW 8	1	150	74	S 20 slot	.75 H/.25 R
	2	155	50		
MW 9		1		CP	R
MW 10		3	5	S 10 slot	R
MW 11		4	3	CP	.67 H/.33 R
MW 12		17	19	CP	R
MW 14		2		CP	R
MW 15	1	64	83	S 10 slot	R
	2	101	151		
MW 17		0.2		CP	R

LEGEND:
* CP channel pack, 10 slot
* S standard wire-wound screen
** H Hanford formation
** R Ringold Formation

Well MW 1, Withdrawal Test #1 (Feb. 1, 1990)



Well MW 1, Withdrawal Test #2 (Feb. 2, 1990)



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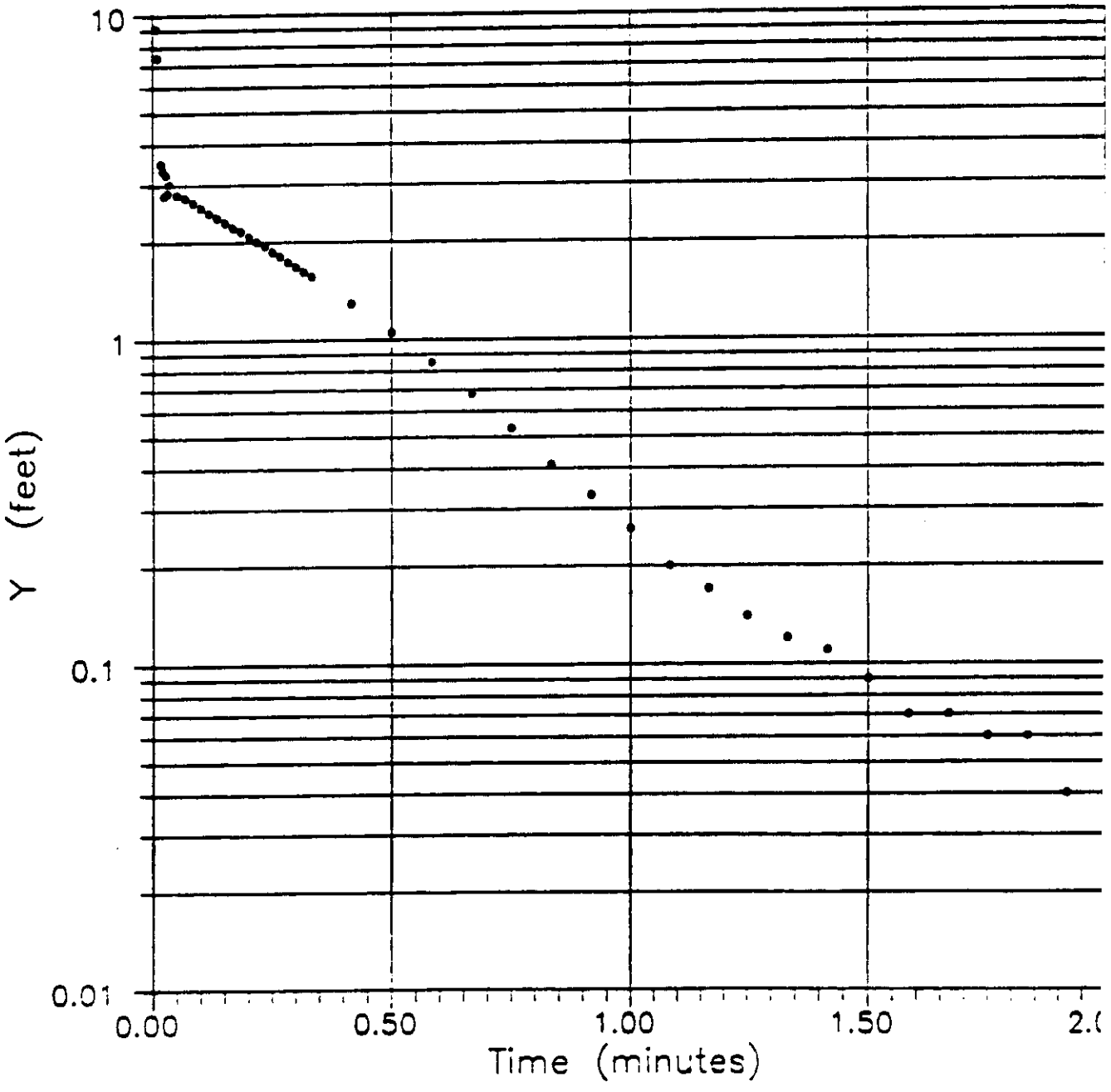

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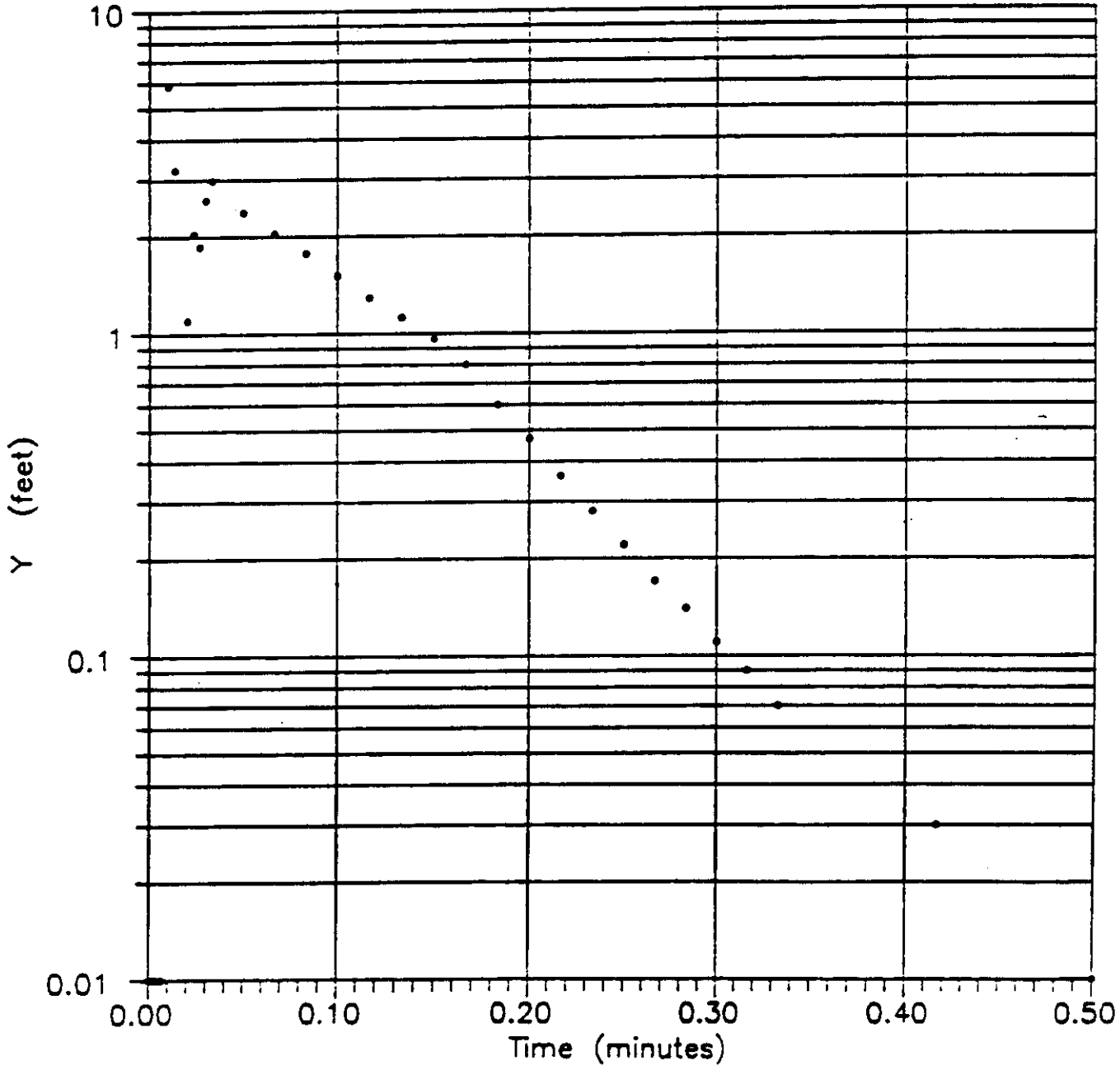

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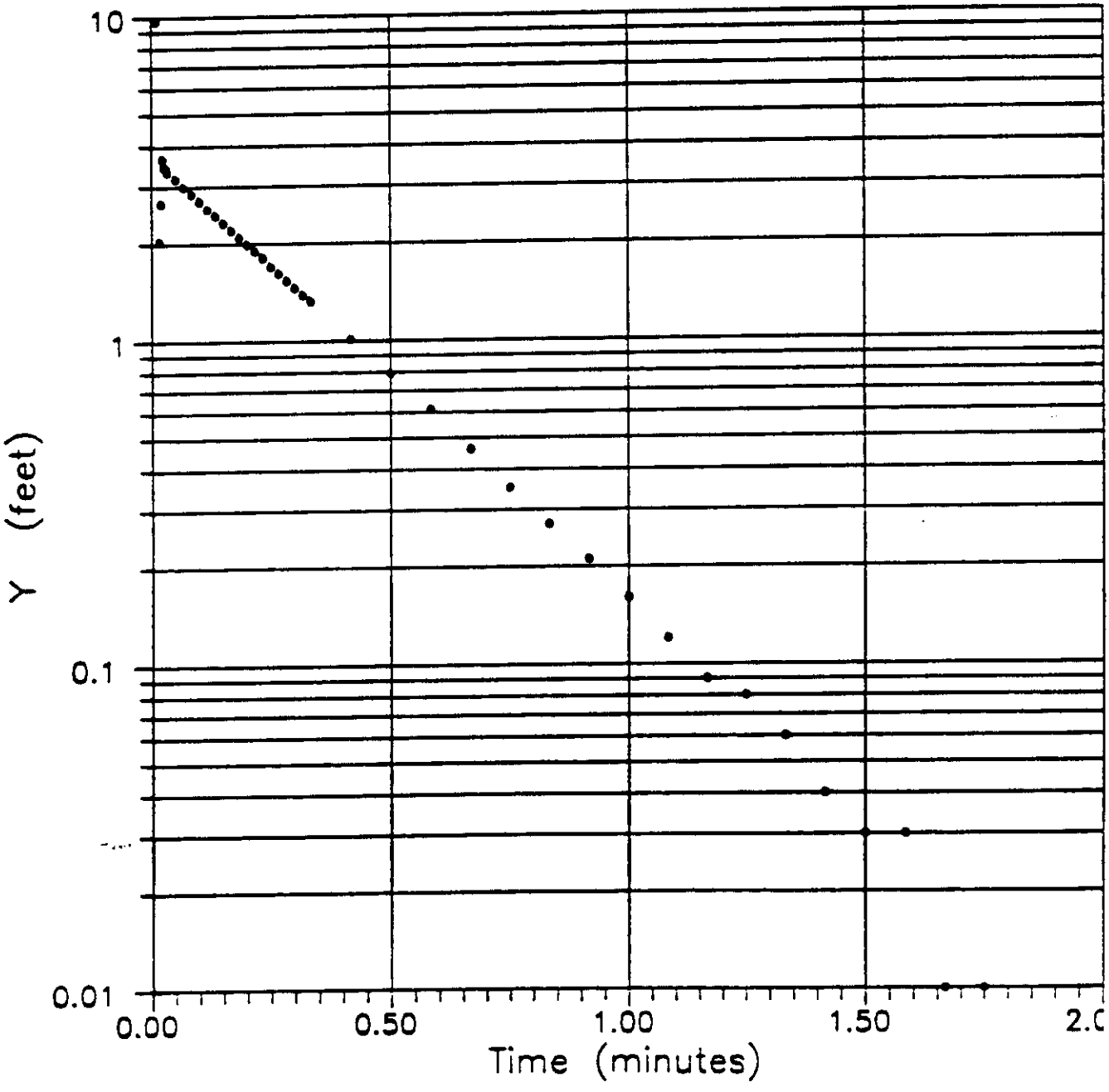
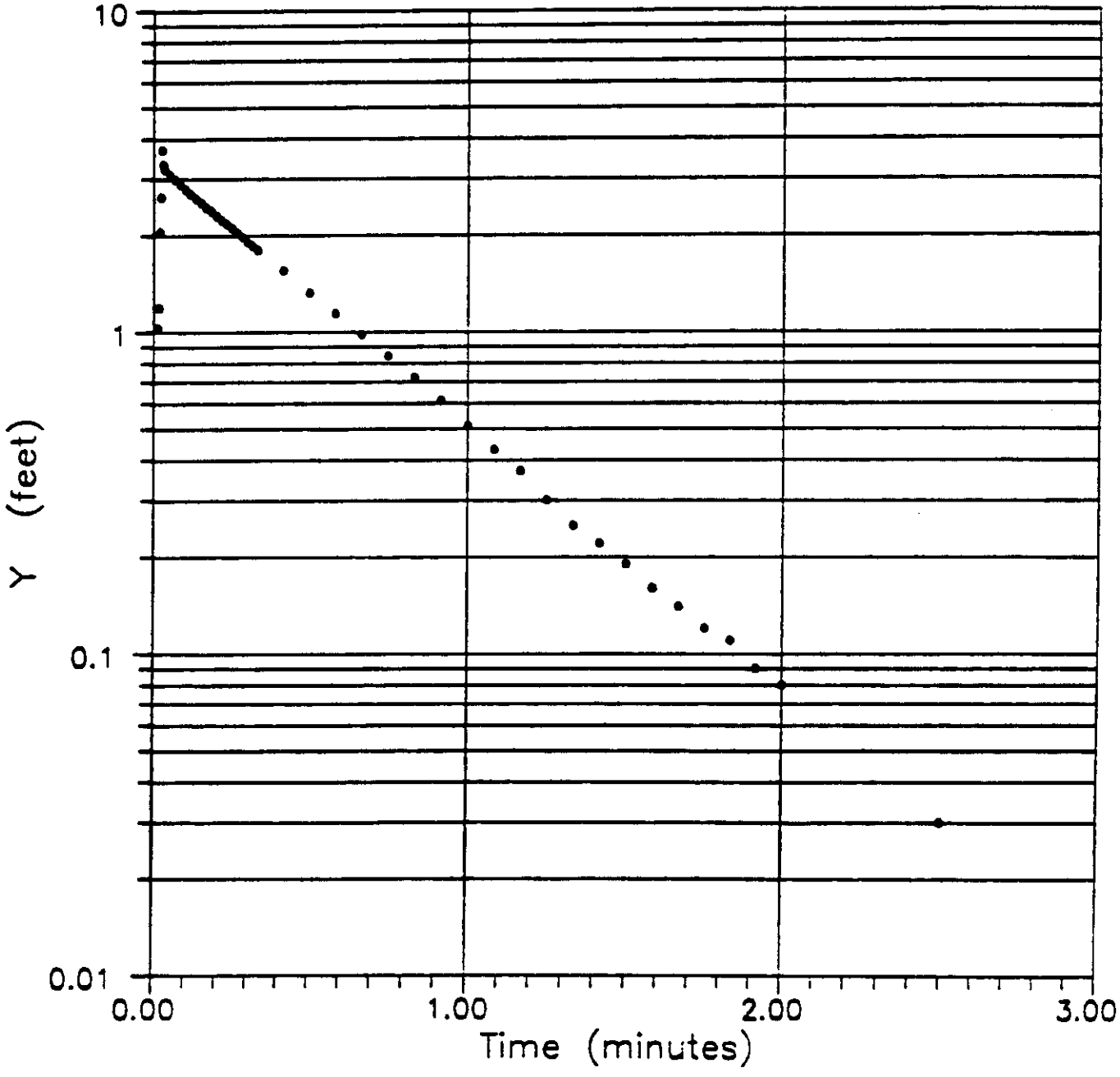
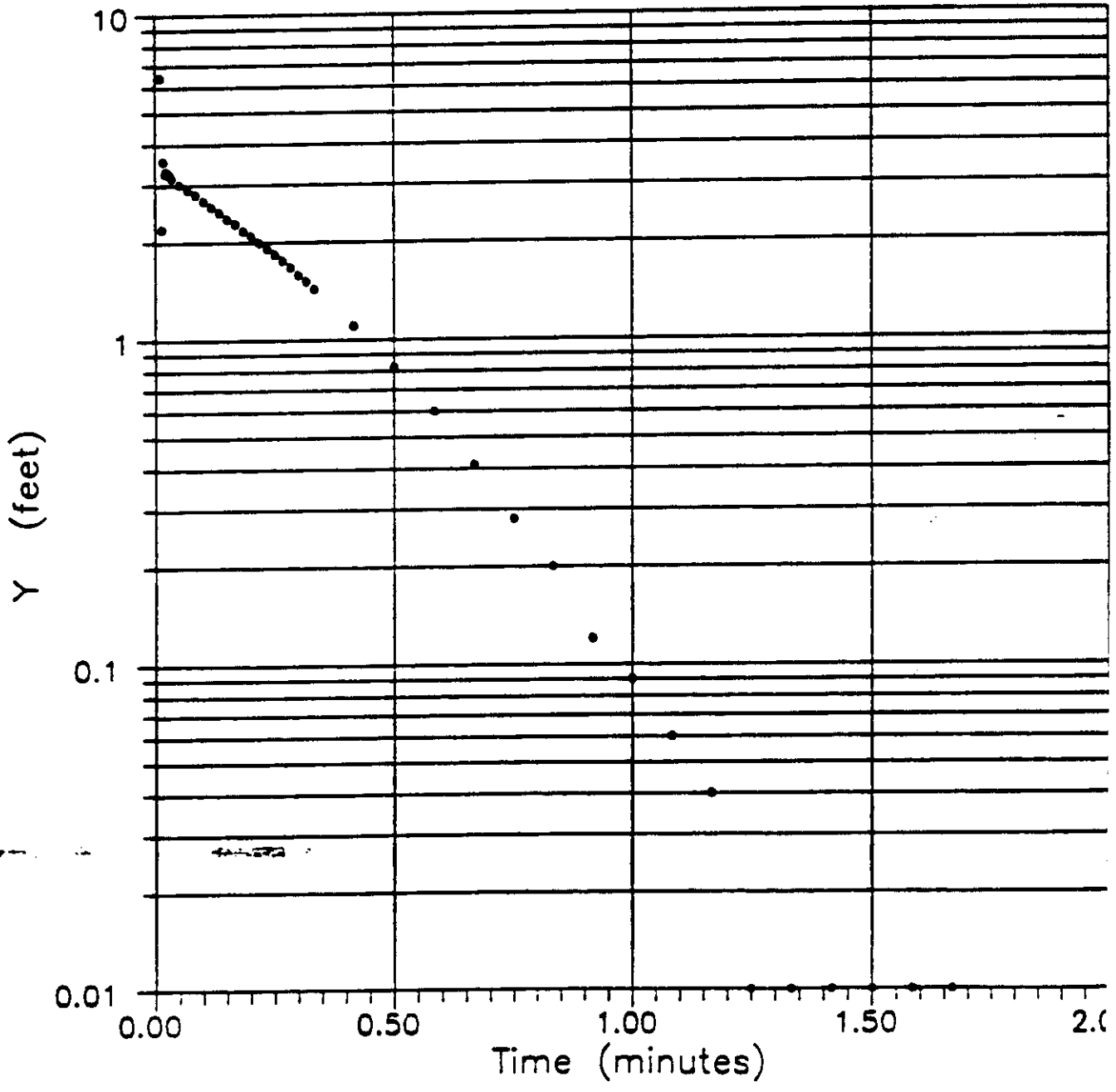


Well MW 5, Withdrawal Test (Feb. 7, 1990)



Well MW 6, Withdrawal Test (Feb. 2, 1990)



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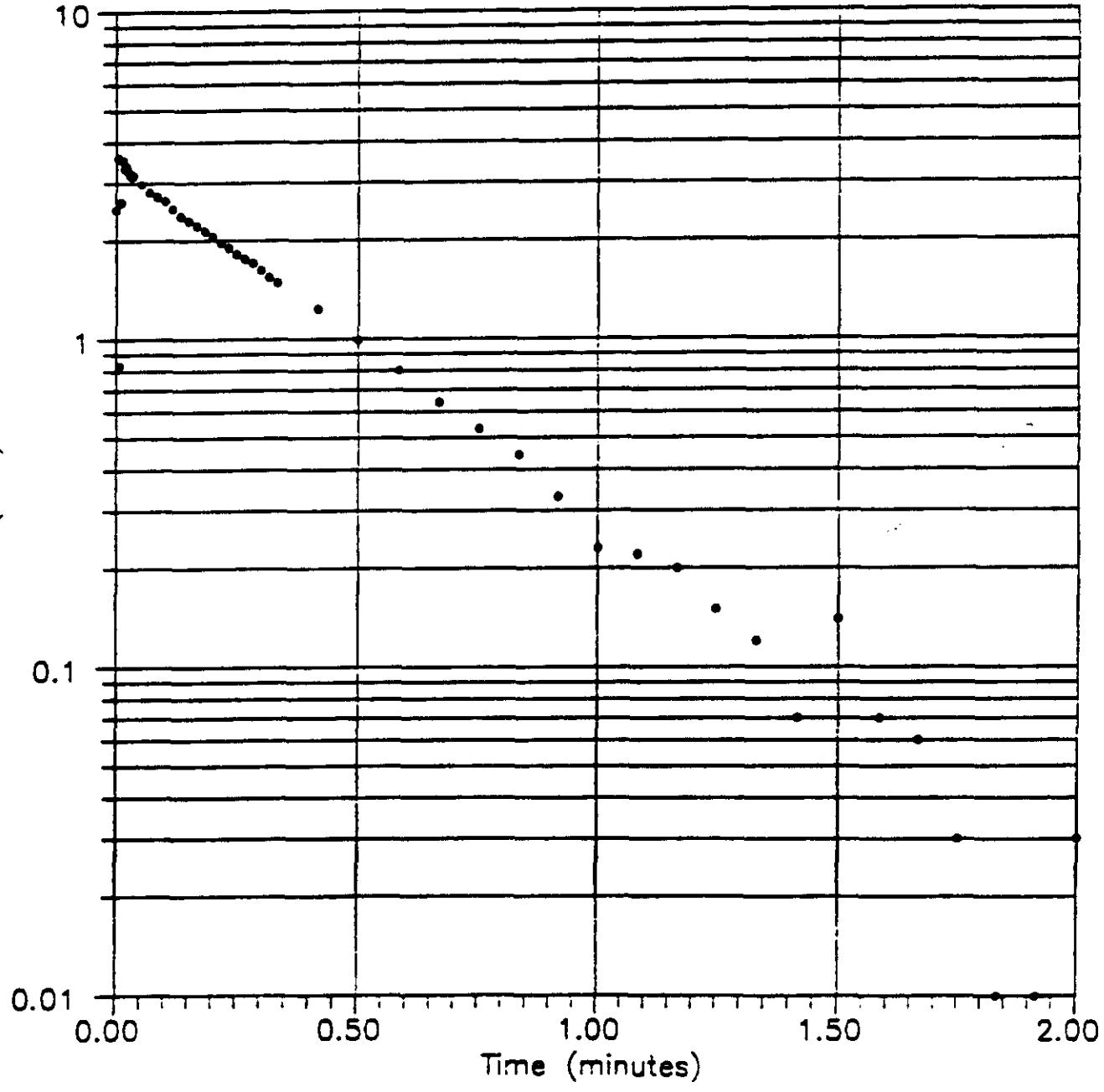

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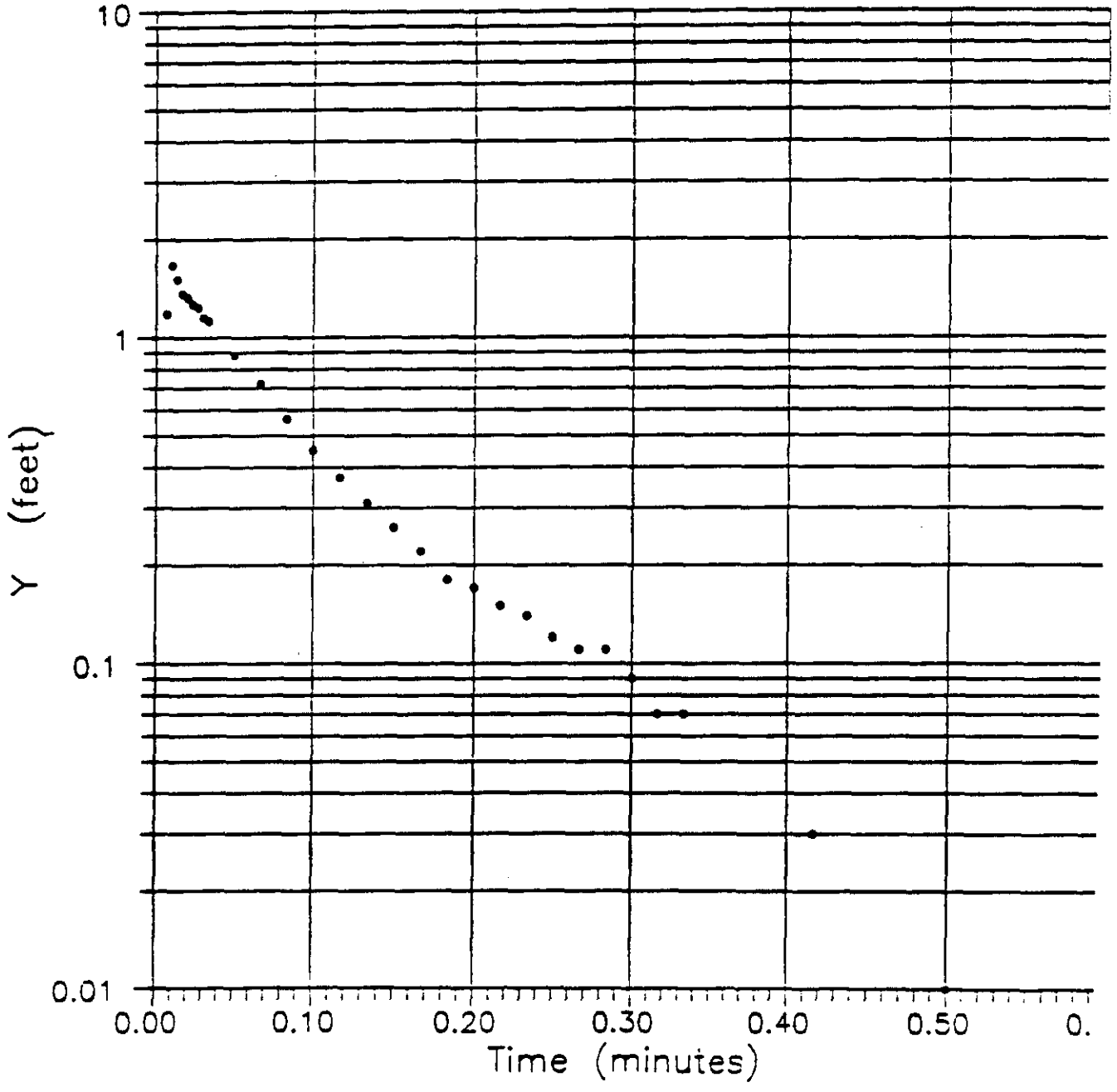

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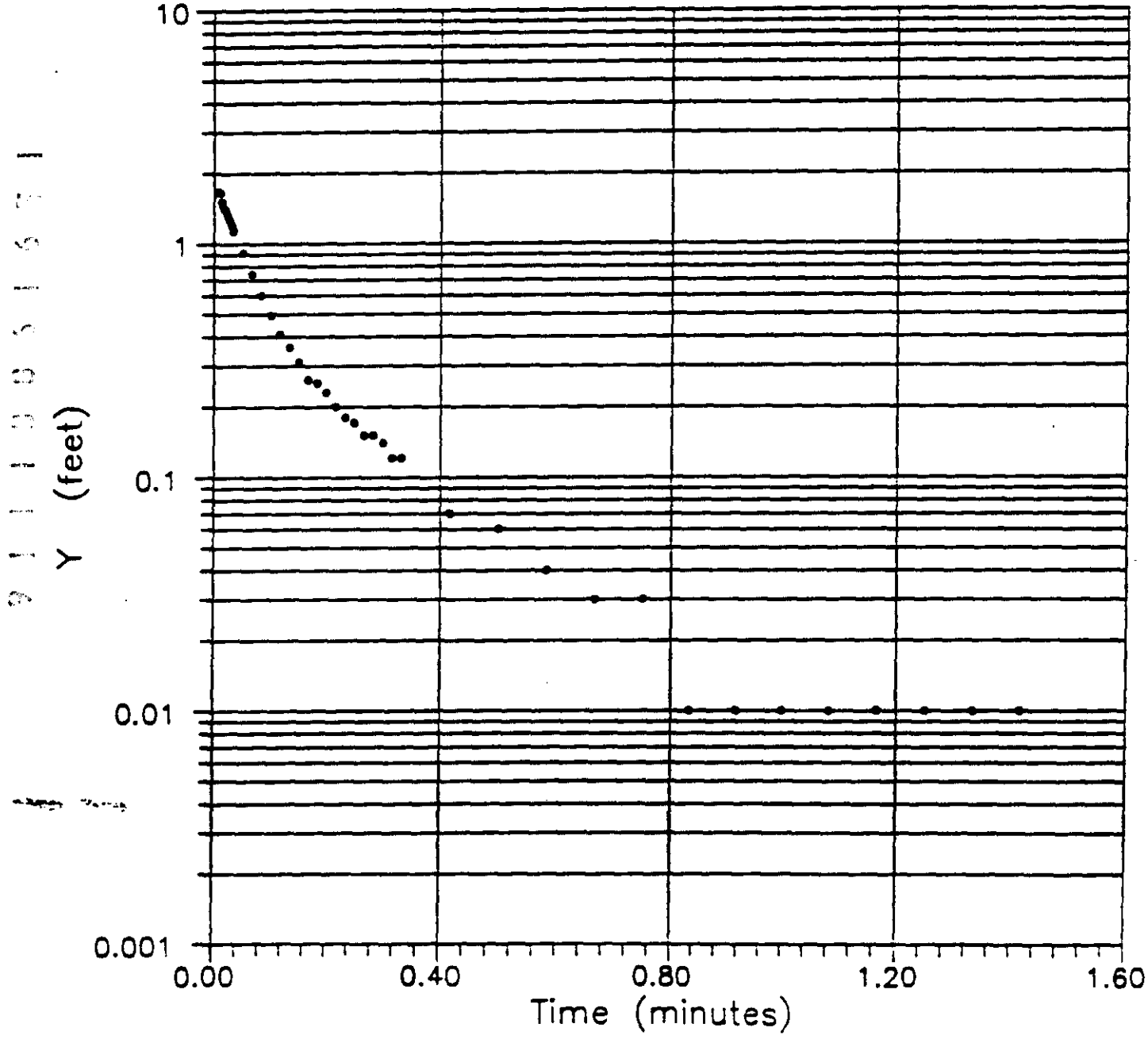
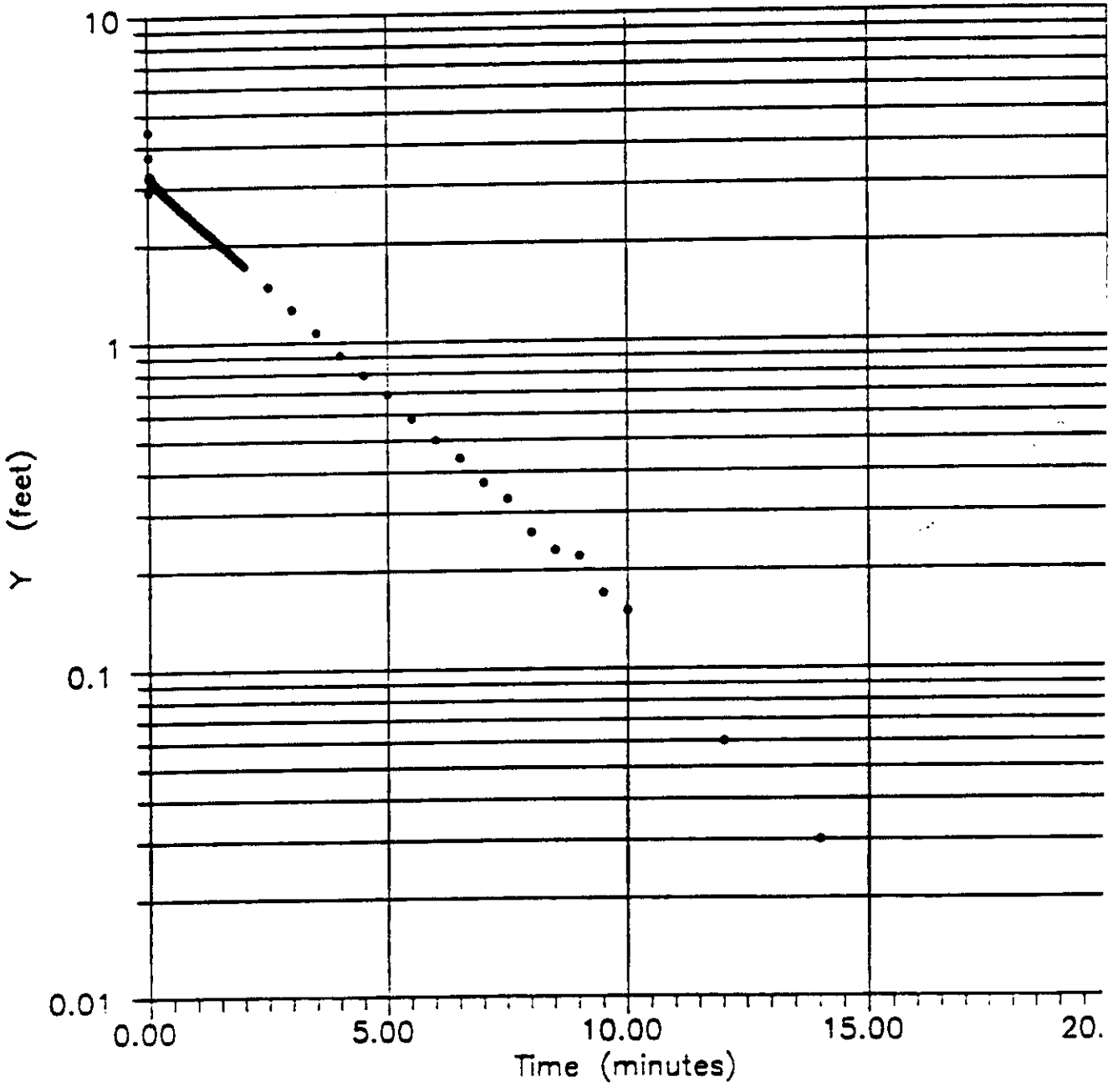
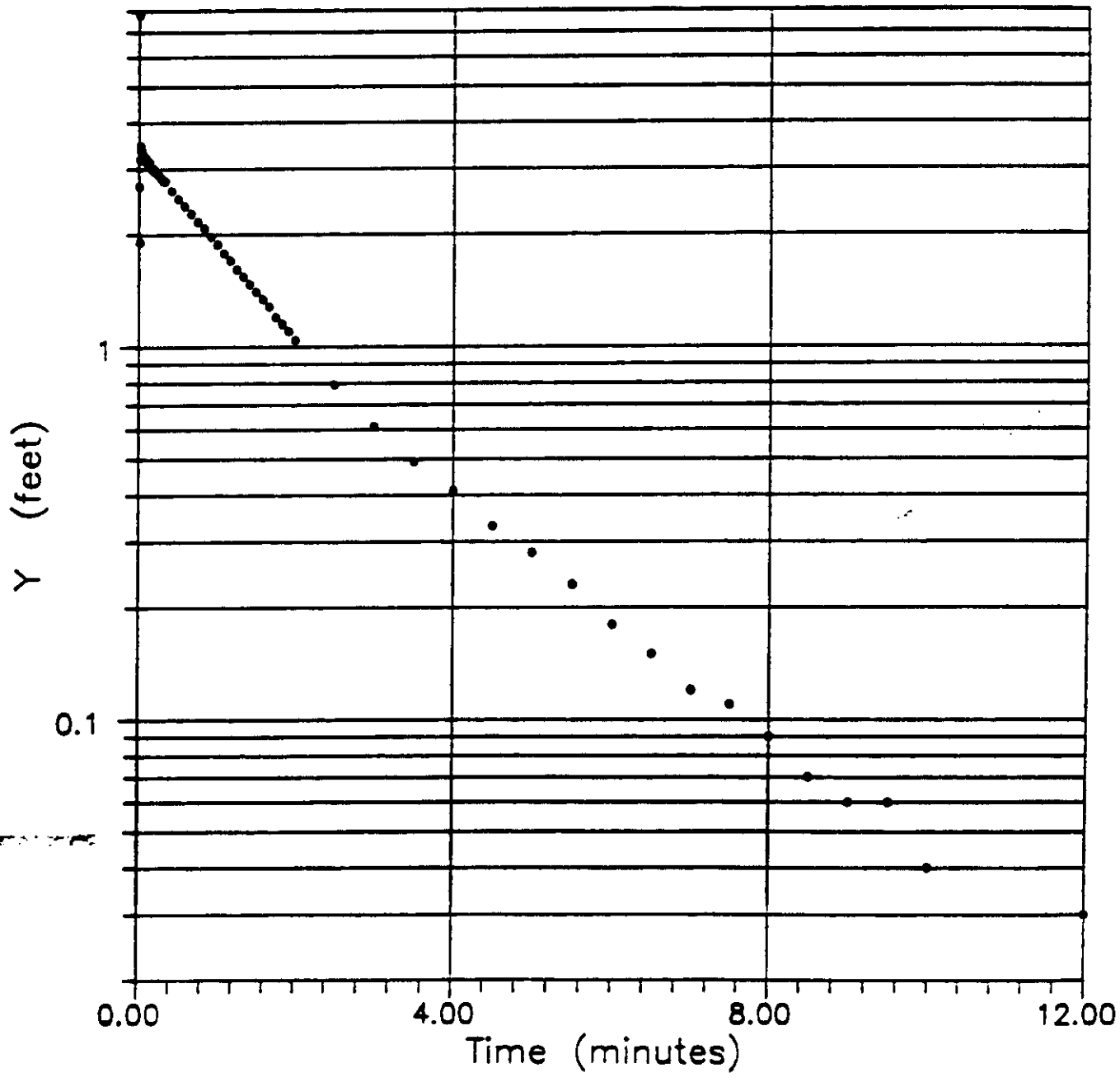


Well MW 9, Withdrawal Test (Feb. 14, 1990)



Well MW 10, Withdrawal Test (Jan. 29, 1990)



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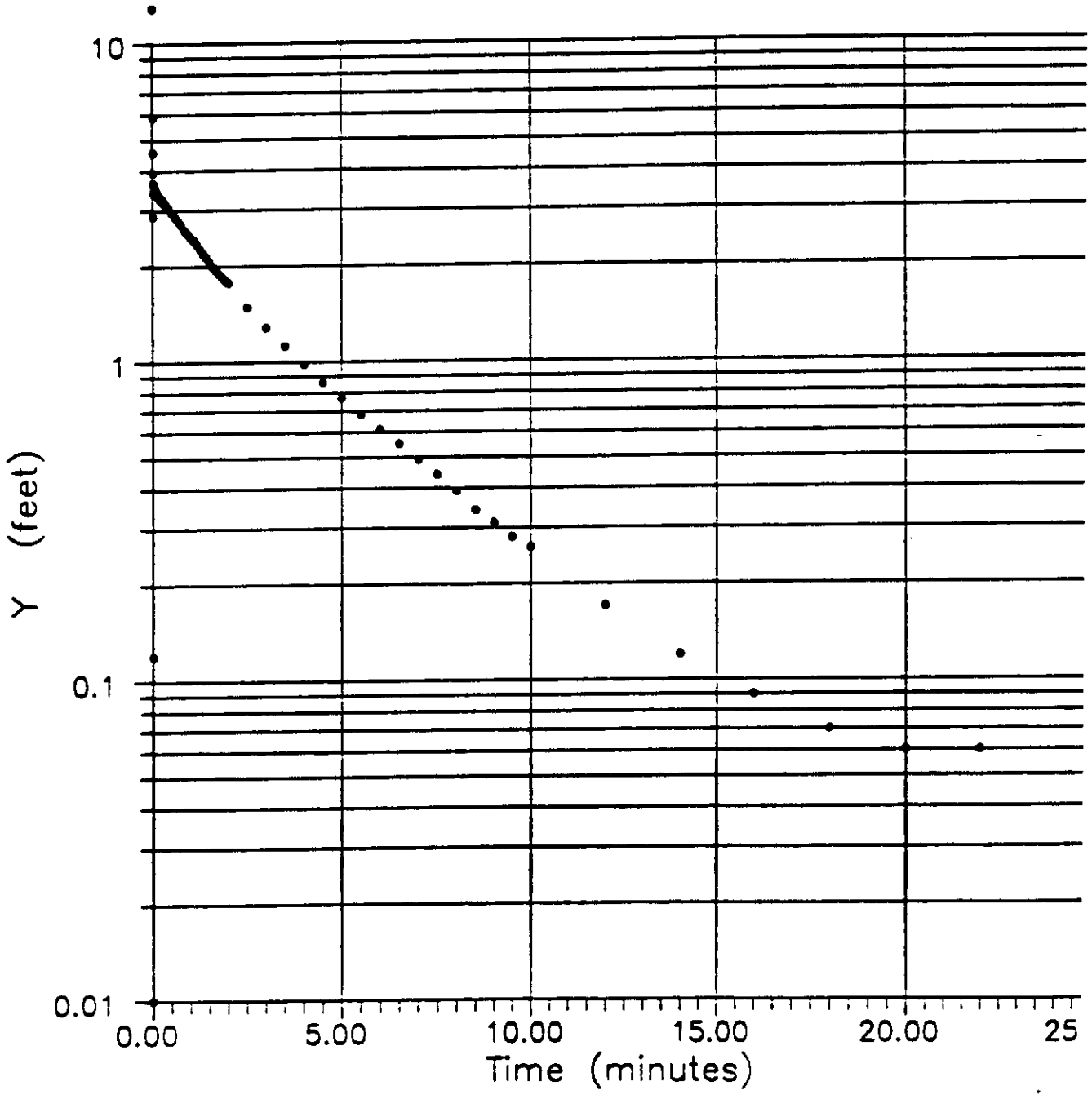

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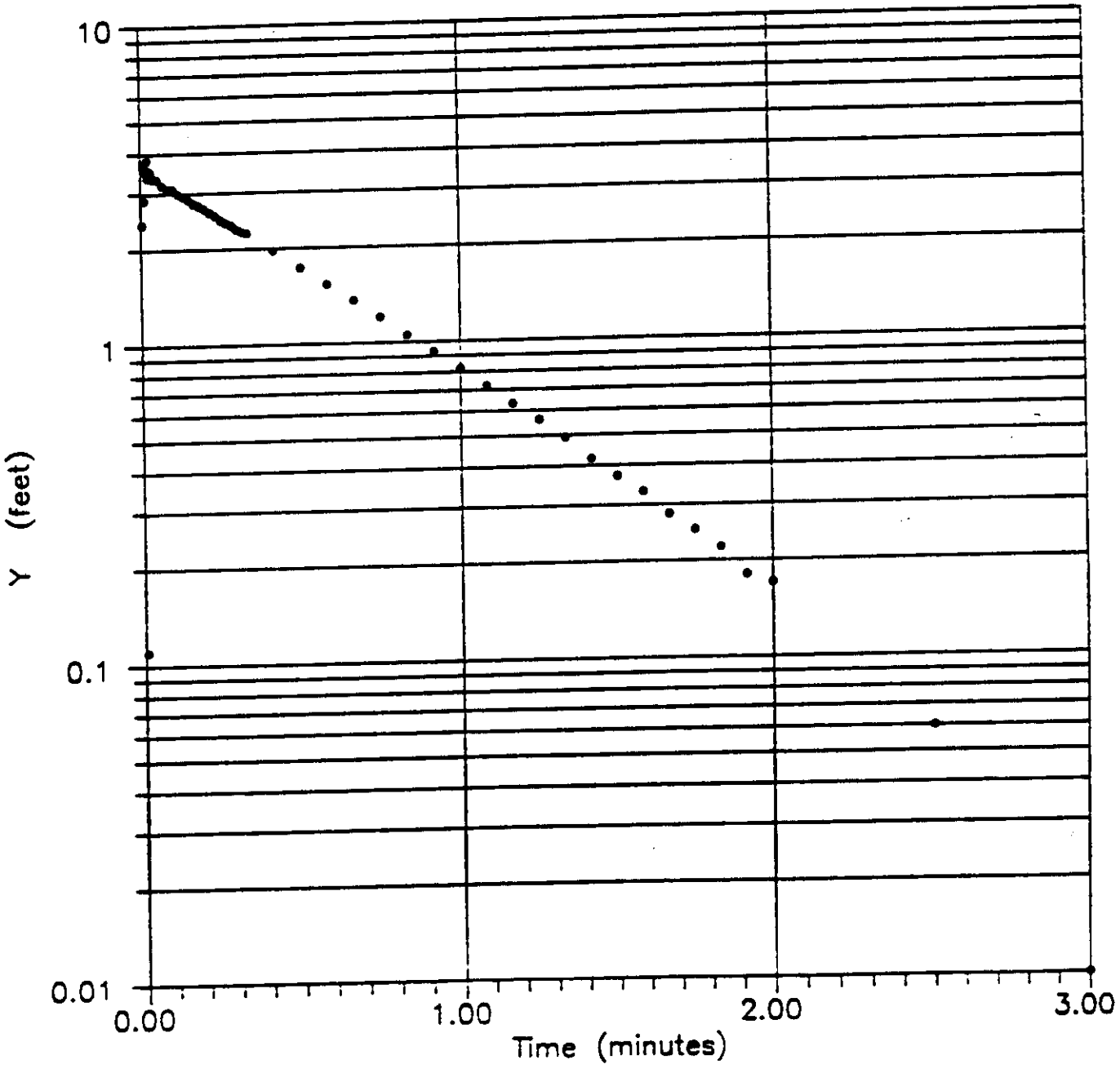
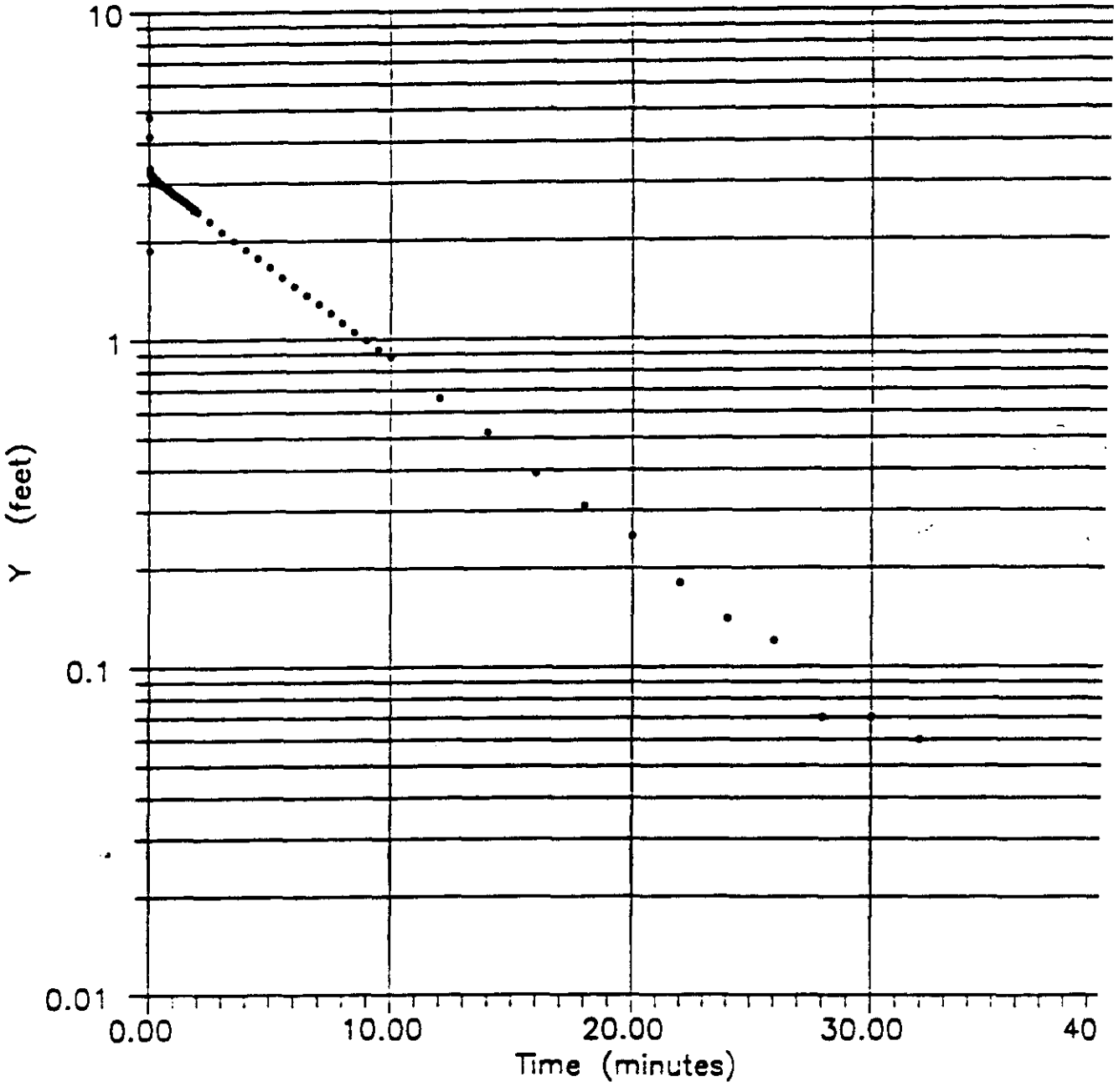
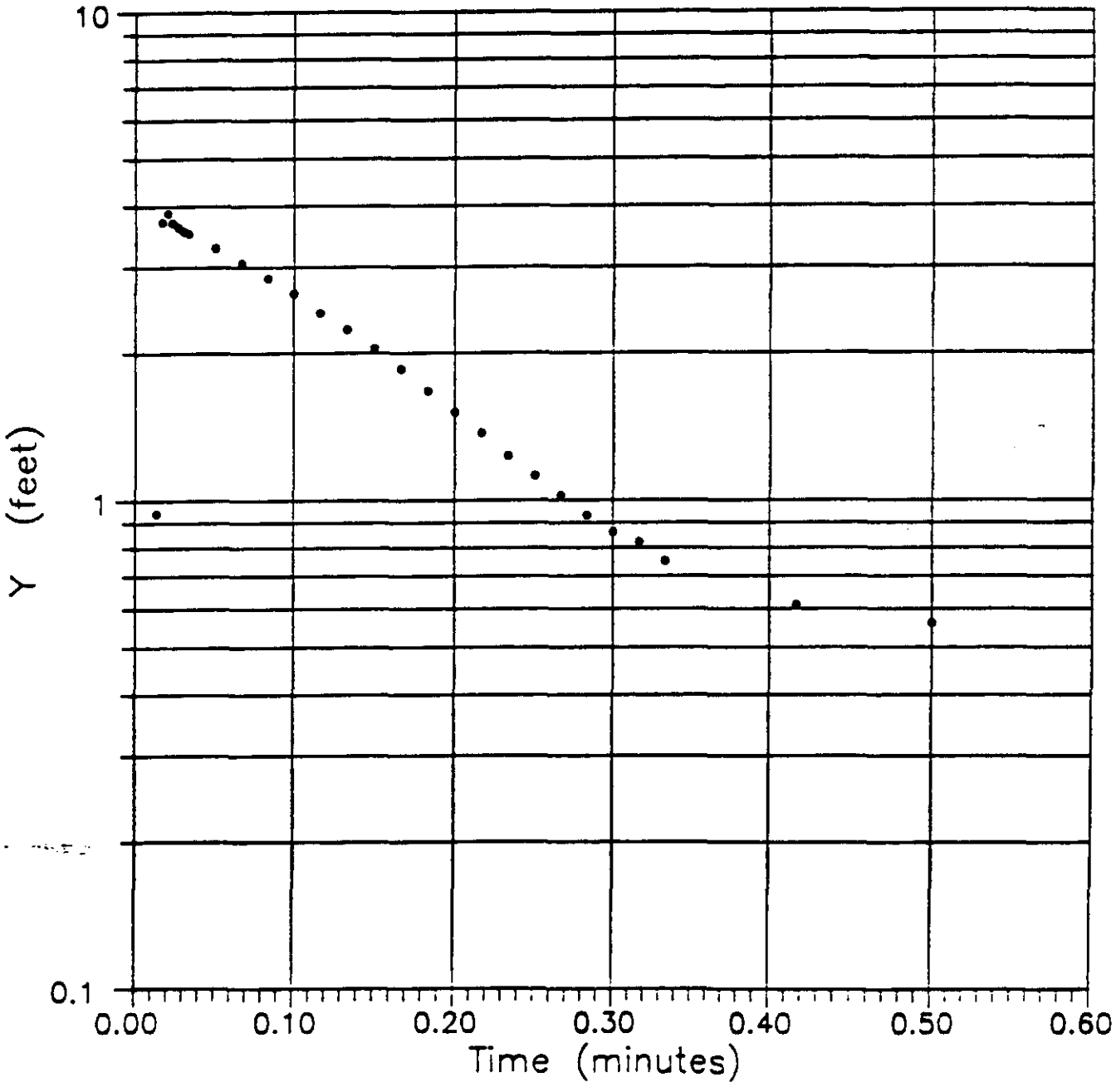


Well MW 14, Withdrawal Test (Jan. 29, 1990)



Well MW 15, Withdrawal Test #1 (Jan. 24, 1990)



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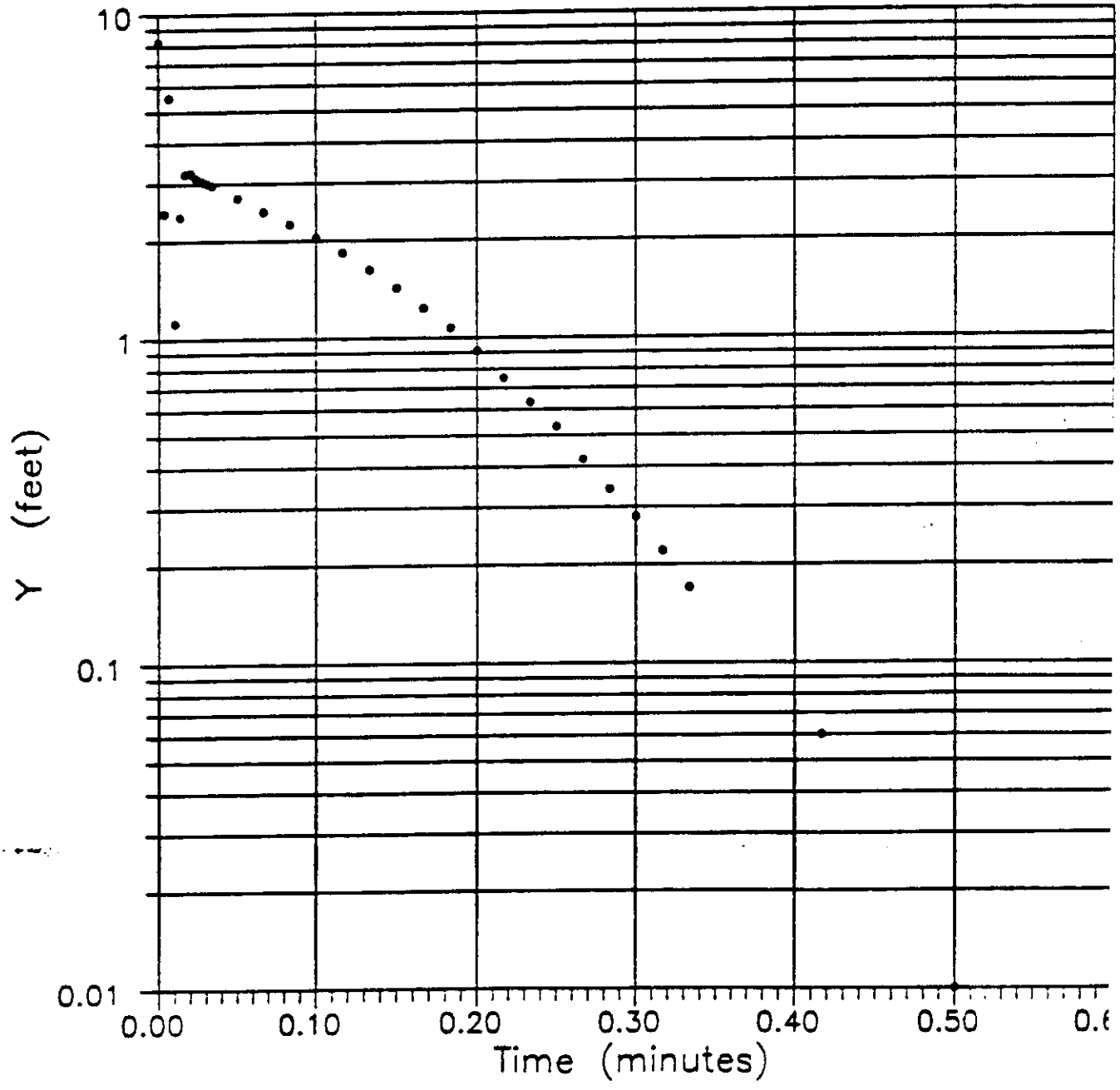
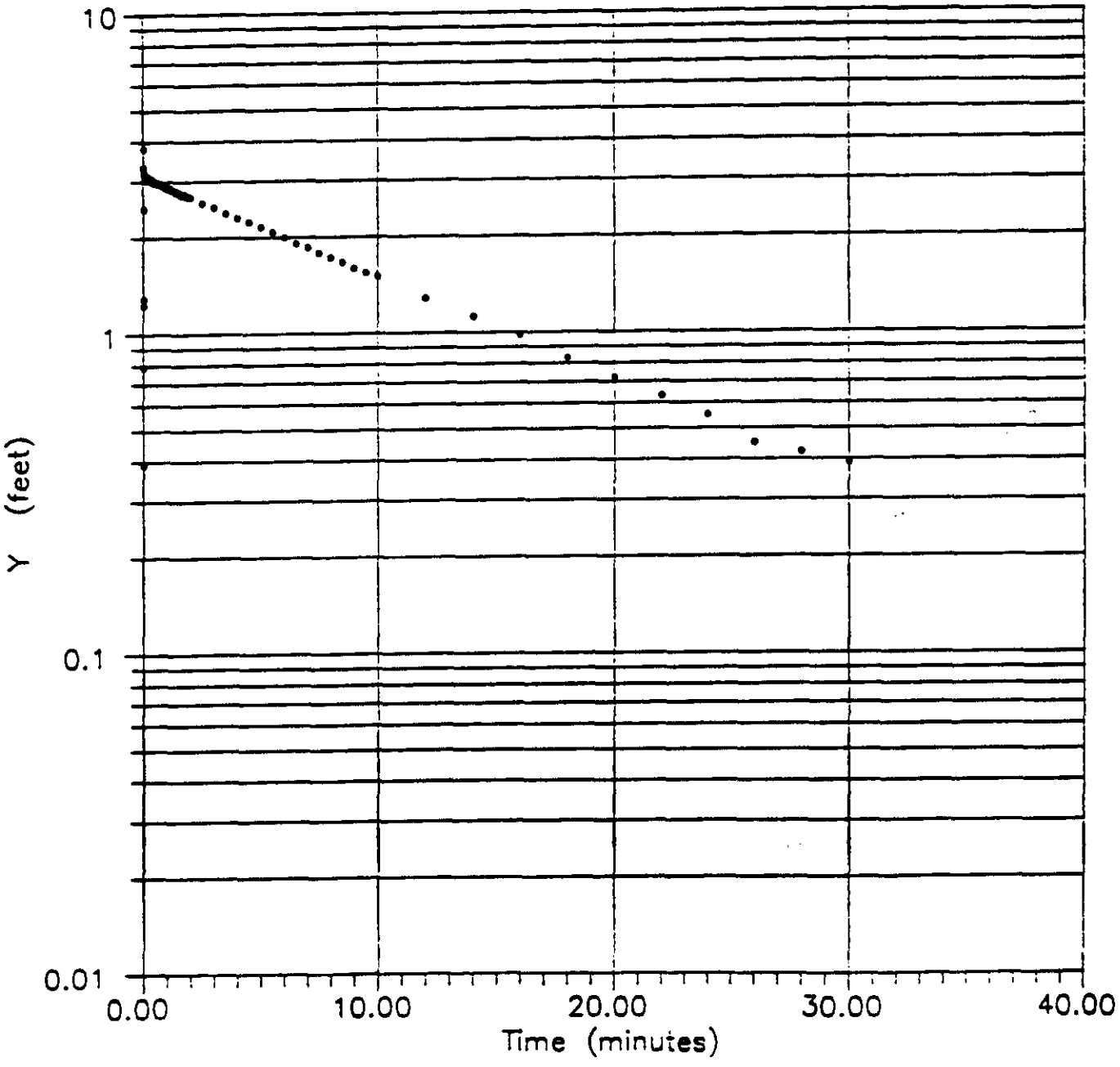


Well MW 17, Withdrawal Test (Feb. 8, 1990)



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APPENDIX M
GROUND-WATER POTENTIAL MEASURMENTS

The purpose of this appendix is to present ground-water potential measurements made on March 2, March 5, and May 23, 1990. Interpretation of the data is discussed in Section 3.6.2.3.

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Appendix M Contents

Table	Description	Page
M-1	Ground-Water Potential Measurements in Monitoring Wells	M-1

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Table M-1. Ground-Water Potential Measurements in Monitoring Wells.

	Well ID	NAD '83 Coordinates		Ground-Water Potential		
		Easting	Northing	March 2, 1990 (feet)	March 5, 1990 (Feet)	May 23, 1990 (feet)
1	MW-1	1946534.60	364082.45	353.79	353.72	353.30
2	MW-2	1945346.92	370875.19	352.87	352.84	352.46
3	MW-3			353	353	352
4	MW-4	1947570.61	367408.49	351.89	351.65	352.02
5	MW-5	1947570.61	367385.62	351.90	351.66	352.03
6	MW-6	1946831.02	368015.67	352.09	351.95	352.07
7	MW-7	1946019.77	367094.32	353.02	352.96	352.80
8	MW-8	1943059.93	373793.65	353.16	353.16	353.03
9	MW-9	1943099.70	373756.97	358.71	358.71	358.89
10	MW-10	1945061.32	375257.21	348.55	348.54	348.44
11	MW-11	1945087.11	374945.71	349.07	349.07	348.92
12	MW-12	1945397.80	374717.19	348.17	348.17	348.03
13	MW-13	1945382.05	374501.22	348.88	348.87	348.72
14	MW-14	1945406.03	374519.42	348.79	348.78	350.61
15	MW-15	1945407.61	374227.47	348.68	348.67	348.52
16	MW-17	1948371.00	364287.80	352.44	352.26	352.56
17	699-S27-E14	1949212.20	377989.08	343.42	342.66	342.99
18	699-S29-E12	1947604.20	375883.08	345.67	345.65	345.79
19	699-S30-E15A	1950370.20	374989.08	343.41	342.63	343.53
20	699-S31-E13	1948539.20	374275.08	345.84	345.82	346.26
21	699-S32-E13A	1948539.20	373275.08	346.07	346.07	346.55
22	699-S32-E13B	1948539.20	373275.08	346.33	346.31	346.79
23	699-S36-E13A	1948539.20	369275.08	351.29	350.91	351.61
24	699-S36-E12B	1947889.20	369093.08	351.47	351.16	351.67
25	699-S36-E13B	1948385.20	369080.08	351.55	351.43	--
26	699-S37-E14	1949504.51	368003.40	351.18	350.94	351.36
27	699-S40-E14	1949457.27	365534.93	352.15	352.78	--
28	699-S41-E13A	1948345.40	364273.13	352.47	352.24	352.66
29	699-S41-E13B	1948371.00	364287.79	352.45	352.20	352.66
30	699-S43-E12	1947525.20	362215.08	353.44	353.40	351.01
31	11-34-13	1947530.05	359905.32	352.19	352.18	351.91
32	11-41-13C	1947586.05	366909.32	352.04	351.84	352.19
33	30-45-16	1950713.05	370987.32	347.11	347.06	347.53
34	30-47-18B	1952013.05	372999.32	342.59	341.29	343.20
35	ANF-14	1943512.6	373393.8	--	--	--
36	ANF-15	1943652.1	373389.7	--	--	--
37	ANF-16	1943816.9	373393.2	--	--	--

Notes: NAD '83 Coordinates are in units of feet (1 m = 3.28 ft).

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APPENDIX N
GROUND-WATER CHEMICAL ANALYTICAL RESULTS

Ground-water chemical analyses were completed by Weyerhaeuser Analytical and Testing Services, U.S. Testing Company, and HEHF. The Westinghouse Hanford Office of Sample Management provided the validated data summarized in this appendix. A complete set of data is available in the DOE-RL 1100-EM-1 Administrative Record. The DOE-RL 1100-EM-1 Administrative Record is managed by Westinghouse Hanford's Department of Engineering Environmental Information Management Center, and is located at the following address:

U.S. Department of Energy-Richland Operations Office
Administrative Record Center
345 Hills Street
Richland, WA 99352

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	Table N1-2. Ground-Water Organic Analytical Results for 1100-EM-1 Monitoring Wells: First Sampling Round	N1-6
	Table N1-3. TAL and TCL Parameters Analyzed for and Not Detected: First Sampling Round	N1-9
	Table N1-4. Ground-Water Conventional Parameters Analytical Results: First Sampling Round	N1-13
Subappendix N-2	Table N2-1. Ground-Water TAL Analytical Results for 1100-EM-1 Monitoring Wells: Second Sampling Round	N2-1
	Table N2-2. Ground-Water TCL Analytical Results for 1100-EM-1 Monitoring Wells: Second Sampling Round	N2-9
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APPENDIX N
DATA QUALIFIERS

ORGANIC DATA QUALIFIERS

U The material was analyzed for, but was not detected. The associated value is the sample quantitation limit (SQL).

J The associated value is an estimated quantity.

UJ The material was analyzed for, but was not detected. The SQL is an estimated quantity.

R The data are unusable.

ND Corresponding TIC was not detected.

NR Not reported and/or not requested.

INORGANIC DATA QUALIFIERS

U The material was analyzed for, but was not detected above the level of the associated value.

J The associated value is an estimated quantity.

UJ The material was analyzed for but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

R The data are unusable.

NR Not reported and/or not requested.

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APPENDIX N-1
FIRST SAMPLING ROUND ANALYTICAL RESULTS

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TABLE N1-1. GROUND-WATER INORGANIC ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: FIRST SAMPLING ROUND.

1100-EM-1 MONITORING WELLS	WELL #																			
	SAMPLE ID																			
	MW-1				MW-2				MW-3				MW-4				MW-5			
PARAMETER	B0023T (ppb)		B0023D (ppb)		B00033 (ppb)		B0033D (ppb)		B0064T (ppb)		B0064D (ppb)		B0026T (ppb)		B0026D (ppb)		B00029 (ppb)		B0029D (ppb)		B00031 (ppb)		B0031D (ppb)	
Aluminum	189	U	82.6	U	430		152	U	1960		1350		183	U	91.6	U	110	U	99.4	U	112	U	48.2	U
Antimony	21.0	U	21.4		21.0	UJ	21.0	U	21.0	U	21.0	U	21.0	U	21.0	U	21.0	UJ	21.0	U	21.0	UJ	21.0	U
Arsenic	1.0	U	1.0	U	3.9		3.5		2.3	U	2.6	U	5.9	J	3.9	U	4.8		4.3		4.6		3.4	
Barium	103		97.7		53.9		43.1	J	137		65.8		48.1		41.9		58.2		51.8	J	55.0		63.6	J
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	2.0	U	2.9	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	4.5	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	87400		85300		42400	J	35000		144000		56400		35900		35600		33100	J	29100		31600	J	33300	
Chromium	11.7	U	4.4	U	5.8	U	7.2	U	4.2	U	8.8	U	48.8	J	5.5	U	9.3	U	2.0	U	7.5	U	4.2	U
Cobalt	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper	5.1	U	4.0		2.0	U	2.0	U	4.7		4.5		4.3	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Iron	227	J	50.5		563		467		2810	J	1820	J	2100	J	61.2		72.3		92.8		100		15.7	U
Lead	2.3	J	1.0	U	1.0	U	1.3	UJ	4.3	U	4.4	U	2.0	UJ	1.0	U	1.9	U	1.0	UJ	2.0	U	1.0	UJ
Magnesium	18900		18500		9160		7510		32100		12900		7420		7590		7020		6050		6640		7170	
Manganese	352		352		77.8	J	63.0		276		121		37.6		21.4		273	J	268		297	J	339	
Mercury	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.50	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	11.7	U	7.0	U	7.9	U	7.0	U	7.0	U	7.0	U	35.0	U	7.0	U	7.0	U	7.9	U	9.9	U	7.0	U
Potassium	8690		8510		5850		5080		11400		4160		4510		4650		4610		4180		4930		4790	
Selenium	2.0	U	2.0	U	1.0	U	1.3	J	1.0	UJ	1.0	U	2.0	UJ	2.0	UJ	1.0	UJ	1.0	U	1.0	U	1.0	U
Silver	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.3	U	2.0	U	2.0	U	2.2		2.0	U	2.0	U
Sodium	30800	J	29000	J	24900	J	20300	J	49200	J	18900	J	13900		13300	J	19600	J	18600	J	17800	J	18600	J
Thallium	1.0	UJ	1.0	U	1.0	U	1.2	U	1.0	UJ	1.0	UJ	1.0	U	1.0	U	1.6	U	1.0	U	1.7	UJ	1.0	U
Vanadium	5.6	U	6.2	U	8.2		6.1	U	13.9	U	5.2	U	7.1		10.1	U	6.2	U	4.8	U	7.7		5.5	U
Zinc	2.0	U	2.0	U	2.0	U	2.0	U	5.7	U	6.9	U	5.0	U	2.0	U	2.0	U	2.1	U	2.4	U	3.0	U
Cyanide	10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR	
SDG #	A2401W		B0007D		B00028		B00028		B0048D		B0048D		A2401W		B0007D		B00028		B00028		B00028		B00028	

TABLE N1-1. GROUND-WATER INORGANIC ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: FIRST SAMPLING ROUND. (CONT'D.)

1100-EM-1 MONITORING WELLS	WELL # SAMPLE ID																							
	MW-6				MW-7				MW-8				MW-9				MW-10				MW-11			
PARAMETER	B0021T (ppb)		B0021D (ppb)		B0019T (ppb)		B0019D (ppb)		B00041 (ppb)		B0041D (ppb)		B00035 (ppb)		B0035D (ppb)		B0016T (ppb)		B0016D (ppb)		B0013T (ppb)		B0013D (ppb)	
Aluminum	141	U	86.3	U	179	U	86.3	U	105	U	104	U	102	U	192	U	1730		166		855		112	U
Antimony	21.0	U	21.0	U	21.0	U	21.0	U	21.0	UJ	21.0	U	21.0	UJ	21.0	U	31.5	U	21.0	U	23.3	U	21.0	U
Arsenic	5.8	J	3.2	U	6.8		6.5	U	5.7		5.9		1.0	U	1.0		1.8	J	1.0	U	1.0	U	1.0	U
Barium	44.9		43.5		52.4		48.3		51.8		49.6	J	51.8		52.8	J	111		108		111		97.7	
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	2.0	U	3.6		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.6		2.0	U	2.0	U	2.0	U	3.3	U
Calcium	39500		38900		43600		42700		54200	J	54400		16500	J	16900		92600		90600		90600		88900	
Chromium	14.5	J	6.1	U	9.7	U	7.8	U	4.3	U	2.2	U	3.9	U	6.1	U	15.2		7.1	U	11.4	U	9.8	U
Cobalt	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper	2.1	U	2.0	U	2.1	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	4.6	U	2.0	U	4.3	U	2.0	U
Iron	207	J	31.5	U	355	J	222		114		28.8	U	95.0		161		4030	J	260		1660	J	74.3	
Lead	2.1	J	1.7		2.0	UJ	1.1		3.1	UJ	1.6	UJ	1.3	U	1.0	UJ	19.3	J	1.5		2.0	J	1.0	U
Magnesium	8550		9060		8070		8100		13400		13200		4140		4240		21100		20000		19300		18500	
Manganese	205		200		246		241		51.0	J	40.3		114	J	117		294		232		216		181	
Mercury	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	2.0	U	0.20	U
Nickel	7.0	U	7.0	U	7.0	U	7.0	U	16.8	U	7.0	U	11.9	U	7.0	U	15.6	U	7.0	U	17.5	U	13.6	U
Potassium	5370		5400		6260		6150		5320		5160		3610		4290		9640		9030		9950		9310	
Selenium	2.0	UJ	2.0	UJ	2.0	UJ	3.3	J	1.0	U	1.0	U	1.0	U	1.0	U	2.0	UJ	2.2		2.0	U	2.0	U
Silver	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.8		2	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Sodium	21400	J	20000	J	23900	J	23000	J	20400	J	19600	J	13000	J	13100	J	31400	J	29400	J	33800	J	31300	J
Thallium	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.7	J
Vanadium	7.4		10.8	U	9.5		12.2	U	9.6		9.6		1.0	U	2.6	U	4.6	U	4.0	U	4.5	U	4.8	U
Zinc	2.0	U	2.0	U	3.8	U	2.0	U	6.9	U	9.5	U	2.1	U	2.0	U	18.2		3.6		5.2	U	2.0	U
Cyanide	10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR	
SDG #	A2401W		B0007D		A2401W		B0007D		B00028		B00028		B00028		B00028		A2401W		B0007D		A2401W		B0007D	

TABLE N1-1. GROUND-WATER INORGANIC ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: FIRST SAMPLING ROUND. (CONT'D.)

1100-EM-1 MONITORING WELLS	WELL # SAMPLE ID																							
	MW-11				MW-12				MW-13				MW-14				MW-15				MW-17			
PARAMETER	B0014T (ppb)		B0014D (ppb)		B0050 (ppb)		B0050D (ppb)		B0010T (ppb)		B0010D (ppb)		B0007T (ppb)		B0007D (ppb)		B0004T (ppb)		B0004D (ppb)		B0038 (ppb)		B0038D (ppb)	
Aluminum	706		92.1	U	423		122	U	198	U	69.6	U	96.5	U	83.8	U	102	U	76.6	U	1280		276	
Antimony	21.0	U	21.0	U	21.0	UJ	21.0	U	21.0	U	21.0	U	21.0	U	21.0	U	21.0	U	21.0	U	21.0	UJ	21.0	U
Arsenic	1.0	J	1.0	U	1.1		1.4	J	3.4	J	2.2	U	1.3	J	1.0	U	5.2		4.2	J	2.1		2.5	
Barium	112		102		98.1		109	J	104		101		103		102		85.8		83.0	U	38.8		21.0	J
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	2.0	U	2.7	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.2	U	6.2	J	2.4	UJ	2.0	U	2.0	U
Calcium	91400		90100		91800	J	109000		104000		101000		103000		105000		86900		84500		24800	J	24300	
Chromium	10.0	U	5.7	U	6.4	U	6.1	U	13.5	U	5.4	U	5.5	U	3.4	U	9.1	U	6.9	U	20.1		8.3	U
Cobalt	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper	3.2	U	2.0	U	2.0	U	2.0	U	6.2	U	2.0		9.2	U	8.0		2.1		2.0	U	2.0	U	2.0	U
Iron	1210	J	25.4	U	814		31.1		302	J	49.6		50.6	U	34.4		66.0	UJ	154	J	1930		412	
Lead	3.0	J	1.2	J	3.3	U	3.0	UJ	2.0	UJ	1.0	U	2.0	UJ	1.0	U	1.0	UJ	1.0	U	2.2	U	2.3	UJ
Magnesium	19800		19300		19500		23200		21300		20700		21300		21900		18300		17700		5590		5340	
Manganese	212		195		145	J	158		86.1		86.9		194		194		35.9		30.6		84.5	J	68.2	
Mercury	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	16.5	U	15.5	U	7.0	U	15.9	U	21.4	U	30.0	U	17.5	U	17.4	U	16.2	U	7.0	U	7.0	U	7.0	U
Potassium	9940		9650		7880		8890		8820		8380		9850		9670		8000		7760		3830		3490	
Selenium	2.0	UJ	2.0	U	1.0	U	1.0	U	2.0	UJ	2.3	J	2.0	UJ	2.7	J	2.2	J	2.0	U	1.0	U	1.0	U
Silver	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Sodium	33600	J	31900	J	37300	J	31600		31500	J	30400	J	34100	J	34100	J	28900		27700		18000	J	17500	J
Thallium	1.0	U	1.0	UJ	1.0	U	1.1	U	1.0	UJ	1.3	U	1.0	U	1.3	UJ	1.0	U	2.8	UJ	1.0	U	1.0	U
Vanadium	3.9	U	4.8	U	4.8	U	4.8	U	6.9	U	7.5	U	4.1	U	4.7	U	8.8	U	8.1	U	4.5	U	2.6	U
Zinc	7.1	U	2.0	U	4.8	U	2.0	U	2.0	U	2.0	U	5.4	U	2.0	U	15.7	U	11.0	U	5.1	U	3.5	U
Cyanide	10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR	
SDG #	A2401W		B0007D		B00028		B00028		A2401W		B0007D		A2401W		B0007D		A2214S		A2214S		B00028		B00028	

TABLE N1-1. GROUND-WATER INORGANIC ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: FIRST SAMPLING ROUND. (CONT'D.)

1100-EM-1 MONITORING WELLS	WELL # SAMPLE ID															
	S37-E14				S40-E14				S41-E13A				S41-E13B				S43-E12			
PARAMETER	B0053T (ppb)		B0053D (ppb)		B0048T (ppb)		B0048D (ppb)		B00046 (ppb)		B0057D (ppb)		B00044 (ppb)		B0044D (ppb)		B0055D (ppb)		B0055T (ppb)	
Aluminum	100	U	97.6	U	86.2	U	81.1	U	144	U	91.4	U	113	U	98.9	U	120	U	76.8	U
Antimony	21.0	U	21.0	U	21.0	U	21.0	U	21.0	UJ	21.0	U	21.0	UJ	21.0	U	21.0	U	21.0	U
Arsenic	4.9	U	3.1	U	1.0	U	1.9	U	3.3		4.8	U	3.9		4.5		3.7	U	3.1	U
Barium	14.0		10.5		8.7		8.7		21.6		20.4		50.7		50.7	J	42.5		42.5	
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	4.0		2.0	U	2.0	U
Calcium	25900		26400		23700		23500		30100	J	30600		53500	J	54400		63200		64200	
Chromium	13.4	U	2.0	U	2.0	U	2.0	U	38.8		2.0	U	7.2	U	2.5	U	3.5	U	7.7	U
Cobalt	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper	4.3		2.2		2.0	U	2.0	U	2.0	U	3.2		2.0	U	2.0	U	4.3		3.3	
Iron	53.3	U	6.0	U	14.4	U	6.0	U	240		13.5	U	163		42.8		16.1	U	61.7	U
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.2	U	2.0	U	2.0	U	2.0	UJ	2.0	U	2.0	U
Magnesium	4720		5020		5110		4830		6320		5680		11600		11700		12500		12800	
Manganese	2.0		1.0	U	1.0	U	1.0	U	5.0	J	1.5		9.9	J	9.7		1.5		2.0	
Mercury	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	7.0	U	7.0	U	7.0	U	13.5	U	30.7	U	7.0	U	7.0	U	10.9	U	7.0	U	10.4	U
Potassium	1720		1840		798	UJ	733	UJ	3720		3880		5440		5310		6990		7070	
Selenium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Silver	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Sodium	3440	J	3510	J	2700	J	2440	J	5710	J	6190	J	15800	J	15400	J	20100	J	20000	J
Thallium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.1	U
Vanadium	4.3	U	4.3	U	2.1	U	2.8	U	9.1		10.4	U	8.2		8.9		13.1	U	13.1	U
Zinc	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.3	U	3.3	U	2.0	U	2.0	U
Cyanide	10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR		NR		10.0	U
SDG #	B0048D		B0048D		B0048D		B0048D		B00028		B0048D		B00028		B00028		B0048D		B0048D	

TABLE N1-1. GROUND-WATER INORGANIC ANALYTICAL RESULTS
FOR 1100-EM-1 MONITORING WELLS: FIRST SAMPLING ROUND. (CONT'D.)

1100-EM-1 MONITORING WELLS	WELL # SAMPLE ID							
	RWF-WEST				RWF-EAST			
PARAMETER	B0059T (ppb)		B0059D (ppb)		B0061T (ppb)		B0061D (ppb)	
Aluminum	90.6	U	93.2	U	83.7	U	122	U
Antimony	21.0	U	21.0	U	21.0	U	21.0	U
Arsenic	2.4	U	2.7	U	2.7	U	3.0	U
Barium	11.1		10.5		11.6		12.8	
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	22700		22600		26000		25100	
Chromium	4.2	U	5.8	U	4.2	U	2.0	U
Cobalt	3.0	U	3.0	U	3.0	U	3.0	U
Copper	4.3		3.2		7.5		3.2	
Iron	24.5	U	33.8	U	13.5	U	51.6	U
Lead	4.0	U	5.0		2.4	U	3.3	
Magnesium	4770		4670		5200		4930	
Manganese	1.0	U	1.0	U	1.0	U	1.0	U
Mercury	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	7.0	U	14.5	U	7.0	U	7.0	U
Potassium	841	UJ	760	UJ	1200	UJ	1020	UJ
Selenium	1.0	U	1.4	U	1.6	U	1.9	U
Silver	2.0	U	2.0	U	2.0	U	2.0	U
Sodium	2700	J	2750	J	2900	J	2790	J
Thallium	1.0	UJ	1.0	U	1.0	U	1.0	U
Vanadium	2.8	U	2.1	U	3.6	U	2.8	U
Zinc	19.0		29.1		2.0	U	7.0	U
Cyanide	10.0	U	NR		10.0	U	NR	
SDG #	B0048D		B0048D		B0048D		B0048D	

TABLE N1-2. GROUND-WATER ORGANIC ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: FIRST SAMPLING ROUND

1100-EM-1 MONITORING WELLS		WELL # SAMPLE ID								
PARAMETER	TIC RETENTION TIME	MW-1 B0023T (ppb)	MW-2 B00033 (ppb)	MW-3 B0084T (ppb)	MW-4 B0026T (ppb)	MW-5 B00029 (ppb)	MW-5D B00031 (ppb)	MW-6 B0021T (ppb)	MW-7 B0018T (ppb)	MW-8 B00041 (ppb)
VOLATILE ORGANICS										
acetone		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-butanone		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
chloroform		1 U	1 U	1 U	0.8 J	1	1	0.6 J	1 U	1 U
MeCl2		1 U	1 U	1 U	1 J	1 U	1 U	1 U	1 U	1 U
tetrachloroethene		1 U	1 U	1 U	1 J	0.8	0.8 J	0.7 J	1 U	1 U
1,1,1-trichloroethane		1 U	1 U	1 U	3 J	4	4	2	1 U	0.8 J
trichloroethene		1 U	1 U	1 U	1 J	1 U	1 U	1 U	1 U	1 U
VOLATILE ORGANIC TICs										
trichlorofluoromethane	2.05	ND	ND	ND	ND	ND	ND	ND	ND	ND
trichlorofluoromethane	2.08	ND	ND	ND	ND	ND	ND	ND	ND	ND
trifluoromethane	2.13	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-trichloro-1,2-ethane	2.73	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	23.79	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANICS										
bis(2-ethylhexyl)phthalate		10 U	10 U	10 U	10 U	15 U	10 U	10 U	10 U	10 U
butylbenzylphthalate		10 U	10 U	10 U	10 U	15 U	10 U	10 U	10 U	10 U
fluoranthene		10 U	10 U	10 U	10 U	15 U	10 U	10 U	10 U	10 U
pyrene		10 U	10 U	10 U	10 U	15 U	10 U	10 U	10 U	10 U
SEMI-VOLATILE ORGANIC TICs										
6-(acetyloxy)-2-hexanone	6.37	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclotetrasiloxane, octameth	8.03	ND	ND	13 J	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.12	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	10.55	6.4 J	ND	ND	ND	ND	ND	8.6 J	6.4 J	ND
cyclopentasiloxane, decameth	10.92	ND	ND	ND	ND	ND	ND	ND	12 J	ND
unknown	10.94	6.0 J	ND	ND	ND	ND	ND	7.0 J	ND	ND
cyclohexasiloxane, dodecamet	14.14	ND	ND	ND	ND	ND	ND	ND	7.0 J	ND
ethanol, 2-chloro-, phosphat	21.20	220 J	ND	ND	110 J	ND	ND	ND	24 J	ND
ethanol, 2-chloro-, phosphat	21.62	ND	ND	36 J	ND	ND	ND	ND	ND	ND
ethanol, 2-chloro-,phosphat	21.64	ND	15 J	ND	ND	200 J	140 J	ND	ND	ND
unknown	22.94	ND	ND	ND	ND	ND	ND	ND	3.8 J	ND
unknown	23.87	3.4 J	ND	ND	ND	ND	ND	ND	ND	ND
unknown	26.46	ND	ND	ND	ND	ND	ND	ND	8.6 J	ND
octadecanoic acid	26.54	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	28.77	ND	ND	ND	ND	ND	ND	ND	ND	ND
octadecanoic acid, 2-methyp	28.92	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	30.99	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	32.97	ND	ND	ND	ND	ND	ND	ND	ND	ND
	SDG #	B0007T	B00028	B0048D	B0007T	B00028	B00028	B0007T	B0007T	B00028

TABLE N1-2. GROUND-WATER ORGANIC ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: FIRST SAMPLING ROUND. (CONT'D.)

1100-EM-1 MONITORING WELLS		WELL # SAMPLE ID								
PARAMETER	TIC RETENTION TIME	MW-9 B00035 (ppb)	MW-10 B0016T (ppb)	MW-11 B0013T (ppb)	MW-11D B0014T (ppb)	MW-12 B00050 (ppb)	MW-13 B0010T (ppb)	MW-14 B0007T (ppb)	MW-15 B0004T (ppb)	MW-17 B00038 (ppb)
VOLATILE ORGANICS										
acetone		2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
2-butanone		2 U	2 U	2 U	2 U	2 U	2 U	2 U	10 U	2 U
chloroform		1 U	1 U	1 U	1 U	1 U	0.4 J	0.5 J	5 U	1 U
MeCl2		1 U	1 U	1 U	1 U	1 U	1 U	1 J	5 U	1 U
tetrachloroethene		1 U	1 U	1 U	1 U	0.8 J	0.6 J	0.9 J	5 U	1 U
1,1,1-trichloroethane		1 U	1	0.8 J	0.9 J	2	2	2 J	5 U	1 U
trichloroethene		1 U	0.6 J	0.9 J	2	92	90	40	84	1 U
VOLATILE ORGANIC TICs										
trichlorofluoromethane	2.05	ND	ND	ND	ND	ND	ND	ND	ND	ND
trichlorofluoromethane	2.08	ND	ND	ND	ND	3.0 J	ND	ND	ND	ND
trifluoromethane	2.13	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-trichloro-1,2-ethane	2.73	ND	ND	ND	ND	ND	3.0 J	4.0 J	ND	ND
unknown	23.79	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANICS										
bis(2-ethylhexyl)phthalate		10 U	10 U	10 U	73	10 U	10 U	10 U	10 U	10 U
butylbenzylphthalate		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
fluoranthene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
pyrene		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMI-VOLATILE ORGANIC TICs										
6-(acetyloxy)-2-hexanone	6.37	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclotetrasiloxane, octameth	8.03	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.12	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	10.55	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclopentasiloxane, decameth	10.92	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	10.94	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexasiloxane, dodecamet	14.14	ND	ND	ND	ND	ND	ND	ND	ND	ND
ethanol, 2-chloro-, phosphat	21.20	ND	20 J	96 J	60 J	ND	46 J	64 J	ND	ND
ethanol, 2-chloro-, phosphat	21.62	ND	ND	ND	ND	ND	ND	ND	ND	ND
ethanol, 2-chloro-,phosphat	21.64	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	22.94	ND	ND	ND	ND	ND	ND	4.6 J	ND	ND
unknown	23.87	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	26.46	ND	ND	ND	ND	ND	ND	ND	ND	ND
octadecanoic acid	26.54	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	28.77	ND	ND	ND	ND	ND	ND	ND	ND	ND
octadecanoic acid, 2-methyp	28.92	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	30.99	ND	ND	ND	ND	ND	ND	ND	ND	ND
unknown	32.97	ND	ND	ND	ND	ND	ND	ND	ND	ND
	SDG #	B00028	B0007T	B0007T	B0007T	B00028	B0007T	B0007T	A2214S	B00028

TABLE N1-2. GROUND-WATER ORGANIC ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: FIRST SAMPLING ROUND. (CONT'D.)

1100-EM-1 MONITORING WELLS		WELL # SAMPLE ID							
PARAMETER	TIC RETENTION TIME	S37-E14 B0053T (ppb)	S40-E14 B0048T (ppb)	S41-E13A B00046 (ppb)	S41-E13A B0057T (ppb)	S41-E13B B00044 (ppb)	S43-E12 B0055T (ppb)	RWF-WEST B0059T (ppb)	RWF-EAST B0061T (ppb)
VOLATILE ORGANICS									
acetone		2 U	2 U	NR	2 U	2 U	2 U	2 U	2 U
2-butanone		2 U	2 U	NR	2 U	2 U	2 U	2 U	2 U
chloroform		2	4	NR	1 U	1 U	1 U	3	4 J
MeCl2		1 U	1 U	NR	1 U	1 U	1 U	1 U	1 U
tetrachloroethene		1 U	1 U	NR	1 U	1 U	1 U	1 U	1 U
1,1,1-trichloroethane		1 U	1 U	NR	1 U	1 U	1 U	1 U	1 U
trichloroethene		1 U	1 U	NR	1 U	1 U	1 U	1 U	1 U
VOLATILE ORGANIC TICs									
trichlorofluoromethane	2.05	ND	ND	NR	ND	ND	ND	ND	ND
trichlorofluoromethane	2.08	ND	ND	NR	ND	ND	ND	ND	ND
trifluoromethane	2.13	ND	ND	NR	ND	ND	ND	ND	ND
1,1,2-trichloro-1,2-ethane	2.73	ND	ND	NR	ND	ND	ND	ND	ND
unknown	23.79	ND	ND	NR	ND	ND	ND	ND	ND
SEMI-VOLATILE ORGANICS									
bis(2-ethylhexyl)phthalate		10 U	10 U	10 U	NR	10 U	10 U	10 U	10 U
butylbenzylphthalate		10 U	10 U	10 U	NR	10 U	10 U	10 U	10 U
fluoranthene		10 U	10 U	10 U	NR	10 U	10 U	10 U	10 U
pyrene		10 U	10 U	10 U	NR	10 U	10 U	10 U	10 U
SEMI-VOLATILE ORGANIC TICs									
6-(acetyloxy)-2-hexanone	6.37	ND	ND	ND	NR	ND	ND	ND	ND
cyclotetrasiloxane, octameth	8.03	ND	ND	ND	NR	ND	ND	ND	ND
2,4-dimethyl-3-heptanone	8.12	ND	ND	ND	NR	ND	ND	ND	ND
unknown	10.55	ND	ND	ND	NR	ND	ND	ND	ND
cyclopentasiloxane, decameth	10.92	ND	ND	ND	NR	ND	ND	ND	ND
unknown	10.94	ND	ND	ND	NR	ND	ND	ND	ND
cyclohexasiloxane, dodecamet	14.14	ND	ND	ND	NR	ND	ND	ND	ND
ethanol, 2-chloro-, phosphat	21.20	ND	ND	ND	NR	ND	ND	ND	ND
ethanol, 2-chloro-, phosphat	21.62	ND	ND	ND	NR	ND	ND	ND	ND
ethanol, 2-chloro-,phosphat	21.64	ND	ND	ND	NR	ND	ND	ND	ND
unknown	22.94	ND	ND	ND	NR	ND	ND	ND	ND
unknown	23.87	ND	ND	ND	NR	ND	ND	ND	ND
unknown	26.46	ND	ND	ND	NR	ND	ND	ND	ND
octadecanoic acid	26.54	ND	ND	ND	NR	ND	ND	ND	ND
unknown	28.77	ND	ND	ND	NR	ND	ND	ND	ND
octadecanoic acid, 2-methyp	28.92	ND	ND	ND	NR	ND	ND	ND	ND
unknown	30.99	ND	ND	ND	NR	ND	ND	ND	ND
unknown	32.97	ND	ND	ND	NR	ND	ND	ND	ND
	SDG #	B0048D	B0048D	B00028	B0048D	B00028	B0048D	B0048D	B0048D

TABLE N1-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: FIRST SAMPLING ROUND

Parameter		SQL Range (µg/L)
Inorganics	beryllium	1
	cobalt	3
	mercury	0.2-0.5
	nickel	7-35
	cyanide	10
Volatiles	chloromethane	2-10
	bromomethane	2-10
	vinyl chloride	2-10
	chloroethane	2-10
	carbon disulfide	1-5
	1,1-dichloroethene	1-5
	1,1-dichloroethane	1-5
	1,2-dichloroethene (total)	1-5
	chloroform	2-10
	1,2-dichloroethane	1-5
	carbon tetrachloride	1-5
	vinyl acetate	2-10
	bromodichloromethane	1-5
	1,2-dichloropropane	1-5
	cis-1,3-dichloropropene	1-5
	dibromochloromethane	1-5
	1,1,2-trichloroethane	1-5
	benzene	1-5
	trans-1,3-dichloropropene	1-5
	bromoform	1-5
	4-methyl-2-pentanone	2-10
	2-hexanone	2-10
	1,1,2,2-tetrachloroethane	1-5
	toluene	1-5
	chlorobenzene	1-5
	ethylbenzene	1-5
	styrene	1-5
	xylene (total)	1-5
Semi-Volatiles	phenol	10-20
	bis(2-chloroethyl)ether	10-20
	2-chlorophenol	10-20
	1,3-dichlorobenzene	10-20
	1,4-dichlorobenzene	10-20

TABLE N1-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: FIRST SAMPLING ROUND

Parameter		SQL Range (µg/L)
Semi-Volatiles	benzyl alcohol	10-20
	1,2-dichlorobenzene	10-20
	2-methylphenol	10-20
	bis(2-chloroisopropyl)ether	10-20
	4-methylphenol	10-20
	N-nitroso-di-n-propylamine	10-20
	hexachloroethane	10-20
	nitrobenzene	10-20
	isophorone	10-20
	2-nitrophenol	10-20
	2,4-dimethylphenol	10-20
	benzoic acid	50-100
	bis(2-chloroethoxy)methane	10-20
	2,4-dichlorophenol	10-20
	1,2,4-trichlorobenzene	10-20
	naphthalene	10-20
	4-chloroaniline	10-20
	hexachlorobutadiene	10-20
	4-chloro-3-methylphenol	10-20
	2-methylnaphthalene	10-20
	hexachlorocyclopentadiene	10-20
	2,4,6-trichlorophenol	10-20
	2,4,5-trichlorophenol	50-100
	2-chloronaphthalene	10-20
	2-nitroaniline	50-100
	dimethylphthalate	10-20
	acenaphthylene	10-20
	2,6-dinitrotoluene	10-20
	3-nitroaniline	50-100
	acenaphthene	10-20
	2,4-dinitrophenol	50-100
	4-nitrophenol	50-100
	dibenzofuran	10-20
	2,4-dinitrotoluene	10-20
	diethylphthalate	10-20
	4-chlorophenyl-phenylether	10-20
	fluorene	10-20
	4-nitroaniline	50-100

TABLE N1-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: FIRST SAMPLING ROUND

Parameter		SQL Range (µg/L)
Semi-Volatiles	4,6-dinitro-2-methylphenol	50-100
	N-nitrosodiphenylamine (1)	10-20
	4-bromophenyl-phenylether	10-20
	hexachlorobenzene	10-20
	pentachlorophenol	10-20
	phenanthrene	10-20
	anthracene	10-20
	di-n-butylphthalate	10-20
	3,3'-dichlorobenzidine	50-100
	benzo(a)anthracene	10-20
	chrysene	10-20
	di-n-octylphthalate	10-20
	benzo(b)fluoranthene	10-20
	benzo(k)fluoranthene	10-20
	benzo(a)pyrene	10-20
	indeno(1,2,3-cd)pyrene	10-20
	dibenz(a,h)anthracene	10-20
	benzo(g,h,i)perylene	10-20
Pesticides	alpha-BHC	0.050
	beta-BHC	0.050
	delta-BHC	0.050
	gamma-BHC (lindane)	0.050
	heptachlor	0.050
	aldrin	0.050
	heptachlor epoxide	0.050
	endosulfan I	0.050
	dieldrin	0.10-0.20
	4,4'-DDE	0.10-0.20
	endrin	0.10-0.20
	endosulfan II	0.10-0.20
	4,4'-DDD	0.10-0.20
	endosulfan sulfate	0.10-0.20
	4,4'-DDT	0.10-0.20
	methoxychlor	0.50-1.0
	endrin ketone	0.10-0.20
	alpha-chlordane	0.50-1.0
	gamma-chlordane	0.50-1.0
	toxaphene	1.0-2.0

TABLE N1-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: FIRST SAMPLING ROUND

Parameter		SQL Range (µg/L)
Pesticides	aroclor-1016	0.50-1.0
	aroclor-1221	0.50-1.0
	aroclor-1232	0.50-1.0
	aroclor-1242	0.50-1.0
	aroclor-1248	0.50-1.0
	aroclor-1254	1.0-2.0
	aroclor-1260	1.0-2.0

TABLE N1-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: FIRST ROUND SAMPLING.

1100-EM-1 Round 1 Monitoring Wells		Well # Sample Id					
Parameter	Units	MW-1 B00024	MW-02 B00034	MW-03 B00065	MW-04 B00027	MW-05 B00030	MW-05 DUP B00032
Alkalinity	µg/L	261000.00	145000.00	303000.00	133000.00	132000.00	132000.00
Ammonium	µg/L	50.00 U	50.00 U	60.00	50.00 U	50.00 U	50.00 U
Bromide	µg/L	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U
Chloride	µg/L	58000.00	10500.00	173000.00	6500.00	6800.00	6800.00
COD	µg/L	10000.00 U	10000.00 U	15000.00 U	10000.00 U	10000.00 U	10000.00 U
Coliform	MPN/100 ml	2.20 U	2.20 U	2.20 U	2.20 U	2.20 U	2.20 U
SC*	µmho/cm	720.00	440.00	1280.00	330.00	350.00	NR
Fluoride	µg/L	500.00 U	500.00	500.00 U	500.00 U	500.00 U	500.00 U
Nitrate	µg/L	9800.00	15400.00	15800.00	7200.00	8300.00	84000.00
Nitrite	µg/L	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U
pH*	Std. Units	7.90	7.90	7.30	8.10	8.20	NR
Temperature*	°C	16.10	15.50	16.90	15.60	15.40	NR
Phosphate	µg/L	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U
Sulfate	µg/L	29800.00	37000.00	32200.00	16300.00	20500.00	20500.00
Dissolved Oxygen*	µg/L	900.00	4400.00	3500.00	6200.00	4200.00	NR
TDS	µg/L	391000.00	233000.00	648000.00	178000.00	187000.00	189000.00
TOC	µg/L	2100.00	700.00 U	2000.00	500.00 U	800.00 U	800.00 U
TOXLDL	µg/L	145.00	17.00	59.00	73.00	140.00	141.00
Turbidity	NTU	1.30	6.20	60.00	3.50	0.40	0.60
Gross-Alpha	pCi/L	8.40	4.40	17.00	2.90	3.90	NR
Gross-Beta	pCi/L	12.70	8.20	14.70	7.40	6.50	NR
Strontium-90	pCi/L	ND	ND	ND	ND	ND	NR
Total Radium	pCi/L	0.40	0.40	2.40	ND	0.50	NR
Tritium	pCi/L	ND	ND	ND	ND	ND	NR

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

TABLE N1-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: FIRST ROUND SAMPLING.

1100-EM-1 Round 1		Well #											
Monitoring Wells		Sample Id											
Parameter	Units	MW-06		MW-07		MW-08		MW-09		MW-10		MW-11	
		B00022		B00020		B00002		B00036		B00017		B00012	
Alkalinity	µg/L	149000.00		160000.00		172000.00		94000.00		163000.00		151000.00	
Ammonium	µg/L	50.00	U	50.00	U	100.00		99.00		983.00		1470.00	
Bromide	µg/L	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U
Chloride	µg/L	8900.00		11300.00		15700.00		2500.00		16800.00		16400.00	
COD	µg/L	10000.00	U	10000.00	U	NR		10000.00	U	NR		NR	
Coliform	MPN/100 ml	2.20	U	2.20	U	2.20	U	2.20	U	2.20	U	2.20	U
SC*	µmho/cm	400.00		430.00		510.00		250.00		870.00		880.00	
Fluoride	µg/L	500.00	U	500.00	U	500.00	U	500.00	U	500.00	U	500.00	U
Nitrate	µg/L	11800.00		10100.00		30600.00		500.00	U	170000.00		180000.00	
Nitrite	µg/L	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U
pH*	Std. Units	7.90		NR		7.70		7.90		7.70		8.00	
Temperature*	°C	15.90		15.40		15.50		15.50		15.50		15.10	
Phosphate	µg/L	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U
Sulfate	µg/L	25400.00		30000.00		28800.00		18000.00		80300.00		88700.00	
Dissolved Oxygen*	µg/L	3600.00		7200.00		5800.00		900.00		6500.00		6000.00	
TDS	µg/L	201000.00		239000.00		300000.00		121000.00		511000.00		512000.00	
TOC	µg/L	700.00	U	700.00	U	900.00	U	400.00	U	900.00	U	1000.00	U
TOXLDL	µg/L	11.00		29.00		142.00		8.00	U	24.00		32.00	
Turbidity	NTU	1.30		7.60		1.10		1.30		60.00		15.10	
Gross-Alpha	pCi/L	3.60		4.80		3.80		1.30		11.90		12.20	
Gross-Beta	pCi/L	ND		6.10		5.30		6.40		30.20		35.20	
Strontium-90	pCi/L	ND		ND		ND		ND		ND		ND	
Total Radium	pCi/L	0.30		0.40		ND		0.20		2.00		2.60	
Tritium	pCi/L	ND		ND		ND		ND		ND		ND	

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

TABLE N1-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: FIRST ROUND SAMPLING.

1100-EM-1 Round 1 Monitoring Wells		Well # Sample Id					
Parameter	Units	MW-11 DUP B00015	MW-12 B00051	MW-13 B00009	MW-14 B00006	MW-15 B00003	MW-17 B00039
Alkalinity	µg/L	150000.00	185000.00	177000.00	181000.00	171000.00	113000.00
Ammonium	µg/L	1620.00	800.00	316.00	1180.00	81.00	50.00 U
Bromide	µg/L	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U
Chloride	µg/L	16200.00	15000.00	14900.00	15200.00	15100.00	2700.00
COD	µg/L	NR	10000.00 U	NR	NR	NR	15000.00 U
Coliform	MPN/100 ml	2.20 U	2.20 U	2.20 U	1.00 U	1.00 U	2.20 U
SC*	µmho/cm	NR	990.00	920.00	930.00	800.00	280.00
Fluoride	µg/L	500.00 U	500.00 U	500.00	500.00 U	500.00 U	500.00 U
Nitrate	µg/L	177000.00	217000.00	208000.00	215000.00	143000.00	500.00 U
Nitrite	µg/L	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U
pH*	Std. Units	NR	7.50	7.80	7.90	7.80	7.80
Temperature*	°C	NR	15.90	16.40	15.90	16.00	14.80
Phosphate	µg/L	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1000.00 U	1400.00
Sulfate	µg/L	87900.00	82100.00	76300.00	85000.00	60200.00	13800.00
Dissolved Oxygen*	µg/L	NR	2100.00	6000.00	3300.00	7200.00	600.00
TDS	µg/L	520000.00	611000.00	553000.00	588000.00	477000.00	150000.00
TOC	µg/L	900.00 U	1200.00 U	1100.00 U	1200.00 U	800.00 U	200.00 U
TOXLDL	µg/L	27.00	69.00	96.00	91.00	73.00	5.00 U
Turbidity	NTU	4.70	14.90	2.50	1.10	0.30	14.20
Gross-Alpha	pCi/L	NR	7.60	9.10	6.30	9.30	2.20
Gross-Beta	pCi/L	NR	34.60	28.80	25.10	23.20	5.60
Strontium-90	pCi/L	NR	ND	ND	ND	ND	ND
Total Radium	pCi/L	NR	1.20	1.60	1.50	ND	0.60
Tritium	pCi/L	NR	ND	ND	ND	ND	ND

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

TABLE N1-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: FIRST ROUND SAMPLING.

1100-EM-1 Round 1 Monitoring Wells		Well # Sample Id											
Parameter	Units	RWF-EAST B00062		RWF-WEST B00060		6-S37-E14 B00054		6-S40-E14 B00049		6-S41-E13A B00047		6-S41-E13B B00045	
Alkalinity	µg/L	79000.00		81000.00		81000.00		72000.00		104000.00		221000.00	
Ammonium	µg/L	50.00	U	50.00	U	50.00	U	50.00	U	50.00	U	50.00	U
Bromide	µg/L	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U
Chloride	µg/L	1400.00		1200.00		1600.00		1300.00		1800.00		8500.00	
COD	µg/L	15000.00	U	15000.00	U	10000.00	U	10000.00	U	10000.00	U	10000.00	U
Coliform	MPN/100 ml	1.00	U	1.00	U	1.00	U	1.00	U	2.20	U	1.00	U
SC*	µmho/cm	210.00		200.00		210.00		190.00		250.00		500.00	
Fluoride	µg/L	500.00	U	500.00	U	500.00	U	500.00	U	500.00	U	500.00	U
Nitrate	µg/L	900.00		800.00		1400.00		800.00		6400.00		2500.00	
Nitrite	µg/L	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U
pH*	Std. Units	8.10		8.00		8.20		8.20		8.10		7.50	
Temperature*	°C	10.10		7.60		14.40		6.60		15.20		14.70	
Phosphate	µg/L	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U	1000.00	U
Sulfate	µg/L	11400.00		11100.00		11100.00		11400.00		10500.00		9800.00	
Dissolved Oxygen*	µg/L	10400.00		10700.00		7300.00		11400.00		9400.00		1200.00	
TDS	µg/L	95000.00		91000.00		63000.00		31000.00		144000.00		263000.00	
TOC	µg/L	800.00	U	800.00	U	1000.00		1000.00		700.00	U	700.00	U
TOXLDL	µg/L	16.00		17.00		7.00	U	15.00		5.00	U	2.00	U
Turbidity	NTU	0.10	U	1.40		0.20		0.20		2.70		0.30	
Gross-Alpha	pCi/L	ND		1.00		2.20		1.10		ND		6.00	
Gross-Beta	pCi/L	2.30		ND		ND		ND		2.60		4.90	
Strontium-90	pCi/L	ND		ND		ND		ND		ND		ND	
Total Radium	pCi/L	ND		ND		2.00		ND		ND		ND	
Tritium	pCi/L	ND		ND		ND		ND		ND		ND	

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

TABLE N1-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: FIRST ROUND SAMPLING.

1100-EM-1 Round 1 Monitoring Wells		Well # Sample Id	
Parameter	Units	6-S43-E12 B00056	
Alkalinity	µg/L	187000.00	
Ammonium	µg/L	50.00	U
Bromide	µg/L	1000.00	U
Chloride	µg/L	31700.00	
COD	µg/L	10000.00	U
Coliform	MPN/100 ml	1.00	U
SC*	µmho/cm	525.00	
Fluoride	µg/L	500.00	U
Nitrate	µg/L	16300.00	
Nitrite	µg/L	1000.00	U
pH*	Std. Units	7.70	
Temperature*	°C	16.90	
Phosphate	µg/L	1000.00	U
Sulfate	µg/L	20400.00	
Dissolved Oxygen*	µg/L	6800.00	
TDS	µg/L	270000.00	
TOC	µg/L	1100.00	
TOXLDL	µg/L	9.00	U
Turbidity	NTU	0.60	
Gross-Alpha	pCi/L	2.60	
Gross-Beta	pCi/L	8.80	
Strontium-90	pCi/L	ND	
Total Radium	pCi/L	0.30	
Tritium	pCi/L	1440.00	

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

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APPENDIX N-2
SECOND SAMPLING ROUND ANALYTICAL RESULTS

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TABLE N2-1. GROUND-WATER TAL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round 2 MONITORING WELLS															
	Well Id	MW-1				MW-2				MW-3				MW-4			
Parameter	Sample Id	B000G9		B000H0		B000G4		B000G5		B000J2		B000J3		B000J8		B000J9	
	Type	*		**		*		**		*		**		*		**	
		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)	
Aluminum		83.8	U	138.0	U	381.0		135.0	U	812.0		60.2	U	237.0		102.0	U
Antimony		17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U
Arsenic		2.7	J	3.0	J	3.6	J	5.4		2.0	U	2.0	U	6.3		5.0	
Barium		50.5		49.7		51.3		51.3		97.7		111.0		47.2		44.6	
Beryllium		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Calcium		64400.0		64400.0		41200.0		41500.0		104000.0		125000.0		36900.0		10200.0	
Chromium		56.8	J	5.0	UJ	45.4	J	5.0	UJ	41.5	J	5.0	UJ	13.3		5.2	U
Cobalt		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper		3.2	U	3.2	U	9.7	U	3.2	U	3.4	U	2.2	U	7.6	U	2.0	U
Iron		305.0	J	35.5	UJ	543.0	J	29.4	UJ	1320.0	J	106.0	UJ	356.0		15.0	U
Lead		2.0	U	2.0	U	2.0	U	8.5	J	2.0	U	2.0	U	2.0	U	10.0	U
Magnesium		13900.0	J	14200.0	J	8400.0	J	8690.0	J	22800.0	J	27600.0	J	7960.0		8740.0	
Manganese		26.6		24.5		54.1		55.8		154.0		142.0		19.7		1.9	U
Mercury		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel		101.0		73.8		27.7		15.0	U	54.8		47.9		15.0	U	15.0	U
Potassium		6820.0		6870.0		5950.0		5470.0		8490.0		10000.0		3730.0		4430.0	U
Selenium		2.0	UJ	2.0	UJ	2.0	UJ	2.0	U	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ
Silver		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Sodium		24800.0	J	24900.0	J	23100.0	J	24300.0	J	34400.0	J	40700.0	J	13800.0	J	14700.0	J
Thallium		4.0	U	4.0	U	4.0	U	4.0	U	4.0	UJ	4.0	UJ	4.0	U	4.0	U
Vanadium		6.1		6.7		6.2		3.3		6.6		5.5		7.1		8.1	
Zinc		4.5		5.2		2.5		2.7		9.4		3.7		10.9	UJ	19.9	U
Cyanide		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR	
SDG #		B000G0		B000G0		B000G0		B000G0		B000G0		B000G0		B00B07		B000J9	

* - Unfiltered

** - Filtered

TABLE N2-1. GROUND-WATER TAL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round 2 MONITORING WELLS															
	Well Id	MW-5				MW-6				MW-7				MW-8			
Parameter	Sample Id	B000K2		B000K3		B000H3		B000H4		B000H7		B000H8		B00070		B00071	
	Type	*		**		*		**		*		**		*		**	
		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)	
Aluminum		163.0		121.0	U	165.0	U	131.0	U	138.0	U	150.0	U	136.0	U	119.0	U
Antimony		17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U
Arsenic		4.2		5.0		3.0	J	4.3	J	6.8	J	6.8	J	6.8	J	7.0	J
Barium		60.6		63.1		50.5		46.4		43.9		43.1		52.4		49.3	
Beryllium		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Calcium		33300.0		36100.0		41100.0		40100.0		48100.0		47300.0		54900.0		54600.0	
Chromium		10.1		5.0	U	17.7	J	5.0	UJ	5.0	UJ	5.0	UJ	7.8		5.0	U
Cobalt		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper		5.4	U	2.0	U	3.2	U	2.1	U	3.2	U	2.1	U	2.6		3.5	
Iron		90.5	U	15.0	U	133.0	UJ	18.6	UJ	63.9	UJ	25.0	UJ	34.6	U	24.4	U
Lead		2.2	J	10.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Magnesium		6710.0		7430.0		8520.0	J	8570.0	J	8360.0	J	8290.0	J	13700.0		13700.0	
Manganese		82.1		52.7		9.9		4.9		27.5		17.1		8.9		9.0	
Mercury		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel		22.1		17.3		22.5		15.0	U	15.0	U	15.0	U	15.0	U	15.0	U
Potassium		4400.0		4800.0	U	5340.0		5470.0		5910.0		5950.0		5150.0		5300.0	
Selenium		2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	U	2.1	J
Silver		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Sodium		18800.0	J	20300.0	J	23400.0	J	22400.0	J	24200.0	J	23900.0	J	20700.0	J	20500.0	J
Thallium		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	UJ	2.0	U	2.0	U
Vanadium		3.4		5.2		6.9		6.3		11.8		10.6		9.4	U	9.8	U
Zinc		20.4	UJ	13.0	U	2.0	U	2.3		2.0	U	2.0	U	4.2		3.6	
Cyanide		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR	
SDG #		B00B07		B000J9		B000G0		B000G0		B000G0		B000G0		B00070		B00070	

* - Unfiltered

** - Filtered

TABLE N2-1. GROUND-WATER TAL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round 2 MONITORING WELLS															
	Well Id	MW-9				MW-10				MW-11				MW-12			
Parameter	Sample Id	B00074		B00075		B00078		B00079		B00083		B00084		B00087		B00088	
	Type	*		**		*		**		*		**		*		**	
		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)	
Aluminum		121.0	U	115.0	U	418.0		136.0	U	194.0	U	135.0	U	331.0		110.0	U
Antimony		17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U
Arsenic		2.0	U	2.0	U	2.2	J	2.1		2.0	U	2.0	U	2.5		2.7	
Barium		63.0		63.6		97.3		96.7		95.4		97.3		113.0		111.0	
Beryllium		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Calcium		20100.0		20100.0		97700.0		96200.0		96500.0		96700.0		115000.0		116000.0	
Chromium		5.0	U	5.0	U	6.7		5.0	U	5.0	U	5.0	U	17.0		5.0	U
Cobalt		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper		2.6		2.0	U	2.0	U	2.7		2.0	U	2.0	U	5.3		2.0	U
Iron		42.7	U	23.2	U	627.0		18.2	U	139.0	U	34.6	U	388.0		45.5	U
Lead		2.0	U	2.7		54.0		2.0	U	2.0	U	2.0	U	2.0	UJ	2.0	U
Magnesium		4980.0		4960.0		20900.0		20300.0		21100.0		21200.0		23800.0		23900.0	
Manganese		210.0		201.0	U	44.6		27.7		165.0		160.0		41.2		36.8	
Mercury		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel		45.6		15.0	U	15.0	U	15.0	U	15.0	U	15.0	U	15.0	U	15.0	U
Potassium		4450.0		4630.0	U	8950.0		9140.0		10100.0		9970.0		9040.0		8910.0	
Selenium		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Silver		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Sodium		26700.0	J	25100.0	J	30600.0	J	30200.0	J	33000.0	J	32700.0	J	32800.0	J	32900.0	J
Thallium		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium		3.0	U	3.0	U	6.4	U	5.5	U	4.5	U	4.0	U	7.3	U	6.4	U
Zinc		2.3		2.0	U	6.7		2.0	U	2.3		3.7		2.0	U	2.0	U
Cyanide		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR	
SDG #		B00070		B00070		B00070		B00070		B00070		B00070		B00070		B00070	

* - Unfiltered

** - Filtered

TABLE N2-1. GROUND-WATER TAL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round 2 MONITORING WELLS															
Parameter	Well Id	MW-12D				MW-13				MW-14				MW-15			
	Sample Id	B00091		B00092		B00095		B00096		B00100		B000F5		B000G0		B000G1	
	Type	*		**		*		**		*		**		*		**	
		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)	
Aluminum		137.0	U	98.2	U	157.0	U	94.1	U	99.6	U	125.0	U	126.0	U	115.0	U
Antimony		17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U
Arsenic		3.6		2.0	U	3.3		3.3		2.0	U	2.0	U	4.1	J	3.8	
Barium		114.0		114.0		104.0		97.9		105.0		105.0		79.5		82.8	
Beryllium		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Calcium		116000.0		117000.0		107000.0		104000.0		112000.0		114000.0		83900.0		84800.0	
Chromium		16.8		5.0	U	16.3		5.0	U	5.0	U	7.9		28.5	J	5.0	UJ
Cobalt		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper		3.5		5.2		6.1		2.6		5.2		6.1		4.3	U	3.2	U
Iron		99.5	U	58.6	U	79.5	U	24.5	U	34.0	U	36.9	U	159.0	UJ	16.0	UJ
Lead		2.0	UJ	2.0	U	2.0	U	2.0	U	2.4	J	2.0	U	2.0	U	2.0	U
Magnesium		23800.0		24600.0		22800.0		21900.0		24600.0		25300.0		17500.0	J	17300.0	J
Manganese		38.4		40.2		109.0		96.8		214.0		216.0		13.6		7.0	
Mercury		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel		15.0	U	15.0	U	15.0	U	15.0	U	15.0	U	15.0	U	25.9		15.0	U
Potassium		9150.0		8960.0		8800.0		8510.0		10100.0		10300.0		7390.0		7430.0	
Selenium		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	UJ	2.0	U
Silver		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Sodium		33000.0	J	33700.0	J	31400.0	J	30500.0	J	34300.0	J	35200.0	J	26900.0	J	27100.0	J
Thallium		2.0	U	2.0	U	2.0	U	2.0	UJ	2.0	U	2.0	U	4.0	U	4.0	U
Vanadium		7.4	U	4.4	U	8.4	U	6.0	U	3.0	U	3.0	U	5.9		4.1	
Zinc		2.0	U	21.4		7.2		2.0	U	4.2		5.0	U	8.2		5.4	
Cyanide		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR	
SDG #		B00070		B00070		B00070		B00070		B00070		B00070		B000G0		B000G0	

* - Unfiltered

** - Filtered

TABLE N2-1. GROUND-WATER TAL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round 2
MONITORING WELLS

Parameter	Well Id	MW-17		MW-17D		S27-E14		S29-E12	
	Sample Id	B000L1	B000L2	B000L5	B000L6	B009Z1	B009Z2	B009X9	B009Y0
	Type	**	**	*	**	*	**	*	**
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Aluminum		217.0	121.0 U	237.0	112.0 U	98.1 U	65.5 U	131.0 U	112.0 U
Antimony		17.0 U	17.0 U	22.1 U	17.0 U	17.0 U	17.0 U	17.0 U	17.0 U
Arsenic		2.7	2.0 U	2.8	2.0 U	5.9	6.0	5.9	5.4
Barium		23.6	18.0	23.6	18.6	50.2	48.3	50.2	50.2
Beryllium		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Calcium		23800.0	26700.0	23800.0	26800.0	57500.0	54000.0	50500.0	53800.0
Chromium		13.5	5.0 U	6.6	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cobalt		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Copper		10.9 U	2.0 U	2.2 U	2.0 U	2.0 U	2.0 U	3.0	2.0 U
Iron		207.0	23.2 U	160.0 U	15.0 U	52.5 U	15.2 U	3000.0	18.7 U
Lead		3.8 J	10.0 U	2.0 U	2.0 UJ	10.7	2.0 U	20.0 U	20.0 U
Magnesium		4340.0	5600.0	4720.0	5610.0	11400.0 J	10500.0 J	10400.0 J	11300.0 J
Manganese		100.0	102.0	95.4	103.0	1.0 U	1.0 U	92.5	4.1 U
Mercury		0.2 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel		15.0 U	15.0 U	15.0 U	15.0 U	15.0 U	15.0 U	15.0 U	15.0 U
Potassium		3130.0	4110.0 U	3340.0	4020.0 U	5970.0	6030.0	5810.0	6160.0
Selenium		2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 U	2.0 U	5.7 J	2.2 J
Silver		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Sodium		20200.0 J	20900.0 J	20400.0 J	20400.0 J	23500.0 J	21400.0 J	23100.0 J	24800.0 J
Thallium		4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Vanadium		3.0 U	3.7	3.0 U	3.0 U	5.6	8.1	10.0	9.1
Zinc		13.6 UJ	18.3 U	9.3 UJ	15.9 U	2.0 U	2.5 U	27.4 U	22.8 U
Cyanide		10.0 U	NR	10.0 U	NR	10.0 U	NR	10.0 U	NR
SDG #		B00B07	B000J9	B00B07	B000J9	B009X1	B009X1	B009X1	B009X1

* – Unfiltered
** – Filtered

TABLE N2-1. GROUND-WATER TAL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round 2 MONITORING WELLS															
Parameter	Well Id	S30-E15A				S31-E13				S32-E13A				S37-E14			
	Sample Id	B009Y7		B009Y8		B009Y3		B009Y4		B009X5		B009X6		B000M6		B000M7	
	Type	*		**		*		**		*		**		*		**	
		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)	
Aluminum		121.0	U	86.0	U	90.2	U	107.0	U	132.0	U	106.0	U	148.0		113.0	U
Antimony		17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U
Arsenic		2.5		2.6		3.0		4.8		3.2	J	2.3		2.0	U	2.0	U
Barium		59.0		60.2		80.3		79.0		72.8		70.9		20.2		16.1	
Beryllium		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Calcium		66100.0		69200.0		83100.0		81700.0		66700.0		68500.0		24300.0		25700.0	
Chromium		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	7.2		5.0	U
Cobalt		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper		2.0	U	2.0	U	2.0	U	2.0	U	2.0		2.0	U	4.3	U	2.6	
Iron		204.0		21.1	U	1190.0		48.6	U	2140.0		55.5	U	18.0	U	15.0	U
Lead		2.0	U	2.0	U	20.0	U	20.0	U	2.0	UJ	20.0	U	3.8	J	2.0	U
Magnesium		12500.0	J	13000.0	J	16800.0	J	16700.0	J	15500.0	J	15400.0	J	4320.0		4530.0	
Manganese		2.3	U	1.8	J	14.8		2.1	U	32.5		5.8		1.0	U	1.0	U
Mercury		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel		15.0	U	15.0	U	18.5		15.0	U	15.0	U	15.0	U	15.0	U	15.0	U
Potassium		5880.0		6390.0		6690.0		6640.0		6010.0		5990.0		1530.0		2090.0	U
Selenium		2.0	UJ	2.0	UJ	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	UJ	2.0	UJ
Silver		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Sodium		13100.0	J	13700.0	J	17200.0	J	17000.0	J	16800.0	J	16800.0	J	15700.0	J	15700.0	J
Thallium		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
Vanadium		6.0		6.5		8.6		5.8		4.5		3.9		3.0	U	3.3	
Zinc		91.2		44.1	U	11.3	U	3.0	U	69.5	U	17.0	U	5.1	UJ	35.4	U
Cyanide		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR	
SDG #		B009X1		B009X1		B009X1		B009X1		B009X1		B009X1		B00B07		B000J9	

* – Unfiltered

** – Filtered

TABLE N2-1. GROUND-WATER TAL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round 2 MONITORING WELLS																	
	Well Id	S40-E14				S41-E13A				S41-E13B				S43-E12			
Parameter	Sample Id	B009W5		B009W6		B000L7		B000L8		B000M1		B000M2		B000K6		B000K7	
	Type	*		**		*		**		*		**		*		**	
		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)	
Aluminum		105.0	U	111.0	U	179.0		89.3	U	145.0		87.0	U	138.0		107.0	U
Antimony		17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U	17.0	U
Arsenic		2.0	U	2.0	U	3.0		2.0	U	4.7		3.5		4.0		3.7	U
Barium		13.5		7.4		34.5		31.6		58.9		58.2		60.6		65.6	
Beryllium		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Calcium		21400.0		22300.0		39500.0		42500.0		59600.0		67000.0		89600.0		98700.0	
Chromium		12.5		5.0	U	21.8		5.0	U	7.7		5.0	U	13.0		5.0	U
Cobalt		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Copper		8.7	U	2.0	U	5.4	U	2.0	U	10.9	U	2.0	U	8.7	U	7.7	U
Iron		70.2	U	15.0	U	81.0	U	59.6	U	72.1	U	18.9	U	85.2	U	15.0	U
Lead		2.0	U	2.0	U	2.3	J	2.0	UJ	2.0	U	10.0	U	2.0	U	10.0	U
Magnesium		4020.0		4470.0		7520.0		8430.0		12300.0		14000.0		17300.0		19100.0	
Manganese		2.4		1.0	U	8.7		1.9		20.7		21.5		3.1		4.4	U
Mercury		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel		15.0	U	15.0	U	16.2		21.8		15.0	U	15.0	U	23.9		20.8	U
Potassium		372.0	UJ	717.0	U	3910.0		4150.0	U	5580.0		5890.0		7710.0		8680.0	U
Selenium		2.1	J	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	U
Silver		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Sodium		2540.0	J	2700.0	J	7090.0	J	7420.0	J	1770.0	J	19400.0	J	23600.0	J	25100.0	J
Thallium		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
Vanadium		3.0	U	3.0	U	6.5		6.6		7.0		6.4		9.9		10.1	
Zinc		21.1	UJ	28.7	U	5.8	UJ	16.1	U	40.0	UJ	21.5	U	18.3	UJ	25.9	U
Cyanide		10.0	U	NR		10.0	U	NR		10.0	U	NR		10.0	U	NR	
SDG #		B00B07		B000J9		B00B07		B000J9		B00B07		B000J9		B00B07		B000J9	

* – Unfiltered

** – Filtered

TABLE N2-1. GROUND-WATER TAL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round 2 MONITORING WELLS								
Parameter	Well Id	RWF-EAST				RFW-WEST			
	Sample Id	B00B08		B00B09		B00B12		B00B13	
	Type	*		**		*		**	
		(µg/L)		(µg/L)		(µg/L)		(µg/L)	
Aluminum		134.0	U	86.9	U	134.0	U	102.0	U
Antimony		26.3		17.0	U	235.0		17.0	U
Arsenic		2.0	U	2.0	U	2.0	U	2.0	U
Barium		11.8		9.9		15.1		11.1	
Beryllium		1.0	U	1.0	U	1.0	U	1.0	U
Cadmium		3.0	U	3.0	U	3.0	U	3.0	U
Calcium		23500.0		25400.0		22100.0		24600.0	
Chromium		5.0	U	5.0	U	8.8		5.0	U
Cobalt		3.0	U	3.0	U	3.0	U	3.0	U
Copper		35.8		23.9		35.8		12.8	
Iron		86.4	U	15.0	U	58.2	U	15.0	U
Lead		2.6	J	2.0	U	2.8	J	2.0	U
Magnesium		4210.0		5060.0		4180.0		5050.0	
Manganese		3.2		1.0	U	1.7		1.0	U
Mercury		0.20	U	0.20	U	0.20	U	0.20	U
Nickel		15.0	U	15.0	U	16.2		15.0	U
Potassium		1010.0		619.0	U	630.0		874.0	U
Selenium		2.0	UJ	2.0	UJ	2.0	UJ	2.0	U
Silver		3.0	U	3.0	U	3.3		3.0	U
Sodium		2560.0	J	2850.0	J	2820.0	J	2960.0	J
Thallium		4.0	U	4.0	U	4.0	U	4.0	U
Vanadium		3.0	U	3.0	U	3.0	U	3.0	U
Zinc		46.6	J	24.3	U	50.9	J	24.4	U
Cyanide		10.0	U	NR		10.0	U	NR	
SDG #		B00B07		B000J9		B00B07		B000J9	

* - Unfiltered

** - Filtered

TABLE N2-2. GROUND-WATER TCL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round Two MONITORING WELLS													
PARAMETER	Well Id Sample Id RT	MW-1 B000G9 (µg/L)		MW-2 B000G4 (µg/L)		MW-3 B000J2 (µg/L)		MW-4 B000J8 (µg/L)		MW-5 B000K2 (µg/L)		MW-6 B000H3 (µg/L)	
VOLATILE ORGANICS													
methylene chloride		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
acetone		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
chloroform		1.0	U	1.0	U	1.0	U	0.5	J	0.9	J	1.0	U
2-butanone		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
1,1,1-trichloroethane		1.0	U	1.0	U	1.0	U	2.0		4.0		0.9	J
trichloroethene		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
tetrachloroethene		1.0	U	1.0	U	1.0	U	1.0		0.8	J	0.8	J
SEMI-VOLATILE ORGANICS													
bis(2-ethylhexyl)phthalate		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Di-n-butylpthalate		10.0	U	10.0	U	2.0	J	10.0	U	10.0	U	10.0	U
VOLITILE ORGANIC TICs													
butanoic acid, methyl ester	10.74	ND		ND		ND		ND		ND		ND	
SEMI-VOLATILE ORGANIC TICs													
ethanol, 2-chloro-, phosphat	21.67	ND		ND		ND		ND		ND		ND	
ethanol, 2-chloro-, phosphat	21.82	ND		ND		ND		ND		58.0	J	ND	
Unknown	6.50	ND		ND		ND		ND		ND		ND	
Unknown	29.12	ND		ND		ND		7.0	J	ND		ND	
Unknown	32.24	ND		ND		ND		ND		ND		ND	
Unknown	33.67	ND		ND		ND		ND		ND		ND	
Unknown	35.14	ND		ND		ND		ND		ND		ND	
SDG #		B000G0		B000G0		B000G0		B00B08		B00B08		B000G0	

TABLE N2-2. GROUND-WATER TCL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round Two MONITORING WELLS													
PARAMETER	Well Id Sample Id RT	MW-7 B000H7 (µg/L)		MW-8 B00070 (µg/L)		MW-9 B00074 (µg/L)		MW-10 B00078 (µg/L)		MW-11 B00083 (µg/L)		MW-12 B00087 (µg/L)	
VOLATILE ORGANICS													
methylene chloride		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
acetone		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
chloroform		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-butanone		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
1,1,1-trichloroethane		1.0	U	0.8	J	1.0	U	1.0		1.0		2.0	
trichloroethene		1.0	U	1.0	U	1.0	U	2.0		3.0		110.0	
tetrachloroethene		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	0.7	J
SEMI-VOLATILE ORGANICS													
bis(2-ethylhexyl)phthalate		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Di-n-butylpthalate		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
VOLITILE ORGANIC TICs													
butanoic acid, methyl ester	10.74	ND		ND		ND		ND		ND		ND	
SEMI-VOLATILE ORGANIC TICs													
ethanol, 2-chloro-, phosphat	21.67	ND		ND		150.0	J	ND		ND		ND	
ethanol, 2-chloro-, phosphat	21.82	ND		ND		ND		ND		ND		ND	
Unknown	6.50	ND		ND		6.3	J	ND		ND		ND	
Unknown	29.12	ND		ND		ND		ND		ND		ND	
Unknown	32.24	ND		ND		ND		ND		ND		ND	
Unknown	33.67	ND		ND		ND		ND		ND		ND	
Unknown	35.14	ND		ND		ND		ND		ND		ND	
SDG #		B000G0		B00070		B00070		B00070		B00070		B00070	

TABLE N2-2. GROUND-WATER TCL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round Two MONITORING WELLS													
PARAMETER	Well Id Sample Id RT	MW-12D B00091 (µg/L)		MW-13 B00095 (µg/L)		MW-14 B00100 (µg/L)		MW-15 B000G0 (µg/L)		MW-17 B000L1 (µg/L)		MW-17D B000L5 (µg/L)	
VOLATILE ORGANICS													
methylene chloride		1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U
acetone		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
chloroform		1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U
2-butanone		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
1,1,1-trichloroethane		2.0		2.0		1.0		1.0	J	1.0	U	1.0	U
trichloroethene		97.0		91.0		73.0		80.0		1.0	U	1.0	U
tetrachloroethene		0.7	U	0.7	U	0.6	J	1.0	UJ	1.0	U	1.0	U
SEMI-VOLATILE ORGANICS													
bis(2-ethylhexyl)phthalate		10.0	U	10.0	U	10.0	U	10.0	U	2.0	J	10.0	U
Di-n-butylphthalate		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
VOLITILE ORGANIC TICs													
butanoic acid, methyl ester	10.74	ND		ND		ND		ND		ND		ND	
SEMI-VOLATILE ORGANIC TICs													
ethanol, 2-chloro-, phosphat	21.67	ND		ND		ND		ND		ND		ND	
ethanol, 2-chloro-, phosphat	21.82	ND		ND		ND		ND		ND		ND	
Unknown	6.50	ND		ND		ND		ND		ND		ND	
Unknown	29.12	ND		ND		ND		ND		ND		ND	
Unknown	32.24	5.3	J	ND		ND		ND		ND		ND	
Unknown	33.67	13.0	J	ND		ND		ND		ND		ND	
Unknown	35.14	12.0	J	ND		ND		ND		ND		ND	
SDG #		B00070		B00070		B00070		B000G0		B00B08		B00B08	

TABLE N2-2. GROUND-WATER TCL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round Two MONITORING WELLS													
PARAMETER	Well Id Sample Id RT	S27-E14 B009Z1 (µg/L)		E29-E12 B009X9 (µg/L)		S30-E15A B009Y7 (µg/L)		S31-E13 B009Y3 (µg/L)		S32-E13A B009X5 (µg/L)		S37-E14 B000M6 (µg/L)	
VOLATILE ORGANICS													
methylene chloride		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
acetone		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
chloroform		1.0	U	1.0	U	5.0		1.0	U	1.0	U	4.0	
2-butanone		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
1,1,1-trichloroethane		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trichloroethene		0.9	J	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
tetrachloroethene		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SEMI-VOLATILE ORGANICS													
bis(2-ethylhexyl)phthalate		10.0		10.0	U	27.0		130000.0		10.0	U	10.0	U
Di-n-butylpthalate		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
VOLITILE ORGANIC TICs													
butanoic acid, methyl ester	10.74	0.9	J	ND		ND		ND		ND		ND	
SEMI-VOLATILE ORGANIC TICs													
ethanol, 2-chloro-, phosphat	21.67	ND		ND		ND		ND		ND		ND	
ethanol, 2-chloro-, phosphat	21.82	ND		ND		ND		ND		ND		ND	
Unknown	6.50	ND		ND		ND		ND		ND		ND	
Unknown	29.12	ND		ND		ND		ND		ND		ND	
Unknown	32.24	ND		ND		ND		ND		ND		ND	
Unknown	33.67	ND		ND		ND		ND		ND		ND	
Unknown	35.14	ND		ND		ND		ND		ND		ND	
SDG #		B00B16		B00B16		B00B16		B00B16		B00B16		B00B08	

TABLE N2-2. GROUND-WATER TCL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: SECOND SAMPLING ROUND

1100-EM-1 Round Two MONITORING WELLS													
PARAMETER	Well Id Sample Id RT	S40-E14 B009W5 (µg/L)		S41-E13A B000L7 (µg/L)		S41-E13B B000M1 (µg/L)		S43-E12 B000K6 (µg/L)		RWF-EAST B00B08 (µg/L)		RWF-WEST B00B12 (µg/L)	
VOLATILE ORGANICS													
methylene chloride		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
acetone		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
chloroform		1.0	U	1.0	U	1.0	U	1.0	U	0.7	J	0.3	J
2-butanone		1.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
1,1,1-trichloroethane		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trichloroethene		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
tetrachloroethene		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SEMI-VOLATILE ORGANICS													
bis(2-ethylhexyl)phthalate		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	2.0	J
Di-n-butylpthalate		10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
VOLITILE ORGANIC TICs													
butanoic acid, methyl ester	10.74	ND		ND		ND		ND		ND		ND	
SEMI-VOLATILE ORGANIC TICs													
ethanol, 2-chloro-, phosphat	21.67	ND		ND		ND		ND		ND		ND	
ethanol, 2-chloro-, phosphat	21.82	ND		ND		ND		ND		ND		ND	
Unknown	6.50	ND		ND		ND		ND		ND		ND	
Unknown	29.12	7.6	J	ND		ND		ND		ND		ND	
Unknown	32.24	ND		ND		ND		ND		ND		ND	
Unknown	33.67	ND		ND		ND		ND		ND		ND	
Unknown	35.14	ND		ND		ND		ND		ND		ND	
SDG #		B00B08		B00B08		B00B08		B00B08		B00B08		B00B08	

TABLE N2-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: SECOND SAMPLING ROUND

Parameter		SQL Range (µg/L)
Inorganics	beryllium	1
	cadmium	3
	cobalt	3
	mercury	0.2
	thallium	2-4
	cyanide	10
Volatiles	chloromethane	2-10
	bromomethane	2-10
	vinyl chloride	2-10
	chloroethane	2-10
	carbon disulfide	1-5
	1,1-dichloroethene	1-5
	1,1-dichloroethane	1-5
	1,2-dichloroethene (total)	1-5
	1,2-dichloroethane	1-5
	carbon tetrachloride	1-5
	vinyl acetate	1-5
	bromodichloromethane	1-5
	1,2-dichloropropane	1-5
	cis-1,3-dichloropropene	1-5
	dibromochloromethane	1-5
	1,1,2-trichloroethane	1-5
	benzene	1-5
	trans-1,3-dichloropropene	1-5
	bromoform	1-5
	4-methyl-2-pentanone	10-50
	2-hexanone	10-50
	1,1,2,2-tetrachloroethane	1-5
	toluene	1-5
	chlorobenzene	1-5
	ethylbenzene	1-5
	styrene	1-5
	xylene (total)	1-5
Semi-Volatiles	phenol	10
	bis(2-chloroethyl)ether	10
	2-chlorophenol	10

TABLE N2-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: SECOND SAMPLING ROUND

Parameter		SQL Range (µg/L)
Semi-Volatiles	1,3-dichlorobenzene	10
	1,4-dichlorobenzene	10
	benzyl alcohol	10
	1,2-dichlorobenzene	10
	2-methylphenol	10
	bis(2-chloroisopropyl)ether	10
	4-methylphenol	10
	N-nitroso-di-n-propylamine	10
	hexachloroethane	10
	nitrobenzene	10
	isophorone	10
	2-nitrophenol	10
	2,4-dimethylphenol	10
	benzoic acid	50
	bis(2-chloroethoxy)methane	10
	2,4-dichlorophenol	10
	1,2,4-trichlorobenzene	10
	naphthalene	10
	4-chloroaniline	10
	hexachlorobutadiene	10
	4-chloro-3-methylphenol	10
	2-methylnaphthalene	10
	hexachlorocyclopentadiene	10
	2,4,6-trichlorophenol	10
	2,4,5-trichlorophenol	50
	2-chloronaphthalene	10
	2-nitroaniline	50
	dimethylphthalate	10
	acenaphthylene	10
	2,6-dinitrotoluene	10
	3-nitroaniline	50
	acenaphthene	10
	2,4-dinitrophenol	50
	4-nitrophenol	50
	dibenzofuran	10
	2,4-dinitrotoluene	10
	diethylphthalate	10

TABLE N2-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: SECOND SAMPLING ROUND

Parameter		SQL Range (µg/L)
Semi-Volatiles	4-chlorophenyl-phenylether	10
	fluorene	10
	4-nitroaniline	50
	4,6-dinitro-2-methylphenol	50
	N-nitrosodiphenylamine (1)	10
	4-bromophenyl-phenylether	10
	hexachlorobenzene	10
	pentachlorophenol	10
	phenanthrene	10
	anthracene	10
	fluoranthene	10
	pyrene	10
	butylbenzylphthalate	10
	3,3'-dichlorobenzidine	20
	benzo(a)anthracene	10
	chrysene	10
	benzo(b)fluoranthene	10
	benzo(k)fluoranthene	10
	benzo(a)pyrene	10
	indeno(1,2,3-cd)pyrene	10
	dibenz(a,h)anthracene	10
	benzo(g,h,i)perylene	10
Pesticides	alpha-BHC	0.050
	beta-BHC	0.050
	delta-BHC	0.050
	gamma-BHC (lindane)	0.050
	heptachlor	0.050
	aldrin	0.050
	heptachlor epoxide	0.050
	endosulfan I	0.050
	dieldrin	0.10
	4,4'-DDE	0.10
	endrin	0.10
	endosulfan II	0.10
	4,4'-DDD	0.10
	endosulfan sulfate	0.10
	4,4'-DDT	0.10

TABLE N2-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: SECOND SAMPLING ROUND

Parameter		SQL Range (µg/L)
Pesticides	methoxychlor	0.50
	endrin ketone	0.10
	alpha-chlordane	0.50
	gamma-chlordane	0.50
	toxaphene	1.0
	aroclor-1016	0.50
	aroclor-1221	0.50
	aroclor-1232	0.50
	aroclor-1242	0.50
	aroclor-1248	0.50
	aroclor-1254	1.0
	aroclor-1260	1.0

TABLE N2-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: SECOND SAMPLING ROUND.

1100-EM-1 Round 2 Monitoring Wells		Well # / Sample Id											
Parameter	Units	MW-1 B000G9		MW-02 B000G4		MW-03 B000J2		MW-04 B000J8		MW-05 B000K2		MW-06 B000H3	
Alkalinity	µg/L	200000.00		140000.00		224500.00		129000.00		107000.00		150000.00	
Ammonium	µg/L	24.00	J	48.00	J	24.00	UJ	24.00	U	36.00		24.00	UJ
Bromide	µg/L	200.00	U	200.00	U	200.00		200.00	U	200.00	U	200.00	U
Chloride	µg/L	28400.00		9800.00	J	127300.00		6000.00		5600.00		9300.00	
COD	µg/L	8500.00	J	9000.00		13000.00	J	5000.00	U	5000.00	U	7000.00	J
Coliform	MPN/100 ml	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U
SC*	µmho/cm	536.00		356.00		1100.00		315.00		276.00		354.00	
Fluoride	µg/L	300.00		400.00		100.00	U	200.00		300.00		300.00	
Nitrate	µg/L	17277.00		10632.00		6645.00		7088.00		6645.00		11075.00	
Nitrite	µg/L	700.00	U	700.00	U	700.00	U	700.00	U	700.00	U	700.00	U
pH*	Std. Units	7.90		8.30		7.50		8.30		8.20		8.20	
Temperature*	°C	16.90		17.90		19.70		17.00		17.20		17.90	
Phosphate	µg/L	500.00	U	500.00	U	500.00	U	600.00	U	600.00	U	500.00	U
Sulfate	µg/L	26600.00		32100.00		25600.00		17500.00		18700.00		26200.00	
Dissolved Oxygen*	µg/L	NR		NR		NR		NR		NR		NR	
TDS	µg/L	370000.00		280000.00		695000.00		190000.00		260000.00		280000.00	
TOC	µg/L	1700.00		2500.00		2700.00		600.00		400.00		1700.00	
TOXLDL	µg/L	20.00	J	10.00	UJ	20.00	J	20.00	J	40.00	J	30.00	J
Turbidity	NTU	1.70		1.80		4.60		7.90		3.10		1.20	
Gross-Alpha	pCi/L	NR		NR		NR		NR		NR		NR	
Gross-Beta	pCi/L	NR		NR		NR		NR		NR		NR	
Strontium-90	pCi/L	NR		NR		NR		NR		NR		NR	
Total Radium	pCi/L	NR		NR		NR		NR		NR		NR	
Tritium	pCi/L	NR		NR		NR		NR		NR		NR	

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

TABLE N2-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: SECOND SAMPLING ROUND.

1100-EM-1 Round 2 Monitoring Wells		Well # Sample Id											
Parameter	Units	MW-07 B000H7		MW-08 B00070		MW-09 B00074		MW-10 B00078		MW-11 B00083		MW-12 B00087	
Alkalinity	µg/L	160000.00		160000.00		94000.00		150000.00		150000.00		180000.00	
Ammonium	µg/L	24.00	UJ	24.00	U	72.00		132.00		972.00		24.00	U
Bromide	µg/L	200.00	U	200.00	U	200.00	U	200.00		200.00		200.00	U
Chloride	µg/L	11000.00		15600.00		2400.00		16900.00		17200.00		16000.00	
COD	µg/L	8000.00	J	8000.00		9000.00		9000.00		10000.00		9000.00	
Coliform	MPN/100 ml	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U
SC*	µmho/cm	394.00		500.00		300.00		850.00		880.00		980.00	
Fluoride	µg/L	300.00		300.00		300.00		300.00		300.00		300.00	
Nitrate	µg/L	9303.00		29681.00		443.00	U	163467.00		179415.00		217070.00	
Nitrite	µg/L	700.00	U	700.00	U	700.00	U	700.00	U	700.00	U	7800.00	
pH*	Std. Units	8.10		8.10		8.50		7.90		7.80		7.70	
Temperature*	°C	17.00		16.10		17.00		16.70		16.50		17.10	
Phosphate	µg/L	500.00	U	500.00	U	500.00	U	500.00	U	500.00	U	500.00	U
Sulfate	µg/L	32200.00		30300.00		29800.00		78600.00		85300.00		81700.00	
Dissolved Oxygen*	µg/L	NR		NR		NR		NR		NR		NR	
TDS	µg/L	300000.00		340000.00		220000.00		580000.00		580000.00		680000.00	
TOC	µg/L	900.00		800.00		1000.00		1200.00		1200.00		2100.00	
TOXLDL	µg/L	10.00	UJ	10.00	U	95.00		10.00	U	10.00		60.00	
Turbidity	NTU	0.30		0.30	J	0.50	J	11.00	J	0.60	J	8.00	J
Gross-Alpha	pCi/L	NR		NR		NR		NR		NR		NR	
Gross-Beta	pCi/L	NR		NR		NR		NR		NR		NR	
Strontium-90	pCi/L	NR		NR		NR		NR		NR		NR	
Total Radium	pCi/L	NR		NR		NR		NR		NR		NR	
Tritium	pCi/L	NR		NR		NR		NR		NR		NR	

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

TABLE N2-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: SECOND SAMPLING ROUND.

1100-EM-1 Round 2 Monitoring Wells		Well # Sample Id													
Parameter	Units	MW-12 DUP B00091		MW-13 B00095		MW-14 B00100		MW-15 B000G0		MW-17 B000L1		MW-17 DUP B000L5		RWF-EAST B00B08	
Alkalinity	µg/L	180000.00		170000.00		180000.00		160000.00		110000.00		111000.00		71000.00	
Ammonium	µg/L	24.00	U	216.00		1128.00		36.00	J	24.00	U	24.00	U	24.00	U
Bromide	µg/L	200.00	U	200.00		200.00	U	200.00		200.00	U	200.00	U	200.00	U
Chloride	µg/L	16200.00		14700.00		15500.00		14600.00		2600.00		2600.00		1200.00	
COD	µg/L	8000.00		9000.00		14000.00		5000.00	UJ	5000.00	U	5000.00	U	5000.00	U
Coliform	MPN/100 ml	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U
SC*	µmho/cm	NR		910.00		950.00		696.00		246.00		NR		151.00	
Fluoride	µg/L	300.00		500.00		300.00		400.00		300.00		300.00		100.00	
Nitrate	µg/L	213969.00		198907.00		225487.00		142646.00		443.00	U	443.00	U	886.00	
Nitrite	µg/L	700.00	U	700.00	U	7600.00		700.00	U	700.00	U	700.00	U	700.00	U
pH*	Std. Units	NR		7.90		7.90		8.00		8.20		NR		8.10	
Temperature*	°C	NR		17.90		17.70		17.50		17.00		NR		12.50	
Phosphate	µg/L	500.00	U	500.00	U	500.00	U	500.00	U	2400.00		2600.00		600.00	U
Sulfate	µg/L	81800.00		72800.00		86800.00		59400.00		15600.00		15400.00		10900.00	
Dissolved Oxygen*	µg/L	NR		NR		NR		NR		NR		NR		NR	
TDS	µg/L	310000.00		620000.00		700000.00		540000.00		180000.00		200000.00		80000.00	
TOC	µg/L	1000.00		1600.00		1800.00		800.00		100.00	U	100.00	U	800.00	
TOXLDL	µg/L	60.00		60.00		60.00		60.00	J	10.00	UJ	10.00	UJ	10.00	UJ
Turbidity	NTU	2.00	J	1.00	J	0.30	J	0.70		1.80		1.60		0.40	
Gross-Alpha	pCi/L	NR		NR		NR		NR		NR		NR		NR	
Gross-Beta	pCi/L	NR		NR		NR		NR		NR		NR		NR	
Strontium-90	pCi/L	NR		NR		NR		NR		NR		NR		NR	
Total Radium	pCi/L	NR		NR		NR		NR		NR		NR		NR	
Tritium	pCi/L	NR		NR		NR		NR		NR		NR		NR	

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

TABLE N2-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: SECOND SAMPLING ROUND.

1100-EM-1 Round 2 Monitoring Wells		Well # Sample Id													
Parameter	Units	RWF-WEST B00B12		S27-E14 B009Z1		S29-E12 B009X9		S30-E15A B009Y7		S31-E13 B009Y3		S32-E13A B009X5		6-S37-E14 B000M6	
Alkalinity	µg/L	69000.00		149000.00		141000.00		202000.00		230000.00		223000.00		83000.00	
Ammonium	µg/L	24.00	U	24.00	U	24.00	U	24.00	U	24.00	U	24.00	U	24.00	U
Bromide	µg/L	200.00	U	200.00		200.00	U	200.00	U	200.00	U	200.00	U	200.00	U
Chloride	µg/L	1100.00		13400.00		12000.00		6300.00		7900.00		8200.00		2500.00	
COD	µg/L	5000.00	U	5000.00	U	5000.00	U	5000.00	U	5000.00	U	5000.00	U	5000.00	U
Coliform	MPN/100 ml	16.00		2.00	U	2.00	U	2.00	U	2.00	U	2.00	U	2.00	U
SC*	µmho/cm	147.00		456.00		429.00		415.00		489.00		463.00		280.00	
Fluoride	µg/L	100.00		300.00		300.00		200.00		300.00		200.00		3700.00	
Nitrate	µg/L	886.00		33225.00		19935.00		10632.00		19935.00		21264.00		7088.00	
Nitrite	µg/L	700.00	U	700.00	U	700.00	U	700.00	U	700.00	U	700.00	U	700.00	U
pH*	Std. Units	8.10		7.90		7.60		7.60		7.60		7.80		8.30	
Temperature*	°C	13.40		17.50		17.00		16.80		16.50		16.30		15.00	
Phosphate	µg/L	600.00	U	600.00	U	600.00	U	600.00	U	600.00	U	600.00	U	600.00	U
Sulfate	µg/L	10500.00		39700.00		34200.00		18000.00		21500.00		23200.00		16000.00	
Dissolved Oxygen*	µg/L	NR		NR		NR		NR		NR		NR		NR	
TDS	µg/L	82000.00		300000.00		260000.00		280000.00		330000.00		330000.00		180000.00	
TOC	µg/L	900.00		700.00		800.00		2800.00		2200.00		1300.00		400.00	
TOXLDL	µg/L	30.00	J	10.00	U	10.00	UJ	10.00	UJ	10.00	UJ	10.00	UJ	10.00	UJ
Turbidity	NTU	0.90		0.10		4.20		3.40		79.00		93.00		0.30	
Gross-Alpha	pCi/L	NR		NR		NR		NR		NR		NR		NR	
Gross-Beta	pCi/L	NR		NR		NR		NR		NR		NR		NR	
Strontium-90	pCi/L	NR		NR		NR		NR		NR		NR		NR	
Total Radium	pCi/L	NR		NR		NR		NR		NR		NR		NR	
Tritium	pCi/L	NR		NR		NR		NR		NR		NR		NR	

MPN – Most probable number
NTU – Nephelometric turbidity units
ND – Not detected
NR – Not reported
* – Parameter measured in the field

TABLE N2-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: SECOND SAMPLING ROUND.

1100-EM-1 Round 2 Monitoring Wells		Well # Sample Id							
Parameter	Units	6-S40-E14 B009W5		6-S41-E13A B000L7		6-S41-E13B B000M1		6-S43-E12 S43-E12	
Alkalinity	µg/L	85000.00		130000.00		215000.00		240500.00	
Ammonium	µg/L	24.00	U	24.00	U	24.00	U	24.00	U
Bromide	µg/L	200.00	U	200.00	U	200.00	U	200.00	
Chloride	µg/L	1000.00		4000.00		9500.00		51800.00	
COD	µg/L	5000.00	U	5000.00	U	5000.00	U	5000.00	U
Coliform	MPN/100 ml	16.00		2.00	U	2.00	U	2.00	U
SC*	µmho/cm	147.00		278.00		423.00		423.00	
Fluoride	µg/L	100.00		200.00		200.00		200.00	
Nitrate	µg/L	886.00		5759.00		2215.00		20821.00	
Nitrite	µg/L	700.00	U	700.00	U	700.00	U	700.00	U
pH*	Std. Units	8.10		8.40		8.10		8.10	
Temperature*	°C	13.00		16.70		17.00		17.00	
Phosphate	µg/L	600.00	U	600.00	U	600.00	U	600.00	U
Sulfate	µg/L	10000.00		11300.00		10000.00		27200.00	
Dissolved Oxygen*	µg/L	NR		NR		NR		NR	
TDS	µg/L	96000.00		190000.00		280000.00		450000.00	
TOC	µg/L	1300.00		1200.00		1400.00		1300.00	
TOXLDL	µg/L	10.00	UJ	10.00	UJ	40.00	UJ	20.00	J
Turbidity	NTU	0.30		1.60		0.30		1.00	
Gross-Alpha	pCi/L	NR		NR		NR		NR	
Gross-Beta	pCi/L	NR		NR		NR		NR	
Strontium-90	pCi/L	NR		NR		NR		NR	
Total Radium	pCi/L	NR		NR		NR		NR	
Tritium	pCi/L	NR		NR		NR		NR	

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

APPENDIX N-3
ADVANCED NUCLEAR FUELS CORPORATION ANALYTICAL RESULTS

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TABLE N3-1. GROUND-WATER TAL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: ADVANCED NUCLEAR FUELS CORP.

ADVANCED NUCLEAR FUELS CORP. MONITORING WELLS 1100-EM-1						
Parameter / Well Id / Sample Id / Type	ANF-14 WELL-14 ** (µg/L)		ANF-15 WELL-15 ** (µg/L)		ANF-16 WELL-16 ** (µg/L)	
Aluminum	147.0	U	105.0	U	90.7	U
Antimony	32.0	U	32.0	U	32.0	U
Arsenic	4.7	J	4.8	J	3.0	U
Barium	185.0	J	106.0	J	77.2	J
Beryllium	1.0	U	1.0	U	1.0	U
Cadmium	2.0	U	2.0	U	2.0	U
Calcium	95800.0		55700.0		50600.0	
Chromium	4.0	U	4.0	U	4.0	U
Cobalt	8.0	U	21.2	U	11.7	U
Copper	11.7	U	10.4	U	15.2	U
Iron	7.0		5.0		2300.0	
Lead	2.2		1.0		1.0	U
Magnesium	24200.0		17000.0		14600.0	
Manganese	1.0	U	1.0		126.0	
Mercury	0.2	U	1.5	R	0.2	U
Nickel	22.9	U	16.0	U	10.0	U
Potassium	17800.0	J	14200.0	J	9280.0	J
Selenium	2.0	U	2.0	U	2.0	U
Silver	7.1	U	6.8	U	12.8	U
Sodium	41100.0	J	37100.0	J	19100.0	J
Thallium	3.0	U	3.0	U	3.0	U
Vanadium	33.4	U	27.8	U	31.8	U
Zinc	92.8		72.2		55.4	
Cyanide	10.0	U	10.0	U	10.0	U
SDG #	A4681d		A4681d		A4681d	

* - Unfiltered
** - Filtered
Note - Only filtered results were validated

TABLE N3-2. GROUND-WATER TCL ANALYTICAL RESULTS FOR 1100-EM-1 MONITORING WELLS: ADVANCED NUCLEAR FUELS CORP.

ADVANCED NUCLEAR FUELS CORP. MONITORING WELLS 1100-EM-1				
PARAMETER	Well Id Sample Id RT	ANF-14 WELL-14 (µg/L)	ANF-15 WELL-15 (µg/L)	ANF-16 WELL-16 (µg/L)
VOLATILE ORGANICS				
1,1,1-trichloroethane		7.0	5.0	5.0 U
trichloroethene		22.0	58.0	53.0
SEMI-VOLATILE ORGANICS				
Di-n-butyl phthalate		3	10 U	4
bis(2-ethylhexyl)phthalate		15.0	21.0	27.0
SEMI-VOLATILE ORGANIC TICs				
Unknown	11.62	ND	ND	68.0
Unknown	14.59	ND	ND	27.0
SDG #		A4681d	A4681d	A4681d

TABLE N3-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: ADVANCED NUCLEAR FUELS CORP.

Parameter		SQL Range (µg/L)
Inorganics	aluminum	90.7-147
	antimony	32
	beryllium	1
	cadmium	2
	chromium	4
	cobalt	8-21.2
	copper	10.4-15.2
	mercury	0.2
	nickel	10.0-22.9
	selenium	2
	silver	6.8-12.8
	thallium	3
	vanadium	27.8-33.4
	cyanide	10
Volatiles	chloromethane	10
	bromomethane	10
	vinyl chloride	10
	chloroethane	10
	methylene chloride	5
	acetone	10
	carbon disulfide	5
	1,1-dichloroethene	5
	1,1-dichloroethane	5
	1,2-dichloroethene (total)	5
	chloroform	5
	1,2-dichloroethane	5
	2-butanone	10
	carbon tetrachloride	5
	vinyl acetate	5
	bromodichloromethane	5
	1,2-dichloropropane	5
	cis-1,3-dichloropropene	5
	dibromochloromethane	5
	1,1,2-trichloroethane	5
	benzene	5
	trans-1,3-dichloropropene	5
	bromoform	5

TABLE N3-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: ADVANCED NUCLEAR FUELS CORP.

Parameter		SQL Range (µg/L)
Volatiles	4-methyl-2-pentanone	10
	2-hexanone	10
	tetrachloroethene	5
	1,1,2,2-tetrachloroethane	5
	toluene	5
	chlorobenzene	5
	ethylbenzene	5
	styrene	5
	xylene (total)	5
Semi-Volatiles	phenol	10
	bis(2-chloroethyl)ether	10
	2-chlorophenol	10
	1,3-dichlorobenzene	10
	1,4-dichlorobenzene	10
	benzyl alcohol	10
	1,2-dichlorobenzene	10
	2-methylphenol	10
	bis(2-chloroisopropyl)ether	10
	4-methylphenol	10
	N-nitroso-di-n-propylamine	10
	hexachloroethane	10
	nitrobenzene	10
	isophorone	10
	2-nitrophenol	10
	2,4-dimethylphenol	10
	benzoic acid	48
	bis(2-chloroethoxy)methane	10
	2,4-dichlorophenol	10
	1,2,4-trichlorobenzene	10
	naphthalene	10
	4-chloroaniline	10
	hexachlorobutadiene	10
	4-chloro-3-methylphenol	10
	2-methylnaphthalene	10
	hexachlorocyclopentadiene	10
	2,4,6-trichlorophenol	10
	2,4,5-trichlorophenol	48

TABLE N3-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: ADVANCED NUCLEAR FUELS CORP.

Parameter		SQL Range (µg/L)
Semi-Volatiles	2-chloronaphthalene	10
	2-nitroaniline	48
	dimethylphthalate	10
	acenaphthylene	10
	2,6-dinitrotoluene	10
	3-nitroaniline	48
	acenaphthene	10
	2,4-dinitrophenol	48
	4-nitrophenol	48
	dibenzofuran	10
	2,4-dinitrotoluene	10
	diethylphthalate	10
	4-chlorophenyl-phenylether	10
	fluorene	10
	4-nitroaniline	48
	4,6-dinitro-2-methylphenol	48
	N-nitrosodiphenylamine (1)	10
	4-bromophenyl-phenylether	10
	hexachlorobenzene	10
	pentachlorophenol	10
	phenanthrene	10
	anthracene	10
	fluoranthene	10
	pyrene	10
	butylbenzylphthalate	10
	3,3'-dichlorobenzidine	19
	benzo(a)anthracene	10
	chrysene	10
	di-n-octylphthalate	10
	benzo(b)fluoranthene	10
	benzo(k)fluoranthene	10
	benzo(a)pyrene	10
	indeno(1,2,3-cd)pyrene	10
	dibenz(a,h)anthracene	10
	benzo(g,h,i)perylene	10
	alpha-BHC	0.048
	beta-BHC	0.048

TABLE N3-3. TAL AND TCL PARAMETERS ANALYZED FOR AND NOT DETECTED: ADVANCED NUCLEAR FUELS CORP.

Parameter		SQL Range (µg/L)
Pesticides	delta-BHC	0.048
	gamma-BHC (lindane)	0.048
	heptachlor	0.048
	aldrin	0.048
	heptachlor epoxide	0.048
	endosulfan I	0.048
	dieldrin	0.095
	4,4'-DDE	0.095
	endrin	0.095
	endosulfan II	0.095
	4,4'-DDD	0.095
	endosulfan sulfate	0.095
	4,4'-DDT	0.095
	methoxychlor	0.48
	endrin ketone	0.095
	alpha-chlordane	0.48
	gamma-chlordane	0.48
	toxaphene	0.95
	aroclor-1016	0.48
	aroclor-1221	0.48
	aroclor-1232	0.48
	aroclor-1242	0.48
	aroclor-1248	0.48
	aroclor-1254	0.95
	aroclor-1260	0.95

TABLE N3-4. GROUND-WATER CONVENTIONAL PARAMETERS ANALYTICAL RESULTS: ADVANCED NUCLEAR FUELS CORP.

ADVANCED NUCLEAR FUELS CORP. MONITORING WELLS 1100-EM-1		Well # Sample Id		
Parameter	Units	ANF-14 ANF0001	ANF-15 ANF0002	ANF-16 ANF0003
Alkalinity	µg/L	NR	NR	NR
Ammonium	µg/L	NR	NR	NR
Bromide	µg/L	NR	NR	NR
Chloride	µg/L	33100.0	16300.0	9900.0
COD	µg/L	NR	NR	NR
Coliform	MPN/100 ml	2.0 U	2.0 U	2.0 U
SC*	µmho/cm	NR	NR	NR
Fluoride	µg/L	4400.0	11500.0	3900.0
Nitrate	µg/L	352100.0	272000.0	189160.0
Nitrite	µg/L	200.0 U	200.0 U	200.0 U
pH*	Std. Units	NR	NR	NR
Temperature*	°C	NR	NR	NR
Phosphate	µg/L	500.0 U	500.0 U	500.0 U
Sulfate	µg/L	81700.0	111400.0	51400.0
Dissolved Oxygen*	µg/L	NR	NR	NR
TDS	µg/L	NR	NR	NR
TOC	µg/L	NR	NR	NR
TOXLDL	µg/L	NR	NR	NR
Turbidity	NTU	2.0 U	2.0 U	18.5
Gross-Alpha	pCi/L	NR	NR	NR
Gross-Beta	pCi/L	NR	NR	NR
Strontium-90	pCi/L	NR	NR	NR
Total Radium	pCi/L	NR	NR	NR
Tritium	pCi/L	NR	NR	NR

MPN - Most probable number
NTU - Nephelometric turbidity units
ND - Not detected
NR - Not reported
* - Parameter measured in the field

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APPENDIX O
ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS

Bleyler, R., 1988, *Laboratory Data Validation Functional Guidelines For Evaluating Organics Analyses*, U.S. Environmental Protection Agency, Hazardous Site Evaluation Division.

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APPENDIX O

ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS

The analysis of organic compounds using GC/MS techniques (EPA Methods 8240 and 8270) are capable of detection and identifying compounds in addition to parameters requested within the Target Compound List (TCL). These additional compounds are called tentatively identified compounds (TICs) because instrument calibration was not specific. The associated analytical concentrations can only be considered semi-quantitative. When the analyst felt too great an uncertainty in TIC identification, the TIC was called "unknown".

The laboratory chemical analytical results from Phase I 1100-EM-1 contained numerous TICs especially for EPA Method 8270 semi-volatile organic analyses. These TICs need to be evaluated, case blank adjusted and background adjusted to determine whether a specific organic compound is potentially a contaminant associated with 1100-EM-1 Operable Unit. This appendix describes the procedures used in TIC evaluations and adjustments. Tentatively identified TICs and unknown TICs were treated separately and in a different manner. Soil TICs are evaluated first in this appendix with ground-water TICs following.

SOILS

Appendix I presents all of the soil chemical analytical results including the TICs. All TICs in Appendix I are reported with a retention time (RT) and estimated concentration.

Tentatively Identified TICs:

The tentatively identified TICs where initially evaluated by several criteria in accordance with Bleyler (1988). This evaluation resulted in the elimination of many TICs based on at least one of the following criteria:

1. The identification of the compound (or similar group of compounds) is not consistent and retention time shift is greater than 0.3%.

2. The compound is or is suspected to be an artifact of a common laboratory contaminant such as:

    - A common lab contaminant: carbon dioxide, siloxanes, ethers, hexane, freon-113, freon-TF or phthalate esters at levels less than 100 ppb (water) or 4000 ppb (soils).

    - A common solvent preservative or derivative: cyclohexene, cyclohexanone, cyclohexenone, cyclohexanol, cyclohexenol, chlorocyclohexene and cyclocyclohexanol.

    - Aldol reaction products of acetone: 4-hydroxy-4-methyl-2-pentanone, 4-methyl-2-penten-2-one and 5,5,-dimethyl-2(5h)-furanone.

3. The compound is a TCL compound, tentatively identified in the wrong fraction [such as PCB identified in the BNA fraction].

4. The TIC compound is not sufficiently elevated above an associated case or SDG blank [compound less than or equal to 5 times the amount in the associated blank(s)]. Table O-1 lists the maximum concentration of identified TICs detected in a blank sample associated with soil samples.

5. The TIC compound is not sufficiently elevated above the Contract Required Detection Limit (CRDL) for like or similar TCL compounds [CRDLs ranging from 0.3 to 2 mg/kg (using one significant figure accuracy) in semi-volatile fractions].

The next procedure applied to identified TICs was to eliminate TICs that are also identified in Background soil samples at approximately similar concentrations. Table O-2 lists the maximum concentration for identified TICs detected in Background surface and subsurface soil samples.

The final remaining tentatively identified compounds in soils are listed in Table O-3.

Unknown TICs:

Evaluation and adjustments for final validation of chemical analytical data of unknown (unidentified) TICs requires a different approach than for identified TICs. The guidelines for evaluating organic analyses (Bleyler, 1988) does not provide a specific procedure for validation of unknown TICs. The approach used involves determination of the variance in retention time (RT) for identified TICs, listing all unknown TICs detected in blank samples, then determining "RT windows" that exist between blank TICs. Unknown TICs in soil samples that have retention times within the "RT windows" cannot be associated with a blank.

Since retention times vary for a compound on different instruments or at different times on the same instrument, the variation in RT for TICs is necessary. Identified TICs for all soil samples and associated blanks were tabulated by compound then RT (separately for volatiles and semi-volatiles). The tolerance interval (at 95% probability for a 95% quantile) was calculated for each identified TIC that was detected at least twice. Linear regression analyses was conducted to determine the relationship between average RT and the size of the tolerance for the degrees of freedom. The linear relationship of best fit had the following slopes, tolerance interval intercept and correlation coefficients:

	Volatiles	Semi-Volatiles
Slope	2.58	0.426
TL Intercept	-7.02	-1.04
Correlation Coef.	0.99	0.34
Number of Pairs	4	48

The "RT" windows were determined for volatile and semi-volatiles organic TICs in soils assuming the above linear relation on all operable unit blank unknown TICs associated with soil samples. The only resulting "RT window" existing for volatile unknown TICs is >46.5; whereas, resulting "RT windows" for semi-volatile organics exist :<4.6; between 18.0-22.76; and

>42.9. There were no volatile organic unknown TICs in soil; samples having a RT greater than 46.5. Table O-4 lists all semi-volatile organic TICs in soil samples that have RTs within the specified windows. These unknown TICS represent organic compounds that are present in soil samples that are not contained in associate blank samples at the given probability.

The final procedure was to compare the unknown TICs that were presented in Table O-4 to unknown TICs detected in soil background samples. There is a semi-volatile organic unknown TIC within the "RT window" between 18.0-22.76 in sample AH224S. This unknown TIC eliminates the "RT window", therefore, no unknown TICs are considered potential contamination at the given probability.

GROUND WATER

First Ground Water Monitoring Period

Ground-water samples contained only a few TICs. Table O-5 lists all tentatively identified and unknown TICs that were observed in samples from the first ground water monitoring period. All identified TICs (except 1,1,2-trichloro-1,2-ethane) in Table O-5 are eliminated from further consideration because they are suspected to be an artifact of a common laboratory contaminant. Specifically, freon is a common laboratory contaminant, the cyclo-siloxanes are associated with column bleed and 2-chloro-phosphatethanol is a breakdown product of solvent preservatives. The only remaining identified TIC is 1,12-trichloro-1,2-ethane which was detected in two ground-water samples during volatile organic analyses at an estimated concentration of 3 and 4 µg/l. These concentrations are below the maximum contract required detection limit (CRDL) of 10 µg/l for volatile organics in water. Five unknown TICs were detected during semi-volatile organic analyses within ground-water samples which occurred at RTs of: 10.55; 10.94; 22.94; 23.87; and 26.46. The maximum relative concentration of these unknown TICs in groundwater was 8.6 µg/l. Since this concentration is below the maximum contract required detection limit (CRDL) of 50 µg/l for semi-volatile organic analyses of water samples, these unknown TICs were eliminated from further consideration. Therefore, the first ground water monitoring period did not detect organic TICs that could be considered potential contamination.

Second Ground-Water Monitoring Period

Ground-water samples from the second monitoring period contained only a few organic TICs which are presented in Table O-6. One volatile organic TIC, butanoic acid methyl ester, was tentatively identified, but is eliminated because it is considered to be a common laboratory solvent preservative. One semi-volatile organic TIC was tentatively identified as ethanol, 2 - chloro - phosphate and is eliminated from further consideration because it is also a common laboratory solvent preservative. Five unknown TICs were detected during semi-volatile analyses within ground-water samples which occurred at RTs of 6.5, 29.12, 32.24, 33.67, and 35.14. The maximum relative concentration of these unknown TICs in ground water was 13 µg/l. Since this concentration is below, the maximum contract required detection limit (CRDL) of 50 µg/l for semi-volatile organic analyses in water, these unknown TICs were elimimated from further consideration. Therefore, the second ground-water monitoring period did not detect any organic TICs that could be considered potential contamination.

TABLE 0-1. MAXIMUM CONCENTRATION OF IDENTIFIED TIC'S IN BLANK SAMPLES.

Volatile TIC Organics					
Tentatively Identified Compounds (TIC)	Retention Time	Estimated Conc. (µg/kg)	Q	SDG #	Sample Id
1,1,2-TRICHLORO-1,2,2-TRIFLU	2.57	6.00	J	A2414S	VBLKS1
BORIC ACID, (H3B03), TRIMETH	2.00	5.00	J	A2214S	VBLKS1
DECANE	22.64	14.00	J	A1901S	VBLKW1
ETHANE,1,1,2-TRICHLORO-1,2,2	2.93	53.00	J	A0501S	VBLKS1
NONANE	18.17	6.00	J	A1501W	A1501W
NONANE, 2-METHYL-	21.72	13.00	J	A1501W	A1501W
NONANE, 3-METHYL-	21.12	5.00	J	A1901S	VBLKW1
UNK, C10H20	20.52	9.00	J	A1901S	VBLKW1
UNK HYDROCARBON	16.72	8.00	J	A1615S	VBLKS2
Semi-volatile TIC Organics					
Tentatively Identified Compounds (TIC)	Retention Time	Estimated Conc. (µg/kg)	Q	SDG #	Sample Id
1,2-BENZENEDICARBOXYLIC ACID	27.52	800.00	J	A1501W	SBLKS2
2-CYCLOHEXEN-1-ONE	7.20	3.90	J	A1201S	SBLKW1
2-HEXANONE, 6-(ACETYLOXY)-	6.07	1200.00	J	A2113S	SBLKS1
2-PROPANONE, 1-CYCLOPROPYL-	6.82	500.00	J	S6150A	SBLKS3
2-PROPYN-1-OL, ACETATE	5.95	980.00	J	A1201S	SBLKS1
3,7,11-TRIDECATRIENENITRILE,	33.34	730.00	J	A1501W	SBLKS1
3-HEPTANONE, 2,4-DIMETHYL-	8.20	1200.00	J	A0803S	SBLKS1
5-HEXEN-2-ONE, 5-METHYL-	7.27	2000.00	J	A0803S	SBLKS1
9-HEXADECENOIC ACID	23.04	3000.00	J	A1312S	SBLKS1
9-OCTADECENAMIDE, (Z)-	29.36	280000.00	J	S6150A	SBLKS2
ACETIC ACID, 1-METHTLETHYL E	5.17	1000.00	J	A0201S	SBLKS2
BENZALDEHYDE (ACN) (DOT)	7.22	3900.00	J	A1615S	SBLKS1
BENZENE, 1,2-DIMETHYL-	5.38	370.00	J	A1615S	SBLKS1
BENZENECARBOTHIOIC ACID	9.49	270.00	J	A1615S	SBLKS1
CYCLOHEXANE, PROPYL	5.13	2.60	J	A1201S	A1211W
CYCLOHEXASILOXANE, DODECAMET	15.22	170.00	J	A0201S	SBLKS1
DODECANAMIDE	26.24	900.00	J	S2139A	SBLKS1
ETHANE, 1,1,2,2-TETRACHLORO-	6.25	210.00	J	A1615S	SBLKS4
ETHANONE, 2-(FORMYLOXY)-1-PH	12.84	380.00	J	A1615S	SBLKS1
HEPTANE, 2,3,6-TRIMETHYL	5.15	2000.00	J	S6150A	SBLKS3
HEPTANE, 2,3-DIMETHYL-	5.55	2600.00	J	S6150A	SBLKS3
HEPTANE, 4-(1-METHYLETHYL)-	5.83	1400.00	J	S6150A	SBLKS3
HEPTASILOXANE, HEXADECAMETHY	32.32	550.00	J	A1615S	SBLKS2
HEXADECENOIC ACID	23.29	6900.00	J	A1312S	SBLKS1
HEXANE, 2,3,4-TRIMETHYL-	5.28	190.00	J	A1615S	SBLKS3
HEXANE, 4-ETHYL-2-METHYL-	5.10	1500.00	J	A1307S	SBLKS1
HEXANEDIOIC ACID, DIOCTYL ES	28.96	490.00	J	A1901S	SBLKS2
HYDROPEROXIDE, 1,1-DIMETHYLE	5.42	89000.00	J	S6150A	SBLKS3
NONANE, 1-CHLORO-	5.02	18.00	J	A1201S	SBLKW1
OCTADECANOIC ACID	25.67	1700.00	J	A1312S	SBLKS1
OCTADECANOIC ACID, 2-METHYLP	28.92	78.00	J	A2214S	A2308W
OCTANE, 2-METHYL-	5.70	2200.00	J	S6150A	SBLKS3
OCTANE, 3,5-DIMETHYL-	5.50	210.00	J	A0803S	SBLKS1
OCTANE, 3-METHYL-	5.30	96.00	J	A1901S	SBLKS1
PENTANAMIDE, 4-METHYL-	27.22	6600.00	J	S6150A	SBLKS2
PROPANENITRILE,2-OXO-	6.57	150.00	J	A1201S	SBLKS1
TETRADECANOIC ACID	20.54	850.00	J	A1312S	SBLKS1

TABLE O-2. MAXIMUM CONCENTRATION OF IDENTIFIED TIC'S IN SOIL BACKGROUND SAMPLES.

Tentatively Identified Compound (TIC)	Retention Time	Borehole	Sample Id	Depth	Estimated	Q	Type
Hexane	3.82	HRL-1	A0301S	1.0-2.0	7.30	J	tic-vol
1,2-propanedione, 1-phenyl-	9.32		AH224S	0.0-0.5	1500.00	J	tic sv
2-Butanol, 3-methyl-, acetat	8.45	HRL-1	A0302S	7.0-7.8	90.00	J	tic sv
2-hexanone, 6-(acetyloxy)-	6.27		AH223S	0.0-0.5	1500.00	J	tic sv
2-propen-1-one, 1,3-diphenyl	24.42		AH224S	0.0-0.5	770.00	J	tic sv
3-heptanone, 2,4-dimethyl-	7.82		AH222S	0.0-0.5	1200.00	J	tic sv
Benzaldehyde (ACN) (DOT)	7.17		AH224S	0.0-0.5	11000.00	J	tic sv
Benzeneacetaldehyde	8.85		AH224S	0.0-0.5	700.00	J	tic sv
Benzophenone	20.37	BAP-2	A0211S	44.4-45.6	81.00	J	tic sv
Benzoyl chloride (DOT)	9.44		AH224S	0.0-0.5	1300.00	J	tic sv
Dodecanamide, N,N-bis (2-hydr	19.04		AH224S	0.0-0.5	90000.00	J	tic sv
Ethanone, 2-bromo-1,2-diphen	22.60		AH224S	0.0-0.5	10000.00	J	tic sv
Ethanone, 2-chloro-1-phenyl-	12.77		AH224S	0.0-0.5	1700.00	J	tic sv
Pentatriacontane	33.92		AH225S	0.0-0.5	470.00	J	tic sv
Phenol, 3-ethyl-	11.34		AH224S	0.0-0.5	740.00	J	tic sv

Table O-3. Remaining Identified TICs.

Subunit	Tentatively Identified Compounds (TICs)	RT	Borehole	Sample Id	Depth	Estimated Conc.(µg/kg)	Q	Type
1100-2	Aldrin-R	23.95	-	A2118S	0.0-0.5	3700	J	tic-sv
	Aldrin-R	23.95	-	A2114S	0.0-0.5	330	J	tic-sv
	Aldrin-R	23.94	-	A2117S	0.0-0.5	320	J	tic-sv
	Aldrin-R	23.95	-	A2115S	0.0-0.5	1400	J	tic-sv
1100-3	Acetic acid, 1-methylethyl e	5.08	DP-8	A1213S	16.8-18.3	11000	J	tic-sv
	Acetic acid, 1-methylethyl e	5.08	DP-8	A1215S	20.5-22.2	12000	J	tic-sv
	Bromacil (ACN)	23.87	-	A3103S	0.0-0.5	2600	J	tic-sv
	Oxirane, tetramethyl-	5.60	DP-8	A1213S	16.8-18.3	230000	J	tic-sv
	Oxirane, tetramethyl-	5.60	DP-8	A1215S	20.5-22.2	220000	J	tic-sv
1100-4	2-methyloctane	5.67	ATS-1	A1306S	8.5-9.7	2100	J	tic-sv
UN-1100-6	1,3-Propanediol	15.32	-	S6152A	0.0-0.5	6	J	tic-vol
	1-Hexanol, 2-ethyl-	23.24	-	S6155ARE	0.0-0.5	290	J	tic-vol
	1-Hexanol, 2-ethyl-	23.17	-	S6154ARE	0.0-0.5	290	J	tic-vol
	1-Hexanol, 2-ethyl-	23.29	-	S6155A	0.0-0.5	600	J	tic-vol
	1-Hexanol, 2-ethyl-	22.55	-	S6152A	0.0-0.5	140	J	tic-vol
	1-Hexanol, 2-ethyl-	23.20	-	S6153ARE	0.0-0.5	170	J	tic-vol
	1-Hexanol, 2-ethyl-	21.12	-	S6153A	0.0-0.5	82	J	tic-vol
	1,2-Benzenedicarboxylic acid	28.82	-	S6152A	0.0-0.5	39000	J	tic-sv
	1,2-Benzenedicarboxylic acid	14.84	-	S6151A	0.0-0.5	12000	J	tic-sv
	1,2-Benzenedicarboxylic acid	29.76	-	S6154A	0.0-0.5	25000	J	tic-sv
	1,2-Benzenedicarboxylic acid	30.86	-	S6151A	0.0-0.5	140000	J	tic-sv
	1,2-Benzenedicarboxylic acid	29.74	-	S6153A	0.0-0.5	20000	J	tic-sv
	1,2-Benzenedicarboxylic acid	30.87	-	S6153A	0.0-0.5	180000	J	tic-sv
	1,2-Benzenedicarboxylic acid	29.74	-	S6152A	0.0-0.5	35000	J	tic-sv
	1,2-Benzenedicarboxylic acid	29.76	-	S6155A	0.0-0.5	38000	J	tic-sv
	1,2-Benzenedicarboxylic acid	32.77	-	S6150A	0.0-0.5	71000	J	tic-sv
	1,2-Benzenedicarboxylic acid	30.87	-	S6152A	0.0-0.5	350000	J	tic-sv
	1,2-Benzenedicarboxylic acid	30.87	-	S6154A	0.0-0.5	210000	J	tic-sv
	1,2-Benzenedicarboxylic acid	14.84	-	S6155A	0.0-0.5	47000	J	tic-sv

Table O-3. Remaining Identified TICs.

Subunit	Tentatively Identified Compounds (TICs)	RT	Borehole	Sample Id	Depth	Estimated Conc.(µg/kg)	Q	Type
UN-1100-6 Cont'd.	1,2-Benzenedicarboxylic acid	14.82	-	S6150A	0.0-0.5	19000	J	tic-sv
	1-Octyn-3-ol, 4-Ethyl-	9.10	-	S6155A	0.0-0.5	77000	J	tic-sv
	1-Octyn-3-ol, 4-Ethyl-	9.10	-	S6153A	0.0-0.5	43000	J	tic-sv
	1-Octyn-3-ol, 4-Ethyl-	9.10	-	S6154A	0.0-0.5	41000	J	tic-sv
	1-Octyn-3-ol, 4-Ethyl-	9.10	-	S6151A	0.0-0.5	24000	J	tic-sv
	1-Pentanol, 4-methyl-2-Propy	32.66	-	S6151A	0.0-0.5	43000	J	tic-sv
	2-Decene, 5-methyl-, (Z)-	9.10	-	S6150A	0.0-0.5	34000	J	tic-sv
	2-Decene, 5-Methyl-, (Z)-	9.10	-	S6152A	0.0-0.5	68000	J	tic-sv
	2-Propenoic acid, octyl este	20.82	-	S6151A	0.0-0.5	14000	J	tic-sv
	Benzenamine, 4-(6-Methyl-2-B	30.76	-	S6151A	0.0-0.5	190000	J	tic-sv
	Decane, 1-Fluoro-	20.82	-	S6155A	0.0-0.5	13000	J	tic-sv
	Hydrochloric acid (DOT)	5.05	-	S6151A	0.0-0.5	70000	J	tic-sv
	Hydrochloric acid (DOT)	5.08	-	S6154A	0.0-0.5	67000	J	tic-sv
	Hydrochloric acid (DOT)	4.97	-	S6155A	0.0-0.5	140000	J	tic-sv
	Hydrochloric acid (DOT)	5.03	-	S6150A	0.0-0.5	69000	J	tic-sv
	Hydrochloric acid (DOT)	5.07	-	S6153A	0.0-0.5	64000	J	tic-sv
	Hydrochloric acid (DOT)	5.05	-	S6152A	0.0-0.5	74000	J	tic-sv
	Octane, 2-Bromo-	32.54	-	S6151A	0.0-0.5	64000	J	tic-sv
	Pentanamide, 4-Methyl-	29.36	-	S6153A	0.0-0.5	460000	J	tic-sv
	Phthalic anhydride	14.84	-	S6153A	0.0-0.5	28000	J	tic-sv
	Phthalic anhydride	14.84	-	S6154A	0.0-0.5	26000	J	tic-sv
	Phthalic Anhydride	14.84	-	S6152A	0.0-0.5	45000	J	tic-sv
	Undecane, 4,7-Dimethyl-	12.52	-	S6155A	0.0-0.5	8700	J	tic-sv
Horn Rapids Landfill	1,1,2-trichloro-1,2,2-triflu	2.82	HRL-5	A1509S	13.1-15.5	120	J	tic-vol
	1,1,2-trichloro-1,2-ethane	2.62	-	AH178S	0.0-0.5	5.2	J	tic-vol
	1,1,2-trichloro-1,2-ethane	2.62	-	AH169S	0.0-0.5	37	J	tic-vol
	1,1,2-trichloro-1,2-ethane	2.62	-	AH179S	0.0-0.5	5.7	J	tic-vol
	1,6-dimethyl-4-naphthalene	19.94	-	AH172S	0.0-0.5	4000	J	tic-sv
	1-phenanthrenecarboxylic	29.24	-	AH184S	0.0-0.5	14000	J	tic-sv

Table O-3. Remaining Identified TICs.

Subunit	Tentatively Identified Compounds (TICs)	RT	Borehole	Sample Id	Depth	Estimated Conc.(µg/kg)	Q	Type
Horn Rapids Landfill Cont'd.	2,6,10,15-tetraMheptadecane	26.02	-	AH181S	0.0-0.5	37000	J	tic-sv
	2,6,10-trimethyldodecane	20.07	-	AH181S	0.0-0.5	45000	J	tic-sv
	2,7,10-trimethyldodecane	19.65	-	AH184S	0.0-0.5	2100	J	tic-sv
	5-propyltridecane	20.07	-	AH172S	0.0-0.5	3500	J	tic-sv
	octacosane	33.19	-	AH185S	0.0-0.5	2300	J	tic-sv
	octacosane	31.71	-	AH172S	0.0-0.5	3900	J	tic-sv
	octacosane	31.71	-	AH178S	0.0-0.5	3900	J	tic-sv
	octacosane	31.71	-	AH173S	0.0-0.5	2400	J	tic-sv
PIT 1	1-hexanol, 2-ethyl-	23.07	-	S6161A	0.0-0.5	210	J	tic-vol
	1,2-Ethanediol, Monoacetate	9.57	-	S6157A	0.0-0.5	2900	J	tic-sv
	1,2-Ethanediol, Monoacetate	9.57	-	S6158A	0.0-0.5	5900	J	tic-sv
	1-Decanol, 2,2-Dimethyl-	18.87	-	S6161A	0.0-0.5	6300	J	tic-sv
	1-Decanol, 2-Ethyl-	21.84	-	S6161A	0.0-0.5	1800	J	tic-sv
	1-Hexene, 3,5,5-Trimethyl-	5.15	-	S6157A	0.0-0.5	1600	J	tic-sv
	2-Butanone, 3-Methyl-	7.05	-	S6159A	0.0-0.5	5700	J	tic-sv
	Bicyclo[4.1.0]Heptane, 2-Met	33.59	-	S6159A	0.0-0.5	2500	J	tic-sv
	Butane, 2-Azido-2,3,3-Trimet	5.12	-	S6159A	0.0-0.5	1800	J	tic-sv
	Decane, 2,3,7-Trimethyl-	25.02	-	S6161A	0.0-0.5	13000	J	tic-sv
	Decane, 2,9-Dimethyl-	23.72	-	S6161A	0.0-0.5	13000	J	tic-sv
	Decane, 3-Ethyl-3-Methyl-	29.67	-	S6161A	0.0-0.5	5300	J	tic-sv
	Dodecane, 1-Iodo-	34.57	-	S6159A	0.0-0.5	3200	J	tic-sv
	Dodecane, 2,6,11-Trimethyl-	17.85	-	S6161A	0.0-0.5	24000	J	tic-sv
	Dodecane, 2,7,10-Trimethyl-	21.02	-	S6161A	0.0-0.5	17000	J	tic-sv
	Heptadecane	20.94	-	S6161A	0.0-0.5	15000	J	tic-sv
	Hexane, 2-Bromo-	7.07	-	S6158A	0.0-0.5	4200	J	tic-sv
	Octane, 2,4,6-Trimethyl-	16.17	-	S6161A	0.0-0.5	15000	J	tic-sv
	Pentadecane, 2-Methyl-	23.62	-	S6161A	0.0-0.5	3100	J	tic-sv
	Silane, Trichloroeicosyl-	29.36	-	S6158A	0.0-0.5	3000	J	tic-sv
	Tridecane, 5-Propyl-	20.19	-	S6161A	0.0-0.5	8100	J	tic-sv

TABLE O-4. UNKNOWN TIC'S IN "RT WINDOW" 18.0-22.76.

Subunit	Unknown Tentatively Identified Compounds (TICs)	Retention Time	Borehole	Sample Id	Estimated Conc.(µg/kg)	Q
1100-1	Unknown	20.64	BAP-1	A1001S	1300.00	J
	Unknown	21.97	BAP-1	A1001S	1300.00	J
	Unknown	22.10	BAP-1	A1001S	1100.00	J
1100-2	Unknown	20.90	DP-4	A0407S	100.00	J
	Unknown	21.10	DP-6	A0605S	1300.00	J
	Unknown	22.42	DP-6	A0605S	410.00	J
	Unknown	22.57	DP-6	A0605S	8850.00	J
Horn Rapids Landfill	Unknown	20.05	-	AH171S	840.00	J
	Unknown	18.57	-	AH181S	66000.00	J
	Unknown	19.19	-	AH181S	48000.00	J
	Unknown	19.30	-	AH181S	50000.00	J
	Unknown	19.99	-	AH181S	51000.00	J
	Unknown	20.89	-	AH181S	210000.00	J
	Unknown	21.15	-	AH181S	15000.00	J
	Unknown	21.45	-	AH181S	29000.00	J
	Unknown	21.49	-	AH181S	12000.00	J
	Unknown	22.32	-	AH181S	170000.00	J
	Unknown	22.42	-	AH181S	76000.00	J
	Unknown	19.95	-	AH185S	2200.00	J

Table O-3. Remaining Identified TICs.

Subunit	Tentatively Identified Compounds (TICs)	RT	Borehole	Sample Id	Depth	Estimated Conc.(µg/kg)	Q	Type
PIT 1 Cont'd.	Undecane, 2,10-Dimethyl-	26.24	-	S6161A	0.0-0.5	25000	J	tic-sv
	Undecane, 2,8-Dimethyl-	17.24	-	S6161A	0.0-0.5	13000	J	tic-sv
	Undecane, 3,8-Dimethyl-	27.44	-	S6161A	0.0-0.5	18000	J	tic-sv
Ephemeral Pool	1-hexanol, 2-ethyl-	23.07	-	S6164S	0.0-0.5	150	J	tic-vol

TABLE O-6. GROUND-WATER TICS FROM THE SECOND MONITORING PERIOD

Monitoring Well	Tentatively Identified Compounds (TICs)	RT	Sample Id	Estimated	Q	Type
MW-4	Unknown	29.12	BOOOJ8	7.0	J	tic-sv
MW-5	ethanol, 2-chloro-,phosphate	21.82	BOOOK2	58.0	J	tic-sv
MW-9	ethanol, 2-chloro-,phosphate	21.67	BOOO74	150.0	J	tic-sv
	Unknown	6.5	BOOO74	6.3	J	tic-sv
MW-12 DUP	Unknown	32.24	BOOO91	5.3	J	tic-sv
	Unknown	6.5	BOOO91	13.0	J	tic-sv
	Unknown	32.24	BOOO91	12.0	J	tic-sv
S27-E14	butanoic acid, methyl ester	10.74	BOO9Z1	0.9	J	tic-vol
S40-E14	Unknown	29.12	B009W5	7.6	J	tic-sv

TABLE O-5. GROUND-WATER TIC'S FROM THE FIRST MONITORING PERIOD

Monitoring Well	Tentatively Identified Compounds (TICs)	RT	Sample Id	Estimated Conc.(µg/kg)	Q	Type
MW-1	Unknown	10.55	B0023T	6.40	J	tic-sv
	Unknown	10.94	B0023T	6.00	J	tic-sv
	ethanol, 2-chloro-, phosphat	21.20	B0023T	220.00	J	tic-sv
	Unknown	23.87	B0023T	3.40	J	tic-sv
MW-2	ethanol, 2-chloro-, phosphat	21.64	B00033	15.00	J	tic-sv
MW-3	cyclotetrasiloxane, octameth	8.03	B0064T	13.00	J	tic-sv
	ethanol, 2-chloro-, phosphat	21.62	B0064T	36.00	J	tic-sv
MW-4	ethanol, 2-chloro-, phosphat	21.20	B0026T	110.00	J	tic-sv
MW-5	ethanol, 2-chloro-, phosphat	21.64	B00029	170.00	J	tic-sv
MW-6	Unknown	10.55	B0021T	8.60	J	tic-sv
	Unknown	10.94	B0021T	7.00	J	tic-sv
MW-7	Unknown	10.55	B0019T	6.40	J	tic-sv
	cyclopentasiloxane, decameth	10.92	B0019T	12.00	J	tic-sv
	cyclopentasiloxane, dodecamet	14.14	B0019T	7.00	J	tic-sv
	ethanol, 2-chloro-, phosphat	21.20	B0019T	24.00	J	tic-sv
	Unknown	22.94	B0019T	3.80	J	tic-sv
	Unknown	26.46	B0019T	8.60	J	tic-sv
MW-10	ethanol, 2-chloro-, phosphat	21.20	B0016T	20.00	J	tic-sv
MW-11	ethanol, 2-chloro-, phosphat	21.20	B0013T	78.00	J	tic-sv
MW-12	trichlorofluoromethane	2.08	B00050	3.00	J	tic-sv
MW-13	1,1,2-trichloro-1,2-ethane	2.73	B0010T	3.00	J	tic-vol
	ethanol, 2-chloro-, phosphat	21.20	B0010T	46.00	J	tic-sv
MW-14	1,1,2-trichloro-1,2-ethane	2.73	B0007T	4.00	J	tic-vol
	ethanol, 2-chloro-, phosphat	21.20	B0007T	64.00	J	tic-sv
	Unknown	22.94	B0007T	4.60	J	tic-sv

APPENDIX P
SOIL CHEMICAL ANALYTICAL RESULTS ABOVE BACKGROUND SOIL CONCENTRATIONS

The purpose of this appendix is to present the Soil Chemical Analytical Results that were above background soils concentrations in Tables. Section 4.4 in the text describes the methods used to determine background soil concentrations. This appendix is organized by operable subunit-surface and subsurface results.

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1100-1 Surface Inorganics		
Parameter	Sample Id	Conc. (mg/kg) Q
calcium UTL=4530 mg/kg	A1001S-BAP-1	8690.00
copper UTL=16.3 mg/kg	A1001S-BAP-1	37.90
lead UTL=13.6 mg/kg	A1001S-BAP-1	266.00
magnesium UTL=5760 mg/kg	A1001S-BAP-1	6430.00
mercury UTL=0.1 mg/kg	A1001S-BAP-1	0.22
nickel UTL=15.2 mg/kg	A1001S-BAP-1	20.90
sodium UTL=112 mg/kg	A1001S-BAP-1	479.00
zinc UTL=53.3 mg/kg	A1001S-BAP-1	92.00

1100-1 Subsurface Inorganics

Parameter	Sample Id	Depth	Conc. (mg/kg)	Q
arsenic UTL=2.92 mg/kg	A1004S	5.30 - 6.10	3.20	
copper UTL=19.5 mg/kg	A1002S	2.20 - 4.20	20.25	
	A1004S	5.30 - 6.10	25.00	
	A1010S	8.80 - 9.60	21.50	
	A1011S	11.40 - 11.90	19.70	
iron UTL=29400 mg/kg	A1004S	5.30 - 6.10	34700.00	
lead UTL=5.03 mg/kg	A1002S	2.20 - 4.20	158.50	
	A1004S	5.30 - 6.10	132.00	
	A1010S	8.80 - 9.60	35.30	
mercury UTL=0.1 mg/kg	A1002S	2.20 - 4.20	0.25	
	A1004S	5.30 - 6.10	0.15	
potassium UTL=967 mg/kg	A1003S	2.20 - 4.20	4020.00	
	A1004S	5.30 - 6.10	4880.00	
sodium UTL=420 mg/kg	A1004S	5.30 - 6.10	539.00	
	A1010S	8.80 - 9.60	549.00	
	A1011S	11.40 - 11.90	653.00	
	A1014S	13.90 - 15.80	808.00	
vanadium UTL=115 mg/kg	A1004S	5.30 - 6.10	118.00	
zinc UTL=50.5 mg/kg	A1003S	2.20 - 4.20	63.05	
	A1004S	5.30 - 6.10	100.00	
	A1010S	8.80 - 9.60	52.80	

SUBAPPENDIX P-2
OPERABLE SUBUNIT 1100-2

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1100-2 Surface Inorganics

Parameter	Sample Id	Conc. (mg/kg)	Q
aluminum UTL=7870 mg/kg	A2126S	8300.00	
calcium UTL=4530 mg/kg	A2126S	6480.00	
	A1101S-DP-9	6370.00	
	A2127S	6110.00	
	A2116S	5900.00	
	A2114S	5390.00	
	A2129S	5000.00	
	A2134S	4900.00	
	S3137A	4800.00	
	A2131S	4760.00	
chromium UTL=11.7 mg/kg	A1101S-DP-9	16.80	
copper UTL=16.3 mg/kg	A1101S-DP-9	24.40	
	A2114S	17.30	
lead UTL=13.6 mg/kg	A1101S-DP-9	94.60	
	A2113S	84.40	
	A0501S-DP-5	65.90	
	A2130S	56.70	
	A2133S	34.10	
	A2134S	25.30	
	A0402S-DP-4	24.30	
	A2131S	16.90	
potassium UTL=1790 mg/kg	A2126S	2060.00	
	A2120S	1910.00	
	S3140A	1910.00	
sodium UTL=112 mg/kg	A1101S-DP-9	374.00	
	A0501S	261.00	
	A0402S-DP-4	237.00	
	A2134S	208.00	
	A2131S	196.00	
	A2129S	172.00	
	A2113S	170.00	
	A2127S	153.00	
	A2133S	150.00	
	A2126S	137.00	
	A2130S	135.00	
	A2116S	132.00	

1100-2 Surface Inorganics		
sodium cont.	A2114S A2115S A2128S	130.00 115.00 114.00
thallium UTL=0.39 mg/kg	A2130S	0.48
zinc UTL=53.3 mg/kg	A1101S-DP-9	56.60

1100-2 Surface Organics

Parameter		Sample Id	Depth (ft)	Conc. (µg/kg)	Q
Volatiles	1,1-dichloroethene UTL=5 µg/kg	A2120S	0.00 - 0.50	5.00	
	chlorobenzene UTL=5 µg/kg	A2120S	0.00 - 0.50	6.00	
Pesticides	4,4'-DDE UTL=33 µg/kg	A0402S-DP-4	0.80 - 1.40	33.00	
	4,4'-DDT UTL=33 µg/kg	A0402S-DP-4	0.80 - 1.40	44.50	

1100-2 Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth	Conc. (mg/kg)	Q
aluminum UTL=6235 mg/kg	A0605S	DP-6	4.2-5.7	7010.00	
	A1103S	DP-9	5.8-6.8	7470.00	
	A1111S	DP-9	11.7-13.4	6320.00	
calcium UTL=7830 mg/kg	A1106S	DP-9	9.2-11.5	8540.00	
	A1115S	DP-9	20.3-21.8	9330.00	
copper UTL=19.5 mg/kg	A0506S	DP-5	8.2-9.7	23.60	
	A0608S	DP-6	6.3-7.9	21.90	
	A0610S	DP-6	10.5-11.8	20.10	
lead UTL=5.03 mg/kg	A0406S	DP-4	3.3-5.1	34.60	
	A0407S	DP-4	5.9-7.1	45.90	
	A0408S	DP-4	7.2-8.6	16.80	
	A0409S	DP-4	9.7-10.7	8.30	
	A0504S	DP-5	4.5-6.0	18.10	
	A0506S	DP-5	8.2-9.7	9.00	
	A1103S	DP-9	5.8-6.8	14.40	
magnesium UTL=4680 mg/kg	A1111S	DP-9	11.7-13.4	4900.00	
manganese UTL=355 mg/kg	A0608S	DP-6	6.3-7.9	366.00	
potassium UTL=967 mg/kg	A0407S	DP-4	5.9-7.1	1060.00	
	A0504S	DP-5	4.5-6.0	1110.00	
	A0605S	DP-6	4.2-5.7	1200.00	
	A1103S	DP-9	5.8-6.8	1200.00	
sodium UTL=420 mg/kg	A0409S	DP-4	9.7-10.7	458.00	
	A1111S	DP-9	11.7-13.4	443.00	
	A1123S	DP-9	33.8-35.3	447.00	
zinc UTL=50.5 mg/kg	A0408S	DP-4	7.2-8.6	54.90	
	A1105S	DP-9	7.5-9.0	51.40	

1100-2 Subsurface Organics

	Parameter	Sample Id	Depth	Conc.	Q
Volatiles	tetrachloroethene UTL=5 µg/kg	A1105S-DP-9 A1103S-DP-9	7.50 - 9.00 5.80 - 6.80	5.00 16.00	J
Pesticides	4,4'-DDE UTL=34 µg/kg	A0407S-DP-4	5.90 - 7.10	39.00	
	4,4'-DDT UTL=34 µg/kg	A0407S-DP-4	5.90 - 7.10	82.00	

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SUBAPPENDIX P-3
OPERABLE SUBUNIT 1100-3

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1100-3 Surface Inorganics

Parameter	Sample Id	Conc. (mg/kg)	Q
aluminum UTL=7870 mg/kg	S2139A	9770.00	
arsenic UTL=3.21 mg/kg	S2139A	3.40	
barium UTL=97.9 mg/kg	S2139A	106.00	
	A3111S	101.00	
calcium UTL=4530 mg/kg	A3105S	6810.00	
	A3101S	6370.00	
	A1201S-DP-8	5460.00	
	A3104S	5180.00	
	S2139A	5100.00	
	A3106S	5060.00	
	A3103S	5000.00	
	A3111S	4730.00	
chromium UTL=11.7 mg/kg	A3106S	14.00	
	S2139A	12.50	
copper UTL=16.3 mg/kg	S2139A	22.80	
	A0702S-DP-3	19.60	
	A3111S	19.30	
	A3101S	17.40	
	A1201S-DP-8	16.30	
lead UTL=13.6 mg/kg	A3102S	26.40	
magnesium UTL=5760 mg/kg	S2139A	6170.00	
sodium UTL=112 mg/kg	A1201S-DP-8	495.00	
	A3101S	227.00	
	A3103S	190.00	
	A3102S	178.00	
	A3105S	170.00	
	S2139A	170.00	
	A0702S-DP-3	152.00	
	A3104S	148.00	
	A3106S	144.00	
	A3111S	135.00	
	A3107S	120.00	

1100-3 Surface Inorganics		
thallium UTL=0.39 mg/kg	A3112S	0.40
zinc UTL=53.3 mg/kg	A3103S	59.00

1100-3 Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth Top	Conc. (mg/kg)	Q
aluminum UTL=6235 mg/kg	A1203S	DP-8	4.5-6.3	6620.00	
	A1205S	DP-8	7.2-8.9	6890.00	
	A1208S	DP-8	10.8-12.5	7400.00	
	A1210S	DP-8	13.3-15.0	6380.00	
	A1213S	DP-8	16.8-18.3	7150.00	
	A1215S	DP-8	20.5-22.2	7020.00	
	A1216S	DP-8	23.9-26.4	6670.00	
	A1221S**	DP-8	32.0-34.0	6490.00	
antimony UTL=3.1 mg/kg	A1221S**	DP-8	32.0-34.0	22.60	
calcium UTL=7830 mg/kg	A1205S	DP-8	7.2-8.9	8350.00	
	A1208S	DP-8	10.8-12.5	9080.00	
	A1210S	DP-8	13.3-15.0	7860.00	
	A1213S	DP-8	16.8-18.3	8270.00	
	A1215S	DP-8	20.5-22.2	8660.00	
	A1216S	DP-8	23.9-26.4	8240.00	
	A1221S**	DP-8	32.0-34.0	7850.00	
cobalt UTL=16.8 mg/kg	A1208S	DP-8	10.8-12.5	17.40	
	A1213S	DP-8	16.8-18.3	16.90	
	A1215S	DP-8	20.5-22.2	17.80	
	A1216S	DP-8	23.9-26.4	17.80	
copper UTL=19.5 mg/kg	A0907S	DP-1	9.9-12.2	31.70	
	A0803S	DP-2	4.5-6.0	24.20	
	A0806S	DP-2	8.5-10.2	20.10	
iron UTL=29400 mg/kg	A1205S	DP-8	7.2-8.9	29600.00	
	A1208S	DP-8	10.8-12.5	31500.00	
	A1213S	DP-8	16.8-18.3	30200.00	
	A1215S	DP-8	20.5-22.2	31700.00	
	A1216S	DP-8	23.9-26.4	31300.00	
magnesium UTL=4680 mg/kg	A0907S	DP-1	9.9-12.2	5030.00	
	A1205S	DP-8	7.2-8.9	4960.00	
	A1208S	DP-8	10.8-12.5	5290.00	
	A1210S	DP-8	13.3-15.0	4700.00	
	A1213S	DP-8	16.8-18.3	4900.00	
	A1215S	DP-8	20.5-22.2	5020.00	
	A1216S	DP-8	23.9-26.4	4970.00	

1100-3 Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth Top	Conc. (mg/kg)	Q
manganese	A1208S	DP-8	10.8-12.5	377.00	
UTL=355 mg/kg	A1213S	DP-8	16.8-18.3	358.00	
	A1215S	DP-8	20.5-22.2	381.00	
	A1216S	DP-8	23.9-26.4	359.00	
sodium	A1203S	DP-8	4.5-6.3	999.00	
UTL=420 mg/kg	A1205S	DP-8	7.2-8.9	943.00	
	A1208S	DP-8	10.8-12.5	916.00	
	A1210S	DP-8	13.3-15.0	865.00	
	A1213S	DP-8	16.8-18.3	964.00	
	A1215S	DP-8	20.5-22.2	960.00	
	A1216S	DP-8	23.9-26.4	940.00	
	A1221S**	DP-8	32.0-34.0	890.00	
zinc	A0711S	DP-3	15.2-16.99	50.50	
UTL=50.5 mg/kg	A1203S	DP-8	4.5-6.3	52.60	
	A1205S	DP-8	7.2-8.9	54.40	
	A1208S	DP-8	10.8-12.5	56.20	
	A1210S	DP-8	13.3-15.0	52.10	
	A1213S	DP-8	16.8-18.3	56.00	
	A1215S	DP-8	20.5-22.2	57.50	
	A1216S	DP-8	23.9-26.4	60.00	
	A1221S**	DP-8	32.0-34.0	52.90	

** - Sample was saturated

SUBAPPENDIX P-4
OEPRABLE SUBUNIT 1100-4

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1100-4 Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth	Conc. (mg/kg)	Q
aluminum UTL=6235 mg/kg	A1304S	ATS-1	6.1-7.4	6680.00	
arsenic UTL=2.92 mg/kg	A2418S**	MW-3	49.8-50.9	5.80	J
beryllium UTL=0.28 mg/kg	A2404S	MW-3	5.2-7.6	0.61	J
	A2407S	MW-3	10.7-13.2	0.64	J
	A2409S	MW-3	17.8-20.4	0.56	J
	A2411S	MW-3	25.5-27.9	0.93	J
	A2414S	MW-3	36.6-39.2	0.51	
	A2416S	MW-3	41.2-43.1	0.81	
	A2417S	MW-3	46.4-49.0	0.79	
	A2418S**	MW-3	49.8-50.9	0.81	
calcium UTL=7830 mg/kg	A2407S	MW-3	10.7-13.2	10600.00	J
copper UTL=19.5 mg/kg	A2417S	MW-3	46.4-49.0	19.80	J
lead UTL=5.03 mg/kg	A2416S	MW-3	41.2-43.1	5.70	J
	A2417S	MW-3	46.4-49.0	5.40	J
potassium UTL=967 mg/kg	A1304S	ATS-1	6.1-7.4	1030.00	J
silver UTL=0.54 mg/kg	A2404S	MW-3	5.2-7.6	1.40	
	A2407S	MW-3	10.7-13.2	1.80	
	A2409S	MW-3	17.8-20.4	1.70	
	A2411S	MW-3	25.5-27.9	2.00	
sodium UTL=420 mg/kg	A2404S	MW-3	5.2-7.6	461.00	J
	A2407S	MW-3	10.7-13.2	620.00	J
	A2409S	MW-3	17.8-20.4	508.00	J
	A2411S	MW-3	25.5-27.9	726.00	J
	A2416S	MW-3	41.2-43.1	450.00	J
thallium UTL=0.41 mg/kg	A2407S	MW-3	10.7-13.2	0.48	
zinc UTL=50.5 mg/kg	A2411S	MW-3	25.5-27.9	63.80	J

** -Sample was saturated

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SUBAPPENDIX P-5
OPERABLE SUBUNIT 1100-6

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UN-1100-6 Surface Inorganics		
Parameter	Sample Id	Conc. (mg/kg) Q
aluminum UTL=7870 mg/kg	S6150A	8680.00
barium UTL=97.9 mg/kg	S6150A	99.20
lead UTL=13.6 mg/kg	S6155A S6154A S6152A	22.10 15.60 14.10
potassium UTL=1790 mg/kg	S6150A	1950.00
sodium UTL=112 mg/kg	S6148A S6150A S6155A	143.00 131.00 124.00
zinc UTL=53.3 mg/kg	S6155A S6151A S6150A S6154A S6152A S6153A	111.00 77.60 70.00 67.60 65.10 61.70

UN-1100-6 Surface Organics

Parameter		Sample Id	Depth (ft)	Conc. (µg/kg)	Q
Volatiles	1,1,1-trichloroethane UTL=5 µg/kg	S6153ARE	0.00 - 0.50	34.00	
		S6154ARE	0.00 - 0.50	35.00	
		S6155ARE	0.00 - 0.50	15.00	J
	2-hexanone UTL=11 µg/kg	S6154A	0.00 - 0.50	53.00	
Semivolatiles	bis(2-ethylhexyl)phthalate UTL=690 µg/kg	S6154ADL	0.00 - 0.50	13000000.00	D
		S6153ADL	0.00 - 0.50	11000000.00	D
		S6155ADL	0.00 - 0.50	14000000.00	D
		S6151ADL	0.00 - 0.50	6700000.00	D
		S6150ADL	0.00 - 0.50	25000000.00	D
		S6152ADL	0.00 - 0.50	8900000.00	D
	di-n-octyl phthalate UTL=690 µg/kg	S6155A	0.00 - 0.50	10000.00	J
		S6151A	0.00 - 0.50	46000.00	J
Pesticides	4,4'-DDE UTL=33 µg/kg	S6154A	0.00 - 0.50	69.00	J
		S6151A	0.00 - 0.50	63.00	J
		S6155A	0.00 - 0.50	48.00	J
		S6150A	0.00 - 0.50	170.00	J
		S6153A	0.00 - 0.50	60.00	J
		S6152A	0.00 - 0.50	120.00	J
	alpha-chlordane UTL=170 µg/kg	S6151A	0.00 - 0.50	310.00	J
		S6155A	0.00 - 0.50	380.00	J
		S6150A	0.00 - 0.50	1000.00	J
		S6152A	0.00 - 0.50	980.00	J
		S6153A	0.00 - 0.50	450.00	J
		S6154A	0.00 - 0.50	520.00	J
	gamma-chlordane UTL=170 µg/kg	S6155A	0.00 - 0.50	290.00	J
		S6152A	0.00 - 0.50	800.00	J
		S6154A	0.00 - 0.50	440.00	J
		S6151A	0.00 - 0.50	280.00	J
		S6150A	0.00 - 0.50	860.00	J
		S6153A	0.00 - 0.50	370.00	J
	heptachlor UTL=17 µg/kg	S6150A	0.00 - 0.50	65.00	J
		S6155A	0.00 - 0.50	32.00	J
		S6152A	0.00 - 0.50	65.00	J
		S6154A	0.00 - 0.50	32.00	J

SUBAPPENDIX P-6
OPERABLE SUBUNIT HORN RAPIDS LANDFILL

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Horn Rapids Landfill Surface Inorganics

Parameter	Sample Id	Conc. (mg/kg)	Q
aluminum UTL=7870 mg/kg	AH189S	10600.00	J
	AH190S	9850.00	J
	AH191S	8410.00	J
	AH195S	9150.00	J
	AH196S	8640.00	J
	AH198S	8240.00	J
	AH202S	11700.00	J
	AH205S	8340.00	J
	AH206S	8060.00	
	AH207S	8620.00	
	AH208S	8050.00	
	AH209S	8190.00	
	AH210S	8100.00	
	AH211S	10000.00	
	AH212S	11200.00	
	AH213S	9790.00	
	AH214S	8640.00	
	A2002S-HRL-3	9280.00	
	AH168S	10900.00	
	AH169S	8200.00	
	AH171S	10600.00	
	AH172S	13500.00	
	AH177S	9160.00	
	AH181S	13600.00	
	AH184S	15700.00	
	AH185S	11900.00	
arsenic UTL=3.21 mg/kg	AH185S	3.60	
barium UTL=97.9 mg/kg	AH168S	430.00	J
	AH169S	358.00	J
	AH171S	389.00	J
	AH172S	1320.00	J
	AH177S	128.00	J
	AH178S	108.00	J
	AH179S	102.00	J
	AH181S	466.00	
	AH184S	930.00	
	AH185S	647.00	
	AH190S	151.00	J
	AH202S	105.00	J
	AH209S	110.00	

Horn Rapids Landfill Surface Inorganics			
Parameter	Sample Id	Conc. (mg/kg)	Q
barium cont.	AH211S	126.00	
	AH212S	117.00	
	AH213S	108.00	
	A1502S-HRL-5	109.00	J
beryllium UTL=0.65 mg/kg	AH172S	0.79	
	AH181S	0.83	
	AH184S	1.30	
	AH185S	0.67	
	AH207S	1.10	
	AH208S	1.00	
	AH209S	0.94	
	AH210S	0.93	
	AH211S	0.85	
	AH212S	0.98	
	AH213S	1.00	
	A2202S-HRL-4	0.85	
	A2301S-HRL-7	0.69	
	A1402S-HRL-8	0.95	
cadmium UTL=0.78 mg/kg	AH185S	2.00	
	AH208S	0.88	
	AH209S	1.30	
calcium UTL=4530 mg/kg	AH168S	12600.00	
	AH169S	5920.00	
	AH171S	27000.00	
	AH172S	86700.00	
	AH174S	5440.00	
	AH175S	4910.00	
	AH176S	5420.00	
	AH178S	7490.00	
	AH179S	6340.00	
	AH181S	55400.00	
	AH184S	77800.00	
	AH185S	47900.00	
	AH186S	6890.00	J
	AH187S	6000.00	J
	AH188S	6360.00	J
	AH189S	4670.00	J
	AH190S	5690.00	J
	AH191S	6610.00	J
	AH192S	5290.00	J
	AH194S	6070.00	J
	AH195S	5630.00	J

Horn Rapids Landfill Surface Inorganics			
Parameter	Sample Id	Conc. (mg/kg)	Q
calcium cont.	AH196S	5530.00	J
	AH198S	5630.00	J
	AH199S	4840.00	J
	AH200S	5410.00	J
	AH201S	5260.00	J
	AH203S	7140.00	J
	AH206S	5410.00	
	AH207S	6260.00	
	AH208S	7160.00	
	AH209S	7330.00	
	AH210S	5610.00	
	AH212S	6640.00	
	AH213S	8100.00	
	A2002S-HRL-3	7890.00	
	A1502S-HRL-5	6840.00	J
	A2301S-HRL-7	6220.00	
	A1402S-HRL-8	7650.00	J
	A1701S-HRL-9	4870.00	
chromium UTL=11.7 mg/kg	AH171S	13.00	
	AH172S	14.20	
	AH181S	17.10	
	AH184S	15.00	
	AH185S	13.90	
	AH189S	12.10	
	AH190S	14.20	
	AH195S	12.20	
	AH202S	13.70	
	A2002S-HRL-3	13.20	
	A1402S-HRL-8	16.20	
cobalt UTL=15.3 mg/kg	AH188S	15.60	
	AH191S	15.40	
	AH203S	15.50	
copper UTL=16.3 mg/kg	AH169S	17.40	
	AH171S	19.20	
	AH172S	33.40	
	AH181S	44.40	J
	AH184S	36.00	J
	AH190S	58.60	
	AH195S	16.90	
	AH196S	16.60	
	AH207S	16.30	J
	AH208S	17.10	J

Horn Rapids Landfill Surface Inorganics			
Parameter	Sample Id	Conc. (mg/kg)	Q
copper cont.	AH209S	17.40	J
	AH211S	20.20	J
	AH212S	16.70	J
	AH213S	17.80	J
	A2002S-HRL-3	17.10	
	A1502S-HRL-5	19.80	J
	A2301S-HRL-7	18.90	J
	A1402S-HRL-8	16.30	J
iron UTL=27000 mg/kg	AH188S	28100.00	
	AH190S	29800.00	
	AH191S	29800.00	
	AH203S	28700.00	
	AH212S	27000.00	
	A1402S-HRL-8	27400.00	
lead UTL=13.6 mg/kg	AH169S	34.00	J
	AH171S	19.60	J
	AH172S	67.80	J
	AH173S	27.20	J
	AH177S	26.10	
	AH178S	17.80	J
	AH179S	16.70	J
	AH181S	122.00	J
	AH184S	73.50	J
	AH185S	26.10	J
	AH190S	102.00	
	AH195S	20.30	
	AH196S	105.00	
	AH200S	18.20	J
	AH207S	15.20	J
	AH209S	16.90	J
	AH211S	482.00	J
magnesium UTL=5760 mg/kg	AH171S	10300.00	J
	AH172S	25000.00	J
	AH181S	6920.00	
	AH184S	15700.00	
	AH185S	15900.00	
mercury UTL=0.1 mg/kg	AH169S	0.12	J
	AH184S	1.30	
	AH203S	0.13	
	AH206S	0.11	J
	AH207S	0.10	J
	AH210S	0.10	J

Horn Rapids Landfill Surface Inorganics			
Parameter	Sample Id	Conc. (mg/kg)	Q
mercury cont.	AH212S	0.11	J
	AH214S	0.10	J
nickel	AH190S	174.00	
UTL=15.2 mg/kg	A1402S-HRL-8	17.40	
potassium	AH177S	1800.00	
UTL=1790 mg/kg	AH189S	2000.00	
	AH190S	1950.00	
	AH195S	1930.00	
	AH202S	2230.00	
	A1901S-HRL-10	1940.00	
selenium	AH168S	0.55	J
UTL=0.39 mg/kg	AH172S	0.92	J
	AH209S	0.21	J
	AH210S	0.28	J
	AH211S	0.40	J
	AH213S	0.27	J
	A2301S-HRL-7	0.38	J
silver	AH181S	4.50	
UTL=2.3 mg/kg	AH190S	4.00	
	AH207S	2.40	
	AH209S	2.40	
	AH211S	2.30	
	AH212S	2.70	
	AH213S	2.50	
sodium	AH172S	1650.00	J
UTL=112 mg/kg	AH181S	5140.00	J
	AH184S	3890.00	J
	AH185S	1510.00	J
	AH187S	794.00	J
	AH188S	793.00	J
	AH190S	652.00	J
	AH191S	740.00	J
	AH194S	795.00	J
	AH196S	778.00	J
	AH198S	701.00	J
	AH199S	748.00	J
	AH201S	760.00	J
	AH203S	874.00	J
	AH206S	955.00	J
	AH207S	1210.00	J
	AH208S	1240.00	J
	AH209S	1140.00	J

Horn Rapids Landfill Surface Inorganics			
Parameter	Sample Id	Conc. (mg/kg)	Q
sodium cont.	AH210S	884.00	J
	AH211S	578.00	J
	AH212S	786.00	J
	AH213S	1050.00	J
	AH214S	557.00	J
	A2202S-HRL-4	562.00	J
	A1502S-HRL-5	743.00	J
	A2301S-HRL-7	486.00	J
	A1701S-HRL-9	349.00	J
thallium UTL=0.39 mg/kg	AH206S	0.42	J
vanadium UTL=73.5 mg/kg	AH188S	84.70	
	AH191S	80.60	
	AH192S	73.90	
	AH194S	74.60	
	AH203S	87.30	
	A1502S-HRL-5	74.80	J
	A1402S-HRL-8	75.10	
zinc UTL=53.3 mg/kg	AH169S	62.80	
	AH172S	77.50	
	AH176S	87.00	
	AH177S	129.00	
	AH178S	60.60	
	AH179S	165.00	
	AH180S	56.00	J
	AH181S	68.80	J
	AH190S	399.00	
	AH195S	54.60	
	AH211S	408.00	J
cyanide UTL=0.52 mg/kg	AH206S	0.53	
	AH207S	0.54	
	AH208S	0.52	
	AH209S	0.52	
	AH210S	0.49	
	AH211S	0.56	
	AH212S	0.53	
	AH213S	0.54	
	AH214S	0.53	
	A2301S-HRL-7	0.50	J

Horn Rapids Landfill Surface Organics

Parameter		Sample Id	Depth (ft)	Conc. (µg/kg)	Q
Volatiles	tetrachloroethene UTL=5 µg/kg	AH202S	0.00 - 0.50	5.00	J
		AH198S	0.00 - 0.50	6.00	J
		AH205S	0.00 - 0.50	5.00	J
		AH200S	0.00 - 0.50	5.00	J
		AH203S	0.00 - 0.50	5.00	J
		AH204S	0.00 - 0.50	5.00	J
		AH196S	0.00 - 0.50	5.00	J
		AH199S	0.00 - 0.50	5.00	J
		AH201S	0.00 - 0.50	5.00	J
		AH197S	0.00 - 0.50	5.00	J
Semivolatiles	2-methylnaphthalene UTL=690 µg/kg	AH181S	0.00 - 0.50	7100.00	J
	naphthalene UTL=690 µg/kg	AH181S	0.00 - 0.50	1100.00	J
Pesticides	4,4'-DDD UTL=33 µg/kg	AH181S	0.00 - 0.50	260.00	J
	4,4'-DDE UTL=33 µg/kg	A2202S-HRL-4	0.00 - 2.80	1200.00	J
		AH203S	0.00 - 0.50	42.00	J
	4,4'-DDT UTL=33 µg/kg	AH181S	0.00 - 0.50	450.00	
		AH173S	0.00 - 0.50	35.00	J
	alpha-chlordane UTL=170 µg/kg	AH181S	0.00 - 0.50	180.00	J
	aroclor-1248 UTL=170 µg/kg	AH203S	0.00 - 0.50	5000.00	J
		A2202S-HRL-4	0.00 2.80	65000.00	J
		AH189S	0.00 - 0.50	290.00	
	heptachlor UTL=17 µg/kg	AH203S	0.00 - 0.50	20.00	J

Horn Rapids Landfill Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth	Conc. (mg/kg)	Q
aluminum	A2207S	HRL-4	10.50 - 13.60	6760.00	
UTL=6235 mg/kg	A2210S	HRL-4	14.60 - 16.90	7130.00	
	A2214S**	HRL-4	23.20 - 25.00	6320.00	
	A1504S	HRL-5	6.40 - 8.60	6270.00	J
	A1506S	HRL-5	9.40 - 11.60	6850.00	J
	A1509S	HRL-5	13.10 - 15.50	7860.00	J
	A1512S	HRL-5	16.00 - 17.60	7910.00	J
	A1513S	HRL-5	19.90 - 21.50	6870.00	J
	A1515S**	HRL-5	23.60 - 25.60	8390.00	J
	A1607S	HRL-6	11.60 - 13.90	8860.00	J
	A1613S	HRL-6	24.20 - 25.00	7350.00	J
	A1615S	HRL-6	25.00 - 25.20	7090.00	J
	A2310S	HRL-7	12.70 - 15.10	6940.00	
	A2312S	HRL-7	16.90 - 19.00	6490.00	
	A1404S	HRL-8	5.90 - 7.40	7320.00	J
	A1406S	HRL-8	8.70 - 10.90	10800.00	J
	A1408S	HRL-8	10.90 - 12.80	9370.00	J
	A1409S	HRL-8	15.00 - 17.30	9620.00	J
	A1412S	HRL-8	20.70 - 22.60	6950.00	J
	A1414S	HRL-8	23.10 - 24.60	8640.00	
	A1415S**	HRL-8	26.30 - 28.10	7140.00	
	A1902S	HRL-10	2.30 - 4.00	8850.00	
	A1912S	HRL-10	25.90 - 27.90	7130.00	
antimony	A1805S	HRL-2	5.10 - 7.90	3.20	
UTL=3.1 mg/kg			-		
arsenic	A2014S**	HRL-3	23.20 - 25.10	6.60	
UTL=2.92 mg/kg	A2306S	HRL-7	8.90 - 11.20	4.20	J
beryllium	A1804S	HRL-2	5.10 - 7.90	0.54	
UTLL=0.28 mg/kg	A1807S	HRL-2	9.80 - 13.30	0.57	
	A1810S	HRL-2	13.90 - 16.20	0.55	
	A1812S	HRL-2	17.70 - 19.90	0.62	
	A1814S**	HRL-2	23.00 - 25.30	0.29	
	A2004S	HRL-3	4.60 - 7.50	0.63	
	A2007S	HRL-3	10.80 - 13.00	0.62	
	A2009S	HRL-3	14.50 - 17.00	0.78	
	A2012S	HRL-3	19.40 - 20.70	0.60	
	A2014S**	HRL-3	23.20 - 25.10	0.42	
	A2204S	HRL-4	5.40 - 8.00	0.92	
	A2207S	HRL-4	8.20 - 9.70	1.10	
	A2210S	HRL-4	14.60 - 16.90	1.10	
	A2212S	HRL-4	19.40 - 21.30	0.55	
	A2214S**	HRL-4	23.20 - 25.00	0.58	

Horn Rapids Landfill Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth	Conc. (mg/kg)	Q
beryllium cont.	A1503S	HRL-5	3.80 - 6.00	0.54	
	A1504S	HRL-5	6.40 - 8.60	0.71	
	A1506S	HRL-5	9.40 - 11.60	0.73	
	A1509S	HRL-5	13.10 - 15.50	0.73	
	A1512S	HRL-5	16.00 - 17.60	0.35	
	A1601S	HRL-6	2.40 - 4.80	0.38	
	A1602S	HRL-6	4.80 - 7.10	0.58	
	A1604S	HRL-6	7.10 - 9.40	0.48	
	A1606S	HRL-6	9.40 - 11.60	0.33	
	A1607S	HRL-6	11.60 - 13.90	0.56	
	A1613S	HRL-6	24.20 - 25.00	0.33	
	A1615S	HRL-6	25.00 - 25.20	0.42	
	A2304S	HRL-7	4.80 - 7.20	0.54	
	A2306S	HRL-7	8.90 - 11.20	0.76	
	A2310S	HRL-7	12.70 - 15.10	0.61	
	A1404S	HRL-8	5.90 - 7.40	0.73	
	A1406S	HRL-8	8.70 - 10.90	1.00	
	A1408S	HRL-8	10.90 - 12.80	0.89	
	A1409S	HRL-8	15.00 - 17.30	1.00	
	A1412S	HRL-8	20.70 - 22.60	0.70	
	A1414S	HRL-8	23.10 - 24.60	0.40	
	A1415S**	HRL-8	26.30 - 28.10	0.36	
	A1704S	HRL-9	3.70 - 4.60	0.51	
	A1707S	HRL-9	6.80 - 9.10	0.55	
	A1709S	HRL-9	10.90 - 13.30	0.42	
	A1712S	HRL-9	16.70 - 19.20	0.43	
	A1714S	HRL-9	21.70 - 23.80	0.29	
	A1715S**	HRL-9	24.30 - 27.00	0.30	
	A1902S	HRL-10	2.30 - 4.00	0.61	
	A1905S	HRL-10	6.90 - 9.10	0.65	
	A1910S	HRL-10	16.90 - 17.80	0.42	
	A1911S	HRL-10	17.80 - 20.10	0.63	
	A1912S	HRL-10	25.90 - 27.90	0.54	
cadmium UTL=0.36 mg/kg	A2005S	HRL-3	4.60 - 7.50	0.56	
	A2009S	HRL-3	14.50 - 17.00	0.40	
	A2014S**	HRL-3	23.20 - 25.10	0.66	
	A1613S	HRL-6	24.20 - 25.00	1.90	
	A1615S	HRL-6	25.00 - 25.20	0.63	
	A1408S	HRL-8	10.90 - 12.80	0.40	
	A1902S	HRL-10	2.30 - 4.00	0.80	
	A1905S	HRL-10	6.90 - 9.10	0.43	
	A1910S	HRL-10	16.90 - 17.80	0.56	

Horn Rapids Landfill Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth	Conc. (mg/kg)	Q
cadmium cont.	A1911S	HRL-10	17.80 - 20.10	0.57	
calcium	A1804S	HRL-2	5.10 - 7.90	7905.00	
UTL=7830 mg/kg	A1814S**	HRL-2	23.00 - 25.30	17100.00	
	A2004S	HRL-3	4.60 - 7.50	8250.00	
	A2204S	HRL-4	5.40 - 8.00	11750.00	
	A2210S	HRL-4	14.60 - 16.90	7890.00	
	A2214S**	HRL-4	23.20 - 25.00	8450.00	
	A1506S	HRL-5	9.40 - 11.60	7900.00	J
	A1515S**	HRL-5	23.60 - 25.60	9110.00	J
	A1613S	HRL-6	24.20 - 25.00	8100.00	J
	A1616S**	HRL-6	25.80 - 27.80	7960.00	
	A2312S	HRL-7	16.90 - 19.00	8240.00	
	A1404S	HRL-8	5.90 - 7.40	8240.00	J
	A1406S	HRL-8	8.70 - 10.90	10100.00	J
	A1408S	HRL-8	10.90 - 12.80	8740.00	J
	A1409S	HRL-8	15.00 - 17.30	8470.00	J
	A1411S	HRL-8	20.70 - 22.60	8830.00	J
	A1414S	HRL-8	23.10 - 24.60	9070.00	
	A1415S**	HRL-8	26.30 - 28.10	8030.00	
	A1912S	HRL-10	25.90 - 27.90	12600.00	
chromium	A2210S	HRL-4	14.60 - 16.90	1250.00	
UTL=47.3 mg/kg	A1509S	HRL-5	13.10 - 15.50	81.50	J
	A1615S	HRL-6	25.00 - 25.20	69.80	J
	A1406S	HRL-8	8.70 - 10.90	284.00	
	A1408S	HRL-8	10.90 - 12.80	72.00	
	A1409S	HRL-8	15.00 - 17.30	119.00	
cobalt	A2210S	HRL-4	14.60 - 16.90	24.20	
UTL=16.8 mg/kg	A1506S	HRL-5	9.40 - 11.60	18.20	
	A1604S	HRL-6	7.10 - 9.40	17.60	
	A1406S	HRL-8	8.70 - 10.90	17.00	
	A1905S	HRL-10	6.90 - 9.10	22.60	
	A1911S	HRL-10	17.80 - 20.10	19.80	
copper	A2210S	HRL-4	14.60 - 16.90	38.10	J
UTL=19.5 mg/kg	A1509S	HRL-5	13.10 - 15.50	26.30	J
	A1513S	HRL-5	19.90 - 21.50	23.00	J
	A1613S	HRL-6	24.20 - 25.00	32.40	J
	A1615S	HRL-6	25.00 - 25.20	22.50	J
	A1406S	HRL-8	8.70 - 10.90	22.40	J
	A1704S	HRL-9	3.70 - 4.60	25.00	J
	A1902S	HRL-10	2.30 - 4.00	22.00	J
	A1905S	HRL-10	6.90 - 9.10	54.35	J
	A1910S	HRL-10	16.90 - 17.80	41.70	J

Horn Rapids Landfill Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth	Conc. (mg/kg)	Q
copper cont.	A1911S	HRL-10	17.80 - 20.10	124.00	
	A1912S	HRL-10	25.90 - 27.90	48.90	J
iron	A2210S	HRL-4	14.60 - 16.90	35200.00	
UTL=29400 mg/kg	A1506S	HRL-5	9.40 - 11.60	32800.00	J
	A1406S	HRL-8	8.70 - 10.90	31100.00	
lead	A1613S	HRL-6	24.20 - 25.00	24.00	
UTL=5.03 mg/kg	A1615S	HRL-6	25.00 - 25.20	5.50	
	A1902S	HRL-10	2.30 - 4.00	5.30	J
	A1910S	HRL-10	16.90 - 17.80	5.40	J
	A1911S	HRL-10	17.80 - 20.10	15.00	
	A1912S	HRL-10	25.90 - 27.90	5.60	
magnesium	A2210S	HRL-4	14.60 - 16.90	5080.00	
UTL=4680 mg/kg	A1506S	HRL-5	9.40 - 11.60	5380.00	J
	A1404S	HRL-8	5.90 - 7.40	4750.00	
	A1406S	HRL-8	8.70 - 10.90	5220.00	
	A1902S	HRL-10	2.30 - 4.00	4850.00	
	A1905S	HRL-10	6.90 - 9.10	4700.00	
manganese	A1807S	HRL-2	9.80 - 13.30	389.00	J
UTL=355 mg/kg	A2212S	HRL-4	14.60 - 16.90	496.00	
	A1512S	HRL-5	16.00 - 17.60	407.00	J
	A1509S	HRL-5	13.10 - 15.50	368.00	J
	A1506S	HRL-5	9.40 - 11.60	394.00	J
	A1404S	HRL-8	5.90 - 7.40	355.00	
	A1406S	HRL-8	8.70 - 10.90	401.00	
	A1409S	HRL-8	15.00 - 17.30	384.00	
	A1902S	HRL-10	2.30 - 4.00	364.00	J
mercury	A2205S	HRL-4	5.40 - 8.00	0.44	
UTL=0.1 mg/kg					
nickel	A2210S	HRL-4	14.60 - 16.90	557.00	
UTL=25.9 mg/kg	A1509S	HRL-5	13.10 - 15.50	39.00	J
	A1613S	HRL-6	24.20 - 25.00	50.50	J
	A1615S	HRL-6	25.00 - 25.20	48.40	J
	A1406S	HRL-8	8.70 - 10.90	135.00	
	A1408S	HRL-8	10.90 - 12.80	38.00	
	A1409S	HRL-8	15.00 - 17.30	55.60	
	A1910S	HRL-10	16.90 - 17.80	30.60	
potassium	A1512S	HRL-5	16.00 - 17.60	1190.00	J
UTL=967 mg/kg	A1513S	HRL-5	19.90 - 21.50	981.00	J
	A1515S**	HRL-5	23.60 - 25.60	972.00	J
	A1607S	HRL-6	11.60 - 13.90	976.00	J
	A1613S	HRL-6	24.20 - 25.00	1030.00	J
	A2312S	HRL-7	16.90 - 19.00	1160.00	

Horn Rapids Landfill Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth	Conc. (mg/kg)	Q
potassium cont.	A1406S	HRL-8	8.70 - 10.90	1140.00	
	A1408S	HRL-8	10.90 - 12.80	1250.00	
	A1409S	HRL-8	15.00 - 17.30	1320.00	
	A1411S	HRL-8	20.70 - 22.60	1110.00	
	A1414S	HRL-8	23.10 - 24.60	1540.00	
	A1415S**	HRL-8	26.30 - 28.10	1070.00	
	A1902S	HRL-10	2.30 - 4.00	1440.00	
silver	A1805S	HRL-2	5.10 - 7.90	1.85	
UTL=0.54 mg/kg	A1807S	HRL-2	9.80 - 13.30	2.10	
	A1810S	HRL-2	13.90 - 16.20	1.60	
	A1812S	HRL-2	17.70 - 19.90	2.40	
	A1814S**	HRL-2	23.00 - 25.30	0.71	
	A2004S	HRL-3	4.60 - 7.50	1.55	
	A2007S	HRL-3	10.80 - 13.00	1.90	
	A2009S	HRL-3	14.50 - 17.00	1.80	
	A2012S	HRL-3	19.40 - 20.70	2.00	
	A2014S**	HRL-3	23.20 - 25.10	1.60	
	A2204S	HRL-4	5.40 8.00	1.50	
	A2207S	HRL-4	10.50 13.60	1.60	
	A2210S	HRL-4	14.60 16.90	2.50	
	A2212S	HRL-4	19.40 21.30	1.30	
	A2214S**	HRL-4	23.20 - 25.00	0.86	
	A1503S	HRL-5	3.80 - 6.00	1.90	
	A1504S	HRL-5	6.40 - 8.60	1.60	
	A1506S	HRL-5	9.40 - 11.60	1.75	
	A1509S	HRL-5	13.10 - 15.50	1.90	
	A1512S	HRL-5	16.00 - 17.60	1.30	
	A1513S	HRL-5	19.90 - 21.50	1.00	
	A1515S**	HRL-5	23.60 - 25.60	0.96	
	A1601S	HRL-6	2.40 - 4.80	1.70	
	A1602S	HRL-6	4.80 - 7.10	1.40	
	A1604S	HRL-6	7.10 - 9.40	1.80	
	A1606S	HRL-6	9.40 - 11.60	1.20	
	A1608S	HRL-6	11.60 - 13.90	1.90	
	A1607S	HRL-6	11.60 - 13.90	2.20	
	A1613S	HRL-6	24.20 - 25.00	7.70	
	A1615S	HRL-6	25.00 - 25.20	4.20	
	A1616S**	HRL-6	25.80 - 27.80	0.94	
	A2304S	HRL-7	4.80 - 7.20	1.20	
	A2306S	HRL-7	8.90 - 11.20	1.60	
	A2310S	HRL-7	12.70 - 15.10	1.10	
	A2312S	HRL-7	16.90 - 19.00	0.96	

Horn Rapids Landfill Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth	Conc. (mg/kg)	Q
silver cont.	A1404S	HRL-8	5.90 - 7.40	2.00	
	A1406S	HRL-8	8.70 - 10.90	2.60	
	A1408S	HRL-8	10.90 - 12.80	2.00	
	A1409S	HRL-8	15.00 - 17.30	1.50	
	A1412S	HRL-8	20.70 - 22.60	1.10	
	A1414S	HRL-8	23.10 - 24.60	0.98	
	A1415S	HRL-8	26.30 - 28.10	0.97	
	A1704S	HRL-9	3.70 - 4.60	1.60	
	A1706S	HRL-9	6.80 - 9.10	1.85	
	A1709S	HRL-9	10.90 - 13.30	1.60	
	A1712S	HRL-9	16.70 - 19.20	1.20	
	A1714S	HRL-9	21.70 - 23.80	0.80	
	A1715S**	HRL-9	24.30 - 27.00	0.95	
	A1902S	HRL-10	2.30 - 4.00	1.30	
	A1905S	HRL-10	6.90 - 9.10	2.75	
	A1910S	HRL-10	16.90 - 17.80	3.20	
	A1911S	HRL-10	17.80 - 20.10	3.30	
	A1912S	HRL-10	25.90 - 27.90	2.40	
sodium	A1804S	HRL-2	5.10 - 7.90	442.00	J
UTL=420 mg/kg	A1807S	HRL-2	9.80 - 13.30	586.00	J
	A1810S	HRL-2	13.90 - 16.20	441.00	J
	A1812S	HRL-2	17.70 - 19.90	512.00	J
	A2204S	HRL-4	5.40 8.00	695.50	J
	A2207S	HRL-4	10.50 13.60	975.00	J
	A2210S	HRL-4	14.60 16.90	784.00	J
	A2212S	HRL-4	19.40 21.30	560.00	J
	A2214S**	HRL-4	23.20 - 25.00	455.00	J
	A1503S	HRL-5	3.80 - 6.00	1010.00	J
	A1504S	HRL-5	6.40 - 8.60	1100.00	J
	A1507S	HRL-5	9.40 - 11.60	1090.00	J
	A1509S	HRL-5	13.10 - 15.50	1230.00	J
	A1512S	HRL-5	16.00 - 17.60	749.00	J
	A1607S	HRL-6	11.60 - 13.90	1600.00	J
	A1613S	HRL-6	24.20 - 25.00	733.00	J
	A1615S	HRL-6	25.00 - 25.20	597.00	J
	A2304S	HRL-7	4.80 - 7.20	548.00	J
	A2306S	HRL-7	8.90 - 11.20	580.00	J
	A2310S	HRL-7	12.70 - 15.10	762.00	J
	A2312S	HRL-7	16.90 - 19.00	680.00	J
	A2314S**	HRL-7	22.70 - 25.00	483.00	J
	A1406S	HRL-8	8.70 - 10.90	1430.00	J
	A1408S	HRL-8	10.90 - 12.80	1220.00	J

Horn Rapids Landfill Subsurface Inorganics

Parameter	Sample Id	Borehole	Depth	Conc. (mg/kg)	Q
sodium cont.	A1409S	HRL-8	15.00 - 17.30	1050.00	J
	A1704S	HRL-9	3.70 - 4.60	596.00	J
	A1706S	HRL-9	6.80 - 9.10	564.00	J
	A1712S	HRL-9	16.70 - 19.20	421.00	J
	A1905S	HRL-10	6.90 - 9.10	532.00	J
	A1911S	HRL-10	17.80 - 20.10	420.00	
thallium	A2310S	HRL-7	12.70 - 15.10	3.10	
UTL=0.41 mg/kg	A2314S**	HRL-7	22.70 - 25.00	0.46	
zinc	A1506S	HRL-5	9.40 - 11.60	53.10	J
UTL=50.5 mg/kg	A1607S	HRL-6	11.60 - 13.90	52.10	J
	A1911S	HRL-10	17.80 - 20.10	79.10	
cyanide	A2214S**	HRL-4	23.20 - 25.00	0.56	J
UTL=0.51 mg/kg	A2304S	HRL-7	4.80 - 7.20	0.51	J
	A2314S**	HRL-7	22.70 - 25.00	0.52	J

** - Sample was saturated

Horn Rapids Landfill Subsurface Organics

Parameter		Sample Id	Depth	Conc. (µg/kg)	Q
Pesticides	aroclor-1248 UTL=170 µg/kg	A2205S-HRL-4	5.40 - 8.00	625.00	

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SUBAPPENDIX P-7
PIT 1 SURFACE

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Pit 1 Surface Inorganics		
Parameter	Sample Id	Conc. (mg/kg) Q
calcium UTL=4530 mg/kg	S6157A S6158A S6159A S6160A	5350.00 4730.00 4890.00 4860.00
copper UTL=16.3 mg/kg	S6161A	18.00
lead UTL=13.6 mg/kg	S6158A S6159A S6161A	43.10 38.10 21.50
sodium UTL=112 mg/kg	S6157A S6158A SS159A SS160A S6161A	318.00 458.00 201.00 190.00 163.00
zinc UTL=53.3 mg/kg	S6158A S6161A	54.00 53.50

Pit 1 Surface Organics

Parameter		Sample Id	Depth (ft)	Conc. (µg/kg)	Q
Pesticides	aroclor-1260 UTL=330 µg/kg	S6158A	0.00 - 0.50	440.00	

SUBAPPENDIX P-8
EPHEMERAL POOL SURFACE

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Ephemeral Pool Surface Inorganics		
Parameter	Sample Id	Conc. (mg/kg) Q
lead UTL=13.6 mg/kg	S6164A S6155A	35.00 54.20
sodium UTL=112 mg/kg	S6164A S6155A	155.00 216.00
zinc UTL=53.3 mg/kg	S6155A	67.50

Ephemeral Pool Surface Organics

	Parameter	Sample Id	Depth (ft)	Conc. (µg/kg)	Q
Pesticides	aroclor-1260 UTL=330 µg/kg	S6164A	0.00 - 0.50	4700.00	
	alpha-chlordane UTL=170 µg/kg	S6164A S6165A	0.00 - 0.50 0.00 - 0.50	260 950	J J
	endosulfan II UTL=33 µg/kg	S6164A	0.00 - 0.50	160	J
	endrin UTL=33 µg/kg	S6164A	0.00 - 0.50	39	J
	gamma-chlordane UTL=170 µg/kg	S6164A S6165A	0.00 - 0.50 0.00 - 0.50	220 860	J J
	heptachlor UTL=17 µg/kg	S6165A	0.00 - 0.50	29	J

APPENDIX Q
TOXICITY PROFILES FOR CONTAMINANTS OF POTENTIAL CONCERN AT THE 1100-EM-1 OPERABLE UNIT

The purpose of Appendix Q is to present toxicological information for contaminants of potential concern identified at the 1100-EM-1 Operable Unit. This information supplements information discussed in Section 6.

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APPENDIX Q

TOXICITY PROFILES FOR CONTAMINANTS OF POTENTIAL CONCERN AT THE 1100-EM-1 OPERABLE UNIT

Information for each contaminant of potential concern identified at the 1100-EM-1 Operable Unit is provided in this appendix. Toxicity profiles are also provided for trichloroethene and nitrate which are the two characterized contaminants of the ground-water plume originating upgradient from the Horn Rapids Landfill. The categories of information include:

- general background information
- exposure routes
- acute toxicity
- chronic toxicity
- carcinogenicity
- toxicity values and supporting information.

Data sources for the information provided in the appendix are from EPA documents and standard reference texts. See Appendix Q References.

ARSENIC

Arsenic is a common element found in the earth's crust usually in the form of arsenic bearing minerals. It is difficult to characterize as a single element because its chemistry is very complex. Elemental (metallic) arsenic is a relatively non-toxic steel gray metal which is fairly rare in nature. Trivalent and pentavalent forms are widely distributed in nature as both inorganic and organic compounds. The trivalent form is more toxic than the pentavalent form, and the inorganic is typically more toxic than the organic form which is rapidly eliminated. Soil levels range from 1 to 50 mg/kg but are usually less than 10 mg/kg. In the soil, compounds revert to arsenates which are held by clay soils and are not readily available for plant uptake. Arsenic has found use as pesticides, herbicides, wood preservatives, pigments, and medicinal agents.

Depending on the chemical species, arsenic can be toxic via all routes of exposure. Acute arsenic poisoning is usually the result of homicidal, suicidal, or accidental ingestion of inorganic arsenicals. Arsenic is well absorbed from the gastrointestinal tract. Symptoms include constriction of the throat, stomach pain, vomiting, fever, cardiac disturbances, and watery diarrhea usually within 4 h of exposure. If the amount is sufficiently high (100-200 mg), death as a result of severe fluid loss and shock may occur within 24 to 48 h. Toxicity in humans and animals results from the interaction of arsenic with sulfhydryl groups in essential proteins.

Chronic exposures can produce toxic reactions in the skin, mucous membranes, gastrointestinal tract, and central nervous system (CNS). Peripheral vascular disease (gangrene) related to a cumulative effect can occur. Liver injury has also been associated with chronic exposure. Arsenic has a predilection for skin and concentrates in hair and nails. Long term exposure to arsenic compounds can result in hyperpigmentation, hyperkeratosis (thickening, drying, and cracking of the skin and growth of warts), and skin cancer. Skin cancer has been primarily associated with ingestion of drinking water containing high levels of arsenic. Chronic exposure through inhalation of arsenic compounds can produce weakness, loss of appetite, nausea, occasional vomiting and diarrhea, and lung cancer.

The oral RfD for arsenic provided in HEAST is 1.0E-03 mg/kg/d and the adverse effects of concern are keratosis and hyperpigmentation. This RfD is currently under review. Arsenic is a confirmed human carcinogen (EPA weight-of-evidence-classification A) known to produce lung cancer from inhalation and skin cancer from ingestion of drinking water. The inhalation SF listed in IRIS is 5.0E+01 $(mg/kg/d)^{-1}$ and is based on excellent exposure assessment, using air monitoring and some biomonitoring, in large populations of smelter workers. The carcinogenic risk associated with ingestion of inorganic arsenic has been the focus of much debate. A mean unit risk of 0.00005 $(ug/L)^{-1}$ has been recommended by EPA (1990). (The unit risk is defined as the risk associated with a lifetime consumption of inorganic arsenic in drinking water.) Applying standard exposure assumptions, this unit risk corresponds to an estimated oral potency slope factor of 1.7 $(mg/kg/d)^{-1}$. This proposed value, reflecting the most recent opinions regarding the mechanism of action of ingested inorganic arsenic, is used to assess the carcinogenic oral exposure to arsenic. The unit risk is based on human studies showing a definite dose-response relationship between the consumption of drinking water and the development of skin cancer.

Recommended occupational air exposure limits for arsenic are also available. The American Conference of Governmental Industrial Hygienists (ACGIH) has established a time-weighted-average (TWA) threshold limit value (TLV) of 0.2 mg/M^3 (as arsenic), for arsenic and soluble compounds, in situations other than the production of arsenic. The Occupational Safety and Health Administration (OSHA) has established a TWA permissible exposure limit (PEL) of 0.1mg/M^3 for exposure to inorganic arsenic (29 CFR 1910.1018). The National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL) is 0.002 mg/M^3.

The maximum contaminant level (MCL) for arsenic in drinking water is 0.05 mg/L and the maximum contaminant level goal (MCLG) is 0.05 mg/L. The Human Water Quality Health Criteria (HWQHC) for arsenic based on water and fish consumption is 2.2E-06 mg/L.

BIS (2-ETHYLHEXYL) PHTHALATE

Bis (2-ethylhexyl)phthalate (BEHP) is a chemical used to make plastics more flexible. This compound is a constituent of numerous consumer products including rainwear, flooring, shower curtains, and medical tubing. This substance and other phthalate-ester plasticizers have been found to be general contaminants in virtually all soil and water ecosystems. Insoluble phthalate esters complex with fulvic acid components of humic substances in soil. Fulvic acid functions as a solubilizer for the phthalates and thus serves to mediate the mobilization and transport of phthalates in soil and water. The widespread occurrence of phthalates such as BEHP has produced concern regarding their toxicity.

Bis (2-ethylhexyl)phthalate is well absorbed orally and there is evidence of some absorption through the dermal and inhalation routes of exposure. Acute toxicity is low by all routes of exposure. No effects have been observed from a single 5,000 mg oral dose in humans while 10,000 mgs produced only some gastrointestinal distress.

Animal studies indicate the liver and testes are target organs for adverse effects from chronic exposure to BEHP. This compound has also been reported to affect male and female reproductive capacity and oral ingestion has produced birth defects in laboratory animals. The chronic oral RfD is 2E-02 mg/kg/d. A 1953 study is cited by IRIS in which the observed critical effect was an increase in relative liver weight. Confidence in the RfD is medium although sufficient numbers of animals were tested and multiple endpoints measures, only two dosages were utilized for less than lifetime exposures to determine the RfD. Corroborating chronic animal bioassays, however, do support this RfD.

Bis (2-ethylhexyl)phthalate is considered to be a probable human carcinogen (EPA B2 classification) based on a 1982 National Toxicology Program (NTP) oral study in animals. A statistically significant, dose-dependent increase in liver tumors was observed in male and female mice and female rats receiving BEHP in food. The oral SF listed in IRIS is 1.4E-02 (mg/kg/d)$^{-1}$. A potential source of variation in the NTP study that could effect the slope factor is the use of an intake based on standard food consumption rates rather than administration of a known dose. Evidence for carcinogenicity of BEHP in exposed human populations is inadequate.

The ACGIH recommended TLV-TWA for BEHP is 5 mg/M^3 and a TLV short-term exposure limit (STEL) of 10 mg/^{3}. The NIOSH REL is reduction of the exposure to the lowest feasible

concentration because of the cancer-causing potential of BEHP. The OSHA PEL for BEHP is 5mg/M^3.

The HWQHC for BEHP, based on water and fish consumption, is 1.5E+01 mg/L.

CHLORDANE

Chlordane is a man-made chemical used prior to 1983 as an agricultural pesticide and until 1988 for termite control. It is a multicomponent mixture with alpha- and gamma-chlordane as the primary components. Exposure to chlordane is possible via all routes including inhalation, ingestion, and dermal absorption. Chlordane is extremely persistent in the environment and can be toxic to wildlife.

In humans, acute toxicity from inhaling high concentrations of chlordane vapors is manifested as headache, irritation, confusion, and gastrointestinal complaints. Similar adverse effects have occurred after dermal contact with heavily contaminated soil for several hours. Suicidal or accidental ingestion of large quantities of chlordane have produced liver damage, seizures, and death. The acute lethal dose in man is not known, but has been estimated to be 25 to 50 mg/kg by ingestion.

Chronic toxic effects have not been identified in workers who produced or used chlordane. The critical effect in a 1983 chronic feeding study in rats was regional liver hypertrophy in female rats. Based on this study, the EPA oral RfD reported in IRIS is 6E-05 mg/kg/d. Confidence in this RfD, however, is low. The database lacks adequate reproductive studies, testing in multiple mammalian species, and inadequate assessment of sensitive endpoints. Chlordane is known to bioaccumulate in body fat with chronic exposure.

The EPA classifies chlordane as a B2 probable human carcinogen. Results of a 1977 National Cancer Institute (NCI) study indicate a significant dose-response increase in liver tumors in mice. These data are supported by additional animal studies. However, evidence from human studies to document the carcinogenicity of chlordane is insufficient. An oral SF for chlordane of 1.3E+00 (mg/kg/d)$^{-1}$ is reported in IRIS. The inhalation SF published in IRIS is 1.3E+00 (mg/kg/d)^{1}.

THE OSHA established TWA-PEL for chlordane is 0.5 mg/M^3 with a recommendation to protect skin in order to limit dermal absorption of chlordane. This occupational exposure limit is the same as that recommended by NIOSH and the ACGIH. However, the ACGIH further recommends a TLV-STEL of 2 mg/M^3. The air concentration of chlordane that is immediately dangerous to life and health (IDLH) is 500 mg/m^3.

The drinking water MCLG for chlordane is 0 mg/L based upon carcinogenic effects. The HWQHC for chlordane, based on water and fish consumption, is 4.6E-07 mg/L.

CHROMIUM

Elemental chromium does not exist naturally in the environment, but is found primarily as a part of chromite ore. In compounds, this element exists in one of three valence states, +2, +3, or +6. The trivalent form is an essential human micronutrient involved in carbohydrate metabolism. Adverse effects have not been associated with the trivalent form. The hexavalent

form is important industrially (typically in the form of chromates) and has been associated with serious toxicities.

Hexavalent chromium is mobile in soil, but under aerobic, acidic soil conditions, it is reduced to trivalent chromium which readily precipitates with carbonates and hydroxides in the soil. Hexavalent chromium is toxic to plants. However, plants actually tolerate relatively high levels of chromium in the soil and do not accumulate significant amounts.

Human toxicity has been associated with hexavalent chromium by all routes of exposure. Hexavalent chromium is irritating and short-term high exposures can result in adverse effects at the site of contact, whether it is the skin, gastrointestinal tract, or respiratory tract. Such contact can result in coughing, wheezing, irritation and perforation of the nasal mucosa, and pulmonary edema. Kidney and liver damage have also been associated with acute exposures. Hexavalent chromium is a potent sensitizer causing allergic reactions in the lungs, nasal passages, and skin. Long term exposure to airborne hexavalent chromium higher than the natural environment is known to produce lung and respiratory tract cancer in humans.

The EPA has determined the oral RfD for hexavalent chromium as 5E-03 mg/kg/d based on a drinking water study in rats. The confidence in this RfD is low and no critical effects were observed because of poor study design.

Hexavalent chromium is classified by EPA as a known human carcinogen (weight-of-evidence classification A) by inhalation exposure. A 1975 study is cited in IRIS and multiple supporting studies from other countries also exist to demonstrate a dose-response relationship between hexavalent chromium exposure and lung tumor production. The inhalation SF is 4.1 E+01 $(mg/kg/d)^{-1}$. No evidence exists to indicate chromium is carcinogenic by the oral route.

Occupational air exposure limits for chromium are based on the toxicities associated with different forms. For carcinogenic forms of hexavalent chromium, the NIOSH TWA recommendation is 0.001 mg/M^3. The OSHA PEL for chromium metal is 1 mg/M^3 and the IDLH is 500 mg/M^3.

The drinking water MCL for total chromium is 0.05 mg/L and the MCLG is 0.12 mg/L. For water and fish consumption, the HWQHC is 0.005 mg/L.

NITRATE

As a class, nitrate compounds are a variety of chemicals used as explosives, medications, dyes, food additives, and as numerous other industrial products. The nitrate form of nitrogen is very water soluble and is highly mobile in water and soil. Concern has arisen over the accumulation of these compounds in the environment.

Exposure can result primarily from ingestion of contaminated water, but may also be associated with ingestion of soils and dermal contact with contaminated media. Toxicity is related to the specific compound. However, as a class, acute exposure to nitrates can produce headache, decreased blood pressure, abdominal pain, dilation of blood vessels, and methemoglobinemia. Chronic exposure may result in weakness, general depression, headache, and mental impairment.

Human toxicity to nitrates in water is due to the conversion of nitrate to nitrite which results in the oxidation of hemoglobin to methemoglobin. Animals are a poor model for methemoglobin formation because many species lack nitrate-reducing bacteria. Infants, however, are particularly susceptible to nitrates due to their high gut content of nitrate-reducing bacteria, their lower enzymatic capacity to convert methemoglobin to hemoglobin, and the presence of hemoglobin F, which is more susceptible to oxidation.

The chronic RfD for nitrate is 1.0E+00 mg/kg/d based on a study of infants chronically exposed to nitrate in drinking water. The observed adverse effect was methemoglobinemia. No uncertainty factors have been applied to this intake because the RfD was determined from epidemiological studies in the most sensitive human population. Thus, confidence in the RfD is high. Nitrate has not been evaluated for carcinogenic potential.

Occupational exposure limits for nitrate in air are not established. The MCL and the MCLG for nitrate in drinking water is 44 mg/L.

POLYCHLORINATED BIPHENYL

Polychlorinated biphenyls are very stable materials that contain 12 to 68% chlorine and are extremely persistent in the environment. Because of their low flammability and stability, PCBs have been used as insulating materials in electrical transformers and capacitors, as plasticizers in waxes, in paper manufacturing, and for a variety of other industrial purposes. The diversity of their use patterns, the large quantities used, and their stability has led to widespread occurrence of these compounds in soil and water. Polychlorinated biphenyls have been banned from use since 1978, but are still found in older electrical equipment and as contaminants in the environment. All PCBs are mixtures of chlorinated congeners, but the exact nature of these mixtures is unknown. Arochlor 1260 and Arochlor 1254 are commonly recognized PCB products. The last two digits in the number indicate the percentage of chlorine in the compound (i.e., 60 and 54% respectively).

Exposure to PCBs can occur from inhaling PCB-contaminated particulates, dermal absorption, or ingestion of contaminated food, soil, or water. Toxicity by all routes of exposure is similar. However, because of high public awareness of PCBs, in large part due to their extensive publicity, concern about exposure may far outweigh documented human toxicity.

Skin irritation can occur with acute and chronic exposure. A severe and disabling form of acne called chloracne is the primary dermal effect. Chronic toxicity studies in animals have suggested that PCBs can cause respiratory tract impairment, neurotoxicity, liver damage, birth defects, and cancer. Polychlorinated biphenyl congeners vary in their potency for producing biological effects, but little is known about which congeners may be responsible for the effects and to what extent the effects occur in humans.

The EPA does not currently provide oral or inhalation RfDs for PCBs in IRIS or HEAST. Polychlorinated biphenyls as a group (not as specific congeners or total chlorine mixtures) are considered probable human carcinogens because of data in animals indicating increased liver cancer in exposed animals. However, the commercial preparations used may not be representative of actual mixtures of congeners found in the environment. There is inadequate but suggestive evidence that PCBs may also cause liver cancer in humans by all routes of exposure. The EPA oral SF listed in IRIS is 7.7 $(mg/kg/d)^{-1}$. This slope factor is based on a 1985

study in rats showing a sequential progression of liver lesions to liver cancer during the natural life of the rat. The EPA carcinogenicity classification for PCBs is B2 (probable human carcinogen).

Occupational exposure limits for polychlorinated biphenyls are based on the chlorine content of the compound. Both OSHA and the ACGIH recommend a TWA for 54% polychlorinated biphenyls of 0.5 mg/M^3. The NIOSH recommendation for an occupational exposure limit is 0.001 mg/M^3. This level is the minimum reliably detectable concentration using the recommended sampling and analytical methods. Skin precautions are also recommended to prevent dermal absorption.

Based on water and fish consumption, the HWQHC for polychlorinated biphenyls is 7.9E-07 mg/L.

TETRACHLOROETHENE

Tetrachloroethene, also known as perchloroethylene and tetrachloroethylene, is a nonflammable liquid solvent used for dry cleaning fabrics and for metal degreasing operations. When tetrachloroethene evaporates, it produces an ether-like odor. However, it is relatively resistant to hydrolysis and biodegradation and thus persists in the environment. Tetrachloroethene is moderately to highly mobile in soil and susceptible to significant leaching.

The primary route of exposure to tetrachloroethene is through inhalation of vapors. Ingestion may occur from contaminated water. Dermal absorption is limited because tetrachloroethene does not penetrate intact skin to any great extent. The principal target organs are the CNS, liver, and kidney. Acute exposure to tetrachloroethene in confined, poorly ventilated areas, can produce dizziness, headache, confusion, nausea, and difficulty in walking. These effects are rapidly reversed when the individual is moved to clean air. The effects of long-term, low level exposure is not as well understood. Studies in animals suggest liver and kidney damage, birth defects, leukemia, and liver cancer may occur.

The oral RfD provided in IRIS for tetrachloroethene is 1E-02 mg/kg/d. The critical adverse effects found in animal studies used to determine the RfD were liver damage in mice and weight gain in rats. No inhalation RfD is currently available. Confidence in this RfD is only medium because of a good overall database but insufficient reproductive studies.

The carcinogenicity of tetrachloroethene is under review and a classification of B2 (probable human carcinogen) has been proposed. An oral SF is of 5.1E-02 (mg/kg/d)$^{-1}$ is published in HEAST. The inhalation SF is 3.3E-03 (mg/kg/d)$^{-1}$. Currently, epidemiological studies suggest an association between tetrachloroethene and an increased cancer risk but the human studies provide no good quantitative exposure information and involve exposure to other chemicals. Thus, the association is inconclusive.

The occupational exposure limit for tetrachloroethene recommended by OSHA is 170 mg/M^3. The currently recommended ACGIH exposure limits are a TWA of 340 mg/M^3 and an STEL concentration of 1,360 mg/M^3. The NIOSH recommendation is to minimize workplace exposure concentrations because this substance is a potential carcinogen. The IDLH concentrations is 3,400 mg/M^3.

The drinking water MCLG for tetrachloroethene is 0 mg/L. The HWQHC for water and fish consumption is 0.0008 mg/L.

1,1,1-TRICHLOROETHANE

1,1,1-Trichloroethane, also known as methyl chloroform, is a halogenated hydrocarbon used primarily as a solvent because of a favorable combination of chemical, physical, flammability, and toxicologic properties. Although 1,1,1-trichloroethane is probably the least toxic chlorinated solvent, careless use, high volatility, and poor disposal practices have contributed to the potential human and environmental concerns.

Acute exposure to TCA can produce CNS depression. Inhalation of 1,600 mg/M^3 by humans has produces no untoward response while inhalation of 5,400 to 10,800 mg/M^3 for 60 min can produce eye and nasal irritation and minor CNS impairment. The inhalation of 100,000 mg/M^3 for 60 min can produce anesthesia, cardiac sensitization to epinephrine, and possible death. Chronic, industrial exposure to 1,1,1-trichloroethane over 6 yr did not demonstrate liver toxicity or cardiac toxicity in humans. Some studies have suggested that animals exposed to 1,1,1-trichloroethane may develop fatty livers and liver necrosis. However, no adverse effects were detected in a 6-mo inhalation study in guinea pigs on which the IRIS oral RfD is based. An older supporting study noted only slight growth retardation in chronically exposed animals. The oral RfD is 9.0E-02 mg/kg/d. Confidence in the RfD is medium to low because of a limited number of animals at each dose level, variable lengths of exposure, and few toxic endpoints were examined. No inhalation RfD is published in IRIS, but HEAST lists an inhalation RfD for 1,1,1-trichloroethane of 3.0E-01 mg/kg/d. The adverse effect noted for the inhalation RfD is hepatotoxicity.

Animal studies have not demonstrated carcinogenicity nor are there any human data reported to indicate that 1,1,1-trichloroethane is a human carcinogen.

The OSHA PEL TWA and the ACGIH TLV for 1,1,1-trichloroethane is 1,900 mg/M^3 with a STEL of 2,450 mg/M^3. The NIOSH REL is 1,910 mg/M^3 15 minute ceiling and an action level set at a TWA of 1,091 mg/M^3.

The drinking water MCL for 1,1,1-trichloroethane is 0.20 mg/L and the MCLG is 0.20 mg/L. Based on water and fish consumption, the HWQHC is 18.4 mg/L.

TRICHLOROETHENE

Trichloroethene (also known as trichloroethylene) is a colorless liquid with an odor similar to ether or chloroform. This chemical is a man-made solvent used for degreasing metal parts, extracting caffeine from coffee, and in numerous consumer products such as typewriter correction fluid, paint removers, and spot removers.

Trichloroethene readily moves through soil and groundwater. Ingestion of contaminated water and inhalation of volatilized trichloroethene are the chief sources of exposure. Absorption is not significant from skin contact with this solvent.

Acute oral toxicity in humans is low. Death has occurred from an ingested dose of 70 mg/kg. Acute effects from inhalation of trichloroethene are associated with the central

nervous system (dizziness, headache, sleepiness) and occur at a threshold of 436 to 592 mg/M^3. Extremely high, acute exposures may produce cardiac rhythm disturbances. In animals, chronic exposure to trichloroethene by inhalation and ingestion has produced liver and kidney damage and may affect reproductive toxicity.

Neither IRIS nor HEAST currently provide an RfD for trichloroethene and determination of an RfD is pending. Trichloroethene may induce lung cancer in animals when inhaled and may produce liver cancer in animals from oral administration. The EPA weight-of-evidence classification is B2 (probable human carcinogen) based on sufficient evidence in animals. The oral and inhalation SFs for trichloroethene have also been withdrawn from IRIS pending further review of carcinogenicity studies. However, HEAST provides an inhalation SF of 1.7E-02 (mg/kg/d)$^{-1}$ and an oral SF of 1.1E-02 (mg/kg/d)$^{-1}$.

The OSHA final rule limits for occupational exposure to trichloroethene and the currently recommended ACGIH exposure limits are a TWA of 269 mg/M^3 and an STEL of 1,070 mg/M^3. Because trichloroethene is carcinogenic, NIOSH recommends a TWA of 135 mg/M^3. The NIOSH recommendations are considered the level that can be achieved by existing engineering controls and technology. The IDLH concentration for trichloroethene is 5,380 mg/M^3.

The drinking water MCL for trichloroethene is 0.005 mg/L and the MCLG is 0 mg/L. Based on water and fish consumption, the HWQHC is 0.0027 mg/L.

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