UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS
SITE CONTROL
DIVISION

Remedial Planning/ Field Investigation Team (REM/FIT)

ZONE II

CONTRACT NO.
68-01-6692

CH2M HILL
Ecology & Environment

Draft Phase I Task Report

Indian Bend Wash
Remedial Investigation
Scottsdale, Arizona

Volume III of III -
APPENDICES D,E,F,G,H,I,
J,K,L,M,N,O

July 2, 1984

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Purpose: Draft Phase I Task Report

Site: Indian Bend Wash
Remedial Investigation
Scottsdale, Arizona

Volume III of III -
APPENDICES D,E,F,G,H,I,
J,K,L,M,N,O

Date Remedial Investigation Began: July 2, 1984

TDD Number: R-09-8401-02E

Report Number:

FIT Investigators: Robert Enkeboll
Kelly Hranac

Report Prepared By: Kelly Hranac
Robert Enkeboll

Report Date: May 19, 1986

Submitted To: Harry E. Demarest, Chief
Field Inspections Section
Toxics and Waste Management Division
U.S. Environmental Protection Agency
San Francisco, CA 94105

APPENDIX D

Hydrographs for Indian Bend Wash Monitor
Wells and (A-2-4)25dbb1[Phoenix #223]

Summary of Monthly Water Level Data

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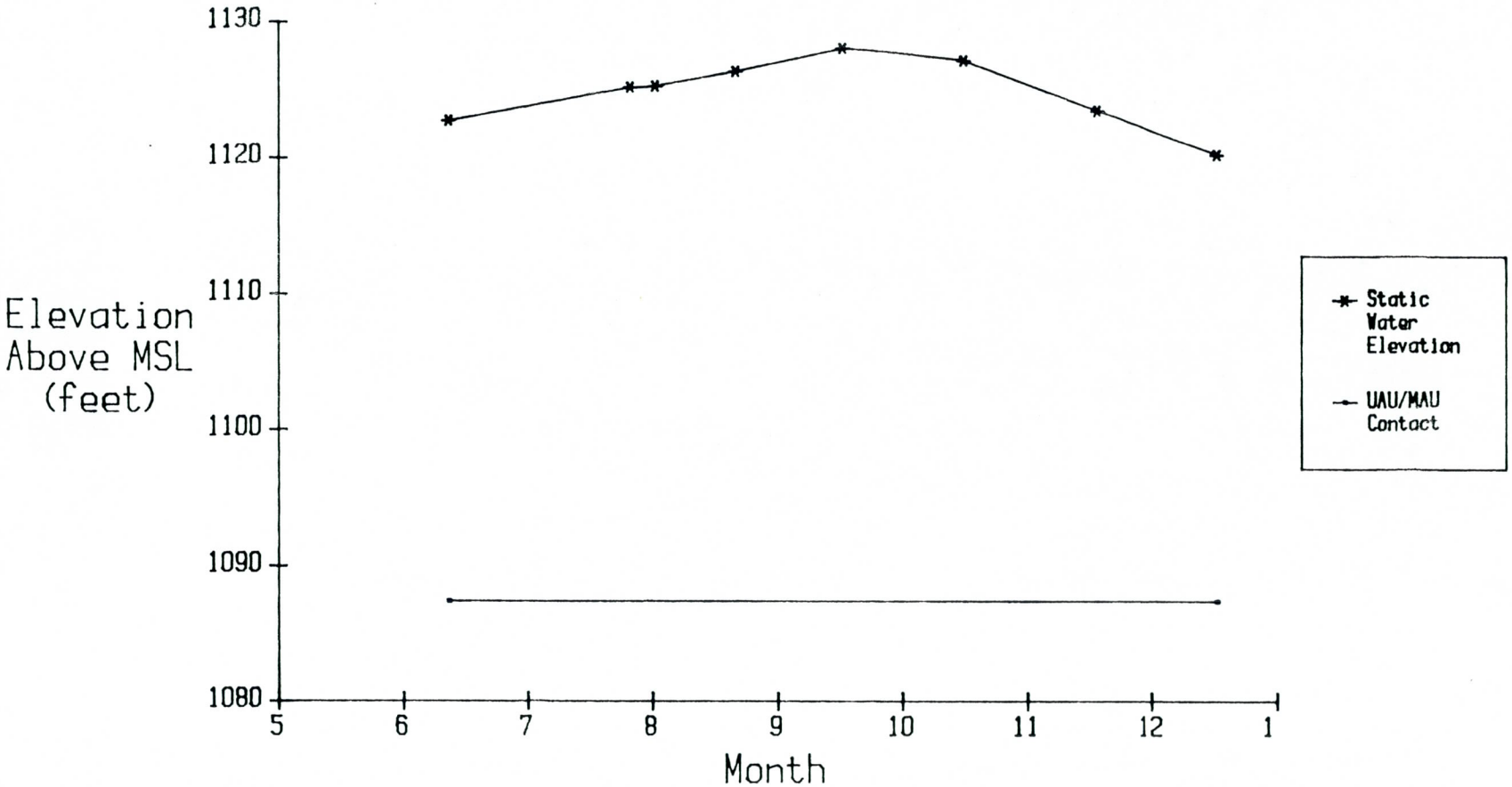

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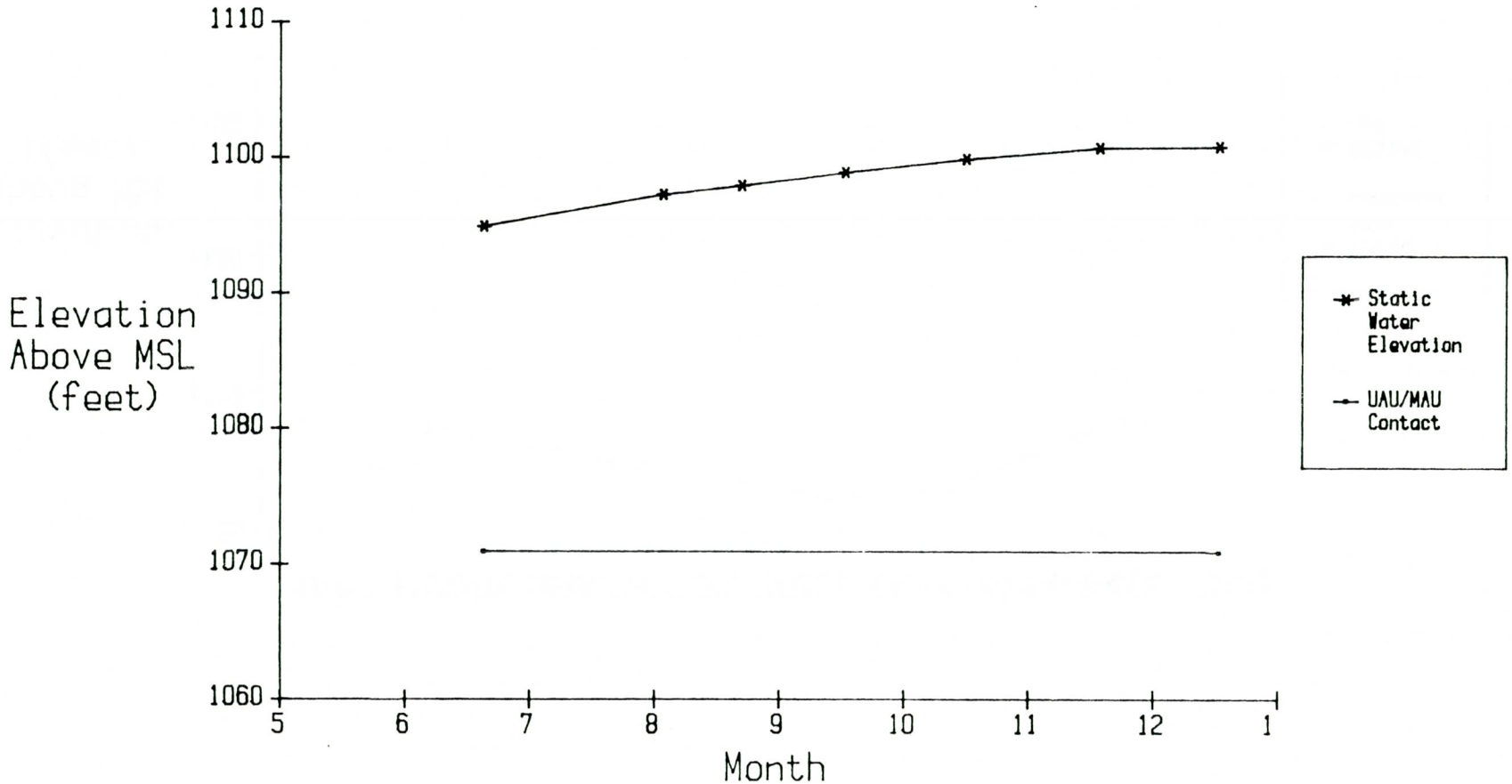

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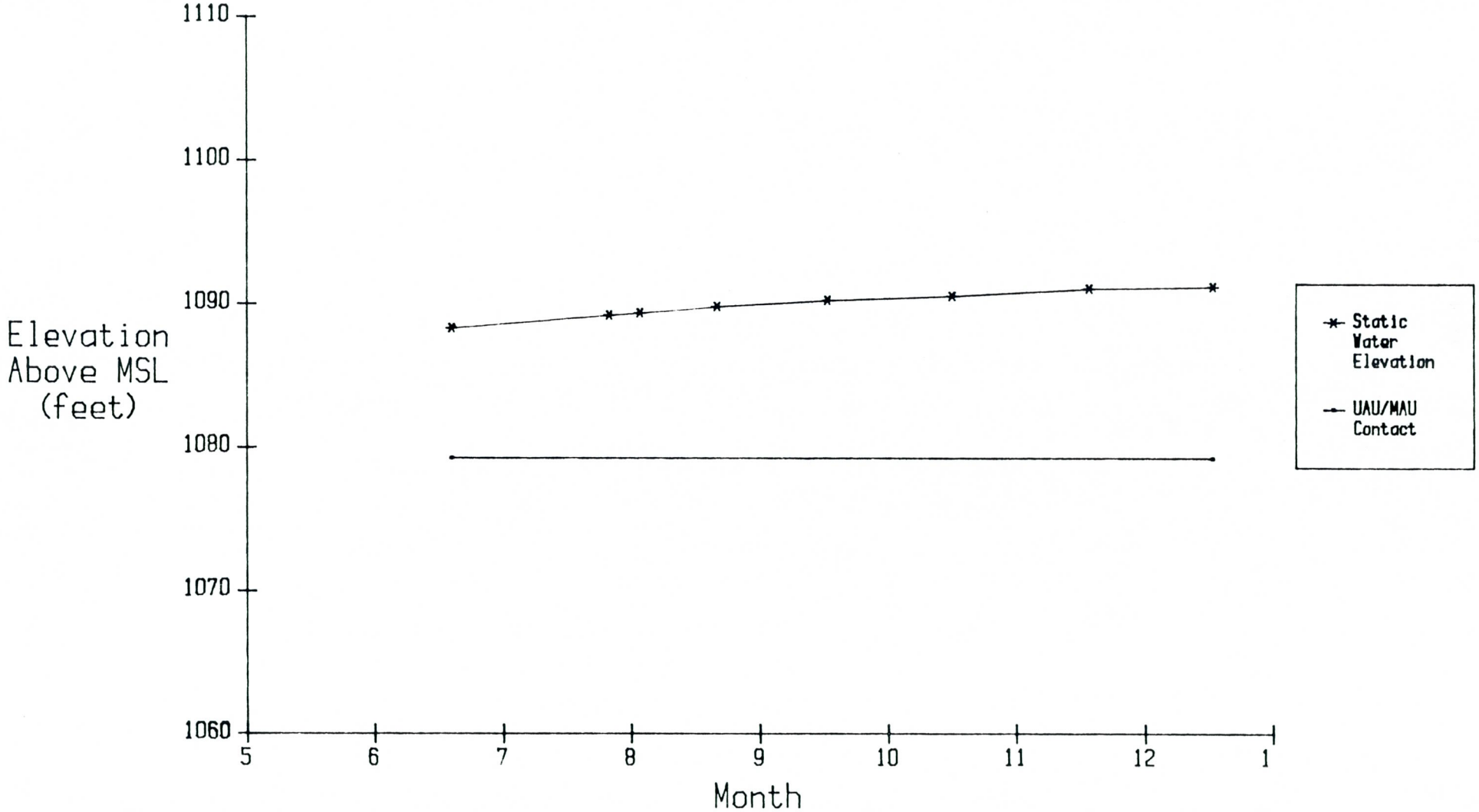

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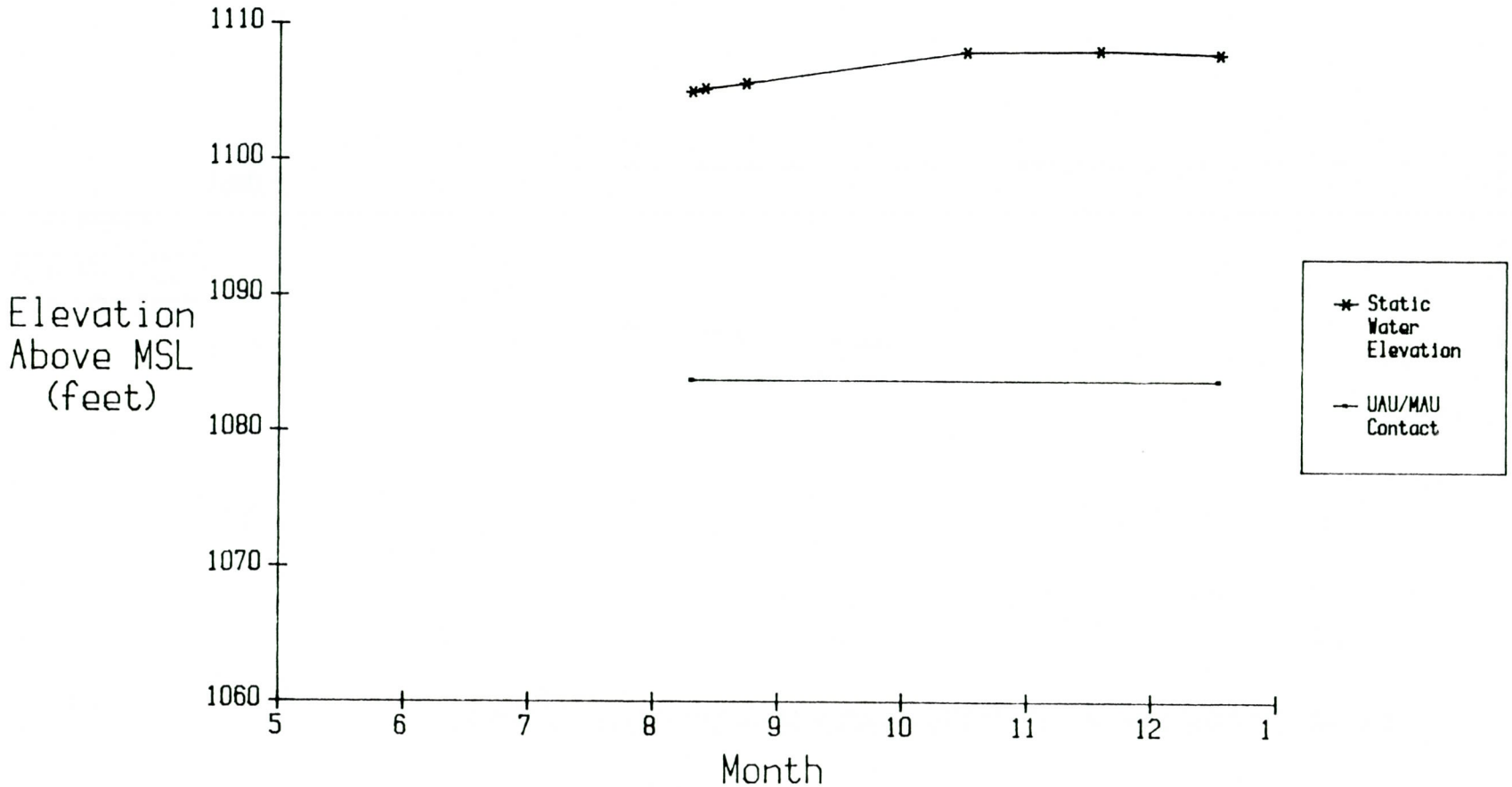

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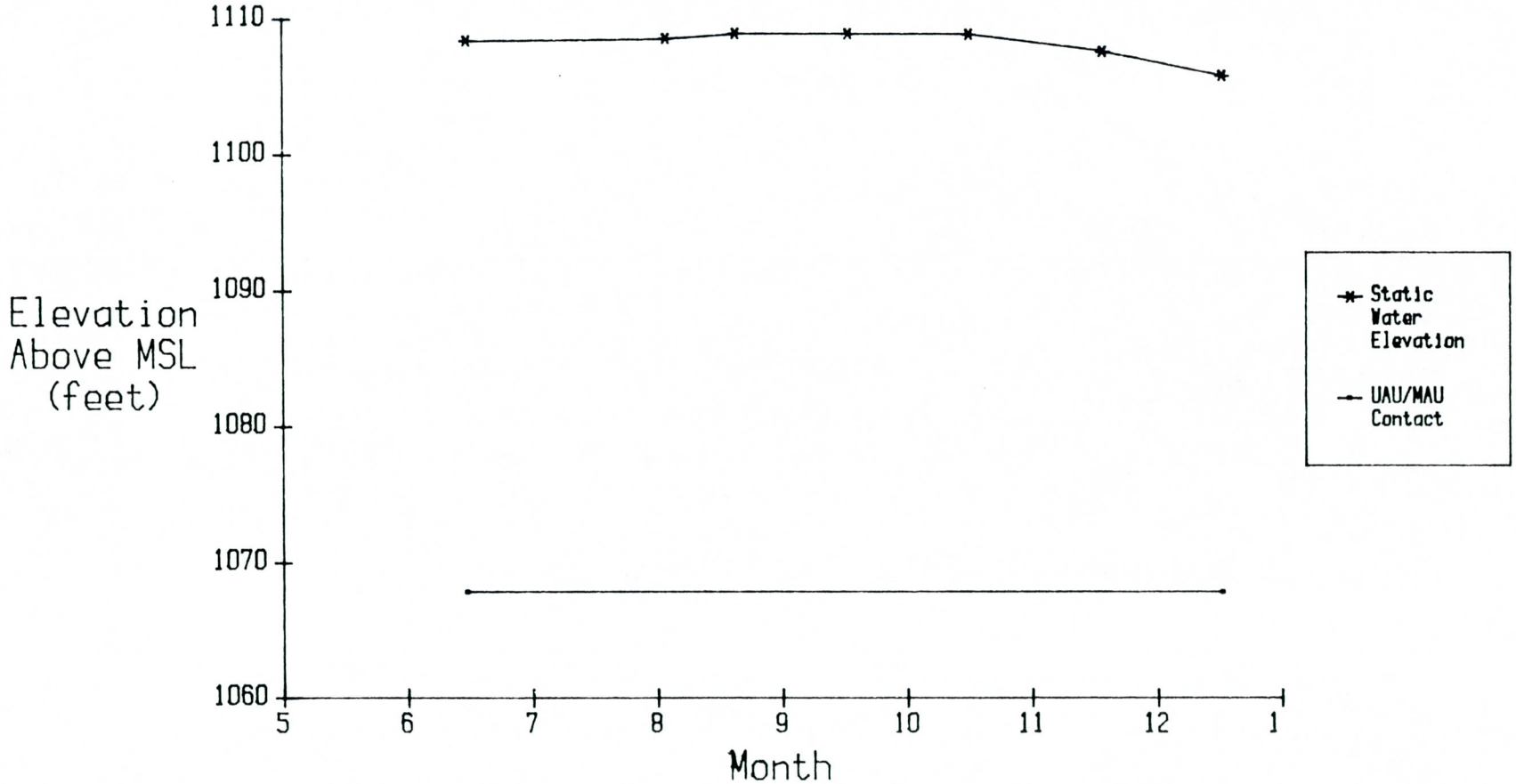

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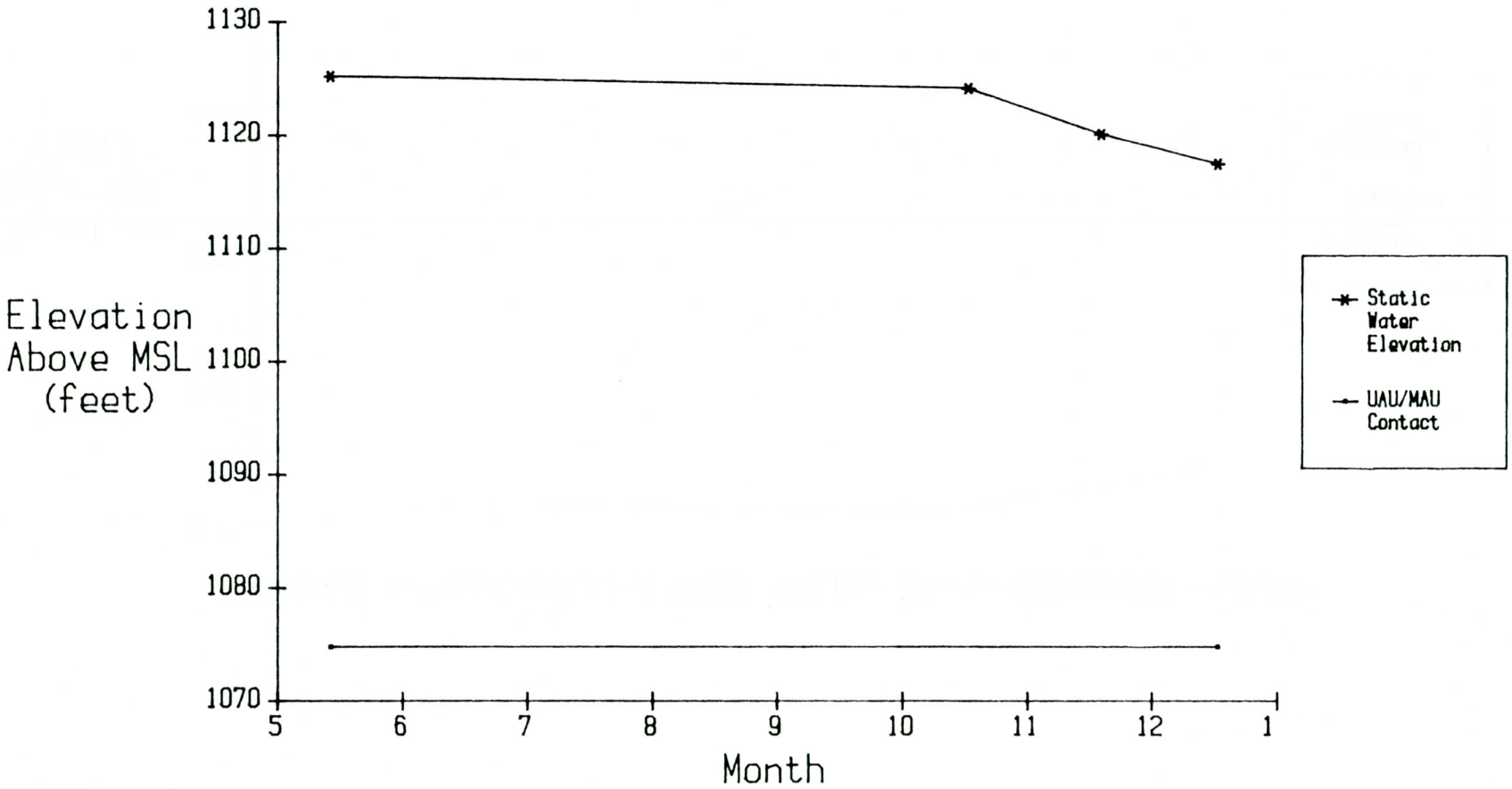

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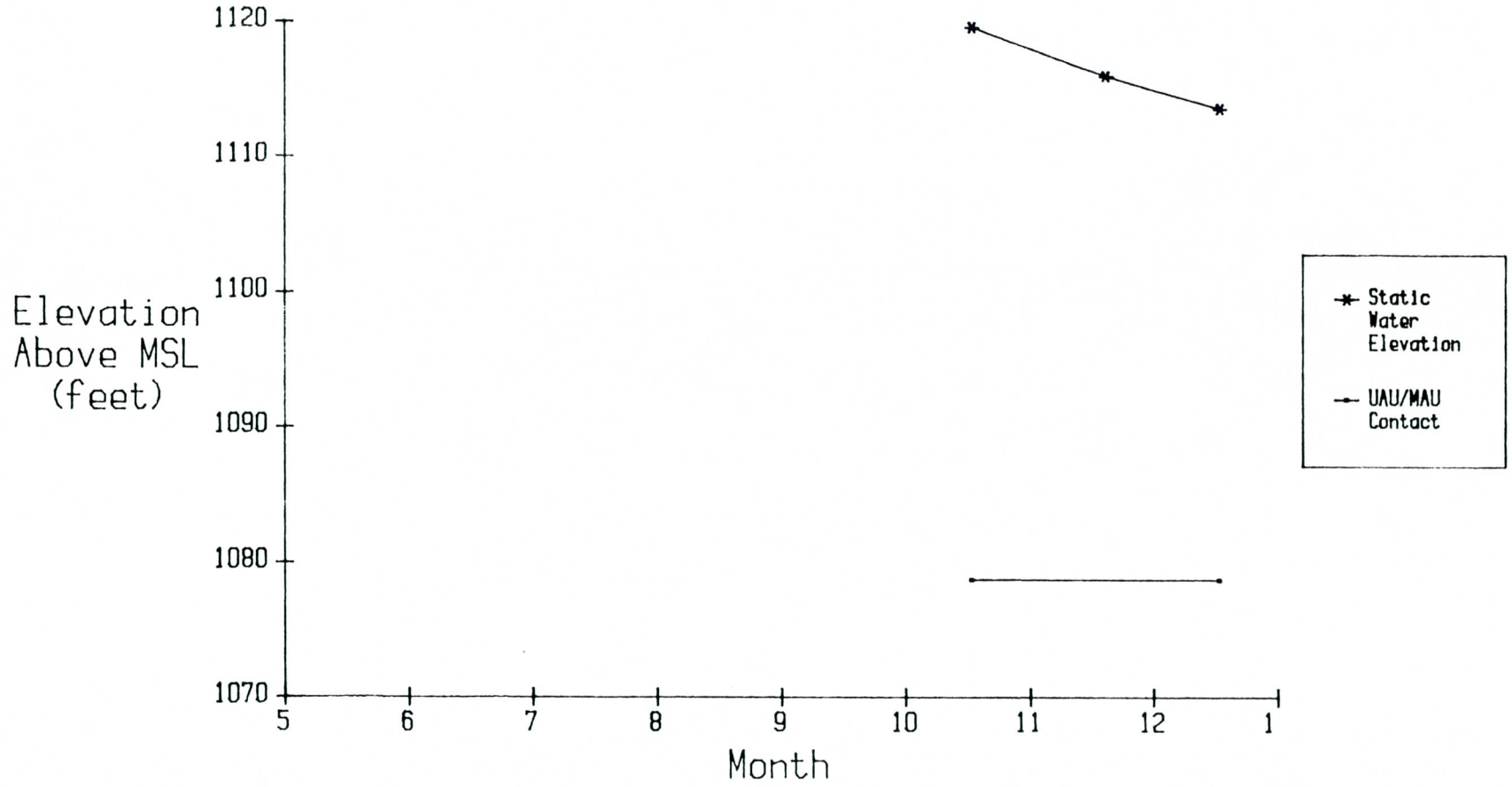

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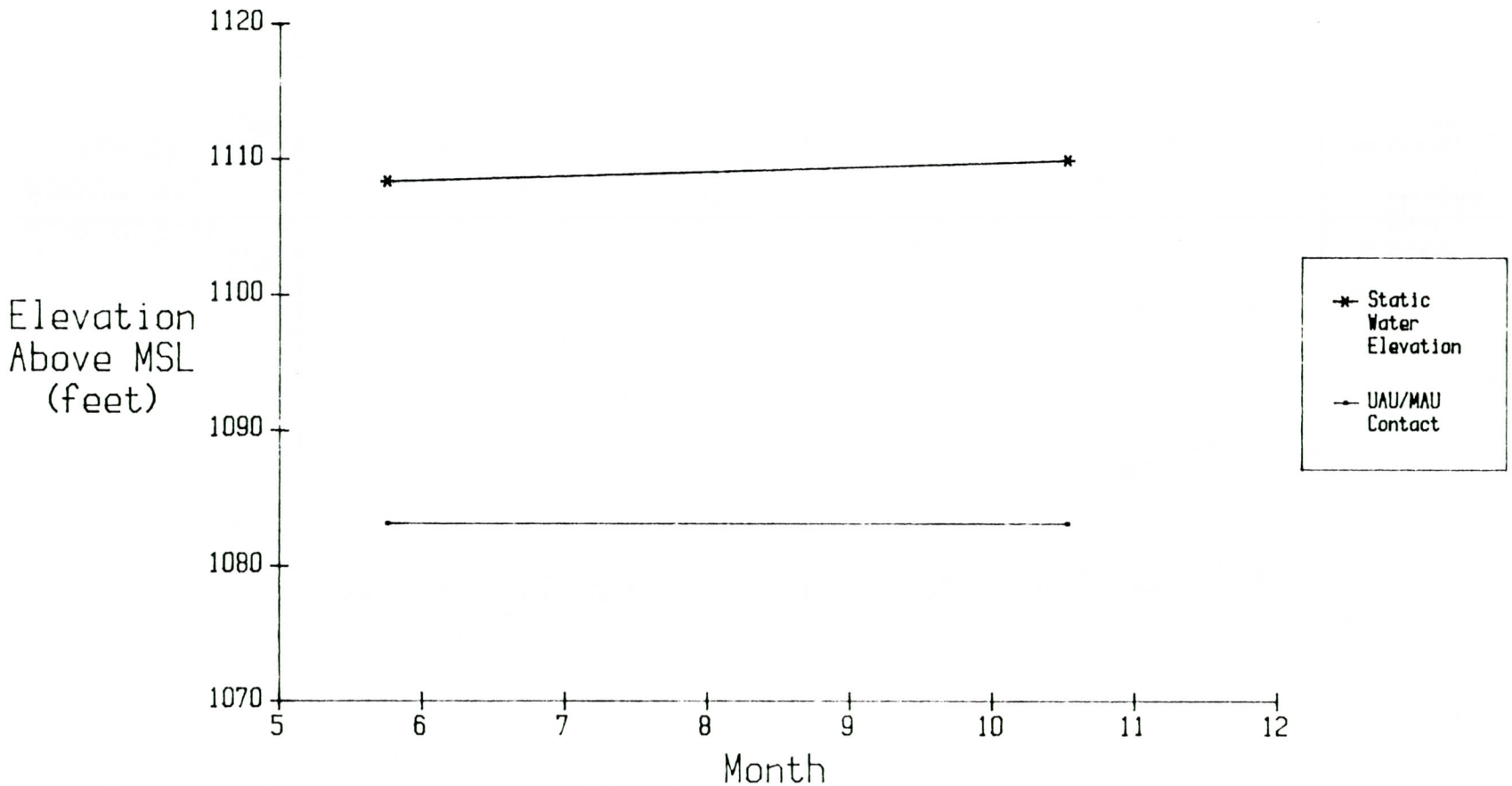

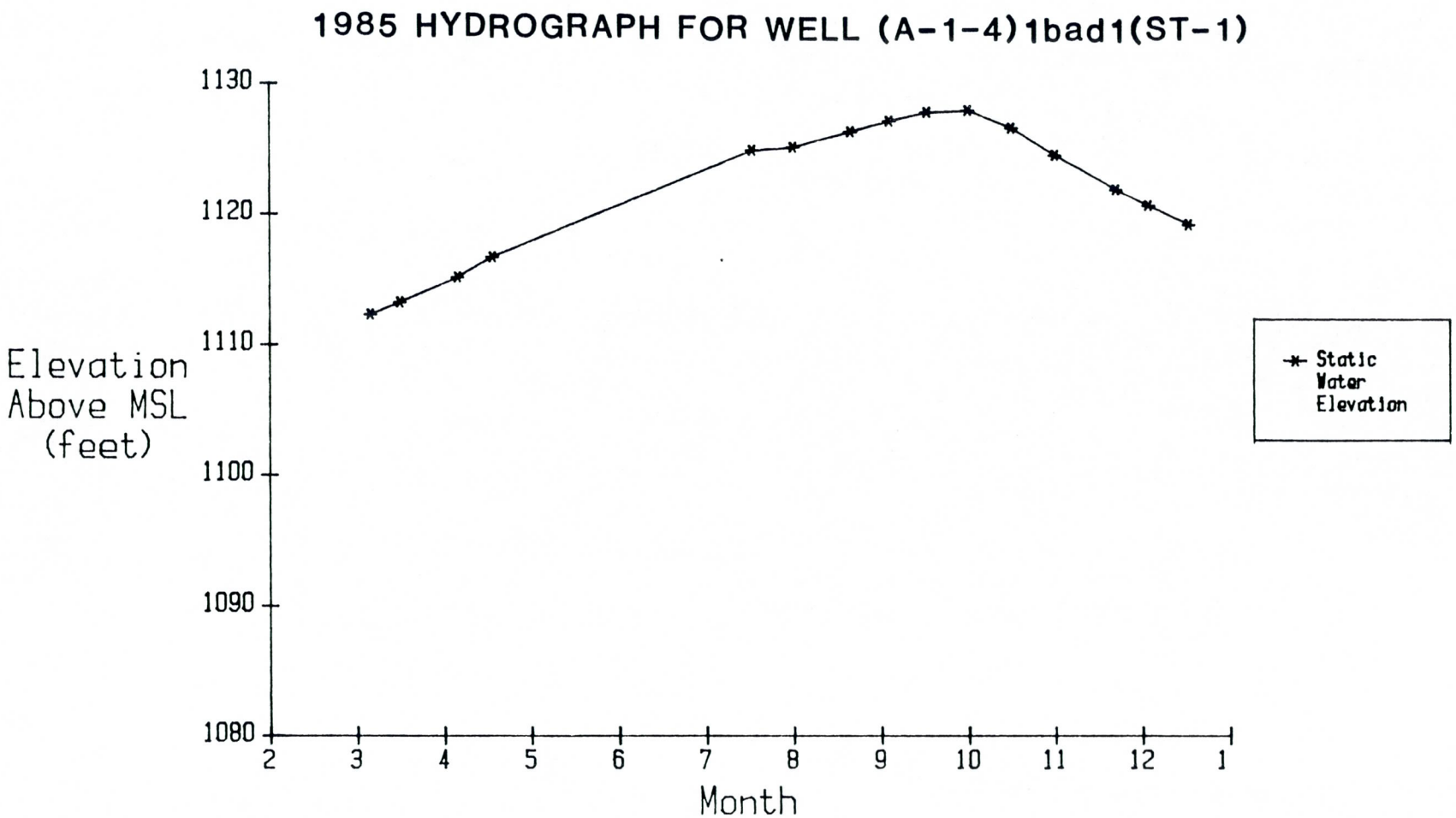
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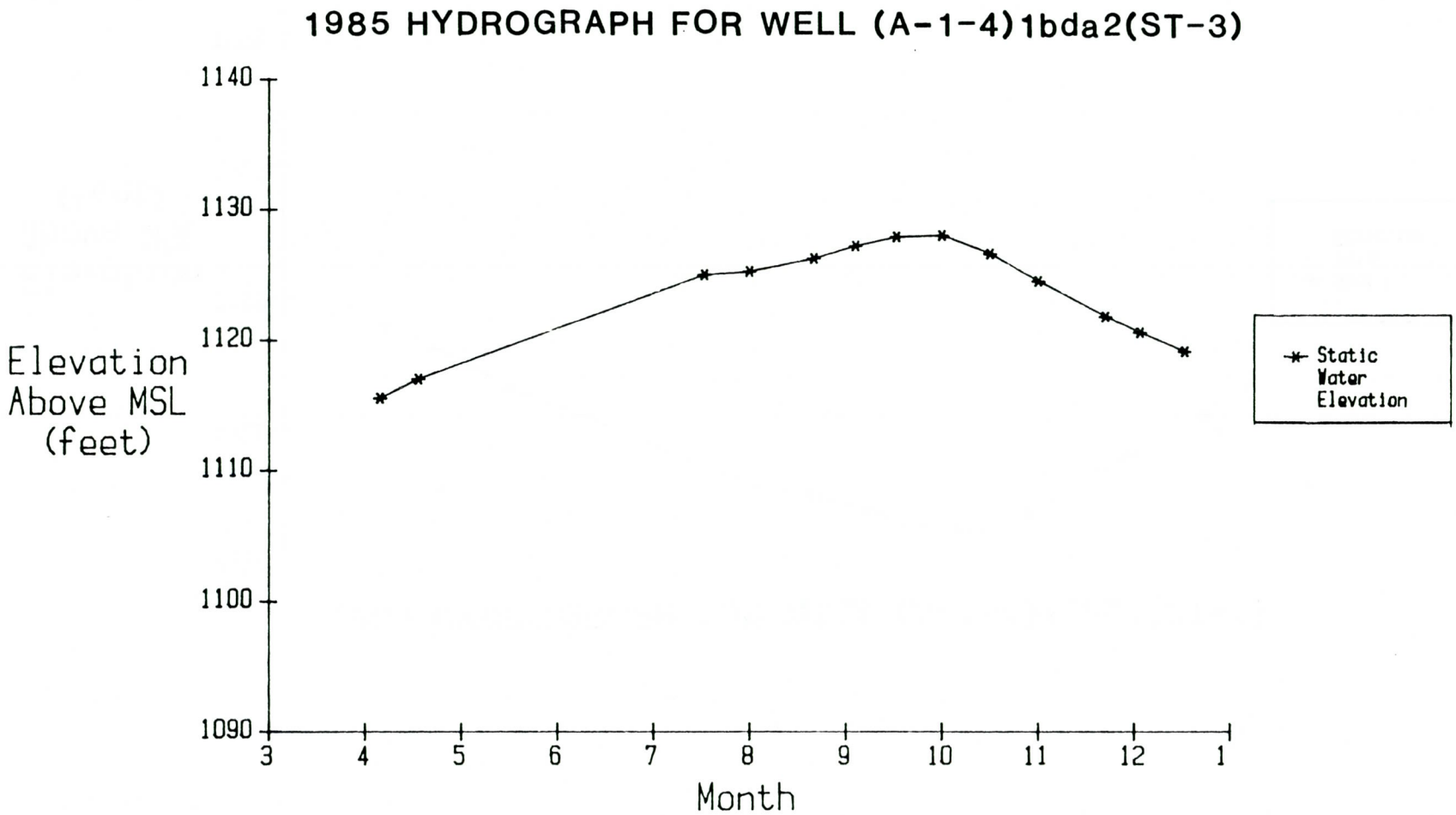
Elevation Above MSL (feet)
1130
1120
1110
1100
1090
1080
2
3
4
5
6
7
8
9
10
11
12
1
Month
Static Water Elevation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Elevation Above MSL (feet)
1140
1130
1120
1110
1100
1090
3
4
5
6
7
8
9
10
11
12
1
Month
Static Water Elevation

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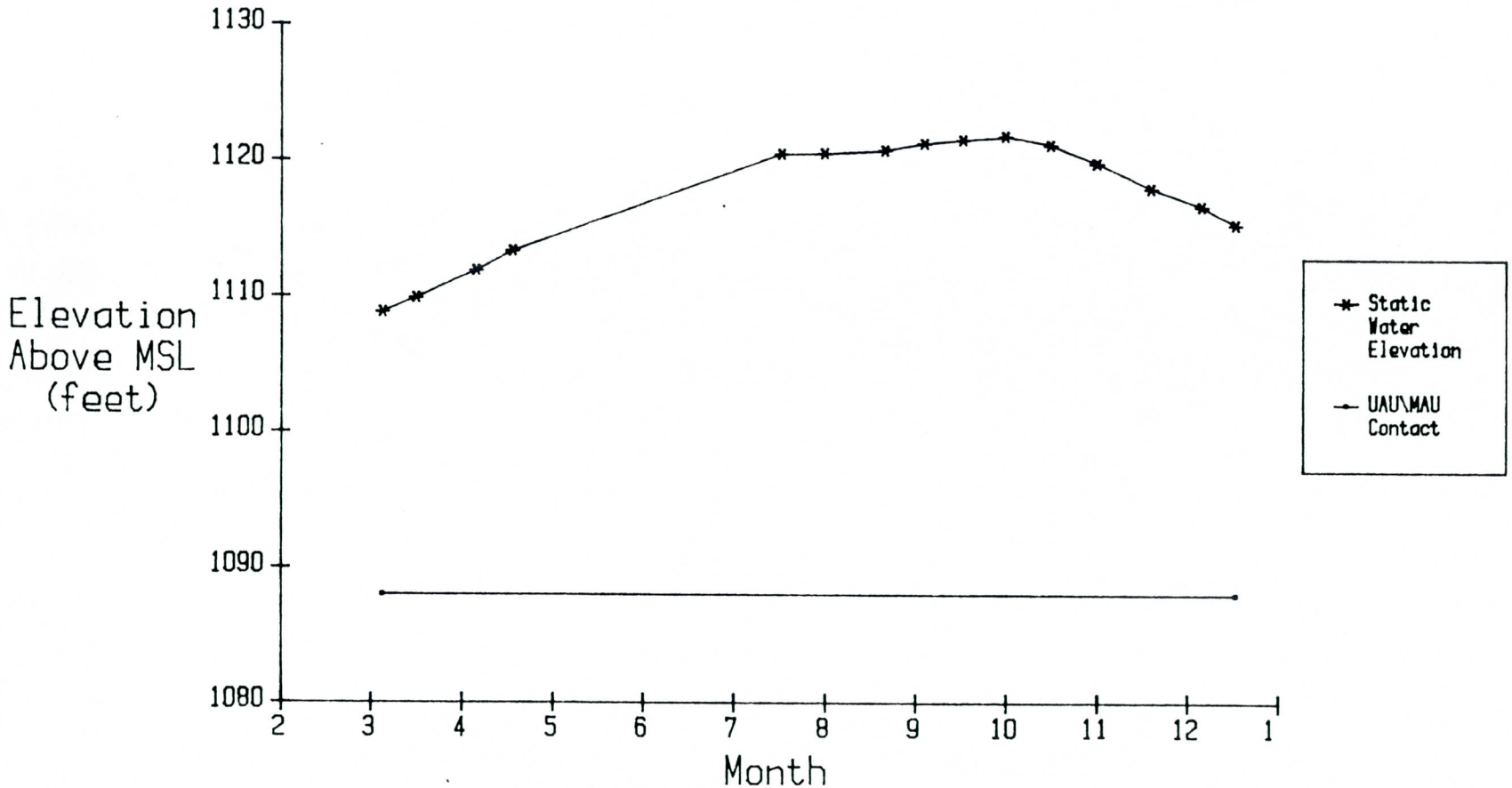

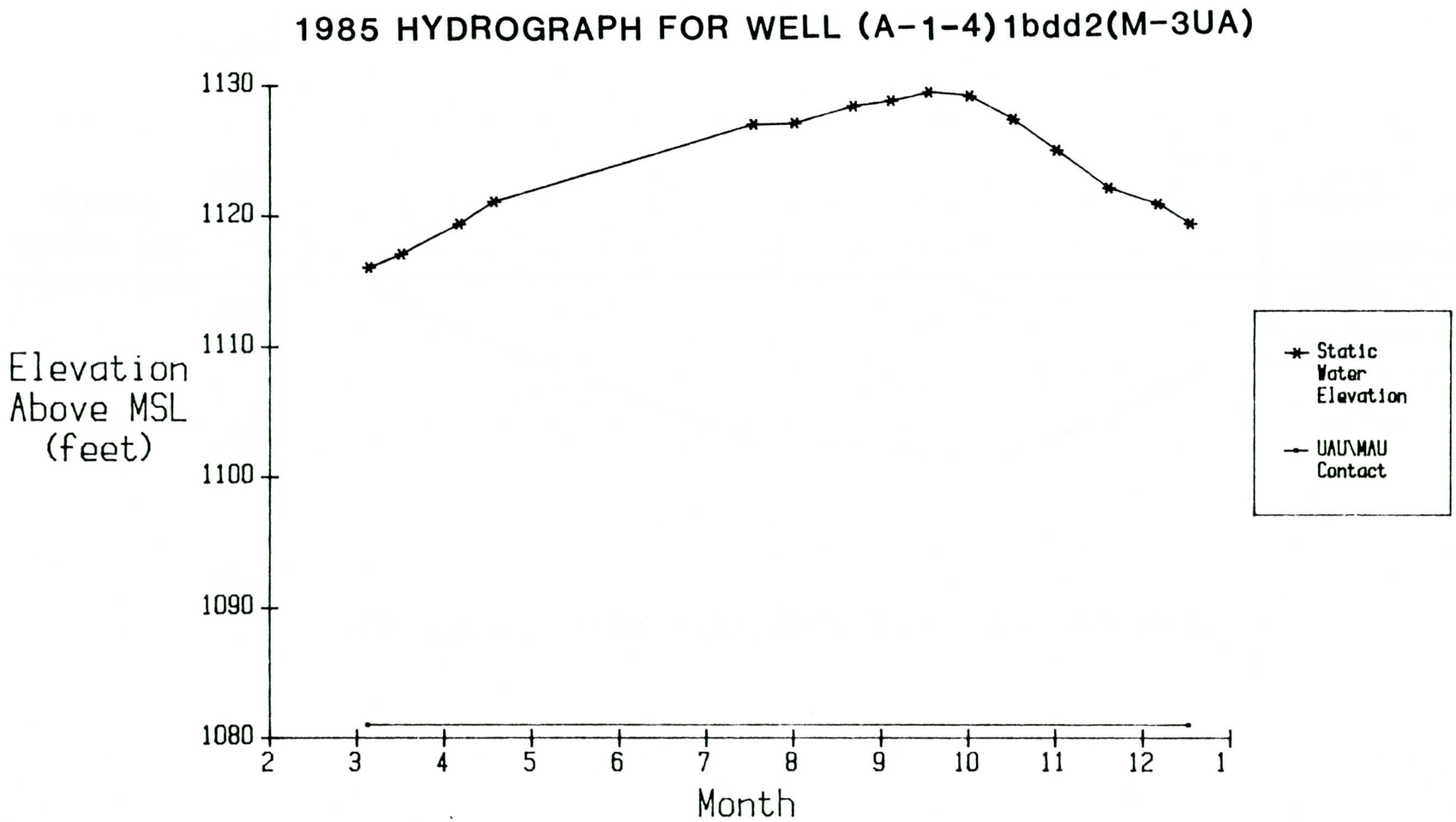
1985 HYDROGRAPH FOR WELL (A-1-4)1bdd2(M-3UA)
Elevation Above MSL (feet)
1130
1120
1110
1100
1090
1080
2
3
4
5
6
7
8
9
10
11
12
1
Month
Static Water Elevation
UAU\MAU Contact

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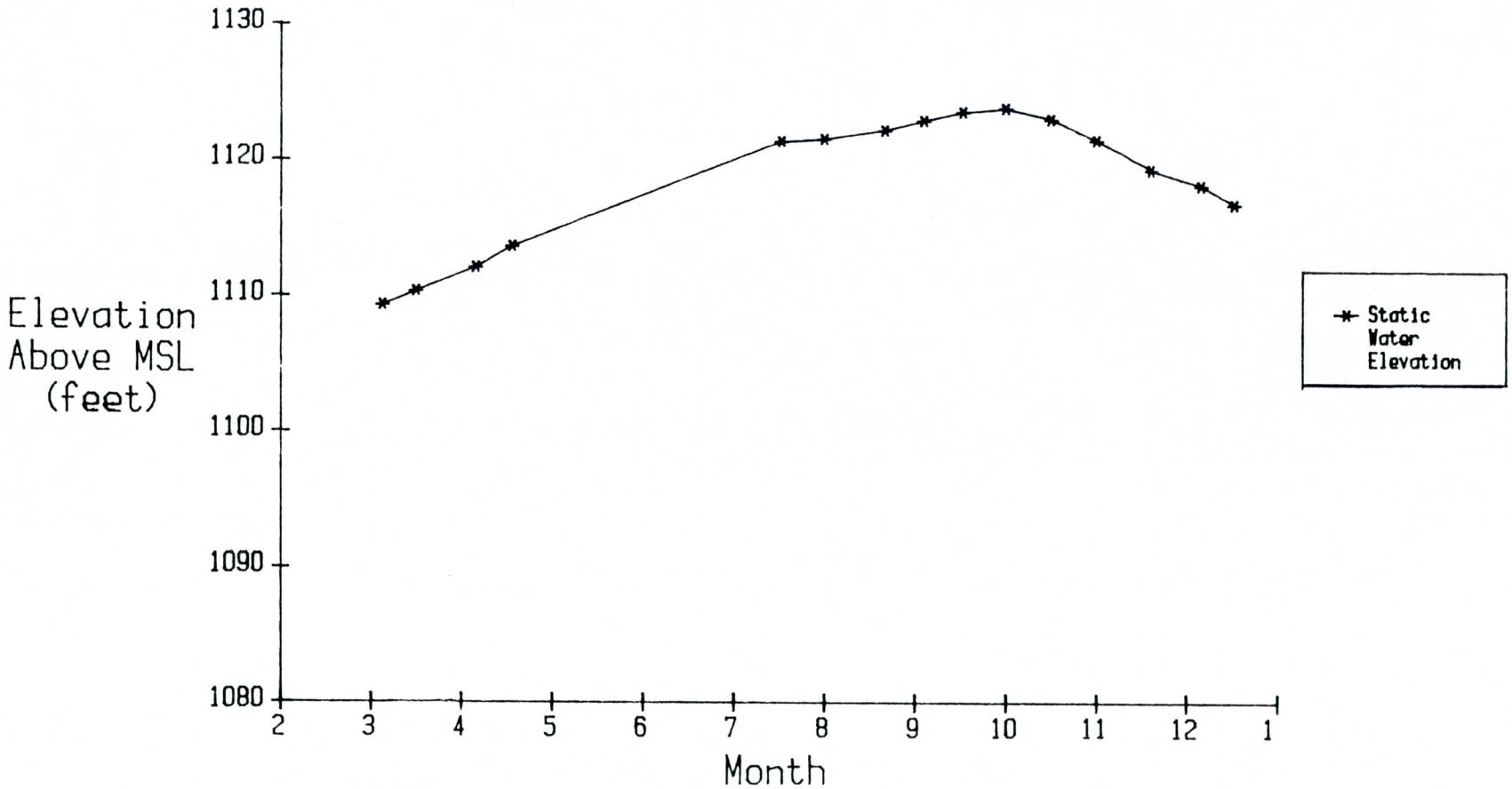

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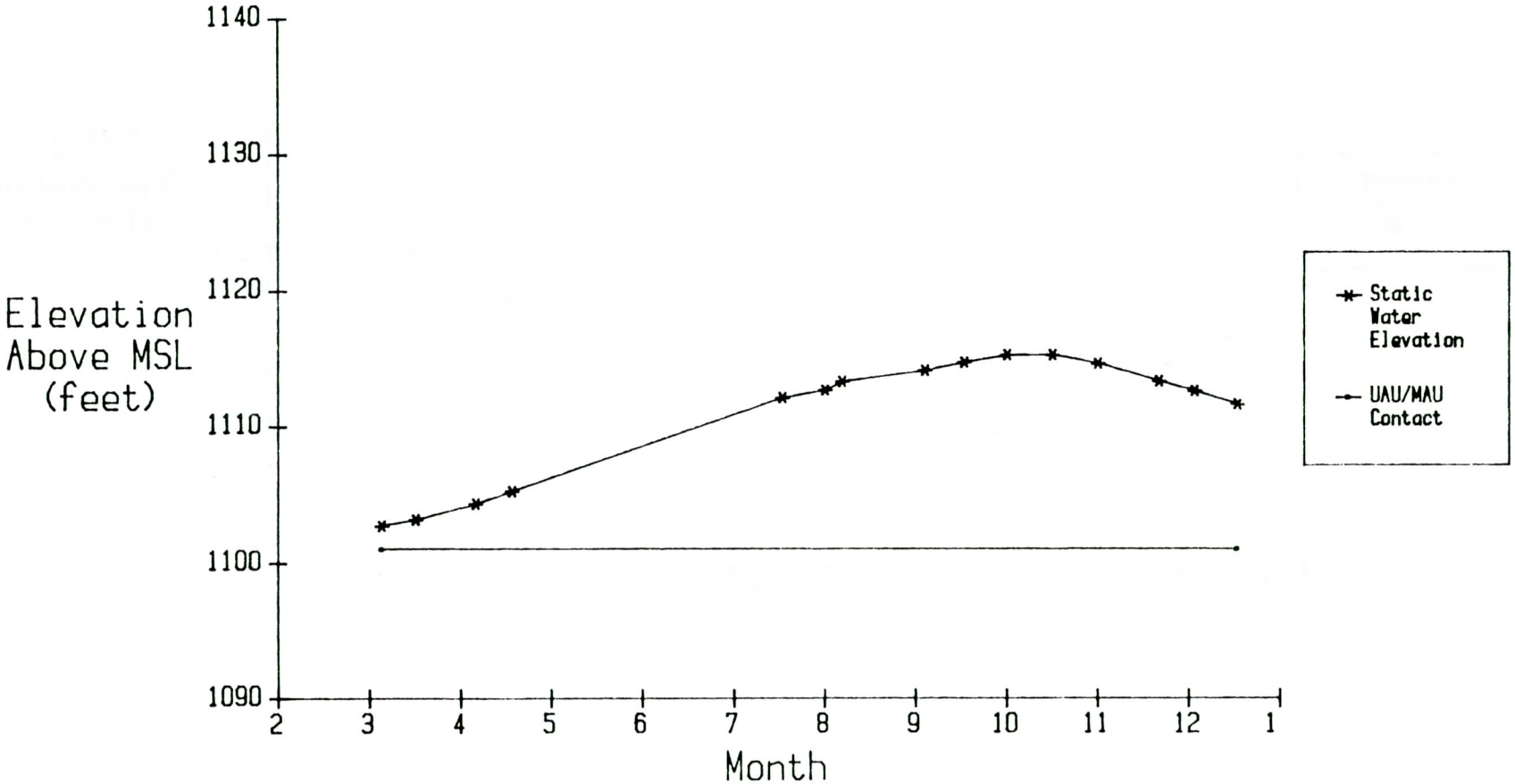

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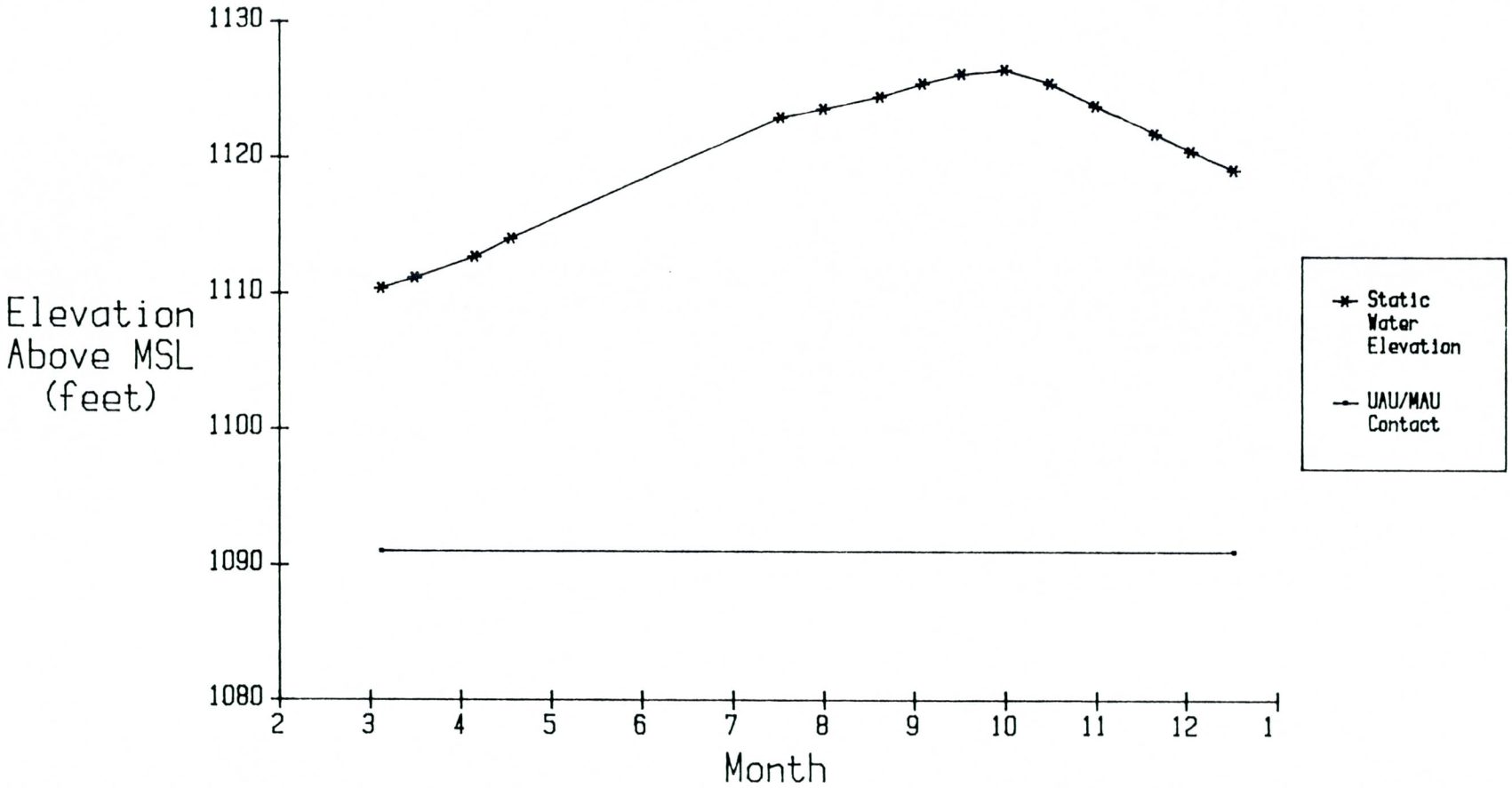

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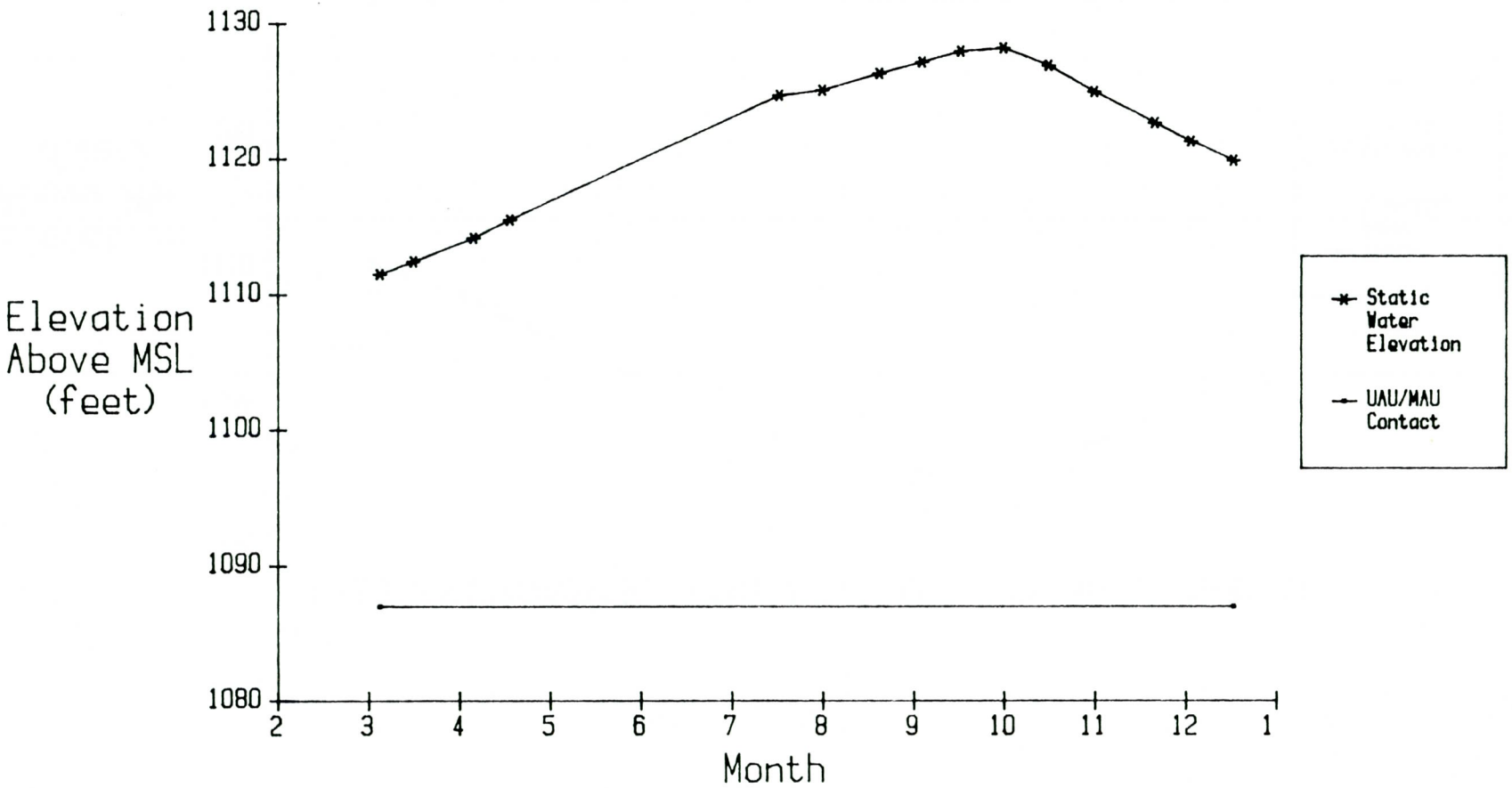

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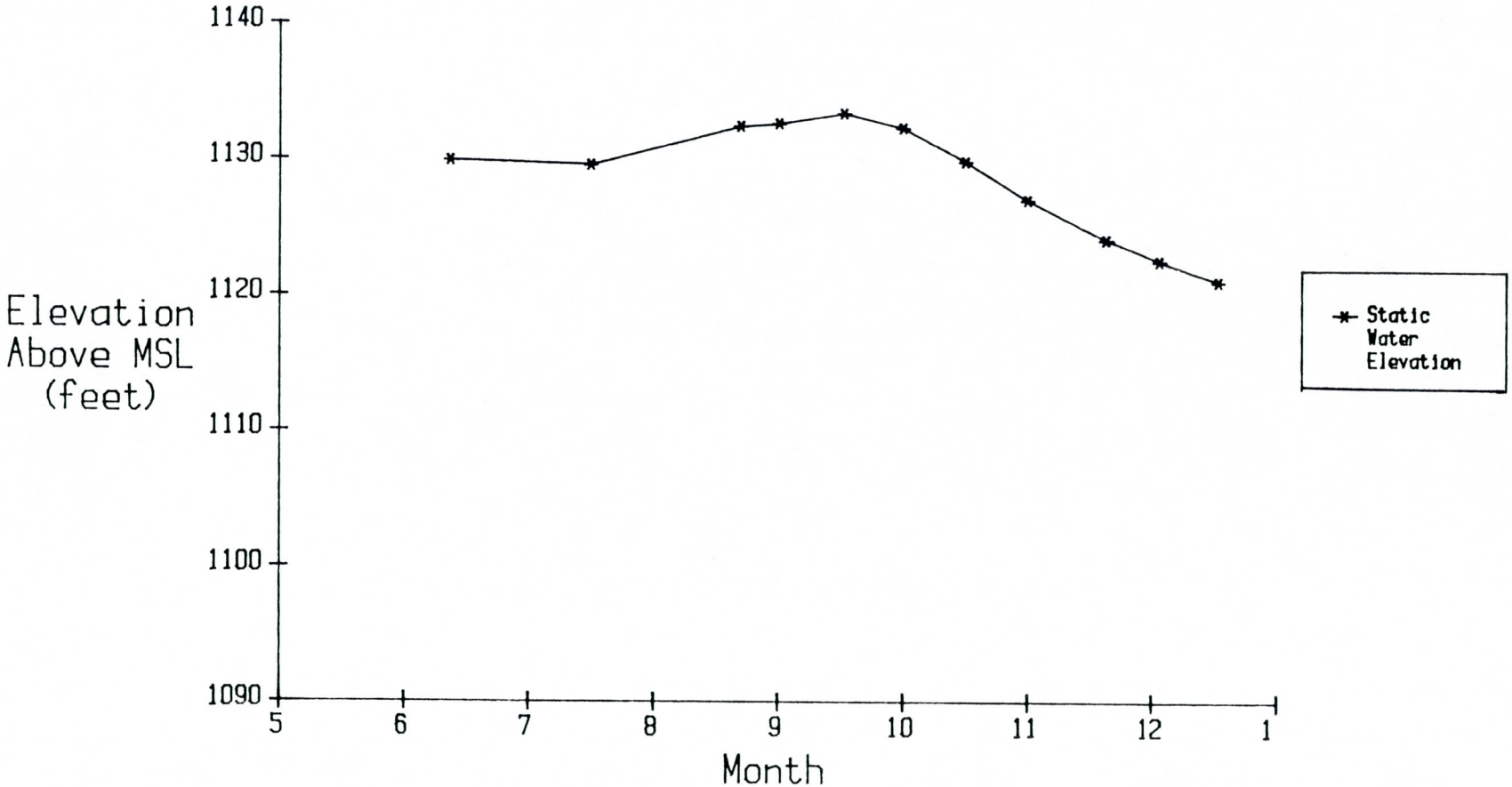

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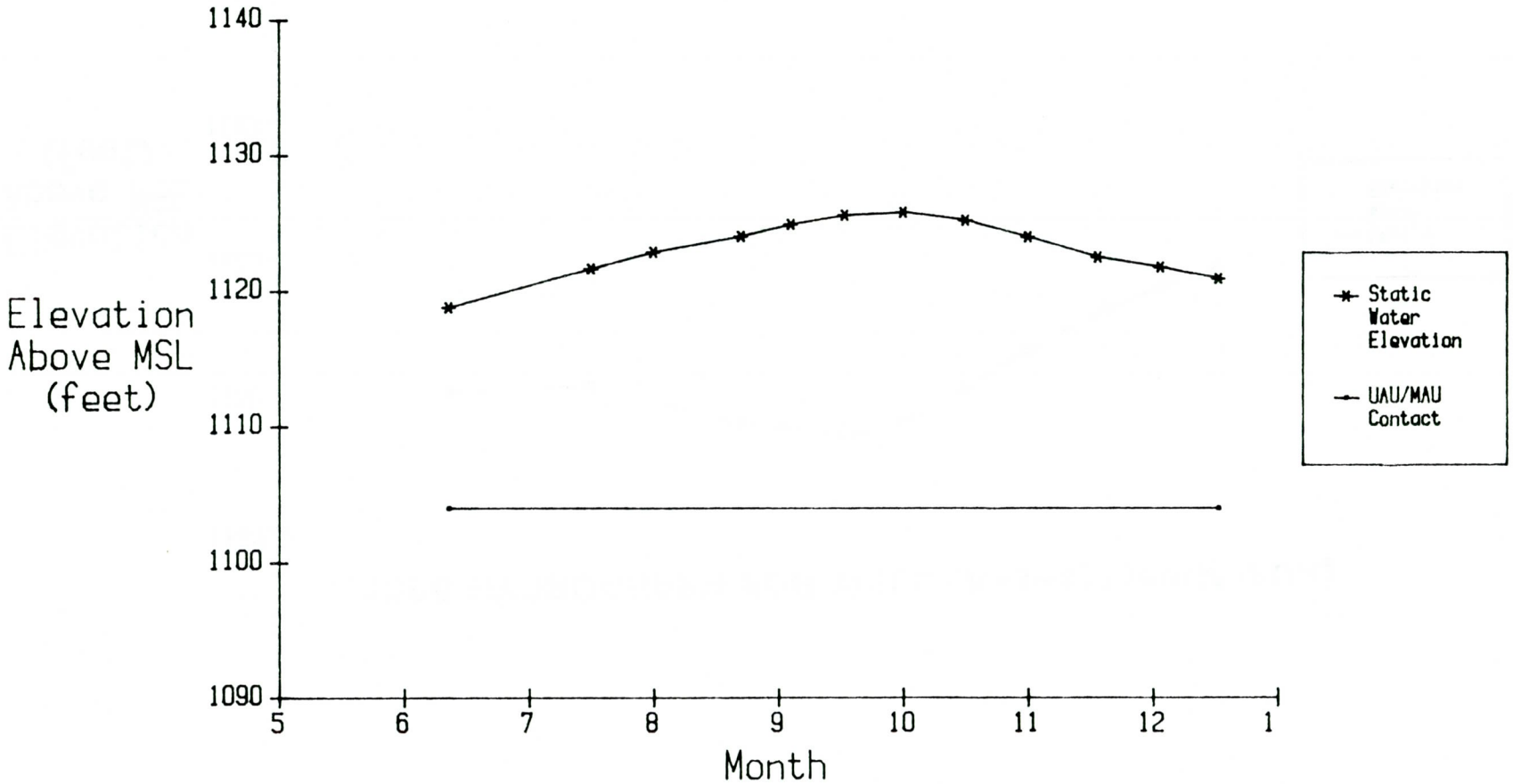

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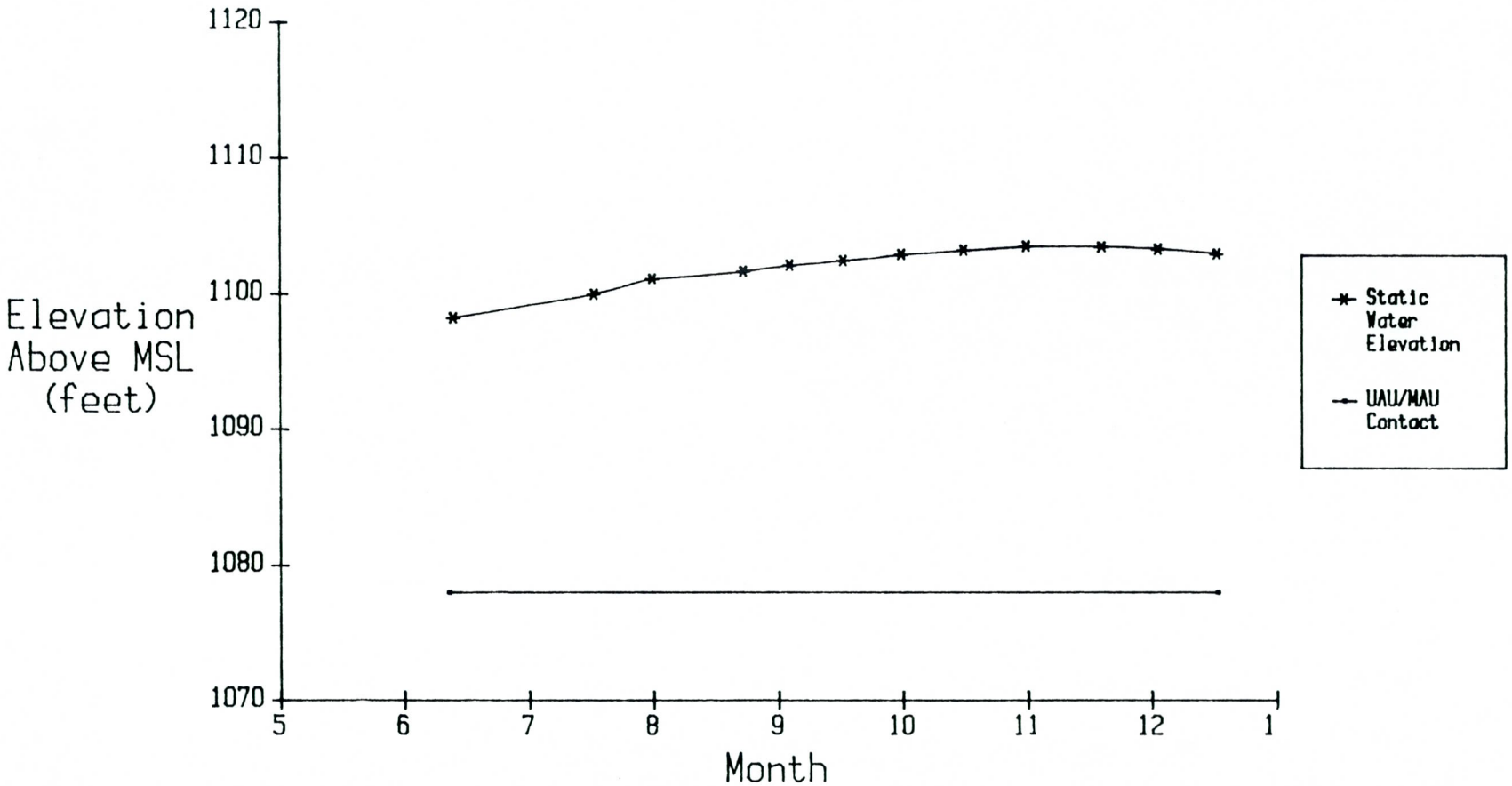

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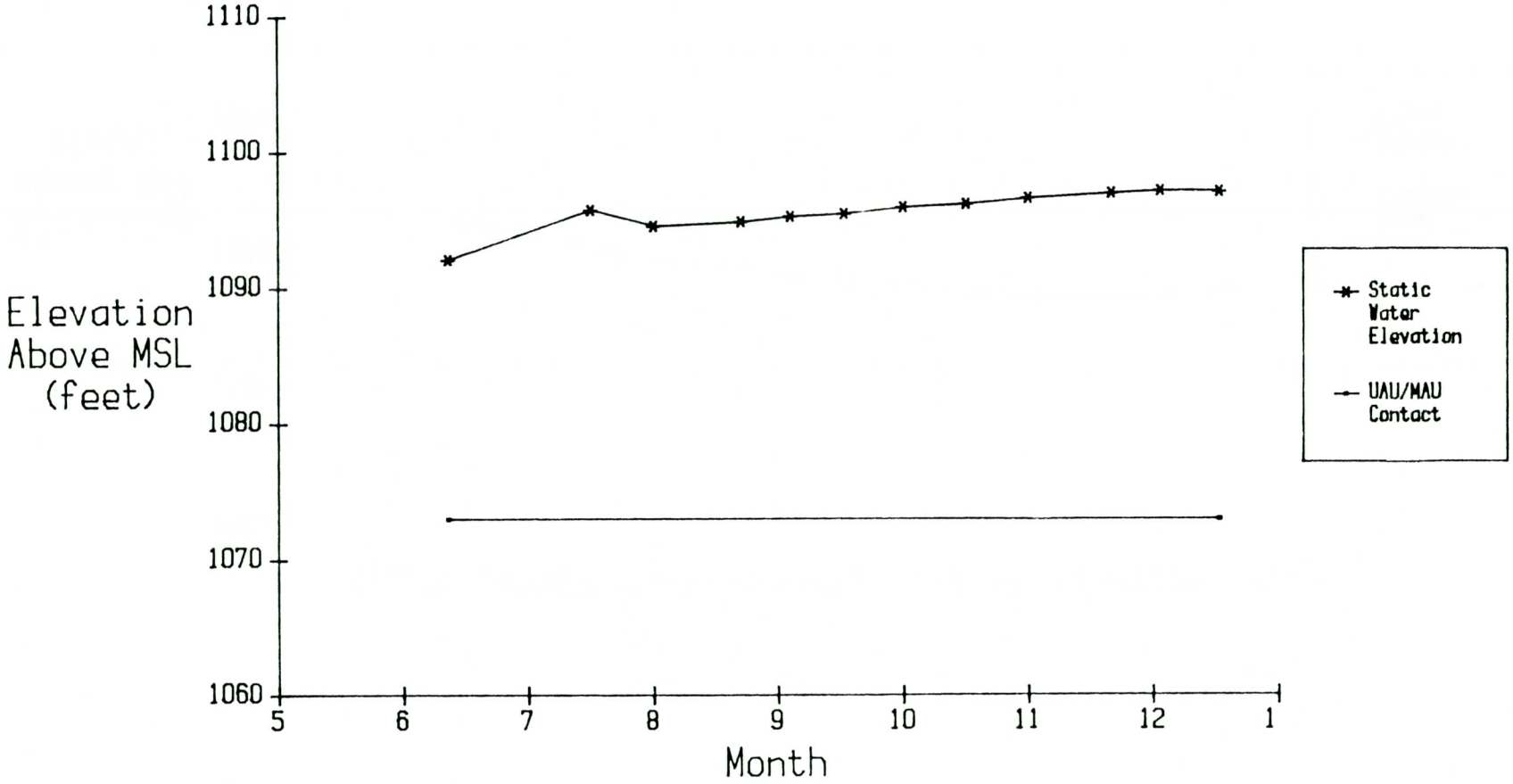

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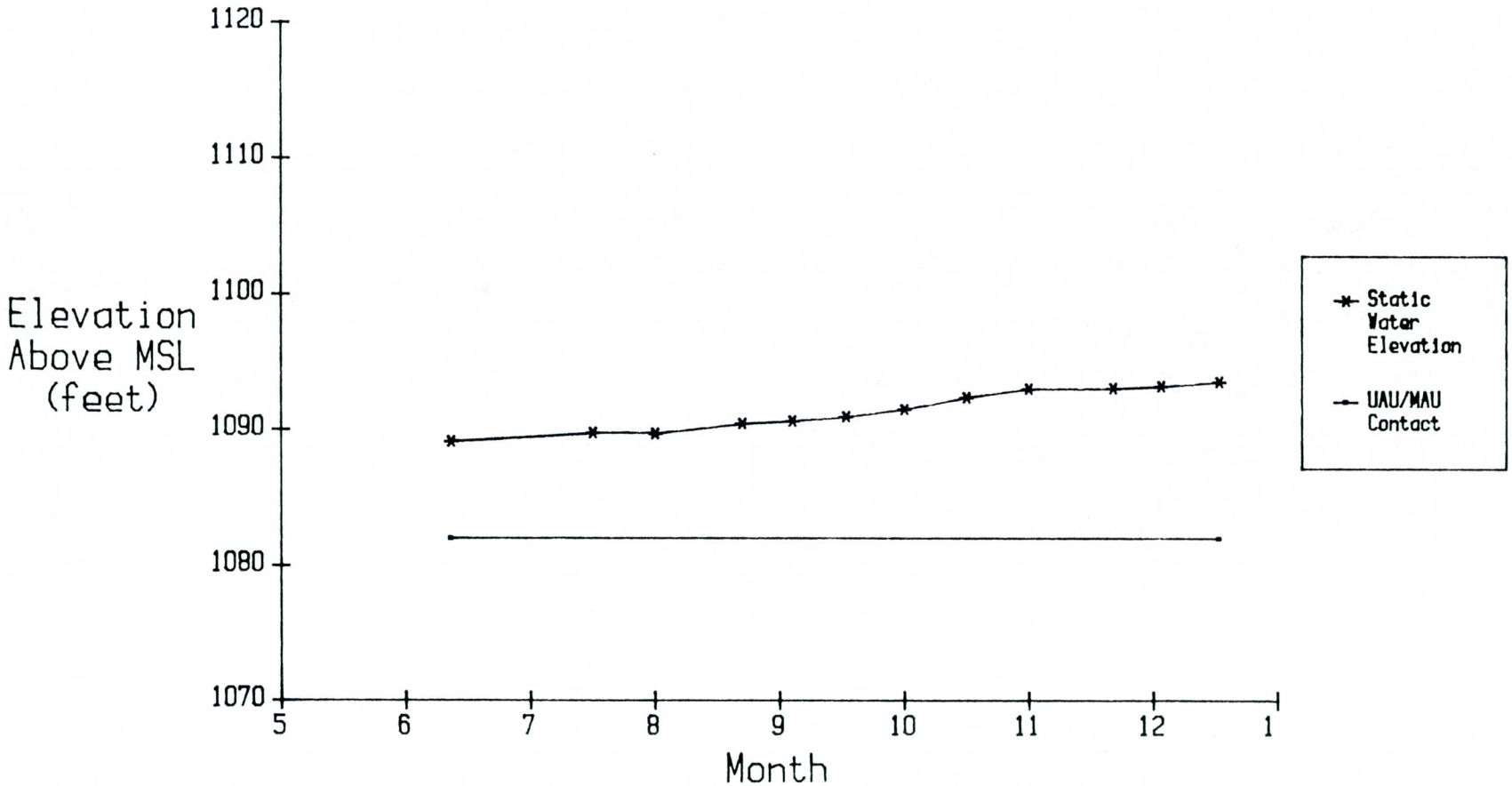

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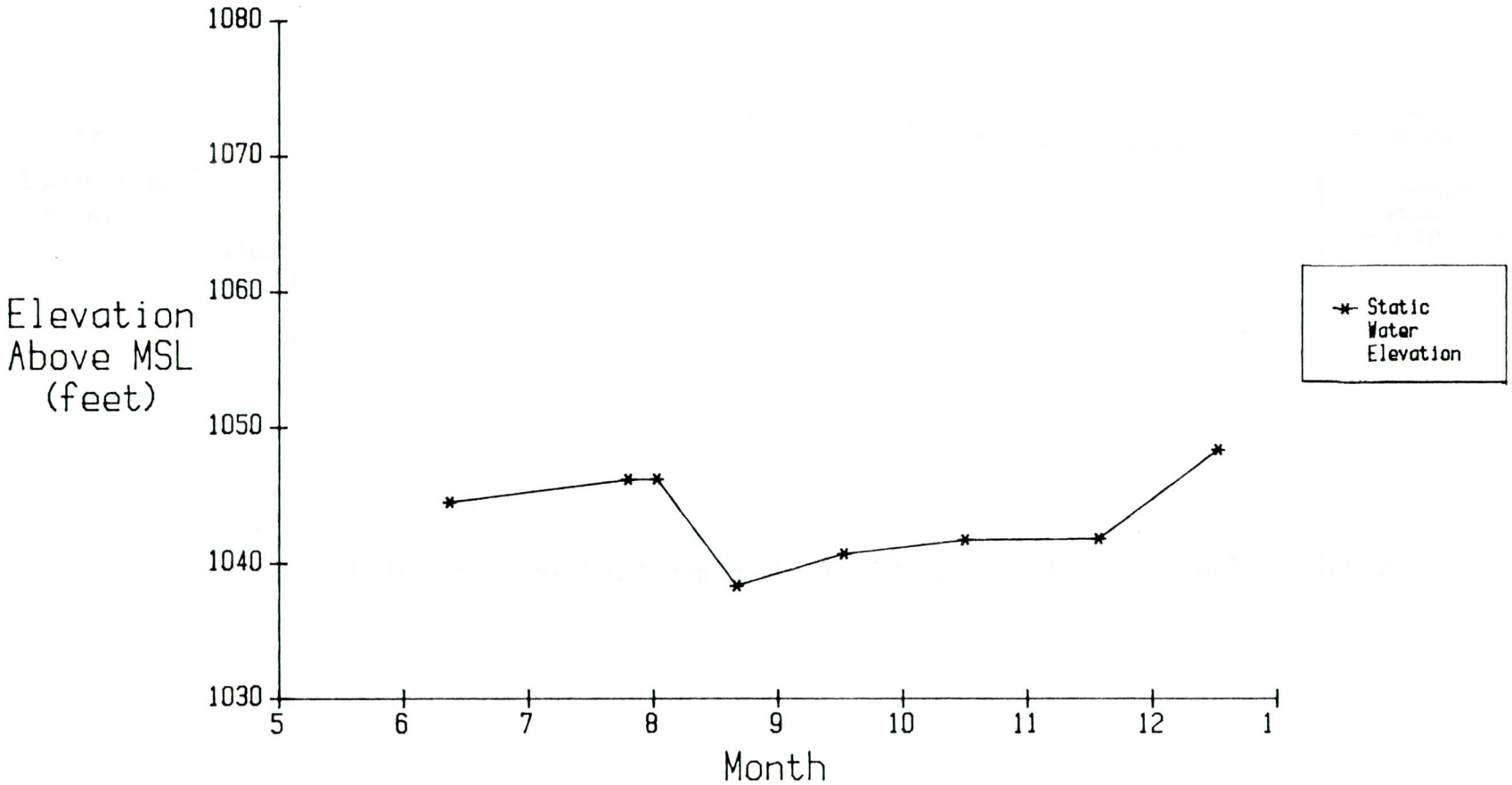

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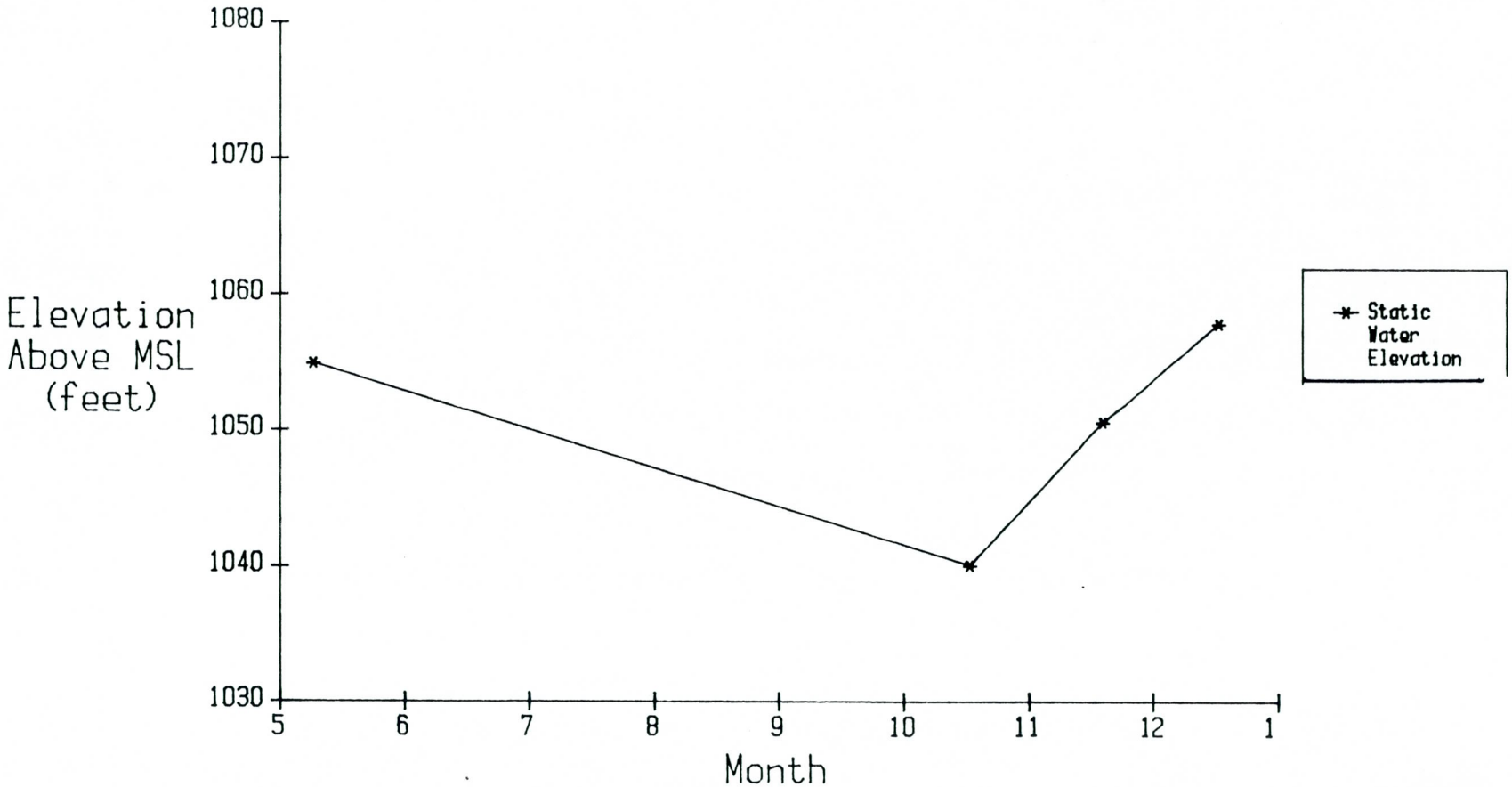

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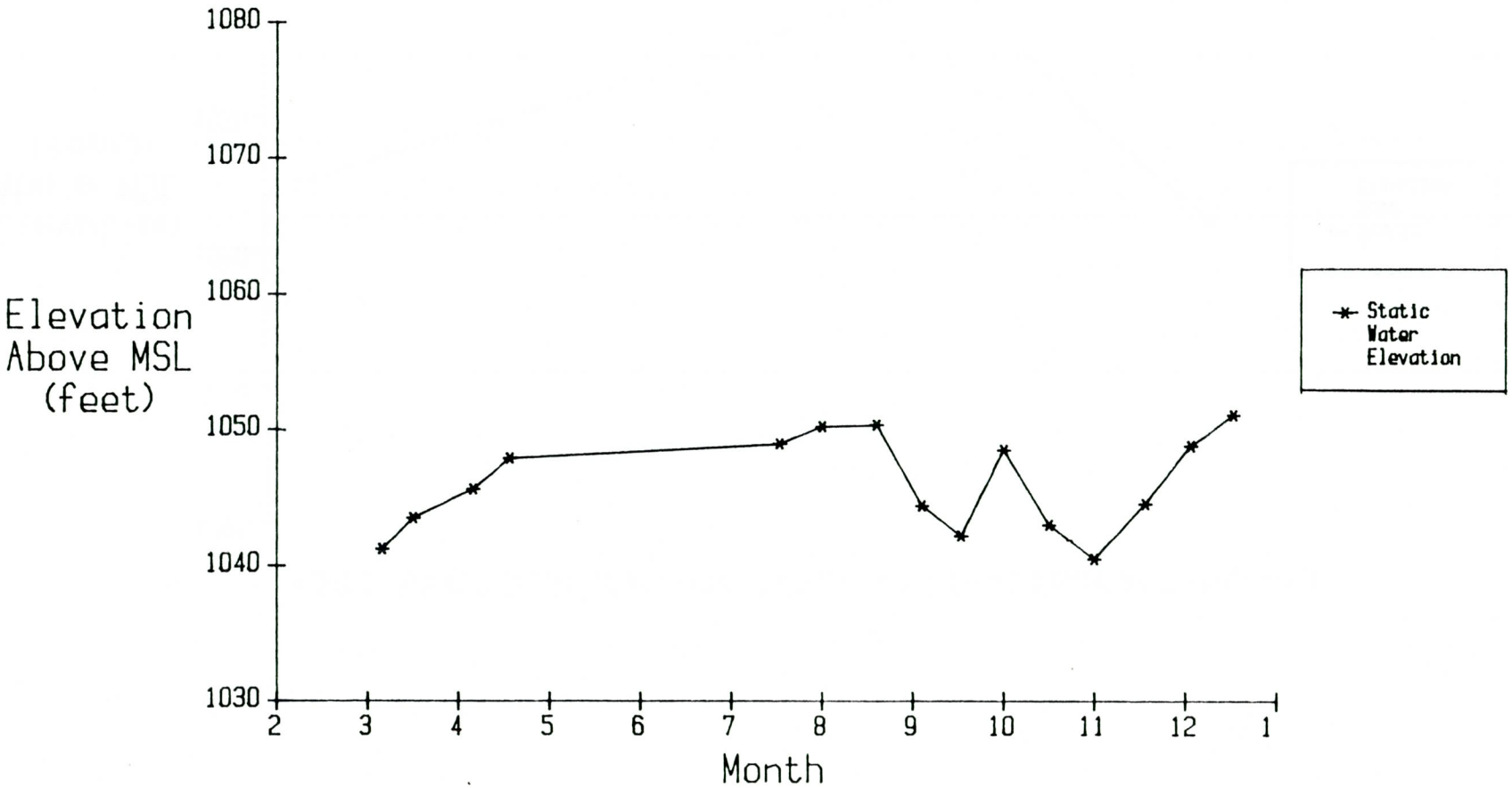

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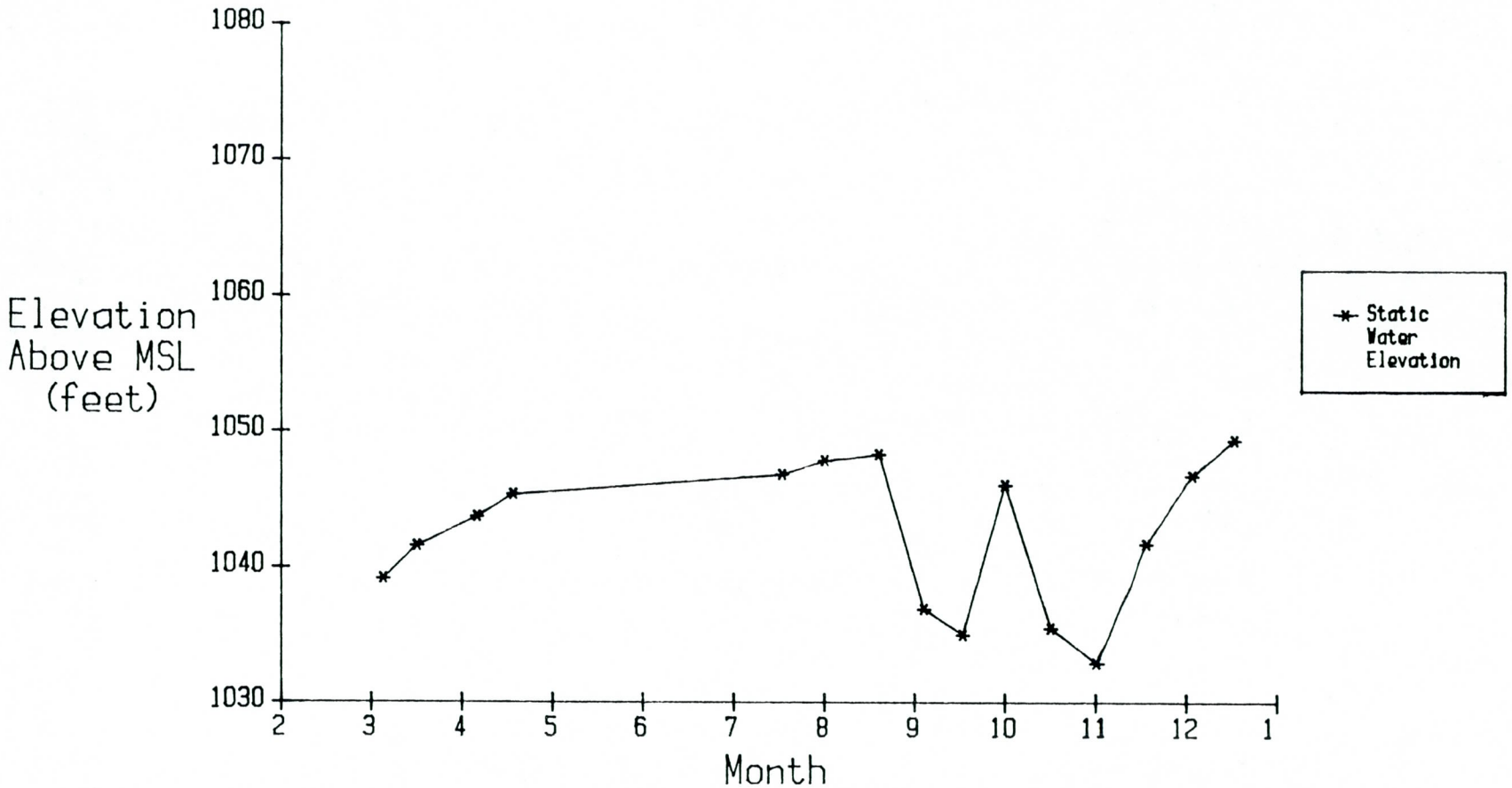

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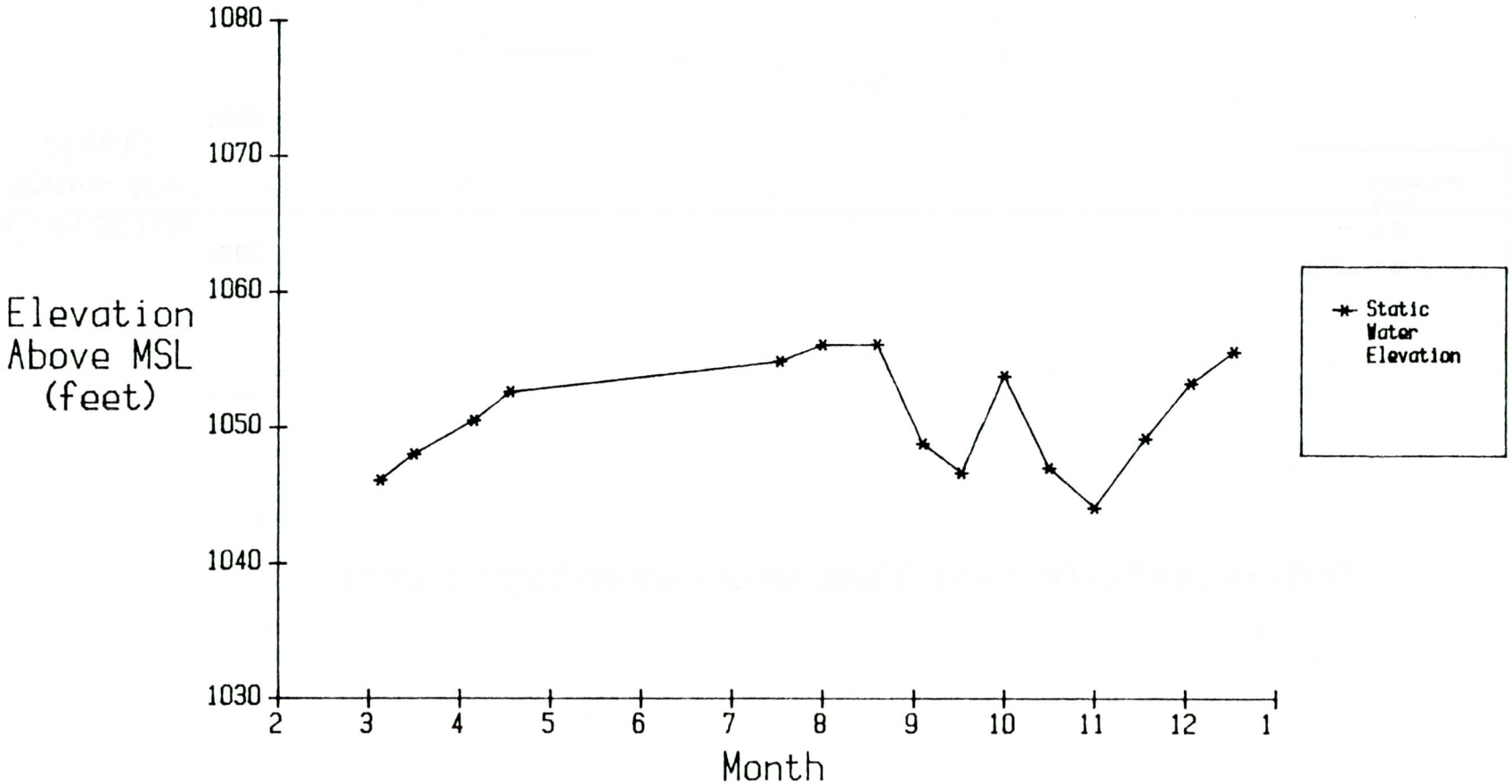

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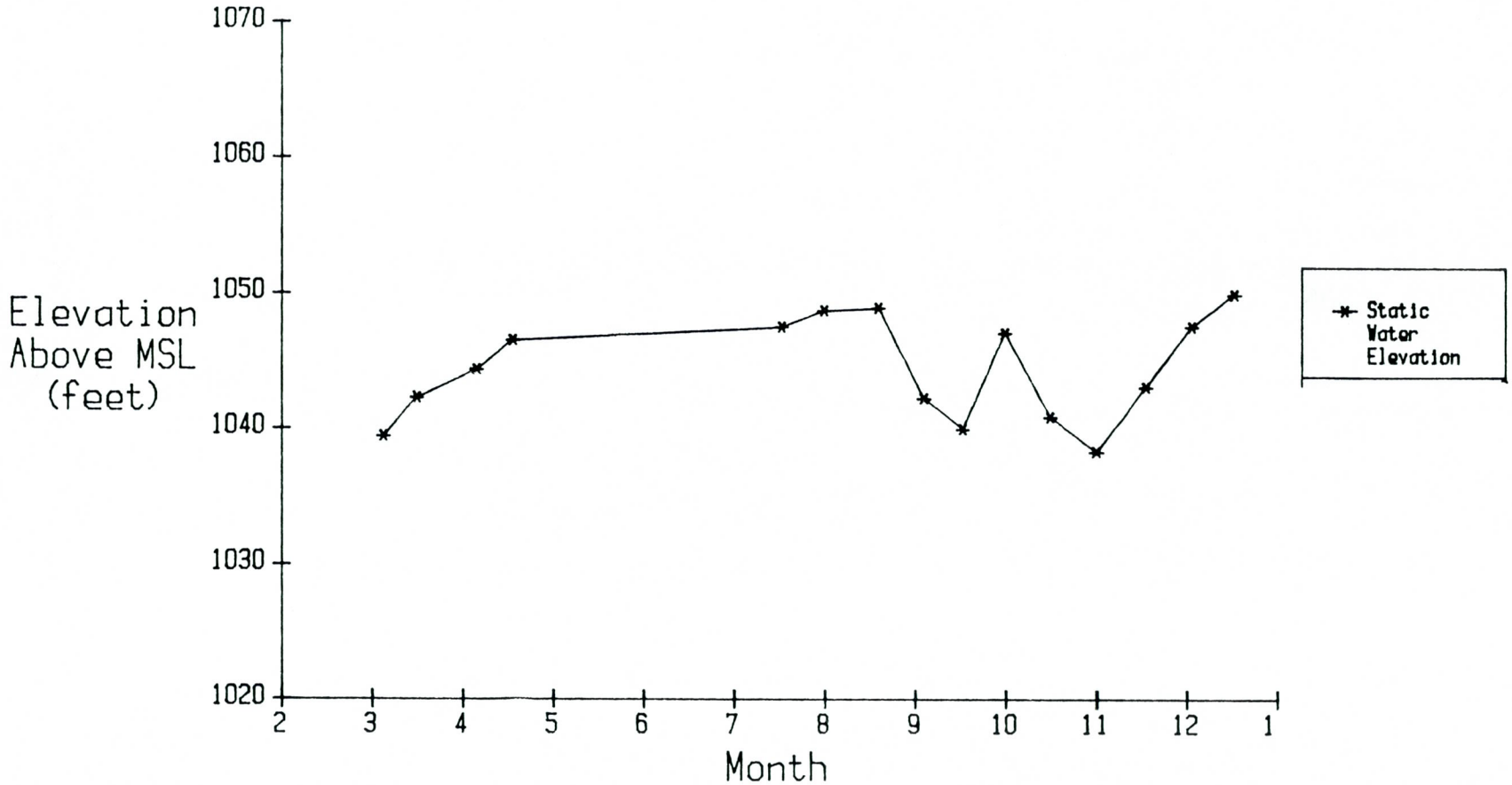

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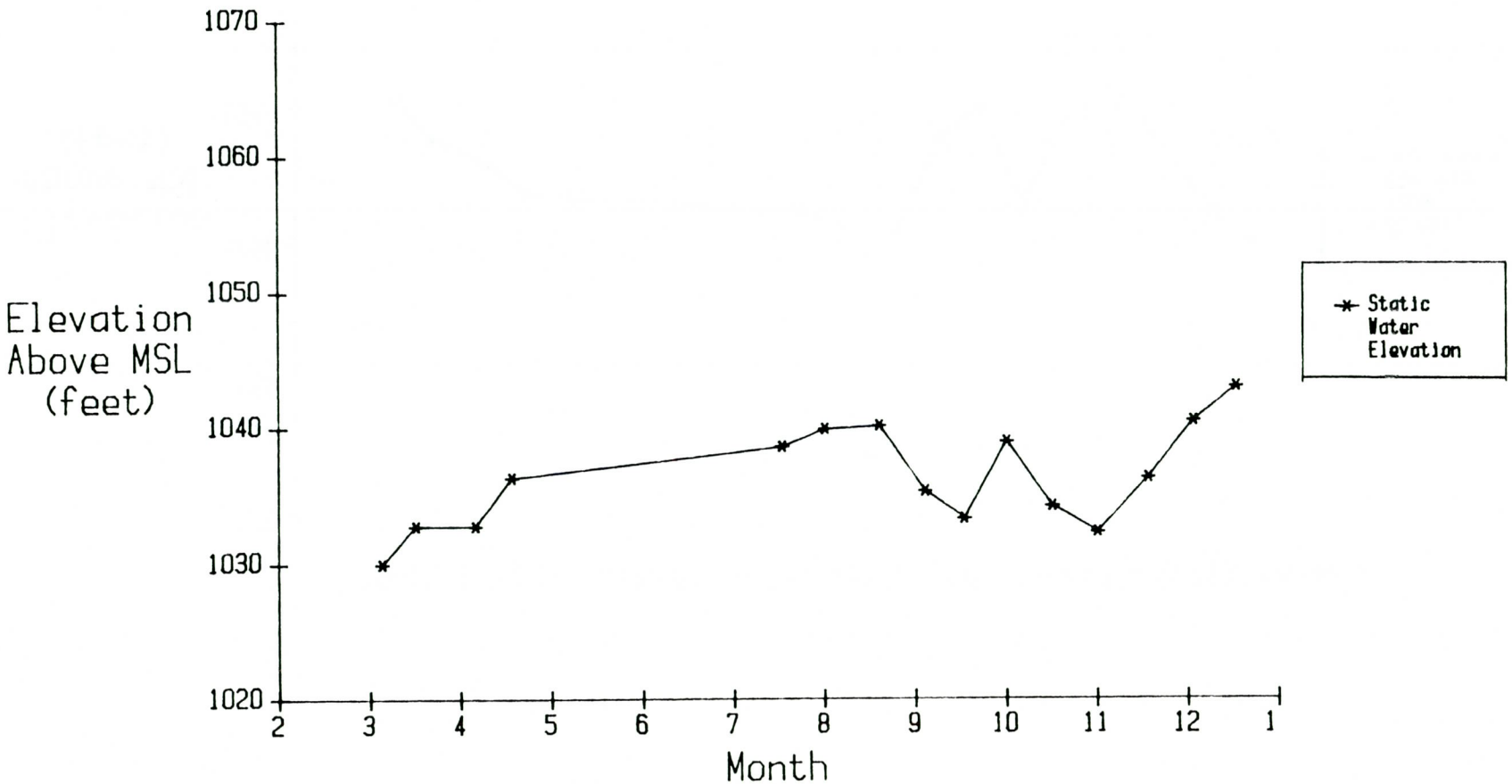

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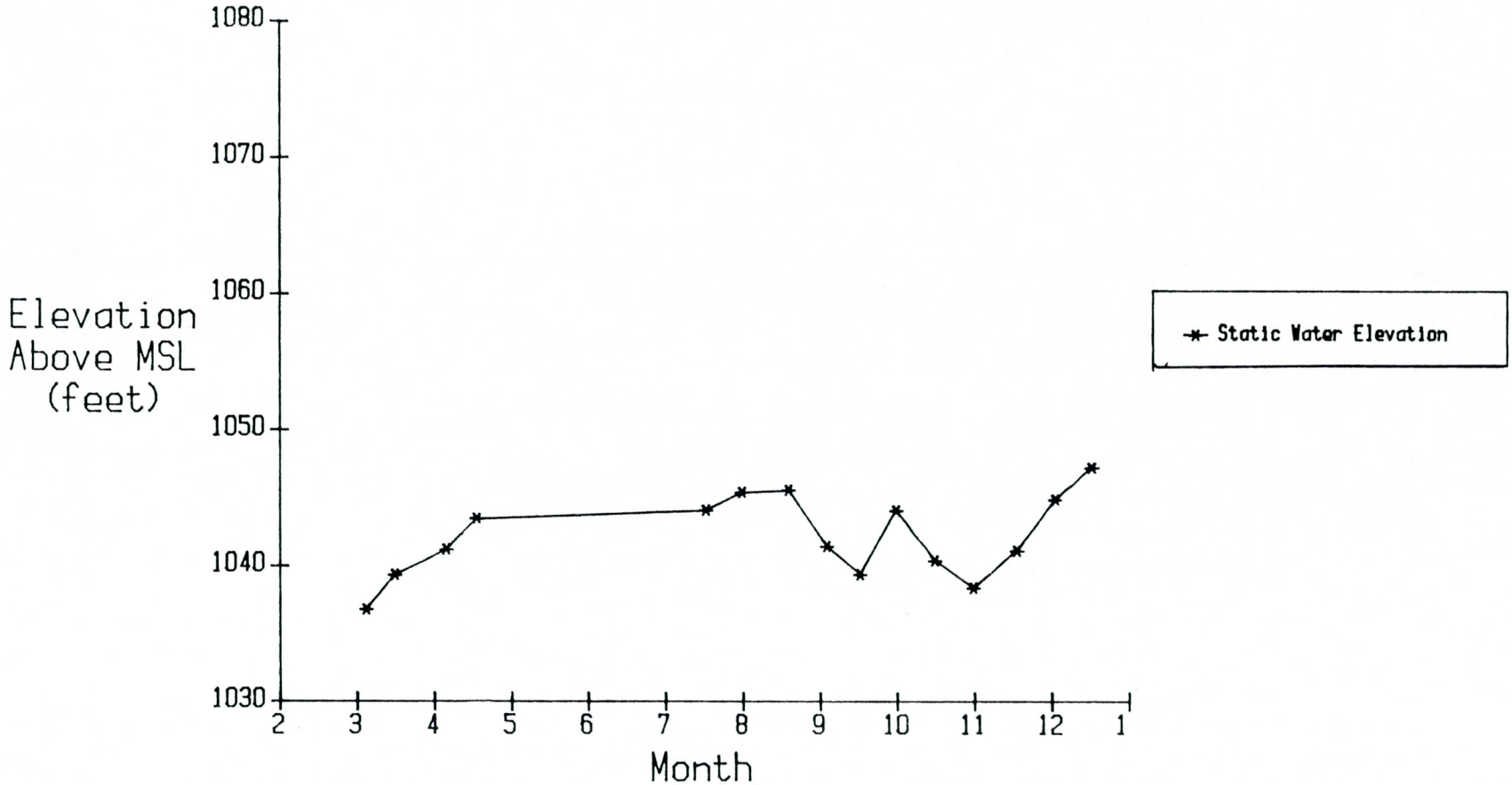

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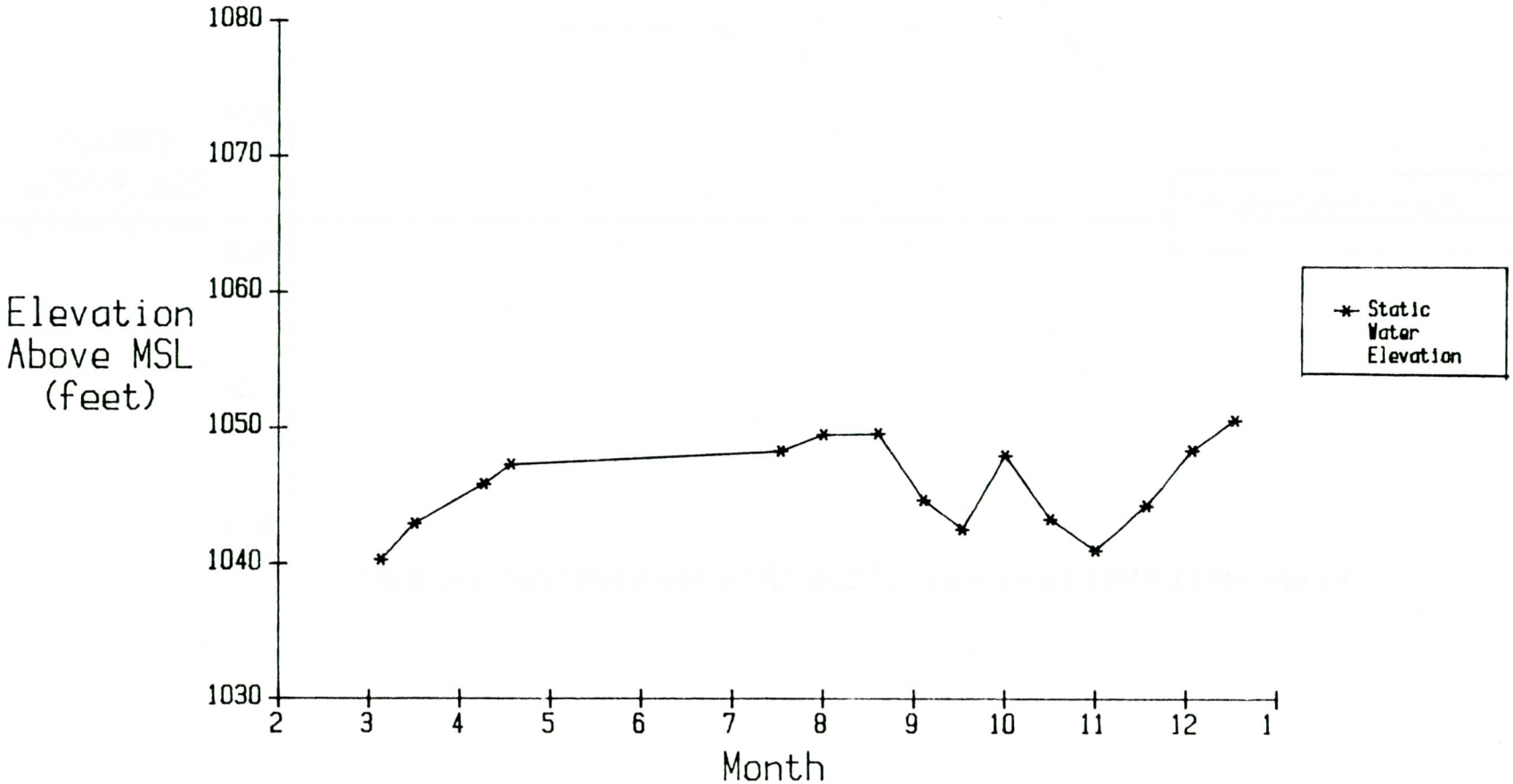

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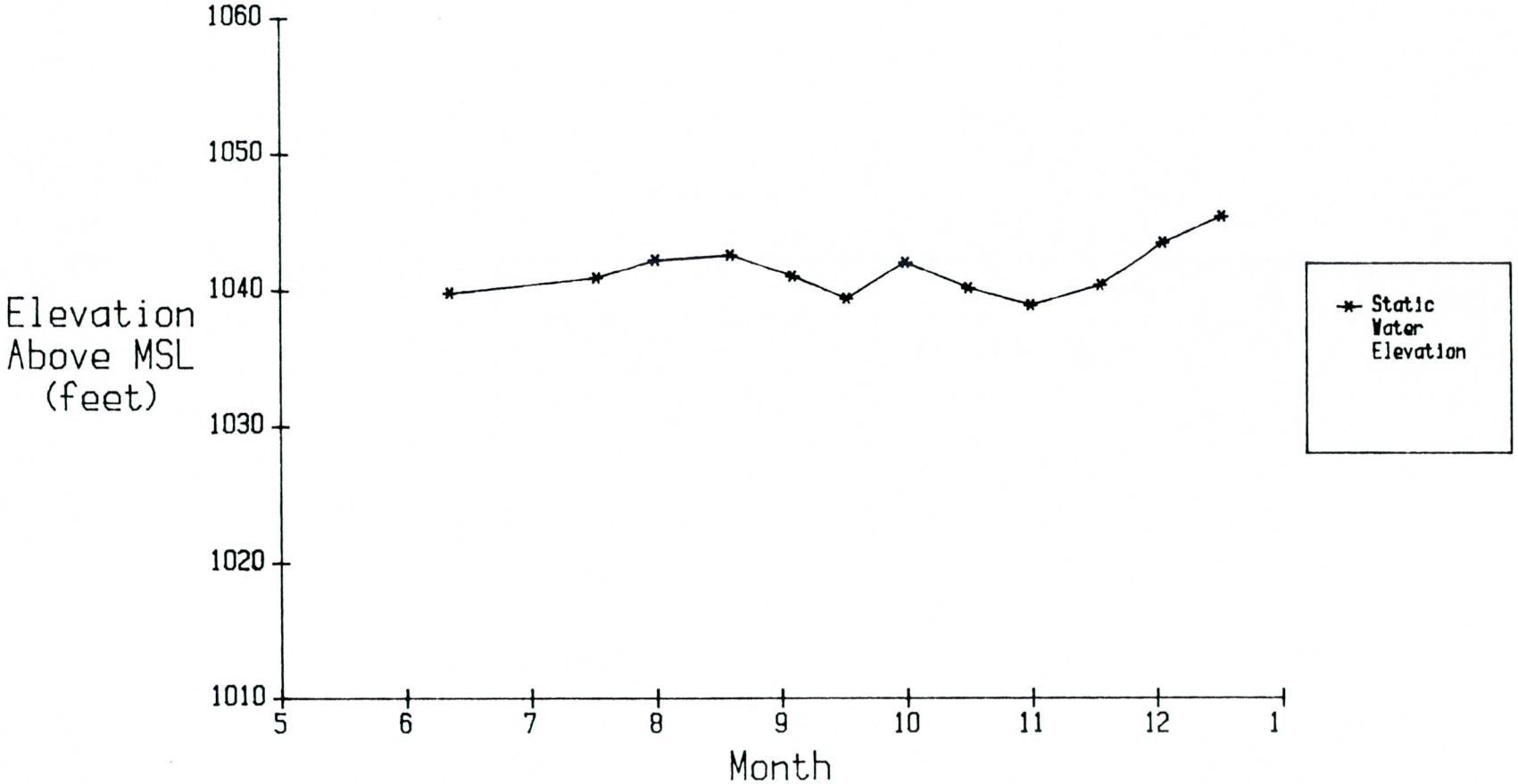

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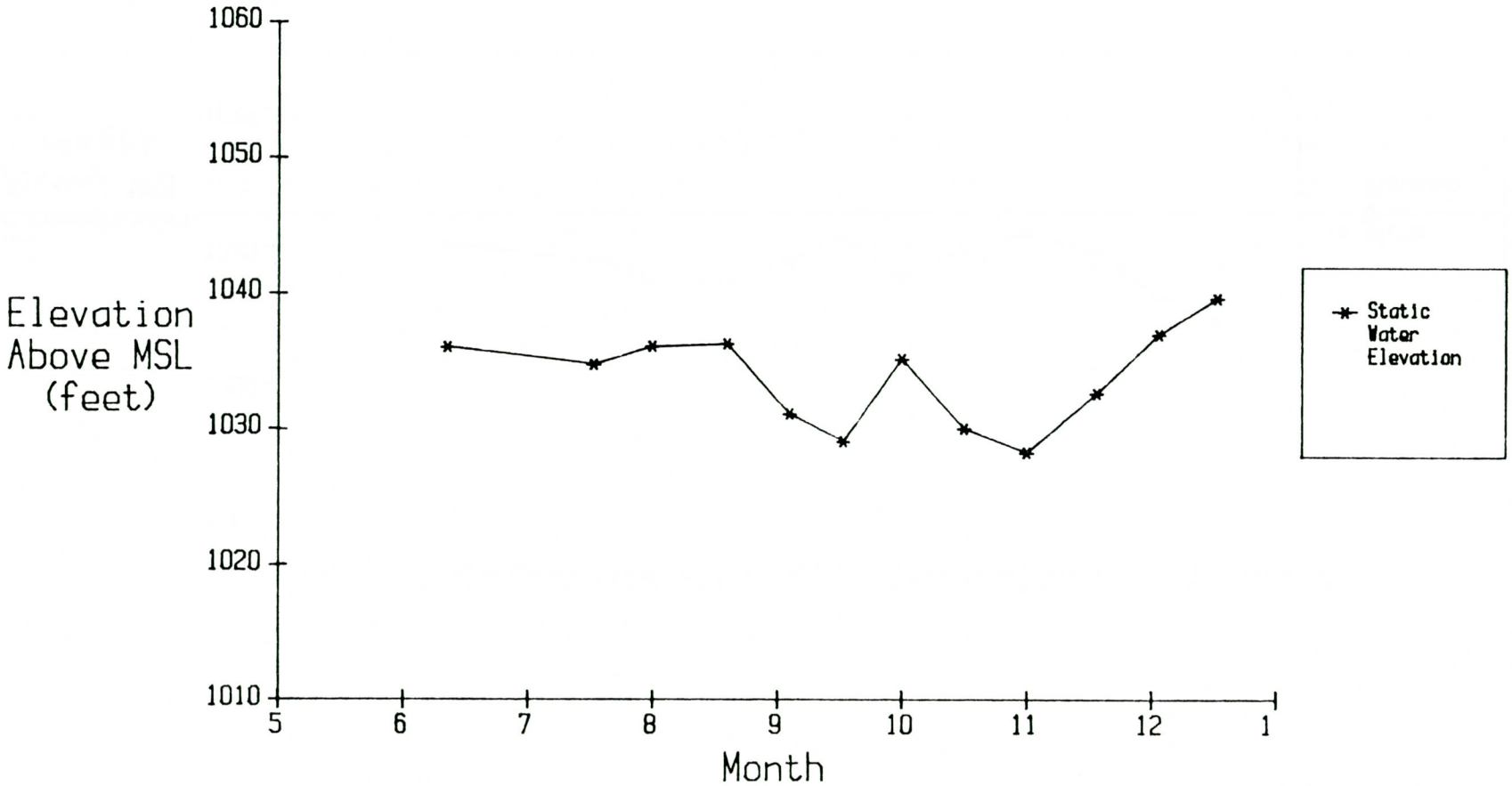

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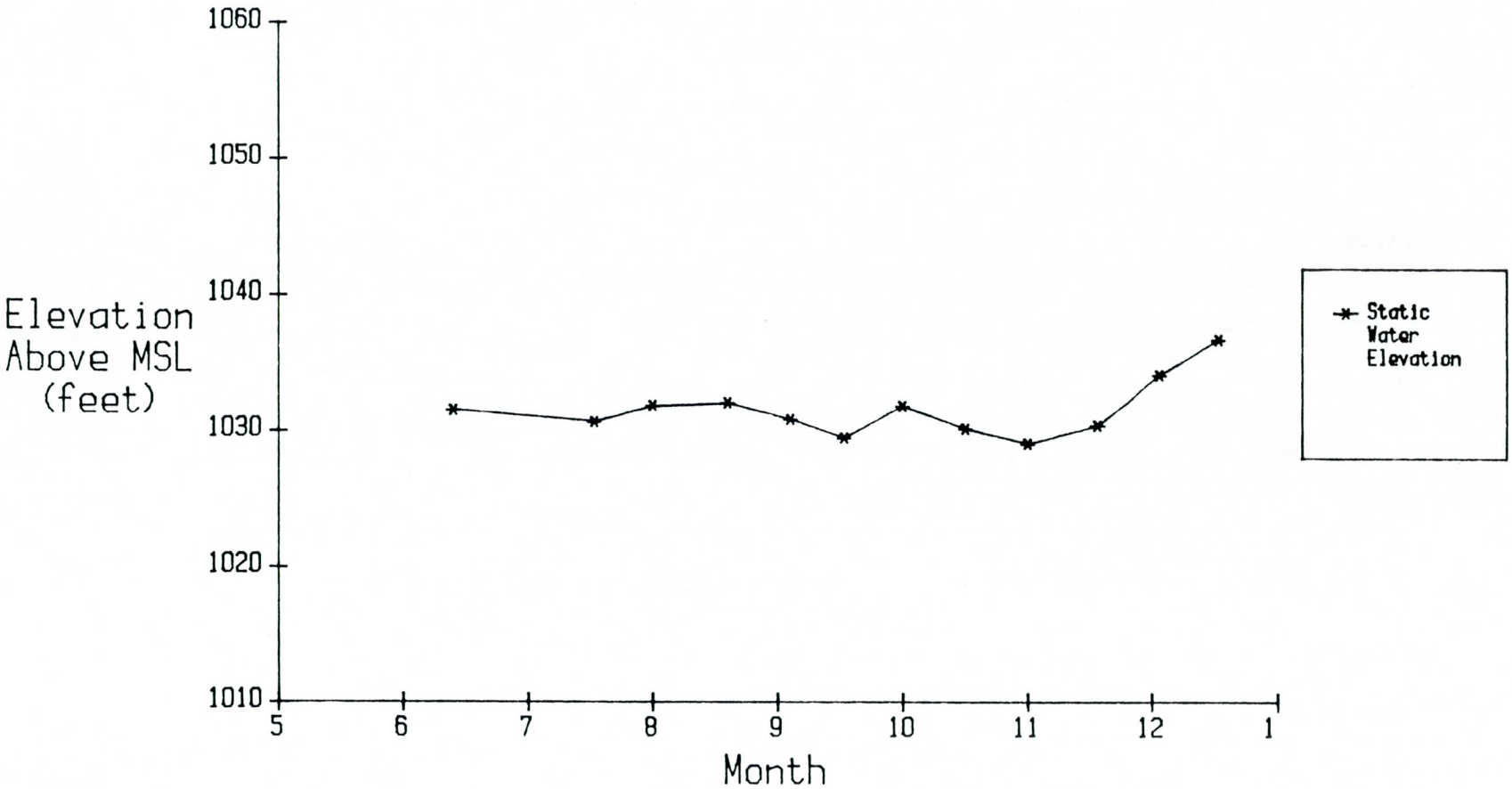

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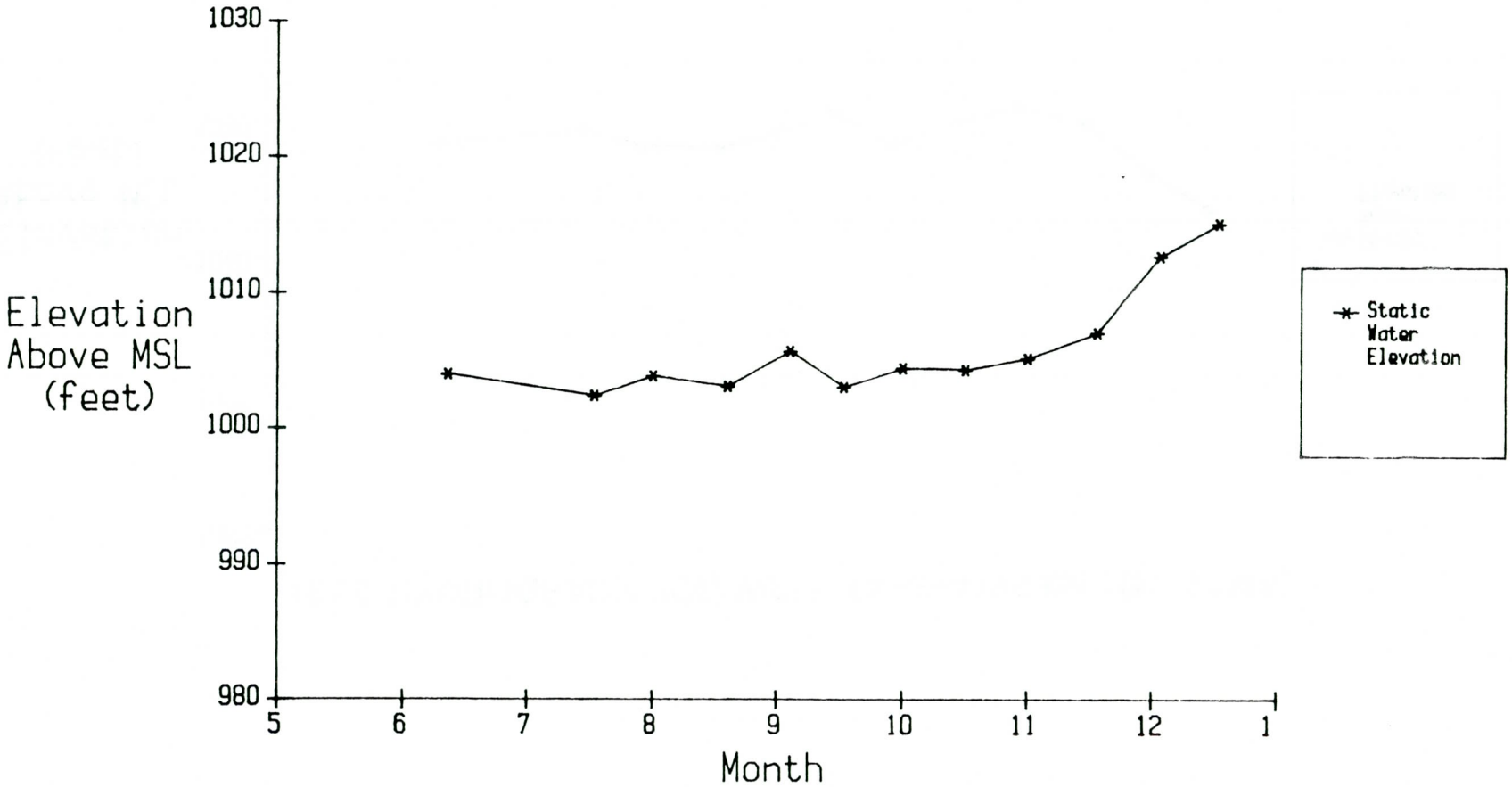

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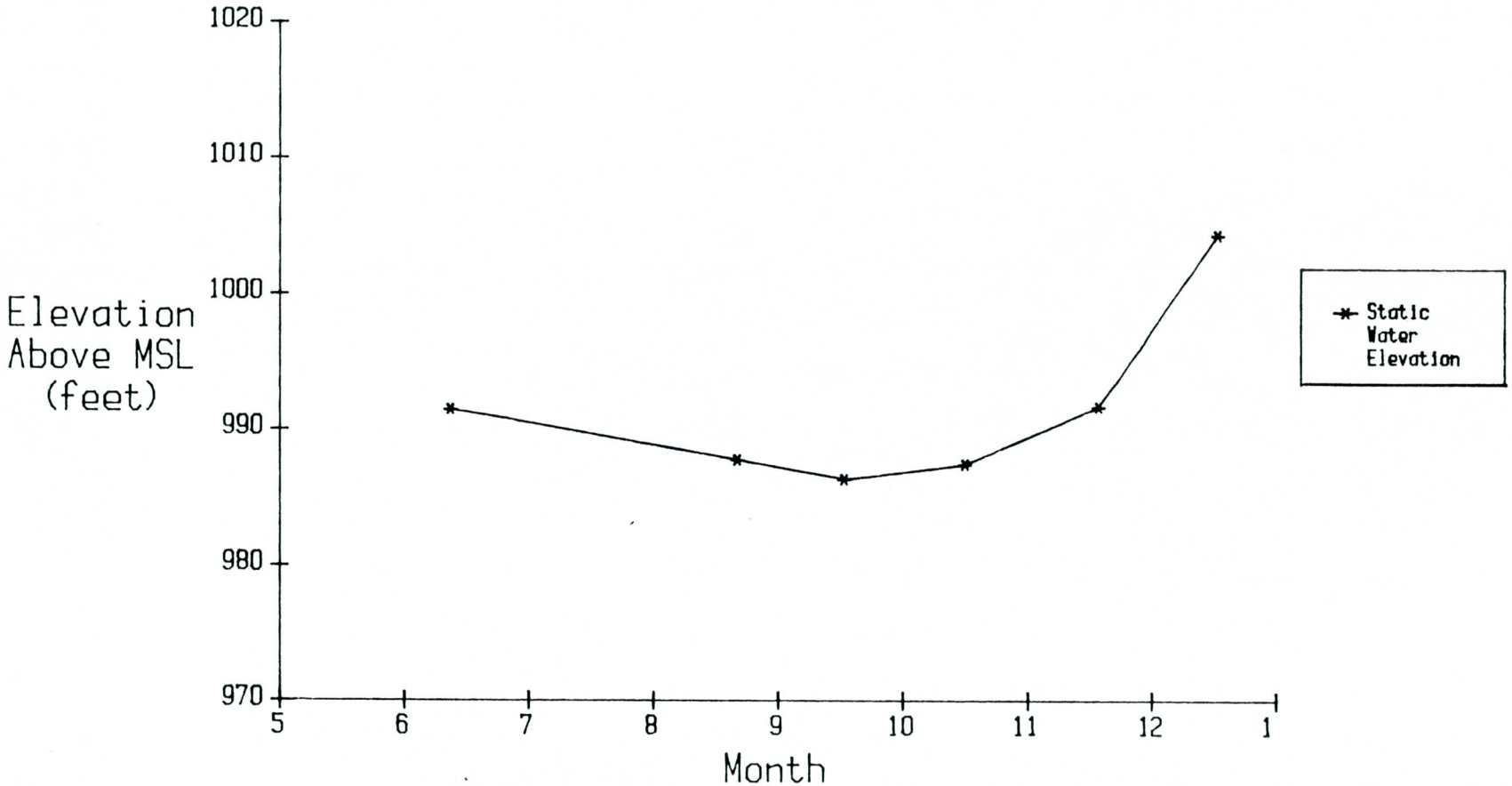

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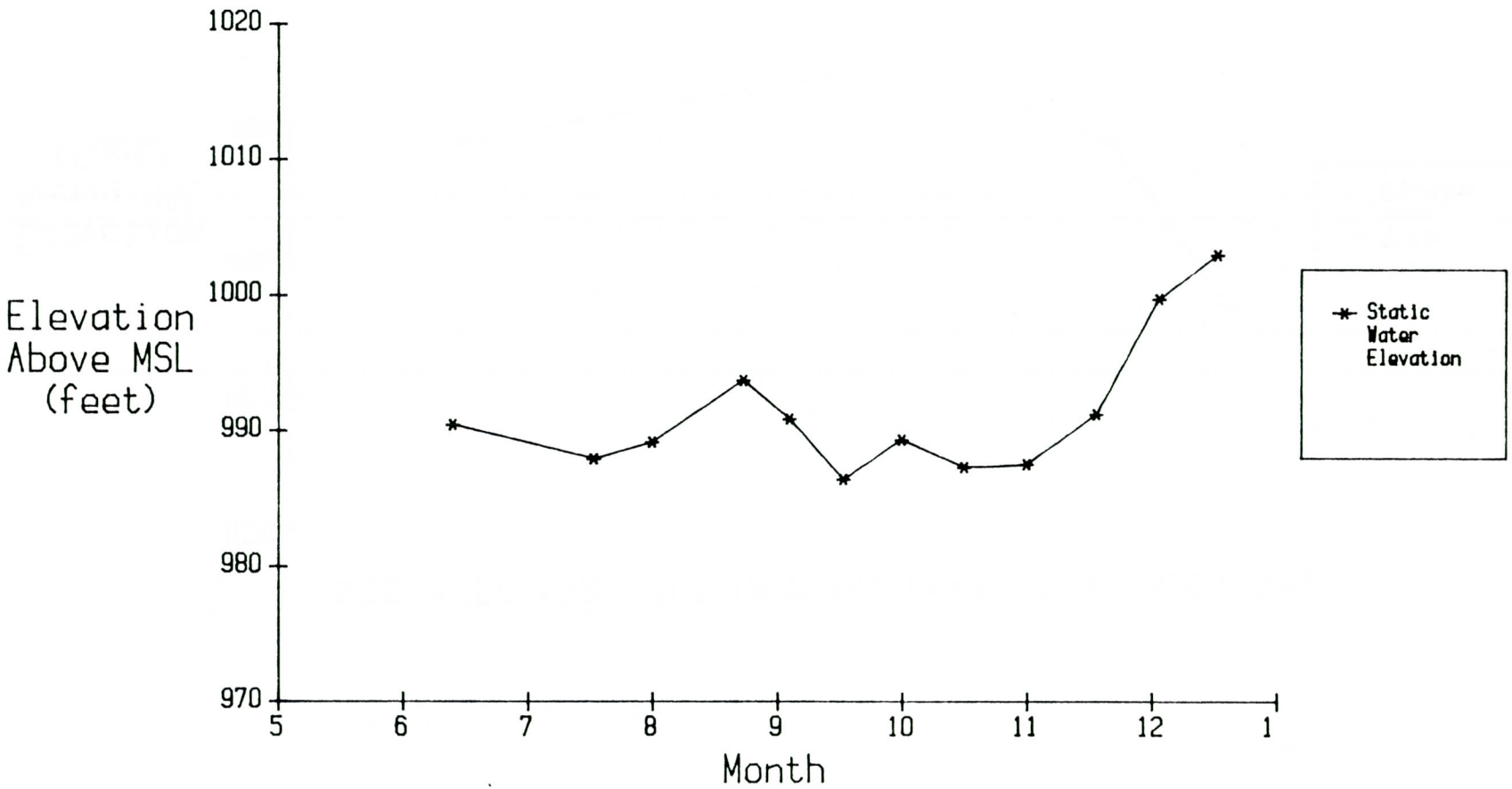

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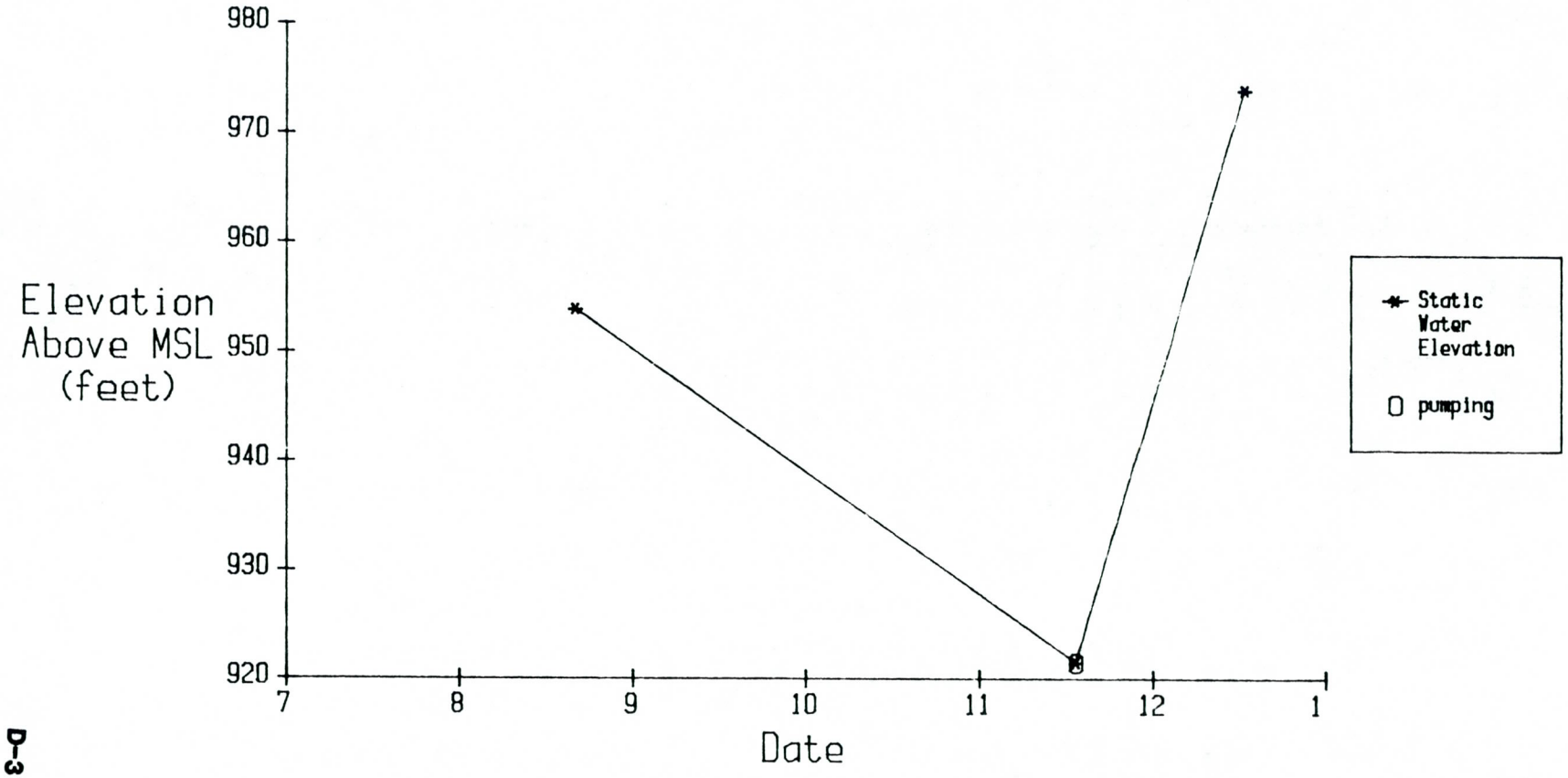


MONTHLY WATER LEVEL SURVEY

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
** (A-1-4)01abb1							
(A-1-4)01abb1	E-1MP	06/06/85	1818	96.29	96.12	1119.07	G
(A-1-4)01abb1	E-1MP	06/11/85	1205	93.57	93.40	1121.79	G
(A-1-4)01abb1	E-1MP	06/12/85	0720	93.59	93.42	1121.77	G
(A-1-4)01abb1	E-1MP	06/13/85	0715	93.45	93.28	1121.91	G
(A-1-4)01abb1	E-1MP	08/12/85	0900	89.68	90.60	1124.59	G
(A-1-4)01abb1	E-1MP	08/20/85		142.67	143.23	1071.96	
(A-1-4)01abb1	E-1MP	09/16/85	1203	144.85	145.46	1069.73	
(A-1-4)01abb1	E-1MP	10/15/85	1045	143.73	144.34	1070.85	
(A-1-4)01abb1	E-1MP	11/17/85	0919	146.39	147.00	1068.19	
(A-1-4)01abb1	E-1MP	12/16/85	1031	143.07	143.68	1071.51	
** (A-1-4)01abb2							
(A-1-4)01abb2	E-1MA	05/23/85	1203	171.48	171.33	1043.81	
(A-1-4)01abb2	E-1MA	05/28/85	0800	170.96	170.81	1044.33	
(A-1-4)01abb2	E-1MA	06/11/85	1158	170.84	170.69	1044.45	
(A-1-4)01abb2	E-1MA	06/12/85	0717	169.57	169.42	1045.72	
(A-1-4)01abb2	E-1MA	06/13/85	0730	169.81	169.66	1045.48	
(A-1-4)01abb2	E-1MA	07/24/85	1055	169.15	169.00	1046.14	
(A-1-4)01abb2	E-1MA	08/01/85	0630	167.99	168.96	1046.18	
(A-1-4)01abb2	E-1MA	08/20/85		176.14	176.84	1038.30	
(A-1-4)01abb2	E-1MA	09/16/85	1155	173.79	174.47	1040.67	
(A-1-4)01abb2	E-1MA	10/15/85	1040	172.78	173.46	1041.68	
(A-1-4)01abb2	E-1MA	11/17/85	0916	172.70	173.38	1041.76	
(A-1-4)01abb2	E-1MA	12/16/85	1025	166.11	166.79	1048.35	
** (A-1-4)01abb3							
(A-1-4)01abb3	E-1LA	05/16/85	1040	221.59	221.30	993.92	
(A-1-4)01abb3	E-1LA	05/20/85	0725	223.43	223.14	992.08	
(A-1-4)01abb3	E-1LA	05/22/85	1732	223.71	223.42	991.80	
(A-1-4)01abb3	E-1LA	05/23/85		224.22	223.93	991.29	
(A-1-4)01abb3	E-1LA	05/28/85	0745	224.55	224.26	990.96	
(A-1-4)01abb3	E-1LA	06/11/85	0710	224.29	224.00	991.22	
(A-1-4)01abb3	E-1LA	06/12/85	0707	225.09	224.80	990.42	
(A-1-4)01abb3	E-1LA	06/13/85	0720	225.09	224.80	990.42	
(A-1-4)01abb3	E-1LA	07/25/85	0830	226.74	226.45	988.77	
(A-1-4)01abb3	E-1LA	08/01/85	1054	225.47	226.46	988.76	
(A-1-4)01abb3	E-1LA	08/20/85	1054	226.78	227.46	987.76	
(A-1-4)01abb3	E-1LA	09/16/85	1144	228.20	228.88	986.34	
(A-1-4)01abb3	E-1LA	10/15/85	1033	227.09	227.77	987.45	
(A-1-4)01abb3	E-1LA	11/17/85	0914	222.82	223.50	991.72	
(A-1-4)01abb3	E-1LA	12/16/85	1008	210.14	210.82	1004.40	
** (A-1-4)01abb4							
(A-1-4)01abb4	E-1UA	05/29/85	1345	94.40	94.54	1120.87	
(A-1-4)01abb4	E-1UA	06/11/85	1029	92.46	92.60	1122.81	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
(A-1-4)01abb4	E-1UA	06/12/85	0654	92.40	92.54	1122.87	
(A-1-4)01abb4	E-1UA	06/13/85	0705	92.11	92.16	1121.25	
(A-1-4)01abb4	E-1UA	06/13/85	0835	92.05	92.10	1123.31	
(A-1-4)01abb4	E-1UA	07/25/85	1300	90.28	90.14	1125.27	
(A-1-4)01abb4	E-1UA	08/01/85	1515	89.13	90.06	1125.35	
(A-1-4)01abb4	E-1UA	08/01/85	1620	89.16	90.05	1125.36	
(A-1-4)01abb4	E-1UA	08/01/85	1644	89.20	90.09	1125.32	
(A-1-4)01abb4	E-1UA	08/20/85		88.26	88.95	1126.46	
(A-1-4)01abb4	E-1UA	09/16/85	1138	86.55	87.24	1128.17	
(A-1-4)01abb4	E-1UA	10/15/85	1030	87.47	88.16	1127.25	
(A-1-4)01abb4	E-1UA	11/17/85	0906	91.18	91.87	1123.54	
(A-1-4)01abb4	E-1UA	12/16/85	0959	94.40	95.09	1120.32	
** (A-1-4)01acd							
(A-1-4)01acd	M-8UA	06/11/85	0731	79.47	0.00	1129.92	
(A-1-4)01acd	M-8UA	07/15/85	0549	79.81	0.00	1129.58	
(A-1-4)01acd	M-8UA	08/21/85	0649	76.91	0.00	1132.48	
(A-1-4)01acd	M-8UA	09/03/85	1301	76.70	0.00	1132.69	
(A-1-4)01acd	M-8UA	09/16/85	1310	75.95	0.00	1133.44	
(A-1-4)01acd	M-8UA	10/01/85	1021	77.02	0.00	1132.37	
(A-1-4)01acd	M-8UA	10/15/85	1106	79.51	0.00	1129.88	
(A-1-4)01acd	M-8UA	11/01/85	1105	82.23	82.96	1127.07	
(A-1-4)01acd	M-8UA	11/19/85	0708	85.13	85.86	1124.17	
(A-1-4)01acd	M-8UA	12/02/85	1008	86.69	87.42	1122.61	
(A-1-4)01acd	M-8UA	12/16/85	0945	88.22	88.95	1121.08	
** (A-1-4)01baa1							
(A-1-4)01baa1	M-6MA	03/04/85	1113	180.58	0.00	1036.81	
(A-1-4)01baa1	M-6MA	03/15/85	1454	178.05	0.00	1039.34	
(A-1-4)01baa1	M-6MA	04/05/85	1104	176.23	0.00	1041.16	
(A-1-4)01baa1	M-6MA	04/17/85	1644	173.91	0.00	1043.48	
(A-1-4)01baa1	M-6MA	07/16/85	1345	173.27	0.00	1044.12	
(A-1-4)01baa1	M-6MA	07/31/85	1104	171.97	0.00	1045.42	
(A-1-4)01baa1	M-6MA	08/18/85	1557	171.81	0.00	1045.58	
(A-1-4)01baa1	M-6MA	09/03/85	1231	175.97	0.00	1041.42	
(A-1-4)01baa1	M-6MA	09/16/85	1547	178.01	0.00	1039.38	
(A-1-4)01baa1	M-6MA	10/01/85	1254	173.29	0.00	1044.10	
(A-1-4)01baa1	M-6MA	10/15/85	1456	177.00	0.00	1040.39	
(A-1-4)01baa1	M-6MA	11/01/85	1401	179.00	178.60	1038.39	
(A-1-4)01baa1	M-6MA	11/17/85	1640	176.26	175.86	1041.13	
(A-1-4)01baa1	M-6MA	12/02/85	1307	172.49	172.09	1044.90	
(A-1-4)01baa1	M-6MA	12/16/85	1208	170.13	169.73	1047.26	
** (A-1-4)01baa2							
(A-1-4)01baa2	M-6UA	03/04/85	1205	107.11	0.00	1110.39	
(A-1-4)01baa2	M-6UA	03/15/85	1448	106.32	0.00	1111.18	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
(A-1-4)01baa2	M-6UA	04/05/85	1109	104.77	0.00	1112.73	
(A-1-4)01baa2	M-6UA	04/17/85	1647	103.43	0.00	1114.07	
(A-1-4)01baa2	M-6UA	07/16/85	1343	94.47	0.00	1123.03	
(A-1-4)01baa2	M-6UA	07/31/85	1052	93.85	0.00	1123.65	
(A-1-4)01baa2	M-6UA	08/19/85	1447	92.95	0.00	1124.55	
(A-1-4)01baa2	M-6UA	09/03/85	1226	91.97	0.00	1125.53	
(A-1-4)01baa2	M-6UA	09/16/85	1555	91.26	0.00	1126.24	
(A-1-4)01baa2	M-6UA	10/01/85	1259	90.94	0.00	1126.56	
(A-1-4)01baa2	M-6UA	10/15/85	1501	91.95	0.00	1125.55	
(A-1-4)01baa2	M-6UA	11/01/85	1408	94.86	93.05	1123.89	
(A-1-4)01baa2	M-6UA	11/20/85	1156	96.88	95.07	1121.87	
(A-1-4)01baa2	M-6UA	12/02/85	1312	98.20	96.39	1120.55	
(A-1-4)01baa2	M-6UA	12/16/85	1214	99.58	97.77	1119.17	
** (A-1-4)01baa3							
(A-1-4)01baa3	M-7UA	03/04/85	1340	104.16	0.00	1111.51	
(A-1-4)01baa3	M-7UA	03/15/85	1529	103.20	0.00	1112.47	
(A-1-4)01baa3	M-7UA	04/05/85	1127	101.48	0.00	1114.19	
(A-1-4)01baa3	M-7UA	04/17/85	1159	100.14	0.00	1115.53	
(A-1-4)01baa3	M-7UA	07/16/85	1359	90.94	0.00	1124.73	
(A-1-4)01baa3	M-7UA	07/31/85	0830	90.56	0.00	1125.11	
(A-1-4)01baa3	M-7UA	08/19/85	1655	89.33	0.00	1126.34	
(A-1-4)01baa3	M-7UA	09/03/85	1006	88.48	0.00	1127.19	
(A-1-4)01baa3	M-7UA	09/16/85	1622	87.68	0.00	1127.99	
(A-1-4)01baa3	M-7UA	10/01/85	1317	87.44	0.00	1128.23	
(A-1-4)01baa3	M-7UA	10/15/85	1517	88.74	0.00	1126.93	
(A-1-4)01baa3	M-7UA	11/01/85	1147	91.46	89.89	1124.98	
(A-1-4)01baa3	M-7UA	11/20/85	1521	93.74	92.17	1122.70	
(A-1-4)01baa3	M-7UA	12/02/85	1045	95.12	93.55	1121.32	
(A-1-4)01baa3	M-7UA	12/16/85	1231	96.55	94.98	1119.89	
** (A-1-4)01bad1							
(A-1-4)01bad1	ST-1	03/05/85	0730	99.67	0.00	1112.33	
(A-1-4)01bad1	ST-1	03/15/85	0932	98.75	0.00	1113.25	
(A-1-4)01bad1	ST-1	04/05/85	0849	96.84	0.00	1115.16	
(A-1-4)01bad1	ST-1	04/17/85	1218	95.30	0.00	1116.70	
(A-1-4)01bad1	ST-1	07/16/85	1446	87.12	0.00	1124.88	
(A-1-4)01bad1	ST-1	07/31/85	0848	86.89	0.00	1125.11	
(A-1-4)01bad1	ST-1	08/20/85	1121	85.72	0.00	1126.28	
(A-1-4)01bad1	ST-1	09/03/85	1042	84.89	0.00	1127.11	
(A-1-4)01bad1	ST-1	09/16/85	1347	84.22	0.00	1127.78	
(A-1-4)01bad1	ST-1	10/01/85	1107	84.09	0.00	1127.91	
(A-1-4)01bad1	ST-1	10/15/85	1326	85.44	0.00	1126.56	
(A-1-4)01bad1	ST-1	11/01/85	1217	87.51	86.91	1124.49	
(A-1-4)01bad1	ST-1	11/21/85	0739	90.15	89.55	1121.85	
(A-1-4)01bad1	ST-1	12/02/85	1122	91.37	90.77	1120.63	
(A-1-4)01bad1	ST-1	12/16/85	1021	92.83	92.23	1119.17	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
** (A-1-4)01bad2							
(A-1-4)01bad2	M-1MA	03/05/85	1036	170.20	0.00	1041.23	
(A-1-4)01bad2	M-1MA	03/15/85	0947	167.90	0.00	1043.53	
(A-1-4)01bad2	M-1MA	04/05/85	0854	165.79	0.00	1045.64	
(A-1-4)01bad2	M-1MA	04/17/85	1210	163.51	0.00	1047.92	
(A-1-4)01bad2	M-1MA	07/16/85	1451	162.45	0.00	1048.98	
(A-1-4)01bad2	M-1MA	07/31/85	0854	161.17	0.00	1050.26	
(A-1-4)01bad2	M-1MA	08/18/85	1459	161.05	0.00	1050.38	
(A-1-4)01bad2	M-1MA	09/03/85	1047	166.99	0.00	1044.44	
(A-1-4)01bad2	M-1MA	09/16/85	1353	169.21	0.00	1042.22	
(A-1-4)01bad2	M-1MA	10/01/85	1113	162.89	0.00	1048.54	
(A-1-4)01bad2	M-1MA	10/15/85	1331	168.39	0.00	1043.04	
(A-1-4)01bad2	M-1MA	11/01/85	1224	170.91	169.91	1040.52	
(A-1-4)01bad2	M-1MA	11/17/85	1524	166.84	165.84	1044.59	
(A-1-4)01bad2	M-1MA	12/02/85	1103	162.58	161.58	1048.85	
(A-1-4)01bad2	M-1MA	12/16/85	1026	160.31	159.31	1051.12	
** (A-1-4)01bad3							
(A-1-4)01bad3	M-7MA	03/04/85	1412	173.84	0.00	1040.28	
(A-1-4)01bad3	M-7MA	03/15/85	1513	171.16	0.00	1042.96	
(A-1-4)01bad3	M-7MA	04/08/85	1126	168.27	0.00	1045.85	
(A-1-4)01bad3	M-7MA	04/17/85	1153	166.82	0.00	1047.30	
(A-1-4)01bad3	M-7MA	07/16/85	1407	165.83	0.00	1048.29	
(A-1-4)01bad3	M-7MA	07/31/85	0830	164.61	0.00	1049.51	
(A-1-4)01bad3	M-7MA	08/18/85	1447	164.53	0.00	1049.59	
(A-1-4)01bad3	M-7MA	09/03/85	1025	169.42	0.00	1044.70	
(A-1-4)01bad3	M-7MA	09/16/85	1614	171.57	0.00	1042.55	
(A-1-4)01bad3	M-7MA	10/01/85	1312	166.13	0.00	1047.99	
(A-1-4)01bad3	M-7MA	10/15/85	1511	170.81	0.00	1043.31	
(A-1-4)01bad3	M-7MA	11/01/85	1140	173.14	172.64	1040.98	
(A-1-4)01bad3	M-7MA	11/17/85	1509	169.78	169.28	1044.34	
(A-1-4)01bad3	M-7MA	12/02/85	1038	165.76	165.26	1048.36	
(A-1-4)01bad3	M-7MA	12/16/85	1225	163.53	163.03	1050.59	
** (A-1-4)01bba1							
(A-1-4)01bba1	M-5MA	03/04/85	0904	187.77	0.00	1029.99	
(A-1-4)01bba1	M-5MA	03/15/85	1437	184.96	0.00	1032.80	
(A-1-4)01bba1	M-5MA	04/05/85	1054	183.11	0.00	1034.65	
(A-1-4)01bba1	M-5MA	04/17/85	1631	181.43	0.00	1036.33	
(A-1-4)01bba1	M-5MA	07/16/85	1256	179.12	0.00	1038.64	
(A-1-4)01bba1	M-5MA	07/31/85	1035	177.83	0.00	1039.93	
(A-1-4)01bba1	M-5MA	08/18/85	1548	177.61	0.00	1040.15	
(A-1-4)01bba1	M-5MA	09/03/85	1218	182.41	0.00	1035.35	
(A-1-4)01bba1	M-5MA	09/16/85	1530	184.41	0.00	1033.35	
(A-1-4)01bba1	M-5MA	10/01/85	1239	178.77	0.00	1038.99	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
(A-1-4)01bba1	M-5MA	10/15/85	1439	183.51	0.00	1034.25	
(A-1-4)01bba1	M-5MA	11/01/85	1345	185.43	184.83	1032.33	
(A-1-4)01bba1	M-5MA	11/17/85	1630	181.43	180.83	1036.33	
(A-1-4)01bba1	M-5MA	12/02/85	1252	177.26	176.66	1040.50	
(A-1-4)01bba1	M-5MA	12/16/85	1155	174.73	174.13	1043.03	
** (A-1-4)01bba2							
(A-1-4)01bba2	M-5UA	03/04/85	0942	115.02	0.00	1102.75	
(A-1-4)01bba2	M-5UA	03/15/85	1431	114.57	0.00	1103.20	
(A-1-4)01bba2	M-5UA	04/05/85	1048	113.41	0.00	1104.36	
(A-1-4)01bba2	M-5UA	04/17/85	1635	112.49	0.00	1105.28	
(A-1-4)01bba2	M-5UA	07/16/85	1251	105.61	0.00	1112.16	
(A-1-4)01bba2	M-5UA	07/31/85	1022	105.03	0.00	1112.74	
(A-1-4)01bba2	M-5UA	08/19/85	1109	104.40	0.00	1113.37	
(A-1-4)01bba2	M-5UA	09/03/85	1213	103.60	0.00	1114.17	
(A-1-4)01bba2	M-5UA	09/16/85	1535	103.00	0.00	1114.77	
(A-1-4)01bba2	M-5UA	10/01/85	1245	102.46	0.00	1115.31	
(A-1-4)01bba2	M-5UA	10/15/85	1446	102.47	0.00	1115.30	
(A-1-4)01bba2	M-5UA	11/01/85	1351	104.11	102.38	1114.69	
(A-1-4)01bba2	M-5UA	11/20/85	1015	105.42	103.69	1113.38	
(A-1-4)01bba2	M-5UA	12/02/85	1258	106.14	104.41	1112.66	
(A-1-4)01bba2	M-5UA	12/16/85	1200	107.13	105.40	1111.67	
** (A-1-4)01bcc1							
(A-1-4)01bcc1	M-2MA	03/04/85	1627	171.07	0.00	1039.19	
(A-1-4)01bcc1	M-2MA	03/15/85	1341	168.64	0.00	1041.62	
(A-1-4)01bcc1	M-2MA	04/05/85	1025	166.48	0.00	1043.78	
(A-1-4)01bcc1	M-2MA	04/17/85	1548	164.85	0.00	1045.41	
(A-1-4)01bcc1	M-2MA	07/16/85	1231	163.36	0.00	1046.90	
(A-1-4)01bcc1	M-2MA	07/31/85	1008	162.36	0.00	1047.90	
(A-1-4)01bcc1	M-2MA	08/18/85	1537	161.90	0.00	1048.36	
(A-1-4)01bcc1	M-2MA	09/03/85	1154	173.29	0.00	1036.97	
(A-1-4)01bcc1	M-2MA	09/16/85	1450	175.19	0.00	1035.07	
(A-1-4)01bcc1	M-2MA	10/01/85	1211	164.14	0.00	1046.12	
(A-1-4)01bcc1	M-2MA	10/15/85	1424	174.69	0.00	1035.57	
(A-1-4)01bcc1	M-2MA	11/01/85	1326	177.29	176.59	1032.99	
(A-1-4)01bcc1	M-2MA	11/17/85	1604	168.52	167.82	1041.76	
(A-1-4)01bcc1	M-2MA	12/02/85	1237	163.46	162.76	1046.82	
(A-1-4)01bcc1	M-2MA	12/16/85	1141	160.85	160.15	1049.43	
** (A-1-4)01bcc2							
(A-1-4)01bcc2	M-2UA	03/04/85	1644	101.27	0.00	1108.78	
(A-1-4)01bcc2	M-2UA	03/15/85	1334	100.21	0.00	1109.84	
(A-1-4)01bcc2	M-2UA	04/04/85	1019	98.16	0.00	1111.89	
(A-1-4)01bcc2	M-2UA	04/17/85	1553	96.73	0.00	1113.32	
(A-1-4)01bcc2	M-2UA	07/16/85	1226	89.59	0.00	1120.46	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
(A-1-4)01bcc2	M-2UA	07/31/85	1000	89.54	0.00	1120.51	
(A-1-4)01bcc2	M-2UA	08/20/85	0652	89.30	0.00	1120.75	
(A-1-4)01bcc2	M-2UA	09/03/85	1151	88.78	0.00	1121.27	
(A-1-4)01bcc2	M-2UA	09/16/85	1457	88.50	0.00	1121.55	
(A-1-4)01bcc2	M-2UA	10/01/85	1217	88.22	0.00	1121.83	
(A-1-4)01bcc2	M-2UA	10/15/85	1430	88.89	0.00	1121.16	
(A-1-4)01bcc2	M-2UA	11/01/85	1333	91.36	89.85	1119.80	
(A-1-4)01bcc2	M-2UA	11/18/85	1533	93.20	91.69	1117.96	
(A-1-4)01bcc2	M-2UA	12/02/85	1242	94.52	93.01	1116.64	
(A-1-4)01bcc2	M-2UA	12/16/85	1146	95.85	94.34	1115.31	
** (A-1-4)01bda2							
(A-1-4)01bda2	ST-3	03/05/85	0724	0.00	0.00	0.00	K
(A-1-4)01bda2	ST-3	03/15/85	1208	0.00	0.00	0.00	K
(A-1-4)01bda2	ST-3	04/05/85	0838	95.30	0.00	1115.54	
(A-1-4)01bda2	ST-3	04/17/85	1229	93.82	0.00	1117.02	
(A-1-4)01bda2	ST-3	07/16/85	1501	85.78	0.00	1125.06	
(A-1-4)01bda2	ST-3	07/31/85	0904	85.54	0.00	1125.30	
(A-1-4)01bda2	ST-3	08/20/85	1128	85.72	0.00	1126.28	
(A-1-4)01bda2	ST-3	09/03/85	1055	83.60	0.00	1127.24	
(A-1-4)01bda2	ST-3	09/16/85	1340	82.91	0.00	1127.93	
(A-1-4)01bda2	ST-3	10/01/85	1100	82.80	0.00	1128.04	
(A-1-4)01bda2	ST-3	10/15/85	1319	84.21	0.00	1126.63	
(A-1-4)01bda2	ST-3	11/01/85	1210	86.30	85.70	1124.54	
(A-1-4)01bda2	ST-3	11/21/85	0751	89.01	88.41	1121.83	
(A-1-4)01bda2	ST-3	12/02/85	1132	90.25	89.65	1120.59	
(A-1-4)01bda2	ST-3	12/16/85	1013	91.71	91.11	1119.13	
** (A-1-4)01bdb1							
(A-1-4)01bdb1	M-4MA	03/04/85	0653	175.06	0.00	1039.40	
(A-1-4)01bdb1	M-4MA	03/15/85	1323	172.39	0.00	1042.25	
(A-1-4)01bdb1	M-4MA	04/05/85	1011	170.31	0.00	1044.33	
(A-1-4)01bdb1	M-4MA	04/17/85	1618	168.14	0.00	1046.50	
(A-1-4)01bdb1	M-4MA	07/16/85	1218	167.15	0.00	1047.49	
(A-1-4)01bdb1	M-4MA	07/31/85	0938	165.95	0.00	1048.69	
(A-1-4)01bdb1	M-4MA	08/18/85	1527	165.76	0.00	1048.88	
(A-1-4)01bdb1	M-4MA	09/03/85	1129	172.42	0.00	1042.22	
(A-1-4)01bdb1	M-4MA	09/16/85	1429	174.71	0.00	1039.93	
(A-1-4)01bdb1	M-4MA	10/01/85	1141	167.61	0.00	1047.03	
(A-1-4)01bdb1	M-4MA	10/15/85	1358	173.82	0.00	1040.82	
(A-1-4)01bdb1	M-4MA	11/01/85	1254	176.36	176.06	1038.28	
(A-1-4)01bdb1	M-4MA	11/17/85	1543	171.56	171.26	1043.08	
(A-1-4)01bdb1	M-4MA	12/02/85	1208	167.12	166.82	1047.52	
(A-1-4)01bdb1	M-4MA	12/16/85	1112	164.74	164.44	1049.90	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
** (A-1-4)01bdb2							
(A-1-4)01bdb2	M-4UA	03/04/85	0728	105.69	0.00	1109.29	
(A-1-4)01bdb2	M-4UA	03/15/85	1317	104.69	0.00	1110.29	
(A-1-4)01bdb2	M-4UA	04/05/85	0959	102.88	0.00	1112.10	
(A-1-4)01bdb2	M-4UA	04/17/85	1623	101.34	0.00	1113.64	
(A-1-4)01bdb2	M-4UA	07/16/85	1213	93.58	0.00	1121.40	
(A-1-4)01bdb2	M-4UA	07/31/85	0932	93.38	0.00	1121.60	
(A-1-4)01bdb2	M-4UA	08/19/85	0823	92.74	0.00	1122.24	
(A-1-4)01bdb2	M-4UA	09/03/85	1123	92.03	0.00	1122.95	
(A-1-4)01bdb2	M-4UA	09/16/85	1435	91.39	0.00	1123.59	
(A-1-4)01bdb2	M-4UA	10/01/85	1146	91.10	0.00	1123.88	
(A-1-4)01bdb2	M-4UA	10/15/85	1403	91.92	0.00	1123.06	
(A-1-4)01bdb2	M-4UA	11/01/85	1302	94.66	93.17	1121.51	
(A-1-4)01bdb2	M-4UA	11/20/85	0721	96.87	95.38	1119.30	
(A-1-4)01bdb2	M-4UA	12/02/85	1215	98.01	96.52	1118.16	
(A-1-4)01bdb2	M-4UA	12/16/85	1118	99.39	97.90	1116.78	
** (A-1-4)01bdd1							
(A-1-4)01bdd1	M-3MA	03/05/85	1246	159.35	0.00	1046.10	
(A-1-4)01bdd1	M-3MA	03/15/85	1259	157.43	0.00	1048.02	
(A-1-4)01bdd1	M-3MA	04/05/85	0912	154.96	0.00	1050.49	
(A-1-4)01bdd1	M-3MA	04/17/85	1536	152.81	0.00	1052.64	
(A-1-4)01bdd1	M-3MA	07/16/85	1202	150.55	0.00	1054.90	
(A-1-4)01bdd1	M-3MA	07/31/85	0922	149.33	0.00	1056.12	
(A-1-4)01bdd1	M-3MA	08/18/85	1515	149.30	0.00	1056.15	
(A-1-4)01bdd1	M-3MA	09/03/85	1111	156.65	0.00	1048.80	
(A-1-4)01bdd1	M-3MA	09/16/85	1406	158.80	0.00	1046.65	
(A-1-4)01bdd1	M-3MA	10/01/85	1126	151.64	0.00	1053.81	
(A-1-4)01bdd1	M-3MA	10/15/85	1342	158.41	0.00	1047.04	
(A-1-4)01bdd1	M-3MA	11/01/85	1236	161.35	161.05	1044.10	
(A-1-4)01bdd1	M-3MA	11/17/85	1533	156.26	155.96	1049.19	
(A-1-4)01bdd1	M-3MA	12/02/85	1152	152.16	151.86	1053.29	
(A-1-4)01bdd1	M-3MA	12/16/85	1037	149.84	149.54	1055.61	
** (A-1-4)01bdd2							
(A-1-4)01bdd2	M-3UA	03/05/85	1334	89.69	0.00	1116.11	
(A-1-4)01bdd2	M-3UA	03/15/85	1305	88.67	0.00	1117.13	
(A-1-4)01bdd2	M-3UA	04/05/85	0908	86.37	0.00	1119.43	
(A-1-4)01bdd2	M-3UA	04/17/85	1540	84.64	0.00	1121.16	
(A-1-4)01bdd2	M-3UA	07/16/85	1157	78.66	0.00	1127.14	
(A-1-4)01bdd2	M-3UA	07/31/85	0918	78.56	0.00	1127.24	
(A-1-4)01bdd2	M-3UA	08/20/85	1213	77.25	0.00	1128.55	
(A-1-4)01bdd2	M-3UA	09/03/85	1106	76.84	0.00	1128.96	
(A-1-4)01bdd2	M-3UA	09/16/85	1412	76.19	0.00	1129.61	
(A-1-4)01bdd2	M-3UA	10/01/85	1131	76.46	0.00	1129.34	
(A-1-4)01bdd2	M-3UA	10/15/85	1347	78.25	0.00	1127.55	
(A-1-4)01bdd2	M-3UA	11/01/85	1243	81.76	80.33	1125.17	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
(A-1-4)01bdd2	M-3UA	11/21/85	1012	84.65	83.22	1122.28	
(A-1-4)01bdd2	M-3UA	12/02/85	1158	85.88	84.45	1121.05	
(A-1-4)01bdd2	M-3UA	12/16/85	1055	87.41	85.98	1119.52	
** (A-1-4)01cda1							
(A-1-4)01cda1	SRP 23.5E,5.25N	08/19/85		177.24	175.55	1021.45	H
(A-1-4)01cda1	SRP 23.5E,5.25N	09/16/85	1104	200.04	198.35	998.65	H
(A-1-4)01cda1	SRP 23.5E,5.25N	10/15/85	0948	168.40	166.71	1030.29	H
(A-1-4)01cda1	SRP 23.5E,5.25N	11/17/85	1305	187.55	185.86	1011.14	H
(A-1-4)01cda1	SRP 23.5E,5.25N	12/16/85	1709	173.97	172.28	1024.72	H
** (A-1-4)02acd							
(A-1-4)02acd	E-5UA	06/05/85	1435	92.48	92.48	1107.37	
(A-1-4)02acd	E-5UA	06/14/85	0830	91.25	91.25	1108.60	
(A-1-4)02acd	E-5UA	06/14/85	0845	91.17	91.17	1108.68	
(A-1-4)02acd	E-5UA	06/14/85	1805	91.11	91.11	1108.74	
(A-1-4)02acd	E-5UA	08/02/85	1332	90.19	91.18	1108.67	
(A-1-4)02acd	E-5UA	08/02/85	1450	90.30	91.26	1108.59	
(A-1-4)02acd	E-5UA	08/19/85		90.12	90.81	1109.04	
(A-1-4)02acd	E-5UA	09/16/85	1016	90.14	90.83	1109.02	
(A-1-4)02acd	E-5UA	10/15/85	0923	90.21	90.90	1108.95	
(A-1-4)02acd	E-5UA	11/17/85	0844	91.47	92.16	1107.69	
(A-1-4)02acd	E-5UA	12/16/85	0940	93.25	93.94	1105.91	
** (A-1-4)02dbb							
(A-1-4)02dbb	SRP 22.5E,5.5N	08/19/85		0.00	0.00	0.00	B
(A-1-4)02dbb	SRP 22.5E,5.5N	09/16/85		0.00	0.00	0.00	B
** (A-1-4)02dbd							
(A-1-4)02dbd	B-J	05/23/85	0901	83.77	83.77	1108.37	
(A-1-4)02dbd	B-J	10/16/85	1020	81.60	82.17	1109.97	
(A-1-4)02dbd	B-J	11/18/85	1534	0.00	0.00	0.00	I
(A-1-4)02dbd	B-J	12/16/85	1520	0.00	0.00	0.00	I
** (A-1-4)02ddd1							
(A-1-4)02ddd1	B-UA-3	10/16/85	0948	71.70	72.31	1119.69	
(A-1-4)02ddd1	B-UA-3	11/19/85	1330	75.31	75.92	1116.08	
(A-1-4)02ddd1	B-UA-3	12/16/85	1455	77.71	78.32	1113.68	
** (A-1-4)02ddd2							
(A-1-4)02ddd2	B-MA-1	05/08/85	0915	137.28	137.28	1054.87	
(A-1-4)02ddd2	B-MA-1	10/16/85	0925	153.37	152.15	1040.00	
(A-1-4)02ddd2	B-MA-1	11/18/85	1411	142.82	141.60	1050.55	
(A-1-4)02ddd2	B-MA-1	12/16/85	1426	135.55	134.33	1057.82	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
(A-1-4)02ddd2	B-MA-1	01/15/86	0914	131.45	130.23	1061.92	
** (A-1-4)02ddd3							
(A-1-4)02ddd3	B-UA-1	05/13/85	0920	66.63	66.63	1125.21	
(A-1-4)02ddd3	B-UA-1	10/16/85	0918	69.10	67.65	1124.19	
(A-1-4)02ddd3	B-UA-1	11/18/85	1420	73.14	71.69	1120.15	
(A-1-4)02ddd3	B-UA-1	12/16/85	1440	75.81	74.36	1117.48	
** (A-1-4)13bac							
(A-1-4)13bac	Kachina	08/23/85		0.00	0.00	0.00	B
(A-1-4)13bac	Kachina	09/18/85		0.00	0.00	0.00	B
** (A-2-4)14abc							
(A-2-4)14abc	Paradise #15	08/23/85		429.60	429.60	845.40	
(A-2-4)14abc	Paradise #15	09/18/85	1023	0.00	0.00	0.00	F
(A-2-4)14abc	Paradise #15	10/15/85	1634	422.62	422.57	852.43	
(A-2-4)14abc	Paradise #15	11/17/85	1201	412.57	411.17	845.83	
(A-2-4)14abc	Paradise #15	12/16/85	1331	399.81	399.76	875.24	H
** (A-2-4)14cdd1							
(A-2-4)14cdd1	SRP 22.7E,9N	08/19/85		0.00	0.00	0.00	C
(A-2-4)14cdd1	SRP 22.7E,9N	09/16/85		0.00	0.00	0.00	C
** (A-2-4)22dab4							
(A-2-4)22dab4	Arcadia #9A	08/23/85		397.07	397.07	877.93	
(A-2-4)22dab4	Arcadia #9A	09/18/85	1500	397.03	397.03	877.97	
(A-2-4)22dab4	Arcadia #9A	10/18/85	0827	396.44	396.44	878.56	
(A-2-4)22dab4	Arcadia #9A	11/19/85	1645	0.00	0.00	0.00	E
(A-2-4)22dab4	Arcadia #9A	12/18/85	0756	382.32	382.32	892.68	J
** (A-2-4)22dcc							
(A-2-4)22dcc	SRP 21.5E,8N	08/19/85		0.00	0.00	0.00	D
(A-2-4)22dcc	SRP 21.5E,8N	09/16/85	1407	344.57	344.55	923.45	
(A-2-4)22dcc	SRP 21.5E,8N	10/15/85	1521	335.37	335.35	932.65	H
(A-2-4)22dcc	SRP 21.5E,8N	11/17/85	1240	344.76	344.74	923.26	H
(A-2-4)22dcc	SRP 21.5E,8N	12/16/85	1256	339.26	339.24	928.76	H
** (A-2-4)23bcc2							
(A-2-4)23bcc2	SRP 22.1E,8.5N	08/19/85		239.53	239.53	1030.47	
(A-2-4)23bcc2	SRP 22.1E,8.5N	09/16/85	1352	0.00	0.00	0.00	D
(A-2-4)23bcc2	SRP 22.1E,8.5N	10/15/85	1620	305.28	305.28	964.72	
(A-2-4)23bcc2	SRP 22.1E,8.5N	11/17/85	1225	0.00	0.00	0.00	D
(A-2-4)23bcc2	SRP 22.1E,8.5N	12/16/85	1603	305.80	305.80	964.20	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
** (A-2-4)23ddd2							
(A-2-4)23ddd2	Phoenix #34	08/19/85		242.42	241.88	994.12	
(A-2-4)23ddd2	Phoenix #34	09/16/85	1337	240.14	239.60	996.40	
(A-2-4)23ddd2	Phoenix #34	10/15/85	1510	240.03	239.49	996.51	
(A-2-4)23ddd2	Phoenix #34	11/17/85	1305	0.00	0.00	0.00	D
(A-2-4)23ddd2	Phoenix #34	12/16/85	1625	238.61	238.07	997.93	
** (A-2-4)24bad							
(A-2-4)24bad	SRP 23.5E,8.8N	08/19/85		260.01	260.01	991.99	
(A-2-4)24bad	SRP 23.5E,8.8N	09/16/85	1316	0.00	0.00	0.00	D
(A-2-4)24bad	SRP 23.5E,8.8N	10/15/85	1446	0.00	0.00	0.00	D
(A-2-4)24bad	SRP 23.5E,8.8N	11/17/85	1140	256.44	256.44	995.56	
(A-2-4)24bad	SRP 23.5E,8.8N	12/16/85	1225	0.00	0.00	0.00	D
** (A-2-4)25aaa							
(A-2-4)25aaa	Phoenix #18	08/19/85		291.77	290.87	952.13	
(A-2-4)25aaa	Phoenix #18	09/18/85	1012	0.00	0.00	0.00	E
(A-2-4)25aaa	Phoenix #18	10/15/85	1430	0.00	0.00	0.00	E
(A-2-4)25aaa	Phoenix #18	11/17/85	1120	353.67	352.77	890.23	E
(A-2-4)25aaa	Phoenix #18	12/16/85	1147	268.93	268.03	974.97	
** (A-2-4)25aab							
(A-2-4)25aab	Phoenix #19	08/23/85		0.00	0.00	0.00	E
(A-2-4)25aab	Phoenix #19	09/18/85	1018	0.00	0.00	0.00	E
(A-2-4)25aab	Phoenix #19	10/15/85	1423	0.00	0.00	0.00	E
(A-2-4)25aab	Phoenix #19	11/17/85	1110	348.48	347.01	895.99	E
(A-2-4)25aab	Phoenix #19	12/16/85	1158	353.06	351.59	891.41	E
** (A-2-4)25ddb							
(A-2-4)25ddb	Phoenix #223	08/23/85		274.28	274.18	953.82	
(A-2-4)25ddb	Phoenix #223	09/18/85	1008	0.00	0.00	0.00	E
(A-2-4)25ddb	Phoenix #223	10/15/85	1230	0.00	0.00	0.00	E
(A-2-4)25ddb	Phoenix #223	11/17/85	0959	306.63	306.53	921.47	E
(A-2-4)25ddb	Phoenix #223	12/16/85	1132	254.13	254.03	973.97	
** (A-2-4)25ddb2							
(A-2-4)25ddb2	E-4UA	08/07/85	0930	123.74	124.68	1104.84	G
(A-2-4)25ddb2	E-4UA	08/09/85	1020	124.47	124.47	1105.05	
(A-2-4)25ddb2	E-4UA	08/12/85	1200	123.30	124.24	1105.28	
(A-2-4)25ddb2	E-4UA	08/22/85	0720	122.99	123.86	1105.66	
(A-2-4)25ddb2	E-4UA	10/15/85	1217	120.61	121.49	1108.03	
(A-2-4)25ddb2	E-4UA	11/17/85	0951	120.51	121.39	1108.13	
(A-2-4)25ddb2	E-4UA	12/16/85	1124	120.77	121.65	1107.87	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
** (A-2-4)26dda1							
(A-2-4)26dda1	M-12MA	06/11/85	1302	222.97	0.00	1004.05	
(A-2-4)26dda1	M-12MA	07/16/85	1102	224.54	0.00	1002.48	
(A-2-4)26dda1	M-12MA	07/31/85	1310	223.07	0.00	1003.95	
(A-2-4)26dda1	M-12MA	08/18/85	1652	223.84	0.00	1003.18	
(A-2-4)26dda1	M-12MA	09/03/85	1423	221.25	0.00	1005.77	
(A-2-4)26dda1	M-12MA	09/16/85	1124	223.88	0.00	1003.14	
(A-2-4)26dda1	M-12MA	10/01/85	0910	222.49	0.00	1004.53	
(A-2-4)26dda1	M-12MA	10/15/85	0918	222.61	0.00	1004.41	
(A-2-4)26dda1	M-12MA	11/01/85	0853	221.53	222.28	1005.26	
(A-2-4)26dda1	M-12MA	11/17/85	1423	219.64	220.39	1007.15	
(A-2-4)26dda1	M-12MA	12/02/85	0844	213.96	214.71	1012.83	
(A-2-4)26dda1	M-12MA	12/16/85	0833	211.56	212.31	1015.23	
** (A-2-4)26dda2							
(A-2-4)26dda2	M-12UA	06/11/85	1418	137.71	0.00	1089.17	
(A-2-4)26dda2	M-12UA	07/15/85	1112	137.08	0.00	1089.80	
(A-2-4)26dda2	M-12UA	07/31/85	1323	137.13	0.00	1089.75	
(A-2-4)26dda2	M-12UA	08/21/85	1125	136.38	0.00	1090.50	
(A-2-4)26dda2	M-12UA	09/03/85	1444	136.19	0.00	1090.69	
(A-2-4)26dda2	M-12UA	09/16/85	1148	135.88	0.00	1091.00	
(A-2-4)26dda2	M-12UA	10/01/85	0927	135.31	0.00	1091.57	
(A-2-4)26dda2	M-12UA	10/15/85	1003	134.42	0.00	1092.46	
(A-2-4)26dda2	M-12UA	11/01/85	0910	133.79	134.32	1093.09	
(A-2-4)26dda2	M-12UA	11/19/85	1059	133.73	134.26	1093.15	
(A-2-4)26dda2	M-12UA	12/02/85	0901	133.58	134.11	1093.30	
(A-2-4)26dda2	M-12UA	12/16/85	0848	133.25	133.78	1093.63	
** (A-2-4)35abb2							
(A-2-4)35abb2	E-3UA	06/06/85	0754	136.38	136.46	1087.76	
(A-2-4)35abb2	E-3UA	06/18/85	0740	135.74	135.74	1088.48	
(A-2-4)35abb2	E-3UA	06/18/85	0859	135.72	135.72	1088.50	
(A-2-4)35abb2	E-3UA	06/18/85	1820	133.34	133.34	1090.88	
(A-2-4)35abb2	E-3UA	07/30/85	0830	134.84	134.99	1089.23	
(A-2-4)35abb2	E-3UA	08/02/85	1107	133.90	134.83	1089.39	
(A-2-4)35abb2	E-3UA	08/02/85	1226	134.01	134.90	1089.32	
(A-2-4)35abb2	E-3UA	08/20/85		133.78	134.39	1089.83	
(A-2-4)35abb2	E-3UA	09/16/85	1234	133.35	133.96	1090.26	
(A-2-4)35abb2	E-3UA	10/15/85	1158	133.05	133.66	1090.56	
(A-2-4)35abb2	E-3UA	11/17/85	1024	132.53	133.14	1091.08	
(A-2-4)35abb2	E-3UA	12/16/85	1108	132.41	133.02	1091.20	
** (A-2-4)35daa							
(A-2-4)35daa	E-2UA	05/29/85	1246	131.10	130.88	1094.05	
(A-2-4)35daa	E-2UA	05/31/85	1905	134.93	134.71	1090.22	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
(A-2-4)35daa	E-2UA	06/19/85	0655	129.85	129.85	1095.08	
(A-2-4)35daa	E-2UA	06/19/85	0748	129.90	129.90	1095.03	
(A-2-4)35daa	E-2UA	08/02/85	0630	126.68	127.64	1097.29	
(A-2-4)35daa	E-2UA	08/02/85	0750	126.75	127.67	1097.26	
(A-2-4)35daa	E-2UA	08/02/85	0802	126.80	127.72	1097.21	
(A-2-4)35daa	E-2UA	08/21/85		126.31	126.97	1097.96	
(A-2-4)35daa	E-2UA	09/16/85	1222	125.35	126.01	1098.92	
(A-2-4)35daa	E-2UA	10/15/85	1135	124.35	125.01	1099.92	
(A-2-4)35daa	E-2UA	11/17/85	1045	123.52	124.18	1100.75	
(A-2-4)35daa	E-2UA	12/16/85	1051	123.43	124.09	1100.84	
** (A-2-4)35dba1							
(A-2-4)35dba1	M-11MA	06/12/85	1216	179.31	0.00	1031.56	
(A-2-4)35dba1	M-11MA	07/16/85	1040	180.19	0.00	1030.68	
(A-2-4)35dba1	M-11MA	07/31/85	1413	178.98	0.00	1031.89	
(A-2-4)35dba1	M-11MA	08/18/85	1719	178.76	0.00	1032.11	
(A-2-4)35dba1	M-11MA	09/03/85	1523	180.00	0.00	1030.87	
(A-2-4)35dba1	M-11MA	09/16/85	0956	181.37	0.00	1029.50	
(A-2-4)35dba1	M-11MA	10/01/85	0836	179.00	0.00	1031.87	
(A-2-4)35dba1	M-11MA	10/15/85	0822	180.69	0.00	1030.18	
(A-2-4)35dba1	M-11MA	11/01/85	0809	181.70	182.40	1029.08	
(A-2-4)35dba1	M-11MA	11/17/85	1404	180.34	181.04	1030.44	
(A-2-4)35dba1	M-11MA	12/02/85	0811	176.61	177.31	1034.17	
(A-2-4)35dba1	M-11MA	12/16/85	0808	174.00	174.70	1036.78	
** (A-2-4)35dba2							
(A-2-4)35dba2	M-11UA	06/12/85	1315	118.25	0.00	1092.14	
(A-2-4)35dba2	M-11UA	07/15/85	1512	114.60	0.00	1095.79	
(A-2-4)35dba2	M-11UA	07/31/85	1401	115.77	0.00	1094.62	
(A-2-4)35dba2	M-11UA	08/21/85	1426	115.44	0.00	1094.95	
(A-2-4)35dba2	M-11UA	09/03/85	1511	115.06	0.00	1095.33	
(A-2-4)35dba2	M-11UA	09/16/85	1039	114.86	0.00	1095.53	
(A-2-4)35dba2	M-11UA	10/01/85	0844	114.38	0.00	1096.01	
(A-2-4)35dba2	M-11UA	10/15/85	0843	114.15	0.00	1096.24	
(A-2-4)35dba2	M-11UA	11/01/85	0822	113.63	114.17	1096.67	
(A-2-4)35dba2	M-11UA	11/19/85	1529	113.28	113.82	1097.02	
(A-2-4)35dba2	M-11UA	12/02/85	0823	113.09	113.63	1097.21	
(A-2-4)35dba2	M-11UA	12/16/85	0813	113.17	113.71	1097.13	
** (A-2-4)35ddc1							
(A-2-4)35ddc1	M-10MA	06/11/85	1704	181.58	0.00	1036.04	
(A-2-4)35ddc1	M-10MA	07/16/85	0846	182.84	0.00	1034.78	
(A-2-4)35ddc1	M-10MA	07/31/85	1442	181.50	0.00	1036.12	
(A-2-4)35ddc1	M-10MA	08/18/85	0733	181.29	0.00	1036.33	
(A-2-4)35ddc1	M-10MA	09/03/85	1548	186.50	0.00	1031.12	
(A-2-4)35ddc1	M-10MA	09/16/85	0906	188.54	0.00	1029.08	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
(A-2-4)35ddc1	M-10MA	10/01/85	0741	182.42	0.00	1035.20	
(A-2-4)35ddc1	M-10MA	10/15/85	0735	187.57	0.00	1030.05	
(A-2-4)35ddc1	M-10MA	11/01/85	0725	189.27	189.95	1028.28	
(A-2-4)35ddc1	M-10MA	11/17/85	1347	184.86	185.54	1032.69	
(A-2-4)35ddc1	M-10MA	12/02/85	0742	180.51	181.19	1037.04	
(A-2-4)35ddc1	M-10MA	12/16/85	0733	177.85	178.53	1039.70	
** (A-2-4)35ddc2							
(A-2-4)35ddc2	M-10UA	06/12/85	0734	119.62	0.00	1098.24	
(A-2-4)35ddc2	M-10UA	07/16/85	0634	117.89	0.00	1099.97	
(A-2-4)35ddc2	M-10UA	07/31/85	1433	116.74	0.00	1101.12	
(A-2-4)35ddc2	M-10UA	08/22/85	0638	116.16	0.00	1101.70	
(A-2-4)35ddc2	M-10UA	09/03/85	1538	115.70	0.00	1102.16	
(A-2-4)35ddc2	M-10UA	09/16/85	0932	115.36	0.00	1102.50	
(A-2-4)35ddc2	M-10UA	10/01/85	0801	114.91	0.00	1102.95	
(A-2-4)35ddc2	M-10UA	10/15/85	0756	114.59	0.00	1103.27	
(A-2-4)35ddc2	M-10UA	11/01/85	0751	114.22	114.79	1103.56	
(A-2-4)35ddc2	M-10UA	11/18/85	1033	114.27	114.84	1103.51	
(A-2-4)35ddc2	M-10UA	12/02/85	0756	114.44	115.01	1103.34	
(A-2-4)35ddc2	M-10UA	12/16/85	0747	114.79	115.36	1102.99	
** (A-2-4)35ddc3							
(A-2-4)35ddc3	M-10LA	06/12/85	0510	227.17	0.00	990.42	
(A-2-4)35ddc3	M-10LA	07/16/85	0622	229.67	0.00	987.92	
(A-2-4)35ddc3	M-10LA	07/31/85	1453	228.43	0.00	989.16	
(A-2-4)35ddc3	M-10LA	08/22/85	0726	223.84	0.00	993.75	
(A-2-4)35ddc3	M-10LA	09/03/85	1603	226.72	0.00	990.87	
(A-2-4)35ddc3	M-10LA	09/16/85	0916	231.17	0.00	986.42	
(A-2-4)35ddc3	M-10LA	10/01/85	0718	228.25	0.00	989.34	
(A-2-4)35ddc3	M-10LA	10/15/85	0711	230.27	0.00	987.32	
(A-2-4)35ddc3	M-10LA	11/01/85	0708	229.97	230.67	987.54	
(A-2-4)35ddc3	M-10LA	11/17/85	1332	226.27	226.97	991.24	
(A-2-4)35ddc3	M-10LA	12/02/85	0725	217.74	218.44	999.77	
(A-2-4)35ddc3	M-10LA	12/16/85	0720	214.46	215.16	1003.05	
** (A-2-4)36dba1							
(A-2-4)36dba1	M-9MA	06/11/85	0948	179.86	0.00	1039.82	
(A-2-4)36dba1	M-9MA	07/16/85	1130	178.73	0.00	1040.95	
(A-2-4)36dba1	M-9MA	07/31/85	1237	177.40	0.00	1042.28	
(A-2-4)36dba1	M-9MA	08/18/85	1633	177.05	0.00	1042.63	
(A-2-4)36dba1	M-9MA	09/03/85	1352	178.62	0.00	1041.06	
(A-2-4)36dba1	M-9MA	09/16/85	1215	180.28	0.00	1039.40	
(A-2-4)36dba1	M-9MA	10/01/85	0946	177.59	0.00	1042.09	
(A-2-4)36dba1	M-9MA	10/15/85	1142	179.51	0.00	1040.17	
(A-2-4)36dba1	M-9MA	11/01/85	0938	180.66	181.42	1038.90	
(A-2-4)36dba1	M-9MA	11/17/85	1443	179.16	179.92	1040.40	

Well Location	Well Number	Date of Sounding	Time	Measured Water Level	Water Level (B.G.S.)	Water Level Elevation	Comments
(A-2-4)36dba1	M-9MA	12/02/85	0925	176.04	176.80	1043.52	
(A-2-4)36dba1	M-9MA	12/16/85	0909	174.11	174.87	1045.45	
** (A-2-4)36dba2							
(A-2-4)36dba2	M-9UA	06/11/85	1036	100.86	0.00	1118.81	
(A-2-4)36dba2	M-9UA	07/15/85	0728	97.97	0.00	1121.70	
(A-2-4)36dba2	M-9UA	07/31/85	1227	96.73	0.00	1122.94	
(A-2-4)36dba2	M-9UA	08/21/85	0826	95.57	0.00	1124.10	
(A-2-4)36dba2	M-9UA	09/03/85	1340	94.69	0.00	1124.98	
(A-2-4)36dba2	M-9UA	09/16/85	1236	94.01	0.00	1125.66	
(A-2-4)36dba2	M-9UA	10/01/85	0959	93.81	0.00	1125.86	
(A-2-4)36dba2	M-9UA	10/15/85	1231	94.40	0.00	1125.27	
(A-2-4)36dba2	M-9UA	11/01/85	0958	95.52	96.19	1124.05	
(A-2-4)36dba2	M-9UA	11/19/85	0832	97.02	97.69	1122.55	
(A-2-4)36dba2	M-9UA	12/02/85	0939	97.76	98.43	1121.81	
(A-2-4)36dba2	M-9UA	12/16/85	0921	98.63	99.30	1120.94	

Code	Comment Code Description
A	Well being drilled at time of measurement
B	No sounding port available
C	Well not accessible
D	Water level greater than length of sounder (>500 ft.)
E	Well pumping continuously
F	Sounding port inaccessible
G	Measurement taken before well deepened
H	Questionable measurement due to oil layer
I	Sounding port rusted shut
J	Well pumping within 1 hour of measurement
K	Water level below bottom of access tube

APPENDIX E

EPA-CLP Full Hazardous Substance List

Hazardous Substance List (HSL) and
Contract Required Detection Limits (CRDL)**

Volatiles	CAS Number	Detection Limits* Low Water[a] ug/L	Low Soil/Sediment[b] ug/Kg
1. Chloromethane	74-87-3	10	10
2. Bromomethane	74-83-9	10	10
3. Vinyl Chloride	75-01-4	10	10
4. Chloroethane	75-00-3	10	10
5. Methylene Chloride	75-09-2	5	5
6. Acetone	67-64-1	10	10
7. Carbon Disulfide	75-15-0	5	5
8. 1,1-Dichloroethene	75-35-4	5	5
9. 1,1-Dichloroethane	75-35-3	5	5
10. trans-1,2-Dichloroethene	156-60-5	5	5
11. Chloroform	67-66-3	5	5
12. 1,2-Dichloroethane	107-06-2	5	5
13. 2-Butanone	78-93-3	10	10
14. 1,1,1-Trichloroethane	71-55-6	5	5
15. Carbon Tetrachloride	56-23-5	5	5
16. Vinyl Acetate	108-05-4	10	10
17. Bromodichloromethane	75-27-4	5	5
18. 1,1,2,2-Tetrachloroethane	79-34-5	5	5
19. 1,2-Dichloropropane	78-87-5	5	5
20. trans-1,3-Dichloropropene	10061-02-6	5	5
21. Trichloroethene	79-01-6	5	5
22. Dibromochloromethane	124-48-1	5	5
23. 1,1,2-Trichloroethane	79-00-5	5	5
24. Benzene	71-43-2	5	5
25. cis-1,3-Dichloropropene	10061-01-5	5	5

(continued)

Volatiles	CAS Number	Detection Limits* Low Water[a] ug/L	Low Soil/Sediment[b] ug/Kg
26. 2-Chloroethyl Vinyl Ether	110-75-8	10	10
27. Bromoform	75-25-2	5	5
28. 2-Hexanone	591-78-6	10	10
29. 4-Methyl-2-pentanone	108-10-1	10	10
30. Tetrachloroethene	127-18-4	5	5
31. Toluene	108-88-3	5	5
32. Chlorobenzene	108-90-7	5	5
33. Ethyl Benzene	100-41-4	5	5
34. Styrene	100-42-5	5	5
35. Total Xylenes		5	5

[a]Medium Water Contract Required Detection Limits (CRDL) for Volatile HSL Compounds are 100 times the individual Low Water CRDL.

[b]Medium Soil/Sediment Contract Required Detection Limits (CRDL) for Volatile HSL Compounds are 100 times the individual Low Soil/Sediment CRDL.

Semi-Volatiles	CAS Number	Detection Limits* Low Water[c] ug/L	Low Soil/Sediment[d] ug/Kg
36. N-Nitrosodimethylamine	62-75-9	10	330
37. Phenol	108-95-2	10	330
38. Aniline	62-53-3	10	330
39. bis(2-Chloroethyl) ether	111-44-4	10	330
40. 2-Chlorophenol	95-57-8	10	330
41. 1,3-Dichlorobenzene	541-73-1	10	330
42. 1,4-Dichlorobenzene	106-46-7	10	330
43. Benzyl Alcohol	100-51-6	10	330
44. 1,2-Dichlorobenzene	95-50-1	10	330
45. 2-Methylphenol	95-48-7	10	330
46. bis(2-Chloroisopropyl) ether	39638-32-9	10	330
47. 4-Methylphenol	106-44-5	10	330
48. N-Nitroso-Dipropylamine	621-64-7	10	330
49. Hexachloroethane	67-72-1	10	330
50. Nitrobenzene	98-95-3	10	330
51. Isophorone	78-59-1	10	330
52. 2-Nitrophenol	88-75-5	10	330
53. 2,4-Dimethylphenol	105-67-9	10	330
54. Benzoic Acid	65-85-0	50	1600
55. bis(2-Chloroethoxy) methane	111-91-1	10	330
56 2,4-Dichlorophenol	120-83-2	10	330
57. 1,2,4-Trichlorobenzene	120-82-1	10	330
58. Naphthalene	91-20-3	10	330
59. 4-Chloroaniline	106-47-8	10	330
60. Hexachlorobutadiene	87-68-3	10	330
61. 4-Chloro-3-methylphenol (para-chloro-meta-cresol)	59-50-7	10	330
62. 2-Methylnaphthalene	91-57-6	10	330
63. Hexachlorocyclopentadiene	77-47-4	10	330
64. 2,4,6-Trichlorophenol	88-06-2	10	330
65. 2,4,5-Trichlorophenol	95-95-4	50	1600

(continued)

Semi-Volatiles	CAS Number	Detection Limits* Low Water[c] ug/L	Low Soil/Sediment[d] ug/Kg
66. 2-Chloronaphthalene	91-58-7	10	330
67. 2-Nitroaniline	88-74-4	50	1600
68. Dimethyl Phthalate	131-11-3	10	330
69. Acenaphthylene	208-96-8	10	330
70. 3-Nitroaniline	99-09-2	50	1600
71. Acenaphthene	83-32-9	10	330
72. 2,4-Dinitrophenol	51-28-5	50	1600
73. 4-Nitrophenol	100-02-7	50	1600
74. Dibenzofuran	132-64-9	10	330
75. 2,4-Dinitrotoluene	121-14-2	10	330
76. 2,6-Dinitrotoluene	606-20-2	10	330
77. Diethylphthalate	84-66-2	10	330
78. 4-Chlorophenyl Phenyl ether	7005-72-3	10	330
79. Fluorene	86-73-7	10	330
80. 4-Nitroaniline	100-01-6	50	1600
81. 4,6-Dinitro-2-methylphenol	534-52-1	50	1600
82. N-nitrosodiphenylamine	86-30-6	10	330
83. 4-Bromophenyl Phenyl ether	101-55-3	10	330
84. Hexachlorobenzene	118-74-1	10	330
85. Pentachlorophenol	87-86-5	50	1600
86. Phenanthrene	85-01-8	10	330
87. Anthracene	120-12-7	10	330
88. Di-n-butylphthalate	84-74-2	10	330
89. Fluoranthene	206-44-0	10	330
90. Benzidine	92-87-5	80	2600
91. Pyrene	129-00-0	10	330
92. Butyl Benzyl Phthalate	85-68-7	10	330
93. 3,3'-Dichlorobenzidine	91-94-1	20	660
94. Benzo(a)anthracene	56-55-3	10	330
95. bis(2-ethylhexyl)phthalate	117-81-7	10	330
96. Chrysene	218-01-9	10	330
97. Di-n-octyl Phthalate	117-84-0	10	330
98. Benzo(b)fluoranthene	205-99-2	10	330
99. Benzo(k)fluoranthene	207-08-9	10	330
100. Benzo(a)pyrene	50-32-8	10	330

(continued)

Semi-Volatiles	CAS Number	Detection Limits* Low Water[c] ug/L	Low Soil/Sediment[d] ug/Kg
101. Indeno(1,2,3-cd)pyrene	193-39-5	10	330
102. Dibenz(a,h)anthracene	53-70-3	10	330
103. Benzo(g,h,i)perylene	191-24-2	10	330

[c]Medium Water Contract Required Detection Limits (CRDL) for Semi-Volatile HSL Compounds are 100 times the individual Low Water CRDL.

[d]Medium Soil/Sediment Contract Required Detection Limits (CRDL) for Semi-Volatile HSL Compounds are 60 times the individual Low Soil/Sediment CRDL.

Pesticides	CAS Number	Detection Limits* Low Water[e] ug/L	Low Soil/Sediment[f] ug/Kg
104. alpha-BHC	319-84-6	0.05	8.0
105. beta-BHC	319-85-7	0.05	8.0
106. delta-BHC	319-86-8	0.05	8.0
107. gamma-BHC (Lindane)	58-89-9	0.05	8.0
108. Heptachlor	76-44-8	0.05	8.0
109. Aldrin	309-00-2	0.05	8.0
110. Heptachlor Epoxide	1024-57-3	0.05	8.0
111. Endosulfan I	959-98-8	0.05	8.0
112. Dieldrin	60-57-1	0.10	16.0
113. 4,4'-DDE	72-55-9	0.10	16.0
114. Endrin	72-20-8	0.10	16.0
115. Endosulfan II	33213-65-9	0.10	16.0
116. 4,4'-DDD	72-54-8	0.10	16.0
117. Endrin Aldehyde	7421-93-4	0.10	16.0
118. Endosulfan Sulfate	1031-07-8	0.10	16.0
119. 4,4'-DDT	50-29-3	0.10	16.0
120. Endrin Ketone	53494-70-5	0.10	16.0
121. Methoxychlor	72-43-5	0.5	80.0
122. Chlordane	57-74-9	0.5	80.0
123. Toxaphene	8001-35-2	1.0	160.0
124. AROCLOR-1016	12674-11-2	0.5	80.0
125. AROCLOR-1221	11104-28-2	0.5	80.0
126. AROCLOR-1232	11141-16-5	0.5	80.0
127. AROCLOR-1242	53469-21-9	0.5	80.0
128. AROCLOR-1248	12672-29-6	0.5	80.0
129. AROCLOR-1254	11097-69-1	1.0	160.0
130. AROCLOR-1260	11096-82-5	1.0	160.0

[e]Medium Water Contract Required Detection Limits (CRDL) for Pesticide HSL Compounds are 100 times the individual Low Water CRDL.

[f]Medium Soil/Sediment Contract Required Detection Limits (CRDL) for Pesticide HSL compounds are 15 times the individual Low Soil/Sediment CRDL.

*Detection limits listed for soil/sediment are based on wet weight. The detection limits calculated by the laboratory for soil/sediment, calculated on dry weight basis, as required by the contract, will be higher.

** Specific detection limits are highly matrix dependent. The detection limits listed herein are provided for guidance and may not always be achievable.

1/85 Rev

Table 1. Elements Determined by Inductively Coupled Plasma Emission or Atomic Absorption Spectroscopy

Element	Contract Required Detection Level[1,2] (ug/L)
Aluminum	200
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Calcium	5000
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	5
Magnesium	5000
Manganese	15
Mercury	0.2
Nickel	40
Potassium	5000
Selenium	5
Silver	10
Sodium	5000
Thallium	10
Tin	40
Vanadium	50
Zinc	20

Table 2. Cyanide Determination

Element	Contract Required Detection Level[1, 2] (ug/L)
Cyanide	10

1: Any analytical method specified in SOW Exhibit D may be utilized as long as the documented instrument or method detection limits meet the Contract Required Detection Level (CRDL) requirements. Higher detection levels may only be used in the following circumstance:

If the sample concentration exceeds two times the detection limit of the instrument or method in use, the value may be reported even though the instrument or method detection limit may not equal the contract required detection level. This is illustrated in the example below:

For lead:
Method in use = ICP
Instrument Detection Limit (IDL) = 40
Sample concentration = 85
Contract Required Detection Level (CRDL) = 5

The value of 85 may be reported even though instrument detection limit is greater than required detection level. The instrument or method detection limit must be documented as described in Exhibit E.

2: These CRDL are the instrument detection limits obtained in pure water that must be met using the procedure in Exhibit E. The detection limits for samples may be considerably higher depending on the sample matrix.

APPENDIX F

Summary of Pumping Discharge and Field
Parameters Measured During Pumping
Tests of Some Monitor Wells

Appendix F: Table of Contents

Summary of Pumping Discharge and Field Parameters for EPA Monitor Wells

(A-1-4)1abb4[E-1UA] F-1
(A-2-4)35daa[E-2UA] F-2
(A-2-4)35abb2[E-3UA] F-3
(A-2-4)25ddb2[E-4UA] F-4
(A-2-4)2acd[E-5UA] F-5
(A-1-4)1abb2[E-1MA] F-6
(A-1-4)1abb3[E-1LA) F-7

Summary of Hydrologic Data for Motorola Off-Site Monitor Wells F-8

Discharge Rate and Barometric Pressure for Beckman Instruments Monitor Wells

(A-1-4)2ddd2[B-MA-1] F-9
(A-1-4)2ddd3[B-UA-1] F-11
(A-1-4)2dbd[B-J] F-13
(A-1-4)2ddd1[B-UA-3] F-15

SUMMARY OF PUMPING DISCHARGE AND FIELD PARAMETERS
MONITORED DURING THE PUMPING OF
(A-1-4)1abb4[E-1UA]

Well Pumped: E-1UA
Date: 6/13/85

Start Pumping: 1510
End Pumping: 1910
Average Pumping Rate: 69.3 gpm

Clock Time	Discharge Rate (gpm)	Electrical Conductivity (umhos/cm)	pH	Temperature (°C)	Notes
1514	70				VOA sample collected
1515		1450	6.38	27	
1557	69				
1603		1600	6.77	23.5	
1620	69				VOA sample collected
1721	69				
1728		1650	6.48	26	Flow rate with bucket and stopwatch-65.9 gpm
1743	69.2				
1800		1600	6.58	26	
1829		1650	6.66	26.5	
1860	69.2				Sample collected for full HSL
1910	70				Pump shut off

SUMMARY OF PUMPING DISCHARGE AND FIELD PARAMETERS
MONITORED DURING THE PUMPING TEST OF
(A-2-4)35daa[E-2UA]

Well Pumped: E-2UA
Date: 6/19/85

Start Pumping: 0900
End Pumping: 1304
Average Pumping Rate: 8.5 gpm

Clock Time	Discharge Rate (gpm)	Electrical Conductivity (umhos/cm)	pH	Temperature (°C)	Notes
0915	9.4	1975		26	
0920	9.4		7.23		
0930	9.7	2000	7.04	26	VOA sample MW-2A collected
0945	9.7	1975	7.04	26	
1000	7.5	2000	7.26	26	
1015	8.1	2000	7.16	26	
1032	8.6	2000	7.27	26	
1048	9.1	2000	7.12	26	
1100	8.1	1990	7.08	26	VOA sample MW-2B collected
1115	8.0	2100	7.36	26	
1130	8.0	2100	7.39	27	
1145	8.0	2050	7.38	28	
1200	8.0	2100	7.48	27	
1215	8.0	2050	7.40	27	
1230	8.0	2030	7.24	27	
1250	8.3	2050	7.31	27.5	Samples MW-2C and MW-2D collected for HSL
1304					Pump shut off, recovery initiated

SUMMARY OF PUMPING DISCHARGE AND FIELD PARAMETERS
MONITORED DURING THE PUMPING TEST OF
(A-2-4)35abb2[E-3UA]

Well Pumped: E-3UA
Date: 6/18/85

Start Pumping: 1120
End Pumping: 1527
Average Pumping Rate: 16.8 gpm

Clock Time	Discharge Rate (gpm)	Electrical Conductivity (umhos/cm)	pH	Temperature (°C)	Notes
1120	23				
1133	16.6				Decrease pumping rate
1137					VOA samples MW-3A and MW-3A-1 collected
1148	16.2	2100	6.68	32	
1200	16.6	2200	6.86	26	
1215	16.6	2200	6.96	26	
1232	15.8	2200	7.18	26	
1245	16.6	2200	7.05	26	
1301	16.6	2200	7.20	28	
1315	16.6	2200	7.18	27	
1320	16.6	2150	7.19	26	VOA samples MW-3B and MW-3B-1 collected
1350	16.6	2150	7.20	27	
1400	16.2	2200	7.18	26	
1416	16.2	2150	7.22	28	
1430	16.6	2150	7.19	27	
1446	16.2	2150	7.08	26.5	
1500	16.2	2150	7.02	26.0	
1510	16.2	2150	7.02	26.0	Samples MW-3C, MW-3D, and blank collected for full HSL
1527					Pump shut off

SUMMARY OF PUMPING DISCHARGE AND FIELD PARAMETERS
MONITORED DURING THE PUMPING TEST OF
(A-2-4)25ddb2[E-4UA]

Well Pumped: E-4UA
Date: 6/22/85

Start Pumping: 1410
End Pumping: 1850
Average Pumping Rate: 13 gpm

Clock Time	Discharge Rate (gpm)	Electrical Conductivity (umhos/cm)	pH	Temperature (°C)	Notes
1418					VOA sample collected
1422:23	13.04				
1423		950		27	
1427		1000		26	
1438	13.6				
1440		1000		25	
1500	13.9				
1505		1000		25	
1534	12.9	1030		26	
1610		1030		25.3	VOA sample collected
1630	11.4	1050		25.3	
1850					VOA sample collected, pump shut off

SUMMARY OF PUMPING DISCHARGE AND FIELD PARAMETERS
MONITORED DURING THE PUMPING TEST OF
(A-1-4)2acd[E-5UA]

Well Pumped: E-5UA
Date: 6/14/85

Start Pumping: 1050
End Pumping: 1420
Average Pumping Rate: 69.9 gpm

Clock Time	Discharge Rate (gpm)	Electrical Conductivity (umhos/cm)	pH	Temperature (°C)	Notes
1051	71				Well is pumping about 2% sand
1105					VOA sample collected
1108	69.5				
1118		1300	7.20	22.0	
1151		1300	6.80	23.5	
1250	69.6				VOA sample collected
1310		1400	6.59	25.0	
1324	69.4				
1417		1400	7.08	25	
1420					Sample collected for full HSL and pump shut off

SUMMARY OF PUMPING DISCHARGE AND FIELD PARAMETERS
MONITORED DURING THE PUMPING TEST OF
(A-1-4)1abb2[E-1MA]

Well Pumped: E-1MA
Date: 6/12/85

Start Pumping: 0913
End Pumping: 1350:10
Average Pumping Rate: 48.6 gpm

Clock Time	Discharge Rate (gpm)	Electrical Conductivity (umhos/cm)	pH	Temperature (°C)	Notes
0916		1200	7.75	27	
0918	48-52	1150	7.38	26	
0930	43.6	1200	7.03	24.5	Generator valve opened to increase flow
0940	44.2	1200	7.08	25.0	
0949					VOA sample collected
1000	44.1	1240	6.80	27	
1035		1240	6.80	28	
1048	43.8	1280	6.80	27	
1105	44.3	1300	6.82	27	
1120		1280	6.80	27	VOA sample collected
1140		1320	6.80	27	
1203	55.8	1320	6.84	27	Increased flow
1245	56	1340	6.99	27	
1300		1350	6.95	27	
1318		1380	6.98	27	Sample collected for full HSL
1342	55.3				
1350:10					Pump shut off

SUMMARY OF PUMPING DISCHARGE AND FIELD PARAMETERS
MONITORED DURING THE PUMPING TEST OF
(A-1-4)1abb3[E-1LA]

Well Pumped: E-1LA
Date: 6/12/85

Start Pumping: 1500
End Pumping: 1914
Average Pumping Rate: 43.3 gpm

Clock Time	Discharge Rate (gpm)	Electrical Conductivity (umhos/cm)	pH	Temperature (°C)	Notes
1503	42-45	1200	8.14	25.5	
1515	40.3	1400	7.56	30.0	
1530		1400	7.31	31	
1536	40.3				
1545		1500	7.3	30	VOA sample collected
1551	40.1				
1600	42-43	1500	7.19	30.5	
1618	42-43	1500	7.20	30.5	
1630	43-44	1500	7.21	31.0	
1645	43-44	1500	7.20	31.0	
1651:48	42.3				
1700	43-44	1500	7.21	31	VOA sample collected
1730		1500	7.15	31	
1747	45-47	1500	7.29	31	
1759	45-47	1500	7.32	30.5	
1818	43.6	1500	7.15	31	
1835	45-47	1530	7.20	32	
1855	45-47	1550	7.21	32	Sample collected for full HSL
1914					Pump shut off

TABLE 2. SUMMARY OF HYDROLOGIC DATA FOR OFF-SITE MONITOR WELLS
MOTOROLA INC. SCOTTSDALE PLANT
ARIZONA

WELL NUMBER	DATE MEASURED	....STATIC WATER LEVEL..... DEPTH BELOW MEASURING POINT (feet)	PUMPING PERIOD (hours)	AVERAGE PUMPING RATE (gpm)[a]	MAXIMUM WATER LEVEL DRAWDOWN DURING PUMPING PERIOD (feet)	SPECIFIC CAPACITY (gpm/ft)[b]	AVERAGE WATER TEMPERATURE (°C)[c]	AVERAGE SPECIFIC ELECTRICAL CONDUCTANCE (µmhos/cm)[d]	AVERAGE pH
UPPER ALLUVIUM UNIT MONITOR WELLS									
(A-1-4)1acd[M-8UA]	4/11/85	89.03	12.0	29	1.40	21	23.0	1,200	7.5
(A-2-4)36dba2[M-9UA]	4/03/85	113.60	12.0	10	2.60	3.8	25.0	1,800	7.4
(A-2-4)35ddc2[M-10UA]	5/03/85	124.27	8.9	30	1.33	23	24.9	2,000	7.3
(A-2-4)35dba2[M-11UA]	4/18/85	120.36	12.0	33	8.80	3.8	24.0	3,000	7.4
(A-2-4)26dda2[M-12UA]	4/25/85	139.20	---	---	---	---	---	2,160	7.5
MIDDLE ALLUVIUM UNIT MONITOR WELLS									
(A-2-4)36dba1[M-9MA]	4/01/85	186.20	12.0	30	3.12	9.6	26.0	1,300	7.6
(A-2-4)35ddc1[M-10MA]	4/08/85	186.85	12.0	28	4.89	5.7	25.8	1,200	7.8
(A-2-4)35dba1[M-11MA]	4/16/85	184.63	12.0	5.1	42.38	0.1	27.0	1,200	8.1
(A-2-4)26dda1[M-12MA]	4/24/85	224.18	12.0	4.0	14.34	0.3	26.5	1,400	8.0
LOWER ALLUVIUM UNIT MONITOR WELL									
(A-2-4)35ddc3[M-10LA]	5/07/85	227.53	12.0	32	2.58	12	28.9	2,000	7.5

[a] gpm - gallons per minute
[b] gpm/ft - gallons per minute per foot of drawdown
[c] °C - degrees Celsius
[d] µmho/cm - micromhos per centimeter

Source: "Results of Motorola Inc. Hydrogeologic Investigations, Phase I Off-Site Monitor Wells," 11/21/85

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

Table 3. Aquifer Test
Discharge Data

Well No:	MA-1	Project No:	84-02101-04
Measurement Method:	Barrel & Stopwatch	Pump On:	0915 5/8/85
Personnel:	Gregory R. Carroll Ronald L. Soroos	Pump Off:	1515 5/8/85

Pumping Elapsed (minutes)	Measured Volume (gallons)	Measured Time (seconds)	Discharge Rate (gpm)
5	22	45	29
10	24	49	29
15	24	45	32
20	24	50	29
25	24	50	29
30	24	50	29
35	24	53	27
40	24	50	29
45	24	50	29
50	24	49	29
55	24	50	29
60	24	50	29
75	20	46	26
90	24	50	29
95	24	50	29
110	24	51	28
125	24	50	29
140	24	50	29
155	24	50	29
170	24	50	29
185	24	51	28
200	24	48	30
215	24	50	29
230	24	49	29
245	24	49	29
260	24	50	29
275	24	50	29
290	24	49	29
305	24	50	29
335	24	50	29

SOURCE: "Summary Report - Soil and Groundwater Investigations Indian Bend Wash, Scottsdale, Arizona", The Mark Group, 11/18/85

Table 4. Aquifer Test
Barometric Pressure Data

Station:	National Weather Service Sky Harbor International Airport Phoenix, Arizona	Project No: Pump On: Pump Off:	84-02101-04 0915 5/8/85 1515 5/8/85

Time	Barometric Pressure (in inches of mercury)
0545	28.78
0645	28.81
0745	28.82
0845	28.82
0945	28.82
1045	28.81
1145	28.79
1245	28.76
1345	28.74
1445	28.71
1545	28.69
1645	28.67
1745	28.65
1845	28.65
1945	28.65
2045	28.65

Table 6. Aquifer Test Discharge Data

Well No:	UA-1	Project No:	84-02101-04
Measurement Method:	Barrel & Stopwatch	Pump On:	0920 5/13/85
Personnel:	Gregory R. Carroll Ronald L. Soroos	Pump Off:	1520 5/13/85

Pumping Elapsed (minutes)	Measured Volume (gallons)	Measured Time (seconds)	Discharge Rate (gpm)
6	20	34.5	35
11	10	16	38
16	20	36	33
21	20	37.5	32
26	20	34	35
31	20	34	35
36	20	34.5	35
41	20	34	35
46	20	35	34
51	20	35	34
56	20	34	35
71	20	35	34
86	20	34.5	35
101	20	34.5	35
116	20	35	34
131	20	35.5	34
146	20	35	34
161	20	35	34
176	20	35.5	34
191	20	35.5	34
206	20	35	34
221	20	35	34
236	20	35	34
251	20	36	33
281	20	35	34
269	20	36	33
326	20	34	35
356	20	35	34

Table 7. Aquifer Test
Barometric Pressure Data

Station:	National Weather Service Sky Harbor International Airport Phoenix, Arizona	Project No: Pump On: Pump Off:	84-02101-04 0920 5/13/85 1520 5/13/85

Time	Barometric Pressure (in inches of mercury)
0545	28.77
0645	28.80
0745	28.81
0845	28.81
0945	28.81
1045	28.79
1145	28.77
1245	28.75
1345	28.73
1445	28.705
1545	28.685
1645	28.675
1745	28.665
1845	28.665
1945	28.665
2045	28.695

Table 9. Aquifer Test
Discharge Data

Well No:	J	Project No:	84-02101-04
Measurement Method:	Barrel & Stopwatch	Pump On:	0901 5/23/85
Personnel:	Ronald L. Soroos Gregory R. Carroll	Pump Off:	1501 5/23/85

Pumping Elapsed Time (minutes)	Measured Volume (gallons)	Measured Time (seconds)	Discharge Rate (gpm)
5	20	35.5	34
10	20	36.5	33
15	20	36	33
20	20	36	33
25	20	36	33
30	20	36	33
35	20	36	33
40	20	36	33
45	20	36	33
50	20	36	33
60	20	36	33
75	20	36	33
90	20	35.5	34
105	20	36	33
120	20	36	33
135	20	36	33
150	20	36	33
165	20	35	34
180	30	53.5	34
195	20	35.5	34
210	30	36	33
225	30	36	33
240	30	52.5	34
255	30	53	34
270	30	53.5	34
285	30	54	33
300	30	53	34
315	30	53	34
330	30	54	33
345	30	54	33

Table 10. Aquifer Test
Barometric Pressure Data

Station:	National Weather Service Sky Harbor International Airport Phoenix, Arizona	Project No: Pump On: Pump Off:	84-02101-04 0901 5/23/85 1501 5/23/85

Time	Barometric Pressure (in inches of mercury)
0545	28.74
0645	28.76
0745	28.78
0845	28.79
0945	28.79
1045	28.78
1145	28.78
1245	28.77
1345	28.75
1445	28.73
1545	28.705
1645	28.685
1745	28.675
1845	28.675
1945	28.685
2045	28.695
2145	28.695
2245	28.695
2345	28.695

Table 3. Aquifer Test Discharge Data

Well No:	UA-3	Project No:	84-02101-04
Measurement Method:	Barrel & Stopwatch	Pump On:	0926 5/17/85
Personnel:	Gregory R. Carroll Samuel R. Rothermel	Pump Off:	1526 5/17/85

Pumping Elapsed Time (minutes)	Measured Volume (gallons)	Measured Time (seconds)	Discharge Rate (gpm)
1	20	34.5	35
3	20	35	34
8	20	35	34
15	20	35.5	34
20	20	35	34
25	20	35	34
30	20	30	40
40	20	35.5	34
45	20	35	34
50	20	34.5	35
55	20	36	33
60	20	35	34
75	20	34.5	35
90	20	34.2	35
105	20	35	34
120	20	36	33
135	20	34.5	35
150	20	34.2	35
165	20	34.5	35
180	20	35	34
195	20	35.5	34
210	20	35.5	34
240	20	35.5	34
255	20	35.5	34
270	20	36.2	33
285	30	52	35
300	20	35.2	34
330	20	36	33
360	20	35	34

SOURCE: "Summary Report - Data From Beckman Well UA-3, Indian Bend Wash, Scottsdale, Arizona", The Mark Group, 11/12/85

Table 4. Aquifer Test
Barometric Pressure Data

Station: National Weather Service
Sky Harbor International
Airport
Phoenix, Arizona

Project No: 84-02101-04
Pump On: 0926 5/17/85
Pump Off: 1526 5/17/85

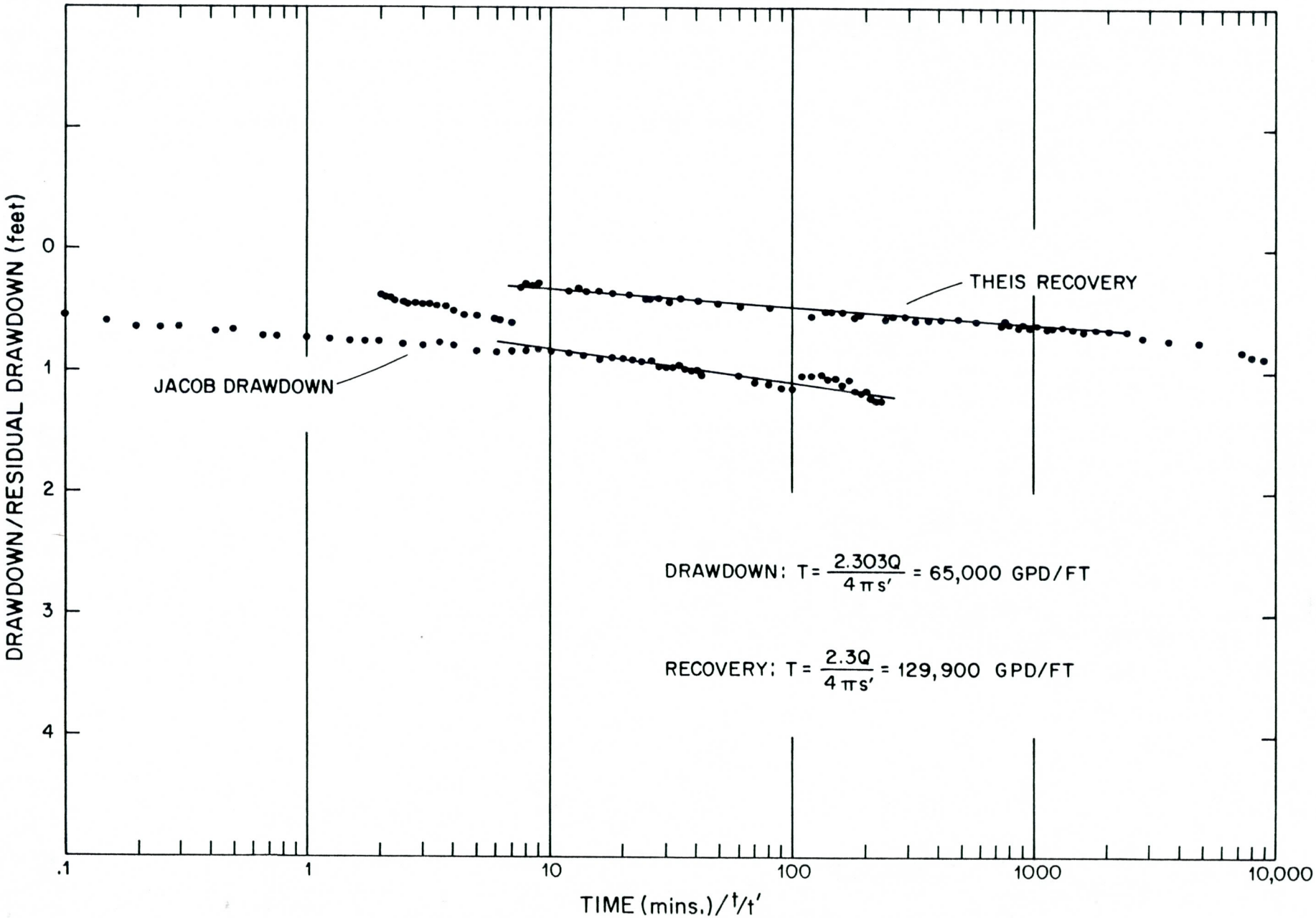
Time	Barometric Pressure (in inches of mercury)
0545	28.74
0645	28.77
0745	28.77
0845	28.77
0945	28.76
1045	28.76
1145	28.74
1245	28.71
1345	28.675
1445	28.655
1545	28.62
1645	28.61
1745	28.59
1845	28.58
1945	28.60

APPENDIX G

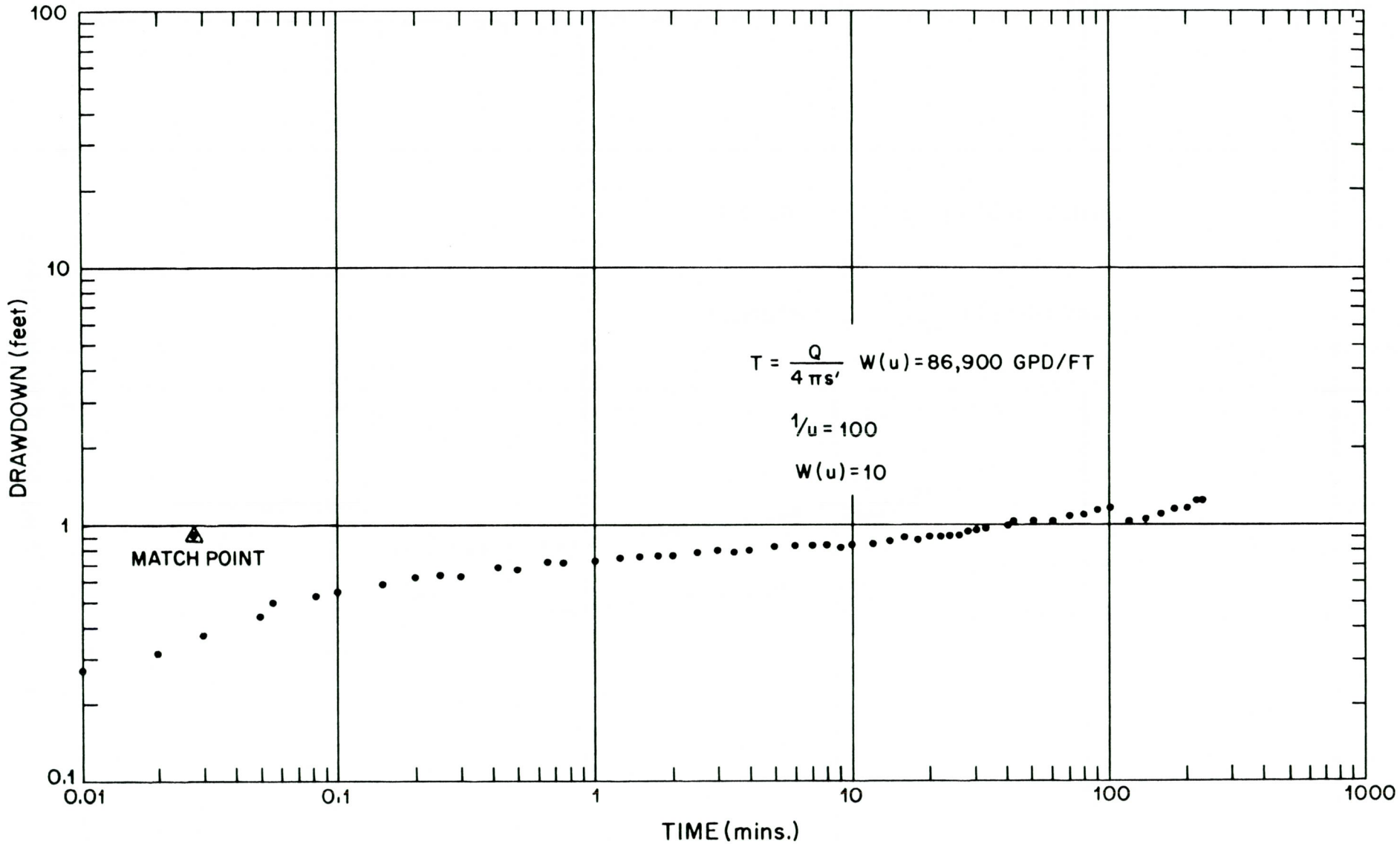
Drawdown and Recovery Plots for
EPA Monitor Wells

Appendix G: Drawdown and Recovery Plots for EPA Monitor Wells

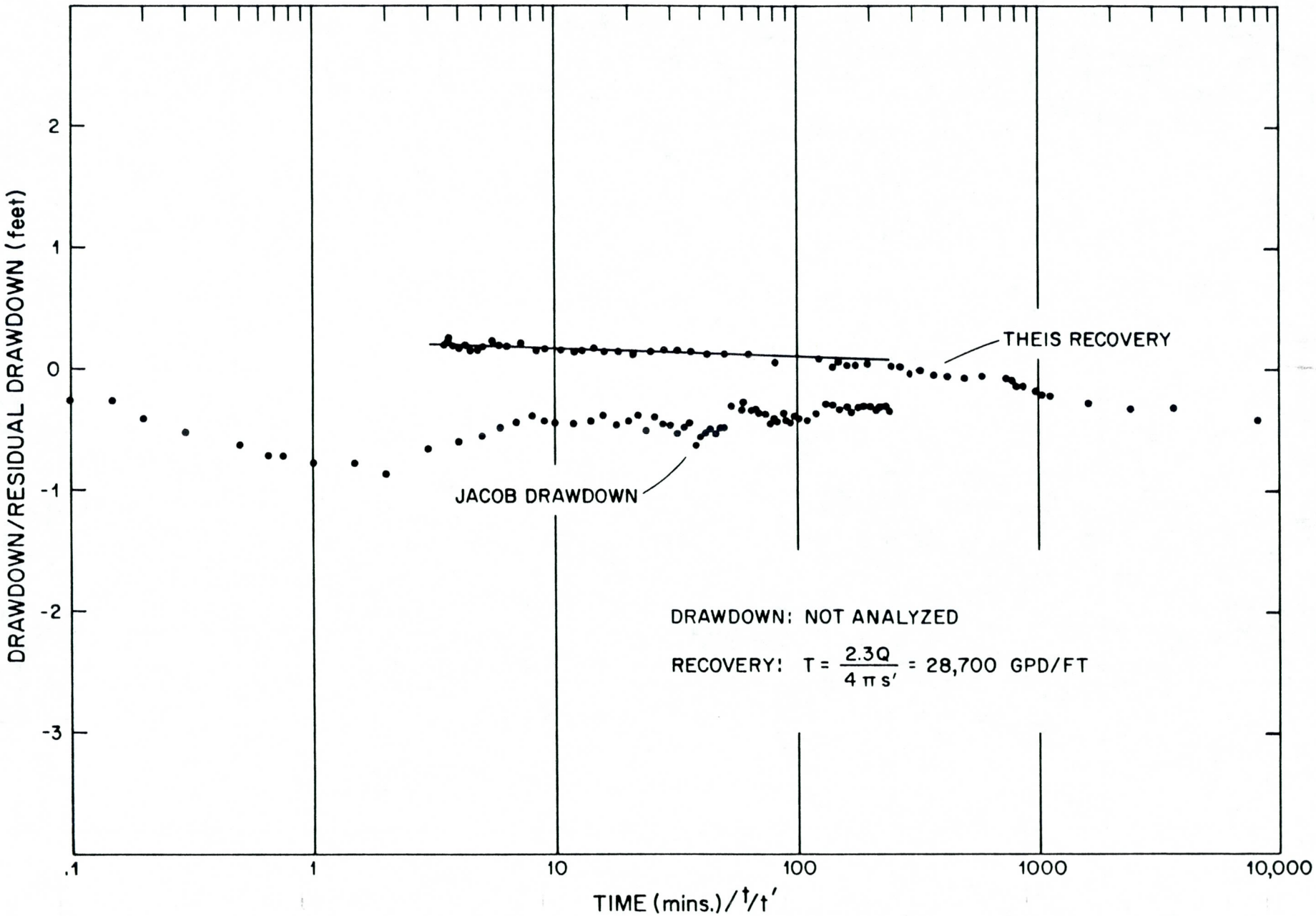
Monitor Well	Page
(A-1-4)abb4[E-1UA]	
Jacob Drawdown	G-1
Theis Recovery	G-1
Theis (Log-Log) Drawdown	G-2
(A-2-4)35daa[E-2UA]	
Jacob Drawdown	G-3
Theis Recovery	G-3
(A-2-4)35abb2[E-3UA]	
Jacob Drawdown	G-4
Theis Recovery	G-4
Theis (Log-Log)Drawdown	G-5
(A-2-4)25ddb2[E-4UA]	
Jacob Drawdown	G-6
Theis Recovery	G-6
Theis (Log-Log)Drawdown	G-7
(A-1-4)2acd[E-5UA]	
Jacob Drawdown	G-8
Theis Recovery	G-8
Theis (Log-Log)Drawdown	G-9
(A-1-4)1abb2[E-1MA]	
Jacob Drawdown	G-10
Theis Recovery	G-10
Theis (Log-Log)Drawdown	G-11
(A-1-4)1abb3[E-1LA]	
Jacob Drawdown, 6/11/85	G-12
Theis Recovery, 6/11/85	G-13
Jacob Drawdown, 11/15/85	G-14
Theis Recovery, 11/15/85	G-14



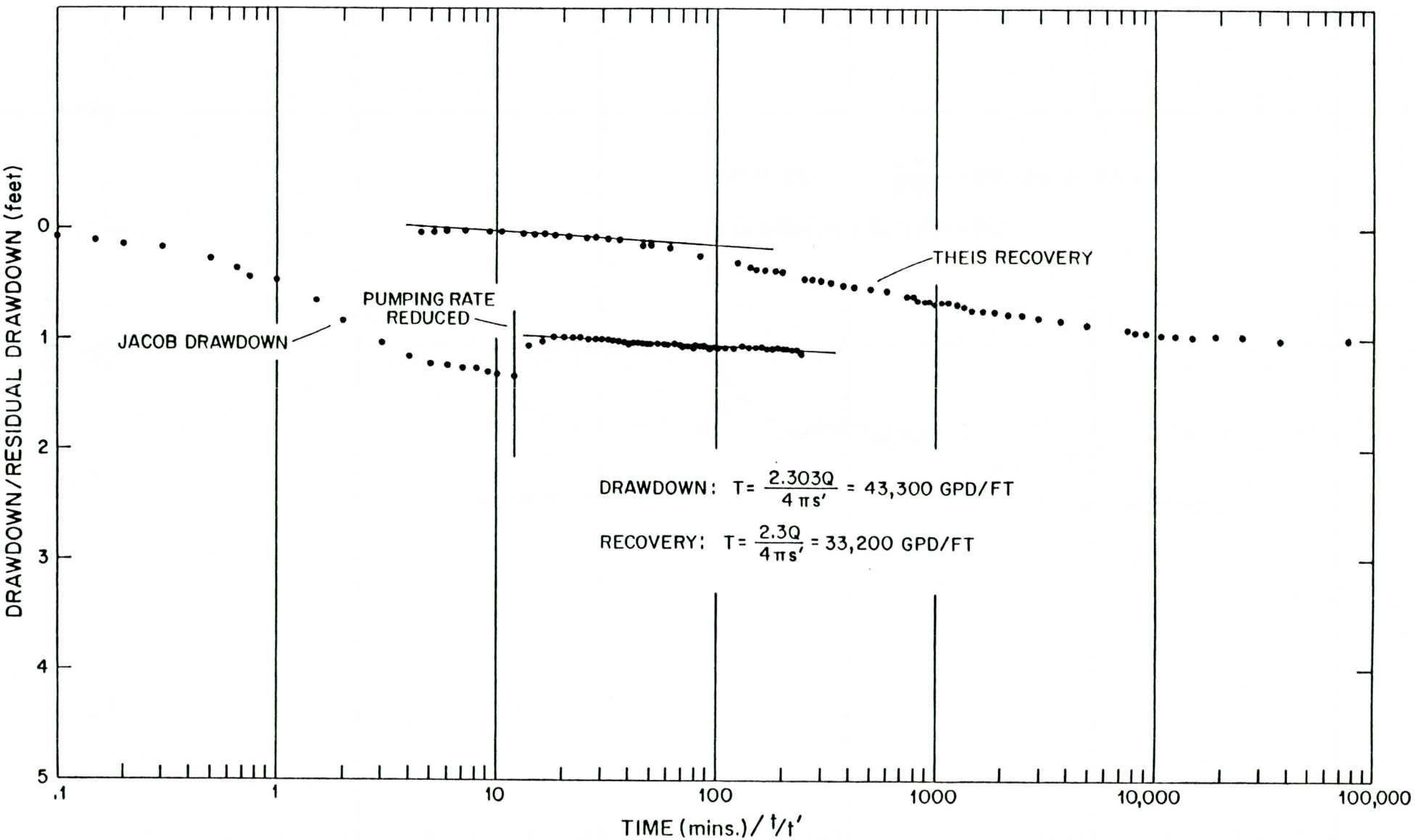
JACOB DRAWDOWN AND THEIS RECOVERY PLOTS FOR (A-1-4) 1ABB4 [E-1UA]



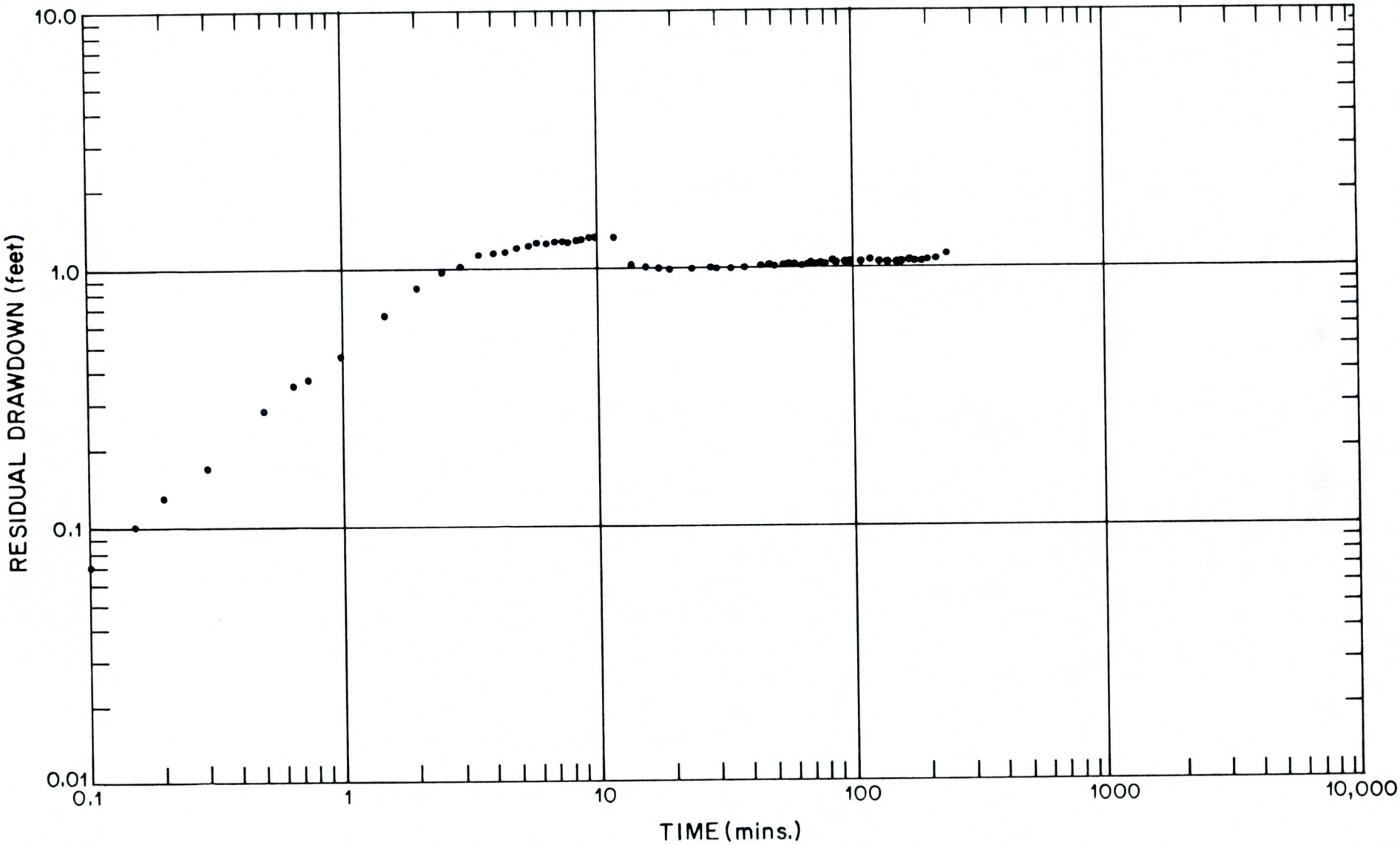
THEIS PLOT FOR (A-1-4) 1ABB4 [E-1UA]



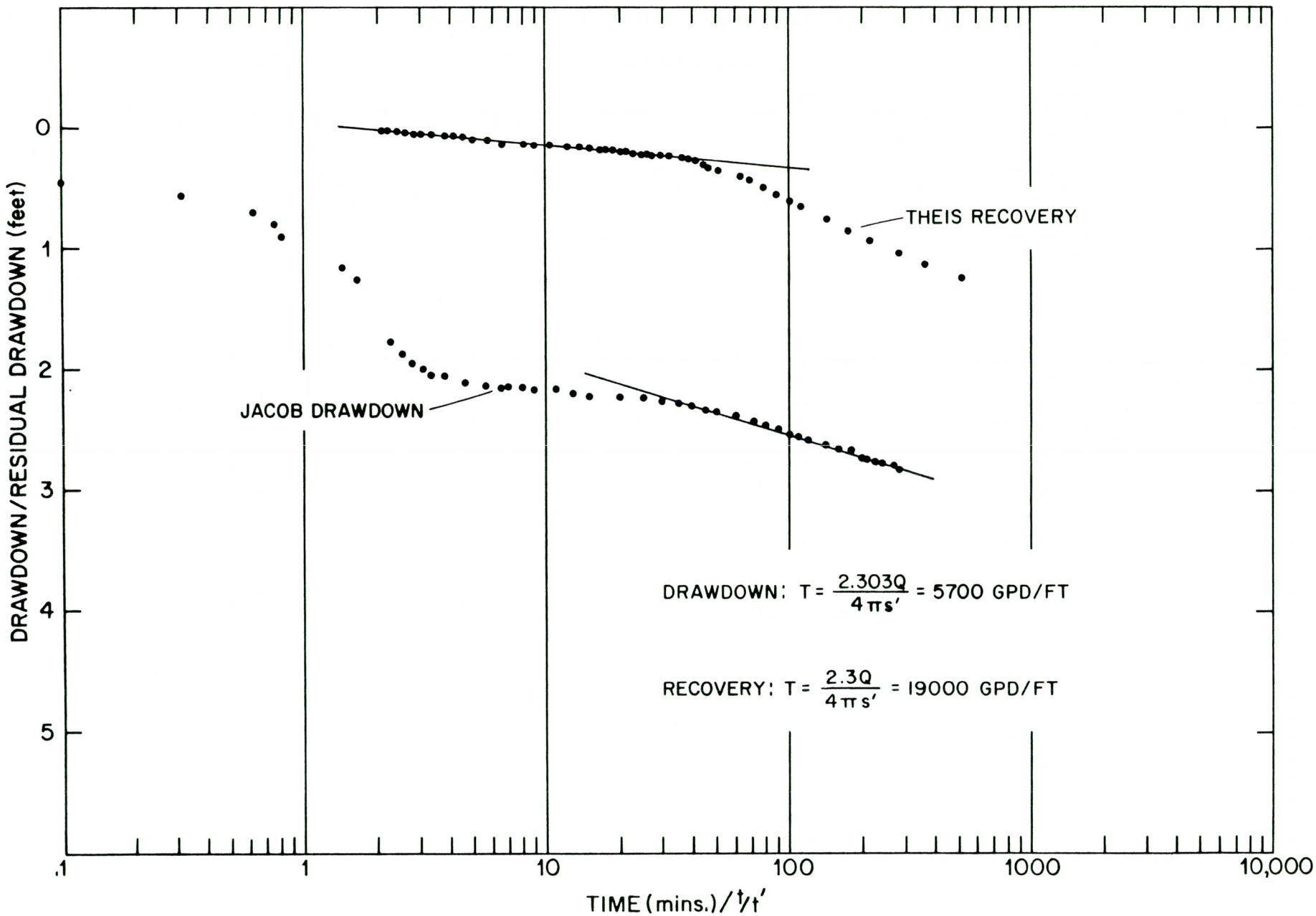
JACOB DRAWDOWN AND THEIS RECOVERY PLOTS FOR (A-2-4) 35DAA [E-2UA]



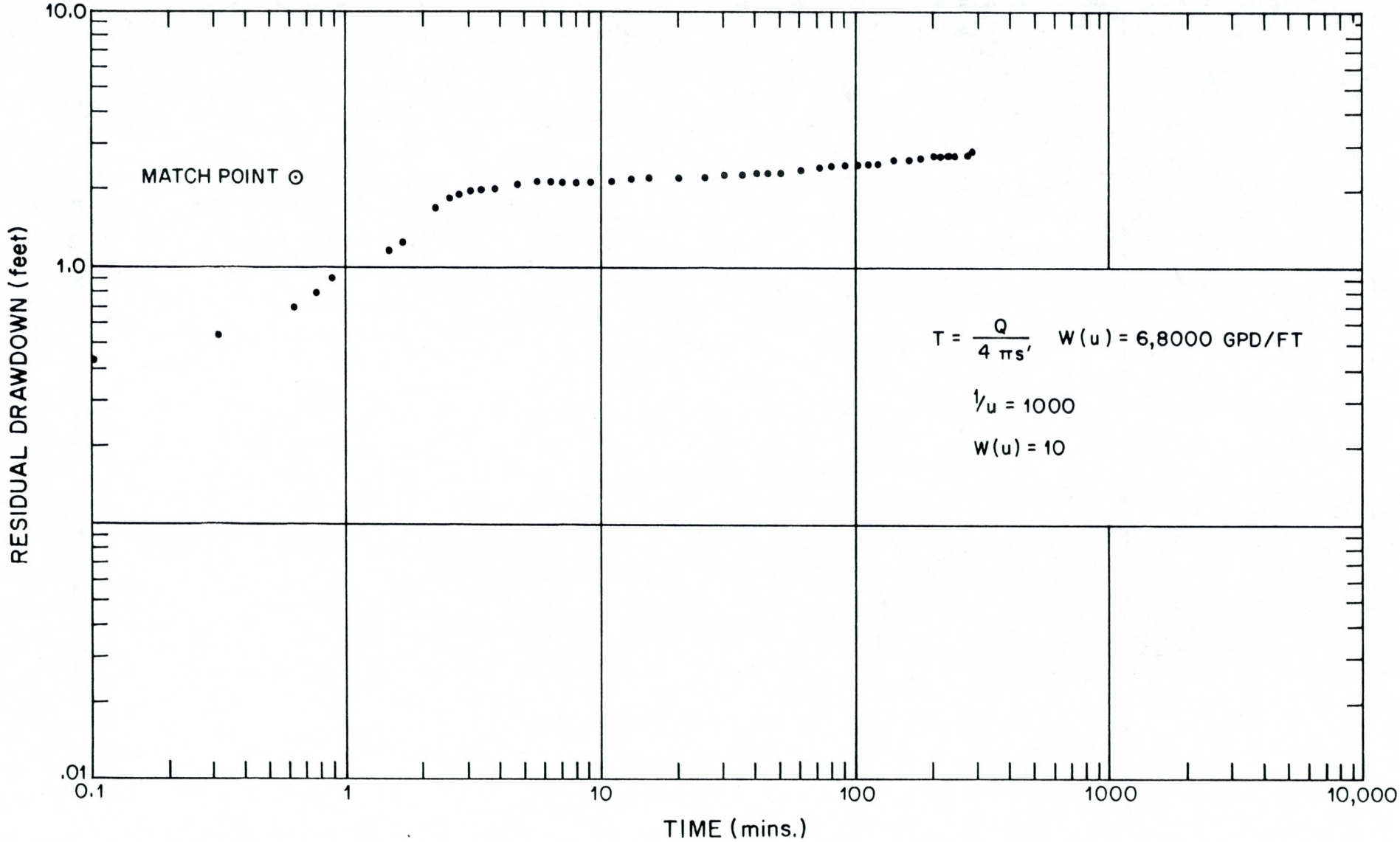
JACOB DRAWDOWN AND THEIS RECOVERY PLOTS FOR (A-2-4) 35ABB2 [E-3UA]



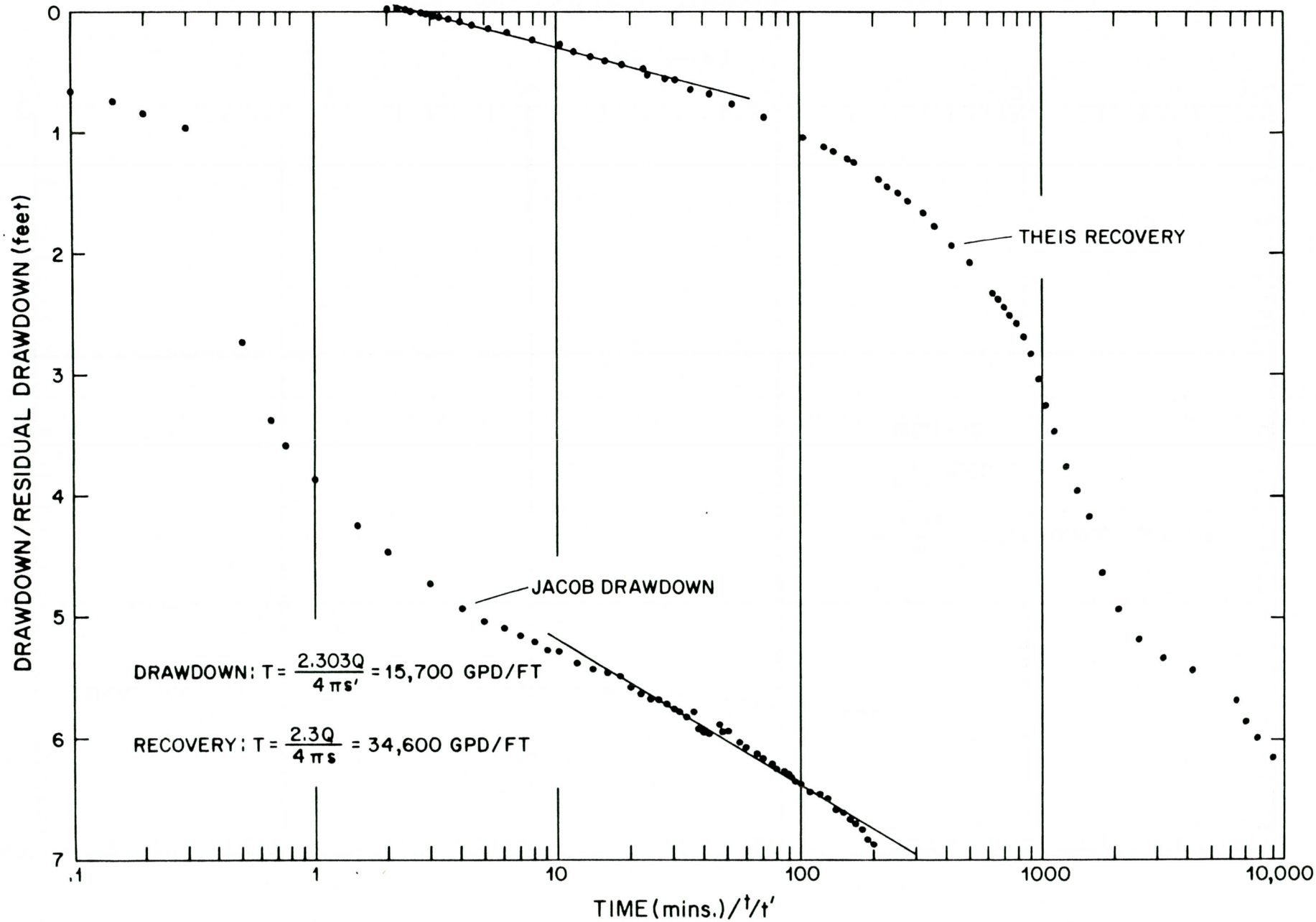
THEIS PLOT FOR (A-2-4) 35ABB2 [E-3UA]



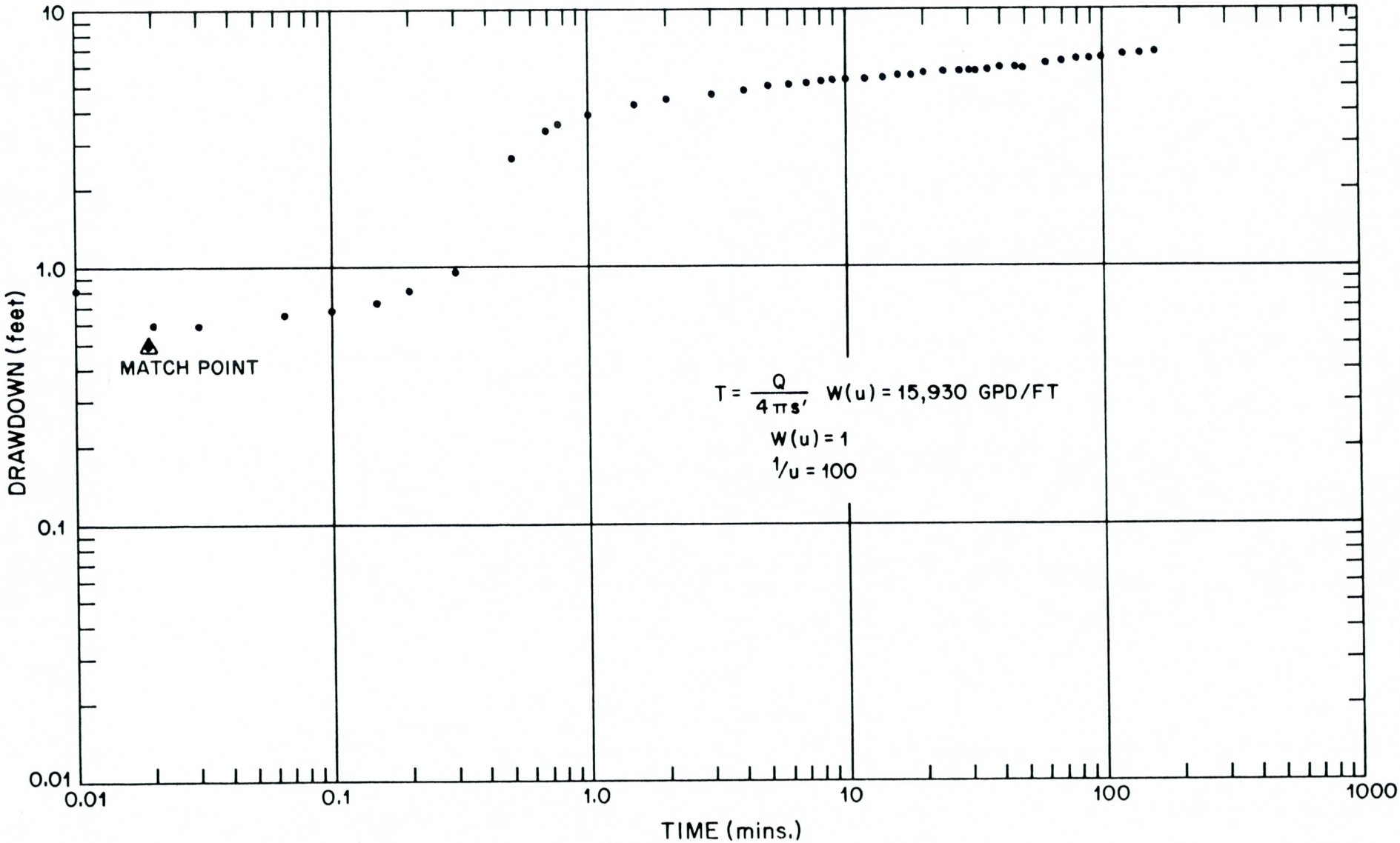
JACOB DRAWDOWN AND THEIS RECOVERY PLOTS FOR (A-2-4) 25DDB2 [E-4UA]



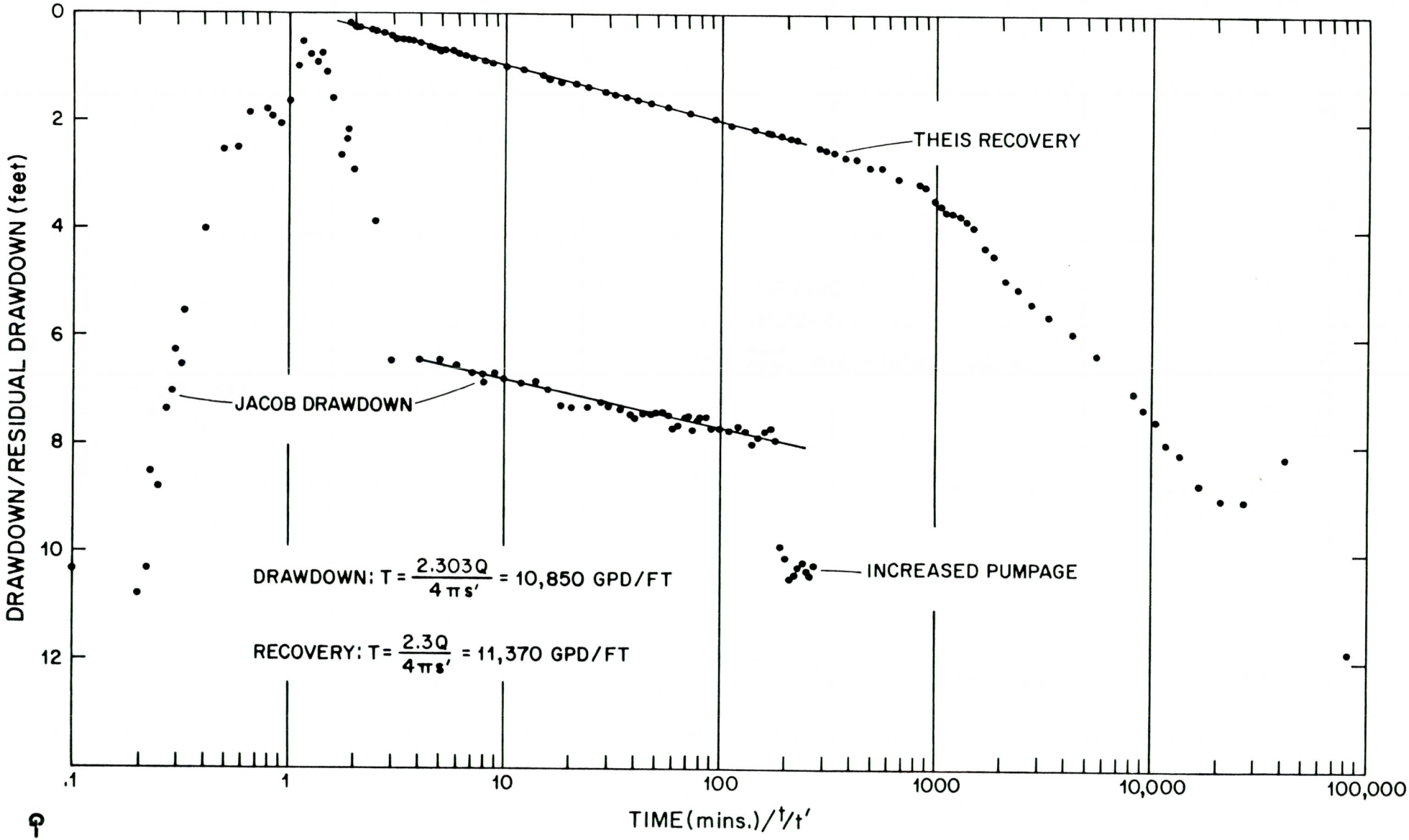
THEIS PLOT FOR (A-2-4)25DDB2 [E-4UA]



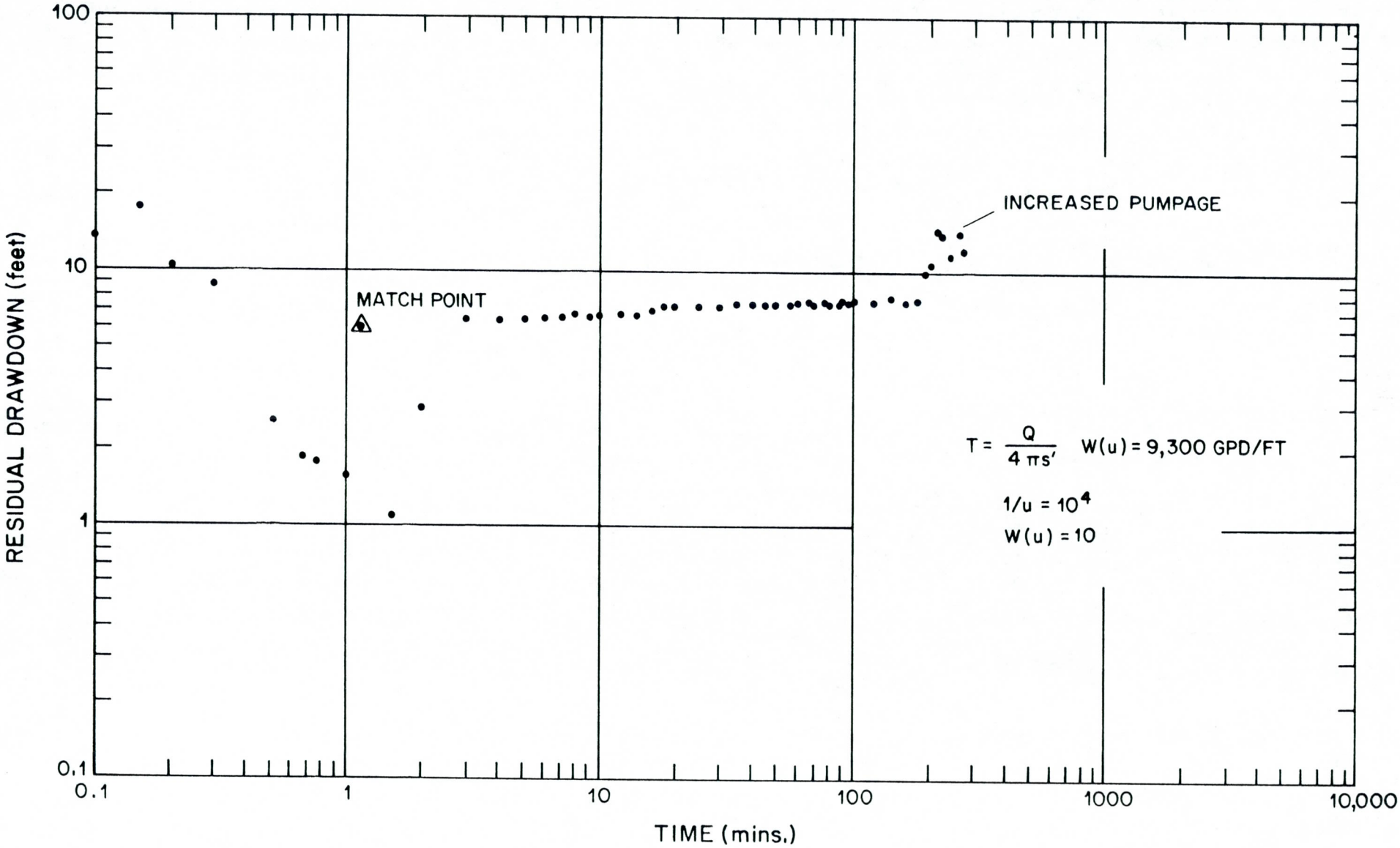
JACOB DRAWDOWN AND THEIS RECOVERY PLOTS FOR (A-1-4) 2ACD [E-5UA]



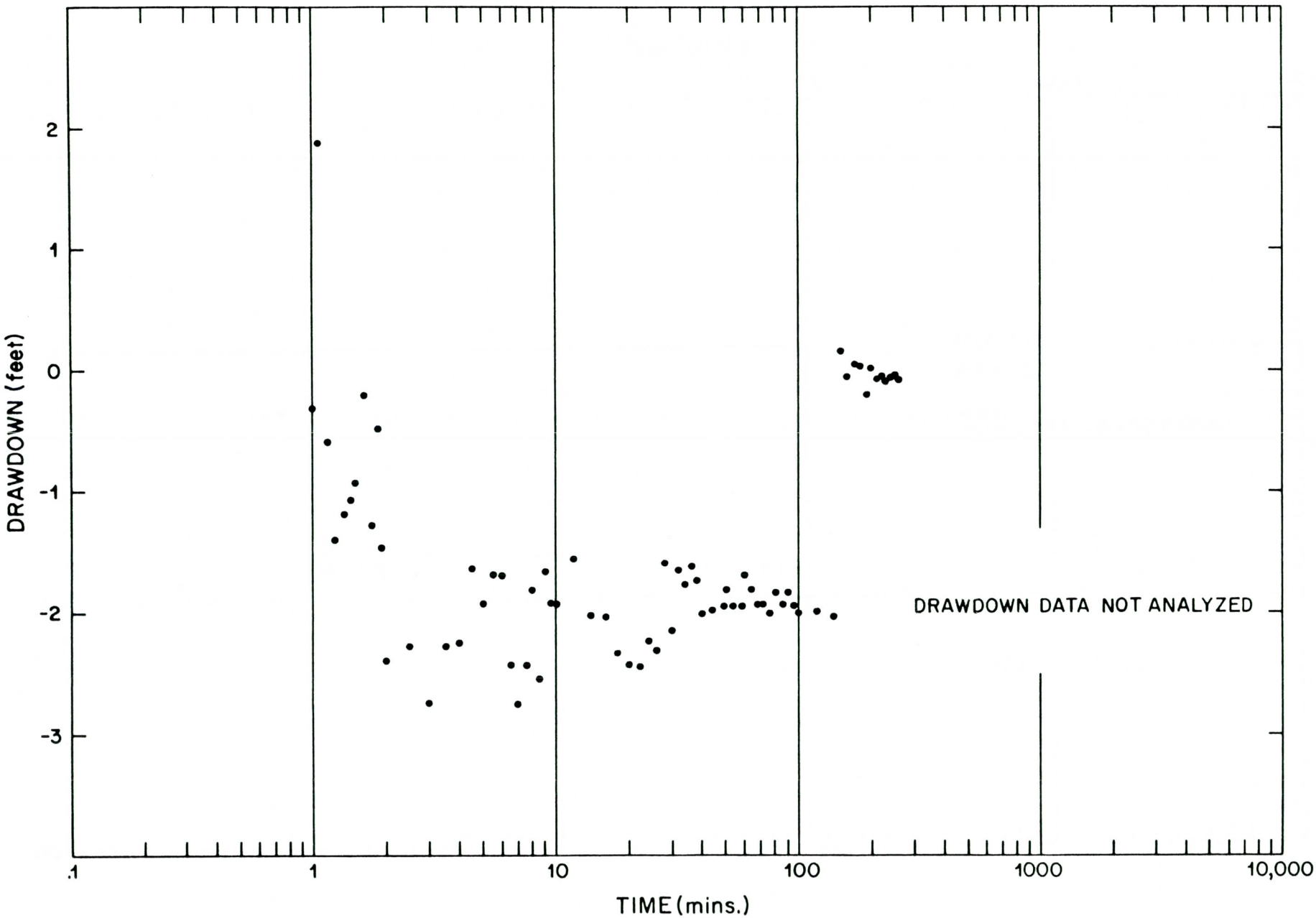
THEIS PLOT FOR (A-1-4) 2ACD [E-5UA]



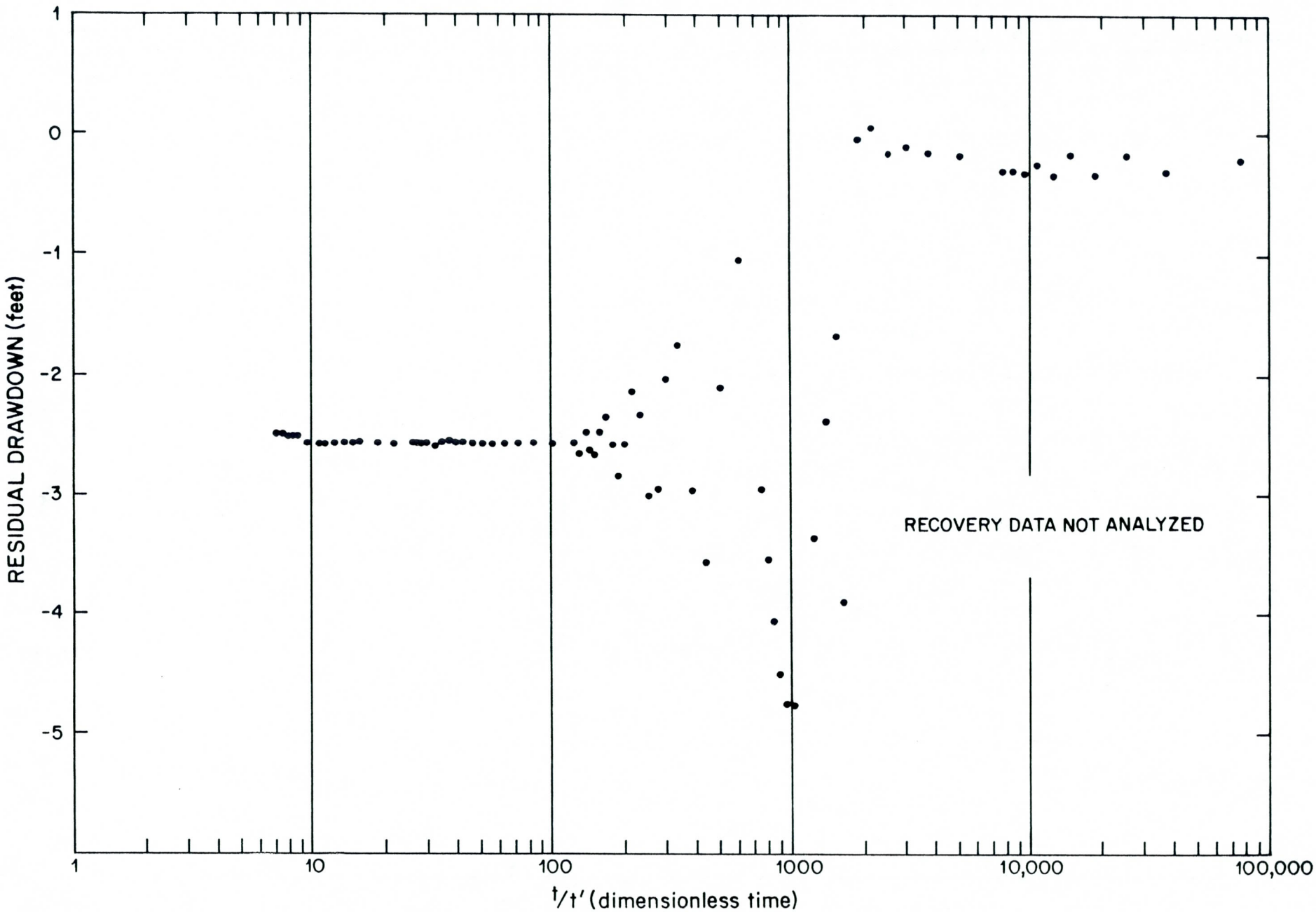
JACOB DRAWDOWN AND THEIS RECOVERY PLOTS FOR (A-1-4) 1ABB2 [E-1MA]



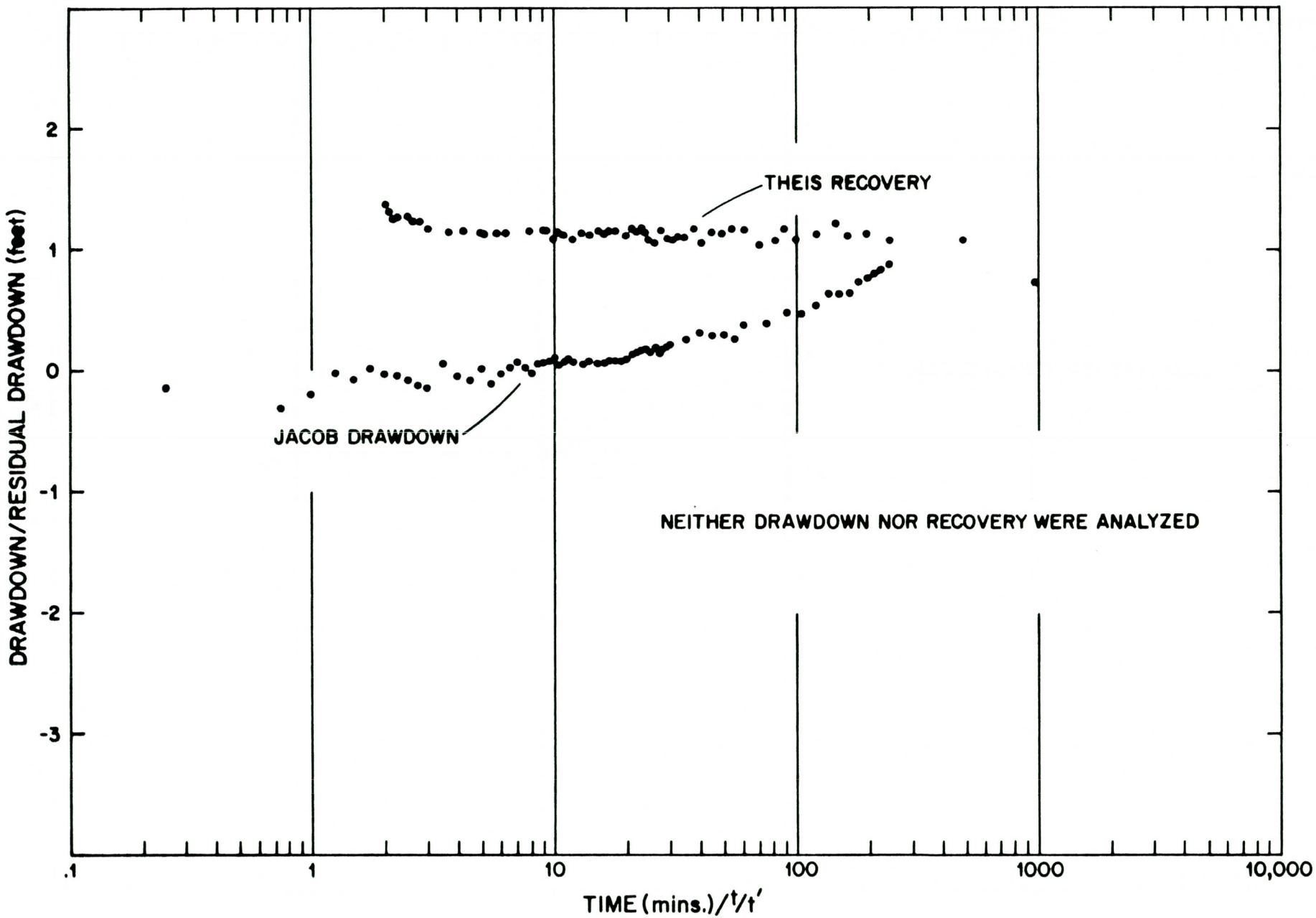
THEIS PLOT FOR (A-1-4) 1ABB2 [E-1MA]



JACOB DRAWDOWN PLOT FOR (A-1-4) 1ABB3 [E-1LA], FROM 6/11/85 TEST



THEIS RECOVERY PLOT FOR (A-1-4) 1ABB3 [E-1LA], FROM 6/11/85 TEST



JACOB DRAWDOWN AND THEIS RECOVERY PLOTS FOR (A-1-4)1ABB3 [E-1LA], FROM 11/15/85

APPENDIX H

Drawdown and Recovery Plots for
Motorola GEG Monitor Wells

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(A-2-4)35ddc3[M-10LA]	
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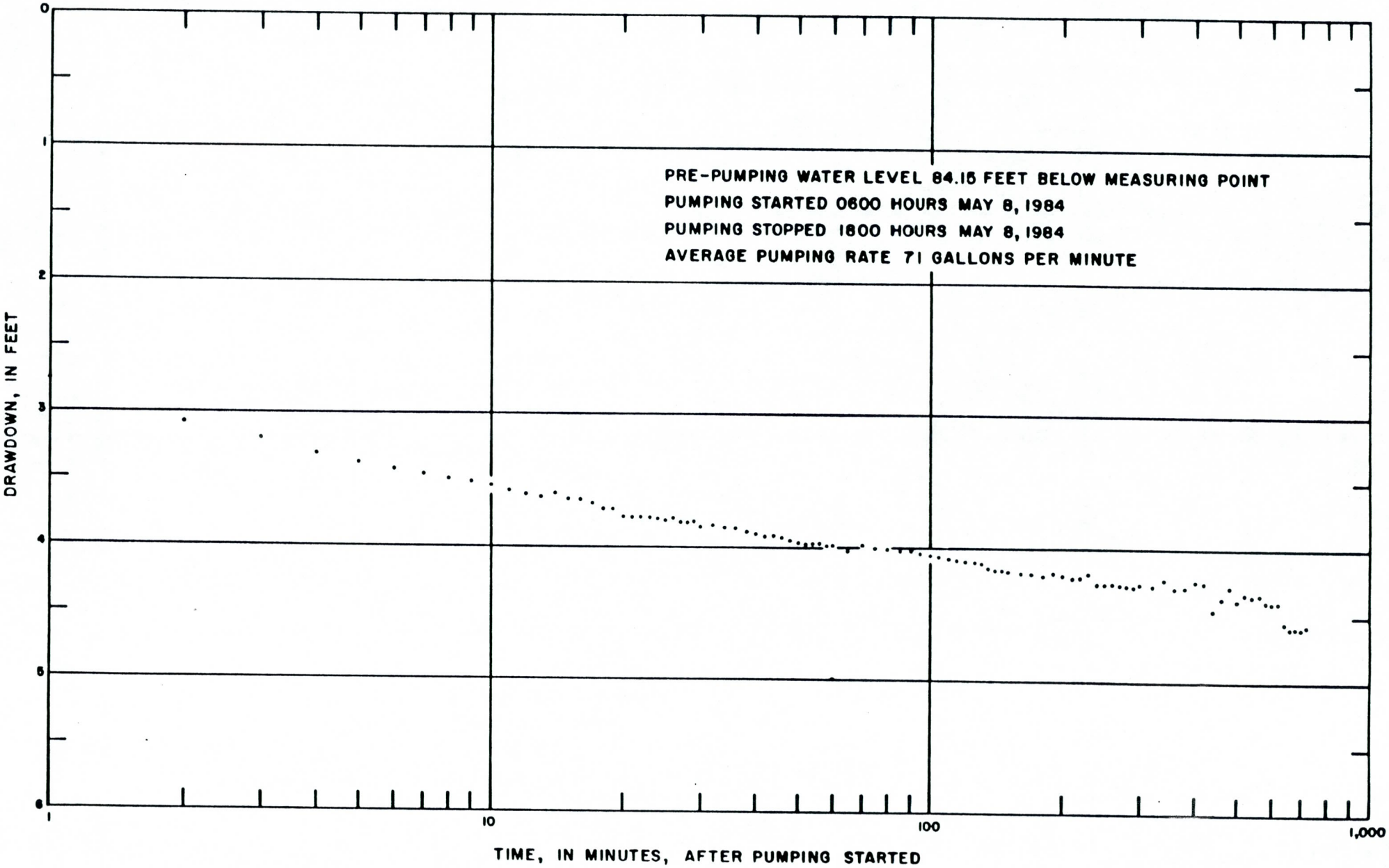

FIGURE D-1. DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1bdd$_2$ [M-3UA]

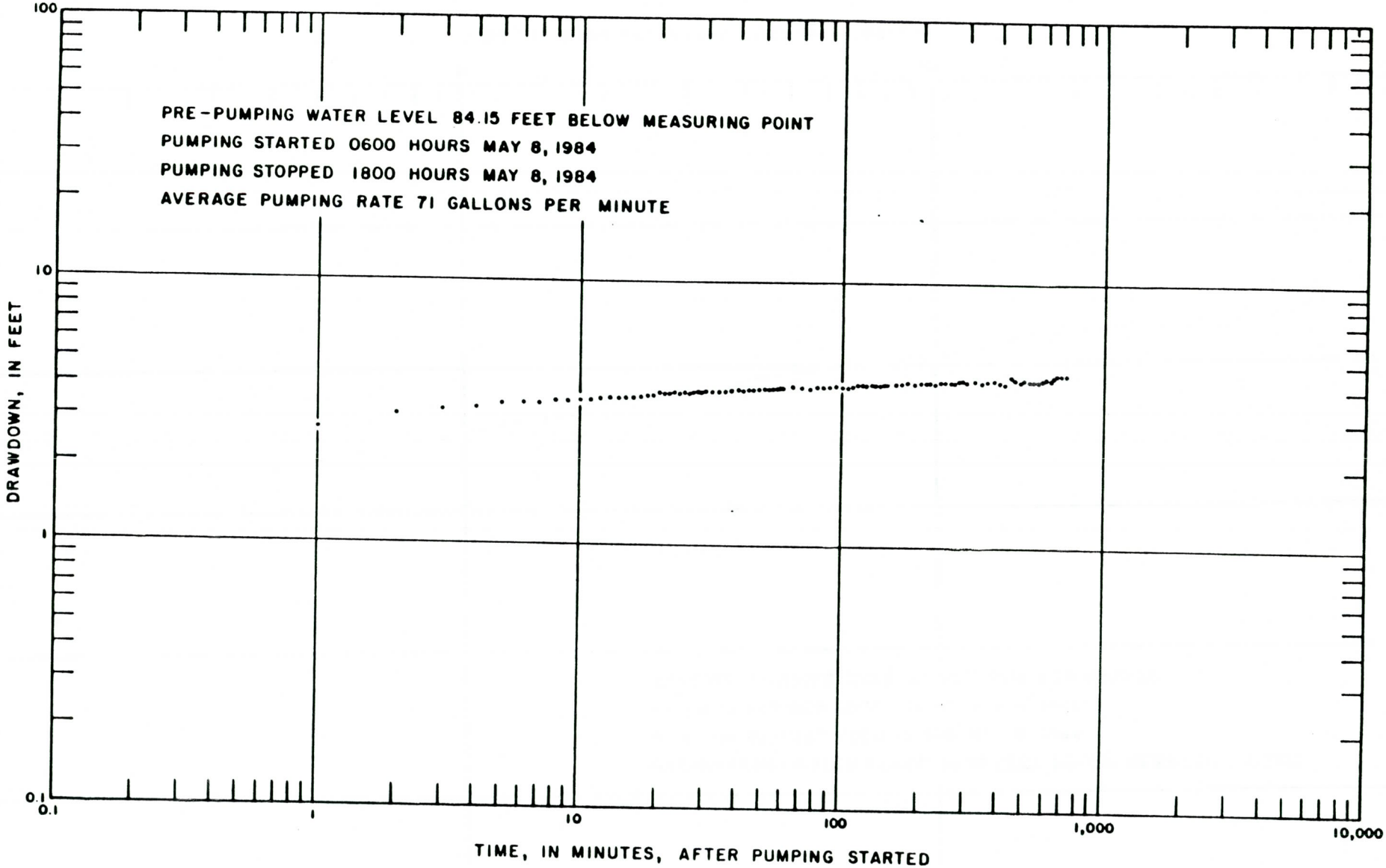

FIGURE D-2. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1bdd$_2$ [M-3UA]

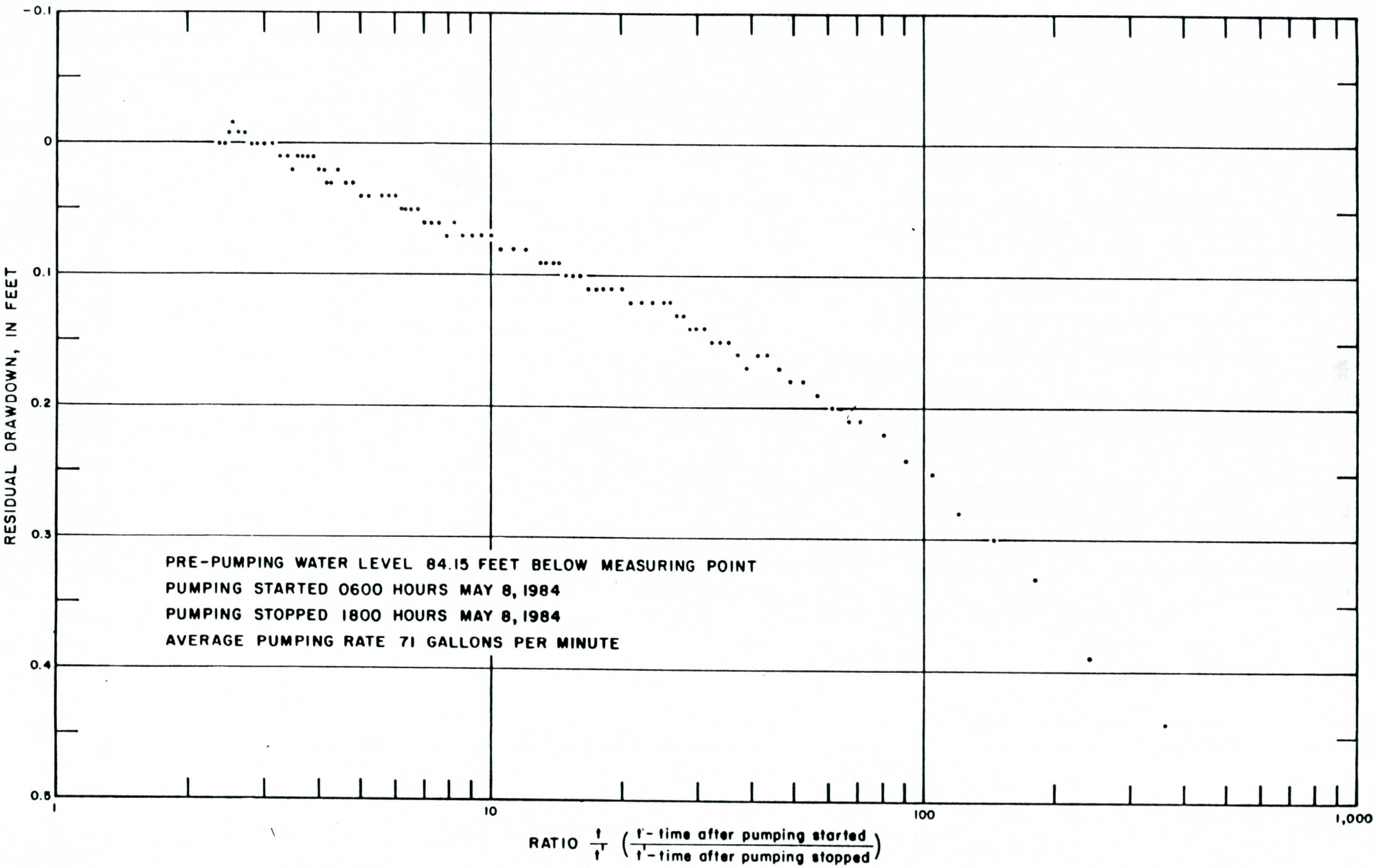

FIGURE D-3. RECOVERY GRAPH FOR MONITOR WELL (A-1-4)1bdd$_2$ [M-3UA]

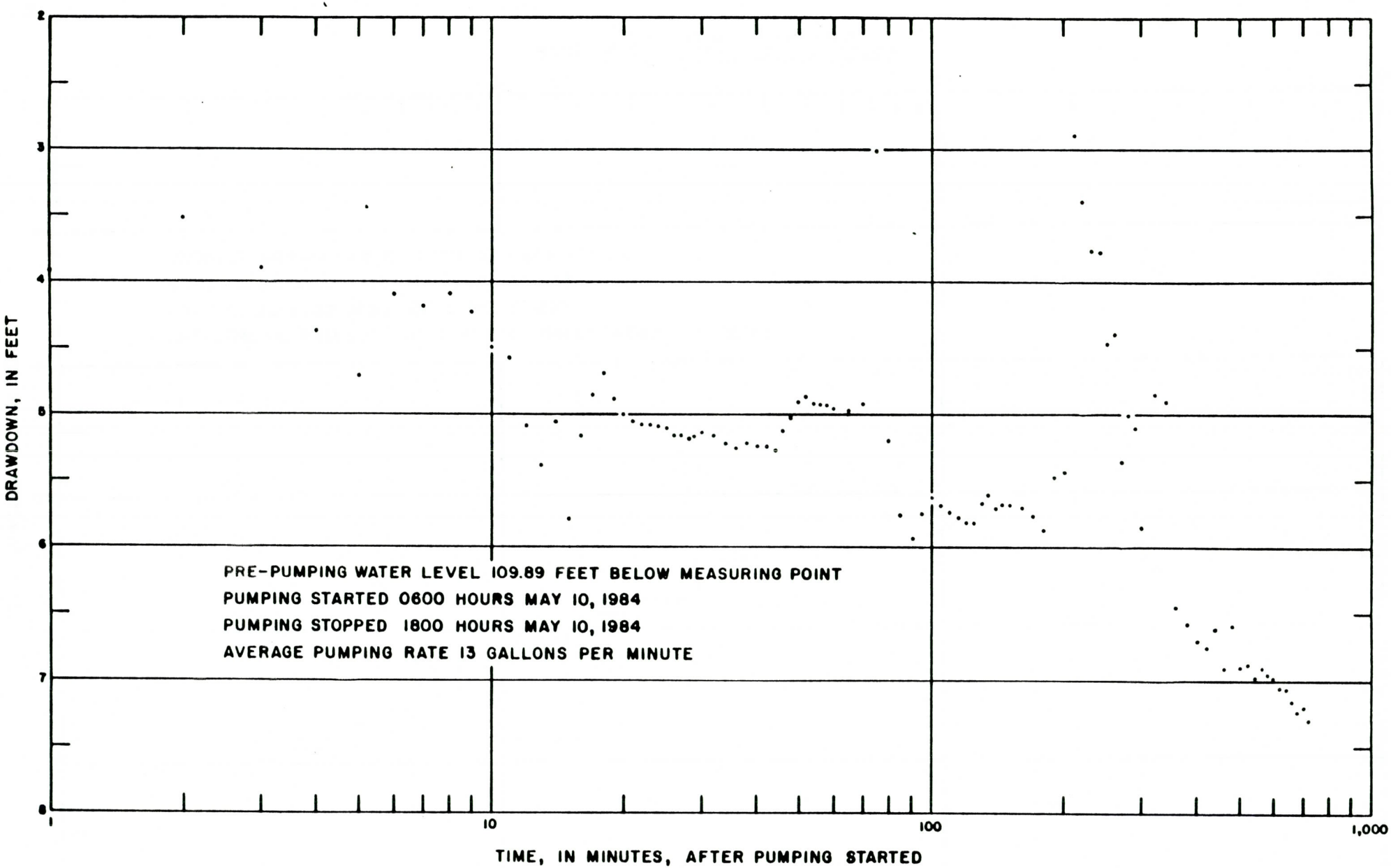

FIGURE D-4. DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1bba$_2$ [M-5UA]

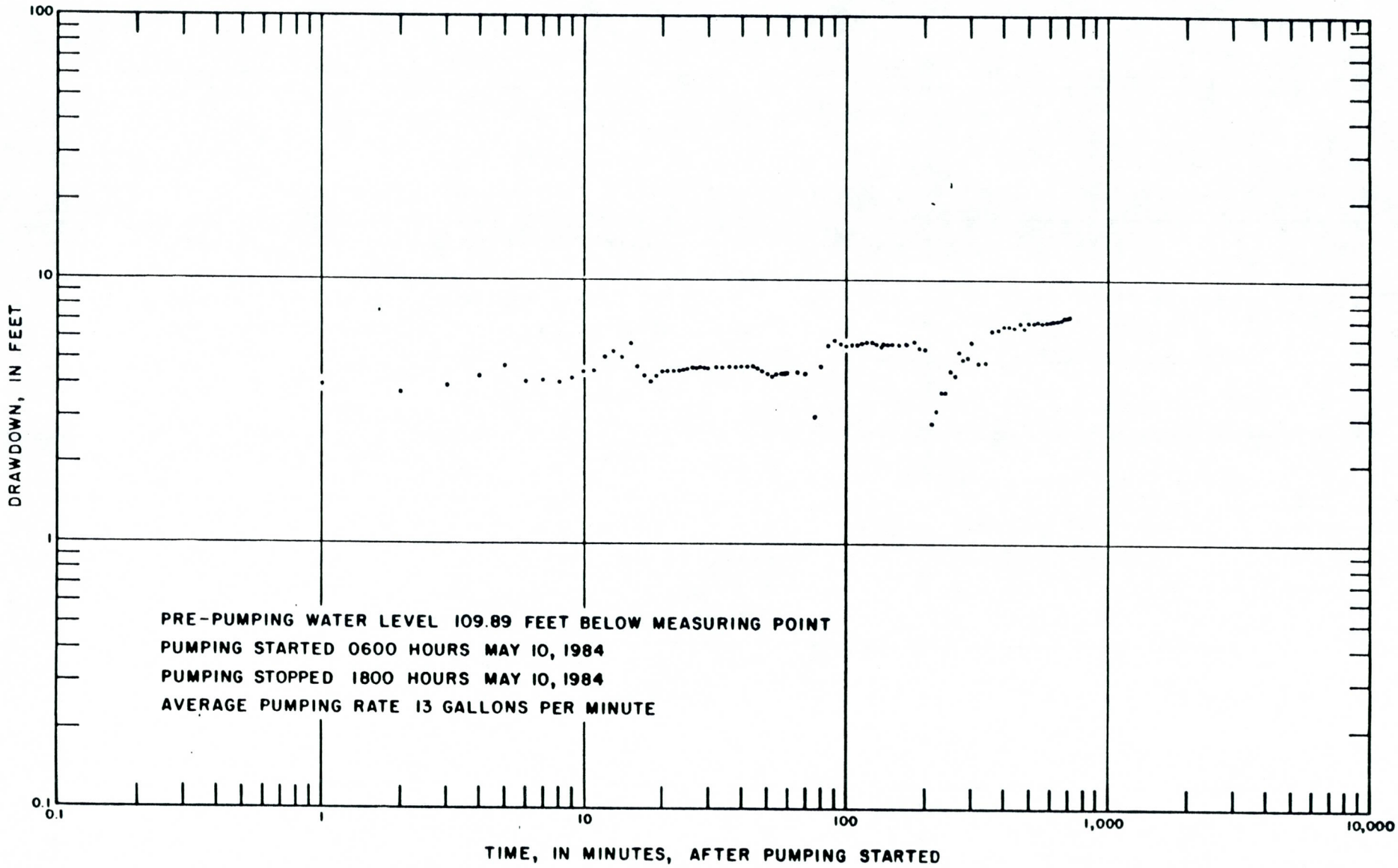

FIGURE D-5. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1bba$_2$ [M-5UA]

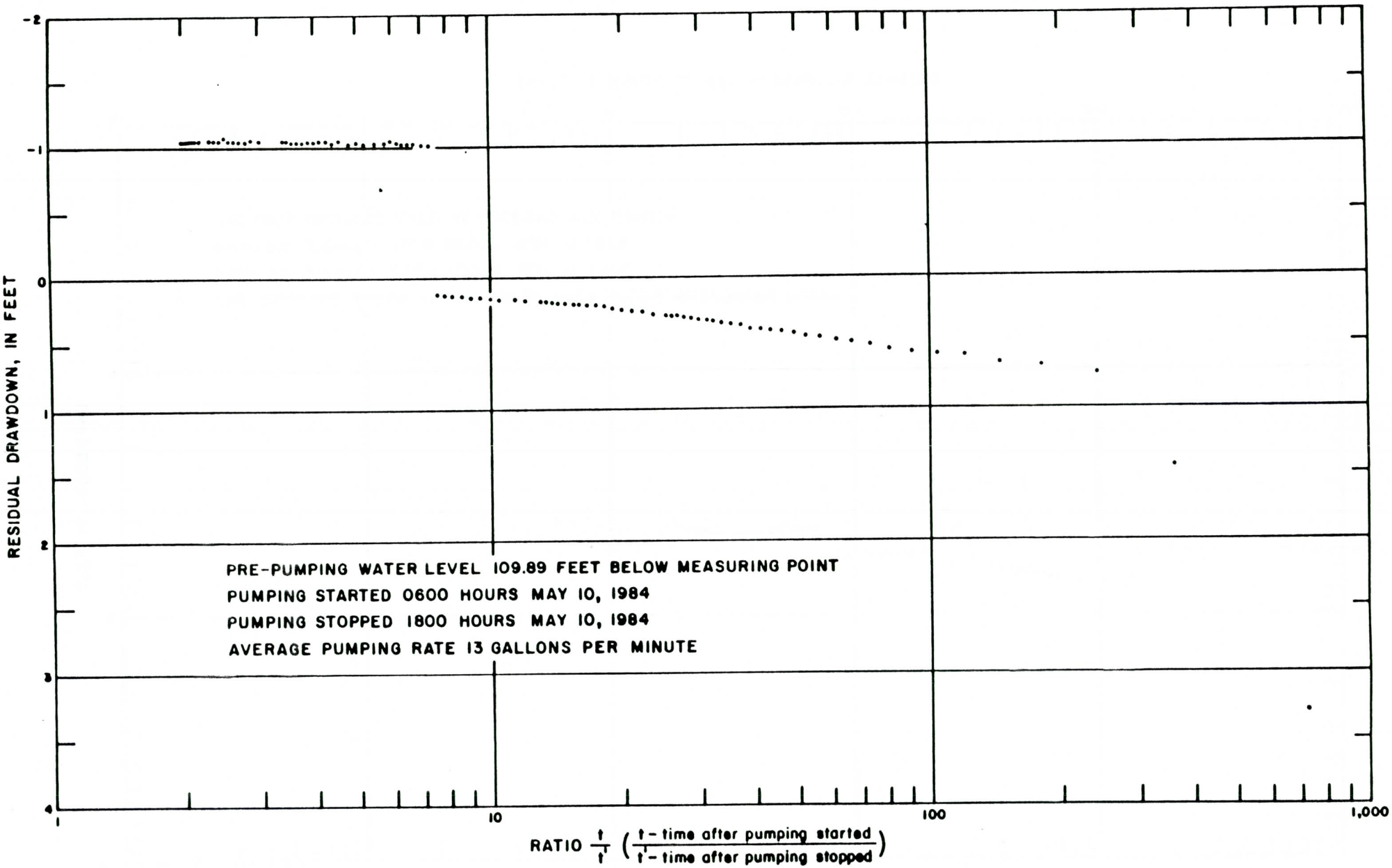

FIGURE D-6. RECOVERY GRAPH FOR MONITOR WELL (A-1-4)1bba$_2$ [M-5UA]

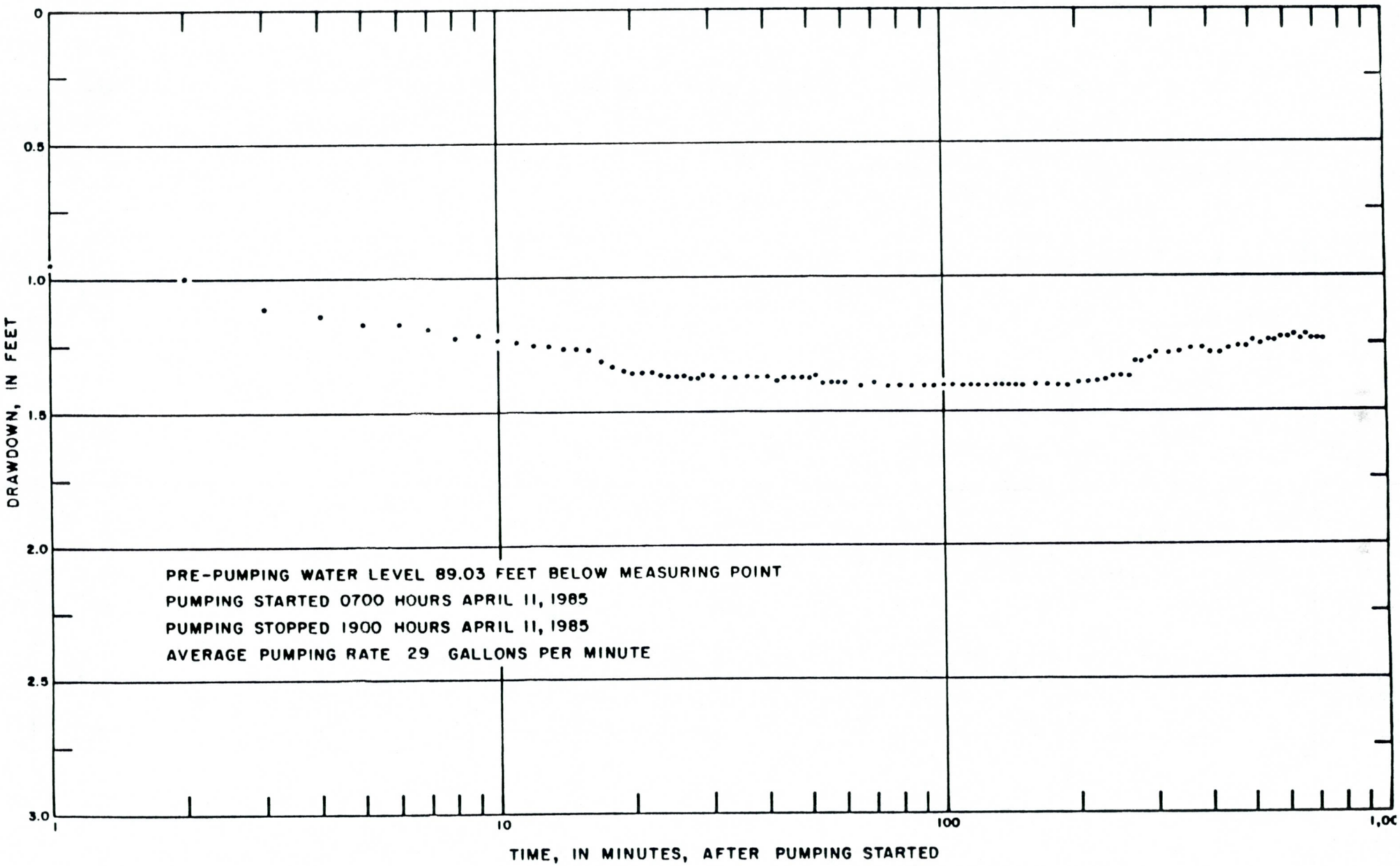

FIGURE D-1. DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1acd [M-8UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

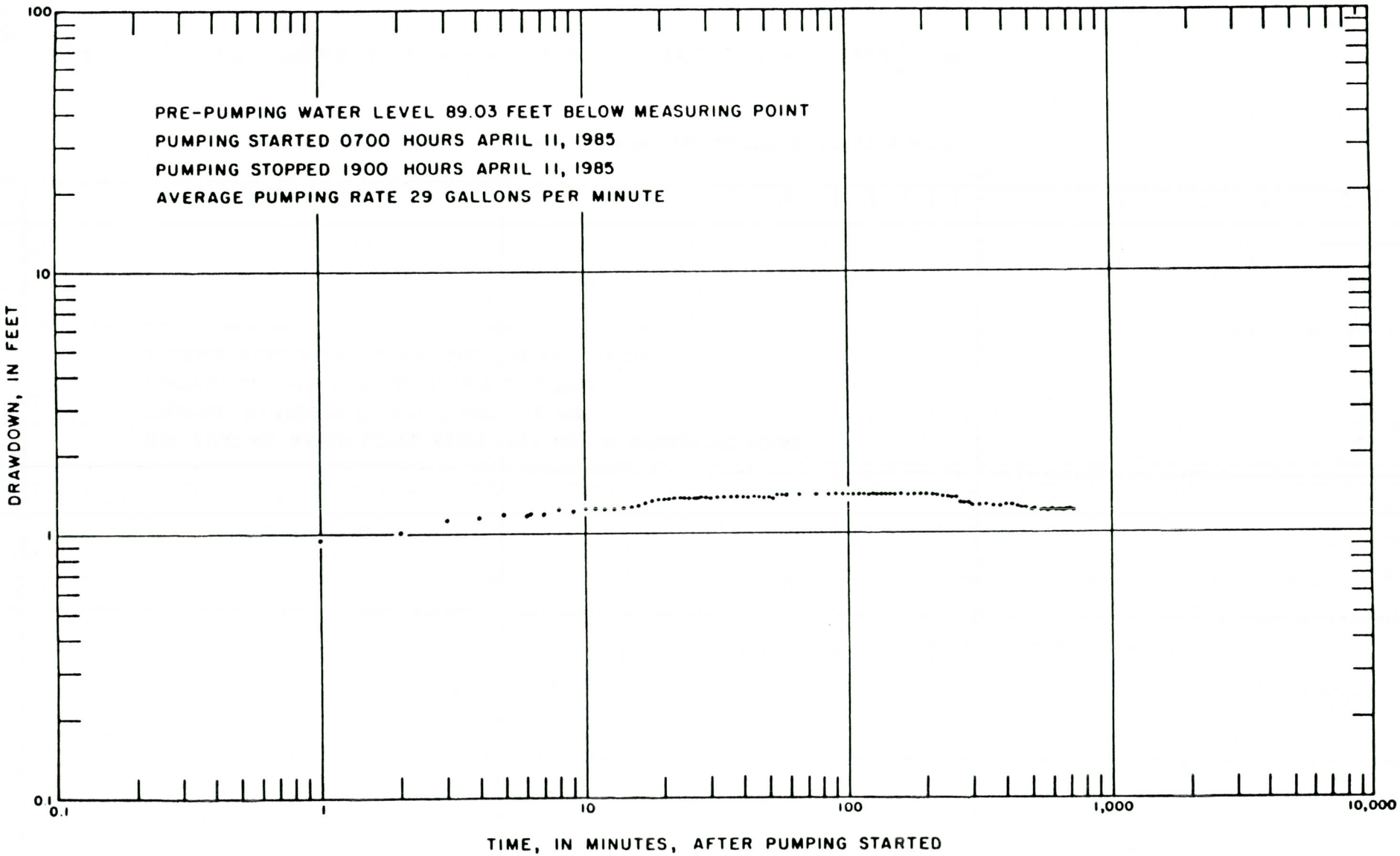

FIGURE D-2. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1acd[M-8UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

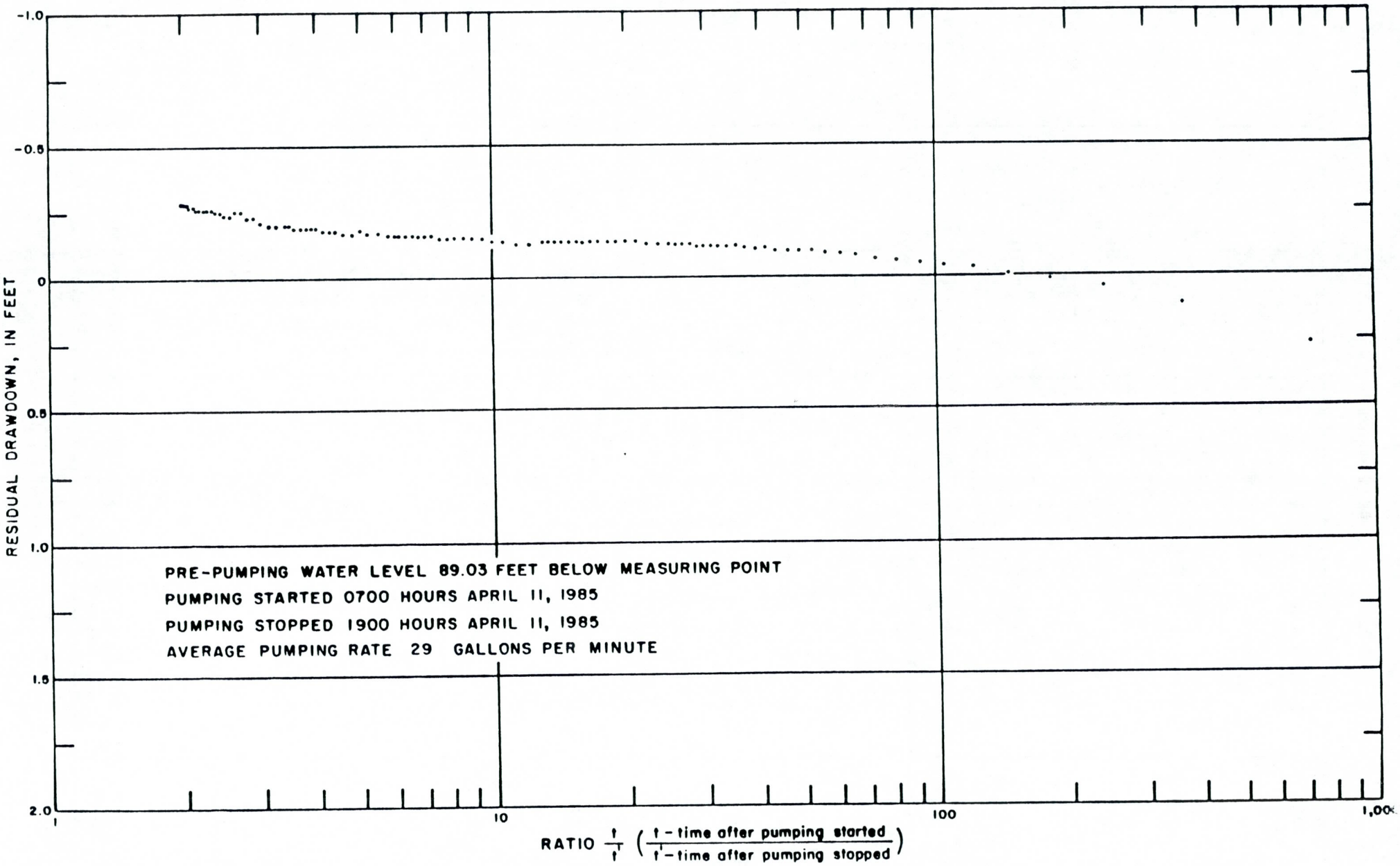

FIGURE D-3. RECOVERY GRAPH FOR MONITOR WELL (A-1-4)1acd [M-8UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

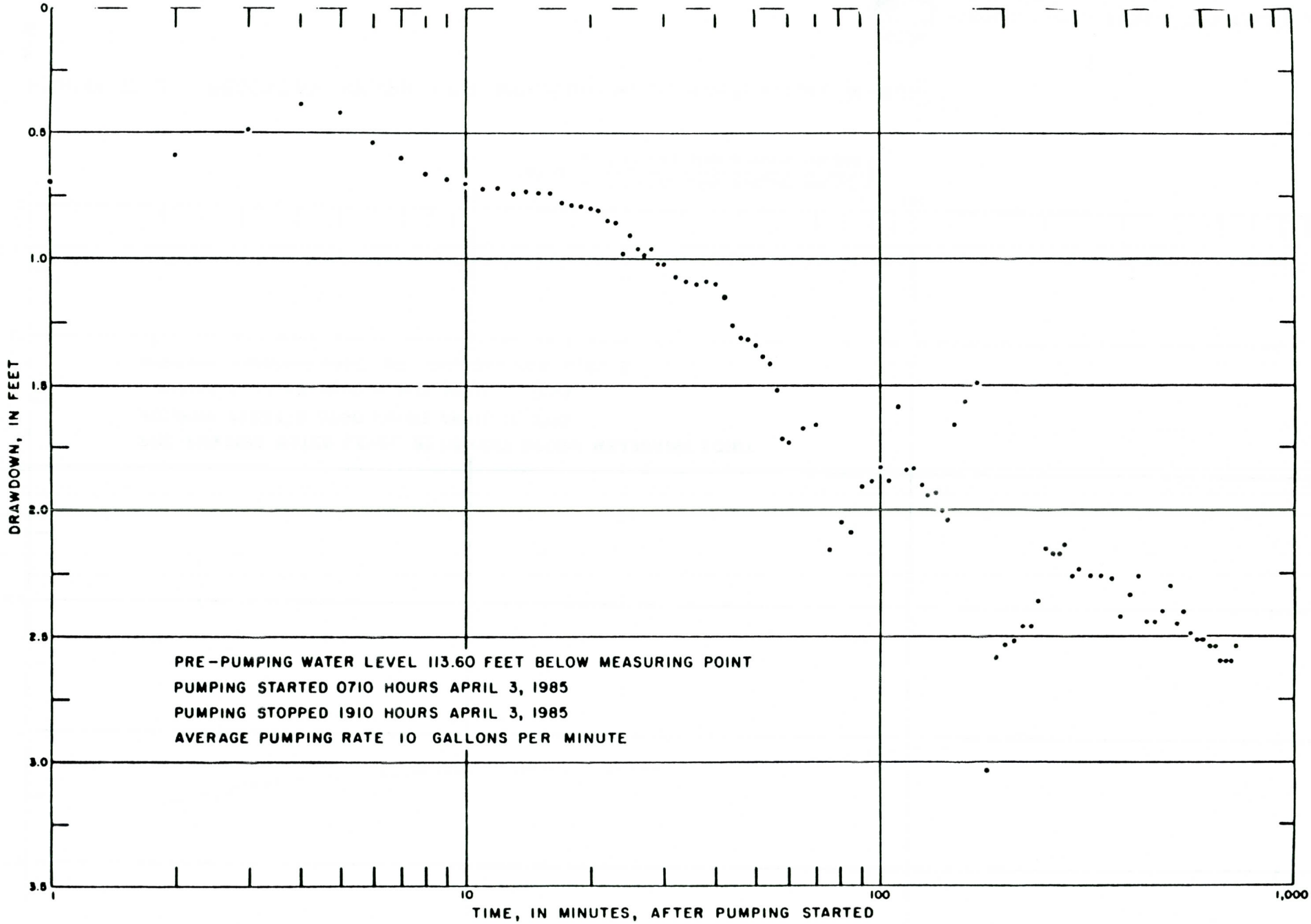

FIGURE D-4. DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)36dba$_2$ [M-9UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

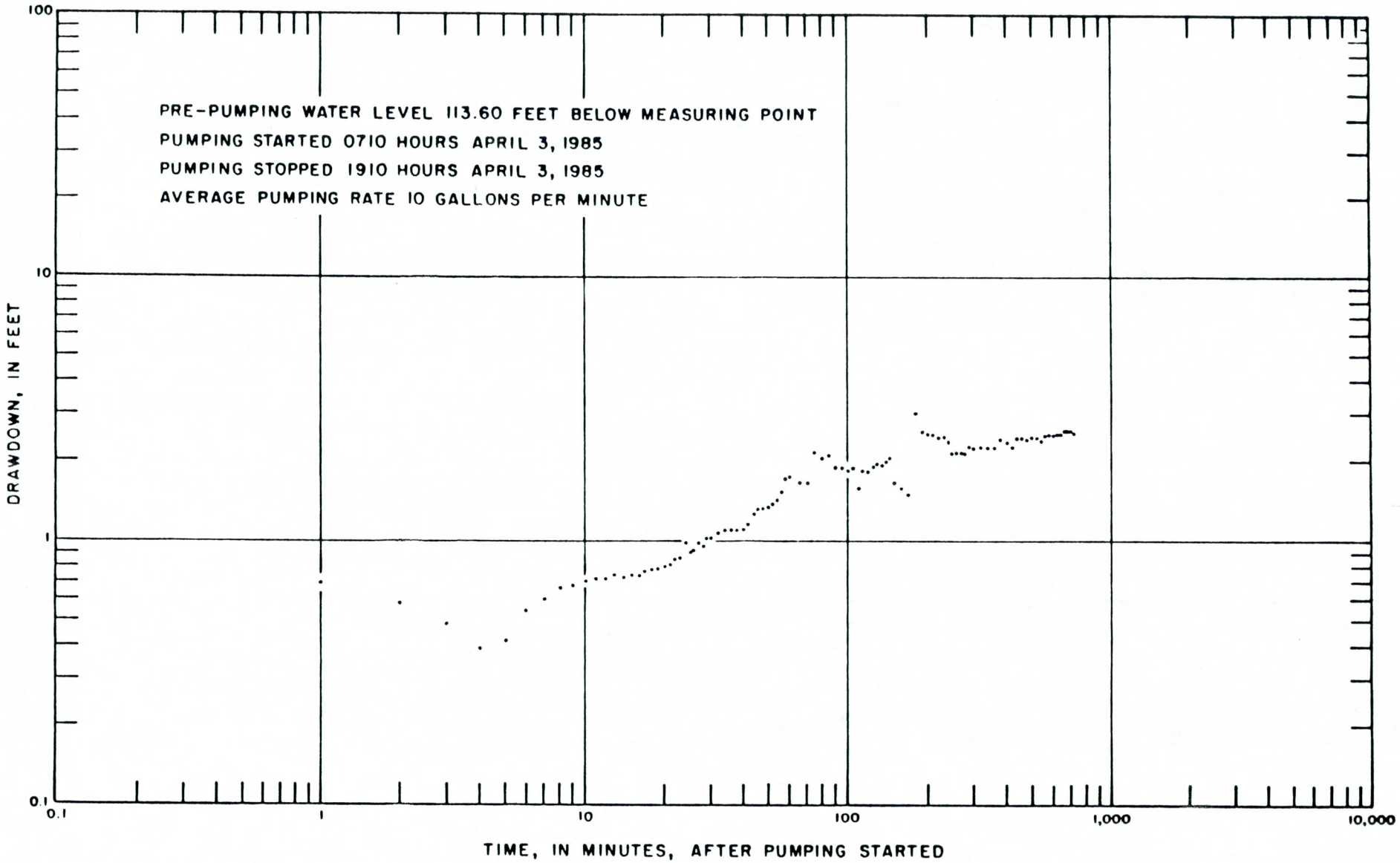

FIGURE D-5. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)36dba$_2$[M-9UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

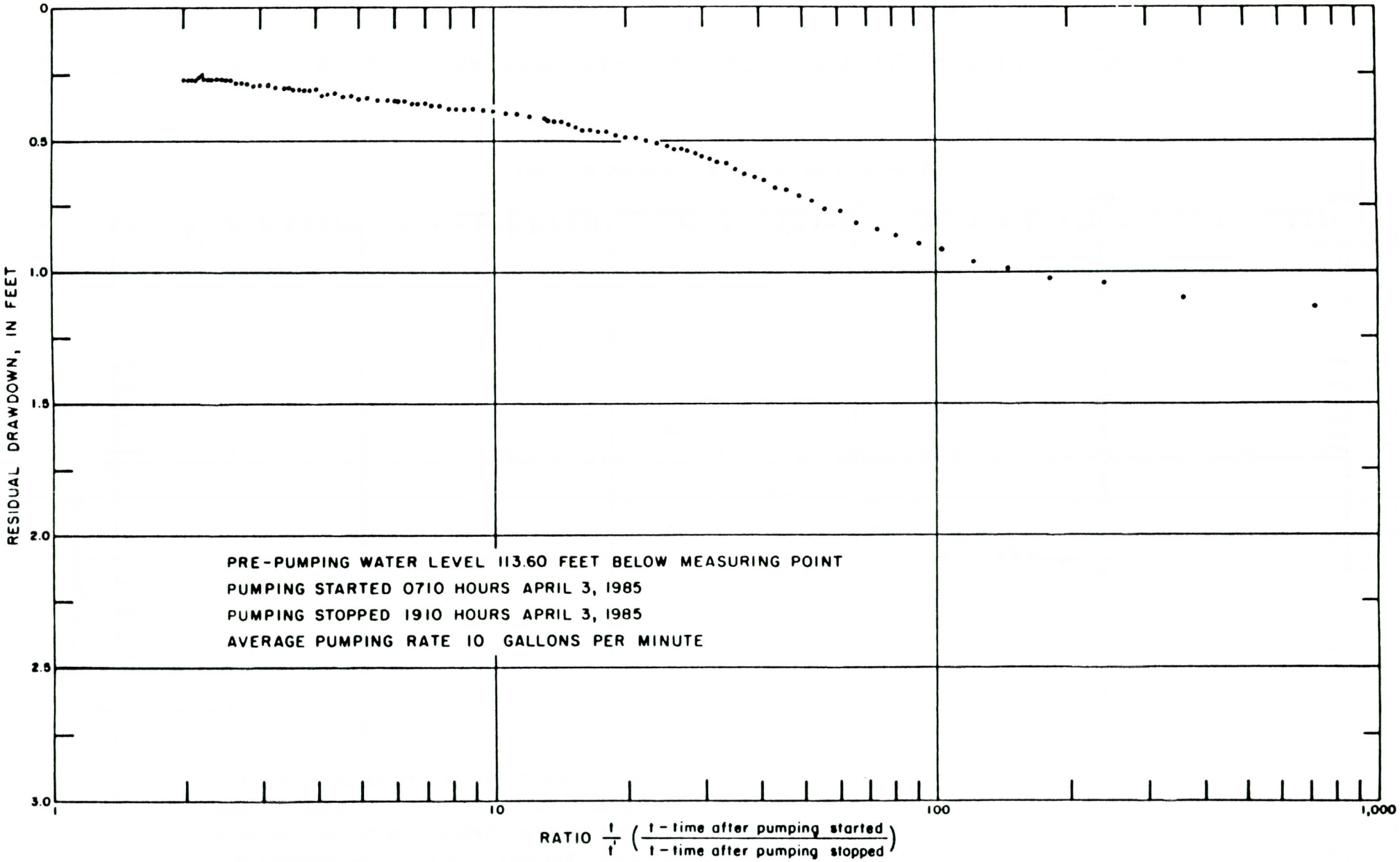

FIGURE D-6. RECOVERY GRAPH FOR MONITOR WELL (A-2-4)36dba$_2$ [M-9UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

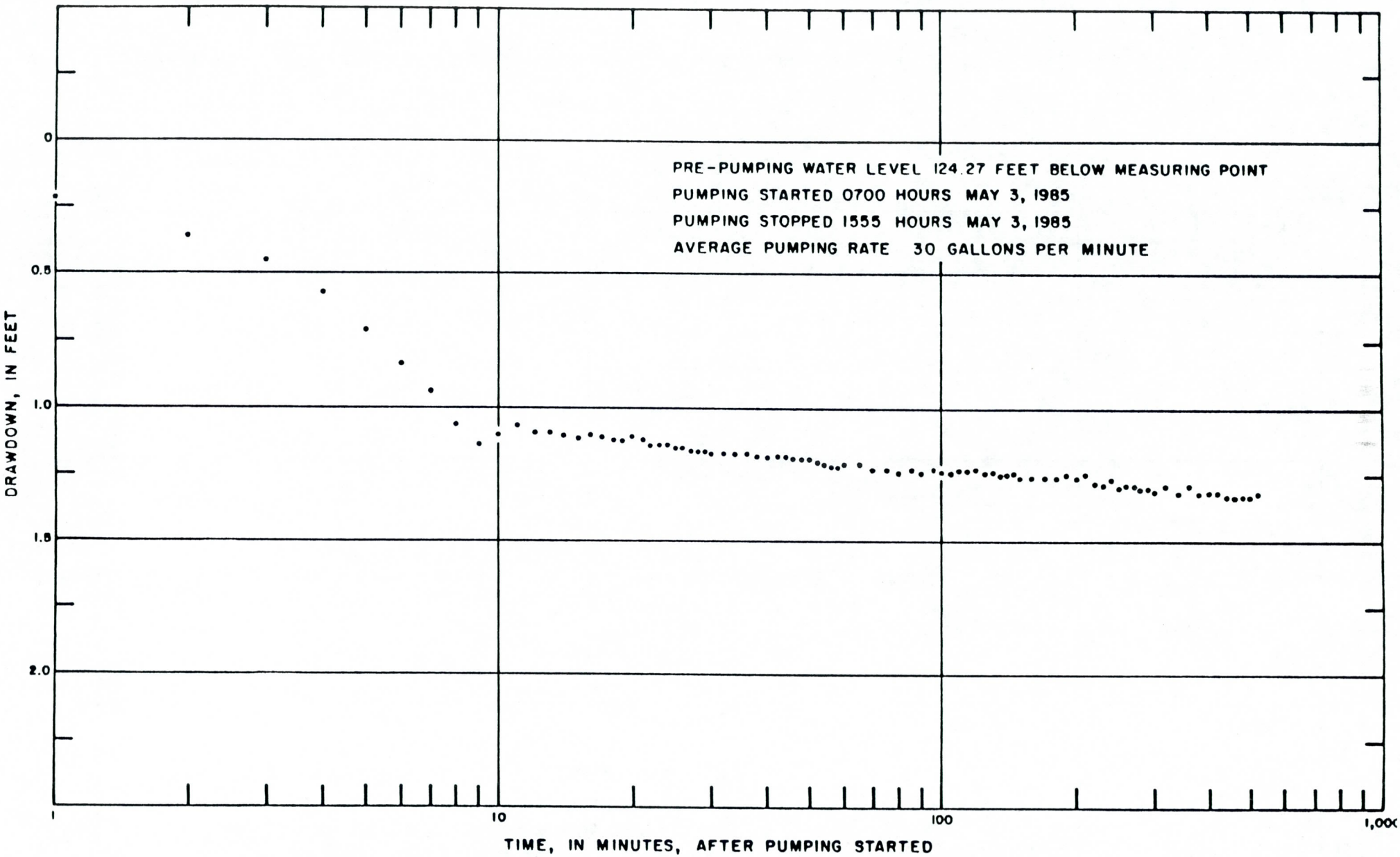

FIGURE D-7. DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35ddc$_2$ [M-10UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

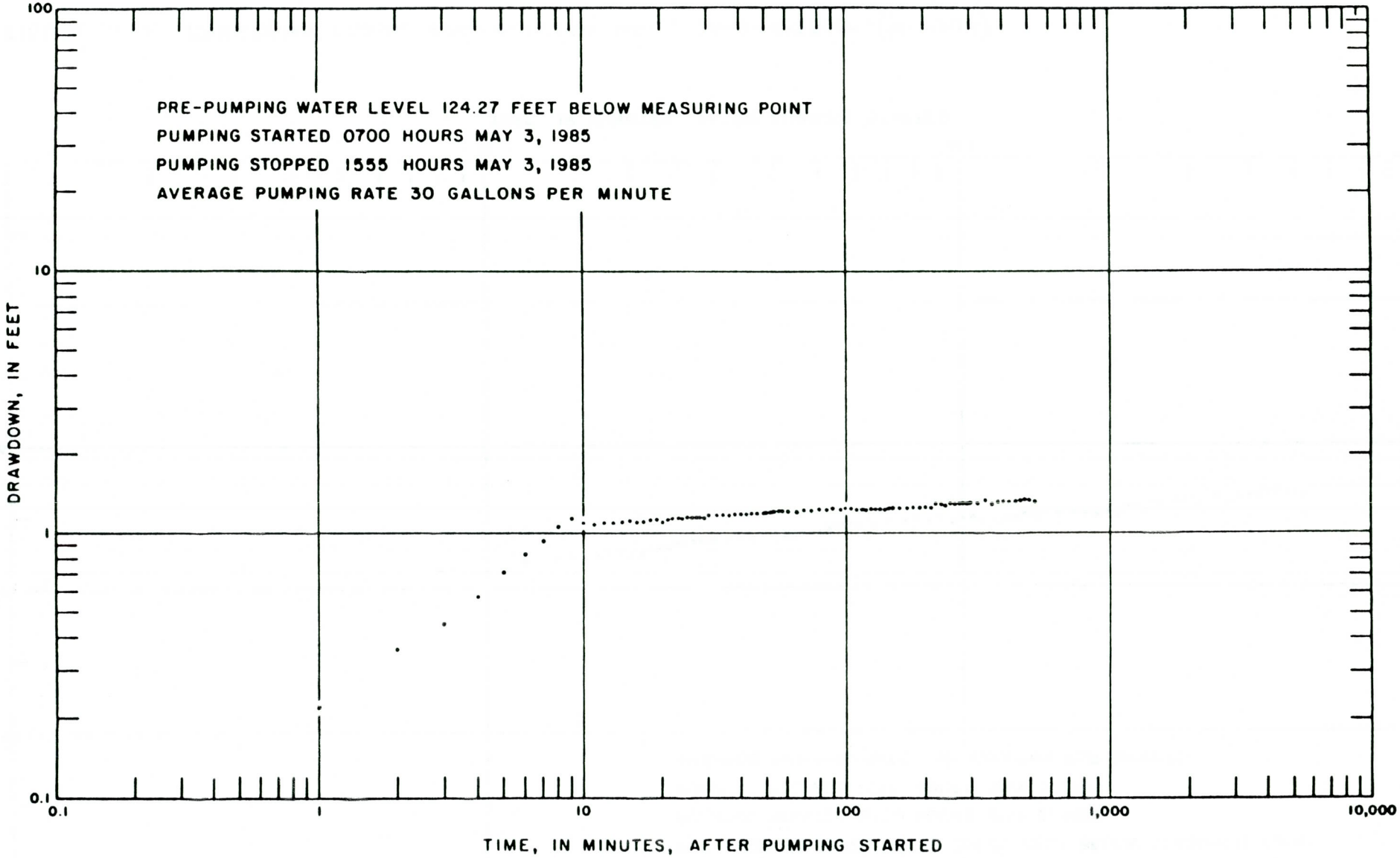

FIGURE D-8. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35ddc$_2$[M-10UA]

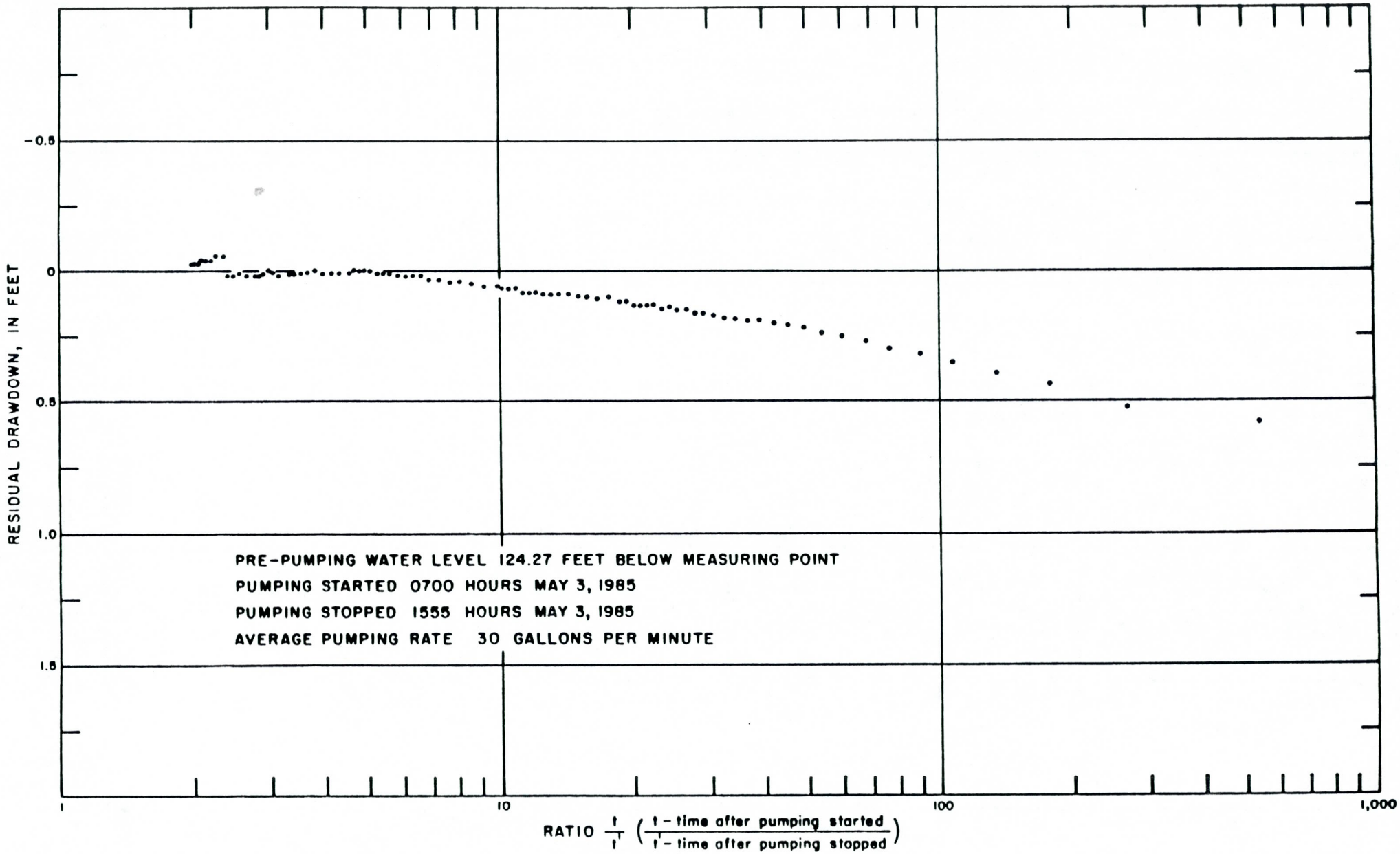

FIGURE D-9. RECOVERY GRAPH FOR MONITOR WELL (A-2-4)35ddc$_2$ [M-10UA]

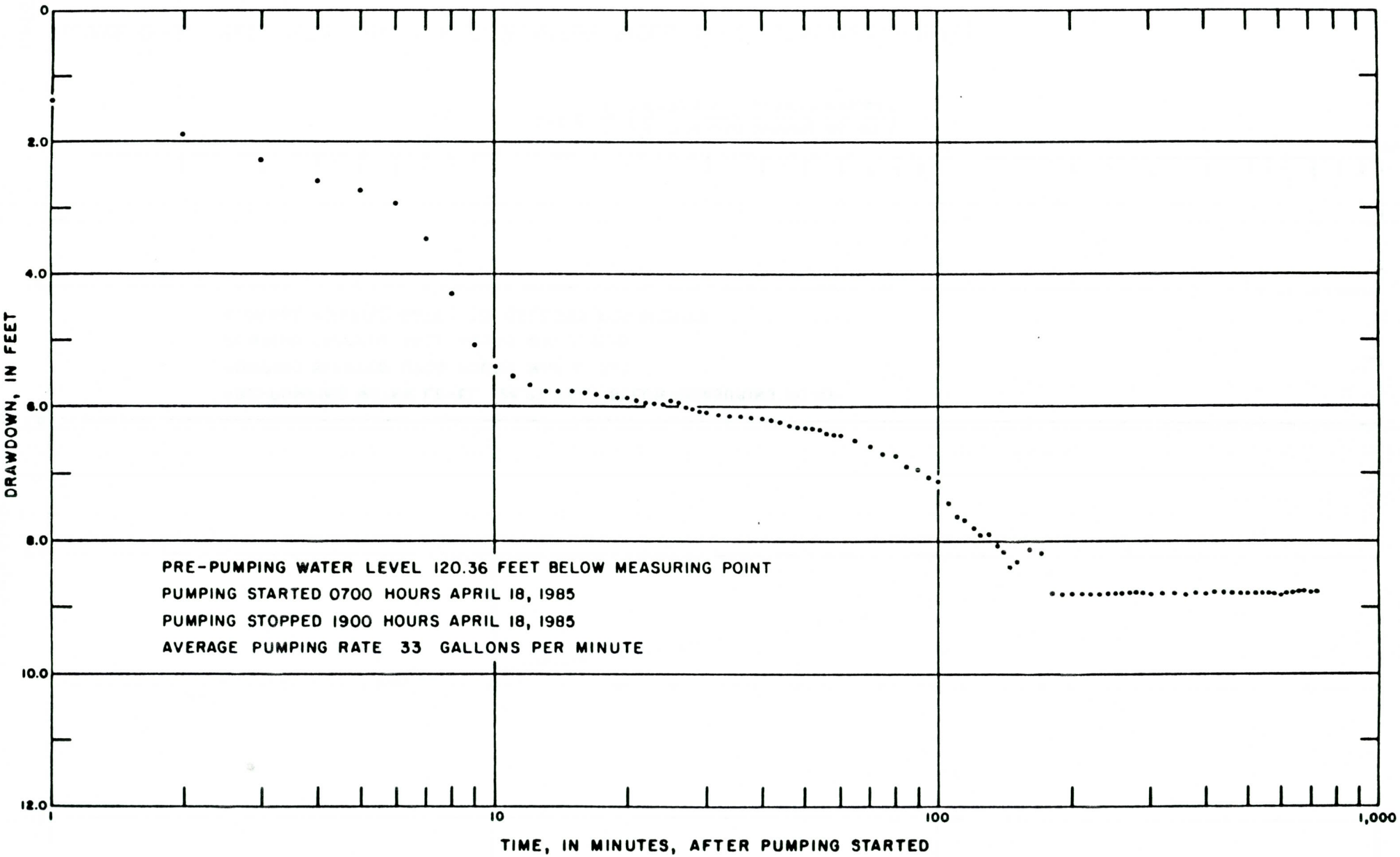

FIGURE D-10. DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35dba$_2$ [M-11UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON ARIZONA

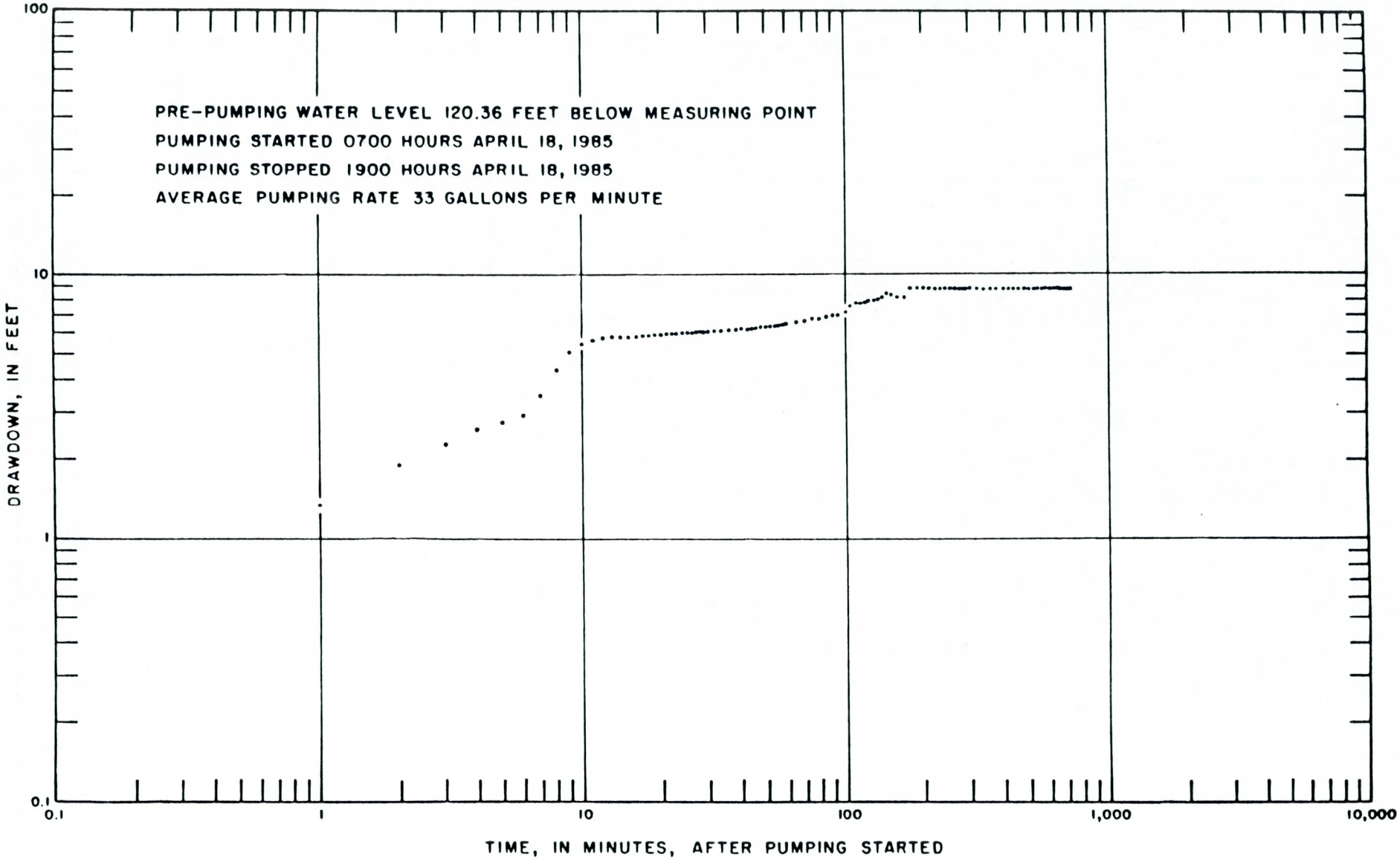

FIGURE D-11. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35dba$_2$[M-11UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

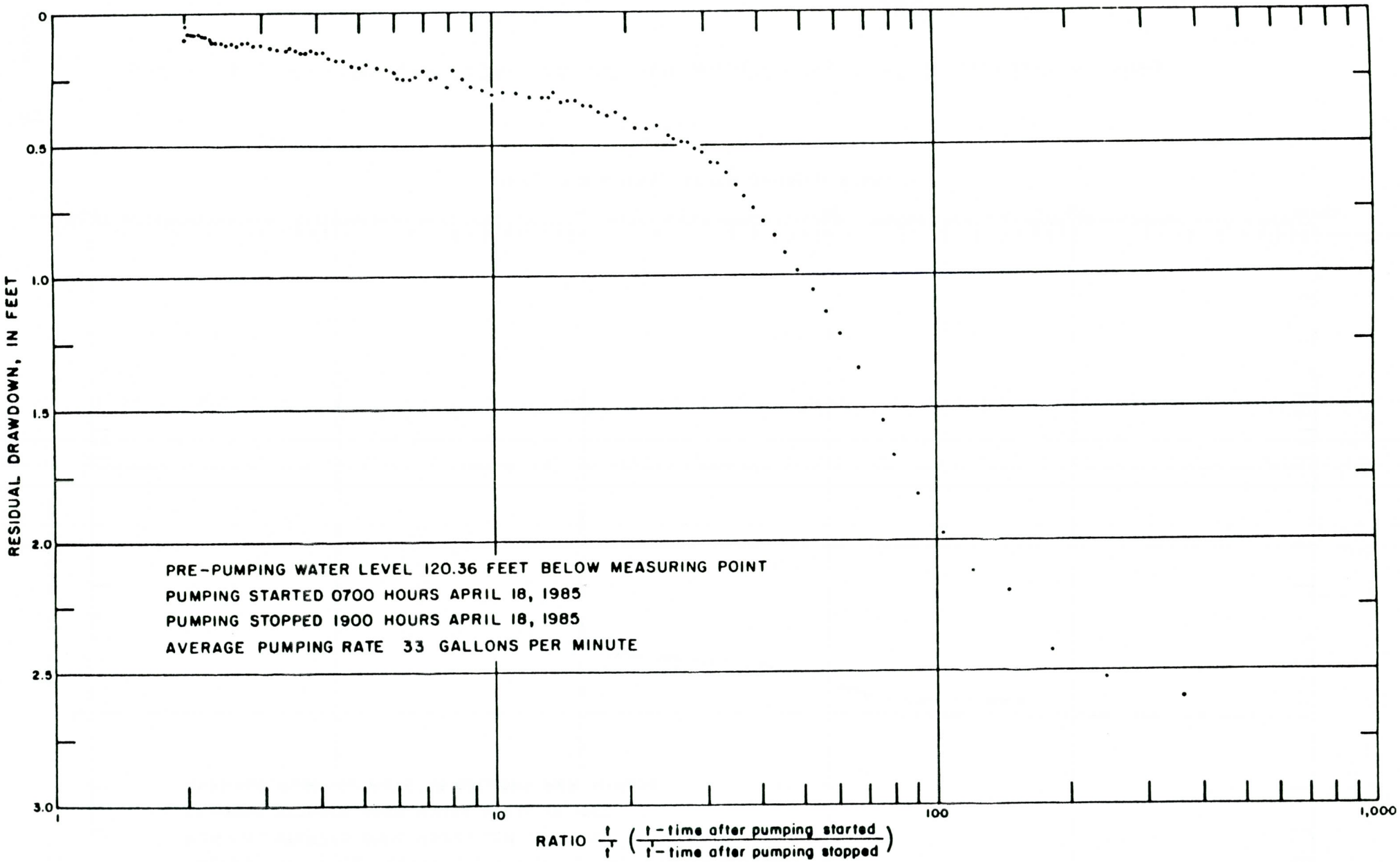

FIGURE D-12. RECOVERY GRAPH FOR MONITOR WELL (A-2-4)35dba$_2$ [M-11UA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

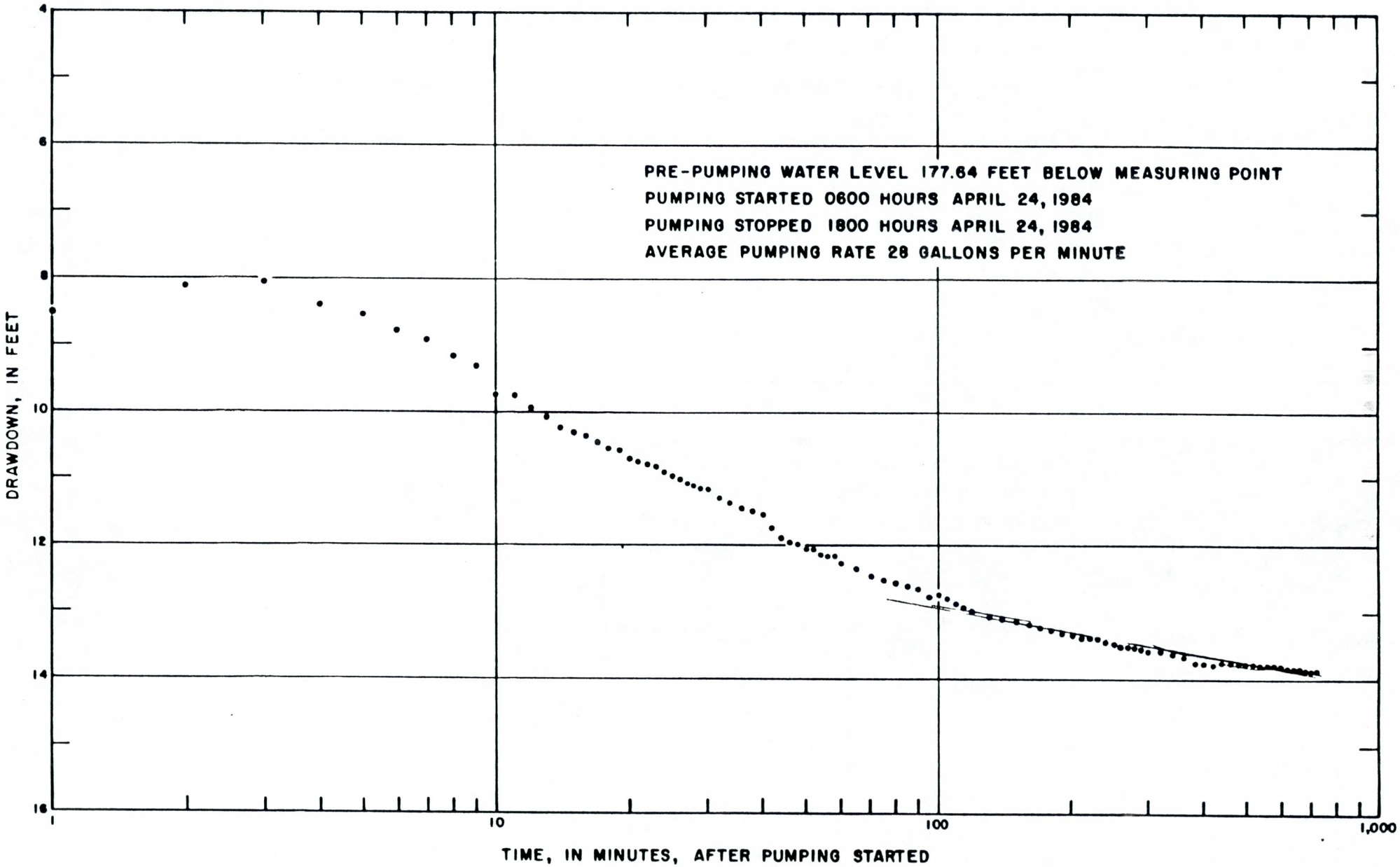

FIGURE D-7. DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1bad$_2$ [M-1MA]

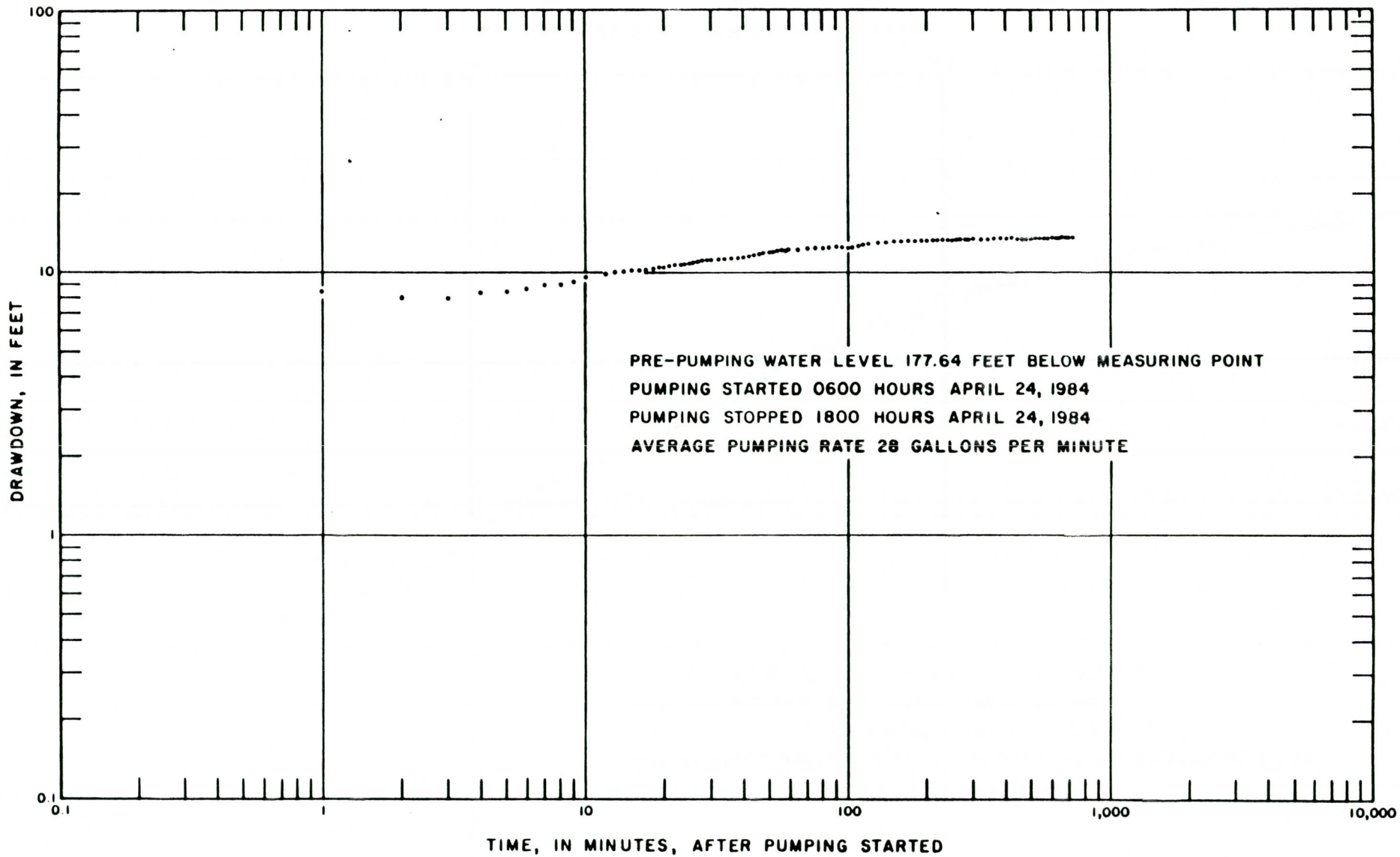

FIGURE D-8. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1bad$_2$ [M-1MA]

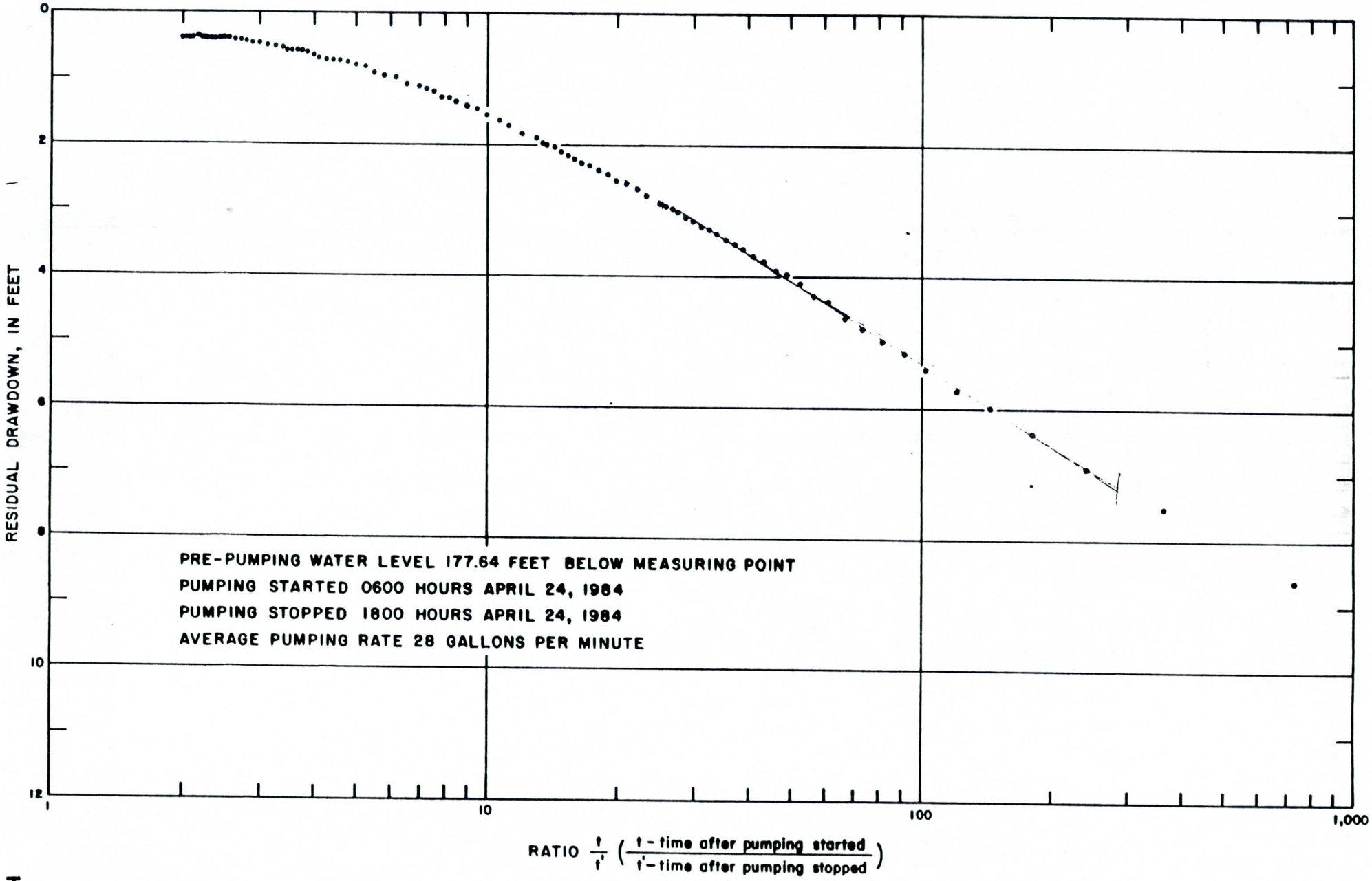

FIGURE D-9. RECOVERY GRAPH FOR MONITOR WELL (A-1-4)1bad$_2$ [M-1MA]

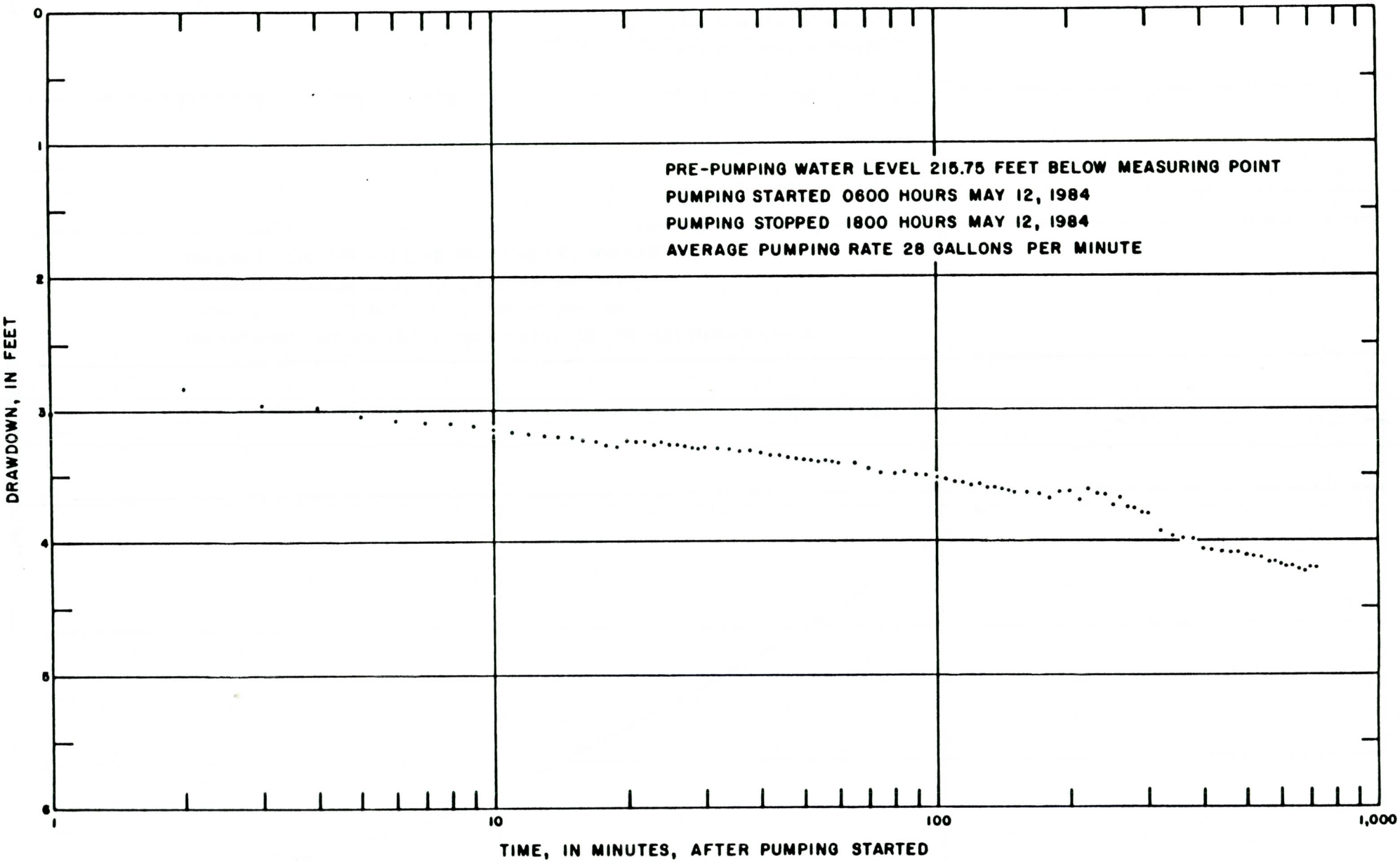

FIGURE D-10. DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1bba, [M-5MA]

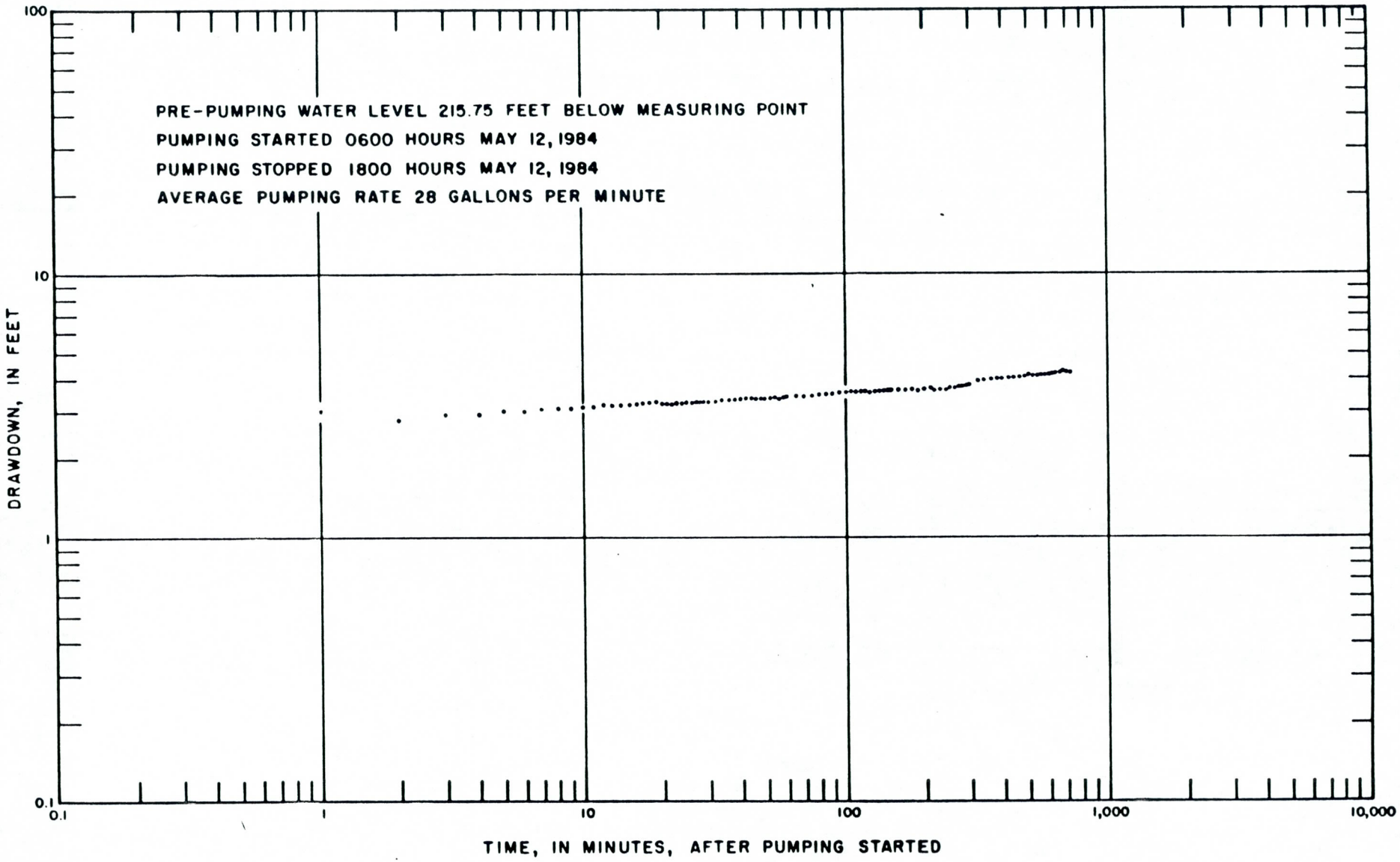

FIGURE D-11. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-1-4)1bba, [M-5MA]

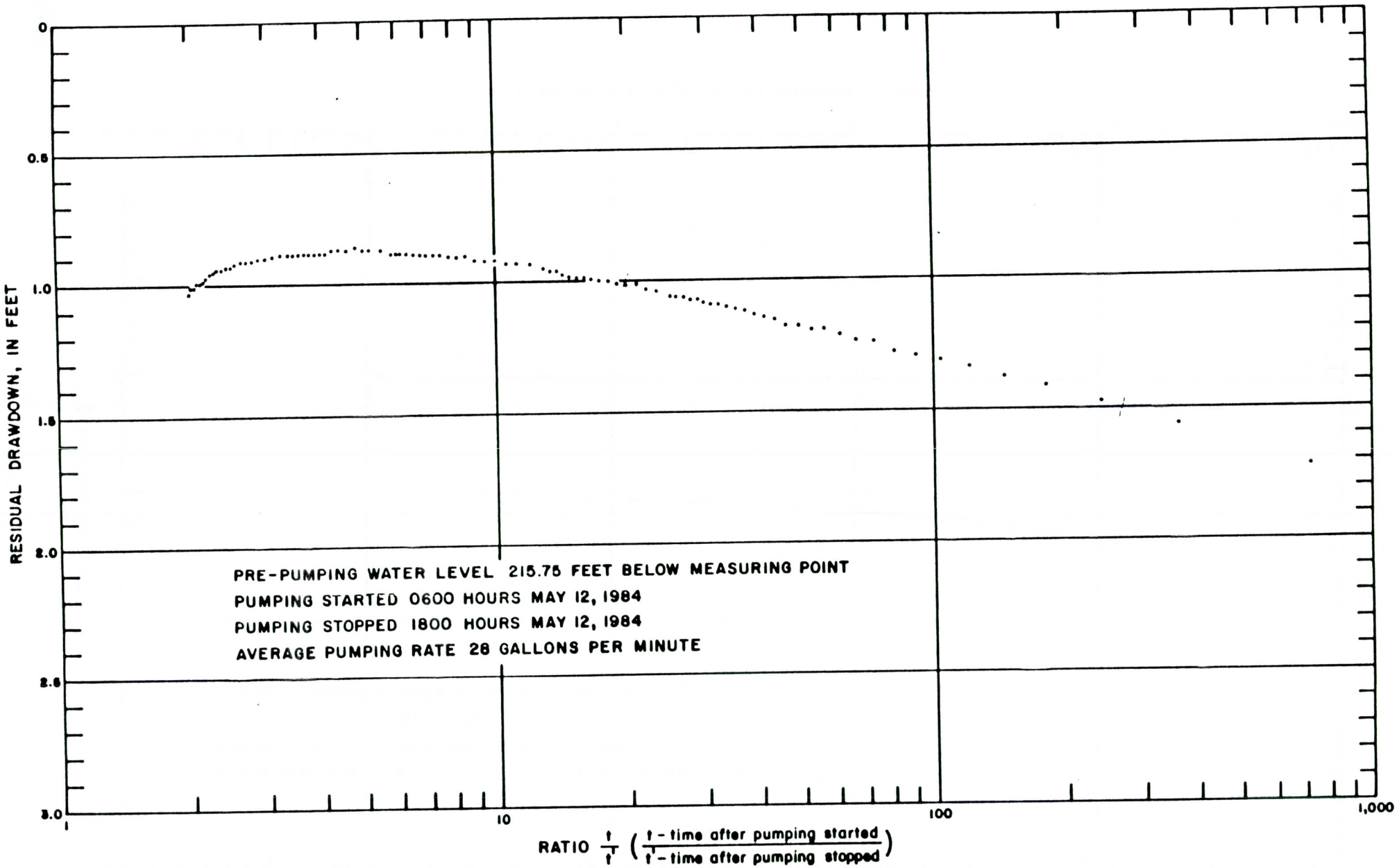

FIGURE D-12. RECOVERY GRAPH FOR MONITOR WELL (A-1-4)1bba, [M-5MA]

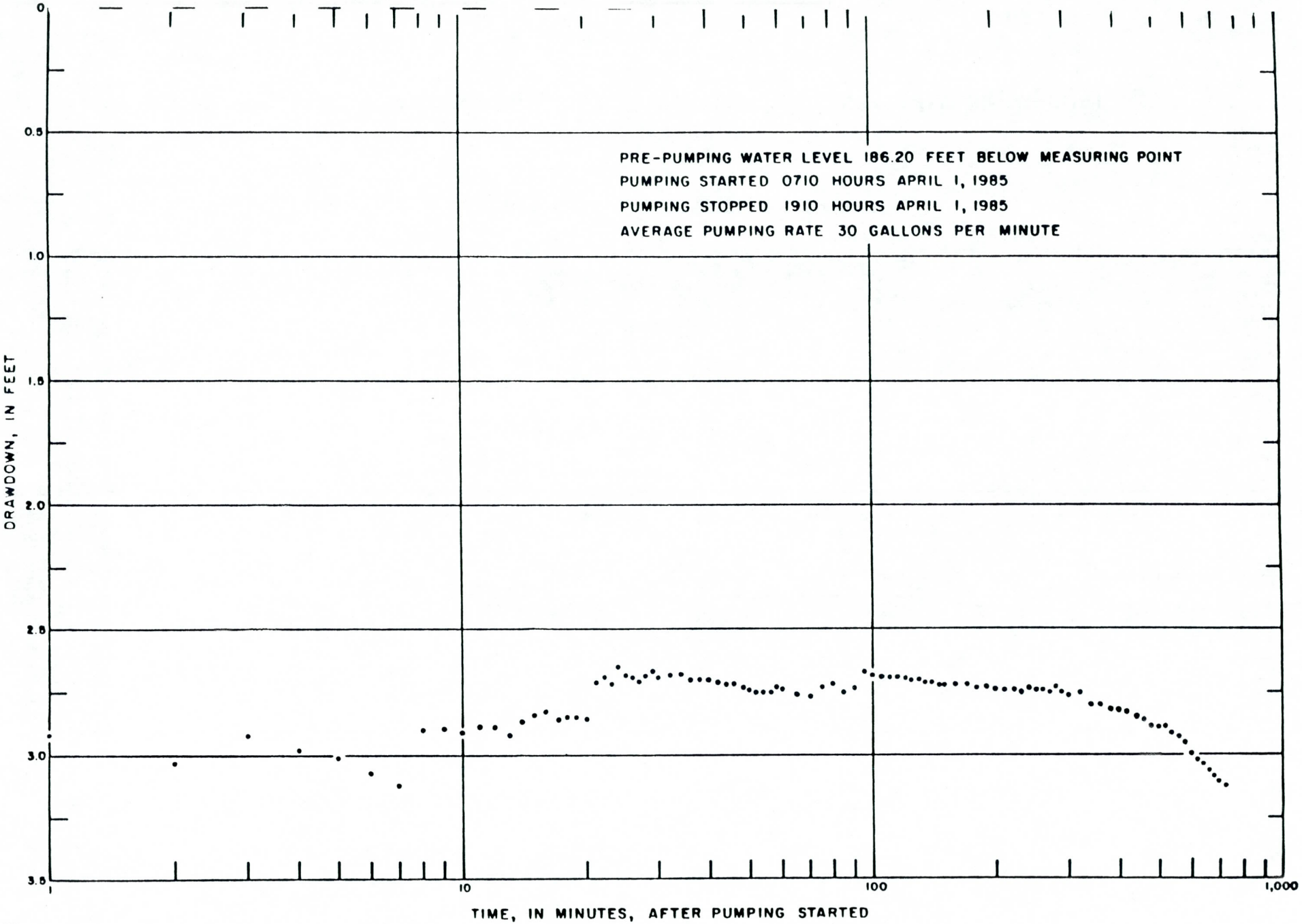

FIGURE D-13. DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)36dba, [M-9MA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

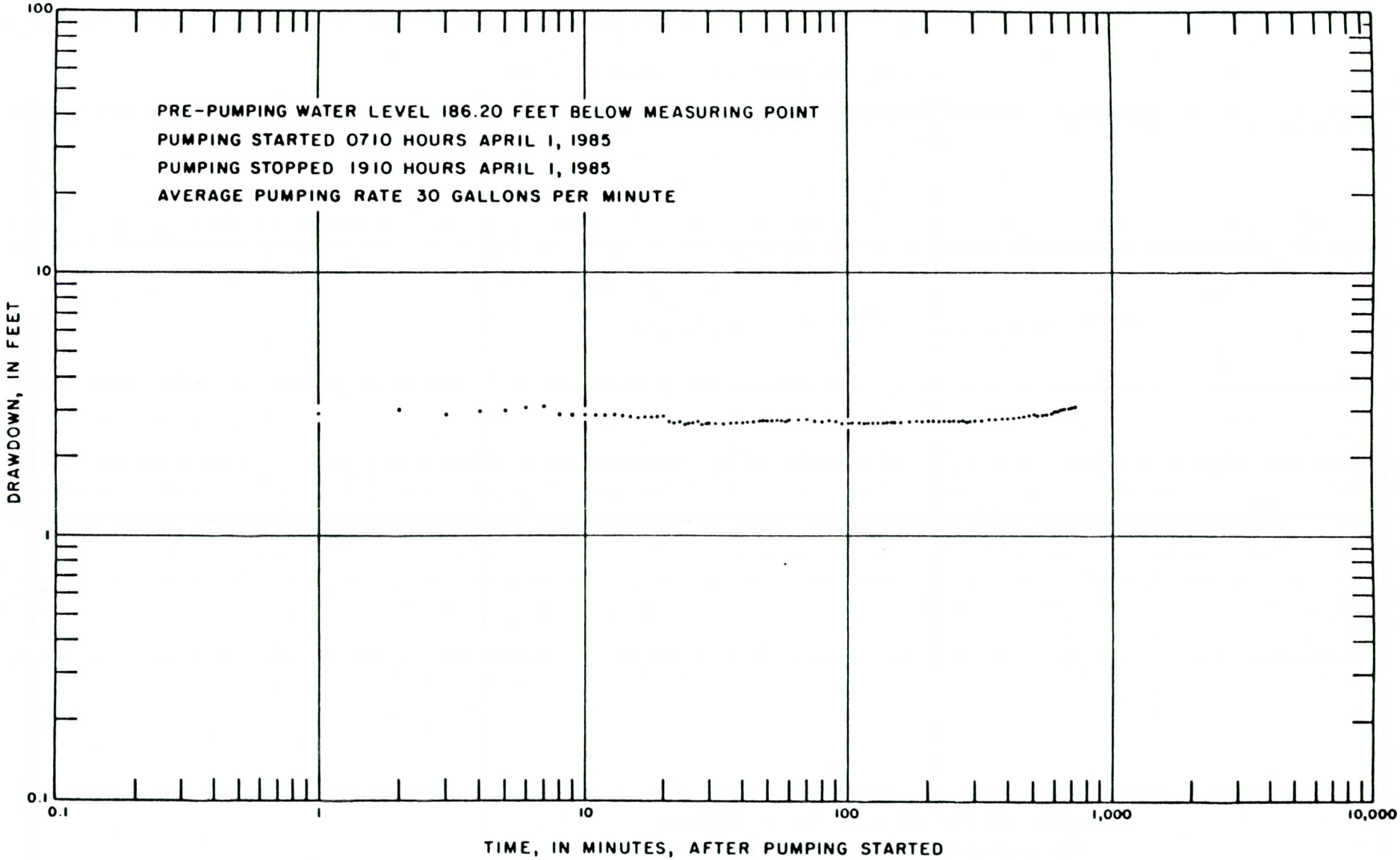

FIGURE D-14. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)36dba$_1$[M-9MA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

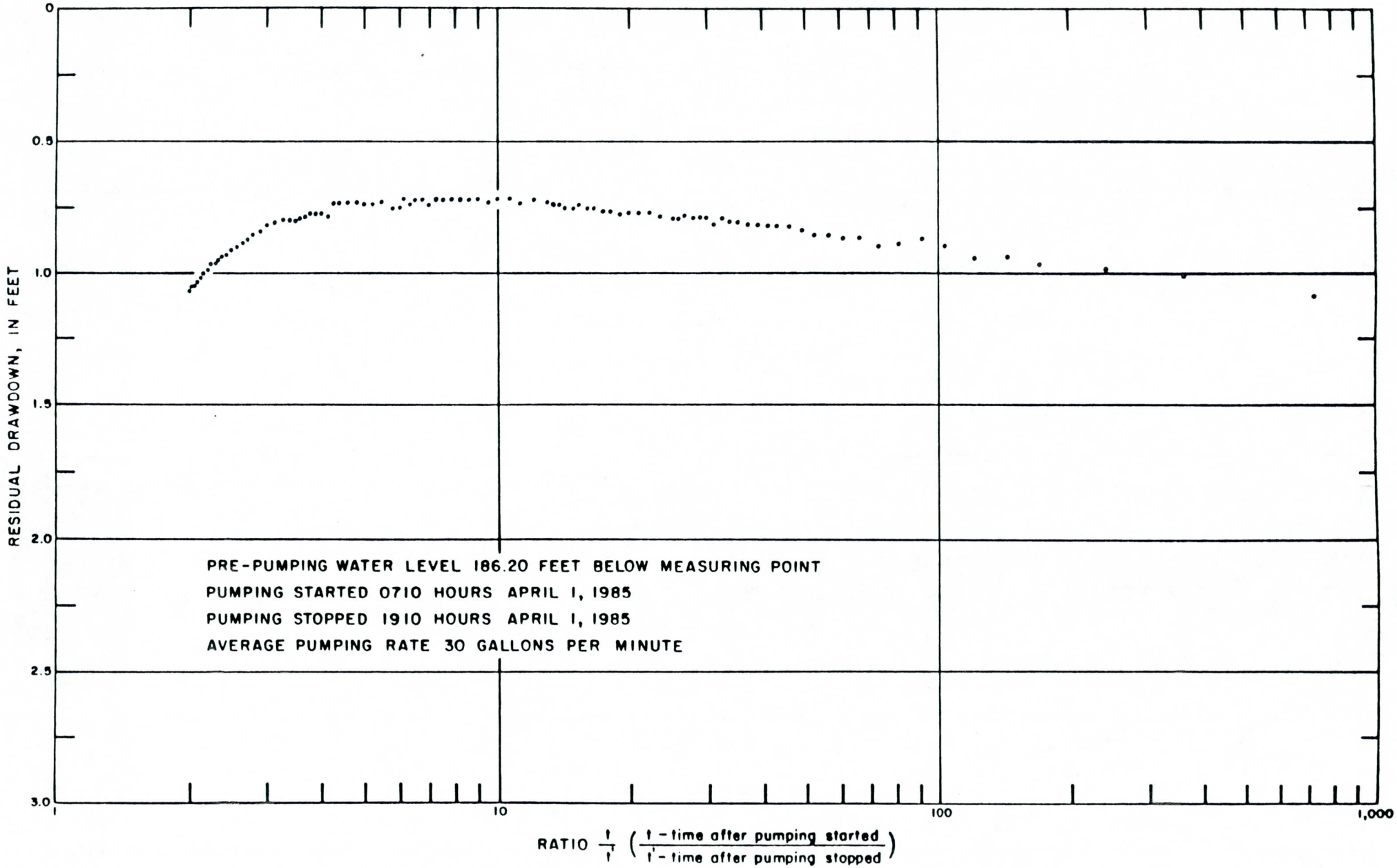

FIGURE D-15. RECOVERY GRAPH FOR MONITOR WELL (A-2-4)36dba, [M-9MA]

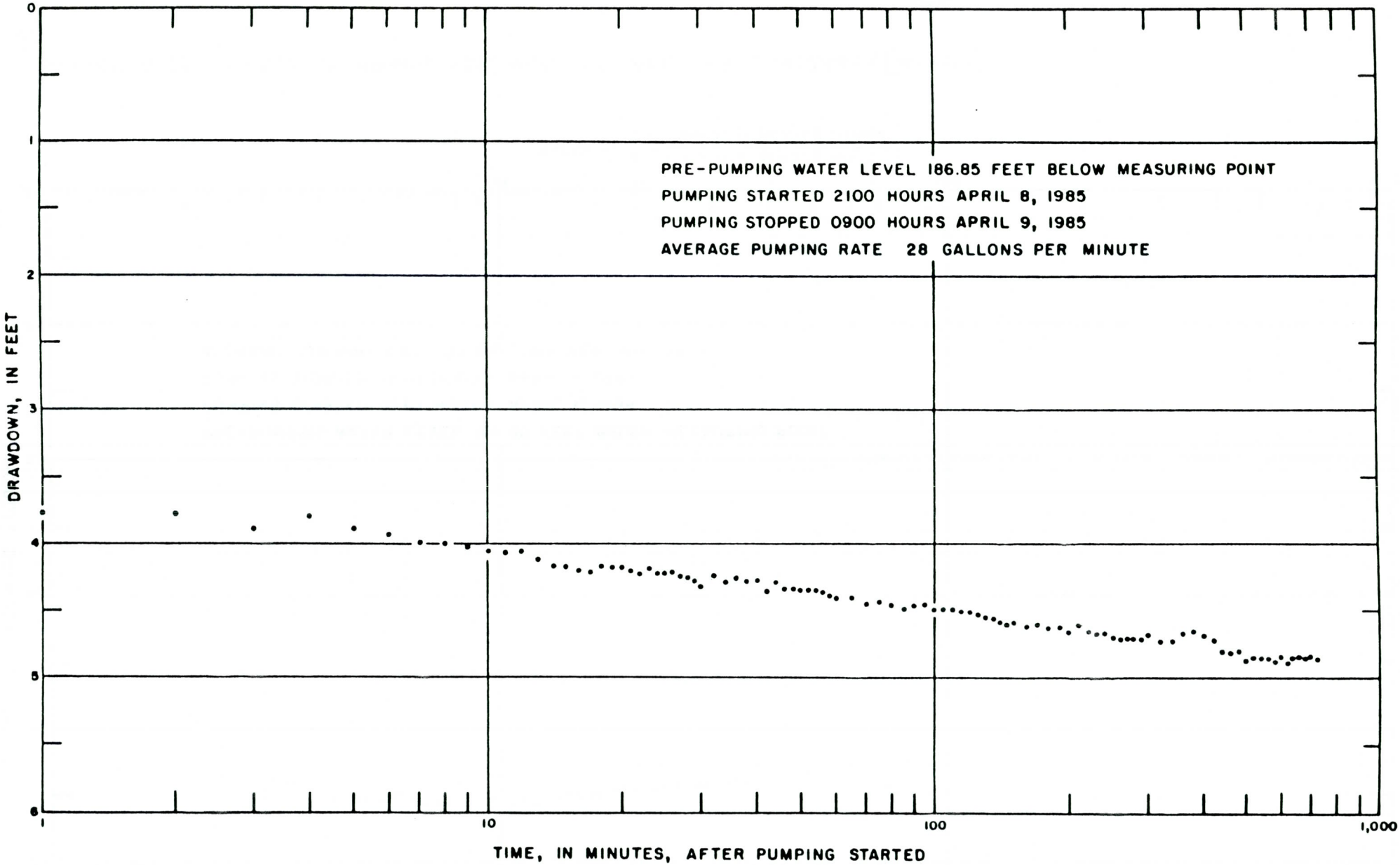

FIGURE D-16. DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35ddc1 [M-10MA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

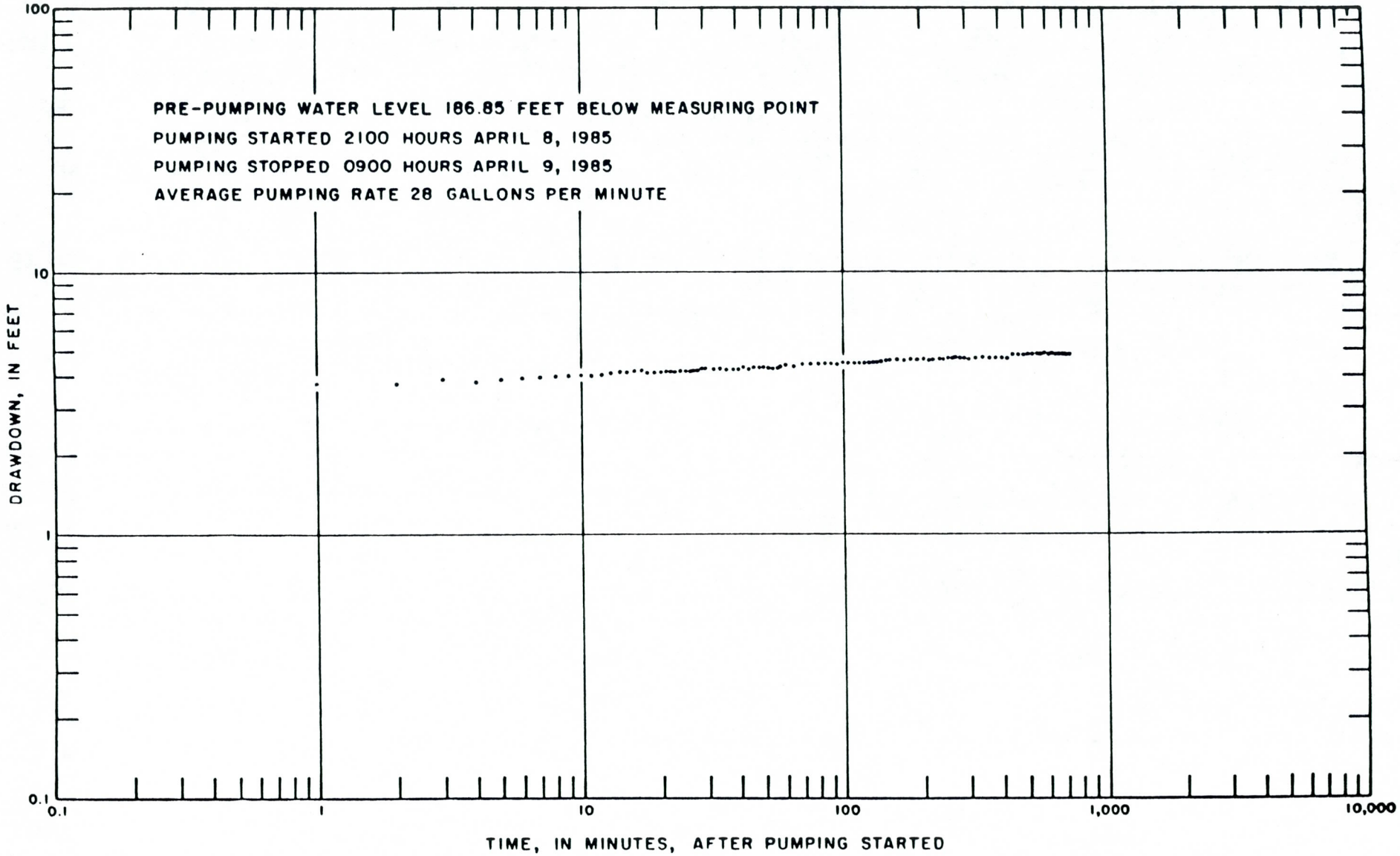

FIGURE D-17. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35ddc, [M-10MA]

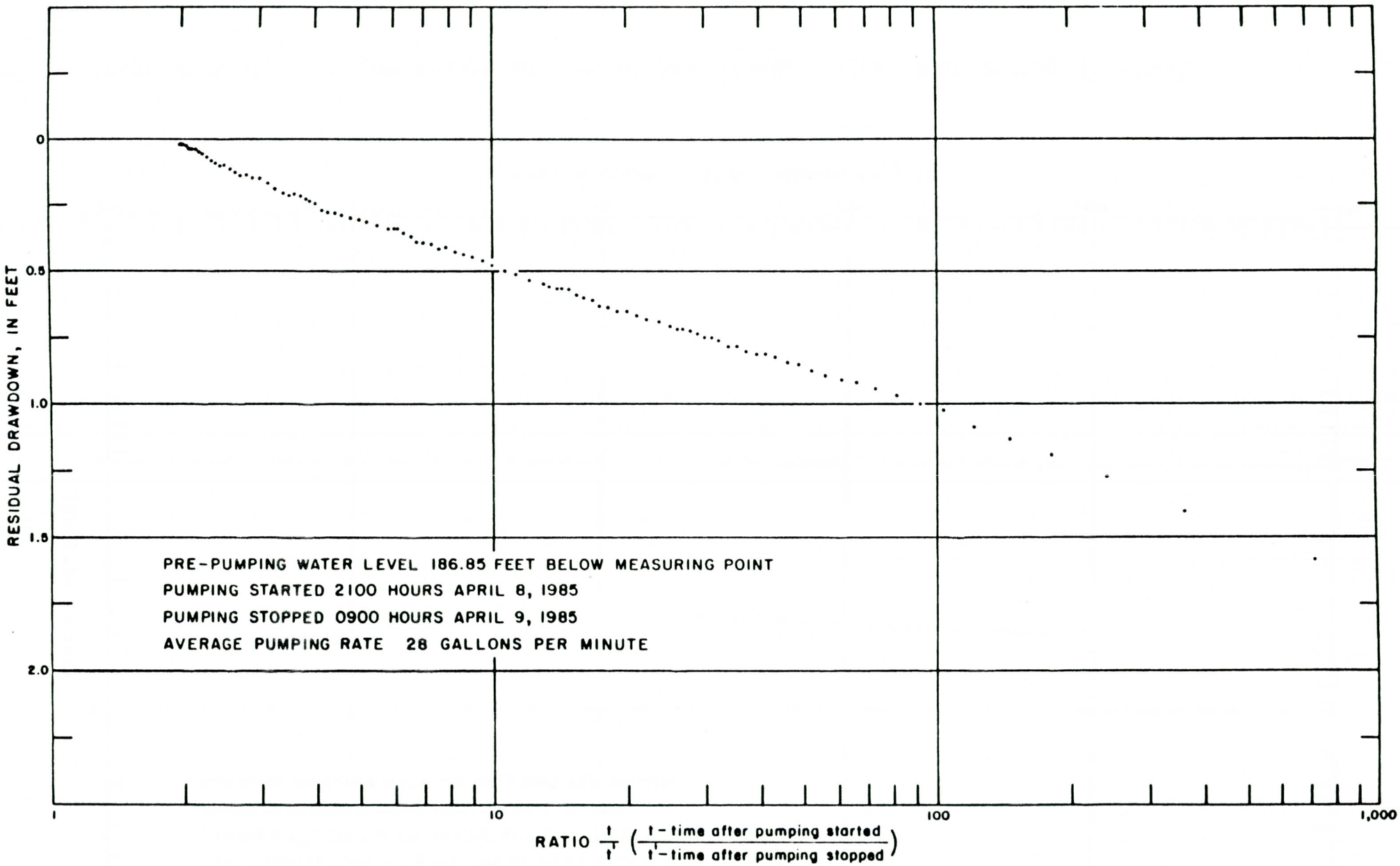

FIGURE D-18. RECOVERY GRAPH FOR MONITOR WELL (A-2-4)35ddc$_1$ [M-10MA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
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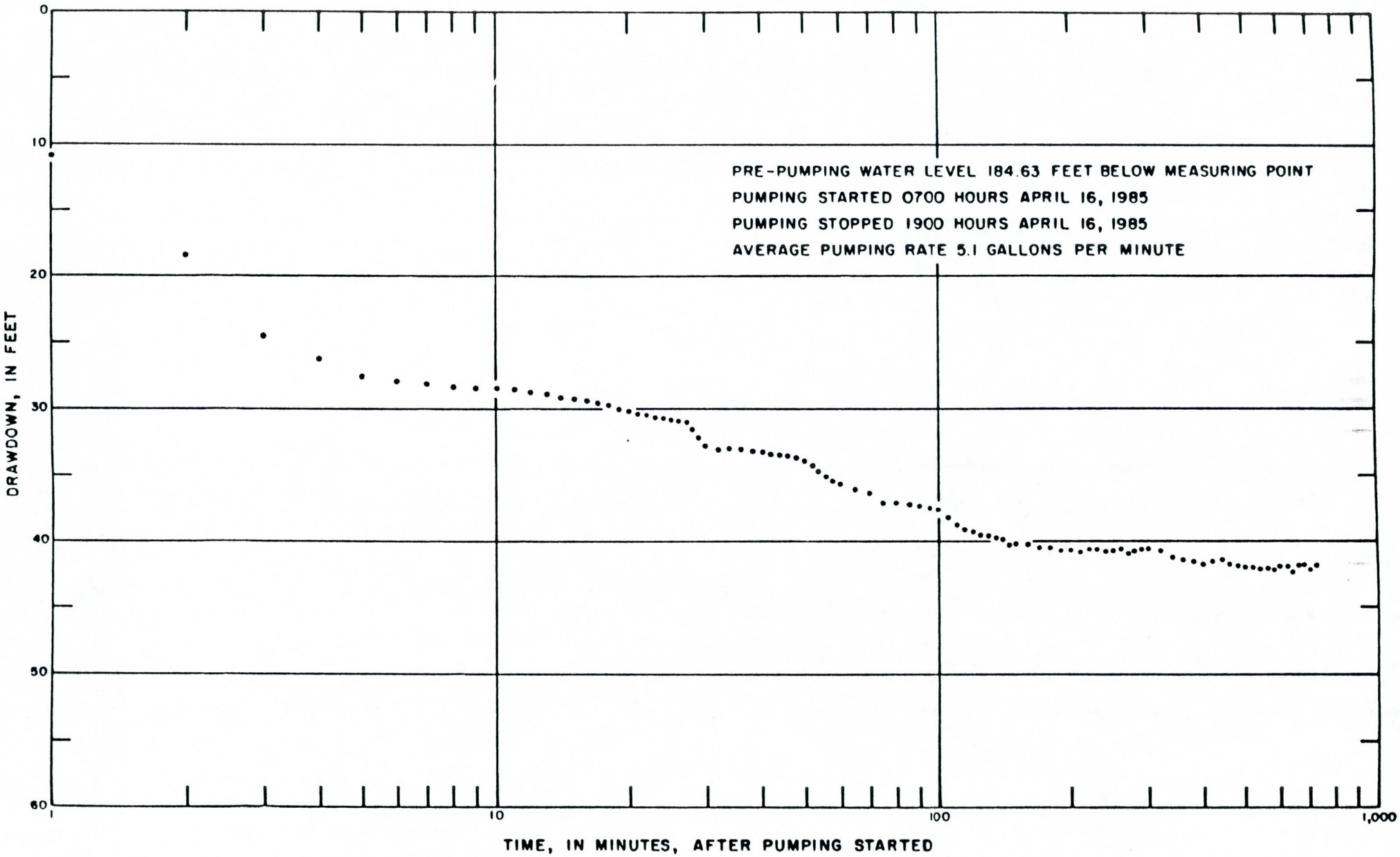

FIGURE D-19. DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35dba, [M-11MA]

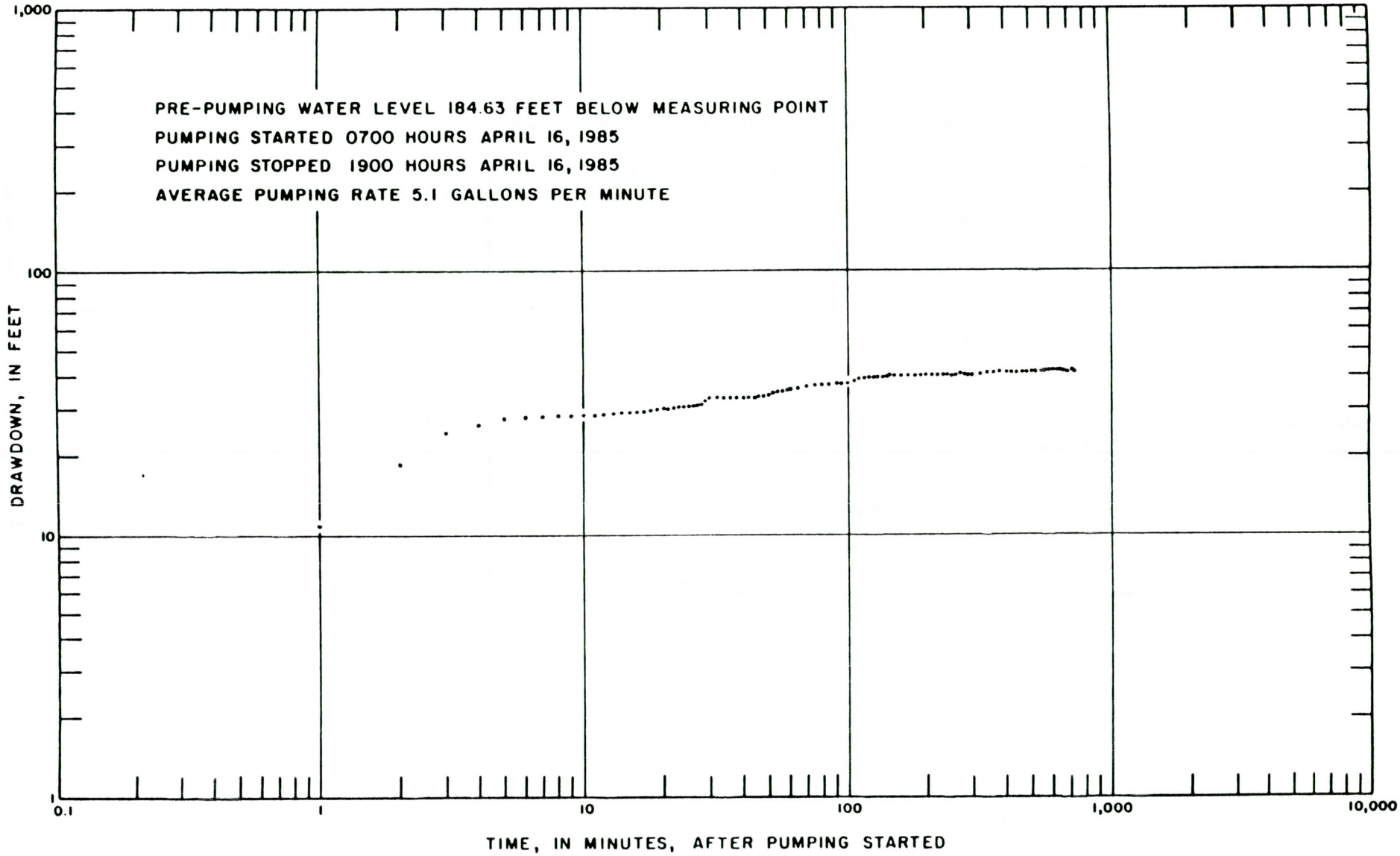

FIGURE D-20. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35dba1 [M-11MA]

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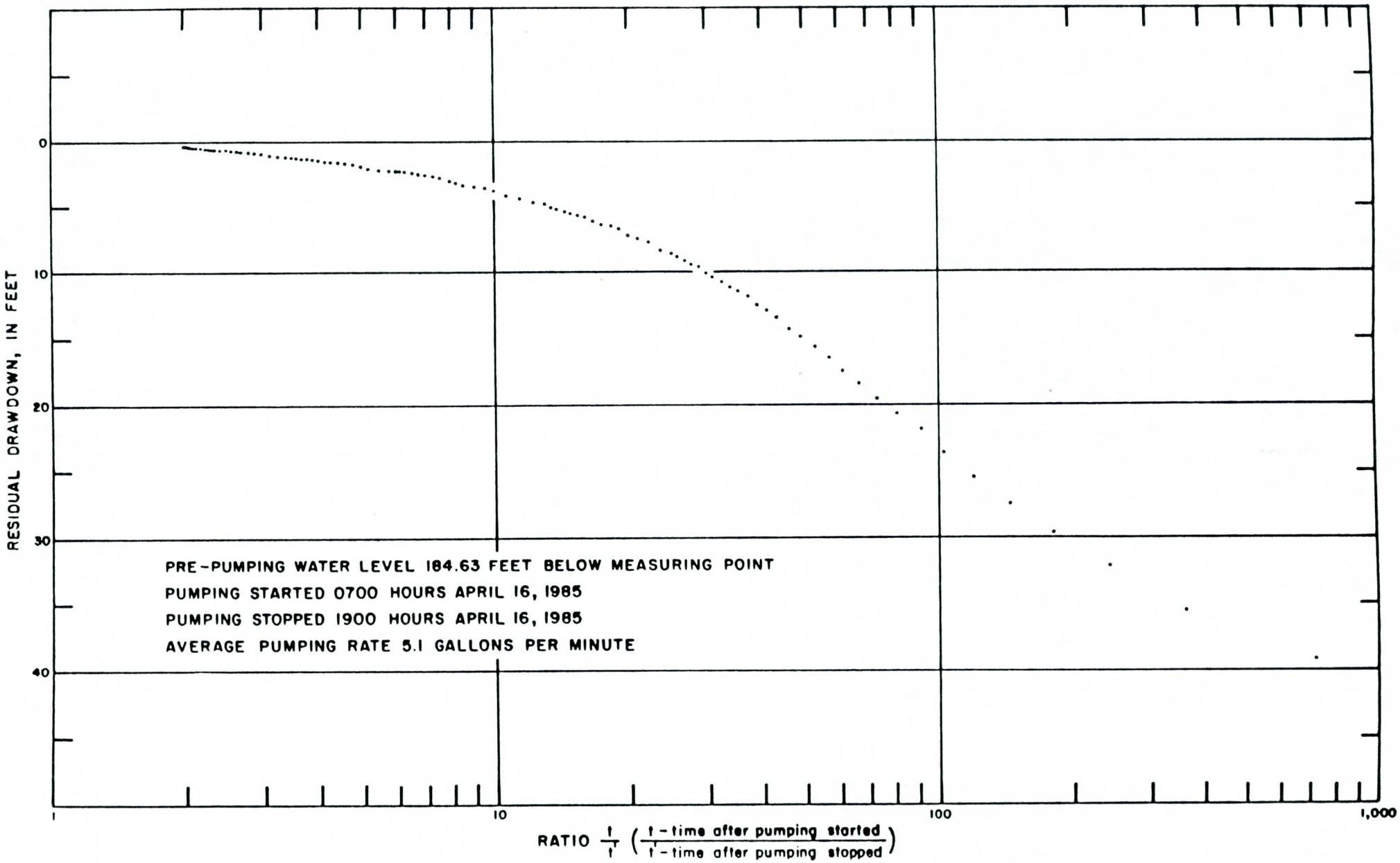

FIGURE D-21. RECOVERY GRAPH FOR MONITOR WELL (A-2-4)35dba$_1$ [M-11MA]

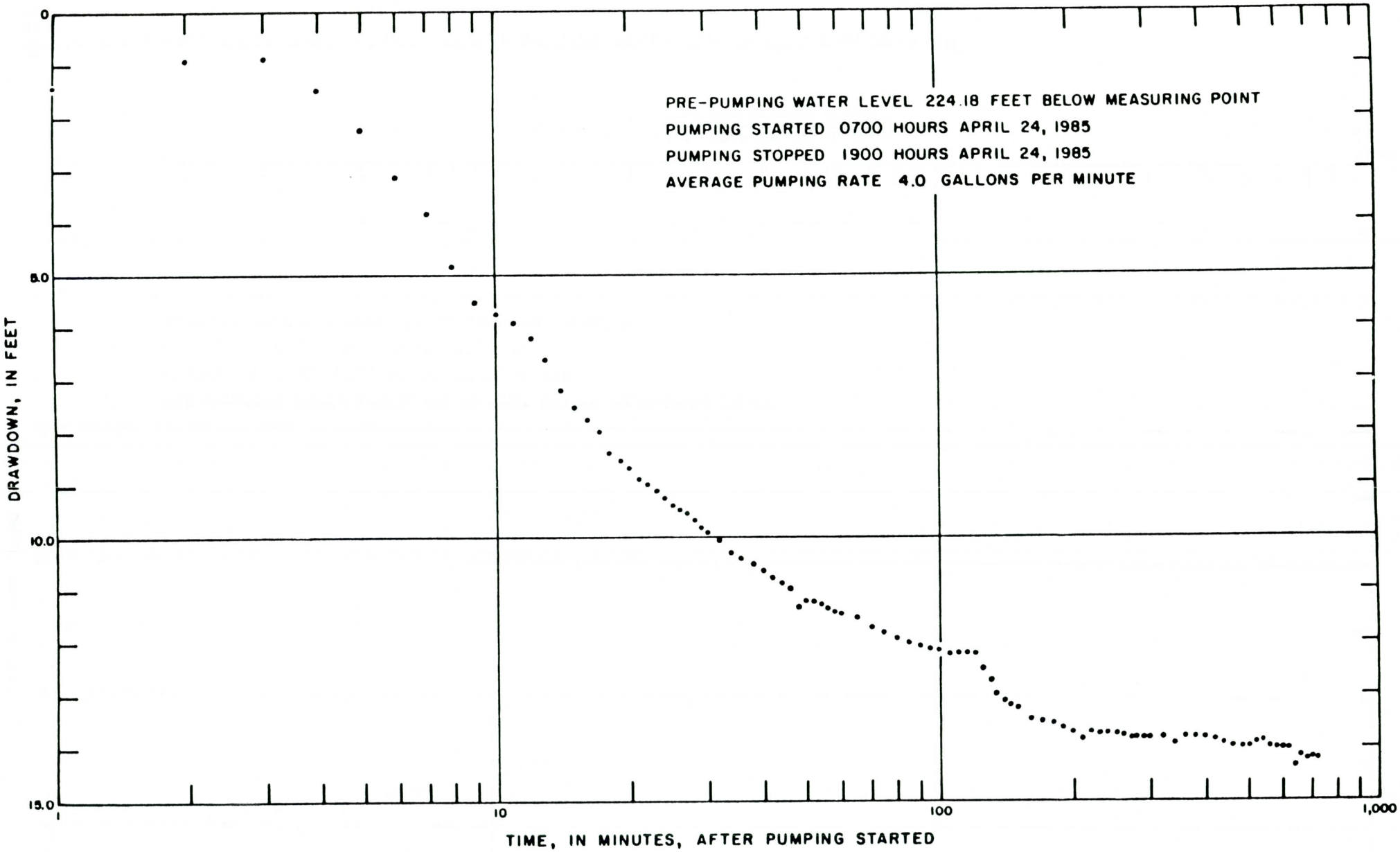

FIGURE D-22. DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)26dda, [M-12MA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
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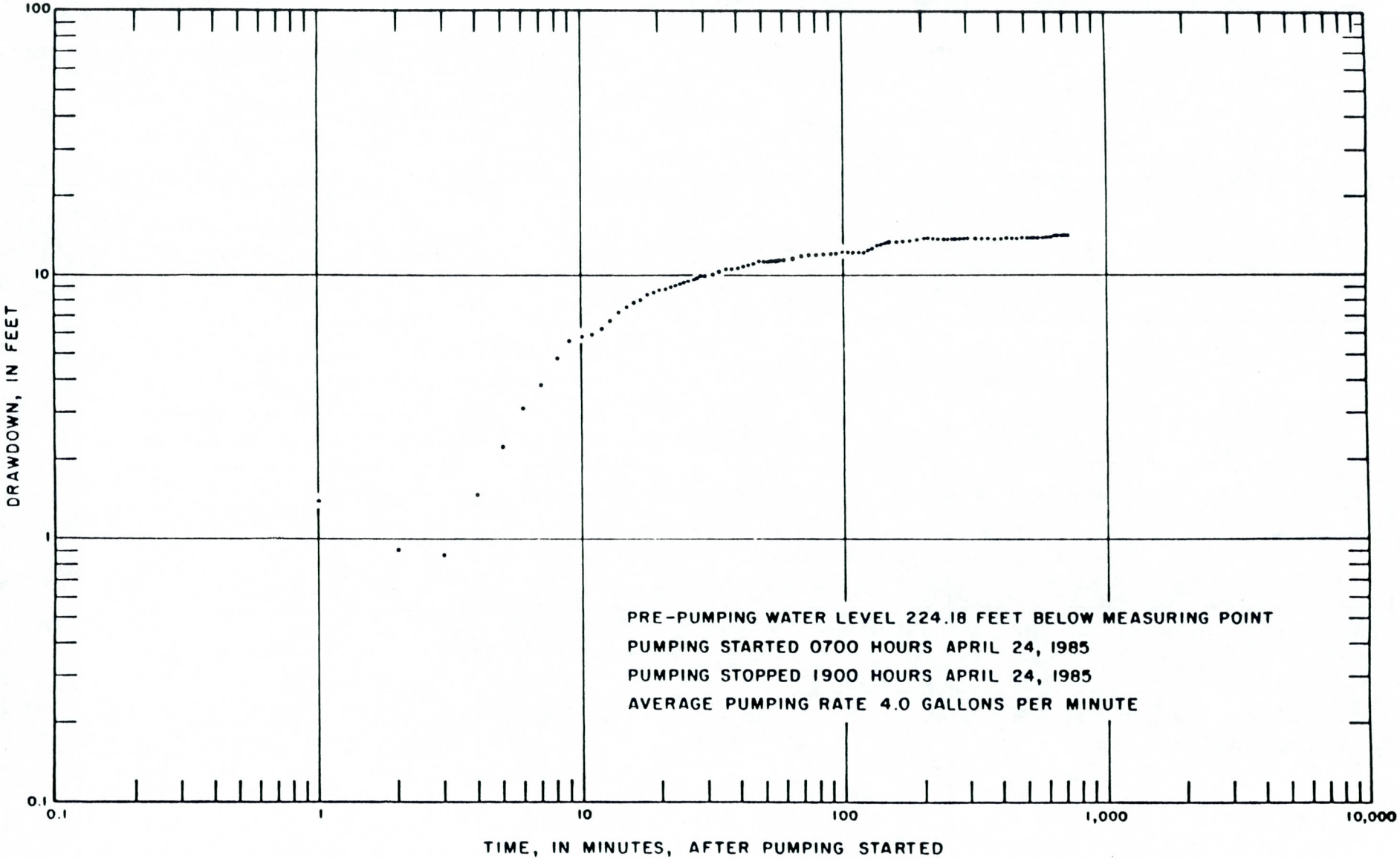


FIGURE D-23. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)26ddda_1[M-12MA]

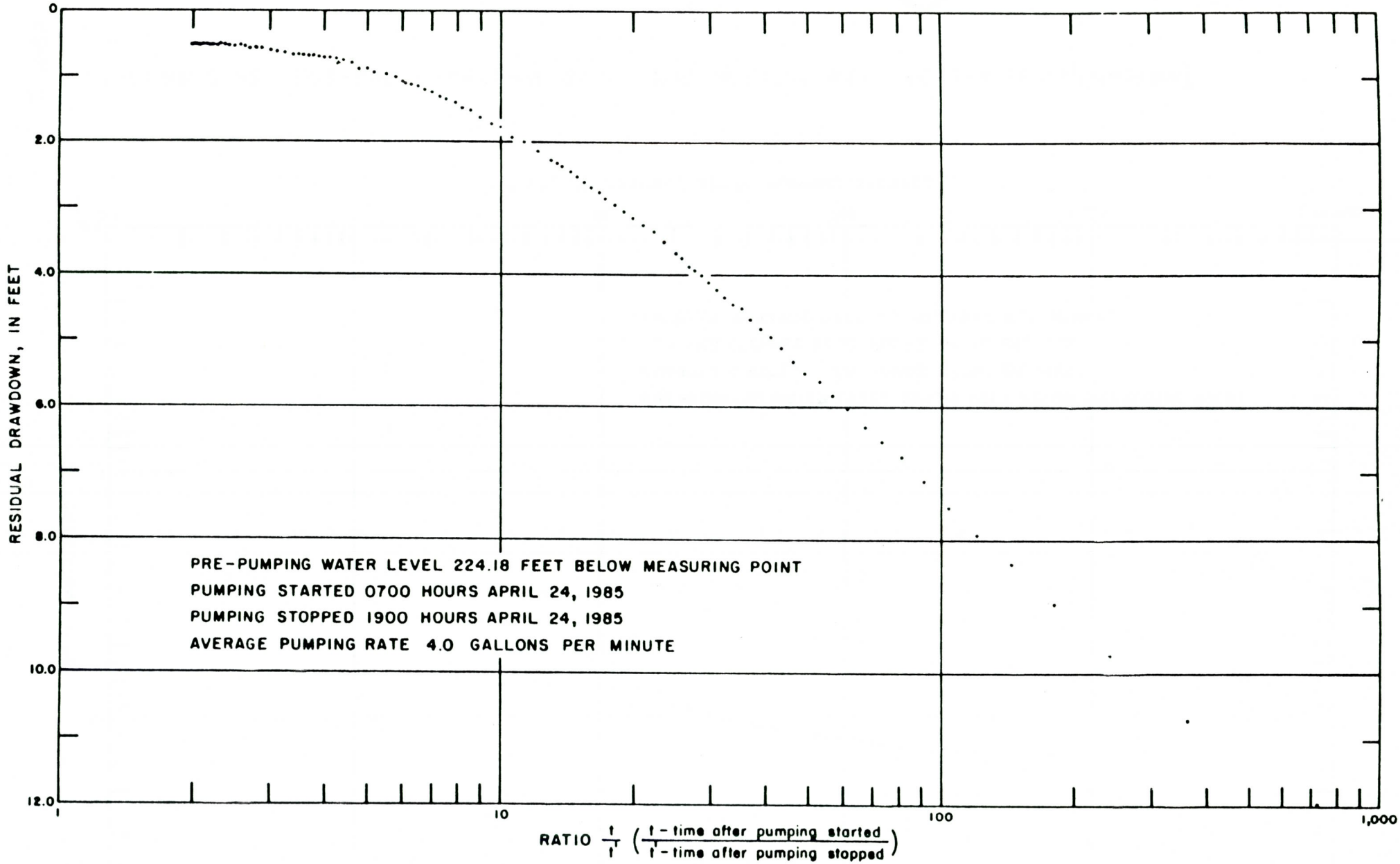


FIGURE D-24. RECOVERY GRAPH FOR MONITOR WELL (A-2-4)26ddd$_1$ [M-12MA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

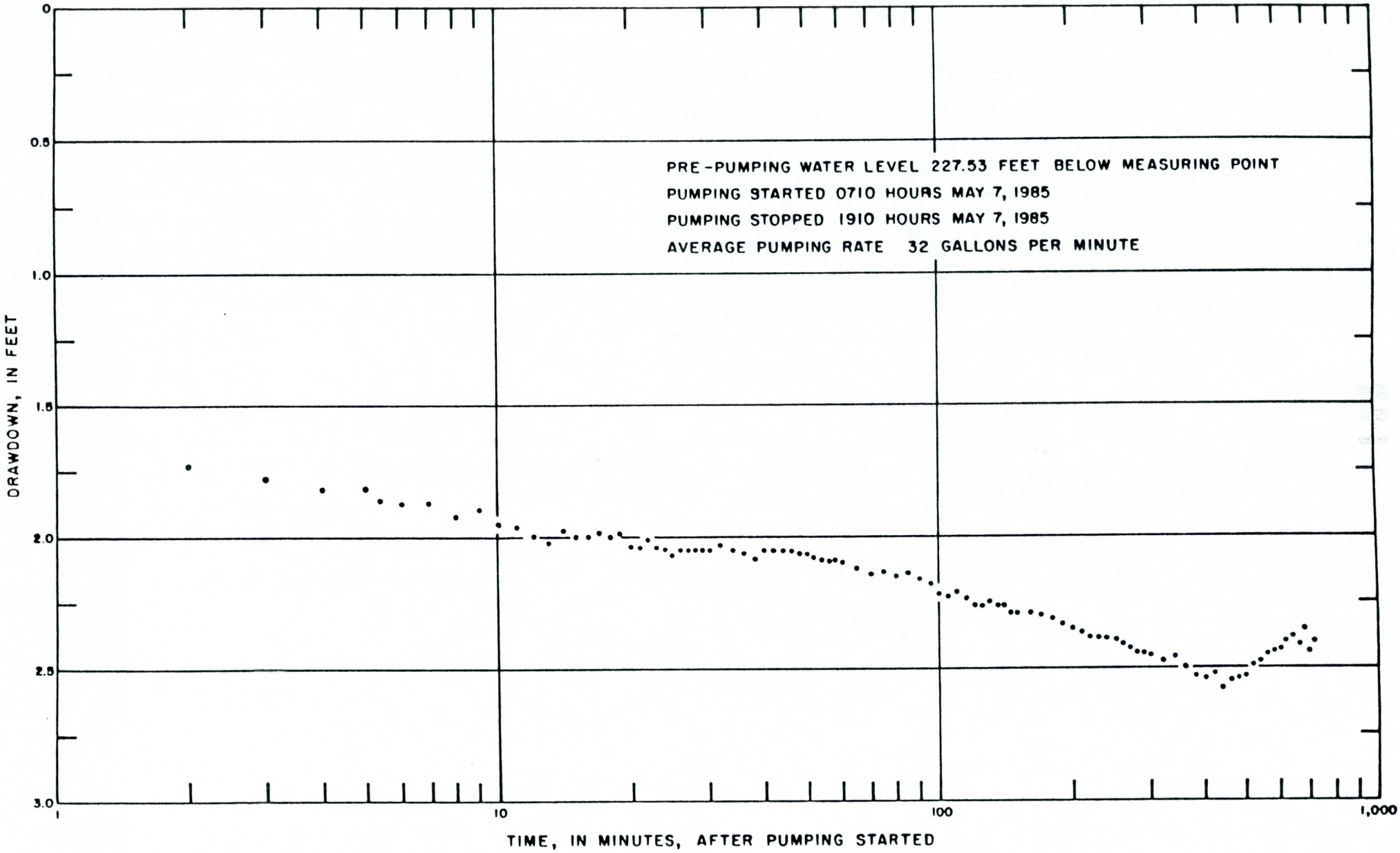


FIGURE D-25. DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35ddc3 [M-10LA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

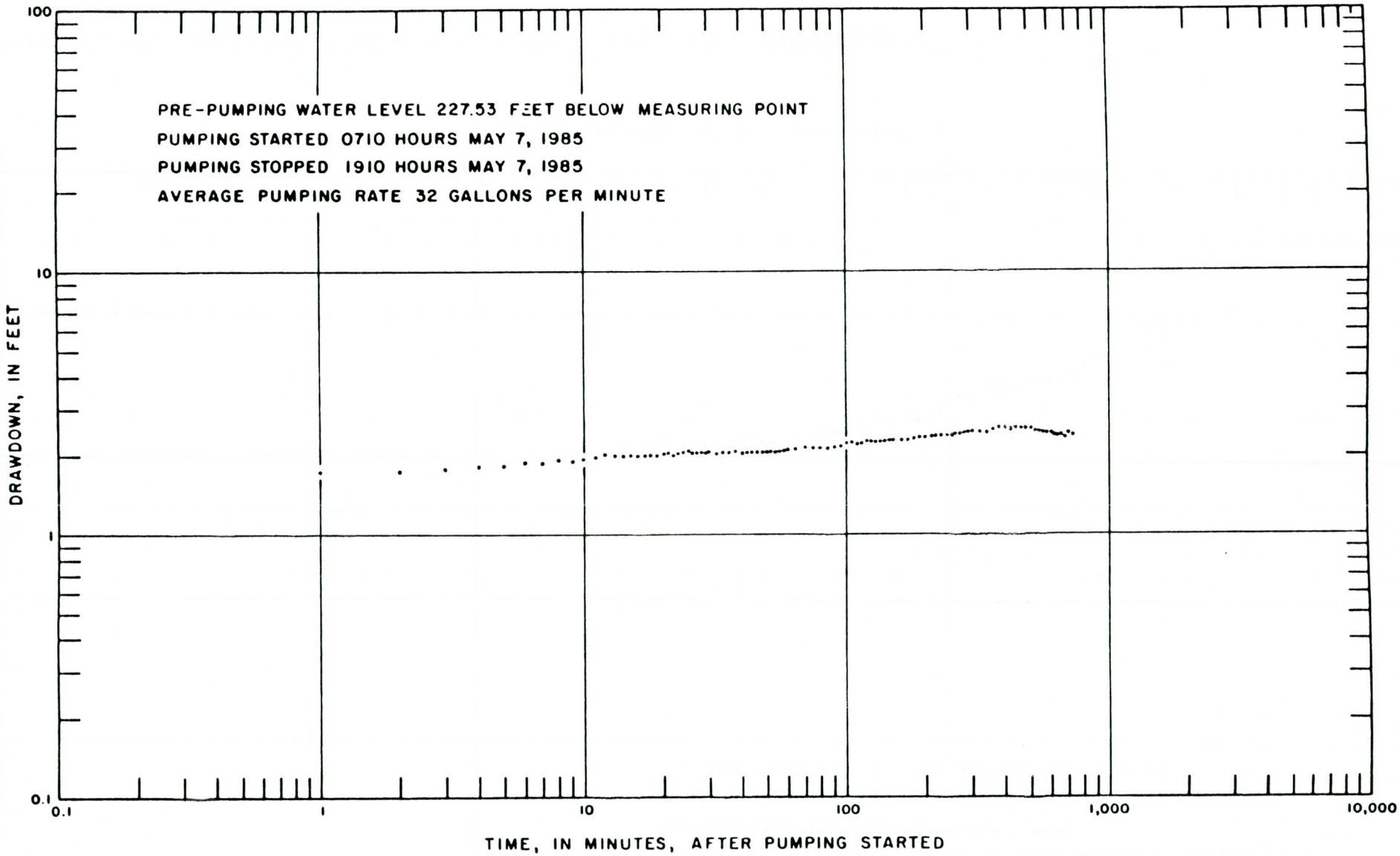


FIGURE D-26. LOG-LOG DRAWDOWN GRAPH FOR MONITOR WELL (A-2-4)35ddc$_3$[M-10LA]

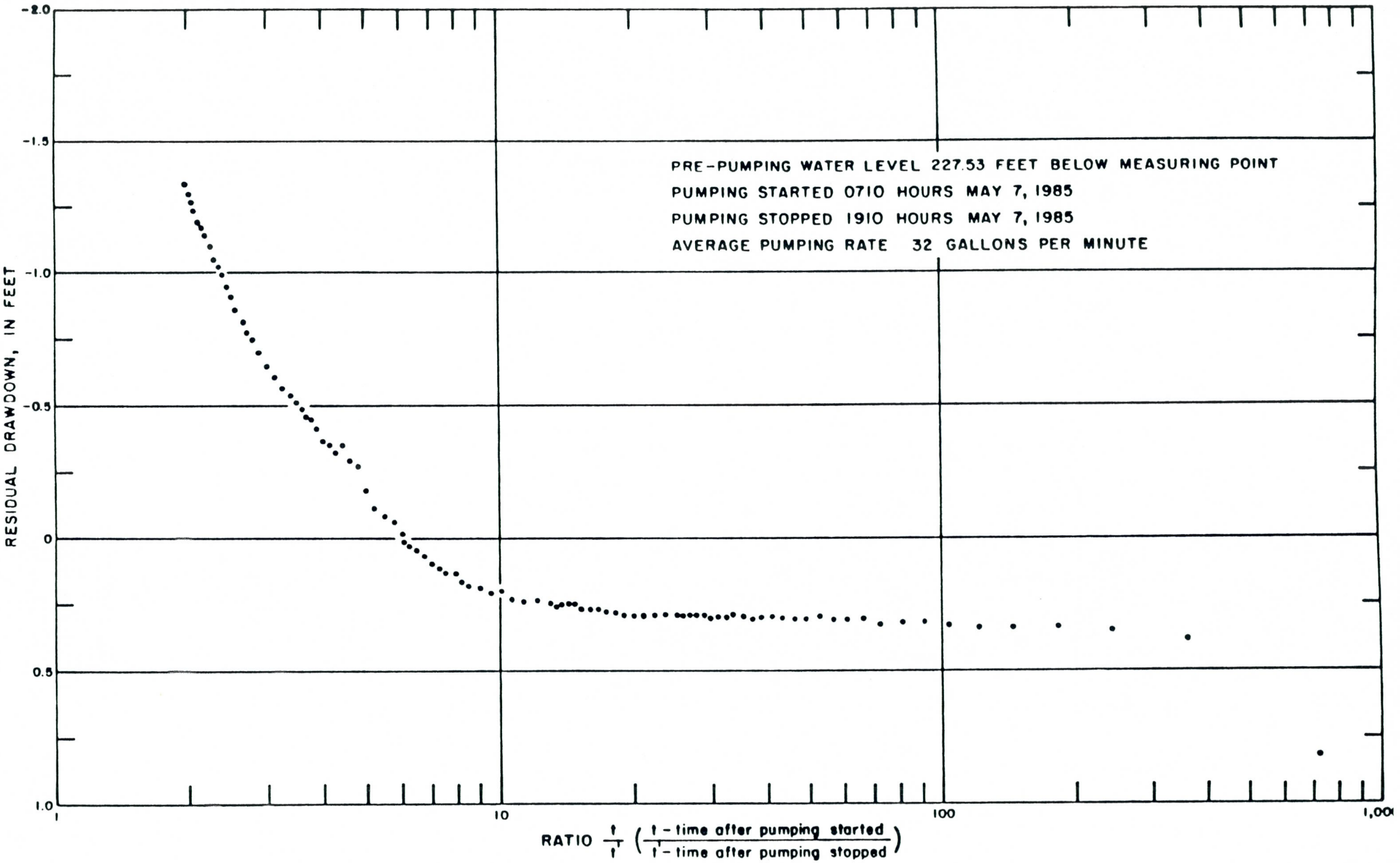


FIGURE D-27. RECOVERY GRAPH FOR MONITOR WELL (A-2-4)35ddc3 [M-10LA]

ERROL L. MONTGOMERY & ASSOCIATES, INC.
TUCSON, ARIZONA

APPENDIX I

Pumping Test Data for Beckman Monitor Wells

Sources: "Summary Report - Soil and Groundwater Investigations, Indian Bend Wash, Scottsdale, Arizona," The Mark Group, 11/18/85

"Summary Report - Data From Beckman Well UA-3, Indian Bend Wash, Scottsdale, Arizona," The Mark Group, 11/12/85

APPENDIX I: TABLE OF CONTENTS

PUMPING TEST DATA

(A-1-4)2ddd1[B-UA-3] I-1

(A-1-4)2ddd3[B-UA-1] I-3

(A-1-4)2dbd[B-J] I-5

(A-1-4)2ddd2[B-MA-1] I-7

Table 2. Aquifer Test
Water Level Data

Well No: UA-3
Measuring Point: Top of Sounding Tube
Measuring Point Elevation: 1192.50 ft.
Measuring Device: Olympic Electric Sounder
Static Water Level: 70.97 ft.
Personnel: Gregory R. Carroll
Samuel R. Rothermel
Larry Owens

Project No: 84-02101-04
Pump On: 0926 5/17/85
Pump Off: 1526 5/17/85
Discharge Rate: 34 gpm
Datum: Finished floor in Fairchild Building Elevation 1192.7 feet

Pumping Elapsed Time (minutes)	Recovery Elapsed Time (minutes)	Depth to Water (feet)	Water Level Elev. (feet)
0		70.97	1121.53
1		71.70	1120.80
2		71.82	1120.68
3		71.83	1120.67
4		71.86	1120.64
5		71.85	1120.65
6		71.83	1120.67
7		71.85	1120.65
8		71.85	1120.65
9		71.87	1120.63
10		71.87	1120.63
11		71.85	1120.65
12		71.86	1120.64
13		71.88	1120.62
14		71.87	1120.63
15		71.89	1120.61
20		71.89	1120.61
25		71.91	1120.59
30		71.93	1120.57
35		71.93	1120.57
40		71.91	1120.59
45		71.93	1120.57
50		71.93	1120.57
55		71.90	1120.60
60		71.91	1120.59
65		71.94	1120.56
70		71.94	1120.56
75		71.94	1120.56
80		72.02	1120.48
85		71.98	1120.52
90		71.96	1120.54
105		71.94	1120.56
120		71.90	1120.60
135		71.94	1120.56
150		71.93	1120.57
165		71.92	1120.58
180		71.92	1120.58

Table 2. (continued)

Pumping Elapsed Time (minutes)	Recovery Elapsed Time (minutes)	Depth to Water (feet)	Water Level Elev. (feet)
195		71.91	1120.59
210		71.94	1120.56
230		71.92	1120.58
240		71.93	1120.57
255		71.91	1120.59
270		71.90	1120.60
285		71.90	1120.60
300		71.89	1120.61
330		71.89	1120.61
360	0	71.88	1120.62
361	1	71.13	1121.37
362	2	71.09	1121.41
363	3	71.09	1121.41
364	4	71.04	1121.46
365	5	71.05	1121.45
367	7	71.02	1121.48
368	8	71.01	1121.49
369	9	71.01	1121.49
370	10	71.01	1121.49
371	11	71.00	1121.50
372	12	71.01	1121.49
373	13	70.99	1121.51
374	14	70.99	1121.51
375	15	71.00	1121.50
380	20	70.99	1121.51
385	25	70.98	1121.52
390	30	70.99	1121.51
395	35	70.97	1121.53
425	65	70.97	1121.53

Table 5. Aquifer Test
Water Level Data

Well No: UA-1
Measuring Point: Top of Sounding Tube
Measuring Point Elevation: 1191.84 ft.
Measuring Device: Olympic Electric Sounder
Static Water Level: 66.63 ft.
Personnel: Ronald L. Soroos
Gregory R. Carroll

Project No: 84-02101-04
Pump On: 0920 5/13/85
Pump Off: 1520 5/13/85
Discharge Rate: 34 gpm
Datum: Finished floor in Fairchild Building Elevation 1192.7 feet

Pumping Elapsed Time (minutes)	Recovery Elapsed Time (minutes)	Depth to Water (feet)	Water Level Elev. (feet)
0		66.63	1125.21
1		67.18	1124.66
2		67.21	1124.63
3		67.28	1124.56
4		67.33	1124.51
5		67.35	1124.49
6		67.36	1124.48
8		67.34	1124.50
9		67.36	1124.48
10		67.36	1124.48
11		67.36	1124.48
13		67.38	1124.46
14		67.40	1124.44
15		67.42	1124.42
20		67.41	1124.43
25		67.46	1124.38
30		67.44	1124.40
35		67.47	1124.37
40		67.45	1124.39
45		67.43	1124.41
50		67.46	1124.38
55		67.47	1124.37
60		67.46	1124.38
65		67.46	1124.38
70		67.46	1124.38
75		67.47	1124.37
80		67.47	1124.37
85		67.46	1124.38
90		67.48	1124.36
105		67.49	1124.35
120		67.49	1124.35
135		67.45	1124.39
150		67.46	1124.38
165		67.47	1124.37
180		67.45	1124.39

Source: The Mark Group, 11/18/85

Table 5. (continued)

Pumping Elapsed Time (minutes)	Recovery Elapsed Time (minutes)	Depth to Water (feet)	Water Level Elev. (feet)
195		67.45	1124.39
210		67.44	1124.40
240		67.42	1124.42
255		67.45	1124.39
285		67.48	1124.36
300		67.49	1124.35
330		67.43	1124.41
360	0	67.44	1124.40
361	1	66.94	1124.90
362	2	66.85	1124.99
363	3	66.81	1125.03
364	4	66.80	1125.04
365	5	66.79	1125.05
366	6	66.74	1125.10
367	7	66.75	1125.09
368	8	66.75	1125.09
369	9	66.71	1125.13
370	10	66.74	1125.10
371	11	66.70	1125.14
372	12	66.68	1125.16
373	13	66.68	1125.16
374	14	66.68	1125.16
375	15	66.68	1125.16
380	20	66.66	1125.18
385	25	66.64	1125.20
390	30	66.64	1125.20
395	35	66.61	1125.23
400	40	66.60	1125.24
405	45	66.58	1125.26
410	50	66.59	1125.25
415	55	66.60	1125.24
425	65	66.60	1125.24
430	70	66.57	1125.27
435	75	66.59	1125.25
440	80	66.59	1125.25
445	85	66.54	1125.30
450	90	66.55	1125.29
465	105	66.55	1125.29
480	120	66.56	1125.28

Table 8. Aquifer Test
Water Level Data

Well No: J
Measuring Point: Top of Sounding Tube
Measuring Point Elevation: 1192.14 ft.
Measuring Device: Olympic Electric Sounder
Static Water Level: 83.77 ft.
Personnel: Gregory R. Carroll
Ronald L. Soroos
Larry Owens

Project No: 84-02101-04
Pump On: 0901 5/23/85
Pump Off: 1501 5/23/85
Discharge Rate: 33 gpm
Datum: Finished floor in Fairchild Building Elevation 1192.7 feet

Pumping Elapsed Time (minutes)	Recovery Elapsed Time (minutes)	Depth to Water (feet)	Water Level Elev. (feet)
0		83.77	1108.37
1.5		85.03	1107.11
2.5		85.32	1106.82
3		85.38	1106.76
4		85.59	1106.55
5		85.68	1106.46
6		85.73	1106.41
7		85.80	1106.34
8		85.86	1106.28
9		85.89	1106.25
10		85.96	1106.18
11		85.96	1106.18
12		85.96	1106.18
13		85.97	1106.17
14		86.01	1106.13
15		86.00	1106.14
18		86.03	1106.11
23		86.05	1106.09
28		86.10	1106.04
33		86.13	1106.01
38.5		86.16	1105.98
43		86.19	1105.95
48		86.21	1105.93
53		86.23	1105.91
58		86.25	1105.89
63		86.27	1105.87
68		86.29	1105.85
73		86.32	1105.82
78		86.31	1105.83
83		86.33	1105.81
88		86.35	1105.79
103		86.38	1105.76
118		86.41	1105.73
133		86.44	1105.70
148		86.50	1105.64
163		86.52	1105.62
178		86.57	1105.57

Table 8. (continued)

Pumping Elapsed Time (minutes)	Recovery Elapsed Time (minutes)	Depth to Water (feet)	Water Level Elev. (feet)
193		86.60	1105.54
208		86.61	1105.53
223		86.63	1105.51
238		86.64	1105.50
253		86.66	1105.48
268		86.68	1105.46
283		86.69	1105.45
298		86.70	1105.44
328		86.72	1105.42
358		86.71	1105.43
360	0	86.73	1105.41
361	1	85.26	1106.88
362	2	84.79	1107.35
363	3	84.61	1107.53
364	4	84.50	1107.64
365	5	84.43	1107.71
366	6	84.43	1107.71
367	7	84.36	1107.78
368	8	84.33	1107.81
369	9	84.33	1107.81
370	10	84.32	1107.82
371	11	84.32	1107.82
372	12	84.30	1107.84
373	13	84.30	1107.84
374	14	84.29	1107.85
375	15	84.29	1107.85
378	18	84.28	1107.86
383	23	84.26	1107.88
388	28	84.23	1107.91
393	33	84.19	1107.95
398	38	84.17	1107.97
403	43	84.16	1107.98
408	48	84.15	1107.99
413	53	84.14	1108.00
418	58	84.13	1108.01
423	63	84.10	1108.04
428	68	84.09	1108.05
433	73	84.07	1108.07
438	78	84.07	1108.07
443	83	84.04	1108.10
448	88	84.03	1108.11
463	103	84.00	1108.14
478	118	83.98	1108.16
493	133	83.95	1108.19
506	146	83.92	1108.22

Table 2. Aquifer Test
Water Level Data

Well No: MA-1
Measuring Point: Top of Sounding Tube
Measuring Point Elevation: 1192.15 ft.
Measuring Device: Olympic Electric Sounder
Static Water Level: 137.28 ft.
Personnel: Ronald L. Soroos
Paul G. Sebenik
Gregory R. Carroll

Project No: 84-02101-04
Pump On: 0915 5/8/85
Pump Off: 1515 5/8/85
Discharge Rate: 29 gpm
Datum: Finished floor in Fairchild Building Elevation 1192.7 feet

Pumping Elapsed Time (minutes)	Recovery Elapsed Time (minutes)	Depth to Water (feet)	Water Level Elev. (feet)
0		137.28	1054.87
1		144.25	1047.90
2		145.41	1046.74
3		146.13	1046.02
4		146.72	1045.43
5		147.24	1044.91
6		147.55	1044.60
7		147.84	1044.31
8		148.22	1043.93
9		148.40	1043.75
10		148.63	1043.52
11		148.75	1043.40
12		148.92	1043.23
13		149.20	1042.95
14		149.31	1042.84
15		149.38	1042.77
20		150.00	1042.15
25		150.45	1041.70
30		150.80	1041.35
35		151.07	1041.08
40		151.30	1040.85
45		151.61	1040.54
50		151.75	1040.40
55		151.90	1040.25
60		151.95	1040.20
65		152.25	1039.90
70		152.31	1039.84
75		152.52	1039.63
80		152.59	1039.56
85		152.66	1039.49
90		152.82	1039.33
105		153.09	1039.06
120		153.23	1038.92
135		153.50	1038.65
150		153.62	1038.53
165		153.78	1038.37
210		154.15	1038.00

Table 2. (continued)

Pumping Elapsed Time (minutes)	Recovery Elapsed Time (minutes)	Depth to Water (feet)	Water Level Elev. (feet)
225		154.26	1037.89
240		154.32	1037.83
255		154.42	1037.73
285		154.53	1037.62
300		154.55	1037.60
330		154.68	1037.47
360	0	154.71	1037.44
361	1	149.39	1042.25
362	2	147.55	1044.60
363	3	146.80	1045.35
364	4	146.15	1046.00
365	5	145.65	1046.50
366	6	145.18	1046.97
367	7	144.90	1047.25
368	8	144.35	1047.80
369	9	144.25	1047.90
370	10	144.11	1048.04
371	11	143.78	1048.37
372	12	143.55	1048.60
373	13	143.34	1048.81
374	14	143.29	1048.86
375	15	143.12	1049.03
380	20	142.48	1049.67
385	25	141.95	1050.20
390	30	141.50	1050.65
395	35	141.15	1051.00
400	40	140.88	1051.27
405	45	140.45	1051.70
410	50	140.34	1051.81
415	55	140.14	1052.01
420	60	139.90	1052.25
425	65	139.80	1052.35
430	70	139.55	1052.60
435	75	139.53	1052.62
440	80	139.36	1052.79
445	85	139.15	1053.00
450	90	139.05	1053.10
465	105	138.75	1053.40
480	120	138.50	1053.65
495	135	138.28	1053.87
510	150	138.11	1054.04
525	165	137.91	1054.24
540	180	137.74	1054.41
555	195	137.59	1054.56
570	210	137.50	1054.65

APPENDIX J

Permeability and Consolidation Test Results of
Middle Alluvium Unit Cores

Appendix J: Table of Contents

Summary of Permeabilities J-1

Core from (A-1-4)1abb3[E-1LA] at 235 Feet

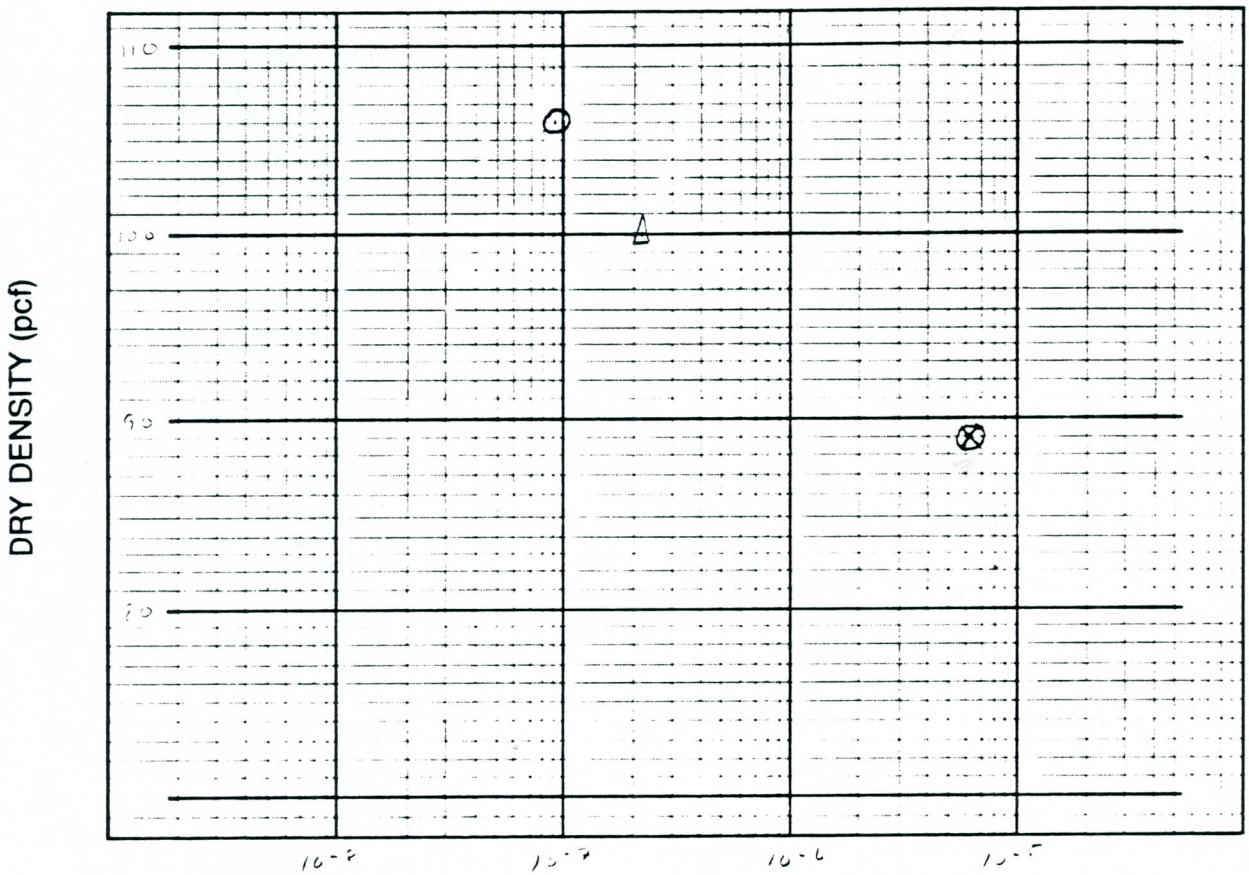
Permeability Worksheets J-2
Consolidation Test Report J-5

Core from (A-1-4)1abb3[E-1LA] at 320 Feet

Permeability Worksheets J-11
Consolidation Test Report J-14

Core from (A-1-4)1abb3[E-1LA] at 422 Feet

Permeability Worksheets J-20
Consolidation Test Report J-23



PHYSICAL CONDITIONS		TEST NO A ⊙	TEST NO B △	TEST NO C ⊗
INITIAL	Diameter (in)	2.87	2.87	2.87
	Height (in)	1.42	1.70	1.56
	Water Content (%)	21.7	23.9	33.1
	Dry Density (pcf)	104.3	98.6	87.8
	Void Ratio	.652	.647	.949
	Saturation (%)	92	96	96
FINAL	Consolidation Pressure (psf)	550	550	550
	Water Content (%)	22.7	23.6	33.6
	Dry Density (pcf)	104.0	100.6	89.0
	Void Ratio	.626	.612	.929
	Saturation (%)	100	100	100
Permeability At 20°C (cm/sec)		1.9×10^{-7}	8.8×10^{-6}	4.8×10^{-5}
Sample Source:		235'	320'	422'
Classification:		Brown Silt (ML)	Reddish Brown Sandy Silt (ML)	Brown Silt (ML)

TEST TYPE: Falling Head

SATURATION METHOD: Back Pressure

Harding Lawson Associates
Engineers Geologists
& Geophysicists

Permeability Test Report

Ecology + Environment

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	1700 002 01		5/21/87		

WORK SHEET – PERMEABILITY

HARDING LAWSON ASSOCIATES

Job: Eco Environ		Job No. 17,350.00.01	Date 5-15-85 [redacted]
Hole No. 235'	Depth	Sample Diameter 2.87	

Description of Sample and Remarks: consol @ 4 psi (540 psf)
Rum Silt (ML)

Backpressure Saturated

Specific Gravity, G

+ No. 4	- No. 4

WEIGHTS AND WATER CONTENTS

Formula: Water Content, $w = \frac{W_w}{W_s} \times 100$

			Before Test		After Test						
					Wedge		Solids		Total		
Tare No.				5-42	D-59		D-12				
Weights in grams	Tare + Wet Soil			182.5	350.0						
	Tare + Dry Soil			153.4	292.9		43.7				
	Water	W_w	54.7		57.1				57.1		
	Tare			40.5	41.0		41.3				
lbs.	Wet Soil	122.1	306.6								
	Dry Soil	W_s	251.9		251.9	+	2.4	=	254.3	= W_s	
Water Content %		w	21.7	21.5	22.7				22.5		

DIMENSIONS

	Areas in sq. cm.									
	Top	Middle	Bottom	Avg.	Membrane Thick.	Membrane Corr.	A, Net Area	Height	in.	cm.
Before Test				41.74				h_o =	1.42	3.61
After Evacuation								h_{c_1} =		
After Saturation								h_{c_2} =	1.40	3.56
After Consolidation										

k= 4.3 x 10^-7

Dimensions After Consolidation

V_o = 150.7

A_{c_1} = 148.3/3.56

= 41.66

A_{c_2} =

GENERAL DATA

Chamber Pressure,	psi	0		58		
Back Pressure	psi	0		52		
Date		5/15/85		5/17/85		/ /
Hour		1740		1425		
Strain Dial Reading	in.	.200	Δ = -.02	.181		
Interior Burette,	cc.	505/570				
Exterior Burette,	cc.	91.8		81.5		
Volume of Specimen, V = A x H	cc.	150.7	Δ = -2.4	148.3		
Volume of Solids, $V_s = W_s \div G$	cc.	91.2		91.2		
Volume of Voids, $V_v = V - V_s$	cc.	59.5		57.1		
Void Ratio, $e = V_v \div V_s$		.652		.626		
Dry Density, $\gamma_d = 62.4\ W_s \div V$, lbs/ft³		104.3		106.0		
Saturation, $S = V_w \div V_v \times 100$,	%	92		100		

Tested by:

Computed by: [illegible]

Checked by:

SATURATION & CONSOLIDATION PHASE – PERMEABILITY

HARDING LAWSON ASSOCIATES

JOB Eco Environ NO. 17,320,002 BY Wm DATE 5/15/85

BOR 235' DEPTH

SATURATION DATA

U[redacted]

TIME DATE	σ CHAMBER PRESS. (psi)	σ BACK PRESS. (psi)	EXTERNAL BURETTE (cc)	SATURATION BURETTE (cc)	PORE PRESSURE (psi)	Δ	B
5/15/85							
1740	+2	-Clip	90.0	51.5/150.0	Flush		
1745	"	0	89.0	" 113.0			
5/16/85							
0820	+2	0	90.0	95.0	Flush		
22	+4	+2	90.0	33.0			
1000	14	12	89.5	51.5/32.0			
1115	24	22	86.0	50.5 32.0			
1220	34	32	84.5	50.5 32.0			
1320	44	42	82.1	50.1			
1420	54	52	82.0	49.9			
1600	+74	+52	P	/	51.6/71.0	19.4	97.0
1601	54	52	81.0	49.8/32.0			
5/17/85							
0905	54	52	80.5	49.4			
10	56	52	80.0	49.4			
1123	56	52	79.8	49.9			
	V_0 = - 9.0						
	V_f = + [illegible]						
	ΔV = - 9.0						
32 cc	V_{vol} = + 7.1						
	ΔV = - -1.9						
	V_{vol} = - 0.5						
	ΔV = - 2.4						

CONSOLIDATION DATA	
ELAPSED TIME MIN.	INTERIOR VOL. BURETTE (CC)
0910	
0	49.4
.1	.5
.25	.6
.5	"
1	.7
2	"
4	.8
8	"
16	"
30	"
60	[illegible]
120	[illegible]
240	
480	
1440	

Δ 0

Date: 5/19/85
Time: 0910
σ_{CH} = 56
σ_{BP} = 52
σ_{eff} = 4
(CONSOL.)

Δ Δ NET

Tested by: Computed by: Checked by:

PERMEABLITY TEST DATA

HARDING LAWSON ASSOCIATES

JOB Eco Environment UNIT NO. 6 BORING 235' CONSOL. PRESS. 40 psi

NO. 17320,002.01 DATE 5/17/85 DEPTH — PRESS. HEAD _____ psi

$k = \frac{aL}{At} \log_e h_o/h_f$ cm./sec.

Type of Test FALLING HEAD

Chamber Press. 58 psi

Back Press. 52 psi

where:

a = 1.25 cm^2, L = 1.40 in. = 3.56 cm.

A = 41.66 cm^2, t = _____ hrs. 1472 min.

= 88320 ~~x10~~ sec.

h_o = 49.0 cc = _____ cm.

h_f = 34.2 cc = _____ cm.

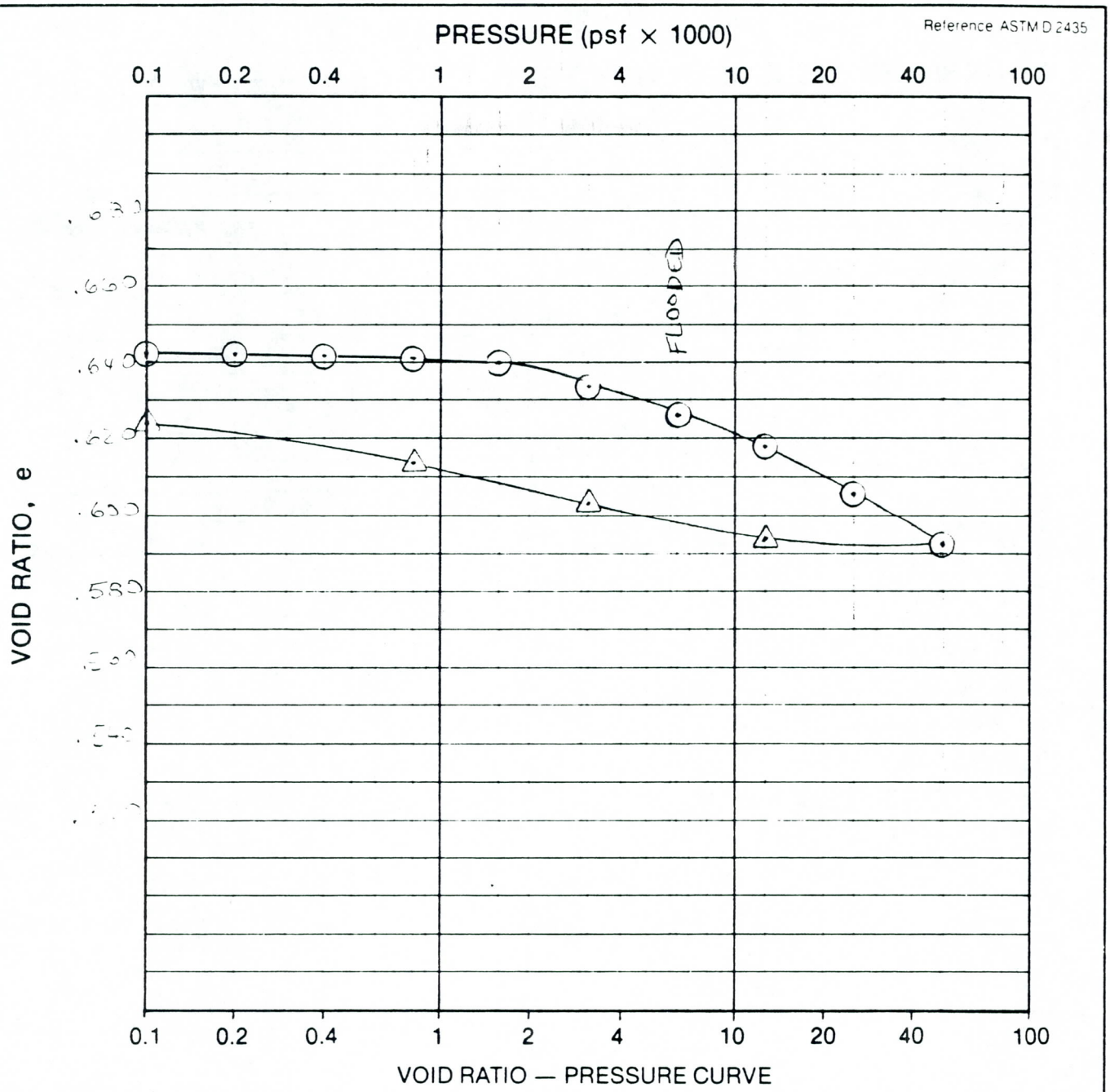
Burettes						
Ext. cc	Bott. Int. cc	Δ Int. cc	Sum Int. cc	Top Int. cc	Time	Date
81.6	0.9	49.0	50.8	49.9	1428	5/17/85
"	1.0	48.8	"	49.8	38	
"	1.2	48.3	50.7	49.5	1505	
"	1.5	47.7	50.8	49.3	1555	
"	2.2	46.4	"	48.6	1725	
81.0	7.1	36.4	50.6	43.5	1050	5/18/85
"	7.8	35.0	"	42.8	1320	
"	8.2	34.2	50.6	42.4	1500	

$$K = \frac{1.25 \times 3.56}{41.66 \times 88320} \log_e \frac{49.0}{34.2} = 1.9 \times 10^{-7}$$

Tested by: [illegible]

Computed by: [illegible]

Checked by:



Type of Specimen UNDISTURBED		Condition		Before Test		After Test	
Diameter (in.) 2.43	Height (in.) 0.80	Water Content	w_o	[illegible] %		w_f	[illegible] %
Overburden Press., P_o	psf	Void Ratio	e_o	[illegible]		e_f	[illegible]
Preconsol. Press., P_c 2000	psf	Saturation	S_o	[illegible] %		S_f	[illegible] %
Compression Index, C_c .040		Dry Density	γ_d	[illegible] pcf		γ_d	[illegible] pcf
LL —	PL —	PI —				Gs 2.70	
Classification [illegible]				Source [illegible]			

Harding Lawson Associates
Engineers Geologists
& Geophysicists

Consolidation Test Report

ECOLOGY AND ENVIRONMENT

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	[illegible]	[illegible]	[illegible]		

WORKSHEET–CONSOLIDATION TEST

HARDING LAWSON ASSOCIATES

Job: [illegible]		Job No. [illegible]	Date [illegible]
Bor. No. —	Sample Dia. [illegible]	Depth [illegible]	[redacted]
Diameter D=2.43 in.=6.17 cm	Area A=29.92 cm^2	Initial Height 2H= 0.80 in.	Specific Gravity G= 2.70

WEIGHTS and MOISTURE CONTENTS

ITEM	Before Test		After Test			
	Specimen	Moisture Sample	Specimen Portion	Washed Portion	Total	
Container No.	5	D-134	A-33	D-74		
Moist Soil & Container, gms.	1291.2	408.0	137.7		1293.1	
Dry Soil & Container, gms.	1269.6	347.1	114.7	40.6	[illegible]	
Loss of Water, gms.	21.6	60.9	23.0		23.5	
Container Weight, gms.	1169.7	42.6	15.2	40.2	[illegible]	
Weight of Dry Soil, gms. = W_s	99.9	304.5	99.5 + [illegible]		= 99.9	= W_s
Weight of Moist Soil, gms. 124.8	121.5					
Moisture Content, %	21.6	20.0	23.1		23.5	

Height of Solids: $2H_o = \frac{W_s}{G \times A} \times \frac{1}{2.54} = \frac{99.9}{2.70 \times 29.92} \times \frac{1}{2.54} = 0.4269$ in., $\frac{1}{2H_o} = 2.351$

Initial Unit Weight: $\gamma_o = \frac{W_s \times 62.4}{(\text{Volume} = \quad)} = \frac{(W_s = 99.9)}{} \times 1.027 =$ [illegible] after = [illegible] lbs./cu.ft.

COMPUTATIONS and RESULTS

Load lb/sq.ft.	Corrected Dial inches x 10^{-4}	Loading Final 2H inches	Loading Final e		Corrected Dial inches x 10^{-4}	Rebound Final 2H inches	Rebound Final e
0	.1000	.8000	0.643				
100		.7991	0.642			.7990	[illegible]
200		[illegible]	0.642				
400		[illegible]	0.642				
800		[illegible]	[illegible]			[illegible]	[illegible]
1600		.7983	0.640				
3200		[illegible]	0.655			.7994	[illegible]
6400		[illegible]	[illegible]				
12,800		[illegible]	[illegible]			.7954	0.594
25,600		[illegible]	[illegible]				
50,000		.7925	0.512				
51,200							
100,000							

Degree of Saturation $\frac{G \times w}{e}$ Before Test $\frac{2.70 \times .216}{0.643}$ = 91 % After Test $\frac{2.70 \times .231}{0.625}$ = 100 %

Description of Sample: Brown silt (ML) w/ areas of slight cementation common.

Formula: Final e = $\frac{2H - 2H_o}{2H_o} = \left(2H \times \frac{1}{2H_o}\right) - 1$

Tested by: [illegible]
Computed by: [illegible]
Checked by:

C

HARDING LAWSON ASSOCIATES

TIME-CONSOLIDATION DATA

Sheet 1 of 2

JOB Ecology + Environment JOB NO. 17370,002.01 BY _____ DATE 5/28/85

BOR. — DEPTH 235' [redacted] TIME RATES A/B

Date & Pressure 5/28/85	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.	Date & Pressure / /	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.
100	1015	0	.1000		12500		0	.1189	43
	1015		05	-6 (-.05)			16	91	45
-10	1015		1006				30	93	47
						1000	60	95	49
200	1015	0	1006	-9		1100	120	97	51
	20		09	+5		1300	240	99	53
	30		1009	-4 (-.05)		1700	480	.1200	54
					5/25/85	1200	1620	.1204	58
[illegible]	[illegible]	0	1000	-17	5/26/85	0430	5730	.1207	61
	[illegible]		[illegible]	+13					
	35		17	-4 (-.05)	25600	0430	0	.1267	0
	45		1017				.1	47	40
				-33			.25	50	43
500	[illegible]	0	1017	-20	-280		.5	52	45
	1021		86	-9	+100		1	54	47
	1030		[illegible]	(-.11)	-180		2	56	49
						(-.25)	4	59	52
1000	[illegible]	0	1033	-53			8	.1261	55
	[illegible]		77	+39			16	64	[illegible]
			[illegible]	-17			30	66	58
				(-.21)			60	68	60
[illegible]	[illegible]	[illegible]	[illegible]	-94		[illegible]	120	71	63
	30		89	+54		[illegible]	240	[illegible]	66
	1300		92	-11 (-.05)		1130	480	76	68
	1335		.1094		5/29/85	0800	1140	.1280	72
1100	1335	0	.1094	-146	50000	[illegible]	0	.1280	0
	1335		1139	[illegible]			.1	1335	55
Flood	[illegible]		1141	-72			.25	[illegible]	59
	1400		1141	(-.96)			.5	42	62
	[illegible]		42				1	46	66
12/6/85	[illegible]		[illegible]		[illegible]		2	49	69
					[illegible]		4	53	73
12500	0900	0	.1141	0	[illegible]		8	57	77
		.1	74	31			16	61	81
		.25	79	33			30	66	86
-227		.5	81	35			60	71	91
+85		1	83	37		1000	120	75	95
-122	1.53	2	85	39		1200	240	80	100
		4	[illegible]	[illegible]		1500	[illegible]	[illegible]	104

Remarks: [illegible]

Tested by: [illegible]
Computed by: _____
Checked by: _____

LF-3

TIME-CONSOLIDATION DATA

HARDING LAWSON ASSOCIATES

Sheet 2 of 2

JOB Ecology + Environment JOB NO. 17320,000.01 BY _____ DATE 5/30/85

BOR. — DEPTH 235' UNIT NO. 5 TIME RATES _____

Date & Pressure 5/30/85	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.	Date & Pressure / /	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.
[illegible]	[illegible]	1440	.1371	111					
Begin									
[illegible]	[illegible]	0	.13[illegible]	-337					
	0905		37	[illegible]					
	[illegible]		.1337	[illegible]					
				(-301)					
[illegible]	[illegible]	0	.1337	-273					
	1105		.1275	[illegible]					
	1330		.1273	-19					
				[illegible]					
[illegible]	[illegible]	0	.1273	[illegible]					
	[illegible]		08	+68					
	[illegible]		.1202	-110 (-125)					
[illegible]	[illegible]	0	.1202	-110					
	[illegible]		[illegible]	[illegible]					
	[illegible]		[illegible]	[illegible]					
	15		[illegible]						
	30		41	(-112)					
	1630		.1170						

Remarks: _____

Tested by: _____

Computed by: _____

Checked by: J-8

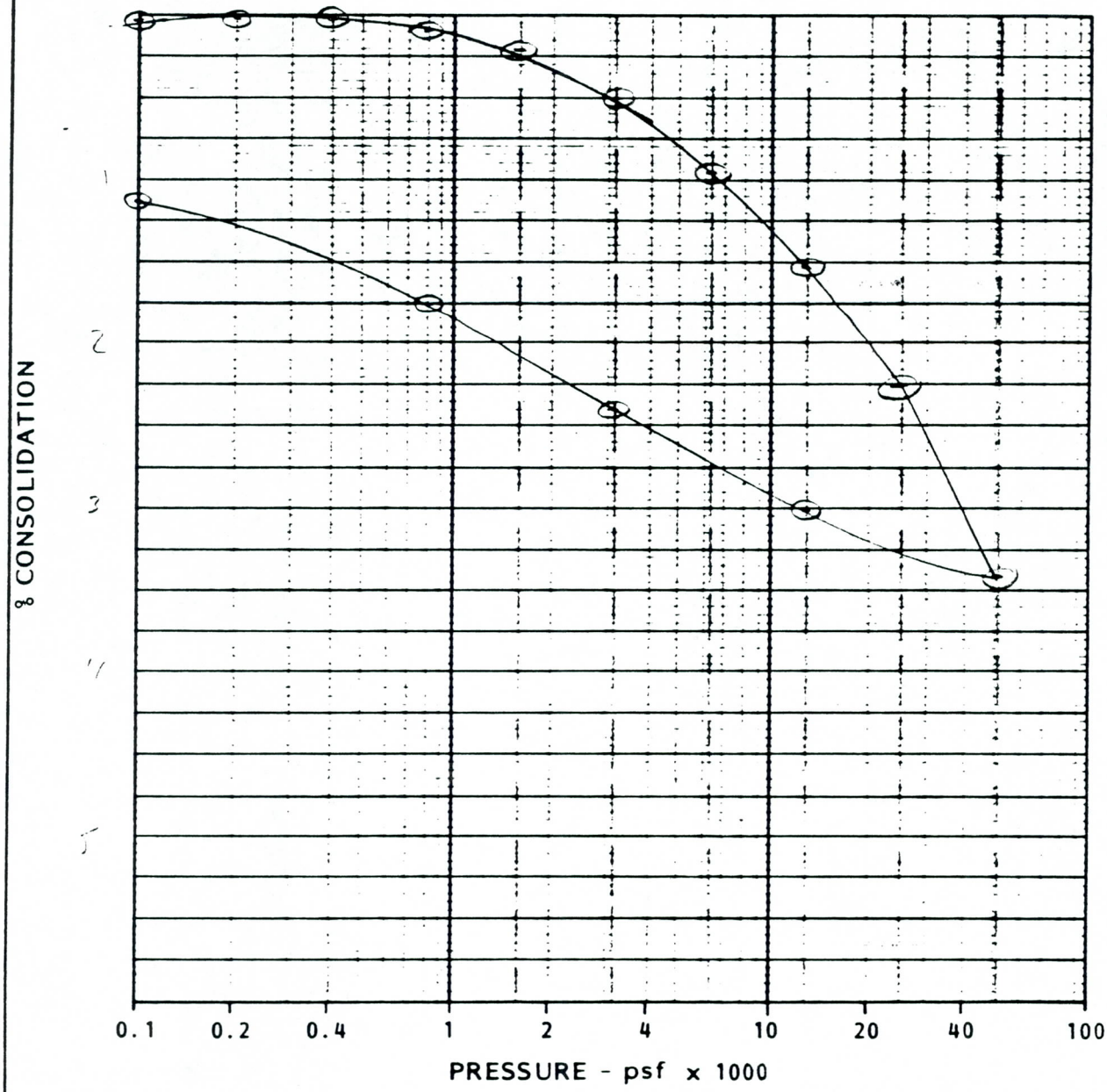
LF-3

CONSOLIDATION TEST DATA

HARDING LAWSON ASSOCIATES

JOB Ecology & Environment NO. 17373,002.01 BY

[redacted] DATE 5/ /85

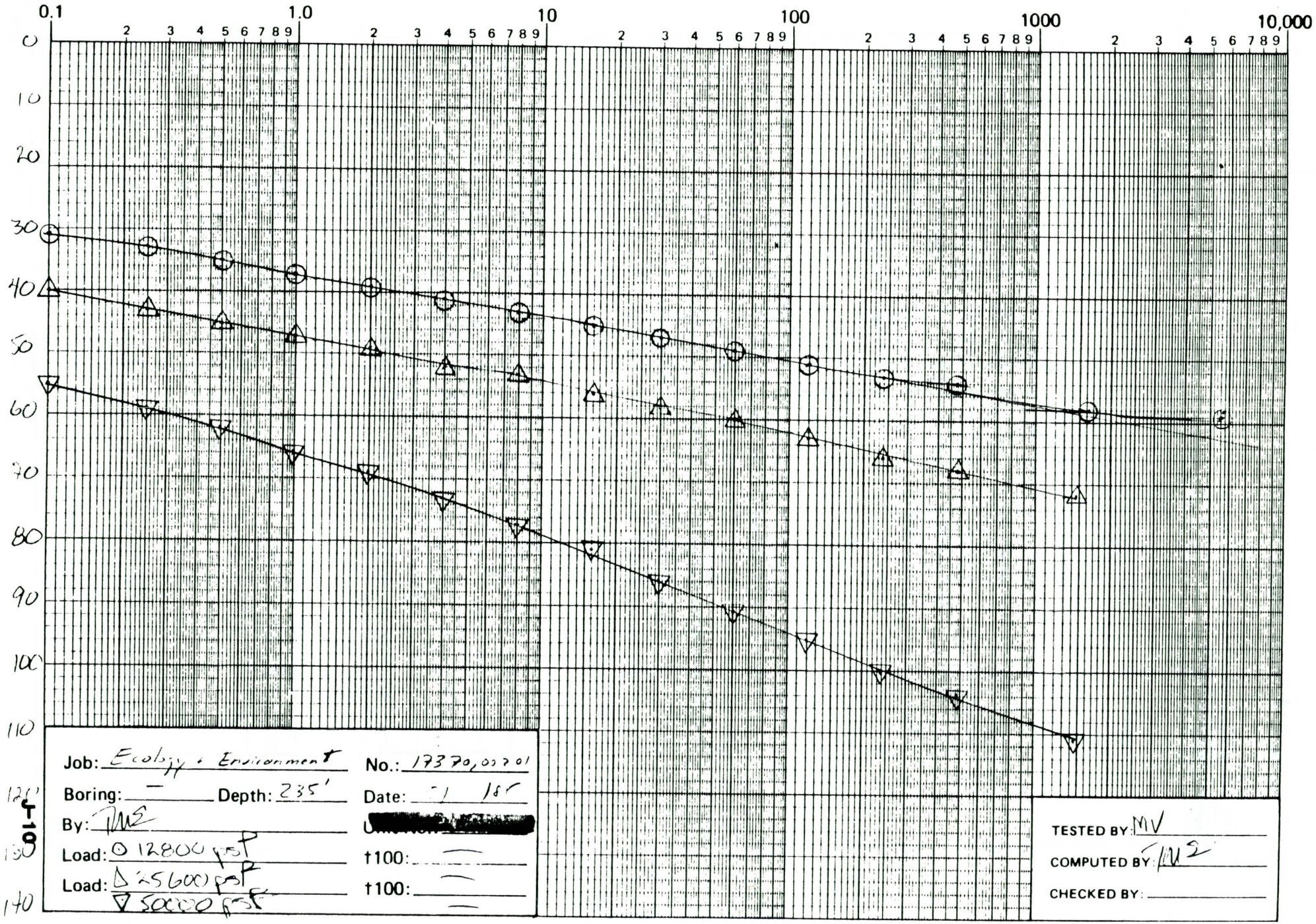


BORING	DEPTH	SOIL	MOISTURE CONTENT		DRY DENSITY (pcf)
			INITIAL	FINAL	
-	23.5'	[illegible] Brown Silt (ML)	21.6	23.1	102.6

Tested by:	
Computed by:	
Checked by:	[illegible]

CONSOLIDATION TIME - DEFORMATION

HARDING LAWSON ASSOCIATES



Job: Ecology + Environment
No.: 17370,03201
Boring: —
Depth: 235'
Date: 7/ 18
By: TMS
[redacted]
Load: ○ 12800 psf
t100: —
Load: △ 25600 psf
t100: —
▽ 50000 psf

TESTED BY: MV
COMPUTED BY: TMS
CHECKED BY:

WORK SHEET – PERMEABILITY

HARDING LAWSON ASSOCIATES

Job: Eco Environ		Job No. 17370.00001	Date 5-16-85
Hole No. 320	Depth	Sample Diameter 2.87"	[redacted]

Description of Sample and Remarks: Consol @ 4 psi (550 psf)

Red Brn Fine Sandy Silt (ML)

Backpressure Saturated

Specific Gravity, G

+ No. 4	- No. 4

WEIGHTS AND WATER CONTENTS

6.0
1700.0
463.9
1236.1
1098
121.1

Formula: Water Content, $w = \frac{W_w}{W_s} \times 100$

			Before Test		After Test						
					Wedge		Solids		Total		
Tare No.				D-119	D-62		D-103				
Weights in grams	Tare + Wet Soil			314.6	342.1						
	Tare + Dry Soil			[illegible]	325.0		44.3				
	Water	W_w	68.1		[illegible]				[illegible]		
	Tare			40.9	40.5		41.0				
Weights in lbs.	Wet Soil		352.9								
	Dry Soil	W_s	284.8		[illegible]	+	0.3	=	[illegible]	= W_s	
Water Content %		w	23.9	[illegible]	[illegible]				[illegible]		

DIMENSIONS

	Areas in sq. cm.									
	Top	Middle	Bottom	Avg.	Membrane Thick.	Membrane Corr.	A, Net Area	Height	in.	cm.
Before Test				[illegible]				h_o =	1.70	[illegible]
After Evacuation								h_{c_1} =	1.70	[illegible]
After Saturation								h_{c_2} =		
After Consolidation										

k= 8.8 x 5

Dimensions After Consolidation

V_o = 180.3

A_{c_1} = 176.6/4.32

= 40.87

A_{c_2} =

GENERAL DATA

Chamber Pressure,	psi	0		69		
Back Pressure	psi	0		65		
Date		5/16/85		5/18/85		/ /
Hour		1019		1028		
Strain Dial Reading	in.	.250		.304		
Interior Burette,	cc.	50.4/156.7				
Exterior Burette,	cc.	104.0		86.0		
Volume of Specimen, V = A x H	cc.	180.3	L=.37	176.6		
Volume of Solids, $V_s = W_s \div G$	cc.	105.5		105.5		
Volume of Voids, $V_v = V - V_s$	cc.	[illegible]		71.1		
Void Ratio, $e = V_v \div V_s$		.647		.612		
Dry Density, $\gamma d = 62.4\ W_s \div V$, lbs/ft³		[illegible]		100.6		
Saturation, $S = V_w \div V_v \times 100$,	%	96		100		

Tested by: [illegible]

Computed by: [illegible]

Checked by:

SATURATION & CONSOLIDATION PHASE – PERMEABILITY

HARDING LAWSON ASSOCIATES

JOB Eco Environ NO. 17370.0001 BY Wm DATE 5/16/85

BOR DEPTH

SATURATION DATA [redacted]

TIME DATE	σCHAMBER PRESS. (psi)	σBACK PRESS. (psi)	EXTERNAL BURETTE (cc)	SATURATION BURETTE (cc)	PORE PRESSURE (psi)	Δ	B
5/16/85							
1020	+2	-6 hg	101.0	50.4/56.0	Flush		
1021	"	0	99.2	" 80.0			
1330	"	"	97.5	" 70.0			
1439	"	"	.3	62.6			
1625	+2	-6 hg	97.0	" 64.0	Flush		
1626	+4	+2	96.2	" 32.0			
1825	14	12	97.5	30.5			
5/17/85							
0955	24	22	90.0	28.0			
1100	34	32	89.0	27.0			
1345	44	42	87.2	" /26.5			
1135	54	52	87.0	50.0			
1510	"	"	86.2	49.7			
1610	54	52	85.2	49.5			
12	74	52	B		52.4/71.4	19.0	.95
14	59	55	84.0	49.5			
5/17/85							
1035	59	55	83.0	49.7			
	V_0 = -97.0						
	V_2 = +85.2						
	ΔV = -11.8						
1.3 psi	V_{cell} = +8.4						
	ΔV = -3.4						
	V_{cell} = -0.3						
	ΔV = -3.7						
			Δ	Δ	NET		

CONSOLIDATION DATA

ELAPSED TIME MIN.	INTERIOR VOL. BURETTE (CC)
1620	
0	49.5
.1	.6
.25	.7
.5	.8
1	"
2	"
4	"
8	"
16	
30	
60	49.8
120	
240	
480	
1440	

Δ 0

Date: 5/17/85
Time: 1620
σCH = 59
σBP = 55
σ EFF = 4.0
(CONSOL.)

Tested by: Computed by: Checked by:

PERMEABLITY TEST DATA

HARDING LAWSON ASSOCIATES

JOB Ecc Environmental [redacted] BORING 320 CONSOL. PRESS. 4.0 psi

NO. 17370,00201 DATE 5/11/15 DEPTH — PRESS. HEAD _____ psi

$k = \frac{aL}{At} \log_e h_o/h_f$ cm./sec.

Type of Test FALLING HEAD

Chamber Press. 6.9 psi

Back Press. 4.5 psi

where:

a = 1.25 cm^2, L = 1.70 in. 4.32 cm.

A = 40.87 cm^2, t = _____ hrs. 120 min.

= 7200 ~~x10~~ sec.

h_o = 118.8 cc = _____ cm.

h_f = 30.1 cc = _____ cm.

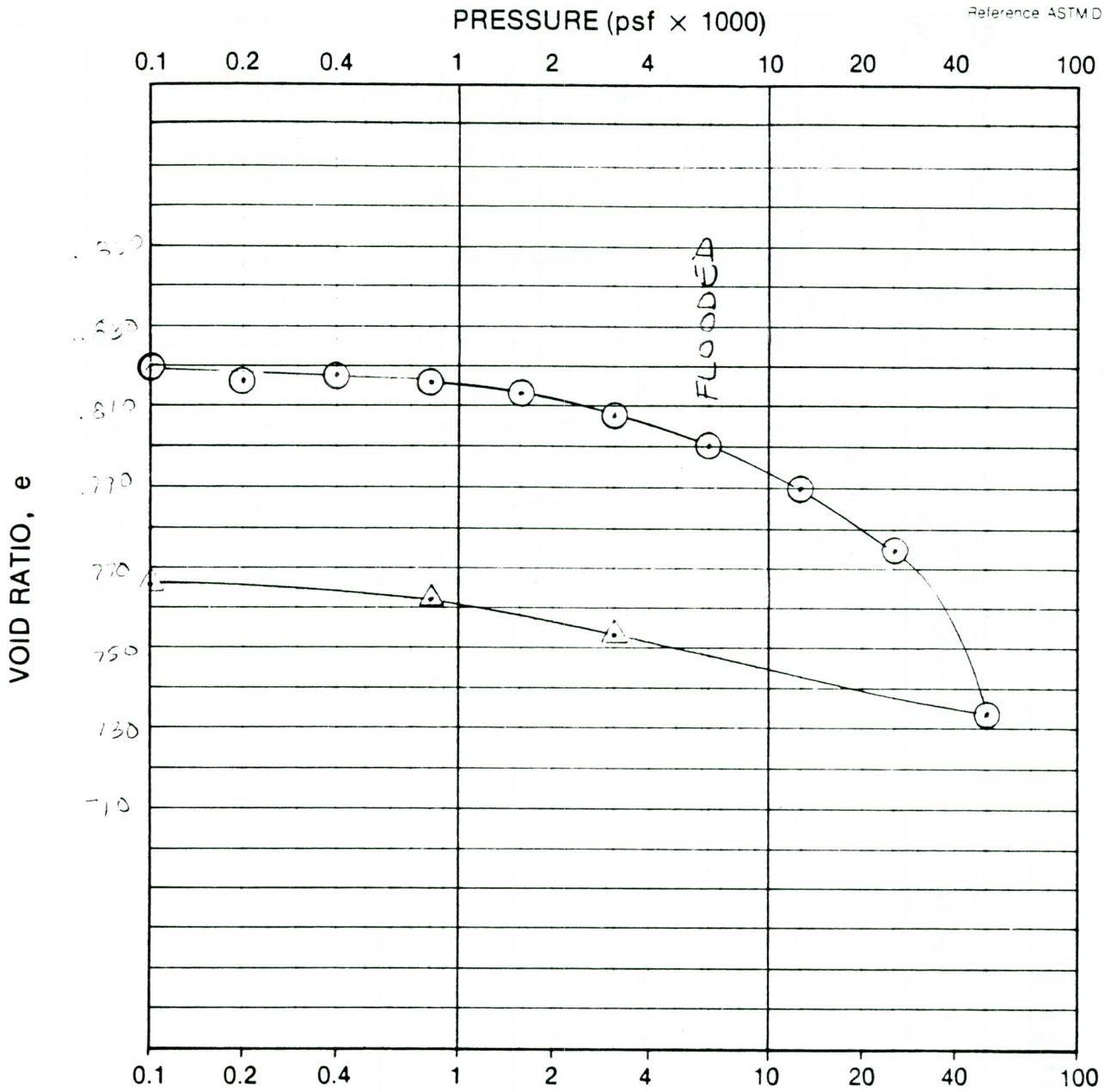
$K = \frac{1.25 \times 4.32}{40.87 \times 7200} \log_e \frac{118.8}{30.1}$

Burettes						
Ext. cc	Bott. Int. cc	Δ Int. cc	Sum Int. cc	Top Int. cc	Time	Date
85.9	0.9	48.8	50.6	47.7	1040	5/11/15
"	3.2	44.2	"	47.4	1105	
"	4.8	40.8	50.4	45.6	25	
"	6.1	38.2	"	44.3	40	
"	8.3	33.9	50.5	42.2	1210	
"	10.2	30.1	"	40.3	1240	

Tested by:

Computed by:

Checked by:



VOID RATIO — PRESSURE CURVE

Type of Specimen UNDISTURBED		Condition		Before Test		After Test	
Diameter (in.) 2.43	Height (in.) 0.80	Water Content	w_o	30.1 %	w_f	30.1 %	
Overburden Press., P_o	psf	Void Ratio	e_o	.822	e_f	.767	
Preconsol. Press., P_c —	psf	Saturation	S_o	97 %	S_f	100 %	
Compression Index, C_c 0.125		Dry Density	γ_d	90.5 pcf	γ_d	93.3 pcf	
LL	PL —	PI —		Gs 2.64			
Classification BROWN SANDY SILT (ML)		Source 320'					

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Consolidation Test Report

ECOLOGY AND ENVIRONMENT

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	17370,002.01	DMS	6/11/85		

WORKSHEET–CONSOLIDATION TEST

HARDING LAWSON ASSOCIATES

Job: Ecology & Environ		Job No. 17,320,002.01	Date 5/23/85
Bor. No. 320	Sample Dia. 2.43	Depth 320	Unit No. 9
Diameter D=2.43 in.=6.17 cm	Area A=29.92 cm^2	Initial Height 2H= 0.80 in.	Specific Gravity G= 2.62

2.87
6.0
1232.1
1053
1211

WEIGHTS and MOISTURE CONTENTS

ITEM	Before Test Specimen	Before Test Moisture Sample	After Test Specimen Portion	After Test Washed Portion	After Test Total	
Container No.		D-12	A-23	T-9		
Moist Soil & Container, gms.	1328.5	298.4	130.4		350.2	
Dry Soil & Container, gms.	1303.0	242.1	103.9	51.0	1303.0	
Loss of Water, gms.	25.5		26.5		27.2	
Container Weight, gms.	1214.9	41.6	15.9	50.9		
Weight of Dry Soil, gms. = W_s	88.1		88.0 + 0.1		= 88.1	= W_s
Weight of Moist Soil, gms. 117.7	114.6					
Moisture Content, %	30.1	28.1	30.1		31.6	

Height of Solids: $2H_o = \frac{W_s}{G \times A} \times \frac{1}{2.54} = \frac{88.1}{2.62 \times 29.92} \times \frac{1}{2.54} = 0.4391$ in., $\frac{1}{2H_o} = 2.277$

Initial Unit Weight: $\gamma_o = \frac{W_s \times 62.4}{(\text{Volume} = \quad)} = \frac{(W_s = 88.1)}{} \times 1.027 =$ 92.5 after = 93.3 lbs./cu.ft.

COMPUTATIONS and RESULTS

Load lb/sq.ft.	Corrected Dial inches x 10^{-4}	Loading Final 2H inches	Loading Final e		Corrected Dial inches x 10^{-4}	Rebound Final 2H inches	Rebound Final e
0	.1000	.8000	0.822				
100		.7991	0.820			.7959	0.767
200		.7921	0.807				
400		.7923	0.808				
800		.7922	0.816			.7734	0.762
1600		.7904	0.813				
3200		.7940	0.808			.7804	0.753
6400		.7906	0.800				
12,800		.7863	0.790			.7867	0.7[illegible]
25,600		.7795	0.785				
50,000		.7667	0.733				
51,200							
100,000							

Degree of Saturation $\frac{G \times w}{e}$ Before Test $\frac{2.62 \times 30.1}{0.822}$ = 97 % After Test $\frac{2.62 \times 30}{0.767}$ = 102 %

Description of Sample: Brown Sand [illegible]

Formula: Final e = $\frac{2H - 2H_o}{2H_o} = \left(2H \times \frac{1}{2H_o}\right) - 1$

Tested by: [illegible]
Computed by: [illegible]
Checked by:

HARDING LAWSON ASSOCIATES

TIME-CONSOLIDATION DATA

Sheet 1 of 2

JOB Ecology & Environ JOB NO. 17,320,02.21 BY WLM DATE 5-[illegible]

BOR. 320' DEPTH 320' UNIT NO. 9 TIME RATES A/B

Date & Pressure / /	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.	Date & Pressure / /	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.
[illegible]	1055	0	.1000		12800		16	.1207	46
	1145		09	-9			30	11	48
	1200		.1009	-.11		1000	60	[illegible]	49
						1100	120	[illegible]	50
[illegible]	[illegible]	0	1009	-25		1200	240	[illegible]	52
	1200		25	+5		1300	480	16	53
	1320		1015	-20 -.25	5/25/85	1200	1620	.1220	57
					5/26/85	[illegible]		.1222	59
400	[illegible]	0	1025	-30					
	1105		30	+13	5/26/85	[illegible]	0	.1222	0
	1110		.1030	-17			.1	[illegible]	[illegible]
				-.21			.25	[illegible]	[illegible]
[illegible]	[illegible]	0	.1030	-17	-305		.5	[illegible]	[illegible]
	35		44	+24	+100		1	[illegible]	[illegible]
	[illegible]		[illegible]	-23	-205		2	[illegible]	[illegible]
	1135		.1042	-.29		-2.13	4	.1250	58
							8	53	61
[illegible]	[illegible]	0	[illegible]	-75			16	[illegible]	64
	1555		72	+39			30	69	67
	[illegible]		74	-36			60	92	70
	[illegible]		.1075	-.15		1030	120	95	73
						1230	240	.1299	77
3000	1630	0	1075	-114		1630	480	1302	[illegible]
	40		110	+51	5/29/85	0830	1440	.1305	83
	1220		14	-60					
	1830		[illegible]	-.75	50,000	0830	0	.1305	0
							.1	90	[illegible]
[illegible]	1830	0	[illegible]	-163			.25	97	94
	[illegible]		55	+39			.5	.1465	100
[illegible]	1650		.1156	-94			1	11	106
5/24/85	0900		[illegible]	-1.18	-507		2	18	113
					+[illegible]		4	25	120
0900	0900	0	[illegible]	0			8	33	126
		.1	97	34	-34	-4.64	16	42	132
-222		.25	99	36			30	50	145
+[illegible]		.5	.1201	38			[illegible]	53	148
-137	-1.71	1	02	39		1080	[illegible]	[illegible]	167
		2	04	41		1270	[illegible]	[illegible]	177
		4	05	42		1630	[illegible]	[illegible]	187
		13	12 02	44	5/30/85	0900	1440	.1507	262

Remarks:

Tested by:

Computed by:

Checked by:

LF-3

TIME-CONSOLIDATION DATA

HARDING LAWSON ASSOCIATES

Sheet 2 of 2

JOB Ecology & Environment JOB NO. 17370,00001 BY _____ DATE 5/20/87

BOR. — DEPTH 320' UNIT NO. 9 TIME RATES _____

Date & Pressure 5/20/87	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.	Date & Pressure / /	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.
[illegible]									
12800	[illegible]	0	.1507	-451					
	0935		[illegible]	+90					
	1010		.1451	-355 / -4.45					
3200	1010	0	.1451	-388					
	1105		.1355	+83					
	1230		.1384	-302 / -3.28					
[illegible]	[illegible]	0	.1321	-331					
	[illegible]		34	+66					
	1145		33	-267 / -2.94					
[illegible]	[illegible]	0	.33	[illegible]					
	[illegible]		[illegible]	[illegible]					
	3		34	[illegible]					
	[illegible]		92	-3.30					
	[illegible]		9[illegible]						
	[illegible]		[illegible]						

Remarks: _____

Tested by: _____
Computed by: _____
Checked by: J-17

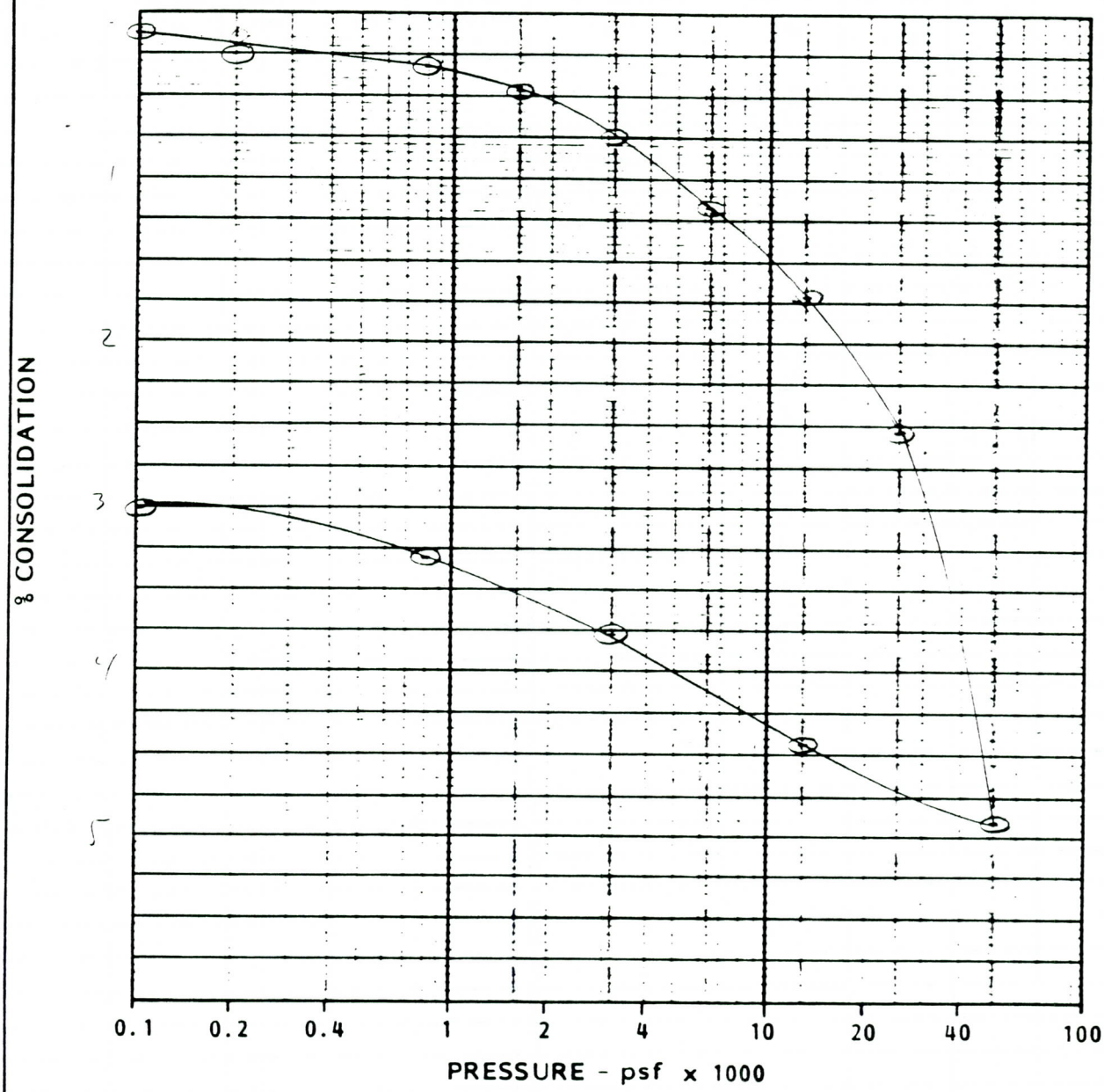
LF-3

CONSOLIDATION TEST DATA

HARDING LAWSON ASSOCIATES

JOB Ecology + Environment NO. 12220, 302.11 BY

UNIT NO. 1 DATE

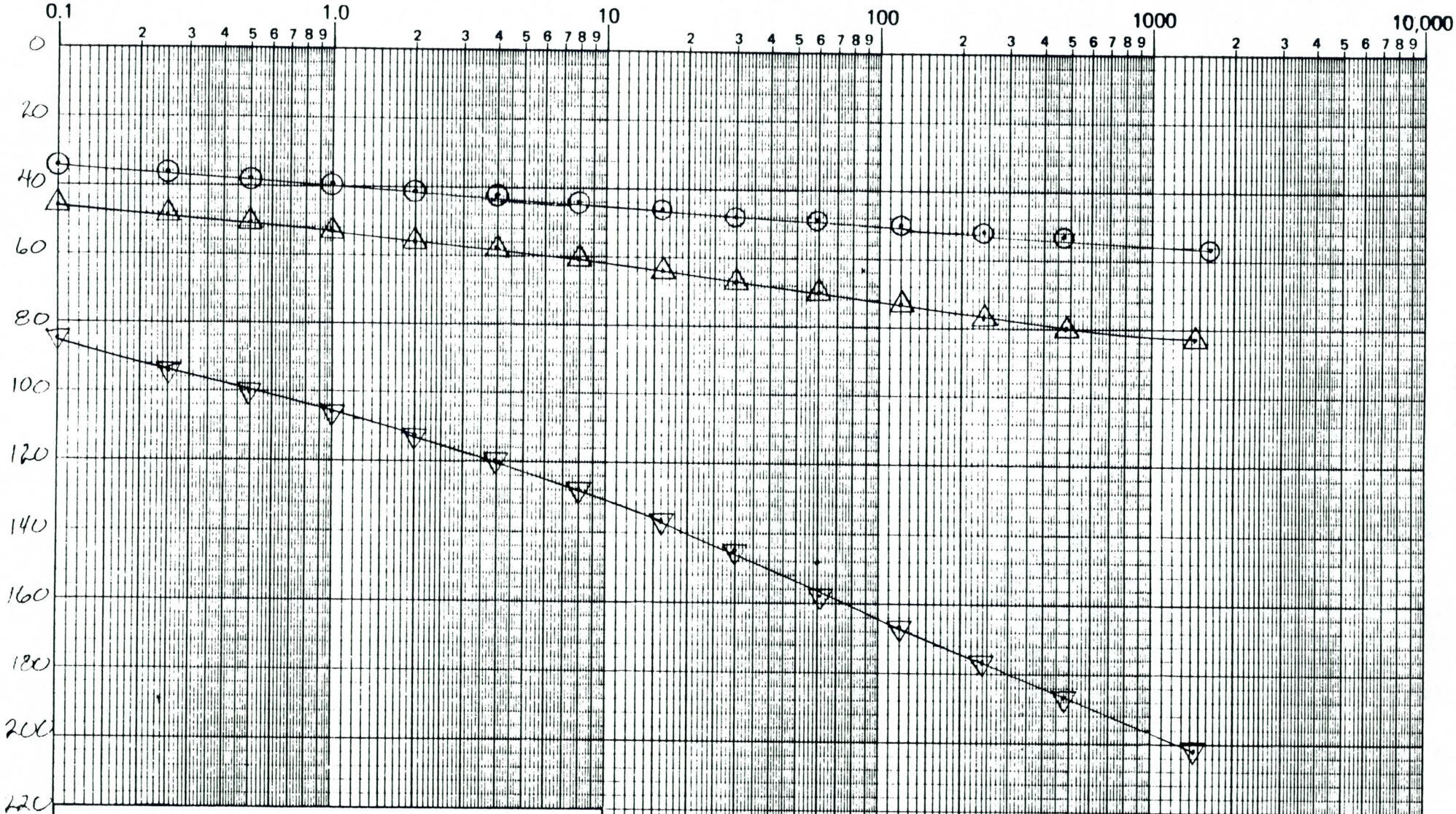


BORING	DEPTH	SOIL	MOISTURE CONTENT		DRY DENSITY (pcf)
			INITIAL	FINAL	
—	320'	ML	30.1	30.1	90.5

Tested by:
Computed by:
Checked by:

CONSOLIDATION TIME - DEFORMATION

HARDING LAWSON ASSOCIATES



Job: Ecology + Environment

No.: 1223300 1

Boring: —

Depth: 37.5'

Date:

By: TMS

Unit No.: 1

Load: ⊙ 12800 psf

t100: —

Load: △ 25600 psf

t100:

▽ 50000 psf

TESTED BY:

COMPUTED BY:

CHECKED BY:

WORK SHEET – PERMEABILITY

HARDING LAWSON ASSOCIATES

Job: ECO + Environ		Job No. 1735,220.01	Date 5-15-85
Hole No. 422'	Depth	Sample Diameter 2.87	Unit No. E

Description of Sample and Remarks: Consol @ 4 psi (580 psf)
Brn Silt (ML)

Backpressure Saturated

Specific Gravity, G: + No. 4 | - No. 4

WEIGHTS AND WATER CONTENTS

Formula: Water Content, $w = \frac{W_w}{W_s} \times 100$		Before Test		After Test: Wedge		Solids		Total		
Tare No.			T-23	T-9						
Weights in grams: Tare + Wet Soil			259.9	320.1						
Tare + Dry Soil			207.5	282.3						
Water	W_w	76.5		77.8				77.8		
Tare			50.3	50.9						
Wet Soil	117.2	307.9								
Dry Soil	W_s	231.4		231.4	+		=	231.4	= W_s	
Water Content %	w	33.1	33.3	33.6						

2.6
312.7
.36
16.0

DIMENSIONS

	Areas in sq. cm. Top	Middle	Bottom	Avg.	Membrane Thick.	Membrane Corr.	A, Net Area	Height	in.	cm.
Before Test				41.74				h_o =	1.55	3.94
After Evacuation								h_{c_1} =	1.53	3.96
After Saturation								h_{c_2} =		
After Consolidation										

k= 4.9 x 10^-3

Dimensions After Consolidation

V_o = 164.5

A_{c_1} = 162.2 / 3.96 = 40.96

A_{c_2} =

GENERAL DATA

Chamber Pressure,	psi	0		56		
Back Pressure	psi	0		52		
Date		5/15/85		5/17/85		/ /
Hour		1513		1350		
Strain Dial Reading	in.	.200	Δ=+.01	.205		
Interior Burette,	cc.	515/560				
Exterior Burette,	cc.	105.0		85.5		
Volume of Specimen, V = A x H	cc.	164.5	A=-2.3	162.2		
Volume of Solids, $V_s = W_s \div G$	cc.	84.4		84.4		
Volume of Voids, $V_v = V - V_s$	cc.	80.1		77.8		
Void Ratio, $e = V_v \div V_s$		.949		.929		
Dry Density, γd =62.4 $W_s \div V$, lbs/ft³		87.8		89.0		
Saturation, $S = V_w \div V_v \times 100$,	%	96		100		

Tested by:
Computed by:
Checked by:

SATURATION & CONSOLIDATION PHASE – PERMEABILITY

HARDING LAWSON ASSOCIATES

JOB Eco & Environ NO. 17,370.0022 BY WWM DATE 5/15/85

BOR 422' DEPTH — SATURATION DATA — UNIT NO. E

TIME DATE	σ CHAMBER PRESS. (psi)	σ BACK PRESS. (psi)	EXTERNAL BURETTE (cc)	SATURATION BURETTE (cc)	PORE PRESSURE (psi)	Δ	B
5/15/85							
1514	+2	-6½	100.0	51.5/156.0	Flush		
1545	"	0	98.0	" 89.0			
1746	"	"	95.5	32.0	closed		
5/16/85							
0850	+2	0	95.0	32.0	Flush		
52	+4	+2	95.0	51.5/0.0			
0955	14	12	95.0	50.6			
1118	24	22	90.3	49.7			
1210	34	32	88.0	49.0			
1330	44	42	86.0	48.5			
1437	54	52	86.0	48.3			
1635	54	52	B		532/731	1.93	2.65
5/17/85							
0930	54	52	84.0	47.5			
1007	56	52	84.5	47.5			
	V_0 = − 0.5						
	V_1 = + 6.2						
	ΔV = − 9						
	V_{cal} = + 7.1						
	ΔV = − 1.0						
	V_{cor} = − 0.4						
	ΔV = − 2.3						
			Δ	Δ	NET		

CONSOLIDATION DATA		
ELAPSED TIME MIN.	INTERIOR VOL. BURETTE (CC)	
1010		Δ
0	47.5	0
.1	47.7	
.25	.8	
.5	.8	
1	.9	
2	.9	
4	.9	
8	"	
16	"	
30	47.9	
60	47.9	
120	47.9	
240	"	
480		
1440		

Date: 5/17/85
Time: 1000
σ CH = 56
σ BP = 52
σ 500 = 4.0
(CONSOL.)

Tested by: Computed by: Checked by:

PERMEABLITY TEST DATA

HARDING LAWSON ASSOCIATES

JOB Eco + Environmental UNIT NO. E BORING 4221 CONSOL. PRESS. 40 psi

NO. 17370,002.01 DATE 5/17/85 DEPTH — PRESS. HEAD _____ psi

$k = \frac{aL}{At} \log_e h_o/h_f$ cm./sec.

Type of Test FALLING HEAD

Chamber Press. 56 psi

Back Press. 52 psi

where:

a = 1.25 cm^2, L = 1.56 in. = 3.96 cm.

A = 40.96 cm^2, t = 0 hrs. 25 min.

= 1500 ~~x10~~ sec.

h_o = 47.5 cc = _____ cm.

h_f = 26.2 cc = _____ cm.

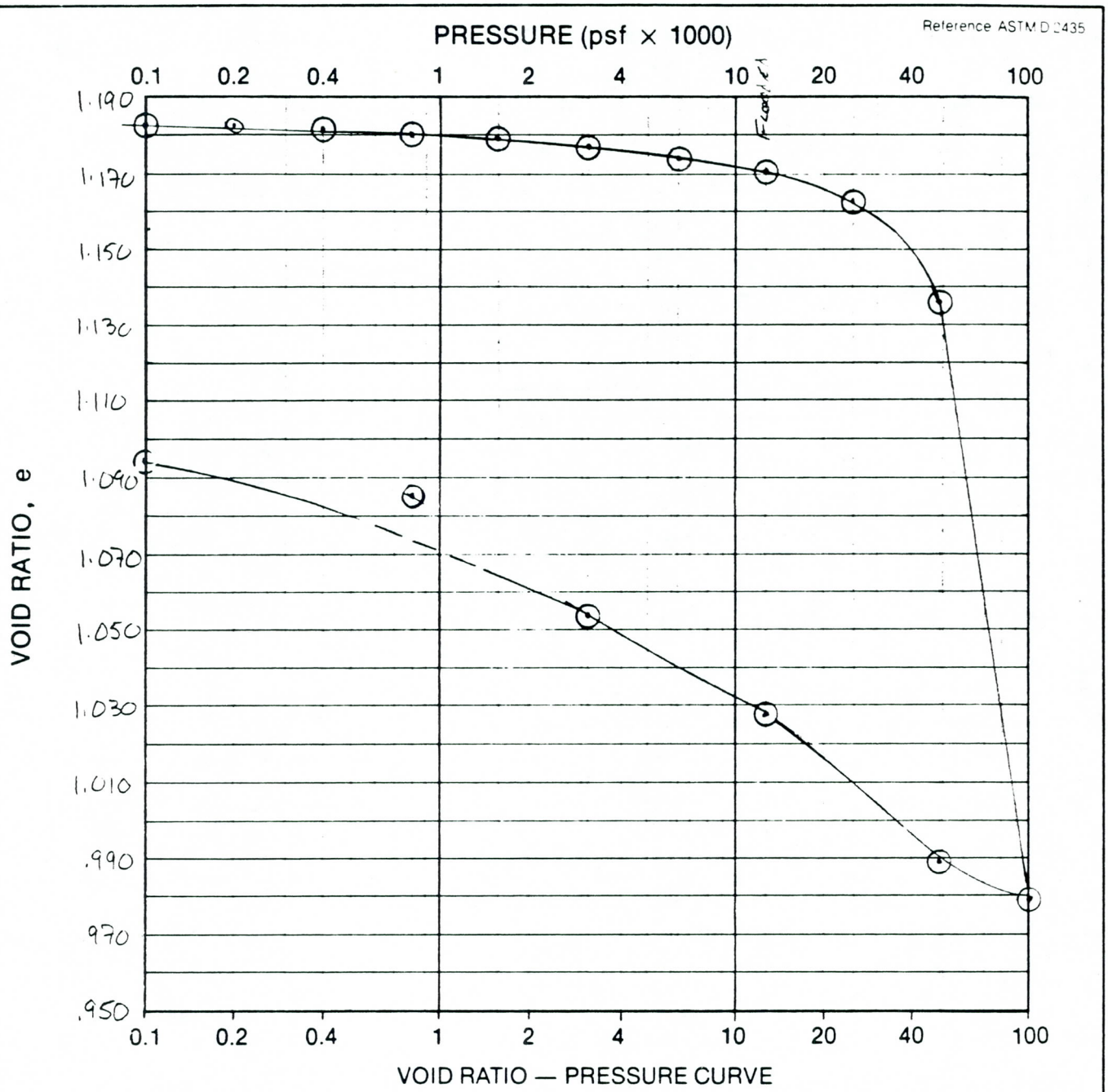
Burettes						
Ext. cc	Bott. Int. cc	Δ Int. cc	Sum Int. cc	Top Int. cc	Time	Date
85.6	0.5	47.5	48.5	48.0	1350	5/17/85
"	1.7	45.1	"	46.8	52	
"	2.9	42.7	"	45.6	54	
"	3.9	40.6	48.4	44.5	56	
"	5.7	37.0	"	42.7	1400	
"	7.8	32.8	"	40.6	05	
"	11.1	26.2	"	37.3	15	

$K = \frac{1.25 \times 3.96}{40.96 \times 1500} \log_e \frac{47.5}{26.2} = 4.8 \times 10^{-5}$

Tested by: [illegible]

Computed by: [illegible]

Checked by:



Type of Specimen UNDISTURBED		Condition		Before Test		After Test	
Diameter (in.) 2.43	Height (in.) 0.80	Water Content	w_o	40.6 %	w_f	39.7 %	
Overburden Press., P_o	psf	Void Ratio	e_o	1.183	e_f	1.094	
Preconsol. Press., P_c —	psf	Saturation	S_o	94 %	S_f	100 %	
Compression Index, C_c 0.515		Dry Density	γ_d	78.9 pcf	γ_d	82.1 pcf	
LL —	PL —	PI —			Gs 2.75		
Classification REDDISH BROWN SILT W/CLAY (ML) BLOCKY STRUCTURE W/CLAYSKINS COMMON			Source 422'				

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Consolidation Test Report
ECONOMY AND ENVIRONMENT

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	17370.002.01	JRS	6-6-85		

WORKSHEET–CONSOLIDATION TEST

HARDING LAWSON ASSOCIATES

Job: [illegible]		Job No. [illegible]	Date [illegible]
Bor. No. —	Sample Dia. 2.43	Depth [illegible]	Unit No. 6
Diameter D=2.43 in.=6.17 cm	Area A=29.92 cm^2	Initial Height 2H= 0.80 in.	Specific Gravity G= 2.75

WEIGHTS and MOISTURE CONTENTS

ITEM	Before Test		After Test			
	Specimen	Moisture Sample	Specimen Portion	Washed Portion	Total	
Container No.	5	D-414	A-13	[illegible]		
Moist Soil & Container, gms.	1325.7	251.3	[illegible]		[illegible]	
Dry Soil & Container, gms.	1294.6	217.2	92.3	[illegible]		
Loss of Water, gms.	31.1	64.1	30.4			
Container Weight, gms.	1218.0	[illegible]	15.8	[illegible]		
Weight of Dry Soil, gms. = W_s	76.6	174.5	76.5 + 0.1		= 76.6	= W_s
Weight of Moist Soil, gms.	[illegible]					
Moisture Content, %	40.6	36.7	39.7			

Height of Solids: $2H_o = \frac{W_s}{G \times A} \times \frac{1}{2.54} = \frac{76.6}{2.75 \times 29.92} \times \frac{1}{2.54} =$ in., $\frac{1}{2H_o} = 2.229$

Initial Unit Weight: $\gamma_o = \frac{W_s \times 62.4}{(\text{Volume} = \quad)} = \frac{(W_s = 76.6)}{} \times 1.027 =$ 78.7 after = 82.1 lbs./cu.ft.

COMPUTATIONS and RESULTS

Load lb/sq.ft.	Corrected Dial inches x 10^{-4}	Loading: Final 2H inches	Loading: Final e		Corrected Dial inches x 10^{-4}	Rebound: Final 2H inches	Rebound: Final e
0	.1000	.8000	1.183				
100		.7996	1.182			.7673	1.094
200		.7996	1.182				
400		.7992	1.181				
800		.7987	1.180			.7641	1.085
1600		.7984	1.179				
3200		.7977	1.177			.7524	1.053
6400		.7966	1.174				
12,800		.7956	1.171			.7430	1.028
25,600		.7925	1.163				
50,000		.7828	1.136			.7287	0.989
51,200		—					
100,000		.7252	0.979				

Degree of Saturation $\frac{G \times w}{e}$ Before Test $\frac{2.75 \times .406}{1.183} = 94\%$ After Test $\frac{2.75 \times .397}{1.094} = 100\%$

Description of Sample: Mottled Brown Silt w/ clay / Rusty stains w/ Very stiff (ML - possible CL) Chystline common.

Formula: Final e = $\frac{2H - 2H_o}{2H_o} = \left(2H \times \frac{1}{2H_o}\right) - 1$

Tested by: [illegible]
Computed by:
Checked by:

HARDING LAWSON ASSOCIATES

TIME-CONSOLIDATION DATA

Sheet ____ of ____

JOB Ecology + Environment JOB NO. 17270 BY ____ DATE 5/24/85

BOR. – DEPTH 1122 UNIT NO. 6 TIME RATES A B

Date & Pressure 5/24/85	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.	Date & Pressure / /	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.
	1100	0	.1000		25600		1	.1161	32
	1115		03	-4 / -.05			2	62	33
	1135		1004				4	63	34
					-175		8	64	35
200	135	0	.1004	-9	+100		10	65	36
	45		07	+5	-75 / -.041		30	66	37
	1300		.1064	-4 / -5		1000	60	67	38
						1100	120	68	39
	1400		.1060	-21		1300	240	69	40
	1600		.1039	+13		1700	480	70	41
	1105		.1021	-8	5/25/85	1000	1620	.1173	44
				-.10	5-26-85	0830	5730	.1175	46
800	1105	0	.1021	-37					
	[illegible]		[illegible]	+24	500000	0830	0	.1175	0
	[illegible]		[illegible]	-13			.1	.1226	51
	1000		.1032	-.10			.25	32	57
							.5	36	61
1000	1000	0	.1032	-55	-255		1	39	64
	[illegible]		[illegible]	+39	[illegible]		2	43	68
	1000		.1055	[illegible]			4	[illegible]	71
				-.20	-175		8	49	74
3200	1000	0	1055	-77		-2.15	16	.1253	78
	[illegible]		76	+34			30	57	82
	1600		1077	-23 / -.29			60	62	87
						1030	120	68	93
3400	1000	0	1077	-103		1230	240	74	99
	[illegible]		99	+[illegible]		1630	480	81	106
	[illegible]		.1103	-34 / -.13	5/29/85	[illegible]	1440	.1288	113
[illegible]	[illegible]	[illegible]	[illegible]	-12[illegible]	100,000	[illegible]	0	.1288	0
	30		32	+[illegible]			.1	.1395	107
	40		29	-44 / -.35			.25	.1402	139
	[illegible]		[illegible]				.5	52	164
	55		32		-[illegible]		1	62	174
5/24/85	0900		.1129		+[illegible]		2	.1513	225
					[illegible] / -.35		4	49	261
25600	0900	0	.1129	0			8	85	297
		.1	32	[illegible]			16	.1623	337
		.25	39	30			30	62	374
		.5		31			60	.1[illegible]	419

Remarks: V. Stiff

Tested by: ____

Computed by: ____

Checked by: ____

LF-3

TIME-CONSOLIDATION DATA

HARDING LAWSON ASSOCIATES

Sheet ____ of ____

JOB [illegible] + ENVIRONMENT JOB NO. 17320-0021 BY [illegible] DATE [illegible]

BOR. — DEPTH 422' UNIT NO. 6 TIME RATES ____

Date & Pressure - 12/9/85	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.	Date & Pressure / /	Time	Elapsed Time Min.	Dial Rdg 10^{-4}	Deformation 10^{-4} in.
100 [illegible]	1030	120	.1743	458					
	1230	240	39	501					
	1630	480	[illegible]	539					
[illegible]	0830	1440	[illegible]	590					
[illegible]									
[illegible]	0830	0	.1728	[illegible]					
	[illegible]		[illegible]	[illegible]					
	1010		.1723	[illegible]					
				[illegible]					
[illegible]	1010	0	[illegible]	[illegible]					
	1105		.1672	[illegible]					
	1230		37	[illegible]					
	[illegible]		[illegible]	[illegible]					
[illegible]	[illegible]	0	.1560	-558					
	[illegible]		[illegible]	+62					
	[illegible]		[illegible]	[illegible]					
	[illegible]		[illegible]	[illegible]					
[illegible]	[illegible]	0	[illegible]	-127					
	1500		[illegible]	+62					
	15		63	[illegible]					
	30		61	[illegible]					
	45		53						
9/31/85	[illegible]		23						
	0815		.1427						
100	0815	0	.1427						
	0910		.1401	-377					
	1120		.1390	+50					
	1530		28	-327					
	1730		1377	4.09					

Remarks: ____

Tested by: ____

Computed by: ____

Checked by: ____

J-26

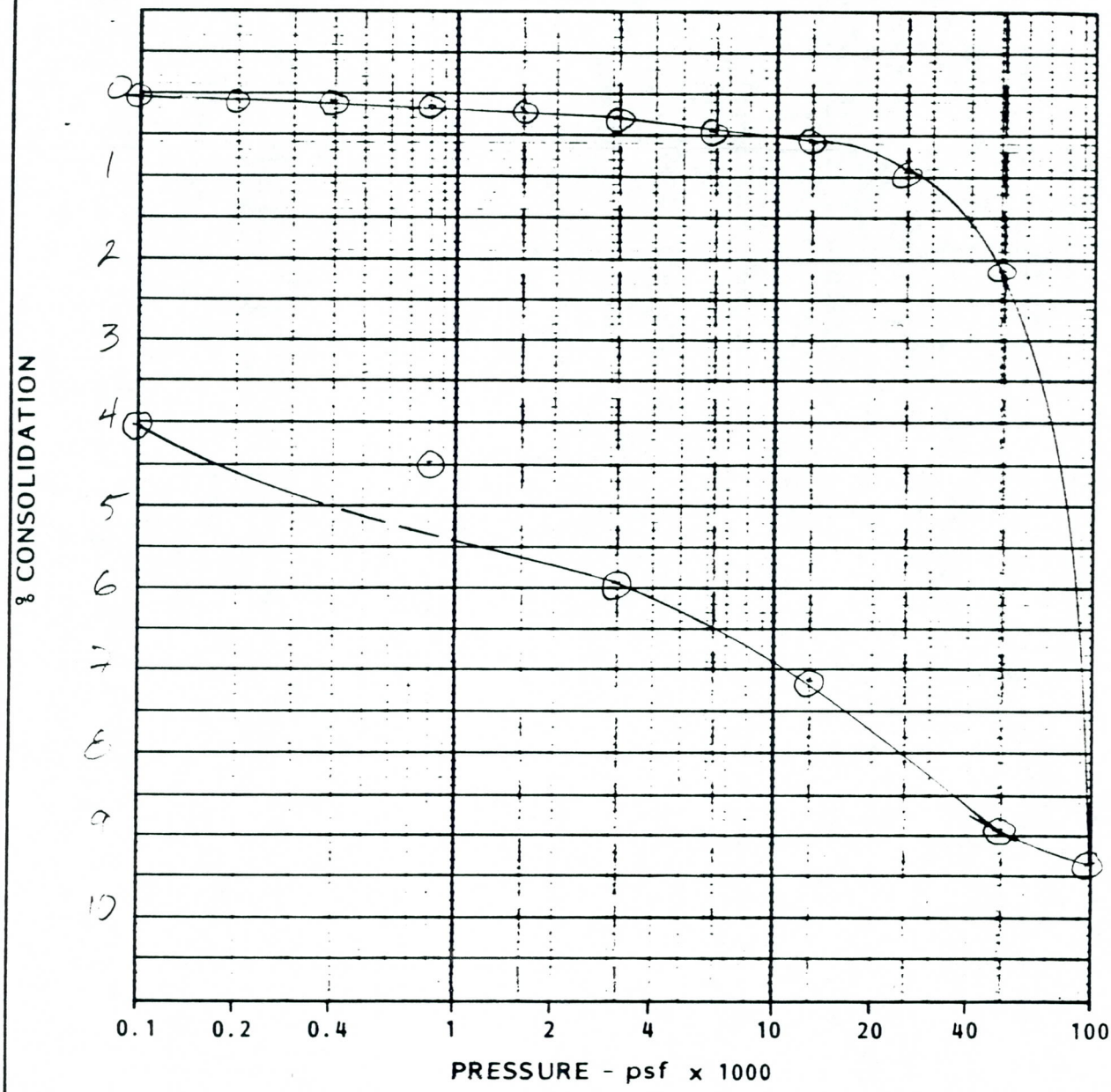
LF-3

CONSOLIDATION TEST DATA

HARDING LAWSON ASSOCIATES

JOB Ecology + Environment NO. 17270,002 01 BY

UNIT NO. 6 DATE 5/ 15

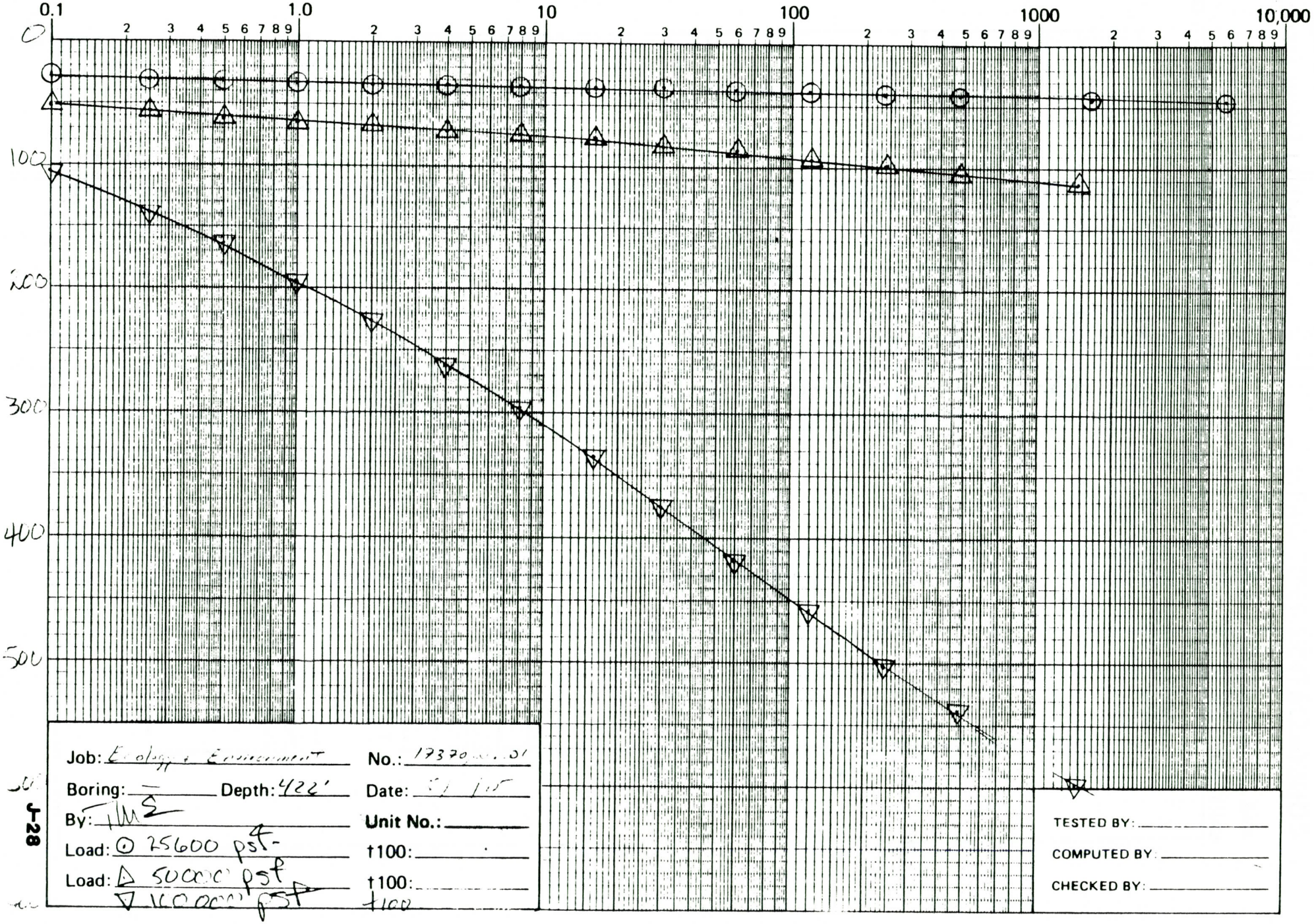


BORING	DEPTH	SOIL	MOISTURE CONTENT		DRY DENSITY (pcf)
			INITIAL	FINAL	
–	42.2'	(NC)	40.6	39.7	78.9

Tested by:
Computed by:
Checked by:

CONSOLIDATION TIME - DEFORMATION

HARDING LAWSON ASSOCIATES



Job: Ecology & Environment
No.: 17370 ... 01
Boring: —
Depth: 422'
Date: 5/ /05
By: TMS
Unit No.:
Load: ⊙ 25600 psf
t100:
Load: △ 50000 psf
t100:
▽ 100000 psf
t100

TESTED BY:
COMPUTED BY:
CHECKED BY:

J-28

APPENDIX K

Well Completion Data and TCE Concentrations for
Wells in the Indian Bend Wash Study Area and Vicinity

Appendix K

Well Completion Data and Trichloroethylene (TCE) Concentrations
For Wells in the Indian Bend Wash Study Area and Vicinity

Well Location	Well Number	Well Owner	Year Drilled	(1) Well Use	Depth of Borehole (ft.)	Casing Diam (in.)	Casing Depth (ft.)	Screened Interval	(2) Scr. Unit(s)	Land Surface Elev. (ft.)	Prod. Disch. (gpm)	(3) Drill Log Avail.	(3) Well Samp.	TCE (4) Concentration or Range (ppb)
(A-1-4)														
1aba1	SRP 23.6E, 6N	SRVWUA	1941	I	493	24	482	90-465	u,m,l	1209	2615	Y	Y	240-1400
1abb1	E-1MP	USEPA	1985	M	201	2	201	195-201	m	1215.2	---	Y	N	---
1abb2	E-1MA	USEPA	1985	M	300	4	300	250-300	m	1215.1	15	Y	Y	220-700
1abb3	E-1LA	USEPA	1985	M	749	4	749	695-749	l	1215.2	15	Y	Y	ND
1abb4	E-1UA	USEPA	1985	M	150	4	128	78-128	u	1215.4	15	Y	Y	15-27
1acd	M-8UA	Motorola, GEC	1985	M	125	4	115	75-115	u	1209.4	---	Y	Y	ND
1baa1	M-6MA	Motorola, GEC	---	M	302	4	302	249-302	m	1217.2	---	Y	Y	63.9-240
1baa2	M-6UA	Motorola, GEC	---	M	125	4	117	75-117	u	1217.3	---	Y	Y	11-48
1baa3	M-7UA	Motorola, GEC	---	M	125	4	124	82-124	u	1215.5	---	Y	Y	11.8-28.8
1bad1	ST-1	Motorola, GEC	---	M	120	---	116	76-116	u	1211.8	---	Y	Y	120-2200
1bad2	M-1MA	Motorola, GEC	---	M	302	4	302	252-302	m	1211.2	---	Y	Y	ND-13.2
1bad3	M-7MA	Motorola, GEC	---	M	300	4	300	258-300	m	1213.9	---	Y	Y	22.9-50
1bba1	M-5MA	Motorola, GEC	---	M	302	4	302	255-302	m	1217.6	---	Y	Y	58.5-550
1bba2	M-5UA	Motorola, GEC	---	M	125	4	125	83-125	u	1217.6	---	Y	Y	292-400
1bcb	---	Motorola, GEC	---	U	216	6	---	---	---	1208	---	---	---	---
1bcc1	M-2MA	Motorola, GEC	---	M	303	4	303	250-303	m	1210.1	---	Y	Y	ND-2.3
1bcc2	M-2UA	Motorola, GEC	---	M	125	4	121	79-121	u	1209.9	---	Y	Y	56.5-158
1bda1	ST-2	Motorola, GEC	---	M	125	---	125	85-125	u	---	---	Y	Y	130-2050
1bda2	ST-3	Motorola, GEC	---	M	105.5	---	104	64-104	u	---	---	Y	?	---
1bdb	---	Motorola, GEC	1952	U	702	14	---	---	---	1212	---	?	?	---
1bdb1	M-4MA	Motorola, GEC	1984	M	302	4	302	250-302	m	1214.4	---	Y	Y	3.0-19
1bdb2	M-4UA	Motorola, GEC	1984	M	120	4	115	73-115	u	1214.8	---	Y	Y	220-857

Notes: On last page

Appendix H (cont.)

Well Location	Well Number	Well Owner	Year Drilled	(1) Well Use	Depth of Borehole (ft.)	Casing Diam (in.)	Casing Depth (ft.)	Screened Interval (ft.)	(2) Scr. Unit(s)	Land Surface Elev. (ft.)	Prod. Disch. (gpm)	(3) Drill Log Avail.	(3) Well Samp.	TCE (4) Concentration or Range (ppb)
13bac	----	Kachina Redimix	1981	N	497	12,10	497	401-497	m,l	1179	---	Y	N	---
13bdd	APS-2	AZ Public Service	1959	E	440	20	---	---	---	1170	---	---	Y	1.5-19
13cda	----	D. Black	1945	U	112	14	---	60-90	u	1173	---	---	---	---
14daa	APS-1	AZ Public Service	1957	E	685	16	---	---	---	1171	1800	Y	Y	ND
15dcc	Tempe #3	City of Tempe	1951	P	238	20	230	70-218	u,m	1167	620	Y	Y	ND
23bcc	Tempe #4	City of Tempe	1956	P	500	20	496	80-481	u,m,l	1170	884	Y	Y	7.8-11.1
24abc	Tempe #7	City of Tempe	1961	P	688	20	---	200-675	m,l	1182	1150	N	Y	0.2-<10
24bbc2	SRP 23E, 2.9N	SRVWUA	1957	I	525	20	472	150-457	m,l	1178	3935	Y	---	---
(A-1-5)														
6aca	----	SR Indian Reserv.	1970	---	650	10	553	400-535	l	1200	---	Y	---	---
6baa	----	SR Indian Reserv.	1961	---	596	20	590	120-180 250-580	u,m,l	---	---	Y	---	---
6bbb	----	SR Indian Reserv.	1939	---	207	24	190	80-190	u,m	---	---	Y	Y	---
6bcc	----	SR Indian Reserv.	1951	---	790	---	---	---	---	1200	---	N	N	---
6bdd	----	SR Indian Reserv.	---	---	---	---	---	---	---	1195	---	---	Y	---
6caa	BIA #10	SR Indian Reserv.	1961	I	596	20	590	120-180 250-580	u,m,l	1196	---	Y	Y	---
18cbb	APS #3	AZ Public Service	1959	I	800	20,16	800	400-790	l	1179	1200	Y	Y	---
					(Ft.)	(in.)	(Ft.)			(ft.)	(gpm)			(ppb)
(A-2-4)														
22bdd	----	Borg Vineyard	1955	I	567	16,12	567	370-567		1289	---	?	---	---
22dab4	Arcadia #9A	Arcadia Water Co.	1958	P	---	20	700	425-690	m,l	---	1850	Y	---	---
22dab5	----	----	1971	I	---	20,18	801	452-696	l	1275	---	?	---	---
22dba1	----	----	1956	I	---	20	655	388-631		1282	---	?	---	---
22dbb	----	Arcadia Water Co.	1947	U	362	20	362	267-357		1281	---	Y	---	---
22dcc	SRP 21.5E, 8N	SRVWUA	1955	I	630	20	590	300-576	m	1268	2040	Y	Y	<0.3

Appendix H (cont.)

Well Location	Well Number	Well Owner	Year Drilled	(1) Well Use	Depth of Borehole (ft.)	Casing Diam (in.)	Casing Depth (ft.)	Screened Interval (ft.)	(2) Scr. Unit(s)	Land Surface Elev. (ft.)	Prod. Disch. (gpm)	(3) Drill Log Avail.	(3) Well Samp.	TCE Concentration or Range (ppb)
1bdd1	M-3MA	Motorola, GEG	---	M	303	4	303	250-303	m	1205.3	---	Y	Y	ND
1bdd2	M-3UA	Motorola, GEG	---	M	125	4	124	82-124	u	1205.6	---	Y	Y	ND
1cda2	SRP 23.5E, 5.25N	SRVWUA	1952	I	850	20	840	300-820	m,l	1197	3580	Y	Y	0.7-<3.0
2acd	E-5UA	USEPA	1985	M	132	4	132	78.5-132	u	1199.9	15	Y	Y	280-380
2bbb	-----	L.R. Boehm	1941	U	187	20	170	65-161	u	1231	2750	Y	---	---
2dbb	SRP 22.5E, 5.5N	SRVWUA	1948	I	610	20	520	210-505	m,l	1200	3700	Y	Y	22-45
2dbd	B-J	Beckman Inst.	1985	M	114	4	114	64-114	u	1192	---	Y	Y	11-21.2
2dcc	----	----	1929	U	151	20	151	50-145	u	1191	3375	N	Y	---
2ddb	Scottsdale #25	City of Scottsdale	1977	P	700	16,14	700	350-480 484-700	m,l	1189	---	Y	Y	<2.5-7.0
2ddd1	B-Onsite	Beckman Inst.	---	---	---	---	---	---	---	---	---	---	---	---
2ddd2	B-1MA	Beckman Inst.	1985	M	305	5	300	250-300	m	1190	---	Y	Y	ND
2ddd3	B-1UA	Beckman Inst.	1985	M	122	4	122	72-122	u	1190	---	Y	Y	ND
11aaa2	----	W.C. Gregg	1949	U	157	16	---	---	---	1189	---	---	---	---
11aba	Tempe #6	City of Tempe	1960	I,P	1054	20	1050	205-1038	m,l	1185	2040	N	Y	1.9-13
11acd	SRP	SRVWUA	1949	I	545	20	436	100-420	u,m	1170	1385	Y	---	---
11bac2	Laird #1	Tempe SD #3	1973	I	492	16	445	155-430	m,l	1185	---	Y	Y	ND-1.7
11cda	SRP	SRVWUA	1952	I	581	20,16	581	100-380	u,m	1170	2795	Y	---	---
13adb	----	Tri City Ready Mix	1963	N	300	---	---	---	---	1181	---	N	Y	---
13adc2	----	AAA Auto	1947	U	84	8	84	None	N/A	1179	---	---	---	---
13add	----	Nesbitt Cont Co.	1973	N	400	12	400	100-115 160-380	u,m	1180	---	Y	Y	---

Appendix H (cont.)

Well Location	Well Number	Well Owner	Year Drilled	(1) Well Use	Depth of Borehole (ft.)	Casing Diam (in.)	Casing Depth (ft.)	Screened Interval	(2) Scr. Unit(s)	Land Surface Elev. (ft.)	Prod. Disch. (gpm)	(3) Drill Log Avail.	(3) Well Samp.	TCE Concentration or Range (ppb)
23bcc2	SRP 22.1E, 8.5N	SRVWUA	1954	I	780	20	770	300-750	m,l,r	1270	2230	Y	Y	ND
23ddd2	Phoenix #34	City of Phoenix	1959	P,R	1200	20	1200	350-1188	m,l,r	1237	1700	Y	Y	2.0-13.0
24bad	SRP 23.5E, 8.8N	SRVWUA	1953	I	1300	20	1012	460-1012	m,l,r		2190	Y	Y	2.9
24cab	Scottsdale #2	City of Scottsdale	1960	P	1265	20,16	1265	500-1260		1248	---	N	Y	ND
24dbc	Scottsdale #1	City of Scottsdale	1957	U	1250	12,10	1250	250-1250		1246	---	N	Y	---
25aaa	Phoenix #18	City of Phoenix	1958	P	1200	20	1200	320-1182	m,l,r	1243	1700	Y	Y	ND
25aab	Phoenix #19	City of Phoenix	1965	P	1325	20	1296	350-1275	m,l	1243	1800	Y	Y	ND
25abb	Phoenix #20	City of Phoenix	1959	P	1200	16	1131	490-1115	m,l	1243	1900	Y	Y	ND
25bcd	Scottsdale #6 & SRP 23.3E,7.5	City of Scottsdale & SRVWUA	1953	I	1295	16	1295	475-1205	u,m,l	1235	1760	Y	Y	18.1-300
25cdb2	Scottsdale #31 & SRP 23.3E, 7.3N	City of Scottsdale & SRVWUA	1957	I,P	1300	20,16	1300	300-692 705-1288	m,l,r	1228	---	Y	Y	6.7-36
25cdd	Phoenix #23	City of Phoenix	1960	P	1205	20,16	1200	100-480 500-1185	u,m,l,r	1225	1700	Y	Y	---
25dca	Phoenix #24	City of Phoenix	1958	U	1200	20,16 14	1200	100-492 500-1190	u,m,l,r	1228	2885	Y	Y	ND
25ddb1	Phoenix #223	City of Phoenix	1974	I,P	1200	20,16	1200	800-1200	l,r	1228	1800	Y	Y	ND
25ddb2	E-4UA	USEPA	1985	M	160	4	149.5	96.5-149.5	u	1229.5	15	Y	Y	ND
26bbb	---	M.D. Brown	1947	---	500	12	268	100-252	u,m	1250	---	Y	---	---
26dda1	M-12MA	Motorola GEG	1985	M	300	4	300	246-300	m	1227.0	---	Y	Y	ND
26dda2	M-12UA	Motorola GEG	1985	M	150	4	150	109.5-150	u	1226.9	---	Y	Y	ND
27bcb2	---	City of Phoenix	1956	P	800	20,18	790	238-790	m,l	1270	1850	Y	?	---

Appendix H (cont.)

Well Location	Well Number	Well Owner	Year Drilled	(1) Well Use	Depth of Borehole (Ft.)	Casing Diam (in.)	Casing Depth (Ft.)	Screened Interval	(2) Scr. Unit(s)	Land Surface Elev. (ft.)	Prod. Disch. (gpm)	(3) Drill Log Avail.	(3) Well Samp.	TCE Concentration or Range (ppb)
28bda	---	AZ County Club	1957	I	371	20	330	210-310	m	1265	---	Y	---	---
33aaa	---	----	1958	U	350	20	---	200-260	m	1270	---	Y	---	---
33aba	---	F.B. Pease	1949	U	246	16	246	100-243	u,m	1275	---	Y	---	---
35aab2	Phoenix #35	City of Phoenix	1958	P	985	20	985	200-970	m,l,r	1220	1900	Y	Y	7.4-374.8
35abb1	Phoenix #36	City of Phoenix	1958	P	1000	20,16	1010	140-486 500-990	u,m,l,r	1229	1900	Y	Y	47-220
35abb2	E-3UA	USEPA	1985	M	150	4	150	95.5-150	u	1223.3	15	Y	Y	10-16
35bba	SRP 22.3E, 7N	SRVWUA	1941	I	250	20	250	75-235	u,m	1233	2766	Y	Y	32-40
35daa	E-2UA	USEPA	1985	M	161	4	150	97-150	u	1224.9	15	Y	Y	38-65
35dba1	M-11MA	Motorola GEG	1985	M	300	4	300	245-300	m	1210.9	---	Y	Y	ND
35dba2	M-11UA	Motorola GEG	1985	M	150	4	149	105.5-149	m	1210.4	---	Y	Y	63-120
35dcc2	SRP 22.5E, 6N	SRVWUA	1952	I	660	20	660	135-640	u,m,l	1208	---	Y	Y	130-510
35ddc1	M-10MA	Motorola GEG	1985	M	302	4	302	252-302	m	1217.6	---	Y	Y	ND
35ddc2	M-10UA	Motorola GEG	1985	M	150	4	147	104-147	u	1217.9	---	Y	Y	350-930
35ddc3	M-10LA	Motorola GEG	1985	M	700	4	700	642.5-700	l	1217.6	---	Y	Y	58-88
35ddc3	M-10LA	Motorola GEG	1985	M	700	4	700	642.5-700	l	1217.6	---	Y	Y	58-88
36dba1	M-9MA	Motorola GEG	1985	M	302	4	302	250-302	m	1217.7	---	Y	Y	98-130
36dba2	M-9UA	Motorola GEG	1985	M	125	4	124	82-124	u	1219.7	---	Y	Y	ND

NOTES:

General:

--- information not available

(1) Well Use:

E - fire
I - irrigation
M - monitoring
N - industrial
P - public supply
U - unused

(2) Screened Units:

u - upper alluvial unit
m - middle alluvial unit
l - lower alluvial unit
r - red unit

(3) Drill Log Available and Well Sampled:

Y - Yes
N - No

(4) TCE Concentration

ND - not detected

APPENDIX L

Routine Water Quality Constituents

Appendix L Table of Contents

Routine Water Quality Constituents L-1

Trace Element Water Quality Constituents L-13

APPENDIX L. ROUTINE WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)01ABB4 E-1UA 11/19/85 PPM	(A-2-4)35DAA E-2UA 11/18/85 PPM	(A-2-4)35ABB2 E-3UA 11/19/85 PPM	(A-2-4)25DDB2 E-4UA 11/19/85 PPM	(A-1-4)02ACD E-5UA 11/19/85 PPM
MAJOR CATIONS:					
CALCIUM	97	97.4	82	37.7	82
MAGNESIUM	39	38.9	35	16.1	32
SODIUM	197	239	240	108	281
POTASSIUM	6.6	5.59	5.4	[3.4]J	5.4
MAJOR ANIONS:					
CARBONATE	0.33	0.50	0.49	0.39	0.44
BICARBONATE	353	412	368	214	347
CHLORIDE	231	302	232	101	240
SULFATE	114	119	162	58	123
NITRATE	0.6	42	24.0	6.3	38.0
FLUORIDE	2.00	1.4J	[.3]U	2.8	1.39
ELECTRICAL COND.-FIELD	1550	----	1800	----	1650
ELECTRICAL COND.-LAB	----	----	----	----	----
TEMPERATURE	----	----	22	----	22
TDS	----	----	----	----	----
PH	7.02	----	6.6	----	6.6
CATIONS(EPM)*					
CALCIUM	4.83	4.85	4.11	1.88	4.07
MAGNESIUM	3.20	3.20	2.87	1.32	2.59
SODIUM	8.57	10.40	10.44	4.70	12.22
POTASSIUM	0.17	0.14	0.14	0.00	0.14
TOTAL EPM	16.75	18.60	17.55	7.90	19.02
ANIONS(EPM)					
BICARBONATE	5.78	6.75	6.03	3.51	5.69
CHLORIDE	6.52	8.52	6.54	2.85	6.77
SULFATE	2.37	2.48	3.37	1.21	2.56
TOTAL EPM	14.67	17.75	15.95	7.56	15.02
%TOTAL EPM					
%CALCIUM	28.74%	26.13%	23.39%	23.80%	21.38%
%MAGNESIUM	19.10%	17.20%	16.35%	16.75%	13.62%
%SODIUM	51.15%	55.90%	59.47%	59.44%	64.27%
%POTASSIUM	1.01%	0.77%	0.79%	0.00%	0.73%
%BICARBONATE	39.42%	38.04%	37.82%	46.37%	37.87%
%CHLORIDE	44.40%	48.00%	41.04%	37.67%	45.08%
%SULFATE	16.17%	13.96%	21.15%	15.97%	17.05%
WATER TYPE	Na-Cl-HCO3	Na-Cl-HCO3	Na-Cl-HCO3	Na-HCO3-Cl	Na-Cl-HCO3

*EPM=EQUIVALENTS/MILLION=ATOMIC WEIGHT OF ELEMENT/VALENCE

APPENDIX L. ROUTINE WATER QUALITY CONNSTITUENTS

CONSTITUENTS	(A-1-4)01ABB2 E-1MA 1119/85 PPM	(A-1-4)01ABB3 E-1LA 11/18/85 PPM
MAJOR CATIONS:		
CALCIUM	67	65.6
MAGNESIUM	37	79.3
SODIUM	202	66.9
POTASSIUM	5.6	4.95
MAJOR ANIONS:		
CARBONATE	0.40	0.54
BICARBONATE	164	188
CHLORIDE	279	213
SULFATE	68	104
NITRATE	29	17
FLUORIDE	----	----
ELECTRICAL COND.-FIELD	1300	1250
ELECTRICAL COND.-LAB	----	----
TEMPERATURE	23	28
TDS	----	915
PH	7.52	6.32
CATIONS(EPM)		
CALCIUM	3.34	3.27
MAGNESIUM	3.04	6.52
SODIUM	8.79	2.91
POTASSIUM	0.14	0.13
TOTAL EPM	15.32	12.83
ANIONS(EPM)		
BICARBONATE	2.69	3.08
CHLORIDE	7.87	6.01
SULFATE	1.42	2.17
TOTAL EPM	11.97	11.25
%TOTAL EPM		
%CALCIUM	21.83%	25.51%
%MAGNESIUM	19.87%	50.82%
%SODIUM	57.37%	22.68%
%POTASSIUM	0.94%	0.99%
%BICARBONATE	22.45%	27.37%
%CHLORIDE	65.73%	53.39%
%SULFATE	11.82%	19.24%
WATER TYPE	NaCl	MgCl

APPENDIX L. ROUTINE WATER QUALITY CONTITUENTS

CONSTITUENTS	(A-1-4)02DDD3 B-UA-1 08/22/85 PPM	(A-1-4)02DDD3 B-UA-1 11/19/85 PPM	(A-1-4)02DBD "J" 08/22/85 PPM	(A-1-4)02DBD "J" 11/19/85 PPM	(A-1-4)02DDD1 B-UA-3 08/22/85 PPM	(A-1-4)02DDD1 B-UA-3 11/19/85 PPM
MAJOR CATIONS:						
CALCIUM	137	149	155	91	169	134
MAGNESIUM	55	57	62	40	66	51
SODIUM	370	359	325	184	387	364
POTASSIUM	4.3	8.0	3.7	5.7	4.0	7.4
MAJOR ANIONS:						
CARBONATE	NA	0.47	NA	0.32	NA	0.5
BICARBONATE	468	495	382	323	459	442
CHLORIDE	541	425	551	267	588	405
SULFATE	265	187	222	110	272	158
NITRATE	12.0	67.0	8.6	30.0	12.0	55.0
FLUORIDE	0.43	1.15	0.37	2.61	1.00	1.39
ELECTRICAL COND.-FIELD	NOT ANAL.	NOT ANAL.	NOT ANAL.	NOT ANAL.	NOT ANAL.	NOT ANAL.
ELECTRICAL COND.-LAB	NOT ANAL.	NOT ANAL.	NOT ANAL.	NOT ANAL.	NOT ANAL.	NOT ANAL.
TEMPERATURE	NOT ANAL.	NOT ANAL.	NOT ANAL.	NOT ANAL.	NOT ANAL.	NOT ANAL.
TDS	NOT ANAL.	1996	NOT ANAL.	1064	NOT ANAL.	1461
PH	7.5	NOT ANAL.	7.4	NOT ANAL.	7.4	NOT ANAL.
CATIONS(EPM)						
CALCIUM	6.84	7.44	7.73	4.55	8.43	6.69
MAGNESIUM	4.52	4.69	5.10	3.29	5.43	4.19
SODIUM	16.09	15.62	14.14	8.00	16.83	15.83
POTASSIUM	0.11	0.20	0.09	0.15	0.10	0.19
TOTAL EPM	27.56	27.94	27.06	15.98	30.80	26.90
ANIONS(EPM)						
BICARBONATE	7.67	8.11	6.26	5.29	7.52	7.24
CHLORIDE	15.26	11.99	15.54	7.53	16.59	11.42
SULFATE	5.52	3.89	4.62	2.29	5.66	3.29
TOTAL EPM	28.45	23.99	26.43	15.12	29.77	21.96
%TOTAL EPM						
%CALCIUM	24.80%	26.61%	28.58%	28.44%	27.38%	24.85%
%MAGNESIUM	16.41%	16.78%	18.84%	20.58%	17.62%	15.59%
%SODIUM	58.39%	55.88%	52.23%	50.07%	54.66%	58.85%
%POTASSIUM	0.40%	0.73%	0.35%	0.91%	0.33%	0.70%
%BICARBONATE	26.96%	33.81%	23.69%	35.02%	25.27%	32.99%
%CHLORIDE	53.65%	49.97%	58.82%	49.83%	55.71%	52.03%
%SULFATE	19.39%	16.23%	17.49%	15.15%	19.02%	14.98%
WATER TYPE	NaCl	Na-Cl-HCO3	NaCl	Na-Cl-HCO3	NaCl	NaCl

APPENDIX L: ROUTINE WATER QUALITY CONSTITUENTS, BECKMAN INSTRUMENTS

CONSTITUENTS	(A-1-4)02DDD2 B-MA-1 08/22/85 PPM	(A-1-4)02DDD2 B-MA-1 11/19/85 PPM
MAJOR CATIONS:		
CALCIUM	41	37.9
MAGNESIUM	23	23.5
SODIUM	157	187
POTASSIUM	5.1	5.2
MAJOR ANIONS:		
CARBONATE	NOT ANAL.	0.55
BICARBONATE	116	129
CHLORIDE	265	253
SULFATE	41	69
NITRATE	0.44	28
FLUORIDE	0.61	0.34
ELECTRICAL COND.-FIELD	NOT ANAL.	NOT ANAL.
ELECTRICAL COND.-LAB	NOT ANAL.	NOT ANAL.
TEMPERATURE	NOT ANAL.	NOT ANAL.
TDS	NOT ANAL.	609
PH	7.0	NOT ANAL.
CATIONS(EPM)		
CALCIUM	2.05	1.89
MAGNESIUM	1.89	1.93
SODIUM	6.83	8.13
POTASSIUM	0.13	0.13
TOTAL EPM	10.90	12.09
ANIONS(EPM)*		
BICARBONATE	1.90	2.11
CHLORIDE	7.48	7.14
SULFATE	0.85	1.44
TOTAL EPM	10.23	10.69
%TOTAL EPM		
%CALCIUM	18.78%	15.64%
%MAGNESIUM	17.36%	15.98%
%SODIUM	62.67%	67.27%
%POTASSIUM	1.20%	1.10%
%BICARBONATE	18.58%	19.78%
%CHLORIDE	73.07%	66.78%
%SULFATE	8.34%	13.44%
WATER TYPE	NaCl	NaCl

APPENDIX L. ROUTINE WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)01bad1 ST-1 09/15/83 PPM	(A-1-4)01bad1 ST-1 08/20/85 PPM	(A-1-4)01bda1 ST-2 09/15/83 PPM	(A-1-4)01bda2 ST-3 09/15/83 PPM	(A-1-4)01bda2 ST-3 08/20/85 PPM	(A-1-4)01BCC2 M-2UA 07/02/84 PPM	(A-1-4)01BCC2 M-2UA 08/20/85 PPM
MAJOR CATIONS:							
CALCIUM	130	93	65	77	59	84	77
MAGNESIUM	48	34	28	33	22	32	28
SODIUM	247	208	272	244	203	225	217
POTASSIUM	7.8	5.4	6.8	6.8	4.9	5.3	5.2
MAJOR ANIONS:							
CARBONATE	0	0	0	0	0	0	0
BICARBONATE	340	323	359	353	292	322	321
CHLORIDE	425	281	306	293	216	301	260
SULFATE	165	115	130	112	98	120	110
NITRATE	1.8	50.1	6.7	49.2	34.6	31.0	32.3
FLUORIDE	0.40	0.42	1.00	0.80	0.78	0.46	0.4
ELECTRICAL COND.-FIELD	1800	1850	1500	1400	1475	1675	1650
ELECTRICAL COND.-LAB	2000	1640	1760	1680	1350	1710	1560
TEMPERATURE	24.5	24	24	24	24	24	23.5
TDS	1415	1060	1080	1026	875	1037	1025
PH	7.6	7.4	7.7	7.8	7.4	7.8	7.1
CATIONS(EPM)							
CALCIUM	6.49	4.64	3.24	3.84	2.94	4.19	3.84
MAGNESIUM	3.95	2.80	2.30	2.71	1.81	2.63	2.30
SODIUM	10.74	9.05	11.83	10.61	8.83	9.79	9.44
POTASSIUM	0.20	0.14	0.17	0.17	0.13	0.14	0.13
TOTAL EPM	21.38	16.62	17.55	17.34	13.71	16.75	15.72
ANIONS(EPM)							
BICARBONATE	5.57	5.29	5.88	5.78	4.79	5.28	5.26
CHLORIDE	11.99	7.93	8.63	8.27	6.09	8.49	7.33
SULFATE	3.44	2.39	2.71	2.33	2.04	2.50	2.29
TOTAL EPM	21.00	15.61	17.22	16.38	12.92	16.27	14.89
%TOTAL EPM							
%CALCIUM	30.34%	27.92%	18.48%	22.15%	21.48%	25.03%	24.45%
%MAGNESIUM	18.46%	16.82%	13.12%	15.65%	13.20%	15.72%	14.65%
%SODIUM	50.26%	54.43%	67.41%	61.20%	64.41%	58.44%	60.06%
%POTASSIUM	0.93%	0.83%	0.99%	1.00%	0.91%	0.81%	0.85%
%BICARBONATE	26.54%	33.90%	34.16%	35.31%	37.04%	32.44%	35.34%
%CHLORIDE	57.10%	50.77%	50.12%	50.45%	47.16%	52.20%	49.27%
%SULFATE	16.36%	15.33%	15.72%	14.23%	15.79%	15.36%	15.39%
WATER TYPE	NaCl	NaCl	NaCl	NaCl	Na-Cl-HCO3	NaCl	Na-Cl-HCO3

*EPM=EQUIVALENTS/MILLION=ATOMIC WEIGHT OF ELEMENT/VALENCE

APPENDIX L. ROUTINE CONSTITUENTS-MOTOROLA GEG. CONT.

CONSTITUENTS	(A-1-4)01bdd2 M-3UA 07/02/84 PPM	(A-1-4)01bdd2 M-3UA 08/20/85 PPM	(A-1-4)01bdb2 M-4UA 07/02/84 PPM	(A-1-4)01bdb2 M-4UA 08/19/85 PPM	(A-1-4)01bba2 M-5UA 07/02/84 PPM	(A-1-4)01bba2 M-5UA 08/19/85 PPM	(A-1-4)01baa2 M-6UA 07/03/84 PPM	(A-1-4)01baa2 M-6UA 08/19/85 PPM
MAJOR CATIONS:								
CALCIUM	66	64	73	68	96	86	84	101
MAGNESIUM	26	24	28	25	37	32	32	39
SODIUM	171	168	212	205	232	231	193	228
POTASSIUM	4.7	4.6	5.0	5	5.6	5.6	5.3	5.9
MAJOR ANIONS:								
CARBONATE	0	0	0	0	0	0	0	0
BICARBONATE	259	256	302	276	370	362	373	371
CHLORIDE	227	217	266	239	312	273	234	311
SULFATE	95	85	110	110	125	120	95	117
NITRATE	35.4	21.7	35.4	39.9	44.3	43.4	22.2	48.7
FLUORIDE	0.20	0.25	0.40	0.58	0.40	0.42	0.40	0.4
ELECTRICAL COND.-FIELD	1300	1320	1500	1550	1850	1900	1600	1975
ELECTRICAL COND.-LAB	1340	1250	1570	1480	1830	1700	1520	1800
TEMPERATURE	24	24	24.5	24	24	24	24	24.5
TDS	840	805	957	900	1120	1065	927	1150
PH	7.7	7.9	7.6	7.4	7.6	7.65	7.7	7.1
CATIONS(EPM)*								
CALCIUM	3.29	3.19	3.64	3.39	4.79	4.29	4.19	5.04
MAGNESIUM	2.14	1.97	2.30	2.06	3.04	2.63	2.63	3.21
SODIUM	7.44	7.31	9.22	8.92	10.09	10.05	8.39	9.92
POTASSIUM	0.12	0.12	0.13	0.13	0.14	0.14	0.14	0.15
TOTAL EPM	12.99	12.59	15.29	14.49	18.07	17.11	15.35	18.32
ANIONS(EPM)								
BICARBONATE	4.24	4.20	4.95	4.52	6.06	5.93	6.11	6.08
CHLORIDE	6.40	6.12	7.50	6.74	8.80	7.70	6.60	8.77
SULFATE	1.98	1.77	2.29	2.29	2.60	2.50	1.98	2.44
TOTAL EPM	12.63	12.09	14.74	13.56	17.47	16.13	14.69	17.29
%TOTAL EPM								
%CALCIUM	25.35%	25.36%	23.82%	23.41%	26.51%	25.08%	27.30%	27.52%
%MAGNESIUM	16.46%	15.67%	15.06%	14.18%	16.84%	15.38%	17.14%	17.51%
%SODIUM	57.26%	58.03%	60.29%	61.52%	55.85%	58.71%	54.68%	54.15%
%POTASSIUM	0.93%	0.93%	0.84%	0.88%	0.79%	0.84%	0.88%	0.82%
%BICARBONATE	33.62%	34.71%	33.57%	33.37%	34.71%	36.77%	41.61%	35.17%
%CHLORIDE	50.72%	50.65%	50.90%	49.74%	50.39%	47.74%	44.93%	50.74%
%SULFATE	15.67%	14.64%	15.53%	16.90%	14.90%	15.49%	13.46%	14.09%
WATER TYPE	NaCl	NaCl	NaCl	NaCl	NaCl	Na-Cl-HCO3	Na-Cl-HCO3	NaCl

APPENDIX L. ROUTINE WATER QUALITY CONSTITENTS

CONSTITUENTS	(A-1-4)01BAA2 M-6UA 07/03/84 PPM	(A-1-4)01BAA2 M-6UA 08/19/85 PPM	(A-1-4)01BAA3 M-7UA 07/02/84 PPM	(A-1-4)01BAA3 M-7UA 08/19/85 PPM	(A-1-4)01ACD M-8UA 08/21/85 PPM	(A-2-4)36DBA2 M-9UA 08/21/85 PPM	(A-2-4)35DDC2 M-10UA 08/22/85 PPM
MAJOR CATIONS:							
CALCIUM	84	101	77	87	40	87	84
MAGNESIUM	32	39	29	33	16	31	32
SODIUM	193	228	189	214	107	218	245
POTASSIUM	5.3	5.9	5.2	5.6	3.7	5.6	5.1
MAJOR ANIONS:							
CARBONATE	0	0	0	0	0	0	0
BICARBONATE	373	371	293	314	208	330	366
CHLORIDE	234	311	262	294	119	281	290
SULFATE	95	117	95	108	52	204	118
NITRATE	22.2	48.7	31.4	4.6	5.8	44.3	43.0
FLUORIDE	0.48	0.4	0.33	0.29	0.37	0.22	0.40
ELECTRICAL COND.-FIELD	1600	1975	1450	1800			
ELECTRICAL COND.-LAB	1520	1800	1490	1640	810	1630	1740
TEMPERATURE	24	24.5	24	24.5	22.5	24	24.5
TDS	927	1150	893	1030	515	1045	1075
PH	7.7	7.1	7.9	7.2	7.5	7.4	7.1
CATIONS(EPM)							
CALCIUM	4.19	5.04	3.84	4.34	2.00	4.34	4.19
MAGNESIUM	2.63	3.21	2.38	2.71	1.32	2.55	2.63
SODIUM	8.39	9.92	8.22	9.31	4.65	9.48	10.66
POTASSIUM	0.14	0.15	0.13	0.14	0.09	0.14	0.13
TOTAL EPM	15.35	18.32	14.58	16.51	8.06	16.52	17.61
ANIONS(EPM)							
BICARBONATE	6.11	6.08	4.80	5.15	3.41	5.41	6.00
CHLORIDE	6.60	8.77	7.39	8.29	3.36	7.93	8.18
SULFATE	1.98	2.44	1.98	2.25	1.08	4.25	2.46
TOTAL EPM	14.69	17.29	14.17	15.69	7.85	17.58	16.64
%TOTAL EPM							
%CALCIUM	27.30%	27.52%	26.35%	26.30%	24.76%	26.29%	23.80%
%MAGNESIUM	17.14%	17.51%	16.36%	16.44%	16.32%	15.44%	14.94%
%SODIUM	54.68%	54.15%	56.38%	56.39%	57.74%	57.41%	60.51%
%POTASSIUM	0.88%	0.82%	0.91%	0.87%	1.17%	0.87%	0.74%
%BICARBONATE	41.61%	35.17%	33.89%	32.80%	43.43%	30.76%	36.06%
%CHLORIDE	44.93%	50.74%	52.16%	52.87%	42.77%	45.08%	49.18%
%SULFATE	13.46%	14.09%	13.96%	14.33%	13.79%	24.16%	14.77%
WATER TYPE	Na-Cl-HCO3	NaCl	NaCl	NaCl	Na-HCO3-Cl	Na-Cl-HCO3	Na-Cl-HCO3

*EPM=EQUIVALENTS/MILLION=ATOMIC WEIGHT OF ELEMENT/VALENCE

APPENDIX L. ROUTINE WATER QUALITY CONSTITUENTS, CONT.

CONSTITUENTS	(A-2-4)35DBA2 M-11UA 08/21/85 PPM	(A-2-4)26DDA2 M-12UA 08/21/85 PPM
MAJOR CATIONS:		
CALCIUM	130	105
MAGNESIUM	53	52
SODIUM	280	325
POTASSIUM	5.4	5.6
MAJOR ANIONS:		
CARBONATE	0	0
BICARBONATE	434	388
CHLORIDE	421	428
SULFATE	150	183
NITRATE	51.8	70.4
FLUORIDE	0.38	0.31
ELECTRICAL COND.-FIELD	1450	
ELECTRICAL COND.-LAB	1490	810
TEMPERATURE	24	22.5
TDS	893	515
PH	7.9	7.5
CATIONS(EPM)		
CALCIUM	6.49	5.24
MAGNESIUM	4.36	4.28
SODIUM	12.18	14.14
POTASSIUM	0.14	0.14
TOTAL EPM	23.16	23.80
ANIONS(EPM)		
BICARBONATE	7.11	6.36
CHLORIDE	11.88	12.07
SULFATE	3.12	3.81
TOTAL EPM	22.11	22.24
%TOTAL EPM		
%CALCIUM	28.01%	22.02%
%MAGNESIUM	18.82%	17.97%
%SODIUM	52.58%	59.41%
%POTASSIUM	0.60%	0.60%
%BICARBONATE	32.17%	28.59%
%CHLORIDE	53.71%	54.28%
%SULFATE	14.12%	17.13%
WATER TYPE	NaCl	NaCl

*EPM=EQUIVALENTS/MILLION=ATOMIC WEIGHT OF ELEMENT/VALENCE

APPENDIX L. ROUTINE WATER QUALITY CONTITUENTS

CONSTITUENTS	(A-1-4)01BAD2 M-1MA 07/03/84 PPM	(A-1-4)01BAD2 M-1MA 08/20/85 PPM	(A-1-4)01BCC1 M-2MA 07/03/84 PPM	(A-1-4001BCC1 M-2MA 08/20/85 PPM	(A-1-4)01BDD1 M-3MA 07/02/84 PPM	(A-1-4)01BDD1 M-3MA 08/20/85 PPM
MAJOR CATIONS:						
CALCIUM	49	50	50	50	33	33
MAGNESIUM	26	26	26	26	21	20
SODIUM	133	134	132	134	155	159
POTASSIUM	5.0	5.1	5.0	5.2	4.5	4.9
MAJOR ANIONS:						
CARBONATE	0	0	0	0	0	6.8
BICARBONATE	138	146	145	151	127	125
CHLORIDE	258	247	260	251	259	251
SULFATE	43	47	43	43	47	44
NITRATE	3.5	4.4	1.8	2.2	1.8	2.2
FLUORIDE	0.26	0.41	0.33	0.31	0.62	0.62
ELECTRICAL COND.-FIELD	1100	1200	1100	1175	1075	1200
ELECTRICAL COND.-LAB	1130	1130	1140	1130	1120	1100
TEMPERATURE	26	25.5	26.5	25.5	26.5	26
TDS	755	795	770	770	697	705
PH	7.7	7.8	7.8	7.5	7.9	8
CATIONS(EPM)						
CALCIUM	2.45	2.50	2.50	2.50	1.65	1.65
MAGNESIUM	2.14	2.14	2.14	2.14	1.73	1.64
SODIUM	5.79	5.83	5.74	5.83	6.74	6.92
POTASSIUM	0.13	0.13	0.13	0.13	0.12	0.13
TOTAL EPM	10.50	10.59	10.50	10.59	10.23	10.33
ANIONS(EPM)						
BICARBONATE	2.26	2.39	2.38	2.47	2.08	2.05
CHLORIDE	7.28	6.97	7.33	7.08	7.31	7.08
SULFATE	0.90	0.98	0.90	0.90	0.98	0.92
TOTAL EPM	10.43	10.34	10.61	10.45	10.37	10.04
%TOTAL EPM						
%CALCIUM	23.30%	23.56%	23.76%	23.55%	16.10%	15.94%
%MAGNESIUM	20.37%	20.19%	20.36%	20.18%	16.88%	15.92%
%SODIUM	55.12%	55.03%	54.67%	55.01%	65.90%	66.93%
%POTASSIUM	1.22%	1.23%	1.22%	1.26%	1.12%	1.21%
%BICARBONATE	21.67%	23.14%	22.41%	23.68%	20.08%	20.39%
%CHLORIDE	69.75%	67.39%	69.15%	67.75%	70.48%	70.49%
%SULFATE	8.58%	9.46%	8.44%	8.57%	9.44%	9.12%
WATER TYPE	NaCl	NaCl	NaCl	NaCl	NaCl	NaCl

*EPM=EQUIVALENTS/MILLION=ATOMIC WEIGHT OF ELEMENT/VALENCE

APPENDIX J. ROUTINE WATER QUALITY CONTITUENTS

CONSTITUENTS	(A-1-4)01BDB1 M-4MA 07/02/84 PPM	(A-1-4)01BDB1 M-4MA 08/19/85 PPM	(A-1-4)01BBA1 M-5MA 07/02/84 PPM	(A-1-4)01BBA1 M-5MA 08/19/85 PPM	(A-1-4)01BAA1 M-6MA 07/03/84 PPM	(A-1-4)01BAA1 M-6MA 08/19/85 PPM
MAJOR CATIONS:						
CALCIUM	49	48	51	77	55	68
MAGNESIUM	25	24	28	44	31	36
SODIUM	138	139	138	187	146	163
POTASSIUM	5.2	5.2	5.1	5.6	5.4	6.1
MAJOR ANIONS:						
CARBONATE	0	0	0	9.4	0	0
BICARBONATE	148	147	141	215	141	183
CHLORIDE	259	258	265	324	283	297
SULFATE	45	47	50	95	50	75
NITRATE	4.9	4.0	8.4	38.5	15.5	27.5
FLUORIDE	0.25	0.34	0.42	0.28	0.42	0.37
ELECTRICAL COND.-FIELD	1100	1230	1175	1800	1250	1600
ELECTRICAL COND.-LAB	1170	1140	1200	1600	1260	1400
TEMPERATURE	26	26	26.5	26.5	26	25.5
TDS	775	755	825	1095	875	935
PH	7.9	7.82	7.7	7.65	7.9	7.5
CATIONS(EPM)						
CALCIUM	2.45	2.40	2.54	3.84	2.74	3.39
MAGNESIUM	2.06	1.97	2.30	3.62	2.55	2.96
SODIUM	6.00	6.05	6.00	8.13	6.35	7.09
POTASSIUM	0.13	0.13	0.13	0.14	0.14	0.16
TOTAL EPM	10.64	10.55	10.98	15.74	11.78	13.60
ANIONS(EPM)						
BICARBONATE	2.43	2.41	2.31	3.52	2.31	3.00
CHLORIDE	7.31	7.28	7.48	9.14	7.98	8.38
SULFATE	0.94	0.98	1.04	1.98	1.04	1.56
TOTAL EPM	10.67	10.67	10.83	14.64	11.33	12.94
%TOTAL EPM						
%CALCIUM	22.99%	22.71%	23.18%	24.41%	23.29%	24.95%
%MAGNESIUM	19.33%	18.71%	20.97%	22.99%	21.64%	21.77%
%SODIUM	56.43%	57.32%	54.67%	51.68%	53.90%	52.13%
%POTASSIUM	1.25%	1.26%	1.19%	0.91%	1.17%	1.15%
%BICARBONATE	22.73%	22.59%	21.34%	24.07%	20.39%	23.18%
%CHLORIDE	68.48%	68.24%	69.04%	62.42%	70.43%	64.75%
%SULFATE	8.78%	9.17%	9.61%	13.51%	9.18%	12.07%
WATER TYPE	NaCl	NaCl	NaCl	NaCl	NaCl	NaCl

*EPM=EQUIVALENTS/MILLION=ATOMIC WEIGHT OF ELEMENT/VALENCE

APPENDIX L. ROUTINE WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)01BAD3 M-7MA 07/02/84 PPM	(A-1-4)01BAD3 M-7MA 08/19/85 PPM	(A-2-4)36DBA1 M-9MA 08/21/85 PPM	(A-2-4)35DDC1 M-10MA 08/22/85 PPM	(A-2-4)35DBA1 M-11MA 08/21/85 PPM	(A-2-4)26DDA1 M-12MA 08/21/85 PPM
MAJOR CATIONS:						
CALCIUM	96	98	56	47	25	35
MAGNESIUM	49	52	27	25	20	24
SODIUM	173	185	142	132	174	183
POTASSIUM	6.6	7.0	5.3	4.7	4.7	4.6
MAJOR ANIONS:						
CARBONATE	0	0	0	0	17.0	13.6
BICARBONATE	272	299	169	133	85.8	78.0
CHLORIDE	358	346	258	252	268	299
SULFATE	85	90	46	47	44	50
NITRATE	24.8	32.3	8.8	2.7	3.1	21.3
FLUORIDE	0.23	0.26	0.33	0.52	0.88	0.76
ELECTRICAL COND.-FIELD	1700	1900				
ELECTRICAL COND.-LAB	1700	1730	1190	1100	1150	1280
TEMPERATURE	26	25.5	26	26	27	26.5
TDS	1215	1135	745	735	700	810
PH	8	7.45	7.9	7.5	8.5	8.4
CATIONS(EPM)						
CALCIUM	4.79	4.89	2.79	2.35	1.25	1.75
MAGNESIUM	4.03	4.28	2.22	2.06	1.64	1.97
SODIUM	7.53	8.05	6.18	5.74	7.57	7.96
POTASSIUM	0.17	0.18	0.14	0.12	0.12	0.12
TOTAL EPM	16.51	17.39	11.33	10.26	10.58	11.80
ANIONS(EPM)						
BICARBONATE	0.00	0.00	0.00	0.00	1.41	1.28
CHLORIDE	10.10	9.76	7.28	7.11	7.56	8.43
SULFATE	1.77	1.87	0.96	0.98	0.92	1.04
TOTAL EPM	11.87	11.63	8.24	8.09	9.88	10.75
%TOTAL EPM						
%CALCIUM	29.01%	28.12%	24.67%	22.85%	11.79%	14.80%
%MAGNESIUM	24.40%	24.59%	19.60%	20.03%	15.54%	16.73%
%SODIUM	45.57%	46.27%	54.53%	55.94%	71.53%	67.47%
%POTASSIUM	1.02%	1.03%	1.20%	1.17%	1.14%	1.00%
%BICARBONATE	0.00%	0.00%	0.00%	0.00%	14.23%	11.89%
%CHLORIDE	85.09%	83.89%	88.37%	87.90%	76.50%	78.43%
%SULFATE	14.91%	16.11%	11.63%	12.10%	9.27%	9.68%
WATER TYPE	NaCl	NaCl	NaCl	NaCl	NaCl	NaCl

*EPM=EQUIVALENTS/MILLION=ATOMIC WEIGHT OF ELEMENT/VALENCE

APPENDIX L: ROUTINE WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-2-4)35DDC3 M-10LA 08/22/85 PPM
MAJOR CATIONS:	
CALCIUM	47
MAGNESIUM	25
SODIUM	132
POTASSIUM	4.7
MAJOR ANIONS:	
CARBONATE	0
BICARBONATE	133
CHLORIDE	252
SULFATE	47
NITRATE	2.7
FLUORIDE	0.52
ELECTRICAL COND.-FIELD	
ELECTRICAL COND.-LAB	1100
TEMPERATURE	26
TDS	735
PH	7.5
CATIONS(EPM)	
CALCIUM	2.35
MAGNESIUM	2.06
SODIUM	5.74
POTASSIUM	0.12
TOTAL EPM	10.26
ANIONS(EPM)	
BICARBONATE	2.18
CHLORIDE	7.11
SULFATE	0.98
TOTAL EPM	10.27
%TOTAL EPM	
%CALCIUM	22.85%
%MAGNESIUM	20.03%
%SODIUM	55.94%
%POTASSIUM	1.17%
%BICARBONATE	21.23%
%CHLORIDE	69.24%
%SULFATE	9.53%
WATER TYPE	NaCl

*EPM=EQUIVALENTS/MILLION=ATOMIC WEIGHT OF ELEMENT/VALENCE

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)01ABB4 E-1UA 08/20/85 ppm	(A-1-4)01ABB4 E-1UA 11/19/85 ppm	(A-2-4)35DAA E-2UA 08/20/85 ppm	(A-2-4)35DAA E-2UA 11/19/85 ppm	(A-2-4)35DDA E-2UA 11/19/85 ppm	(A-2-4)35ABB2 E-3UA 08/20/85 ppm	(A-2-4)35ABB2 E-3UA 11/19/85 ppm
ALUMINUM	0.873	ND	0.344	ND	ND	0.480	ND
ANTIMONY	ND	ND	ND	ND	ND	ND	ND
ARSENIC	0.005	ND	ND	ND	ND	ND	ND
BARIUM	0.086	ND	0.058	ND	ND	0.048	ND
BERYLLIUM	ND	ND	ND	ND	ND	ND	ND
CADMIUM	ND	ND	ND	ND	ND	ND	ND
CHROMIUM	0.016	ND	0.006	ND	ND	0.012	ND
COBALT	ND	ND	ND	ND	ND	ND	ND
COPPER	0.015	ND	0.017	ND	ND	0.010	ND
IRON	1.26	0.20	1.17	0.30	0.30	1.85	0.30
LEAD	0.011	ND	0.037	0.014	0.016	0.014	ND
CYANIDE	NOT ANAL.	ND	NOT ANAL.	ND	ND	NOT ANAL.	ND
MANGANESE	0.032	ND	0.059	ND	ND	0.036	ND
MERCURY	ND	ND	ND	ND	ND	ND	ND
NICKEL	ND	ND	ND	ND	ND	ND	ND
SELENIUM	ND	ND	ND	ND	ND	ND	ND
SILVER	ND	ND	ND	ND	ND	ND	ND
THALLIUM	ND	ND	ND	ND	ND	ND	ND
TIN	ND	ND	ND	ND	ND	ND	ND
VANADIUM	0.014	ND	0.013	ND	ND	0.018	ND
ZINC	0.464	0.31	0.819	0.550	0.58	0.674	0.29

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-2-4)25DDB2 E-4UA 08/20/85 PPM	(A-2-4)25DDB2 E-4UA 08/20/85 PPM	(A-2-4)25DDB2 E-4UA 11/19/85 PPM	(A-1-4)02ACD E-5UA 08/20/85 PPM	(A-1-4)02ACD E-5UA 11/19/85 PPM
ALUMINUM	0.06	0.037	ND	0.027	ND
ANTIMONY	ND	ND	ND	ND	ND
ARSENIC	0.004	ND	ND	ND	ND
BARIUM	0.042	0.041	ND	0.045	ND
BERYLLIUM	ND	ND	ND	ND	ND
CADMIUM	ND	ND	ND	ND	ND
CHROMIUM	ND	ND	ND	0.012	0.020
COBALT	ND	ND	ND	ND	ND
COPPER	ND	ND	ND	0.02	ND
IRON	0.102	0.077	0.400	0.083	ND
LEAD	ND	ND	ND	0.012	ND
CYANIDE	ND	ND	ND	ND	ND
MANGANESE	0.01	0.01	ND	0.022	ND
MERCURY	ND	ND	ND	ND	ND
NICKEL	ND	ND	ND	ND	ND
SELENIUM	ND	ND	ND	ND	ND
SILVER	ND	ND	ND	ND	ND
THALLIUM	ND	ND	ND	ND	ND
TIN	ND	ND	ND	ND	ND
VANADIUM	0.01	0.009	ND	0.01	ND
ZINC	0.111	0.11	0.410	0.578	0.280

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)01ABB2 E-1MA 08/20/85 PPM	(A-1-4)01ABB2 E-1MA 08/20/85 PPM	(A-1-4)01ABB2 E-1MA 11/19/85 PPM	(A-1-4)01ABB3 E-1LA 08/20/85 PPM	(A-1-4)01ABB3 E-1LA 11/19/85 PPM
ALUMINUM	0.048	0.063	ND	0.065	ND
ANTIMONY	ND	ND	ND	ND	ND
ARSENIC	0.005	0.006	ND	ND	ND
BARIUM	0.032	0.041	ND	0.070	ND
BERYLLIUM	ND	ND	ND	ND	ND
CADMIUM	ND	ND	ND	ND	ND
CHROMIUM	0.011	0.014	ND	0.004	0.01
COBALT	ND	ND	ND	ND	ND
COPPER	0.011	0.017	ND	0.010	ND
IRON	1.030	1.200	ND	0.358	0.30
LEAD	0.007	0.007	ND	0.003	0.016
CYANIDE	NOT ANAL.	NOT ANAL.	ND	ND	ND
MANGANESE	0.012	0.015	ND	0.036	0.02
MERCURY	ND	ND	ND	ND	ND
NICKEL	ND	ND	ND	ND	ND
SELENIUM	ND	ND	ND	ND	ND
SILVER	ND	ND	ND	ND	ND
THALLIUM	ND	ND	ND	ND	ND
TIN	ND	ND	ND	ND	ND
VANADIUM	0.011	0.014	ND	0.019	ND
ZINC	5.420	4.300	0.24	0.864	0.42

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)02DDD3 B-UA-1 08/22/85 PPM	(A-1-4)02DDD3 B-UA-1 11/19/85 PPM	(A-1-4)02DDD1 B-UA-3 06/11/85 PPM	(A-1-4)02DDD1 B-UA-3 11/19/85 PPM	(A-1-4)02DBD "J" 08/22/85 PPM	(A-1-4)02DBD "J" 08/22/85 PPM	(A-1-4)02DBD "J" 11/19/85 PPM
ALUMINUM	ND	ND	ND	ND	ND	ND	ND
CHROMIUM	ND	ND	0.013	ND	ND	ND	ND
BARIUM	0.11	ND	0.125	ND	0.150	0.140	ND
BERYLLIUM	ND	ND	ND	ND	ND	ND	ND
CADMIUM	ND	ND	ND	ND	ND	ND	ND
COBALT	ND	ND	ND	ND	ND	ND	ND
COPPER	ND	ND	ND	ND	ND	ND	ND
IRON	0.30	0.400	0.126	0.200	0.250	0.510	0.200
LEAD	ND	0.006	ND	ND	0.005	ND	ND
NICKEL	ND	ND	ND	ND	ND	ND	ND
MANGANESE	ND	ND	ND	ND	0.015	0.017	ND
ZINC	0.16	0.700	0.223	0.110	0.160	0.170	0.080
BORON	0.79	NOT ANAL.	0.901	ND	0.710	0.700	NOT ANAL.
VANADIUM	ND	ND	0.011	ND	ND	ND	ND
ARSENIC	ND	ND	ND	ND	ND	ND	ND
ANTIMONY	ND	ND	ND	ND	ND	ND	ND
SELENIUM	ND	ND	ND	ND	ND	ND	ND
THALLIUM	ND	ND	ND	ND	ND	ND	ND
MERCURY	ND	ND	ND	ND	ND	ND	ND
TIN	ND	ND	ND	ND	ND	ND	ND
SILVER	ND	ND	ND	ND	ND	ND	ND
AMMONIA	ND	ND	0.130	NOT ANAL.	0.120	ND	NOT ANAL.
CYANIDE	ND	ND	ND	ND	ND	ND	ND

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)02DDD2 B-MA-1 08/22/85 PPM	(A-1-4)02DDD2 B-MA-1 11/19/85 PPM
ALUMINUM	ND	ND
CHROMIUM	ND	ND
BARIUM	ND	ND
BERYLLIUM	ND	ND
CADMIUM	ND	ND
COBALT	ND	ND
COPPER	ND	ND
IRON	ND	ND
LEAD	ND	ND
NICKEL	ND	ND
MANGANESE	ND	ND
ZINC	0.150	0.070
BORON	ND	ND
VANADIUM	ND	ND
ARSENIC	0.011	ND
ANTIMONY	ND	ND
SELENIUM	ND	ND
THALLIUM	ND	ND
MERCURY	ND	ND
TIN	ND	ND
SILVER	ND	ND
AMMONIA	ND	NOT ANAL.
CYANIDE	ND	ND

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)01BAD1 ST-1 08/20/85 PPM	(A-1-4)01BDA2 ST-3 08/20/85 PPM	(A-1-4)01BCC2 M-2UA 08/20/85 PPM	(A-1-4)01BDD2 M-3UA 08/20/85 PPM	(A-1-4)01BDB2 M-4UA 08/19/85 PPM	(A-1-4)01BBA2 M-5UA 08/19/85 PPM	(A-1-4)01BAA2 M-6UA 08/19/85 PPM	(A-1-4)01BAA3 M-7UA 08/19/85 PPM
IRON	ND	ND	0.42	0.61	0.40	1.7	1.6	1.5
MANGANESE	ND	ND	0.01	0.01	0.01	0.02	0.02	0.03
ARSENIC	ND	ND	ND	ND	ND	ND	ND	0.01
COPPER	ND	ND	ND	ND	ND	ND	ND	ND
ZINC	ND	ND	0.24	0.23	0.20	0.25	0.28	0.27
BARIUM	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL CHROMIUM	ND	0.02	ND	ND	ND	ND	ND	ND
LEAD	ND	ND	ND	ND	ND	ND	ND	ND
MERCURY	ND	ND	ND	ND	ND	ND	ND	ND
SELENIUM	ND	ND	ND	ND	ND	ND	ND	ND
SILVER	ND	ND	ND	ND	ND	ND	ND	ND
ANTIMONY	ND	ND	ND	ND	ND	ND	ND	ND
BERYLLIUM	ND	ND	ND	ND	ND	ND	ND	ND
NICKEL	ND	ND	0.07	0.08	ND	ND	ND	0.05
THALLIUM	ND	ND	ND	ND	ND	ND	ND	ND
BORON	0.41	0.45	0.41	0.28	0.56	0.61	0.41	0.26
SILICA	30.	30.	30.	28.	30.	38.	34.	30.
MOLYBDENUM	ND	ND	ND	ND	ND	ND	ND	ND
STRONTIUM	0.7	0.5	0.6	0.5	0.5	0.7	0.8	0.6

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)01ACD M-8UA 08/21/85 PPM	(A-2-4)36DBA2 M-9UA 08/21/85 PPM	(A-2-4)35DDC2 M-10UA 08/22/85 PPM	(A-2-4)35DBA2 M-11UA 08/21/85 PPM	(A-2-4)26DDA2 M-12UA 08/21/85 PPM
IRON	0.13	0.29	0.11	0.08	11.2
MANGANESE	ND	ND	0.04	0.01	0.29
ARSENIC	ND	ND	ND	ND	ND
COPPER	ND	ND	ND	0.02	0.01
ZINC	0.25	0.40	0.43	0.36	0.03
BARIUM	ND	ND	ND	ND	ND
CADMIUM	ND	ND	ND	ND	ND
TOTAL CHROMIUM	ND	ND	0.03	ND	0.04
LEAD	ND	ND	0.01	ND	0.01
MERCURY	ND	ND	ND	ND	ND
SELENIUM	ND	ND	ND	ND	ND
SILVER	ND	ND	ND	ND	ND
ANTIMONY	ND	ND	ND	ND	ND
BERYLLIUM	ND	ND	ND	ND	ND
NICKEL	ND	ND	ND	ND	ND
THALLIUM	ND	ND	ND	ND	ND
BORON	0.15	0.45	0.74	0.61	1.3
SILICA	28.	32.	38.	34.	40.
MOLYBDENUM	ND	ND	ND	ND	ND
STRONTIUM	0.3	0.6	0.8	1.7	1.5

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-1-4)01BAD2 M-1MA 08/20/85 PPM	(A-1-4)01BCC1 M-2MA 08/20/85 PPM	(A-1-4)01BDD1 M-3MA 08/20/85 PPM	(A-1-4)01BDB1 M-4MA 08/19/85 PPM	(A-1-4)01BBA1 M-5MA 08/19/85 PPM	(A-1-4)01BAA1 M-6MA 08/19/85 PPM	(A-1-4)01BAD3 M-7MA 08/19/85 PPM
IRON	0.25	1.9	0.94	0.27	1.3	1.3	0.06
MANGANESE	ND	0.05	0.02	0.02	0.01	0.03	ND
ARSENIC	ND	ND	ND	ND	ND	ND	ND
COPPER	ND	ND	ND	ND	ND	ND	ND
ZINC	0.33	1.2	0.48	0.26	0.51	0.64	0.42
BARIUM	ND	ND	ND	ND	ND	ND	ND
CADMIUM	ND	ND	ND	ND	ND	ND	ND
TOTAL CHROMIUM	0.02	0.03	0.02	ND	0.05	0.03	ND
LEAD	ND	ND	ND	ND	ND	ND	ND
MERCURY	ND	ND	ND	ND	ND	ND	ND
SELENIUM	ND	ND	ND	ND	ND	ND	ND
SILVER	ND	ND	ND	ND	ND	ND	ND
ANTIMONY	ND	ND	ND	ND	ND	ND	ND
BERYLLIUM	ND	ND	ND	ND	ND	ND	ND
NICKEL	ND	ND	ND	ND	ND	0.05	0.05
THALLIUM	ND	ND	ND	ND	ND	ND	ND
BORON	0.13	0.13	0.11	ND	0.24	0.22	0.20
SILICA	34.	38.	30.	34.	36.	36.	36.
MOLYBDENUM	ND	ND	ND	ND	ND	ND	ND
STRONTIUM	0.5	0.5	0.4	0.5	0.7	0.7	1.0

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-2-4)36DBA1 M-9MA 08/21/85 PPM	(A-2-4)35DDC1 M-10MA 08/22/85 PPM	(A-2-4)35DBA1 M-11MA 08/21/85 PPM	(A-2-4)26DDA1 M-12MA 08/21/85 PPM
IRON	ND	0.06	0.28	0.08
MANGANESE	ND	0.03	0.01	0.01
ARSENIC	ND	ND	ND	ND
COPPER	ND	ND	0.02	ND
ZINC	0.28	0.27	0.33	0.30
BARIUM	ND	ND	ND	ND
CADMIUM	ND	ND	ND	ND
TOTAL CHROMIUM	0.02	0.02	0.02	0.02
LEAD	ND	ND	ND	ND
MERCURY	ND	ND	ND	ND
SELENIUM	ND	ND	ND	ND
SILVER	ND	ND	ND	ND
ANTIMONY	ND	ND	ND	ND
BERYLLIUM	ND	ND	ND	ND
NICKEL	ND	ND	ND	ND
THALLIUM	ND	ND	ND	ND
BORON	0.17	0.43	0.15	0.17
SILICA	36.	34.	24.	26.
MOLYBDENUM	ND	ND	ND	ND
STRONTIUM	0.5	0.5	0.4	0.5

TABLE 2: TRACE ELEMENT WATER QUALITY CONSTITUENTS

CONSTITUENTS	(A-2-4)35DDC3 M-10LA 08/22/85 PPM
IRON	0.14
MANGANESE	0.04
ARSENIC	ND
COPPER	ND
ZINC	0.53
BARIUM	ND
CADMIUM	ND
TOTAL CHROMIUM	ND
LEAD	ND
MERCURY	ND
SELENIUM	ND
SILVER	ND
ANTIMONY	ND
BERYLLIUM	ND
NICKEL	ND
THALLIUM	ND
BORON	0.39
SILICA	34.
MOLYBDENUM	ND
STRONTIUM	1.3

APPENDIX M

Summary of Volatile Organic Compounds

Appendix M Table of Contents

EPA Monitor Wells M-1

Motorola GEG Monitor Wells M-9

Beckman Instruments Monitor Wells M-33

EPA MONITOR WELLS

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01abb4[E-1UA]

DATE SAMPLED	06/14/85 20 MINS.	06/14/85 2 HOURS	06/14/85 4 HOURS	06/14/85 4 HOURS	08/22/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)						
Methylene Chloride	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	150	160	100	120	44	40
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Choloroform	.7	.8	.7	ND	.7	1.1
1,1,1-Trichloroethane	34	37	26	29	11	4.0
Trichloroethene	26	27	20	23	15	4.4
Tetrachloroethene	10	11	8	8.8	5	1.4
Toluene	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	220.7	235.8	154.7	180.8	75.7	50.9

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)35daa[E-2UA]

DATE SAMPLED	06/19/85 30 MINS.	06/19/85 2 HOURS	06/19/85 4 HOURS	06/19/85 4 HOURS	08/22/85	11/18/85	11/18/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)							
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	18	12	13	14	18	49	47
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
Chloroform	2.8	2.2	2.3	2.3	2	2.1	2
1,1,1-Trichloroethane	2.2	1.6	1.8	1.8	3	3.9	3.6
Trichloroethene	53	36	42	44	65	63	59
Tetrachloroethene	36	24	30	32	41	24	23
Toluene	.7	1.3	ND	ND	ND	1.3	ND
Acetone	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	1.1	
Total Volatile Organic Compounds	112.7	77.1	89.1	94.1	129	144.4	134.6

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)35abb2[E-3UA]

DATE SAMPLED	06/18/85 20 MINS.	06/18/85 2 HOURS	06/18/85 4 HOURS	06/18/85 4 HOURS	08/22/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)						
Methylene Chloride	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	2.2	1.7	1.7	1.8	3	2.9
Chloroform	3.3	2.7	2.7	3.0	2	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	15.5	12	13.3	14.4	16	9.3
Tetrachloroethene	.7	.6	.8	.6	ND	ND
Toluene	ND	ND	ND	ND	.5	ND
Acetone	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	21.7	17.0	18.5	19.8	21.5	12.2

ND=Not Detected
J=Amount of compound found was below detection limit

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)25ddb2[E-4UA]

DATE SAMPLED	08/22/85	08/22/85 2 HOURS	08/22/85 4 HOURS	08/22/85 4 HOURS	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)					
Methylene Chloride	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	2	.8	.6	.6	ND
Acetone	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	1.7J
Total Volatile Organic Compounds	2	.8	.6	.6	0

ND=Not Detected
J=Amount of compound found was below detection limit

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)02acd[E-5UA]

DATE SAMPLED	06/14/85	06/14/85 2 HOURS	06/14/85 4 HOURS	06/14/85 4 HOURS	08/22/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)						
Methylene Chloride	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	16	11	18	16	8	26
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Chloroform	12	11	10	11	6	7.5
1,1,1-Trichloroethane	ND	ND	ND	ND	1	ND
Trichloroethene	340	380	360	350	280	250
Tetrachloroethene	22	24	23	22	19	14
Toluene	ND	ND	ND	ND	6	ND
Acetone	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	.8	ND
Total Volatile Organic Compounds	390	426	411	399	320.8	297.5

ND=Not Detected
J=Amount of compound found was below detection limit

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01abb2[E-1MA]

DATE SAMPLED	06/12/85 35 MINS.	06/12/85 2 HOURS	06/12/85 4 HOURS	06/12/85 4 HOURS	08/22/85	08/22/85	11/19/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)								
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	9.5	8.6	3	2	8.6	8.9
trans-1,2-Dichloroethene	ND	ND	ND	ND	.8	.6	ND	ND
Chloroform	28	31	36	36	16	13	19	19
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	490	560	700	670	260	220	240	250
Tetrachloroethene	15	19	23	22	6	5	7.7	8
Toluene	ND	ND	ND	ND	.8	.7	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	533	610	768.5	736.6	286.6	241.3	275.3	285.9

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01abb3[E-1LA]

DATE SAMPLED	06/12/85 45 MINS.	06/12/85 2 HOURS	06/12/85 4 HOURS	06/12/85 4 HOURS	08/22/85	11/18/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)						
Methylene Chloride	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Chloroform	2.8	2.9	2.9	3.5	2	1.6
1,1,1-Trichloroethane	ND	ND	ND	ND	1	ND
Trichloroethene	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	2.8	2.9	2.9	3.5	3	1.6

ND=Not Detected

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SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01bcc2[M-2UA]

DATE SAMPLED	05/31/84	05/31/84	06/18/84	07/02/84	08/20/84	09/20/84	10/29/84	10/29/84	12/03/84	03/04/85	08/20/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)											
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	2.9	ND	2	3.4	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	3.1	ND	ND	3.9	ND	3	2.6	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	4.9	ND	ND	ND	ND	ND
Trichloroethene	61.8	56.5	118	158	177	160	157.5	250	140	86	3
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	4	5.5	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	125	ND	ND
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12.2
Total Volatile Organic Compounds	61.8	56.5	121.1	158	177	171.7	157.5	259	276.5	86	15.2

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01bdd2[M-3UA]

DATE SAMPLED	06/01/84	06/01/84	06/18/84	07/02/84	08/20/84	09/19/84	10/30/84	12/03/84	03/04/85	08/22/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)										
Methylene Chloride	ND	ND	8.6	45.7	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	3.4	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	6.6	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	5.2	0	8.6	52.3	0	0	0	0	0	0

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BENND WASH MONITOR WELL

(A-1-4)01bdb2[M-4UA]

DATE SAMPLED	06/01/84	06/18/84	07/02/84	07/02/84	08/21/84	09/19/84	10/29/84	12/03/84	03/04/85	03/04/85	08/22/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)											
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	2	ND	ND	ND	ND	ND	10	ND
1,1-Dichloroethene	73	98.7	100	110	69.6	39.6	68.7	51	82	49	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	15.7	18.7	17	18	ND	6.5	8.9	7.0	10.0	8	18
1,1,1-Trichloroethane	18.4	24.2	16.6	22	12.7	6.1	9.1	8.2	12.0	6	5.1
Trichloroethene	601	558	857	540	358	232	302.1	220	230	230	450
Tetrachloroethene	267	287	402	240	177	122	134.2	120	130	140	230
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.0
Total Volatile Organic Compounds	975.1	986.6	1392.6	932	617.3	406.2	523.0	406.2	464	443	707.1

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01bba2[M-5UA]

DATE SAMPLED	06/01/84	06/01/84	06/19/84	07/02/84	08/20/84	09/20/84	09/20/84	10/29/84	12/03/84	03/04/85	08/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)											
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	29	ND	ND
1,1-Dichloroethane	3.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	100	140	78.8	113	114	200	99.3	86.5	84.0	39.0	76
trans-1,2-Dichloroethene	3.0	3	2.7	ND	ND	2	2.1	ND	ND	ND	ND
Chloroform	6.6	8	6.2	6.6	ND	3	4.8	2.3	ND	ND	ND
1,1,1-Trichloroethane	33.0	47	30.6	36.9	54.0	47	42.8	33.2	33.0	12.0	12
Trichloroethene	292	400	344	315	310	330	210	152.8	130.0	69.0	140
Tetrachloroethene	208	290	243	236	212	230	156	101.0	98.0	35.0	102
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	29	ND	ND
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.8
Total Volatile Organic Compounds	645.6	888	705.3	707.5	690	812	515	375.8	403	155	337.8

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01baa2[M-6UA]

DATE SAMPLED	06/01/84	06/19/84	06/19/85	07/03/84	08/20/84	09/20/84	10/29/84	12/03/84	12/03/84	03/04/85	08/21/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)											
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	48	ND
1,1-Dichloroethane	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	124	67.9	160	62.1	78.0	42.6	36.5	31.0	33.0	34.0	107
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	79.0	44.3	63	37.4	43.2	20.6	13.9	9.9	12.0	10.0	24
Trichloroethene	39.0	40.6	48	24.2	34.7	22.2	16.8	11.0	16.0	17.0	31
Tetrachloroethene	21.3	23.6	25	13.9	19.0	11.2	6.0	7.0	7.8	7.9	22
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-Butyl-Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.9
Total Volatile Organic Compounds	263.3	176.4	297	137.6	174.9	96.6	73.2	58.9	68.8	116.9	194.9

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01baa3[M-7UA]

DATE SAMPLED	05/31/84	06/18/84	06/18/84	07/02/84	08/20/84	09/19/84	10/29/84	12/03/84	03/04/85	03/04/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)										
Methylene Chloride	ND	ND	5.0	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	17.6	26.0	25.9	12.9	ND	ND	10.2	19.0	ND	14.0
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	4.4	ND	ND	ND	ND	ND	ND	2.6	ND
1,1,1-Trichloroethane	14.2	19.9	20.0	7.6	6.5	8.7	4.4	10.8	ND	6.4
Trichloroethene	11.8	28.8	21.6	20.0	7.5	ND	ND	12.0	71.0	9.9
Tetrachloroethylene	5.5	14.3	10.3	8.8	3.1	4.8	ND	4.3	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	15	ND	66.0
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	49.1	93.4	82.8	49.3	17.1	13.5	14.6	61.1	73.6	96.3

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01acd[M-8UA]

DATE SAMPLED	04/11/85	06/11/85	07/15/85	08/19/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)					
Methylene Chloride	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	0	0	0	0	0

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)36dba2[M-9UA]

DATE SAMPLED	04/03/85	06/11/85	07/15/85	08/21/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)					
Methylene Chloride	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
Chloroform	ND	160	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	7	ND	ND	ND
Acetone	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	0	167	0	0	0

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)35ddc2[M-10UA]

DATE SAMPLED	05/04/85	06/12/85	06/12/85	07/16/85	08/22/85	08/22/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)							
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	1	ND	ND	ND	ND
1,1-Dichloroethene	103	136	82	210	160	120	157
trans-1,2-Dichloroethene	ND	2	2	ND	ND	1	1.7
Chloroform	19	ND	11	22	16	16	14
1,1,1-Trichloroethane	13	15	11	10	8.8	11	5
Trichloroethene	472	887	350	930	620	460	505
Tetrachloroethene	226	334	160	350	270	270	220
Toluene	ND	ND	ND	ND	ND	ND	ND
Acetone	66	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	29	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	928	1374	617	1522	1074.8	878	902.7

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)35dba2[M-11UA]

DATE SAMPLED	04/18/85	04/18/85	06/12/85	07/15/85	08/21/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)						
Methylene Chloride	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	1	ND	ND	ND
1,1-Dichloroethene	5	5.8	13	20	28	45
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	3.5	ND	4.3
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	63	69	107	110	110	160
Tetrachloroethene	27	28	49	47	65	100
Toluene	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	95	102.8	170	180.5	203	309.3

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)26dda2[M-12UA]

DATE SAMPLED	04/25/85	04/25/85	07/15/85	08/21/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)					
Methylene Chloride	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	14.0	16.0	ND	ND	ND
Acetone	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	14.0	16.0	0	0	0

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL
(A-1-4)01bad2[M-1MA]

DATE SAMPLED	06/01/84	06/01/84	06/19/84	07/03/84	08/21/84	08/21/84	09/19/84	09/19/84	10/30/84	10/30/84	12/03/84	03/04/85	08/20/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)													
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	4.0	ND	6.0	4.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	4.6	ND	13.2	8.8	2.7	ND	ND	ND	ND	ND	ND	ND	5
Tetrachloroethylene	ND	ND	6.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	ND	38
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.8
Total Volatile Organic Compounds	8.6	0	25.2	12.8	2.7	0	0	0	0	0	12	0	45.8

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01bcc1[M-2MA]

DATE SAMPLED	05/31/84	06/18/84	07/02/84	08/20/84	08/20/84	09/20/84	09/20/84	10/29/84	12/03/84	03/04/85	08/20/85	08/20/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)												
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	2.3	2.3	ND	ND	ND	ND	ND	ND	ND	ND	45	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	19.0	ND	ND	ND
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	19.0	14.6
Total Volatile Organic Compounds	2.3	2.3	0	0	0	0	0	0	19.0	0	64.0	14.6

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01bdd1[M-3MA]

DATE SAMPLED	06/01/84	06/18/84	07/02/84	08/20/84	09/19/84	10/30/84	12/03/84	03/04/85	08/20/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)									
Methylene Chloride	ND	ND	48.3	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	8.4	6.9	23.1	11.2	ND	ND	ND	5
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	5J
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	3.0
Total Volatile Organic Compounds	0	8.4	55.2	23.1	11.2	0	0	0	13.0

ND=Not Detected
J=Compound observed below detection limmit

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01bdb1[M-4MA]

DATE SAMPLED	06/01/84	06/18/84	07/02/84	07/02/84	08/21/84	09/19/84	10/29/84	12/03/84	03/04/85	08/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)										
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2.1	5.8	ND	ND	ND	ND	ND	6.0	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	3.0	13.7	6.6	6	13.9	4.6	ND	19.0	ND	2.8
Tetrachloroethene	ND	5.2	ND	2	4.9	ND	ND	11.0	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	11.6
Total Volatile Organic Compounds	5.1	24.7	6.6	8	18.8	4.6	0	36.0	0	14.4

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL
(A-1-4)01bba1[M-5MA]

DATE SAMPLED	06/01/84	06/19/84	07/02/84	08/20/84	09/20/84	10/29/84	10/29/84	10/29/84	12/03/84	12/03/84	03/04/85	03/04/85	08/21/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)													
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND
1,1-Dichloroethene	3.9	4.9	ND	ND	9.1	ND	ND	11	8.6	8	12.0	10	11
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	10.2	3.6	3.8	ND	30.5	38.8	39.2	38	30.0	28	33.0	36	31
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	158	58.5	102	66.6	702	700.7	715.1	840	550	520	640.0	910	1223
Tetrachloroethene	7.6	7.2	ND	ND	33.9	29.5	29.5	33	28.0	26	27.0	33	30
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	19	ND	ND	ND	ND
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	182.2	74.2	105.8	66.6	775.5	769	783.8	922	635.6	582	712.0	991	1295

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)01baa1[M-6MA]

DATE SAMPLED	06/01/84	06/19/84	06/19/85	07/03/84	08/20/84	09/20/84	10/29/84	12/03/84	12/03/84	03/04/85	08/21/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)											
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	4.1	ND	ND	ND	3.3	4.5	3.7	3	4.2	7
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6.5	6.0	7	7.6	ND	11.1	13.2	12.0	11	13.0	17
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	78.5	94.8	130	108	176	220	239.0	240.0	200	270.0	395
Tetrachloroethene	4.0	6.8	3	ND	ND	9.3	7.2	9.3	7	7.8	11
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5J
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8J
Bis(2-Ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.0
Total Volatile Organic Compounds	89.0	111.7	140	115.6	176	243.7	263.9	265.0	221	295.0	433.0

ND=Not Detected
J=Compound observed below detection limit

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL
(A-1-4)01bad3[M-7MA]

DATE SAMPLED	05/31/84	06/18/84	06/18/84	07/02/84	07/02/84	08/20/84	09/19/84	10/29/84	12/03/84	03/04/85	03/04/85	08/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)												
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	2.2	3.1	2.6	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	30.7	25.2	24.0	24.1	22.9	13.9	59.9	51.2	50.0	76.0	71.0	28
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	75.8
Bis(2-ethylhexyl)Phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.2
Total Volatile Organic Compounds	30.7	25.2	24.0	24.1	22.9	13.9	59.9	51.2	52.2	79.1	73.6	108

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)36dba1[M-9MA]

DATE SAMPLED	04/01/85	06/11/85	07/15/85	07/15/85	08/21/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)						
Methylene Chloride	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	1	ND	3
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Chloroform	3.9	6	9	4	4.8	8
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	98	120	133	97	107	150
Tetrachloroethene	ND	ND	12	3	ND	5
Toluene	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	101.9	126	154	105	111.8	166

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)35ddc1[M-10MA]

DATE SAMPLED	04/09/85	04/09/85	04/09/85	06/11/85	07/15/85	08/22/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)							
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	2
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	0	0	0	0	0	0	2

ND=Not Detected
J=Compound observed below detection limit

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)35dba1[M-11MA]

DATE SAMPLED	04/16/85	06/12/85	07/15/85	08/21/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)					
Methylene Chloride	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	0	0	0	0	0

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-2-4)26dda1[M-12MA]

DATE SAMPLED	04/24/85	06/11/85	07/15/85	08/21/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)					
Methylene Chloride	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND
Chloroform	ND	10	2	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	6	ND	ND	ND
Acetone	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	0	16	2	0	0

ND=Not Detected

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELLS

(A-2-4)35ddc3[M-10LA]

DATE SAMPLED	05/07/85	05/07/85	06/12/85	06/12/85	07/16/85	08/22/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)							
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
Chloroform	2.7	2.5	ND	ND	ND	ND	3
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	79	69	88	58	68	72	92
Tetrachloroethene	ND	ND	ND	2	ND	ND	3J
Toluene	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	40	62	ND	ND	ND	ND	ND
Total Volatile Organic Compounds	121.7	133.5	88	60	68	72	95

ND=Not Detected
J=Compound observed below detection limit

BECKMAN INSTRUMENTS MONITOR WELLS

SUMMARY OF VOLATILE COMPOUNDS IN GROUNDWATE
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)02ddd3[B-UA-1]

DATE SAMPLED	08/22/85	11/18/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)		
Methylene Chloride	ND	ND
1,1-Dichloroethane	ND	ND
1,1-Dichloroethene	ND	ND
trans-1,2-Dichloroethene	ND	ND
Chloroform	ND	ND
1,1,1-Trichloroethane	ND	ND
Trichloroethene	ND	ND
Tetrachloroethene	ND	ND
Toluene	ND	ND
Acetone	ND	ND
Methyl Ethyl Ketone	ND	ND
2-Butanone	ND	ND
Benzene	ND	ND
Total Volatile Organic Compounds	0	0

ND=Not Detected
J=Amount of compound found was below detection limit

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WEL'

(A-1-4)2ddd1[B-UA-3]

DATE SAMPLED	08/22/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)		
Methylene Chloride	ND	ND
1,1-Dichloroethane	ND	ND
1,1-Dichloroethene	ND	ND
trans-1,2-Dichloroethene	ND	ND
Chloroform	.5	ND
1,1,1-Trichloroethane	ND	ND
Trichloroethene	2	1.1
Tetrachloroethene	2	ND
Toluene	ND	ND
Acetone	ND	ND
Methyl Ethyl Ketone	ND	ND
2-Butanone	ND	ND
Benzene	ND	ND
Total Volatile Organic Compounds	4.5	1.1

ND=Not Detected
J=Amount of compound found was below detection limit

SUMMARY OF VOLATILE COMPOUNDS IN GROUNDW
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)02ddd3[B-J]

DATE SAMPLED	08/22/85	08/22/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)			
Methylene Chloride	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND
Chloroform	ND	ND	1.4
1,1,1-Trichloroethane	ND	ND	ND
Trichloroethene	96	95	55
Tetrachloroethene	ND	ND	ND
Toluene	ND	ND	ND
Acetone	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND
2-Butanone	ND	ND	2.0
Benzene	ND	ND	ND
Total Volatile Organic Compounds	96	95	58.4

ND=Not Detected
J=Amount of compound found was below detection limit

SUMMARY OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
FROM INDIAN BEND WASH MONITOR WELL

(A-1-4)2ddd2[B-MA-1]

DATE SAMPLED	08/22/85	11/19/85
VOLATILE ORGANIC COMPOUND (PARTS PER BILLION)		
Methylene Chloride	ND	ND
1,1-Dichloroethane	ND	ND
1,1-Dichloroethene	ND	ND
trans-1,2-Dichloroethene	ND	ND
Chloroform	ND	ND
1,1,1-Trichloroethane	ND	ND
Trichloroethene	ND	1.2
Tetrachloroethene	ND	ND
Toluene	ND	ND
Acetone	ND	ND
Methyl Ethyl Ketone	ND	ND
2-Butanone	ND	ND
Benzene	ND	ND
Total Volatile Organic Compounds	0	1.2

ND=Not Detected
J=Amount of compound found was below detection limit

Appendix N

Drillers' Logs of Wells

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4E

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water-bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (feet)	TO (feet)	DESCRIPTION OF FORMATION MATERIAL
0	5	Top soil
5	7	Sand, gravel and boulders
7	12	Soil
12	26	Soft clay
26	50	Clay and boulders
50	116	Sand, gravel and boulders
116	173	Clay and gravel
173	192	Stickyx clay
192	272	Hard clay and caliche
272	385	Clay and some gravel
385	604	Hard and sticky clay
604	635	Caliche and gravel
635	750	Clay, caliche and boulders
750	810	Cemented boulders
810	833	Sticky clay and cemented boulders
833	843	Granite boulders
843	850	Hard red clay and rock

(A-1-4)2bbb

8c

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	35	calechi
35	100	gravel and boulders
100	135	clay
135	165	sand, gravel and boulders
165	180	clay

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at wh encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	5	Soil.
5	23	Caliche clay.
23	30	Tight gravel.
30	154	Sand gravel and boulders.
154	210	Sticky clay.
210	220	Silty clay.
220	240	Sandy gravelly clay.
240	265	Touch clay.
265	270	Packed sand and gravel.
270	310	Coarse sand and some gravel.
310	390	Tough gravelly clay.
390	440	Soft sandy clay and some gravel.
440	468	Clay and gravel.
468	471	Cemented Mt. wash.
471	485	Hard packed sand.
485	497	Cemented Mt. wash.
497	508	Silty clay.
508	520	Clay and gravel.
520	535	Cemented Mountain wash.
535	610	Cemented granite fill.

(A-1-4)2ddb

STATE LAND DEPT.

LOG OF WELL

icate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is arte-
n, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	5	Topsoil
5	30	Caliche, gravel & boulders
30	117	Sand, gravel & boulders
117	160	Clay, sand & gravel
160	165	Silty clay & a little gravel
165	185	Silty sand & a little gravel
185	360	Silty clay, sand & a little pea gravel
360	375	Silty, sticky clay, sandstone rib & a little pea gravel
375	385	Packed sand
385	395	Silty clay, sand & some small gravel
395	560	Silty clay, sand & some small pea gravel
560	700	Hard conglomerate

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at whic encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
surface	20	soil & caliche
20	65	large loose bolders & sand
65	120	Cemented boulders
120	157	Clay.
		Water at 46'± 0"

Length of Perforations 2-1/4 "

Depth at which water was first found 140 ft.

Standing level before perforating 110 "

Standing level after perforating 108 "

N06

Note below your observation of any change in water level while drilling

Water level when first started Test 107 ft.

Draw down from standing level 83 "

No. of gallons per minute pumped when Test first started 1410

No. of gallons per minute pumped when Test completed 2500

Draw down at completion of Test 32 ft.

Hours Testing Well 48

Formation: Mention size of water gravel—

0	ft. to	20	ft.	Top soil
20	" "	160	"	Sand, gravel and boulders
160	" "	275	"	Sandy clay and gravel
275	" "	320	"	Cemented sand
320	" "	545	"	Sandy clay, sticky streaks
545	" "	595	"	Hard clay and gravel
595	" "	1050	"	Hard red conglomerate

N-6

(A-1-4)11aba

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	6	Soil.
6	18	Caliche clay.
18	134	Sand gravel and boulders.
134	160	Clay brown.
160	185	Sandy clay.
185	250	Yellowclay (silty)
250	265	Clay and gravel.
265	285	Sticky clay and silt.
285	360	Packed silt and cemented shells.
360	372	Cemented gravel.
372	375	Shale (brown)
375	420	Tough sticky clay with shale streaks.
420	423	Shale.
423	472	Clay and gravel 3/4 inch
472	545	Cemented mountain wash.

(A-1-4)11bac2

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	28	Soil and clay
28	148	Boulders, Sand and Rock (Wataer 130)
148	205	Gravel and clay
205	400	Clay
400	412	Clay and gravel (Hard)
412	492	Rock

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water-bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (feet)	TO (feet)	DESCRIPTION OF FORMATION MATERIAL
0	9	Top soil
9	82	Sand, gravel and boulders
82	100	Gravel, boulders and some caliche
100	134	Sand, gravel and boulders
134	250	Clay
250	255	Sticky clay
255	280	Clay and boulders
280	305	Sticky clay
305	312	Clay, caliche and boulders
312	366	Clay
366	486	Clay and sandstone ledges
486	505	Clay and fine gravel
505	554	Clay, caliche and boulders
554	581	Granite boulders

(A-1-4)13add

RECEIVED APR 8 1976

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	12	Sandy top soil
12	120	Sand & gravel
120	200	Brown silt
200	265	Red conglomerate & sand
265	400	Red silt

30C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	160	Sand, Gravel & Boulders
160	350	Clay to Boulders
350	497	Cemented Conglomerate
First water encountered 72'		

'81 MAY 21 PM2:58
RESOURCES

(A-1-4)13cdb

32C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
1	20	Soil
20	50	Sand & Boulders
50	80	Water Bearing Sand & Gravel
80	100	Light Clay
100	112	Water Bearing Sand & Gravel

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JUN 7 1952
STATE LAND
DEPT.

RECEIVED
JUN 2 1952
STATE LAND
DEPT.

Footage	Number of hours to make footage	Composition
470		
475	3/4	Sand, Silt, Gravel and Clay w/amount of clay diminishing as depth increases.
480	1 1/4	
485	1 1/4	
490	3	
495	3	
500	3	
505	2	
510	1 1/2 a	
515	2 1/2	
520	2 1/2	
525	7 1/2	
530	5 -Small Strata Clay	
535	1	----
540	3	
545	12 1/2	Red Sand Stone
550	13 1/2	
555	6 1/2 -Small Pocket Clay	
560	11 1/2 -Small Pocket Clay	
565	17 1/4	
570	11 3/4	
575	12	
580	11 1/2	
585	8 1/4	
590	11 1/4	
595	16 1/4	----

Note:
Contract calls for payment to contractor on an hourly basis if penetration falls below one foot per hour for thirty hours.
This period was passed at approximately 4:30 am Sat. May 25, or one hour before 555 foot level was reached Through Mon. June 10, approximately 136 hours have been spent drilling on an hourly basis. The contract was continuing on an hourly basis.
Tuesday, June 11.

3#C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	4	Top soil
4	58	Loose boulders
58	90	Gravel 4"
90	98	Clay
98	102	Clay and boulders
102	118	Sand and gravel
118	194	Hard rock
194	204	Clay and boulders
204	226	Red rock and clay
226	238	Hard red rock

(A-1-4)22dbc

35D

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	14	Top soil
14	90	Gravel and boulders
90	150	Coarse gravel and little clay
150	160	Sandy clay and gravel
160	195	Clay
195	370	Sandy clay and gravel
370	385	Cemented sandy clay and gravel
385	400	Cemented sand and gravel and conglomerate
400	420	Cemented gravel and conglomerate
420	440	Conglomerate
440	465	Conglomerate and boulders
465	500	Cemented conglomerate and boulders

12002

No. of gallons per minute pumped when Test first started 1000

No. of gallons per minute pumped when Test completed 3000

Draw down at completion of test 70 ft.

Hours Testing Well 48

Formation: Mention size of water gravel—

0	ft. to	4	ft.	Top soil
4	" "	7	"	Sandy soil
7	" "	120	"	Gravel and boulders
120	" "	130	"	Sandy clay and gravel
130	" "	155	"	Gravel and boulders
155	" "	165	"	Sand and clay
165	" "	200	"	Sandy clay and sand
200	" "	215	"	Tight sand and gravel
215	" "	235	"	Clay
235	" "	242	"	Cement, sand
242	" "	260	"	Clay with sand and gravel embedded
260	" "	270	"	Cemented sand
270	" "	305	"	Clay
305	" "	310	"	Sand
310	" "	320	"	Clay
320	" "	325	"	Gravel
325	" "	355	"	Clay, gravel, embedded
355	" "	360	"	Cemented sand and gravel
360	" "	385	"	Clay, gravel, embedded
385	" "	450	"	Tight conglomerate
450	" "	480	"	Sand and gravel, embedded in clay
480	" "	505	"	Tight sand and gravel
505	" "	525	"	Tight sand and gravel, conglomerate
525	" "	600	"	Tight sand, gravel embedded ikn clay
600	" "	680	"	Conglomerate
680	" "	690	"	Tight mountain rock
	" "		"	
	" "		"	
	" "		"	
	" "		"	
	" "		"	
	"		"	
			"	

Casing were cut off, state how cut

(A-1-4)24abc

(A-1-4)24bbc

37C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	6	Top soil
6	150	Gravel and boulders
150	175	Sandy clay and gravel
175	310	Sandy clay
310	475	Sandy clay and gravel
475	500	Sand, gravel and boulders
500	525	~~Rxx~~ Red granite rock

14995

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(A-2-4)22bdd

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
375	381	Gravel - red clay & calachie
381	384	Sand & gravel
384	397	Conglomerate - hard
397	401	Sand & gravel streaks
401	404	Conglomerate - very hard
404	417	Calachie in clay
417	432	Pea Gravel
432	435	Cemented pea gravel
435	462	Pea gravel in calachie
462	470	Boulders in sand & gravel
470	495	Cemented boulders
495	500	Sand & gravel loose
500	532	Boulders in sand & gravel
532	538	Silty clay
538	559	Boulders in pea gravel
559	567	Boulders in red pea gravel

(A-2-4)22dab5

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	10	Top soil
10	40	Pink clay
40	50	Clay with broken rock
50	70	Pink clay
70	90	Gravel
90	120	Broken rock
120	185	Boulders with sand and gravel, 1st water
185	400	Clay with streaks of bedded gravel
400	450	Cemented gravel with streaks of clay
450	600	Hard rock
600	602	Hard material with small faults or fractures
602	661	Hard rock
661	770	Extremely hard
770	775	Red conglomerate "cavey"
775	801	Extremely hard altho fractured zone very "cavey"

(A-2-4)22dbal

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	14	Sandy top soil and caliche
14	26	Caliche
26	72	Clay
72	80	Caliche shell
80	108	Clay
108	116	Gravel and clay
116	130	Sandy clay
130	190	Gravel
190	198	Clay and gravel
198	204	Gravel
204	218	Clay gravel
218	230	Soft clay
230	238	Caliche
238	250	Clay some very soft spots
250	260	Clay
260	268	Caliche
268	280	Clay and gravel
280	292	Hard clay
292	304	Soft clay
304	310	Caliche
310	315	Coarse sand and some soft clay
315	332	Hard clay gravel
332	337	Caliche
337	345	Soft sandy clay
345	360	Coarse sand and soft clay
360	380	Gravel to 6"
380	410	Soft clay and gravel
410	420	Gravel in clay
420	428	Clay and gravel mostly clay
428	450	Soft clay and gravel
450	458	Clay and gravel

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well. (A-2-4)22dba1 (cont'd)

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
450	655	Hard conglomerate, with red granite boulders, with a few streaks of decomposed granite.

8301

(A-2-4)22dba1

RECEIVED JUL 12 1956 STATE LAND DEPT.

(A-2-4)22dba2

LOG OF WELL

ndicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, ndicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	4	Soil
4	108	Clay and caliche
108	120	Gravel
120	192	Clay and gravel
192	202	Gravel
202	264	Clay and gravel
264	278	Muddy gravel
278	360	Clay and gravel
360	372	Gravel
372	460	Clay and gravel
460	465	Cemented gravel and clay

(A-2-4)22dbb

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	4	Top Soil
4	90	Caliche
90	114	Sandy clay
114	125	Cemented clay
125	130	Cemented sand
130	132	Sand
132	150	Gravel
150	165	Clay and gravel
165	178	Gravel
178	225	Clay and gravel
225	240	Clay
240	242	Gravel
242	248	Soft gravel
248	260	Caliche
260	280	Top Soil
280	281	Caliche
281	284	Cemented sand
284	290	Soft sandy sandy
290	300	Hard clay
300	320	Clay
320	322	Cemented sand
322	326	Mud muck
326	350	Clay and gravel
350	362	Clay and gravel

(A-2-4)22dcc

46C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	80	Caliche
80	100	Sandy clay
100	125	Gravel
125	150	Gravel and sandy clay
150	300	Sandy clay
300	385	Sandy clay and gravel
385	405	Cemented sand
405	430	Cemented sand and gravel
430	475	Sandy clay and gravel
475	585	Clay
585	600	Hard sandy clay and gravel
600	608	Conglomerate
608	630	Cemented granite boulders

13558

STATE LAND DEPT.

(A-2-4)2..DCC2

LOG OF WELL

82C

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	2	Top soil
2	62	Caliche
62	88	Sandy clay
88	140	Clay and boulders
140	166	Sand, gravel and boulders
166	410	Clay and gravel
410	480	Sticky clay
480	600	Hard clay and embedded gravel
600	697	Hard conglomerate
697	741	Granite boulders
741	775	Hard conglomerate and granite
775	780	Cemented conglomerate

WELL #24

Located: N/W corner of intersection of Indian School Road and Hayden Road, Scottsdale.
Legal: SW1/4, SE1/4, SW1/4, Sec. 23, T2N, R4E.

WELL LOG

Original 500' well drilled Oct. 1951 by Rosco Moss

0 - 4	Top soil
4 - 16	Caliche
16 - 23	Clay
23 - 325	Sand, clay, 6" to 8" rock
325 - 440	Clay 3" gravel
440 - 448	Sandstone streaks
448 - 498	Tight dry clay

Well deepened to 1200' June 1959 by Rosco Moss.

490 - 690	Brown clay
690 - 1120	Brown clay - cemented gravel
1120 - 1200	Cemented gravel to 4"

CASING

Casing is 490' of 20" 8 gauge
655' of 16" 8 gauge

Perforated: 20" - 120' to 478' 10 holes per 12"
16" - 490 to 1115' 8 holes per 4"

FENCE & BUILDING

Lot is enclosed with 6' chain link fence. Fence is 46' East-West by 47' North-South with 20' double gate and 4' walk in gate both facing South.

Switches are enclosed in wood and galv. iron building 12' x 10' open on east side.

(A-2-4)23ddd2

47C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	5	Top soil
5	175	Sand and gravel 6" (Sand and [illegible] 1/2"
175	270	Hard and soft [illegible], sandy brown clay and gravel 1/2"
270	750	Hard and sticky stks sandy brown clay and gravel 1/2"
750	895	Cemented sand and gravel 1-1/2" and sticky red clay stks
895	1200	Sandy red clay and gravel to 8"

(A-2-4)24baa

83C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	2	Soil
2	10	Caliche
10	18	Clay
18	34	Caliche
34	104	Boulders
104	126	Clay
126	135	Gravel
135	150	Caliche
150	161	Clay

84E

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water-bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (feet)	TO (feet)	DESCRIPTION OF FORMATION MATERIAL
456	470	Sand and brown clay (cleaned out)
470	570	Sandy brown clay and embedded gravel 1-1/2"
570	573	Sand and gravel 1/2"
573	635	Sticky bro wn clay and embedded gravel 1/2"
635	790	Brown conglomerate
790	861	Tight sand and gravel, clay
861	950	Tight sand and gravel to 6"
950	1270	Hard sandy brown clay embedded gravel to 4"
1270	1300	Tight sand and gravel to 12"

49C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (Feet)	To (Feet)	Description of Formation Material
0	8	Top soil
8	147	Sand and boulders
147	153	Sandy clay
153	170	Boulders
170	250	Sandy clay and caliche
250	320	Caliche clay, cemented streaks
320	540	Hard caliche and sticky clay streaks
540	670	Tight snd and gravel, clay stks
670	820	Hard clay with sticky stks
820	1070	Hard sandy clay and cemented gravel
1070	1200	Hard red sand and rock, some clay

(A-2-4)25aab

Description	Thickness (feet)	Depth (feet)
Topsoil	4	4
Sandy Clay	4	8
Caliche	10	18
Gravel and Boulders	122	140
Sandy Clay	130	270
Clay and Gravel up to 1 inch	25	295
Gravel up to 1/2 inch	10	305
Sandy Clay	220	525
Packed Sand	15	540
Sandy Clay with small streaks of Sandstone	245	785
Gravel, tight up to 4 inches	335	1,140
Conglomerate	80	1,220
Packed Sand and Clay	70	1,290
Conglomerate	35	1,325
Total Depth		1,325

(A-2-4)25abb

51C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is a
sian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
190	690	Brown clay
690	1120	Brown clay, Sand and gravel
1120	1200	Cemented [illegible] 4"

52c

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at wh encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	14	Top soil
14	26	Limestone
26	160	Sand boulders
160	195	Sandy clay
195	310	Clay and caliche
310	325	Gravel 1/2"
325	550	Clay hard streaks
470	500	Clay and gravel
500	550	Clay and gravel
550	760	Sticky clay with hard shells
760	985	Hard red clay and rock
985	1150	Tight sand and gravel, boulders
1150	1285	Red clay and rock
1285	1295	Red sandy rock

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(A-2-4)25cdb2

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (Feet)	To (Feet)	Description of Formation Material
0	14	Top soil
14	152	Boulders, cemented streaks
152	173	Soft sandy streaks
173	190	Hard sandy clay
190	212	Sandy clay
212	238	Caliche and clay, soft and hard streaks
238	247c	Tight gravel and clay
247	268	Sticky clay
268	398	Caliche, clay and caliche shells
398	570	Hard caliche and cement with sticky streaks
570	710	Sticky clay
710	730	Cemented sand and gravel
730	905	Hard red clay and granite boulders
905	1300	Hill formation with granite boulders.

(A-2-4)25dca

55C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at whi encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	4	Top soil
4	10	Caliche and rock
10	140	Boulders
140	165	Sandy clay
165	390	Caliche clay and sandstone
390	410	Hard sandstone
410	500	Caliche and sandstone

(A-2-4)25dcc

56C

LOG OF WELL

...depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	3	Top soil
3	45	Caliche and streaks of cemented sand and gravel
45	146	Clay and boulders
146	205	Soft sticky clay and gravel
205	264	Sticky clay
264	312	Hard clay
312	345	Clay and streaks of cement
345	400	Clay
400	500	Hard clay

(A-2-4)25ddb1

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	5	Top Soil
5	10	Caliche
10	70	Gravel and Sand
70	125	Hard Rock
125	295	Clay and Rock
295	375	Sand and Clay
375	430	Clay and Rock
430	550	Clay
550	610	Conglomerate
610	690	Sticky Conglomerate
690	760	Sticky Clay
760	810	Conglomerate
810	830	Sand and Rock
830	915	Hard Conglomerate
915	1010	Clay and Hard Rock
1010	1051	Rock and Sand
1051	1200	Hard Conglomerate

Well 2-23

WELL #35

Located: Thomas Road 1/4 mile West of Hayden Road on the South side of Thomas Road.

Legal: NE1/4, NE1/4, NE1/4, Section 35, T2N, R4E

WELL LOG

Well drilled 985' April 1953 By Rosco Moss

0 - 4	Fill
4 - 15	Clay & Caliche
15 - 150	Sand, gravel & boulders
150 - 200	Clay
200 - 309	Clay & Gravel
309 --550	Sticky clay
550 -- 600	Hard clay
600 - 650	Hard & sticky clay
650 --653	Hard clay & caliche
653 - 720	Clay, caliche & boulders
720 -- 950	Hard Caliche & Boulders
950 - 985	Conglomerate & granite boulders.

CASING

Casing is 935' of 20" 6 gauge
Perforated 200' to 970' 10 holes per 5"

FENCE & BUILDING

Lot is enclosed with 6' chain link fence. Fence is 98' North-South by 44' East-West with 20' double gate and a 4' walk in gate. Both gates face North.

The switches & Well #35 booster station are housed under a wooden and galvanized iron roof.

Elev. (Est.) 1221

WELL #36

Located: S/E corner of intersection of Thomas Road & Miller Road (Scottsdale)

WELL LOG

Original Well drilled July 1951 by Rosco Moss.

0 - 4	Top Soil
4 - 32	Cemented gravel
32 - 157	Sand with 8" boulders
157 - 500	Clay with 1/2" gravel & sand streaks

Well deepened to 1000' June 1958 by Rosco Moss.

500 - 515	Hard sandy clay
515 - 585	Sticky sand, clay & cemented streaks
585 - 645	Cemented sand and gravel 1"
645 - 735	Sandy clay & gravel to 5"
735- 830	Sandy clay & gravel to 10"
830 - 875	Conglomerate & boulders
875 - 900	Cemented sand & gravel to 8"
900 - 1000	Sandy clay & gravel to 6"

CASING

Casing is 500' of 20" - 8 gauge
510' of 16" --8 gauge

Perforated: 20" from 140' to 486' 10 holes per 12"
16" from 500' to 990' 8 holes per 4"

FENCE & BUILDINGS

Lot is enclosed with 6' chain link fence. Fence is 44' North-South by 52' East-West, with 20' double gate and 4" walk in gate. Both gates face. North.

Switches are housed in wood and galv. iron house 8' x 12' open on North and West sides.

Chlorine house is cement block construction 7'4" x 9'4" in size.

Elev. (Est.) 1225

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	3	Soil
3	8	Clay
8	30	Caliche
30	41	Hard Clay
41	44	Gravel
44	52	Clay
52	138	Gravel
138	143	Clay and gravel
143	178	Gravel 6"
178	250	Hard Clay

(A-2-4)35dcc2

64C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water-bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (feet)	TO (feet)	DESCRIPTION OF FORMATION MATERIAL
0	2	Top soil
2	14	Clay and caliche
14	85	Sand, gravel and boulders
85	106	Boulders
106	146	Packed sand
146	149	Boulders
149	212	Clay and gravel, sandy
212	224	Hard clay and caliche
224	230	Sticky clay
230	235	Hard clay and caliche
235	264	Sticky clay
264	512	Streaks of hard and sticky clay
512	580	Clay and boulders
580	602	Granite boulders
602	647	Clay, caliche and boulders
647	660	Clay, caliche and granite boulders

RECEIVED MAR 19 STATE LAND

Appendix O

Grain Size Percentages - Municipal Supply Wells

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(A-2-4)25abb	0-13
(A-2-4)25dca	0-21
(A-2-4)25ddb1	0-27
(A-2-4)35aab2	0-33
(A-2-4)35abb1	0-40

(A-2-4)23ddd

City of Phoenix Well #34

Clay Silt Analysis
Well 34 (A-2-4) 23ddd
0-500'

Depth	Rock	Color	Raw Wgt.	Washed Wgt.	Loss	% Clay Silt	Remarks
8'	Sandy silt	Moderate brown 5YR3/4					
8-22'	Caliche	Yellowish gray 5Y8/1					
28'	Silty Pebbley sand	Yellowish gray 5Y7/2	50	30.0	20.0	40	
50'	do.	Pale red 10R6/2	50	38.0	12.0	24	
75'	do.	do.	50	39.5	10.5	21	
100'	do.	do.	50	40.0	10.0	20	
125'	do.	do.	50	43.5	6.5	13	
140'	Sandy clay	Light brown 5YR6/4	50	9.5	40.5	81	
150'	Clayey pebbley sand	Pale red 10R6/2	50	28.5	21.5	43	
175'	do.	do.	50	20.5	29.5	59	
200'	Sandy clay	do.	50	16.5	33.5	67	
225'	do.	do.	50	14.5	35.5	71	
250'	do.	do.	50	19.0	31.0	62	
275'	Clayey gravel	do.	50	27.0	23.0	46	Pebbles up to 40 mm.; rounded
300'	Sandy clay	do.	50	19.0	31.0	62	
325'	do.	Grayish orange pink 5YR7/2	50	20.0	30.0	60	Considerable caliche
350'	Sandy calcareous clay	Pale red 10R6/2	50	16.5	33.5	67	
375'	Pebbley clay	do.	50	9.0	41.0	82	Much calcareous clay in washed sample
400'	Sandy clay	Grayish orange Pink 5YR7/2	50	6.0	44.0	88	Calcareous clay balls in washed sample
425'	Pebbley clay	Pale red 10R6/2	50	12.0	38.0	76	Some clay in washed sample
440-448'	Calcareous clay	Grayish orange pink 5YR7/2	50	11.5	38.5	77	Much clay in washed sample.
450'	Pebbley clay	Pale red 10R6/2	50	6.0	44.0	88	
475'	Sandy clay	Grayish orange pink 5YR7/2	50	7.5	42.5	85	
500'	Clayey gravel	do.	50	33.0	16.0	32	Rounded pebbles up to 30 mm.

Well S.R.V.A.U.A. Well 34 A R G B location (1-2-4)23 ddd 1

Location SW SW SW Sec. 23, T 2 S., R. 4 E Maricopa County Run by R. S. Geer

Depth	Rock name	Color	Texture angularity size, shape	Composition Minor Constituents	Major Constituents	Cement	Remarks
28'	Pebbley sand	Pale red 5R6/2	Very coarse to very fine sand. Sand, Granules and pebbles angular to sub-rounded.	Magnetite Biotite Calcite	Feldspar 25% Quartz 70%	None	Various igneous and metamorphic rocks present. Pebbles of pink granite very noticeable.
50'	do.	do.	do.	do.	Feldspar 35% Quartz 60%	do.	
75'	do.	Pale red 10R6/2	do.	Magnetite	Feldspar 25% Quartz 70%	do.	Mafic pebbles slightly more pronounced.
125'	do.	do.	do.	Magnetite Biotite	Feldspar 30% Quartz 65%	do.	
140'	Sand, some pebbles	Grayish orange 10YR7/4	Very coarse to very fine sand angular to subrounded.	Muscovite Biotite Chlorite Magnetite Calcite	Feldspar Quartz	Some Calcite	Clay in washed sample Pebbles are rounded.
150'	Pebbley sand	Moderate orange pink 5YR8/4	do. Pebbles and granules angular to sub-angular.	Biotite Magnetite Calcite	Feldspar 35% Quartz 70%	do.	Dominance of quartz probably due to considerable quartzite present.
175'	do.	Grayish orange pink 5YR7/2	do.	do. + muscovite	Feldspar Quartz	Calcite	60% of washed sample is hard calcareous clay and caliche.
200'	do.	Moderate	Very coarse to very fine sand angular to subrounded. Pebbles & granules angular to subangular.	do.	Feldspar 45% Quartz 50%	do.	Caliche present. Noticeable round frosted quartz grains.

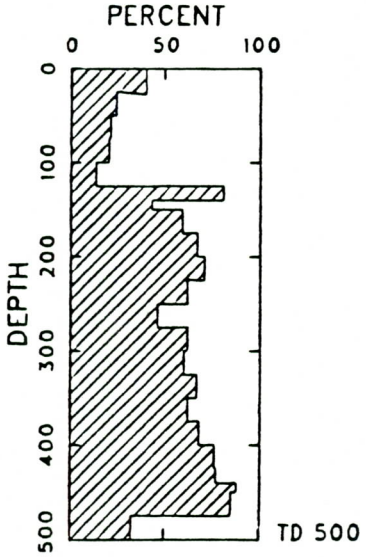
Well S.R.V.W.U.A. Well 34 A B C D location (A-2-4) 23 ddd 2

Depth	Rock name	Color	Texture angularity size, shape	Composition: Minor Constituents	Composition: Major Constituents	Composition: Cement	Remarks
225'	Pebbley sand	Grayish orange 10YR7/4	Very coarse to very fine sand. Sand, granules, and pebbles angular to rounded.	Biotite Magnetite Calcite	Feldspar Quartz	Some Calcite	70% of washed sample is hard calcareous clay.
250'	Sand with granules	Moderate orange pink 5 YR8/4	Very coarse to very fine sand angular to subrounded. Granules angular to rounded.	do.	Feldspar 45% Quartz 50%	do.	
275'	Sandy gravel	Pale red 10R6/2	Very coarse to very fine sand Sand, granules and pebbles angular to rounded.	Biotite Muscovite Calcite Magnetite	Feldspar 30% Quartz 65%	do.	Rounded pebbles up to 40 mm. avg. 10 mm.
300'	Sand	Moderate orange pink 5YR8/4	Very coarse to very fine sand, angular to rounded.	Biotite Magnetite Calcite	Feldspar 45% Quartz 50%	None	Round frosted quartz grains present.
325'	Pebbley sand	do.	do. Granules and pebbles angular to rounded.	do. + Muscovite	do.	Some calcite	Caliche present.
350'	do.	do.	do.	do.	Feldspar Quartz	do.	60% of washed sample is hard calcareous clay
375'	do.	do.	do.	do.	do.	do.	40% of washed sample is hard calcareous clay
400'	Sand, some pebbles and granules.	do.	do.	do.	do.	do.	Considerable clay in sample
425'	Sandy gravel	do.	do.	do.	do.	do.	do.
450'	do.	Grayish orange pink 5YR7/2	do.	do.	Feldspar 60% Quartz 35%	do.	

Well S.R.V.W.U.A. Well 34 A B C D location (A-2-4) 23 ddd 3

Depth	Rock name	Color	Texture angularity size, shape	Minor Constituents	Major Constituents	Cement	Remarks
475'	Sand	Grayish orange 10YR7/4	Very coarse to very fine sand, angular to subrounded.	Muscovite Biotite Magnetite Calcite	Feldspar 55% Quartz 40%	do.	Most of the sand is medium to fine.
500'	Sandy gravel	Grayish orange pink 5YR7/2	Very coarse to very fine sand angular to subrounded. Pebbles and granules angular to rounded.	No. + limonite	Feldspar 35% Quartz 60%	do.	Rounded dark pebbles noticeable. Some caliche present.

(A-02-04) 23DDD



(A-2-4)25aaa

LOCATION: (A-02-04) 23DDD DEPTH: 500. OWNER:
DRILLER: LAB ID: 0NO DATA INDICATED IF BREA
SHADE OPTIONS FOR CURVE 1 PATTERN/COLOR/DIRECTION 2/3/ 1/ SHADE C
LABEL OPTIONS, LABID 0 OWNER 0 DEPTH 0 METHOD

DEPTH		% STLT <.0625	% SAND >.0625	% GRAVEL >2.0	TOT
0	28	40	0	0	4
25	50	24	0	0	2
50	75	21	0	0	2
75	100	20	0	0	2
100	125	13	0	0	1
125	140	81	0	0	8
140	150	43	0	0	4
150	175	59	0	0	5
175	200	67	0	0	6
200	225	71	0	0	7
225	250	62	0	0	6
250	275	46	0	0	[illegible]
275	300	62	0	0	6
300	325	60	0	0	6
325	350	67	0	0	6
350	375	62	0	0	6
375	400	68	0	0	6
400	425	76	0	0	[illegible]
425	440	77	0	0	[illegible]
440	450	88	0	0	[illegible]
450	475	85	0	0	[illegible]
475	500	32	0	0	[illegible]

TOTALS NOT EQUAL TO 100% PROCESSING CONTINUED

NUMBER OF DATA POINTS 22 XAXIS IS 1 INCH, YAXIS IS 2.50INCHES

CITY OF PHOENIX WELL #18

Deepened by Roscoe Moss Drilling Company

Located at 88th St. & Indian School Rd. or

NE¼, NE¼, NE¼, Sec. 25, T. 2 N., R. 4 E.

Sample descriptions made March 19, 1958
By
Turner and Associates
Consulting Geologists

Depth Sample Taken (ft.)	Acid 1/ Reaction HCl	Max. Size Inches	% Sand and gravel	Est. Water poss. 2/	Description
590-600	S	1/16	50	P	Limey clay with sand. Sand subrounded to rounded, composed mostly of quartz.
600-610	S	1/16	35	P	Same
610-620	S	1/16	20	P	Same
620-630	S	1/16	25	P	Same
630-640	S	3/16	35	P-F	Same - few streaks of gravel (rounded
640-650	S	1/16	35	P	Same - no gravel
650-660	S	1/16	30	P	Same
660-670	S	1/16	25	P	Same
670-680	M-S	1/16	40	P-F	Same
680-690	S	1/16	40	P	Same
690-700	S	1/16	40	P-F	Same - very little gravel
700-710	S	1/16	45	P-F	Same - little gravel
710-720	M	1/16	70	G	Alternating layers of clay, sand and some gravel. Material composed of quartz and some volcanics. Material is subrounded to rounded.

1/ Reaction with 10% solution cold hydrochloric acid which gives rough idea of amount of lime cement present in sample: S, strong; M, moderate; W, weak; N, none.

2/ Water-production possibilities estimated from appearance of sample: G, good; F, fair; P, poor.

CITY OF PHOENIX WELL #18

Depth Sample Taken (ft.)	Acid 1/ Reaction HCl	Max. Size Inches	% Sand and gravel	Est. Water Poss. 2/	Description
720-730	M	1/16	65	G	Same
730-740	W-M	1/16	40	P	Tightly packed clay with a little sand and gravel.
740-750	S	1/16	45	P-F	Limey clay with sand & little grav Material is mostly granitic, few volcanics and is subrounded to rounded.
750-760	No sample				
760-770	S	1/16	20	P	Same - very little sand and grave No volcanic material.
770-780	S	1/16	15	P	Same - very little sand and no gravel.
780-790	S	1/16	20	P	Same
790-800	S	1/16	20	P	Same
800-810	S	1/16	25	P	Same
810-820	W-M	1/16	20	P	Same
820-830	W-M	1/16	60	F-G	Sand and gravel with streaks of c Material is composed of granitics and is subangular to subrounded.
830-840	M	1/16	60	F-G	Same - few volcanic fragments
840-850	M	1/8	70	G	Same
850-860	M-S	1/8	65	F-G	Same
860-870	M-S	1/16	70	G	Same
870-880	M-S	1/8	75	G	Same
880-890	S	1/8 +	60	G	Same
890-900	W-M	1/8	75	G	Same
900-910	M-S	3/16	65	G	Gravel and sand with streaks of limey clay. Material is composed of granitics and a few volcanic fragements. The particles are

CITY OF PHOENIX WELL #18

Depth Sample Taken (ft.)	Acid 1/ Reaction HCl	Max. Size Inches	% Sand and Gravel	Est. Water Poss. 2/	Description
					subangular to subrounded.
910-920	M-S	1/8	50	G	Same - more clay present. Few metamorphic fragments.
920-930	M	3/16	55	G	Same
930-940	M	3/16	55	G	Same
940-950	M-S	3/16	75	G	Same - little caliche
950-960	S	1/8	60	G	Same
960-970	S	3/16	50	G	Same
970-980	S	1/8	65	G	Same
980-990	S	1/8 +	80	G	Same
990-1000	S	1/8	60	G	Alternating layers of sand & gravel and clay. Material is composed of granitics and a few metamorphics & volcanic fragments. The particles are subangular to rounded.
1000-1010	W-M	1/8	55	G	Same
1010-1020	M-S	1/8 +	60	G	Same - some caliche
1020-1030	W-M	3/16	65	G	Same
1030-1040	W-M	1/8	60	G	Same - no caliche
1040-1050	M-S	3/16	65	G	Same - some caliche
1050-1060	W-M	3/16	80	G	Same - fewer streaks of clay, some caliche
1060-1070	W-M	1/8	65	G	Same - some caliche
1070-1080	W-M	1/8	60	G	Same
1080-1090	W-M	1/8	70	G	Same
1090-1100	M-S	1/8	70	G	Same

CITY OF PHOENIX WELL #18

Depth Sample Taken (ft.)	Acid 1/ Reaction HCl	Max. Size Inches	% Sand and Gravel	Est. Water Poss. 2/	Description
1100-1110	W-M	1/8 +	50	G	Alternating layers of sand & grave and clay, with a few streaks of caliche & lime cemented clay. The material is composed of granitics, some metamorphic and a few volcani particles and is subangular to rounded.
1110-1120	M	3/16	75	G	Same - no caliche
1120-1130	W	3/16	50	G	Same
1130-1140	W-M	1/8	60	G	Same
1140-1150	M	1/4	80	G	Same
1150-1160	S	3/16	75	G	Same
1160-1170	M-S	3/16	70	G	Same
1170-1180	M-S	1/4	70	G	Same
1180-1190	M-S	1/4	75	G	Same
1190-1200	M-S	5/16	85	G	Same

1/ Reaction with 10% solution cold hydrochloric acid which gives rough idea of amount of lime cement present in sample: S, strong; M, moderate; W, weak; N, none.

2/ Water-production possibilities estimated from appearance of sample: G, good; F, fair; P, poor.

(A-2-4)25abb

V. ELL SAMPLE ANALYSIS

U. S. Geol. Survey, Arizona Ground Water District

Lab No. 550 Owner & No. CITY OF PHOENIX ABCD Loc (A-2-4) 25 abb Sheet 1 of 7

Loc ___ ¼ ___ ¼ ___ ¼ Sec ___ T ___ R ___ County ___ Rig ___ Contractor ___ Analyst [illegible]

Analysis begun 5/24/59 completed 5/30/59 Remarks

Unit name	Depth	Rock Name	% (est, calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Effect on HCl Cement or bond (amount)	Driller's name: Log:	Remarks
	0-80	MISSING									
	80-90	Silty SAND	20	70	10	vf-vc S, SA-SR, NOT COMPACT - max Gravel 20 mm.	qtz, feldspar, [illegible], [illegible] metamorphics magnetite (SILT COAT)	pale yel-lowish brn 10YR 6/2	NONE	volcanics magnetic	
	90-100		20	75	5	do - max G - 10 mm.					
	100-10		do	do	do						
(1)	110-20		30	65	5	do - but slight increase in SILT due to VOLCANIC TUFF					
	120-30		20	70	10	do					
	130-40		5	25	70	do - mostly G and v.c. Sand - max 15 mm. NOT COMPACT					
	140-50		30	50	20	vf-vc S - max G. 20 mm increase in TUFF + SILT					
	150-60		20	60	20	do - NO TUFF		do	do		
	160-70	do	30	50	20	do - slight increase in SILT		gray-orange 10YR 1/4	GOOD		first $CaCO_3$ encountered
	170-80	Sandy SILT	60	30	10	do - big increase in SILT COMPACT - max G 15 mm					
	180-90		70	30	Trace	do - mostly med sand - max 8 mm.					
	190-200	do	do	do	do	do	do	do	do	do	

0-14

Sheet 2 of 1

550

WELL SAMPLE ANALYSIS

U. S. Geol. Survey, Arizona Ground Water District

Unit name	Depth	Rock Name	% (est, calc) silt clay	% (est, calc) sand	% (est, calc) gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Effect on HC Cement or bond (amount)	Driller's name: Log:	Remarks
	200-10	Sandy SILT	60	40	—	vf-vc S, SA-SR, NO G COMPACT	qtz, feldspars, mica, volcanics, metamorphics, magnetite (SLT COLOR)	grayish orange 10YR7/4	GOOD	volcanics magnetic	
	210-20	do	do	do	do	do			do		
	220-30	Silty SAND	40	60	—	do - mostly f-med S NO GRAVEL - COMPACT			STRONG		
	230-40	MISSING									
	240-50	Silty SAND	40	60	—	do - mostly med-VC S			GOOD		
	250-60	MISSING									
	260-70	Sandy SILT	70	30	—	do - big increase SILT			STRONG		
	270-80					do - mostly med-coarse S VERY COMPACT					
	280-90		do	do		do - mostly vf-m. S					
	290-300		70	25	5	do - G-max 15 mm					
	300-10		80	20	trace	do - mostly vf-m. S COMPACT max G - 10 mm					
	310-20		80	15	5	do - light brown tough CLAY - VERY COMPACT			do		
	320-30	do	do	do	do	do					
	330-40	Silty SAND	30	70	trace	vf-vc S - mostly med. S NO CLAY - NOT COMPACT Max G - 15 mm			VERY LITTLE		
	340-50	Sandy SILT	55	45	—	do - NO GRAVEL			GOOD		
	350-60		60	40	trace	do - mostly vf-med S COMPACT			do		
	360-70		70	30	do	do - vf-vc			STRONG		
	370-80	do	80	20	—	do - increase in SILT	do	do	do	do	
	380-90	MISSING									

550

WELL SAMPLE ANALYSIS — **U. S. Geol. Survey, Arizona Ground Water District**

Unit name	Depth	Rock Name	% (est, calc) silt clay	% (est, calc) sand	% (est, calc) gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Effect in HCl Cement or bond (amount)	Driller's name: Log:	Remarks
	390-400	Sandy SILT	55	45	—	vf-vc S, SA-SR, No G - NOT COMPACT	Mostly qtz and metamorphics, some Feldspar, mica, volcanics magnetite specks (SILT COLOR)	grayish Orange 10YR 7/4	STRONG	Volcanics magnetic	
	400-10		70	30	trace	do - increase in SILT gravel max 20mm,					
	410-20					do - MORE COMPACT					
	420-30		do	do	do	do - more G					
	430-40		80	20	—	do - increase in SILT + CLAY - COMPACT					CAGLE IN SAMPLE
	440-50		do	do	do	do - max G - 40mm					
	450-60		55	40	5	do - but increase in SAND					do
	460-70		80	20	Trace	do - increase in SILT COMPACT		do	do		
	470-80		90	10	—	do - COMPACT - CLAY IN SAMPLE		light brown 5YR 6/4	GOOD		do
	480-90				—	do		do			do
	490-500		do	do	trace	do - max G 10mm		do	do		
	500-10		70	30	—	do - increase in S		10YR 7/4	STRONG		
	510-20		60	40	—	do - SOME CALICHE					do
	520-30	do	do	do		do - mostly vf-m. S					
	530-40	Silty SAND	45	55	trace	do - max G - 10mm. LESS COMPACT					do
	540-50	Sandy SILT	70	30	do	do - less S, increase in SILT - max G - 20mm.	do	do	do	do	
	550-60	MISSING									

550

Sheet 1 of 7

WELL SAMPLE ANALYSIS

U. S. Geol. Survey, Arizona Ground Water District

Unit name	Depth	Rock Name	% (est, calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Effect in HC Cement or bond (amount)	Driller's name: Log:	Remarks
	550-70	Sandy SILT	70	30	trace	vf-vc S, SA-SR, G max 10 mm COMPACT	qtz, feldspar, mica, metamorphics, volcanics + trace of magnetite (SILT COLOR)	grayish orange 10YR7/4		volcanics Magnetic	CABLE IN SAMPLE
	570-80		do	do	do	do- Brown Clay not have abundant. MORE COMPACT		light brown 5YR6/4			do
	580-90		60	40	do	do- more sand					do
	590-600		70	30	—	do- MORE COMPACT, more CLAY-NO GRAVEL					do
	600-10	do	do	do	—	do + SOME CALICHE					do
★	610-20	SANDY CLAY	90	10	—	TOUGH LIGHT BROWN CLAY contains vf-m SAND - NO GRAVEL HIGH % of CaCO3			VERY STRONG		do
	620-30	Sandy SILT	80	15	5	vf-vc S, SA-SR, G max 15 mm. COMPACT- HIGH % of CLAY + CaCO3			do		do
	630-40	MISSING									
	640-50	Sandy SILT	90	20	—	do - but VERY LITTLE CLAY - LESS COMPACT					do
	650-60	Sandy CLAY	80	20	trace	Tough CLAY contains vf-vc S, SA-SR + a trace of G-max 8 mm					do
	660-70	do	do	do	do	do					do
	670-80	Sandy SILT	70	30	do	do - but only a TRACE OF CLAY - LESS COMPACT					do
	680-90		do	do	do	do - more in CLAY					do
	690-700	do	80	20	do	do + CALICHE	do	do	do	do	do

0-17

#550

Sheet 5 of 7

WELL SAMPLE ANALYSIS

U. S. Geol. Survey, Arizona Ground Water District

Unit name	Depth	Rock Name	% (est, calc) silt clay	% (est, calc) sand	% (est, calc) gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Effect in HCl Cement or bond (amount)	Driller's name: Log:	Remarks
	700-10	Sandy SILT	80	20	—	vf-vc S, SA-SR, NO G high % of CLAY - SOME CALICHE - VERY COMPACT	qtz, mica, feldspar volcanics, metamorphics Trace of Magnetite (SILT COLOR)	Light Brown 5YR 6/4	STRONG	volcanics Magnetic	CABLE IN SAMPLE
	710-20		do	do	—						do
	720-30		70	30	trace	do - increase in SAND + Gravel max 10mm. LESS COMPACT					do
	730-40					do + CALICHE					
	740-50	do	do	do	do	do			do		
0-18	750-60	SAND + G	10	45	45	vf-vc S., SA-SR, G max: 12 mm., NOT COMPACT			GOOD		CABLE IN SAMPLE
	760-70										
	770-80		40	40	20	do - but big increase in SILT					
	780-90		do	do	do	do					
	790-800	do	Trace	60	40	do - but very little SILT excellent sorting					
	800-10	S + G	do	40	60	do - mostly granular gravel 2-4 mm.					
	810-20		5	35	60	do					
	820-30		10	40	50	do					
	830-40		do	do	do	do			do		
	840-50	do	15	45	40	do - increase in SILT + S SOME CLAY - COMPACT			STRONG		do
	850-55	CALICHE	30	60	10	vf-vc S, and G tightly COMPACTED AND HIGHLY CEMENTED			VERY STRONG		
	855-60	Silty SAND + GRAVEL	10	20	70	vf-vc S, SA-SR, G 2-4 mm. mostly granular NOT COMPACT max G. 20 mm.	do	do	STRONG	do	

WELL SAMPLE ANALYSIS

U. S. Geol. Survey, Arizona Ground Water District

Unit name	Depth	Rock Name	% (est, calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Cement or bond (amount)	Driller's name: Log:	Remarks
	860-70	Silty SAND	20	70	10	VF-VC S, SA-SR, G max 15 mm. - NOT COMPACT	qtz, feldspars, mica, volcanics, metamorphics, magnetite (SILT COLOR)	Light Brown 5YR6/4	GOOD	volcanics Magnetic	
	870-80	do	30	60	trace	do					
	880-90	S + G	trace	40	60	do - but more in granules gravel 2-4 mm. NOT COMPACT					
	890-900										
	100-10	do	do	do	do						
	910-20	MISSING									
	920-30	Silty SAND	10	50	40	do - more in S + Silt					CABLE IN SAMPLE
	930-40		do	do	do	do					do
	940-50		20	60	20	do - more Silt + G NOT COMPACT					do
	950-60		10	80	10	do - more in SAND					do
	960-70		20	60	20	do - more in SILT					do
	970-80		do	do	do						do
	980-90		10	70	20						
	990-1000										
	1000-10										CABLE IN SAMPLE
	1010-20		do	do	do						
	1020-30		20	60	20						
	1030-40		10	60	30	do					High % of CABLE IN SAMPLE
	1040-50	do	trace	40	60	do - but big increase in gravel - mostly 2-4 mm	do	do	do	do	CABLE IN SAMPLE

WELL SAMPLE ANALYSIS

U. S. Geol. Survey, Arizona Ground Water District

Unit name	Depth	Rock Name	% (est, calc) silt clay	% (est, calc) sand	% (est, calc) gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Effect in HCl Cement or bond (amount)	Driller's name: Log:	Remarks
	1050-60	Silty SAND	40	60	trace	SA-SR Sand, G max 3 mm. Excellent sorting NOT VERY COMPACT	qtz, feldspar, mica, volcanics, metamorphics, + magnetite (SILT COLOR)	Light Brown 5YR6/4	good	volcanics magnetic	
	1060-70	do	30	30	40	do - big increase in G mostly pebbly 4-64 mm.					
	1070-80	Sandy SILT	70	30	trace	do - but mostly SILT and VERY LITTLE G COMPACT					
	1080-90	do	do	do	do	do					CABLE IN SAMPLE
	1090-1100	Silty SAND	10	40	50	vf-vc S, SA-SR, G max 15 mm. Good Sorting					
	1100-10		30	40	30	do - increase in SILT					
	1110-20		45	50	5	do - mostly Silt + S					
	1120-30	do	20	80	20	do - increase in SAND					
	1130-50	MISSING									
	1150-60	S + G	trace	60	40	vf-vc S, SA-SR, max G - 10 mm. excellent sorting					do
	1160-70	Silty SAND	30	50	20	do - but increase in SILT - max G 25 mm					
	1170-80	Sandy GRAVEL	trace	10	90	almost all G - from 2-60 mm mostly 25-30 mm	do	do	do	do	do

(A-2-4)25dca

CITY OF PHOENIX WELL NO. 24

Drilled by Roscoe Moss Drilling Company

Located at SE¼, NE¼, SE¼, Sec. 25, T 2 N
R 4 E

Sample descriptions made April 10, 1958
By
Turner and Associates
Consulting Geologists

Depth Sample Taken (ft.)	Acid 1/ Reaction HCl	Max. Size Inches	% Sand and Gravel	Est. Water Poss. 2/	Description
410-500					Sandstone & caliche
510	S	1/8	30	P	Limy clay, sand & gravel. Materail is composed of quartz and metamorphics and is angular to subrounded.
520	S	1/16	25	P	Clay and caliche, some sand and little gravel. Material composed of quartz & metamorphics and subangular to rounded.
530	S	1/16	30	P	Same - no gravel - calcite crystals.
540	M-S	1/16	65	F-G	Sand, some gravel and streaks of clay, composed of granitics and few metamorphics and is subangular to rounded.
550	S	1/16	20	P	Clay & caliche - some sand (quartz)
560	S	1/16	30	P	Clay & caliche, few streaks of sand and gravel, composed of granitics & metamorphics. Material is subangular to rounded.
570	S	1/16	35	P	Same - no gravel.

1/ Reaction with 10% solution cold hydrochloric acid which gives rough idea of amount of lime cement present in sample: S, strong; M, moderate; W, weak; N, none.

2/ Water-production possibilities estimated from appearance of sample: G, good; F, fair; P, poor.

CITY OF PHOENIX WELL NO. 24

Depth Sample Taken (Ft.)	Acid 1/ Reaction HCl	Max. Size Inches	% Sand and Gravel	Est. Water Poss. 2/	Description
580	S	1/16	10	N	Limey clay, little caliche and very little sand (quartz).
590	S	1/8	60	P-F	Sand & Gravel with streaks of lime cemented clay. The material is composed of granitics & metamorphi and is subangular to subrounded.
600	S	1/16	20	P	Sandy clay and caliche.
610	S	1/16	10	P	Clay & caliche.
620	S	1/16	30	P	Clay & caliche, few stringers of sand and gravel.
630	S	1/16	20	P	Limey clay and a little fine sand.
640	S	1/16	5	P	Same - less sand.
650	S	-	0	P	Clay and caliche.
660	S	-	0	P	Same
670	S	-	0	P	Same
680	S	-	0	P	Same
690	S	-	0	P	Same
700	S	-	0	P	Same
710	S	-	0	P	Same
720	S	-	0	P	Same
730	S	-	0	P	Same
740	S	-	0	P	Limey clay.
750	S	1/16	10	P	Clay and caliche, some gravel and sand in the clay.

CITY OF PHOENIX WELL NO. 24

Depth Sample Taken (ft.)	Acid 1/ Reaction HCl	Max. Size Inches	% Sand and Gravel	Est. Water Poss. 2/	Description
760	S	3/16	80	G	Gravel and sand, few boulders, with streaks of caliche and clay. The material is composed of granitics and is subangular to subrounded.
770	S	1/4	60	F-G	Alternating layers of sand and gravel, lime cemented clay and caliche. The sand and gravel is composed of granitics and is subangular to subrounded.
780	M-S	3/16	90	G	Sand and gravel of granitic origi and thin streaks of lime cemento clay. The material is subrounded to rounded.
790	W-M	5/16	90	G	Gravel and boulders, some sand an a few thin streaks of lime cemen clay. The material is of graniti origin and is subangular to subrounded.
800	W-M	1/4	75	G	Same - more sand and clay. Some material of metamorphic origin.
810	W-M	1/4	70	G	Same - some caliche.
820	M-S	1/4	70	G	Same
830	M	5/16	80	G	Same
840	M-S	3/8	75	G	Same - more caliche.
850	M	1/4	70	G	Same - more lime cemented clay no caliche.
860	M	3/16	85	G	Same - less clay.
870	M	3/16	85	G	Coarse sand, gravel & few bould few streaks of clay. Material mostly granitic and a few metam phic fragments and is subangular subrounded.

CITY OF PHOENIX WELL NO. 24

Depth Sample Taken (ft.)	Acid 1/ Reaction HCl	Max. Size Inches	% Sand and Gravel	Est. Water Poss. 2/	Description
880	W-M	5/16	80	G	Same - more boulders.
890	W-M	3/16	90	G	Same - few boulders
900	S	3/8	85	P-F	Same, but slightly cemented.
910	S	3/8	90	P-F	Same
920	S	1/2	90	P-F	Same - some caliche.
930	M-S	1/2	90	P-F	Same - no caliche.
940	M	7/8	75	F-G	Same - more clay.
950	M	3/16	90	G	Coarse sand and gravel, some clay, composed of granitics and a few metamorphics and is subangular to subrounded.
960	S	1/4	90	P-F	Same - slightly cemented, some caliche.
970	S	3/16	65	P-F	Same - with streaks of lime cemented clay, few boulders.
980	S	1/4	65	P-F	Same - no boulders.
990	M	3/4	85	G	Coarse sand and gravel, few boulders, some clay. Material is composed of granitics and a few metamorphics and is subangular to subrounded.
1000	M	3/16	85	G	Same
1010	M-S	1/4	90	F-G	Same
1020	M-S	1/4	85	F-G	Same
1030	S	5/8	90	P-F	Same - slightly cemented.
1040	M-S	3/16	90	P-F	Same - slightly cemented.

(A-2-4)25ddb1

CITY OF PHOENIX WELL NO. 24

Depth Sample Taken (ft.)	Acid 1/ Reaction HCl	Max. Size Inches	% Sand and Gravel	Est. Water Poss. 2/	Description
1050	W-M	3/16	90	G	Same - not cemented.
1060	W-M	3/16	90	G	Same
1070	W-M	1/4	90	G	Same
1080	W-M	3/16	75	G	Same - few streaks of clay.
1090	M	3/16	60	F-G	Same - few streaks of lime. Cemented clay.
1100	M	5/8	90	G	Gravel & boulders, some sand and very lillte clay. The material is primarily composed of granitics andis subangular to subrounded.
1110	M	5/8	85	G	Same
1120	W-M	1/4	85	G	Same - few boulders.
1130	W-M	3/16	90	G	Same
1140	M	5/16	90	G	Same
1150	S	-	-	P	Lime cemented clay.
1160	W-M	7/8	85	G	Conglomerate with some clay.
1170	W-M	5/8	95	G	Same - very little clay.
1180	W	1"	95	G	Same
1190	W	1/4	95	G	Gravel & sand, few boulders, very little clay, composed of granitics and metamorphics, and is sub-angular to subrounded.
1200	W-M	5/16	95	G	Same

1/ Reaction with 10% solution cold hydrochloric acid which gives rough idea of amount of lime cement present in sample: S, strong; M, moderate; W, weak; N, none.

2/ Water-production possibilities estimated from appearance of sample: G, good; F, fair; P, poor.

REGISTERED GEOLOGIST
CERTIFICATE EXPIRES
ROBERT L. WELLS
ARIZONA, U.S.A.

T.S. 2.27

U.S. Geological Survey Water Resources Division

Location (A-2-1) 26 DDD

Page 1 of 5

WELL-CUTTINGS ANALYSIS FORM

LAB No. 3587

Owner: CITY OF PHOENIX

Depth: 1200

Method drilled: CABLE

Driller: MOSS - WEBER

Depth	Pan	Sample Size*	Munsell color Dry	Munsell color Wet	% Fines <.0625 mm	% Sand >.0625 mm	% Gravel >2.0 mm	% Gravel >4.0 mm	% Mud-stone ‡	Acid **	Max. size mm	Remarks
10	1	1	7.5YR 7/2 P. GRAY	7.5YR 5/4 BROWN	26	51	7	16		0	12	
20	2	1	"	"	26	43	12	19		0	11	Interval 10 To 130
30	3	1	"	"	20	51	13	16		0	11	Granitics
40	4	1	"	"	17	55	10	18		0	19	Gneiss
50	5	1	"	"	11	43	9	17		0	12	Schist
60	6	1	"	"	22	46	12	20		0	12	Volcanics 65%
70	7	1	"	"	31	48	7	14		0	12	~~Quartzite & Sandstone~~ 35%
80	8	1	"	"	23	54	11	12		0	10	Limestone
90	9	1	"	"	28	55	7	8		0	12	Other
100	10	1	"	"	23	57	9	11		0	8	Angularity SUB-ANG. TO SUB-ROUND
110	11	1	"	"	29	55	9	8		0	9	SAND COLOR: LT. GRAY
120	12	1	"	"	20	68	6	6		0	9	SAND: VFINE TO COARSE
130	13	1	"	"	11	67	11	11		0	10	
140	14	1	10YR 7/3 VL BROWN	10YR 5/3 BROWN	39	30	8	23		W	16	
150	15	1	"	"	63	28	3	6		W	12	
160	16	1	"	"	63	19	5	13		W	18	Interval 140 To 760
170	17	1	"	"	70	21	1	8		W	18	Granitics 15%
180	18	1	"	"	69	27	0	4		W	8	Gneiss
190	19	1	"	"	33	51	6	10		W	14	Schist
200	20	1	"	"	40	43	7	10		W	9	Volcanics 60%
210	21	1	"	"	48	42	4	6		W	15	~~Quartzite & Sandstone~~ 25%
220	22	1	"	"	59	21	7	13		W	14	Limestone
230	23	1	"	"	75	19	1	4		W	10	~~Other~~
240	24	1	"	"	64	24	4	8		W	11	Angularity SUB-ANG TO ROUND.
250	25	1	"	"	53	38	3	6		W	10	SAND COLOR: LT BROWN
260	26	1	"	"	64	27	3	6		W	10	SAND: VFINE TO COARSE

ANAL. BY J. LUDOVICI DATE 10-29-74

* 200 grams - no entry
100 grams - 1
<100 grams - 0

‡ Silt and clay particles not broken down by washing

** Reaction to HCl
S - strong
M - moderate
W - weak

T.S. 2.27

U.S. Geological Survey Water Resources Division

Page 2 of 5

Location

WELL-CUTTINGS ANALYSIS FORM

Owner:

LAB No. 3587

Depth:

Driller:

Method drilled:

Depth	Pan	Sample Size*	Munsell color Dry	Munsell color Wet	% Fines <.0625 mm	% Sand >.0625 mm	% Gravel >2.0 mm	% Gravel >4.0 mm	% Mud-stone ‡	Acid **	Max. size mm	Remarks
[illegible]	27	1	"	"	59	31	3	7		W	10	
[illegible]	28	1	"	"	57	26	2	15		W	18	
[illegible]	29	1	"	"	45	33	6	16		W	15	
[illegible]	30	1	"	"	54	31	4	11		W	18	
[illegible]	31	1	"	"	46	33	2	19		W	22	
[illegible]	32	1	"	"	65	29	1	5		W	1	
[illegible]	33	1	"	"	48	40	3	9		W	15	
[illegible]	34	1	"	"	31	59	4	6		W	12	
[illegible]	35	1	"	"	36	53	4	7		W	12	
[illegible]	36	1	"	"	51	31	4	14		W	22	
[illegible]	37	1	"	"	48	24	3	25		W	25	
[illegible]	38	1	"	"	39	43	4	14		W	20	
[illegible]	39	1	"	"	51	43	2	4		W	8	
[illegible]	40	1	"	"	40	40	5	15		W	12	
[illegible]	41	1	"	"	45	47	3	5		W	8	
[illegible]	42	1	"	"	56	24	7	12		W	12	
[illegible]	43	1	"	"	71	26	0	3		W	5	
[illegible]	44	1	"	"	62	20	3	15		W	18	
[illegible]	45	1	"	"	71	22	3	4		W	10	
[illegible]	46	1	"	"	38	43	1	18		W	11	
[illegible]	47	1	"	"	75	15	4	6		W	6	
[illegible]	48	1	"	"	74	21	1	4		W	8	
[illegible]	49	1	"	"	65	30	1	4		W	10	
[illegible]	50	1	"	"	36	58	4	4		W	8	
[illegible]	51	1	"	"	43	50	2	5		W	12	
[illegible]	52	1	"	"	77	18	2	3		W	6	

ANAL. BY _____ DATE _____

* 200 grams - no entry
100 grams - 1
<100 grams - 0

‡ Silt and clay particles not broken down by washing

** Reaction to HCl
S - strong
M - moderate
W - weak

T.S. 2.27

Page 3 of 5

U.S. Geological Survey Water Resources Division

WELL-CUTTINGS ANALYSIS FORM

Location

Owner:

LAB No. 3587

Driller:

Depth:
Method drilled:

Depth	Pan	Sample Size*	Munsell color Dry	Munsell color Wet	% Fines <.0625 mm	% Sand >.0625 mm	% Gravel >2.0 mm	% Gravel >4.0 mm	% Mud-stone ‡	Acid **	Max. size mm	Remarks
530	53	1	"	"	70	26	1	3		W	6	
540	54	1	"	"	69	27	1	3		W	6	
550	55	1	"	"	66	28	1	5		W	6	
560	56	1	"	"	73	22	1	4		W	8	
570	57	1	"	"	49	45	2	4		W	7	
580	58	1	"	"	43	52	2	3		W	6	
590	59	1	"	"	63	33	2	2		W	7	
600	60	1	"	"	63	28	4	5		W	4	
610	61	1	"	"	77	18	2	3		"	6	
620	62	1	"	"	73	23	1	3		"	7	
630	63	1	"	"	78	18	1	3		"	6	
640	64	1	"	"	84	11	1	4		"	6	
650	65	1	"	"	75	19	1	5		"	6	
660	66	1	"	"	82	14	1	3		"	6	
670	67	1	"	"	73	23	1	3		"	7	
680	68	1	"	"	76	18	1	5		"	5	
690	69	1	"	"	75	20	2	3		"	6	
700	70	1	"	"	68	28	1	3		"	5	
710	71	1	"	"	73	24	0	3		"	5	
720	72	1	"	"	67	24	6	3		"	6	
730	73	1	"	"	78	17	1	4		"	6	
740	74	1	"	"	76	21	0	3		"	5	
750	75	1	"	"	71	26	0	3		"	6	
760	76	1	"	"	76	21	0	3		"	5	
770	77	1	7.5YR 7/2 Brown	7.5YR 5/4 Brown	53	40	4	3		"	6	
780	78	1	"	"	43	48	5	4		"	5	

ANAL. BY _____ DATE _____

* 200 grams - no entry
100 grams - 1
<100 grams - 0

‡ Silt and clay particles not broken down by washing

** Reaction to HCl
S - strong
M - moderate
W - weak

T.S. 2.27

Page 4 of 5

U.S. Geological Survey Water Resources Division

WELL-CUTTINGS ANALYSIS FORM

Location

Owner:

LAB No. 3587

Driller:

Depth:

Method drilled:

Depth	Pan	Sample Size*	Munsell color Dry	Munsell color Wet	% Fines <.0625 mm	% Sand >.0625 mm	% Gravel >2.0 mm	% Gravel >4.0 mm	% Mud-stone ‡	Acid **	Max. size mm	Remarks
770	79	1	"	"	40	50	7	3		W	6	
800	80	1	"	"	46	44	6	4		W	7	
810	81	1	"	"	7	83	7	3		W	6	
820	82	1	"	"	22	58	14	6		W	8	
830	83	1	"	"	19	72	6	3		W	6	Interval 770 To 1200
840	84	1	"	"	34	61	2	3		W	6	Granitics 20%
850	85	1	"	"	24	67	6	3		W	12	Gneiss
860	86	1	"	"	36	64	3	3		W	5	Schist
870	87	1	"	"	35	61	1	3		W	5	Volcanics 50%
880	88	1	"	"	36	65	1	4		W	15	Quartzite & Sandstone 30%
890	89	1	"	"	51	44	2	3		W	6	~~Limestone~~
900	90	1	"	"	26	67	3	4		W	7	Other
910	91	1	"	"	27	65	3	5		W	6	Angularity SUB-ANG TO ROUND.
920	92	1	"	"	28	66	4	2		W	7	SAND COLOR: PINK BROWN
930	93	1	"	"	24	70	3	3		W	6	SAND: V. FINE TO MEDIUM
940	94	1	"	"	16	74	7	3		W	7	
950	95	1	"	"	26	68	3	3		W	10	
960	96	1	"	"	25	70	3	2		W	6	
970	97	1	"	"	28	64	5	3		W	7	
980	98	1	"	"	29	65	3	3		W	6	
990	99	1	"	"	28	64	4	4		W	7	
1000	100	1	"	"	26	67	4	3		W	6	
1010	1	1	"	"	28	65	1	6		W	8	
1020	2	1	"	"	28	65	1	6		W	6	
1030	3	1	"	"	29	66	1	4		W	6	
1040	4	1	"	"	23	72	0	3		W	6	

ANAL. BY _____ DATE _____

* 200 grams - no entry
100 grams - 1
<100 grams - 0

‡ Silt and clay particles not broken down by washing

** Reaction to HCl
S - strong
M - moderate
W - weak

T.S. 2.27

U.S. Geological Survey Water Resources Division

Page 5 of 5

Location

WELL-CUTTINGS ANALYSIS FORM

Owner:

LAB No. 3587

Depth:

Driller:

Method drilled:

Depth	Pan	Sample Size*	Munsell color Dry	Munsell color Wet	% Fines <.0625 mm	% Sand >.0625 mm	% Gravel >2.0 mm	% Gravel >4.0 mm	% Mud-stone ‡	Acid **	Max. size mm	Remarks
[illegible]	5	1	"	"	35	61	1	3		W	4	
[illegible]	6	1	"	"	27	67	3	3		W	6	
[illegible]	7	1	"	"	24	66	6	4		W	6	
[illegible]	8	1	"	"	19	75	3	3		W	6	
[illegible]	9	1	"	"	25	62	0	3		W	5	
[illegible]	10	1	"	"	24	71	1	4		W	4	
[illegible]	11	1	"	"	21	64	1	4		W	4	
[illegible]	12	1	"	"	31	64	2	3		W	5	
[illegible]	13	1	"	"	21	75	1	3		W	5	
[illegible]	14	1	"	"	26	68	4	2		W	5	
[illegible]	15	1	"	"	22	70	5	3		W	6	
[illegible]	16	1	"	"	39	56	1	4		W	5	
[illegible]	17	1	"	"	31	65	1	3		W	4	
[illegible]	18	1	"	"	19	74	4	3		W	5	
[illegible]	19	1	"	"	39	55	3	3		W	5	
[illegible]	20	1	"	"	34	60	1	5		W	11	

ANAL. BY _____ DATE _____

* 200 grams - no entry
100 grams - 1
<100 grams - 0

‡ Silt and clay particles not broken down by washing

** Reaction to HCl
S - strong
M - moderate
W - weak

(A-2-4)35aab2

WELL SAMPLE ANALYSIS

U. S. Geological Surv. Arizona Ground Water Dist.

Lab. No. 518 Owner & No. City of Phoenix #35 ABCD Loc. (A-2-4)35aab Sheet 1 of 3

Loc. NW¼ NE¼ NE¼ sec 35 T 2N R 4E County Maricopa Rig _____ Contractor R. Moss Analyst N. Blanchard

Analysis begun _____ completed 12/7/58 Remarks _____

Unit name	Depth	Rock Name	% (est. calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&F	Composition % of each (est, calc)	Color (dry)	Cement or bond (amount)	Driller's name: Log:	Remarks
	40-50	Silty Gravel	>20		<80	Poor sorting. 1-2 to 18mm. SA	volcanics schist	5YR6/1 5B5/1	little eff in HCl	volcanics magnetic	
	50-60	do	>20		<80	do	do - plus quartz	do	do	do	
	60-70	do	>20		<80	do	do	do	do	do	
	80-90	do	>40		<60	do - except 1-13mm	do	do	no eff.	do	No effect in acid
	90-100	do	>40		<60	do	do-more fine mat.	do	do	do	
	100-110	do	>40		<60	do - lgst. 17mm	do-more coarse mat.	do	do	do	
	110-120	Silty sand	>40		<60	Good sorting, mostly 1-2mm.	Volcanics, quartz schist	do	do	do	Change in size
	120-130	do	>40		<60	do	do	5R7/4	do	do	
	130-140	do	>50		<50	do - except ½-1mm	do		do	do	
	140-150	do	>50		<50	do - lgst. 10mm	do		do	do	
	150-160	silty sandy gravel	>30	<30	>40	Poorly sorted, ½-1 mm. some 6-10mm	Volc., schist, tuff, and quartz		eff. in HCl	do	
	160-170	sandy silt	<70	>30		do-less sand & grav.	do		do	do	Change in size
	170-180	do	<70	>30		do	do		do	do	
	180-200	do	<70	>30		do	do		do	do	
	190-200	do	<70	>30		do - less sand	do		do	do	
	200-210	Silt	>100			2 large volc. pebbles 1-22mm, some 50mm	silt color	10YR7/4 gr. orange	do	do	
	210-220	sandy silt	<80	>20		poorly sorted	do		do	do	
	220-230	Silt	<100			do	do - but less		do	do	
	230-240	do	<100			do	do		do	do	
	240-250	do	<100			do	do		do	do	

SAMPLE ANALYSIS

No. 518 Owner & No. City of Phoenix

U. S. Geol. Survey, Arizona Ground Water District

ABCD Loc. (A-2-4)35aab Sheet 2 of 3

Unit name	Depth	Rock Name	% (est, calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Cement or bond (amount)	Driller's name: Log:	Remarks
	250-260	Sandy silt	<90			Poorly sorted, ½-8 mm	Qtz, mica, schist, volcanics		Eff. in HCl	Volcanics magnetic	
	260-270	do	<90			do	do		do	do	
	270-280	do	<90			do	do		do	do	
	280-290	do	<90			do	do		do	do	
	290-300	do	<90			do	do- but less sand		do	do	driller's cable s
	300-320	do	<90			do	do		do	do	
	320-340	do	<90			do	do		do	do	
	340-350	do	<90			do	do		do	do	
	350-360	do	<90			good sort. VF-F sand 1/8-¼mm	do			do	
	360-370	do	<95			do	do			do	
	370-380	do	<95			do	do			do	
	380-390	do-incr. in clay					Incr. in calcareous material		very good eff. HCl	do	cable section in the sample.
	390-410	do				do	do		do	do	
	410-430	do				do	do		do	do	
	430-440	Sandy silt	<90	>10		good sort. VF sand, 1/16mm, one pebble 14mm.	mica, magnetite, quartz, volcanics, (silt color)	10YR8/2	eff. in HCl	do	color change, ca bits in sample
	440-450	do	<90	>10		do-but more compact	do	10YR7/4	do	do	do
	450-460	do	<90	>10		do	do	do	do	do	do
	460-470	do	<90	>10		do-but 2 pebbles 13mm	do	do	do	do	do
	470-480	do	<90	>10		do	do	do	do	do	do
	480-500	do	<90	>10		do	do	do	do	do	do
	500-520	do	<90	>10		do	do	do	do	do	do
	520-540	do	<90	>10		do	do	do	do	do	do
	540-550	do	<90	>10		sl. incr. in fine sand	do	do	do	do	do
	550-570	do	<90	>10		do	do - but no mag.	do	do		do
	570-590	do	<90	>10		do	do	do	do		do

AMPLE ANALYSIS

No. 518 Owner & No. City of Phoenix

U. S. Geol. Survey, Arizona Ground Water District

ABCD Loc. (A-2-4)35aab Sheet 3 of 3

Unit name	Depth	Rock Name	% (est, calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Cement or bond (amount)	Driller's name: Log:	Remarks
	590-600	Gravelly silt	>80		<20	Change in size, good sorting, ½-7mm	qtz, feldspar, schist, volc, mag. Silt color	mod. yel. brown 10YR5/4	eff. in HCl		
	600-610	clay, sandy silt	<95	>5		poor sorting, 1/8-10mm	do- but less silt & clay color	lt. bro. 5YR6/4	do		More compact (drillers bits)
	610-620	do	<95	>5		less clay	do	10YR5/4	do		do
	620-630	Sandy silt	<95	>5		do	do	do	do		less compact
	630-640	do	<95	>5		do	do	do	do		
	640-650	do	<95	>5		do- plus tuffaceous material	tuff. material color	pink-gr. 5YR8/1	do		
	650-660	Silty sand	<30	>70		poor sort. size from 1/16 to 13mm	Qtz (95%) schist volcanics	10YR7/4	do		Lg. pebbles, probably chipped frag of larger boulder
	660-670	do	<30	>70		do - but to 23mm	do	do	do		
	670-680	do	<30	>70		do-but pebbles 30mm	do	do	do		
	680-690	do	<30	>70		do-but pebbles 10mm	do	do	do		
	690-700	do	<30	>70		do-but pebbles 30mm	do	do	do		

WELL SAMPLE ANALYSIS

U. S. Geological Surv. Arizona Ground Water Dist.

Lab. No. 525 Owner & No. City of Phoenix ABCD Loc. (A-2-4)35aab Sheet 1 of 3

Loc. NW¼ NE¼ NE¼ sec 35 T 2N R 4E County Maricopa Rig Contractor R. Moss Analyst N. Blanchard

Analysis begun completed 12/29/58 Remarks

Unit name	Depth	Rock Name	% (est. calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&F	Composition % of each (est, calc)	Color (dry)	Cement or bond (amount)	Driller's name: Log:	Remarks
	700-710	S, S&G	60	30	10	F-VC, SA, sand, gravel 16mm, compact.	Qtz, felds, mica, volc, meta. Silt color	gray-or 10YR7/4	Eff. HCl	Volcanics magnetic	Drillers cable in sample.
	710-720	do	80	20		VF-VC, sand, not much grav. 7mm, comp.	do	do	do	do	
	720-730	do	20	60	20	do-max. 10mm, not compact	do	do	do	do	do
	730-740	do	20	60	20	do - max. 35mm	do	do	do	do	do
	740-750	Sandy silt	80	20		VF-VC, SA, sand, not comp., 7mm	do	do	do	do	
	750-760	Silty grav.	5		95	SA-SR pebbly grav. max. 23mm	Almost 100% metamorphic (biotite, qtz, and feldspar)	do	do	do	do
	760-770	Sandy silt	60	40		SA-SR, VF-C sand and pebbly gravel. max. 14mm.	Volcanics, metamorphics, quartz	do	do	do	
	770-780	Gravelly sand	5	90	5	VF-VC sand & gravel max. 22mm, compact, SA-SR	Mostly metamorphics (qtz, biotite) volcanics	do	do	do	Extremely hard. Loaded with cab chips.
	780-790	Sandy grav.	5	10	85	do - max. 19mm	do	do	do	do	Some cable chip
	790-800	Gravelly sand	5	85	10	do - max. 12mm	do	do	do	do	do

WELL SAMPLE ANALYSIS

Lab. No. 525 Owner & No. City of Phoenix

U. S. Geol. Survey, Arizona Ground Water District

ABCD Loc. (A-2-4)35aab Sheet 2 of 3

Unit name	Depth	Rock Name	% (est, calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Cement or bond (amount)	Driller's name: Log:	Remarks
	800-810	S, S&G	10	20	70	VF-VC sand &grav. Max. 32mm, compact. SA-SR	Mostly metamorphic (qtz, biotite), volc.	10YR7/4	Eff. in HCL	Volcanics magnetic	
	810-820	do	30	30	40	do - max. 55mm	do+qtzite with perfect staurolite crystals (tabular-orthonhombic) w/distinct(010)faces yellowish-brown	do	do	do	Quartzite pebble smashed into ang. fragments for the sample.
	820-830	do	20	40	40	do - max. 30mm	Qtz, biotite schist feldspar, volcanics	do	do	do	
	830-840	Sand&Grav.		20	80	do - max. 23mm	do	do	do	do	
	840-850	S, S&G	10	60	30	do - max. 23mm	do - +qtz, silt color	do	do	do	
	850-860	do	30	40	30	do - max. 12mm	do	do	do	do+mag. nodules	Drillers bits in sample.
	860-870	do	30	50	20	VF-VC sand & grav. 18mm, SA-SR	Qtz, felds, qtz-biotite, schist, volc, & volc. breccia	do	do	do	
	870-880	do	30	50	20						
	880-890	do	30	20	50	do - max. 30mm	do-incr. in volc. brec	do	do	do	volc. breccia matrix.
	890-900	do	40	40	20	do - max. 44mm	do	do	do	do	
	900-910	do	50	30	20	Incr. in silt, VF-VC sand & gravel. max. 30mm, SA-SR	do	do	do	do	do
	910-920	do	50	30	20	do	do	do	do	do	
	920-930	do	20	40	40	VF-VC sand &grav. 32mm, SA-SR	do	do	do	do	
	930-940	Sand & Gravel	5	30	65	Gran. &pebble gravel max. 42mm, SA-SR	do-some tuff exhibits contact metamophics	do	do	do	
	940-950	S, S&G	40	30	30	VF-VC sand &grav. max. 37mm, SA-SR Compact.	do	do	do	do	

WELL SAMPLE ANALYSIS

Lab. No. 525 Owner & No. City of Phoenix

U. S. Geol. Survey, Arizona Ground Water District

ABCD Loc. (A-2-4)35aab Sheet 3 of 3

Unit name	Depth	Rock Name	% (est, calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&P	Composition % of each (est, calc)	Color (dry)	Cement or bond (amount)	Driller's name: Log:	Remarks
	950-960	S, S&G	10	50	40	VF-VC sand &grav. max. 37mm, SA-SR Compact.	Qtz-felds, qtz-biotite, schist volc, and incr. in volcanic breccia-vesicular	10YR7/4	Eff. in HCl	Volcanics magnetic	
	960-970	Sandy silt	70	30		VF-VC sand, SA-SR, max. 6mm, finer grained material. Compact.	do - decrease in volc. material, incr. in metamorphic	do	do	do	Drillers bits in sample.

(A-2-4)35abb1

WELL SAMPLE ANALYSIS

U. S. Geological Surv. Arizona Ground water Dist.

Lab. No. 523 Owner & No. City of Phoenix ABCD Loc. (A-2-4)35abb Sheet 1 of 2

Loc. NW¼NW¼NE¼ sec 35 T2N R4E County Maricopa Rig Contractor R. Moss Analyst N. Blanchard

Analysis begun completed 12/22/58 Remarks Deepening - 500-1000'

Unit name	Depth	Rock Name	% (est. calc) silt clay	sand	gravel	Texture size, round, shape packing, fabric, P&F	Composition % of each (est, calc)	Color (dry)	Cement or bond (amount)	Driller's name: Log:	Remarks
	500-510	Sandy silt	95	5		SA-VF-C Sand, poor sorting, compact.	volcanics, quartz (silt color)	gr-or. 10YR7/4	Eff. in HCl	Volcanics magnetic	
	510-520	do	60	40		do	do - plus mica	do	do	do	
	520-530	do	80	20		VF sand, SA, compact, 10mm max.		do	do	do	
	530-540	do	80	20		do		do	do	do	
	540-550	do	80	20		do - max. 22mm		do	do	do	
	550-560	do	95	5		do - max. 2mm		do	do	do	
	560-570	do	95	5		do		do	do	do	
	570-580	do	95	5		do, 3mm		5YR6/4	do	do	change in color
	580-590	do	95	5		do		do	do	do	
	590-600	do	95	5		do - max. 7mm		do	do	do	
	600-610	Gravel		10	90	VF sand to 22mm SA-SR	Quartz, quartzite, volcanics, fine silt coating on gravel	do	do	do	silt to gravel
	610-620	do		10	90	do	do	do	do	do	
	620-630	do				Mostly pebble grav.	do	do	do	do	
	630-640	do				VF sand to 25mm.	do	do	do	do	
	640-650	do				do - max. 38mm	do	do	do	do	
	650-660	Sand&Gravel		70	30	SA-SR, VF gravel 85mm, good sort.	Meta. quartz, qtz, and quartzite	do	do		
	660-670	Gravel			100	do - max. 45mm	do	do	do		
	670-680	do			100	do - max. 75mm	do	do	do		
	680-690	do			100	do - max. 20mm	do	do	do		