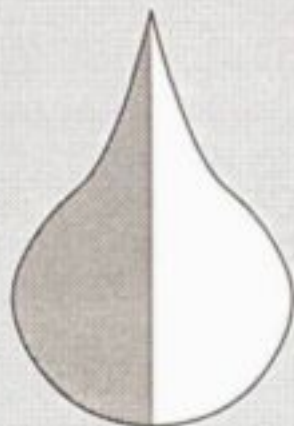


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EXPLOITATION POTENTIAL OF KAROO AQUIFERS APPENDIX

by

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DE AAR

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SOIL PROFILE DESCRIPTIONS AND ANALYTICAL DATA

Profile No. 1: Valsrivier form, Lindley series. Horizon sequence: Orthic A on pedocutanic B on alluvium.

The A1-horizon is 0 to 25 cm deep with a strong crumb structure, a hard consistency when dry and a gradual transition into the B21-horizon. The B-horizon is 25 to 40 cm deep with a strong, angular block structure, has a greyish brown colour and gradual transition into the B3-horizon. This horizon is 40 to 55 cm deep with a weakly developed block structure and is calcareous. Roots penetrate to an effective depth of 50 cm.

	A1	B21	B3	C
Sand (%)	46,6	42,3	47,6	74,6
Silt (%)	11,0	9,4	10,6	6,2
Clay (%)	42,6	48,0	41,4	18,4
Depth(cm)	- 35	- 40	- 55	-130 +

The clay percentage varies, because the soil is of alluvial origin.

Profile No. 2: Valsrivier form, Lindley series. Horizon sequence: Orthic A on pedocutanic B on alluvium.

The orthic A1-horizon is 0 to 55 cm deep with a moderate crumb structure and a distinct transition into the B2-horizon. The B-horizon is 35 to 50 cm deep with a strong, angular block structure and distinct transition into the C-horizon. This horizon is 50 to 150 cm deep, has a massive structure and is calcareous. Roots penetrate to a depth of 120 cm.

	A	B	C
Sand (%)	75,2	53,9	66,3
Silt (%)	10,2	9,8	8,4
Clay (%)	16,0	37,0	26,4
Depth (cm)	- 35	- 50	-150 +

Profile No. 3: Bonheim form, Bonheim series. Horizon sequence: Melanic A1 on pedocutanic B on alluvium or saprolite.

The melanic A1-horizon is 30 cm deep with a strong crumb structure, has a dark colour and a distinct transition into the B2-horizon. This horizon is 30 to 50 cm deep with a strong, angular block structure. It is calcareous and there are slickensides. The transition into the 50 to 70 cm deep II B2-horizon is gradual. It is also calcareous and displays a strong, angular block structure. It changes into a II B3-horizon which is 75 to 110 cm + deep, is calcareous and displays a strong, angular block structure. There is a transition to a II B3-horizon, which is 50 to 110 cm + deep with a strong, angular block structure and free lime.

	A1	B2	II B2	II B3
Sand (%)	35,9	32,6	51,5	27,4
Silt (%)	12,0	14,8	13,0	15,6
Clay (%)	51,6	53,8	35,8	54,6
Depth (cm)	- 30	- 50	- 75	-110 +

Profile No. 4: Sterkspruit form, Sterkspruit series. Horizon sequence: Orthic A1 on prismaeutanic B on saprolite.

The A1-horizon is 0 to 20 cm deep, contains 24 % clay, is unstructured, dark-coloured and a distinct transition into the B-horizon. This horizon is 30 cm deep with moderately developed calcareous prisms and rests on weathered shale. The saprolite is 20 cm thick.

DRY- AND WET BULK DENSITIES IN DEWETSDORP AREA.

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 2	/0.10 :	20.67 +/- 1.20	0.542	1.68 +/- 0.02	8750	1.48 +/- 0.03
DEW - 2	/0.20 :	9.95 +/- 0.37	0.436	1.69 +/- 0.02	10042	1.59 +/- 0.02
DEW - 2	/0.40 :	21.81 +/- 0.49	0.398	2.07 +/- 0.01	12024	1.85 +/- 0.01
DEW - 2	/0.70 :	17.16 +/- 0.17	0.341	2.05 +/- 0.01	10912	1.88 +/- 0.01

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 1	/0.10 :	17.30 +/- 0.20	0.361	1.70 +/- 0.01	8920	1.53 +/- 0.01
DEW - 1	/0.20 :	17.17 +/- 0.59	0.394	1.63 +/- 0.02	10180	1.46 +/- 0.02
DEW - 1	/0.40 :	22.89 +/- 0.25	0.393	2.08 +/- 0.03	11400	1.85 +/- 0.03
DEW - 1	/0.70 :	17.74 +/- 1.05	0.322	2.02 +/- 0.02	10640	1.84 +/- 0.02

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
DEW - 3	/0.10 :	9.46 +/- 0.23	0.311	1.66 +/- 0.01	1.645	1.57 +/- 0.00
DEW - 3	/0.20 :	16.45 +/- 0.57	0.405	1.92 +/- 0.03	2.364	1.75 +/- 0.03
DEW - 3	/0.30 :	20.54 +/- 0.87	0.392	2.14 +/- 0.07	2.375	1.94 +/- 0.07
DEW - 3	/0.40 :	17.31 +/- 0.92	0.370	2.10 +/- 0.03	2.241	1.93 +/- 0.03
DEW - 3	/0.70 :	13.00 +/- 0.02	0.328	1.93 +/- 0.03	2.371	1.80 +/- 0.03
DEW - 3	/0.90 :	9.48 +/- 0.29	0.350	1.95 +/- 0.04	2.383	1.85 +/- 0.04

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 4	/0.10 :	20.05 +/- 1.27	0.281	1.69 +/- 0.02	7475	1.49 +/- 0.01
DEW - 4	/0.20 :	10.98 +/- 0.64	0.281	1.67 +/- 0.03	75	1.56 +/- 0.02
DEW - 4	/0.40 :	14.35 +/- 0.80	0.358	1.82 +/- 0.03	8967	1.68 +/- 0.02
DEW - 4	/0.70 :	14.77 +/- 0.38	0.289	2.08 +/- 0.04	10275	1.93 +/- 0.04

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 5	/0.10 :	32.26 +/- 2.73	0.465	1.85 +/- 0.01	8367	1.53 +/- 0.02
DEW - 5	/0.20 :	34.65 +/- 3.02	0.441	2.06 +/- 0.07	9900	1.72 +/- 0.03
DEW - 5	/0.40 :	35.31 +/- 1.97	0.647	2.14 +/- 0.06	9267	1.79 +/- 0.04
DEW - 5	/0.70 :	34.57 +/- 1.47	0.683	2.12 +/- 0.03	9667	1.77 +/- 0.01

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 6	/0.10 :	24.73 +/- 0.08	0.438	1.73 +/- 0.00	8133	1.48 +/- 0.00
DEW - 6	/0.20 :	11.86 +/- 1.51	0.533	1.63 +/- 0.05	9933	1.51 +/- 0.04
DEW - 6	/0.40 :	33.53 +/- 2.87	0.540	2.05 +/- 0.01	10400	1.71 +/- 0.02
DEW - 6	/0.70 :	31.22 +/- 2.08	0.550	2.16 +/- 0.06	10100	1.85 +/- 0.04

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 7	/0.10 :	22.66 +/- 0.20	0.369	1.70 +/- 0.03	7375	1.47 +/- 0.03
DEW - 7	/0.20 :	33.12 +/- 0.64	0.512	2.03 +/- 0.03	12900	1.70 +/- 0.03
DEW - 7	/0.40 :	31.00 +/- 0.35	0.491	2.11 +/- 0.05	11467	1.80 +/- 0.05
DEW - 7	/0.70 :	31.53 +/- 0.71	0.557	2.12 +/- 0.02	8833	1.81 +/- 0.02

SITE : ACCESS TUBE NUMBER(-)
 WATER% : VOLUME MOISTURE CONTENTS(%)
 GAM C.R. : GAMMA-GAMMA COUNT RATIO(-)
 WBD : WET BULK DENSITY (Mg/m³).
 DEPTH : DEPTH BELOW SURFACE (m).
 NEU C.R. : NEUTRON COUNT RATIO(-)
 GAM CPM. : GAMMA-GAMMA COUNTS PER MINUTE(-).
 DBD : DRY BULK DENSITY (Mg/m³).

DRY- AND WET BULK DENSITIES IN DEWETSDORP AREA.

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
DEW - 8 /0.10 :		20.36 +/- 0.29	0.436	2.04 +/- 0.01	2.083	1.83 +/- 0.00
DEW - 8 /0.20 :		20.29 +/- 0.42	0.480	2.03 +/- 0.02	2.164	1.82 +/- 0.02
DEW - 8 /0.30 :		20.92 +/- 0.86	0.495	2.04 +/- 0.03	2.265	1.83 +/- 0.02
DEW - 8 /0.40 :		23.44 +/- 1.93	0.500	2.08 +/- 0.04	2.140	1.85 +/- 0.05
DEW - 8 /0.70 :		27.79 +/- 0.76	0.417	2.15 +/- 0.03	1.957	1.87 +/- 0.04
DEW - 8 /0.90 :		15.66 +/- 0.51	0.357	2.09 +/- 0.02	1.971	1.94 +/- 0.02
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
DEW - 9 /0.10 :		7.78 +/- 0.54	0.344	1.67 +/- 0.01	2.037	1.59 +/- 0.00
DEW - 9 /0.20 :		10.22 +/- 0.08	0.542	1.75 +/- 0.02	2.260	1.64 +/- 0.02
DEW - 9 /0.30 :		24.55 +/- 0.82	0.600	2.05 +/- 0.02	2.375	1.80 +/- 0.01
DEW - 9 /0.40 :		26.85 +/- 0.23	0.586	2.10 +/- 0.01	2.217	1.83 +/- 0.01
DEW - 9 /0.70 :		25.98 +/- 0.29	0.531	2.15 +/- 0.03	2.017	1.89 +/- 0.03
DEW - 9 /0.90 :		24.75 +/- 0.54	0.527	2.16 +/- 0.02	1.998	1.91 +/- 0.02
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
DEW - 11/0.10 :		14.18 +/- 0.41	0.331	1.77 +/- 0.02	2.162	1.63 +/- 0.01
DEW - 11/0.20 :		30.11 +/- 0.71	0.472	2.11 +/- 0.01	2.493	1.81 +/- 0.01
DEW - 11/0.30 :		29.96 +/- 0.63	0.495	2.10 +/- 0.04	2.658	1.80 +/- 0.04
DEW - 11/0.40 :		25.90 +/- 1.00	0.486	2.15 +/- 0.00	2.752	1.89 +/- 0.01
DEW - 11/0.70 :		23.84 +/- 0.17	0.539	2.17 +/- 0.00	2.372	1.93 +/- 0.00
DEW - 11/0.90 :		19.56 +/- 0.65	0.529	2.11 +/- 0.02	2.092	1.91 +/- 0.01
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
DEW - 12/0.10 :		7.95 +/- 0.31	0.406	1.61 +/- 0.01	2.256	1.53 +/- 0.01
DEW - 12/0.20 :		18.64 +/- 1.26	0.504	1.93 +/- 0.07	2.325	1.74 +/- 0.06
DEW - 12/0.30 :		21.90 +/- 0.64	0.468	2.04 +/- 0.02	2.523	1.82 +/- 0.02
DEW - 12/0.40 :		20.74 +/- 0.55	0.436	2.08 +/- 0.02	2.537	1.87 +/- 0.02
DEW - 12/0.80 :		14.31 +/- 0.81	0.363	1.94 +/- 0.02	2.289	1.79 +/- 0.03
DEW - 12/1.00 :		16.02 +/- 0.97	0.378	1.92 +/- 0.04	2.373	1.76 +/- 0.03
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 13/0.10 :		28.33 +/- 1.07	0.828	1.77 +/- 0.04	9440	1.49 +/- 0.03
DEW - 13/0.20 :		43.47 +/- 0.47	0.857	1.83 +/- 0.01	10025	1.40 +/- 0.01
DEW - 13/0.40 :		39.33 +/- 0.35	0.759	2.16 +/- 0.09	10600	1.76 +/- 0.09
DEW - 13/0.70 :		35.44 +/- 0.54	0.642	2.16 +/- 0.09	9425	1.80 +/- 0.08
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 14/0.10 :		22.07 +/- 0.57	0.341	1.70 +/- 0.01	10100	1.48 +/- 0.02
DEW - 14/0.20 :		24.43 +/- 1.27	0.422	1.74 +/- 0.06	11120	1.49 +/- 0.05
DEW - 14/0.40 :		32.21 +/- 3.23	0.502	2.04 +/- 0.11	11475	1.71 +/- 0.08
DEW - 14/0.70 :		25.50 +/- 0.90	0.441	2.08 +/- 0.06	10475	1.83 +/- 0.05

SITE : ACCESS TUBE NUMBER(-).
 WATER% : VOLUME MOISTURE CONTENTS(%).
 GAM C.R. : GAMMA-GAMMA COUNT RATIO(-).
 WBD : WET BULK DENSITY (Mg/m³).

DEPTH : DEPTH BELOW SURFACE (m).
 NEU C.R. : NEUTRON COUNT RATIO(-).
 GAM CPM. : GAMMA-GAMMA COUNTS PER MINUTE(-).
 DBD : DRY BULK DENSITY (Mg/m³).

DRY- AND WET BULK DENSITIES IN DEWETSDORP AREA.

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 15/0.10 :		29.50 +/- 0.42	0.658	1.76 +/- 0.09	9883	1.46 +/- 0.09
DEW - 15/0.20 :		38.37 +/- 0.66	0.746	1.89 +/- 0.02	10050	1.50 +/- 0.02
DEW - 15/0.40 :		20.56 +/- 1.79	0.520	2.07 +/- 0.01	9700	1.86 +/- 0.01
DEW - 15/0.70 :		19.11 +/- 0.84	0.448	2.04 +/- 0.02	9325	1.85 +/- 0.03
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 16/0.10 :		22.60 +/- 0.99	0.513	1.70 +/- 0.08	9450	1.48 +/- 0.07
DEW - 16/0.20 :		26.80 +/- 0.81	0.486	1.82 +/- 0.04	10275	1.55 +/- 0.03
DEW - 16/0.40 :		16.61 +/- 0.93	0.336	2.01 +/- 0.03	10073	1.84 +/- 0.02
DEW - 16/0.70 :		15.41 +/- 0.14	0.309	2.05 +/- 0.00	9800	1.90 +/- 0.00
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 17/0.10 :		21.03 +/- 1.68	0.702	1.69 +/- 0.06	9200	1.48 +/- 0.05
DEW - 17/0.20 :		37.27 +/- 0.50	0.674	2.07 +/- 0.03	10100	1.70 +/- 0.02
DEW - 17/0.40 :		26.18 +/- 0.84	0.465	2.10 +/- 0.04	10950	1.84 +/- 0.03
DEW - 17/0.70 :		25.44 +/- 0.63	0.468	2.06 +/- 0.05	10325	1.81 +/- 0.04
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM CPM.	DBD
DEW - 18/0.10 :		27.07 +/- 0.70	0.760	1.75 +/- 0.00	9600	1.48 +/- 0.01
DEW - 18/0.20 :		57.53 +/- 0.43	0.858	2.27 +/- 0.03	10050	1.69 +/- 0.03
DEW - 18/0.40 :		32.42 +/- 0.45	0.722	2.11 +/- 0.07	10750	1.78 +/- 0.06
DEW - 18/0.70 :		32.81 +/- 1.33	0.585	2.16 +/- 0.00	10000	1.84 +/- 0.01
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
DEW - 19/0.10 :		14.14 +/- 0.58	0.327	1.79 +/- 0.02	2.464	1.65 +/- 0.01
DEW - 19/0.20 :		18.37 +/- 0.17	0.511	1.85 +/- 0.00	2.477	1.67 +/- 0.00
DEW - 19/0.30 :		32.59 +/- 1.14	0.624	2.17 +/- 0.02	2.579	1.84 +/- 0.01
DEW - 19/0.40 :		33.99 +/- 0.54	0.700	2.20 +/- 0.01	2.494	1.86 +/- 0.01
DEW - 19/0.70 :		37.52 +/- 2.64	0.678	2.31 +/- 0.05	2.025	1.94 +/- 0.03
DEW - 19/0.90 :		35.11 +/- 1.50	0.639	2.26 +/- 0.02	1.891	1.91 +/- 0.02

SITE : ACCESS TUBE NUMBER(-).
 WATER% : VOLUME MOISTURE CONTENTS(%).
 GAM C.R. : GAMMA-GAMMA COUNT RATIO(-).
 WBD : WET BULK DENSITY (Mg/m³).
 DEPTH : DEPTH BELOW SURFACE (m).
 NEU C.R. : NEUTRON COUNT RATIO(-).
 GAM CPM. : GAMMA-GAMMA COUNTS PER MINUTE(-).
 DBD : DRY BULK DENSITY (Mg/m³).

TEXTURE ANALYSIS IN DEWETSDORP AREA.

SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 1/0.1	:	.62	.72	3.34	69.46	5.88	9.80	10.00	99.82
DEW - 1/0.2	:	.28	.34	2.36	60.02	6.02	10.10	20.00	99.12
DEW - 1/0.4	:	.58	.76	2.06	41.56	6.18	10.20	37.00	98.34
DEW - 1/0.7	:	.26	.56	1.88	50.64	5.86	11.00	28.90	97.10
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 2/0.4	:	.30	.20	1.94	32.08	6.42	14.10	42.00	97.04
DEW - 2/1.15	:	.42	.40	2.58	51.62	9.56	16.20	17.10	97.88
DEW - 2/0.7	:	.96	1.02	2.99	35.18	8.92	18.80	32.03	99.89
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 3/0.1	:	1.16	2.50	7.37	48.82	10.30	14.60	15.90	100.65
DEW - 3/0.2	:	1.52	3.37	6.99	39.10	8.78	12.80	26.40	98.96
DEW - 3/0.3	:	1.04	3.28	8.62	43.06	6.54	12.90	24.20	99.64
DEW - 3/0.4	:	.26	2.10	7.62	46.62	8.50	12.80	22.40	100.30
DEW - 3/0.7	:	.62	2.48	8.06	48.34	10.36	11.50	18.60	99.96
DEW - 3/0.9	:	.10	1.26	4.82	37.32	10.56	17.00	28.00	99.06
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 4/0.1	:	.60	2.44	7.84	63.50	8.00	9.00	8.90	100.28
DEW - 4/0.2	:	1.40	3.54	7.47	49.15	7.28	15.30	14.33	98.47
DEW - 4/1.45	:	1.82	4.12	7.48	39.92	8.26	14.70	23.23	99.53
DEW - 4/1.75	:	2.58	5.58	9.53	45.11	5.36	17.50	16.23	101.89
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 5/0.1	:	2.28	1.36	3.02	40.07	2.40	21.60	26.53	97.25
DEW - 5/0.2	:	.76	.34	1.18	33.44	5.53	12.40	45.63	99.47
DEW - 5/0.7	:	.14	.42	.92	23.98	7.26	13.70	53.10	99.52
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 6/1.15	:	.64	.72	2.20	54.50	9.94	17.40	16.50	101.90
DEW - 6/0.4	:	1.12	.48	1.14	24.38	2.56	8.60	59.53	97.81
DEW - 6/0.7	:	.10	.26	1.12	25.84	5.24	8.80	58.90	100.26
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 7/0.1	:	1.18	.60	2.09	55.10	7.45	14.20	18.00	98.82
DEW - 7/0.2	:	1.10	.30	.98	25.10	5.18	9.40	55.90	97.86
DEW - 7/0.4	:	2.04	.38	1.06	28.29	4.66	9.80	56.43	100.65
DEW - 7/0.7	:	.32	.30	1.06	29.46	4.58	10.10	53.63	99.45

SITE : ACCESS TUBE NUMBER(-)
 F1 : FRACTION <2.000 >1.000
 F3 : FRACTION <0.500 >0.250
 F5 : GROVE SILT FRACTION
 F7 : CLAY FRACTION

DEPTH : DEPTH BELOW SURFACE(m)
 F2 : FRACTION <1.000 >0.500
 F4 : FRACTION <0.250 >0.045
 F6 : FINE SILT FRACTION
 FT : TOTAL (MUST BE = 100%)

TEXTURE ANALYSIS IN DEWETSDORP AREA.

SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 8/0.1	:	.50	.34	1.90	38.41	7.80	14.20	35.90	99.06
DEW - 8/0.2	:	.44	.36	1.88	41.71	8.28	13.10	33.90	99.66
DEW - 8/0.4	:	.36	.36	1.30	34.52	7.90	14.40	42.83	101.69
DEW - 8/0.7	:	.22	.22	1.22	34.25	5.96	12.40	43.33	97.59
DEW - 8/0.9	:	1.26	1.00	1.90	52.25	4.44	8.80	28.33	97.97
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 9/0.1	:	.46	.28	1.00	48.58	8.14	21.10	17.50	97.08
DEW - 9/0.2	:	.08	.24	.98	42.32	10.04	17.10	28.80	99.56
DEW - 9/0.3	:	.68	.24	.92	34.38	10.18	13.20	41.93	101.53
DEW - 9/0.4	:	.36	.12	.84	29.16	6.72	13.90	48.60	99.50
DEW - 9/0.7	:	.22	.14	.48	26.82	7.24	11.00	53.30	99.20
DEW - 9/0.9	:	.14	.36	.82	25.52	4.00	18.20	48.10	97.14
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 11/0.1	:	.54	.30	.84	28.80	10.06	15.20	41.50	97.04
DEW - 11/0.2	:	.78	.28	.70	23.31	3.74	12.80	55.40	97.00
DEW - 11/0.3	:	.70	.56	.72	19.50	5.90	14.40	55.50	97.28
DEW - 11/0.4	:	.44	.75	1.35	22.38	7.27	15.20	49.70	97.08
DEW - 11/0.7	:	2.48	1.88	1.96	23.85	8.64	17.80	43.63	100.23
DEW - 11/0.9	:	1.74	1.70	2.20	40.35	8.86	13.20	32.50	100.54
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 12/0.1	:	.18	.30	1.00	57.96	3.60	19.50	15.70	99.14
DEW - 12/0.2	:	.14	.14	1.54	44.84	8.50	11.40	32.00	98.56
DEW - 12/0.3	:	.14	.34	1.93	43.39	6.44	11.70	36.90	100.84
DEW - 12/0.4	:	.14	.34	2.02	43.78	6.68	11.50	36.93	101.39
DEW - 12/0.8	:	1.26	1.68	9.28	52.10	5.56	8.60	23.13	101.81
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 13/0.1	:	.88	.78	1.38	40.46	10.82	25.40	17.50	97.22
DEW - 13/0.2	:	1.16	.50	1.20	26.57	5.38	12.70	50.20	97.72
DEW - 13/0.4	:	.16	.28	1.01	24.22	4.55	8.50	61.40	100.12
DEW - 13/0.7	:	.58	.88	1.22	15.13	5.80	16.60	56.80	97.00
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 14/.15	:	.44	.54	.80	45.36	10.08	27.00	15.13	99.35
DEW - 14/0.4	:	.44	.66	.92	22.44	8.30	17.80	50.20	100.76
DEW - 14/0.7	:	.60	.94	1.14	19.54	9.50	15.90	53.63	101.25
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 15/.15	:	.46	.44	1.46	53.46	8.70	15.30	18.63	98.65
DEW - 15/0.4	:	.50	.29	1.26	32.83	5.68	17.40	42.73	100.69

SITE	:ACCESS TUBE NUMBER(-)	DEPTH	:DEPTH BELOW SURFACE(m)
F1	:FRACTION <2.000 >1.000	F2	:FRACTION <1.000 >0.500
F3	:FRACTION <0.500 >0.250	F4	:FRACTION <0.250 >0.045
F5	:GROVE SILT FRACTION	F6	:FINE SILT FRACTION
F7	:CLAY FRACTION	FT	:TOTAL (MUST BE = 100%)

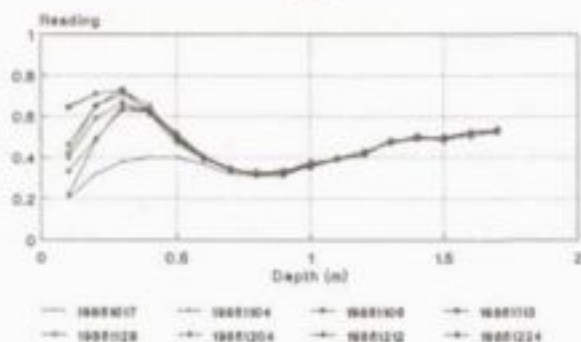
TEXTURE ANALYSIS IN DEWETSDORP AREA.

SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 16/0.2 :		.20	.20	2.38	56.62	8.82	12.00	16.60	97.70
DEW - 16/0.4 :		.24	.32	2.54	52.02	8.84	9.70	25.70	99.36
DEW - 16/0.7 :		.58	.98	2.68	43.58	4.30	12.30	33.13	97.55
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 17/0.2 :		.40	.12	.46	21.16	7.44	11.30	58.70	99.58
DEW - 17/0.4 :		.38	.12	.54	22.08	3.66	19.50	50.80	97.08
DEW - 17/0.7 :		.12	.54	.97	20.93	14.24	15.40	47.90	100.10
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 18/0.1 :		.76	.60	2.10	52.78	8.48	15.70	19.30	99.72
DEW - 18/0.2 :		2.02	.48	1.46	25.12	2.76	10.70	55.03	97.57
DEW - 18/0.7 :		.42	.68	1.44	25.42	5.08	15.50	51.00	100.34
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
DEW - 19/0.1 :		.52	1.82	4.28	52.48	8.14	13.20	19.70	100.14
DEW - 19/0.2 :		.58	1.66	3.57	41.24	6.42	14.20	31.90	98.56
DEW - 19/0.3 :		1.64	1.24	2.79	34.67	2.50	10.70	47.33	100.87
DEW - 19/0.4 :		.18	.56	1.80	30.30	5.34	12.80	50.50	101.48
DEW - 19/0.9 :		1.32	1.16	2.04	31.87	6.44	14.90	42.00	99.72

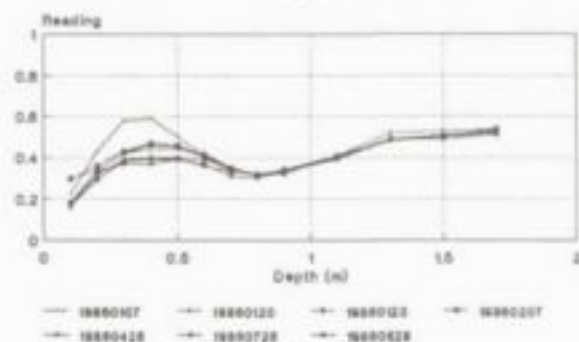
SITE :ACCESS TUBE NUMBER(-).
 F1 :FRACTION <2.000 >1.000
 F3 :FRACTION <0.500 >0.250
 F5 :GROVE SILT FRACTION
 F7 :CLAY FRACTION

DEPTH :DEPTH BELOW SURFACE(m).
 F2 :FRACTION <1.000 >0.500
 F4 :FRACTION <0.250 >0.045
 F6 :FINE SILT FRACTION
 FT :TOTAL (MUST BE = 100%)

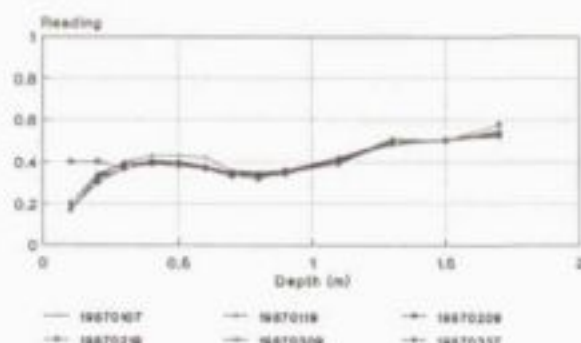
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 1 *)
1985



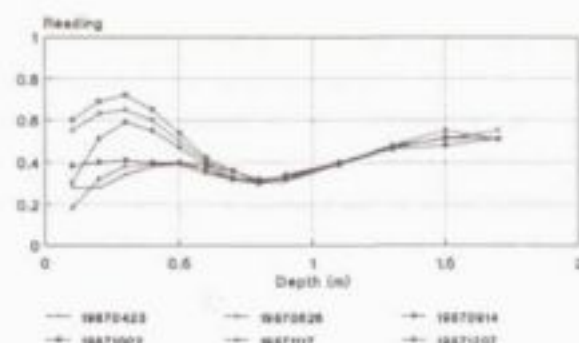
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SOIL MOISTURE TUBE 1
1986



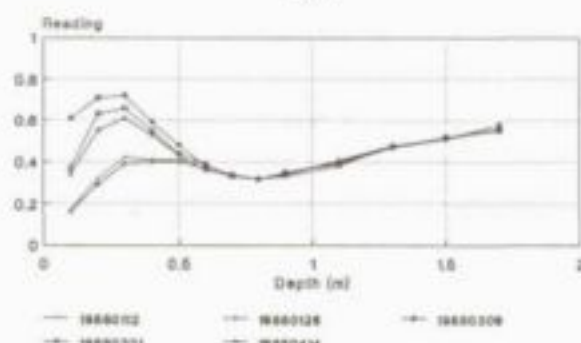
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 1
January - March 1987



DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 1
April - December 1987

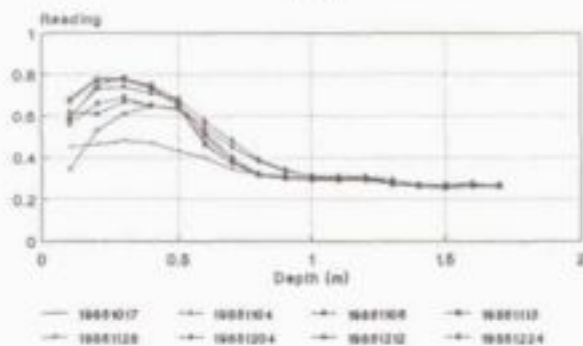


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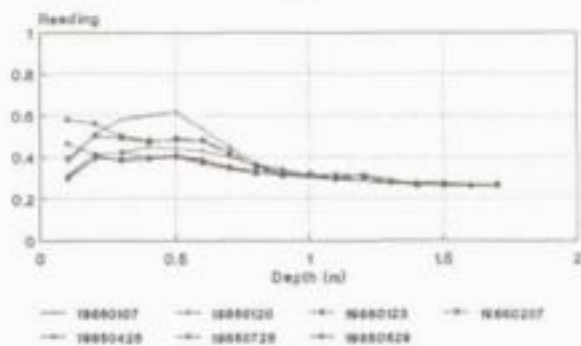


* N.B.: During the course of the project the terminology has changed. "Soil moisture tube" should read "Neutron probe access tube".

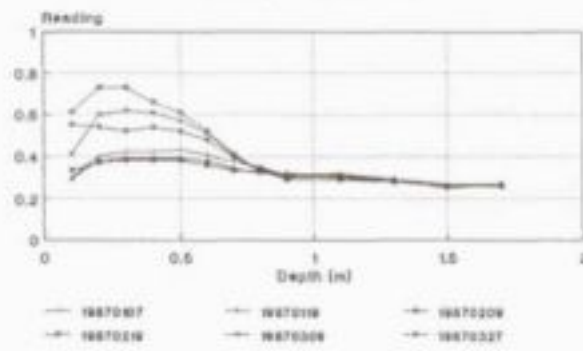
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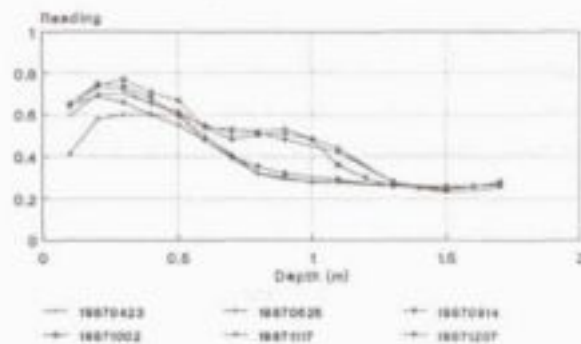
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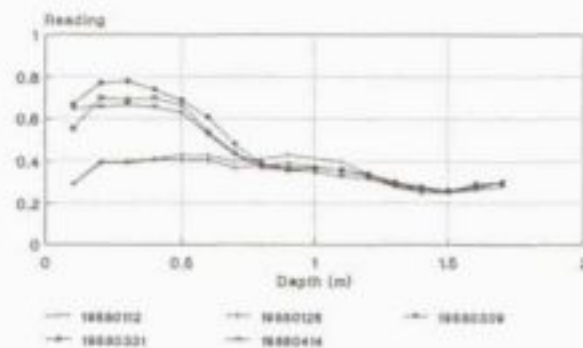
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SOIL MOISTURE TUBE 2
January - March 1987



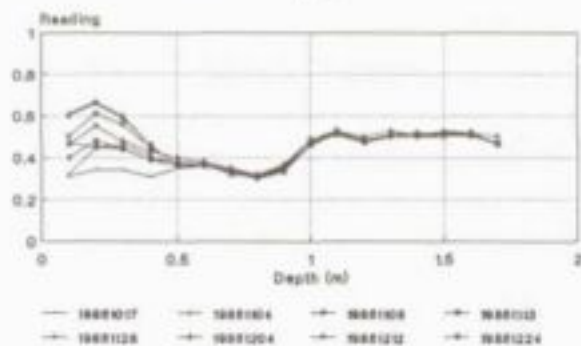
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SOIL MOISTURE TUBE 2
April - December 1987



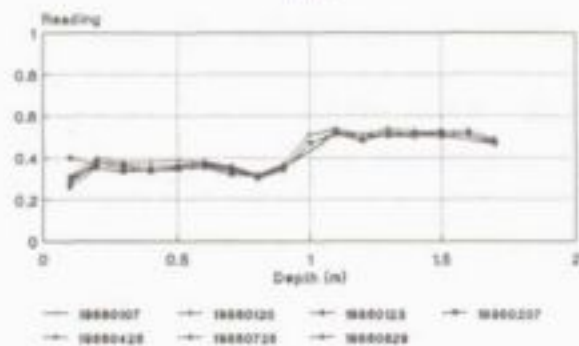
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SOIL MOISTURE TUBE 2
1988



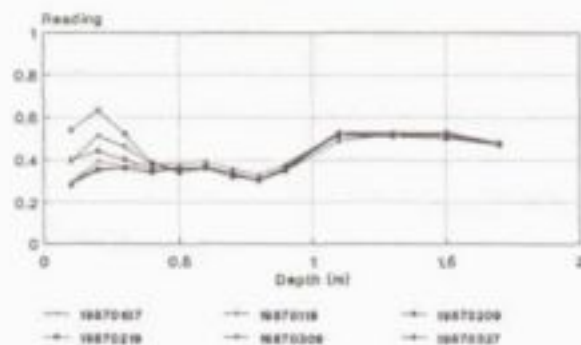
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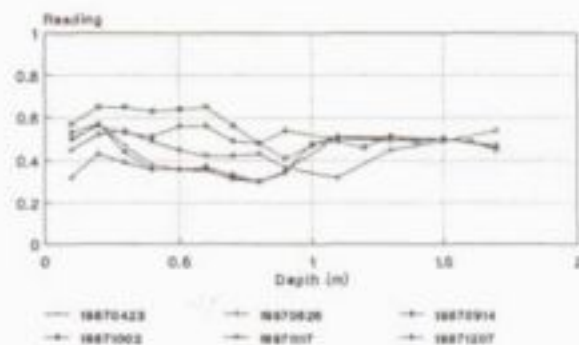
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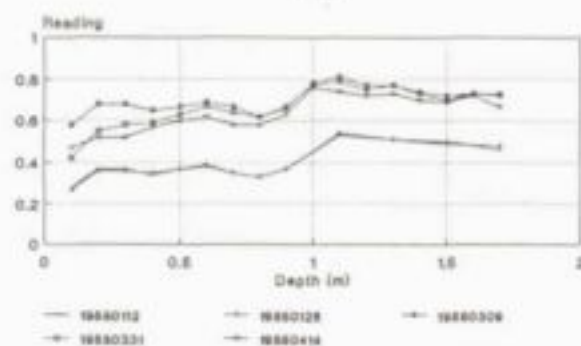
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SOIL MOISTURE TUBE 3
January - March 1987



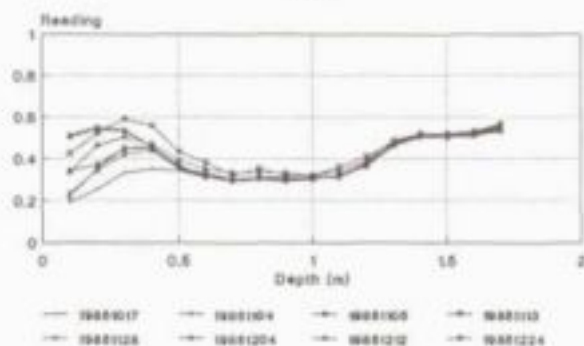
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SOIL MOISTURE TUBE 3
April - December 1987



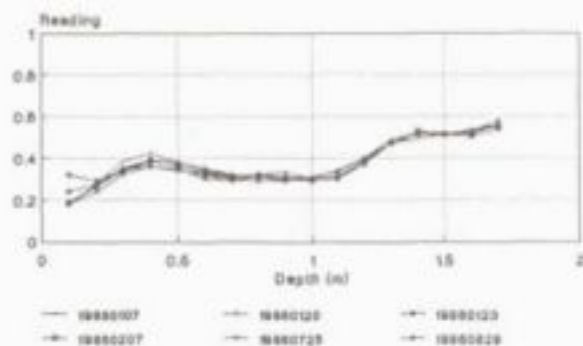
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SOIL MOISTURE TUBE 3
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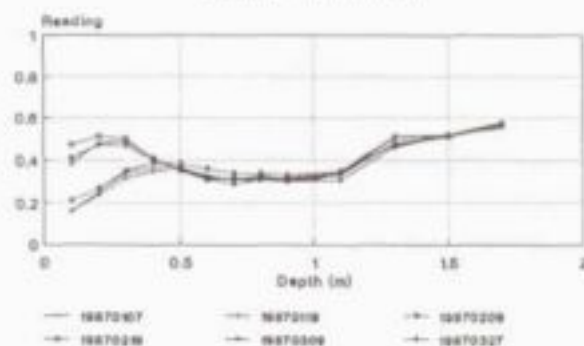
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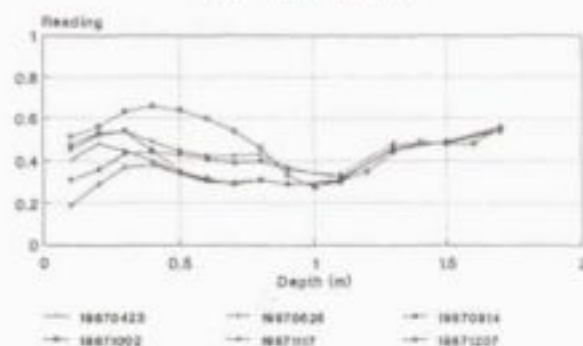
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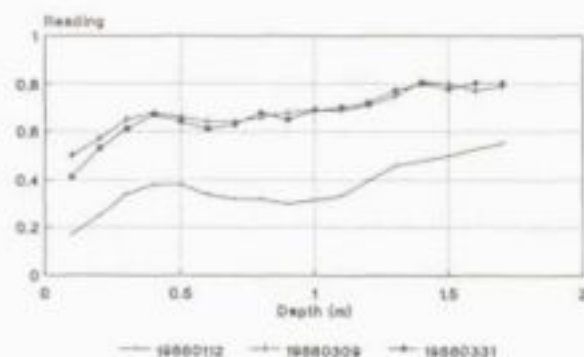
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SOIL MOISTURE TUBE 4
January - March 1987



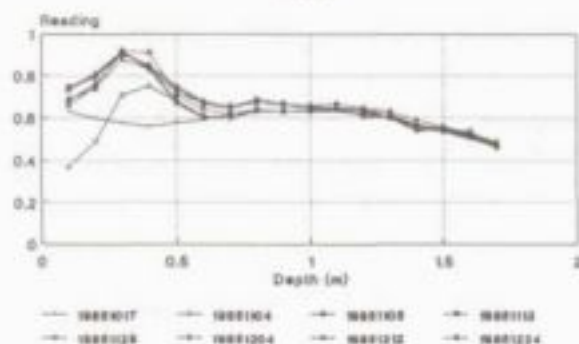
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SOIL MOISTURE TUBE 4
April - December 1987



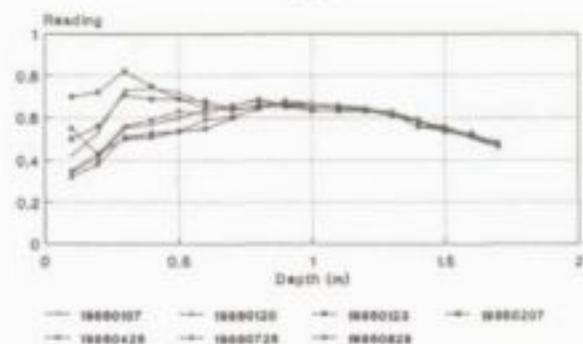
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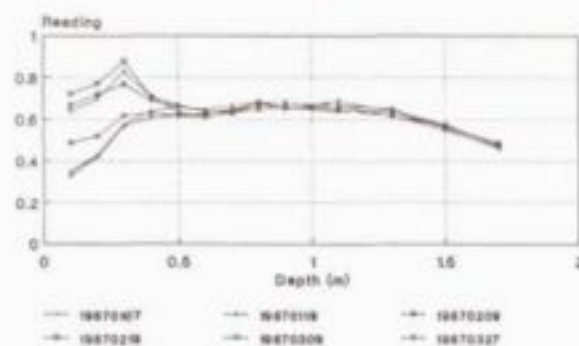
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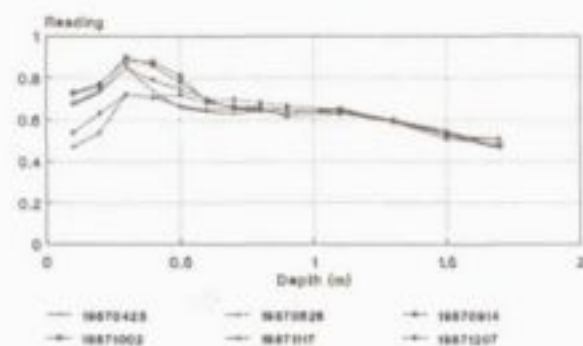
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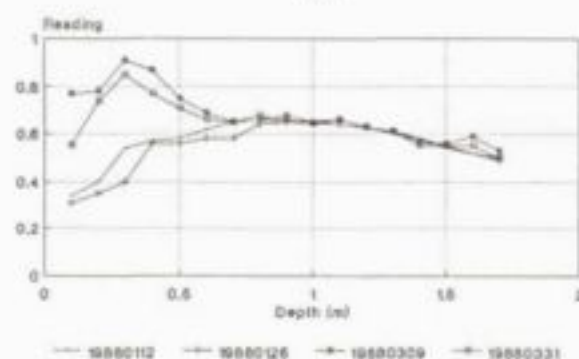
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SOIL MOISTURE TUBE 5
January - March 1987



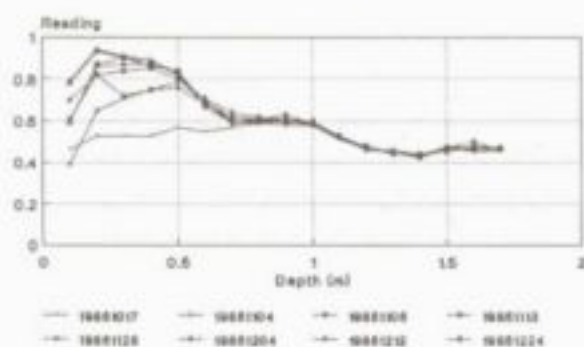
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SOIL MOISTURE TUBE 5
April - December 1987



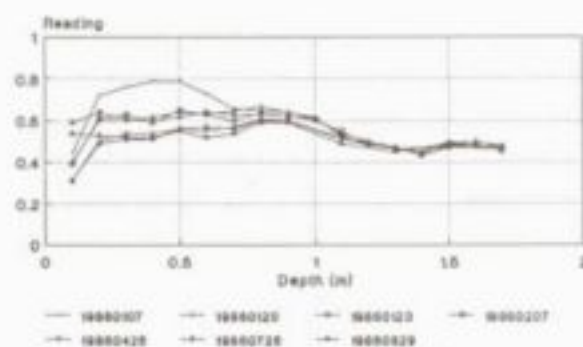
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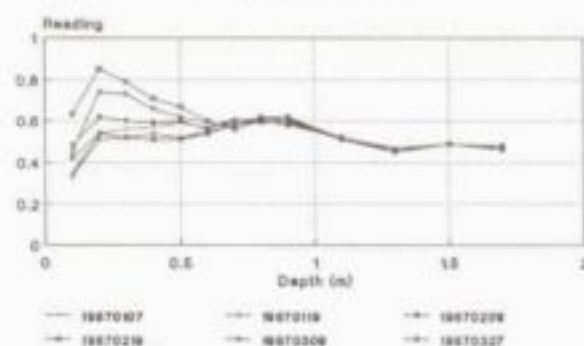
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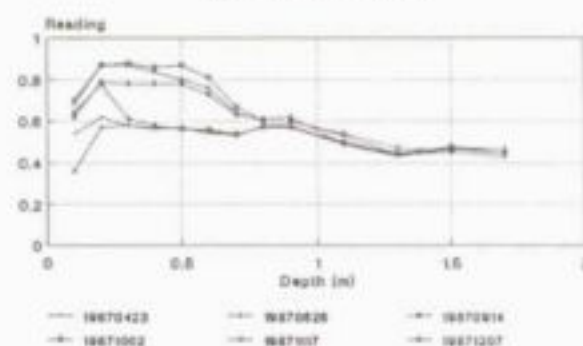
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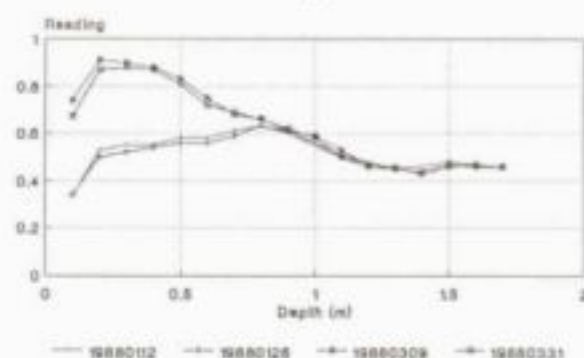
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SOIL MOISTURE TUBE 6
January - March 1987



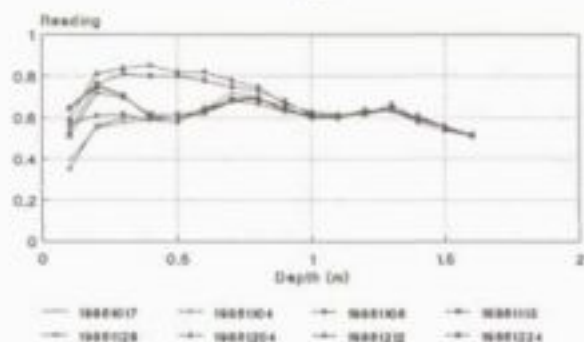
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SOIL MOISTURE TUBE 6
April - December 1987



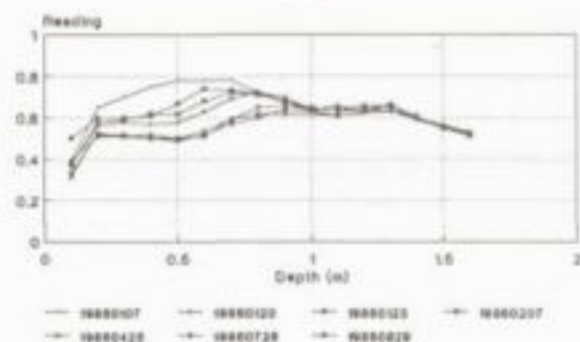
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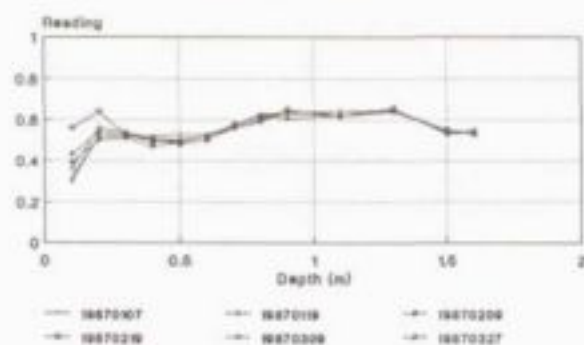
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 7
1985



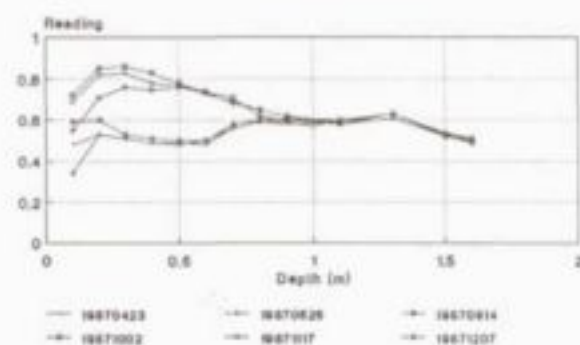
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SOIL MOISTURE TUBE 7
1986



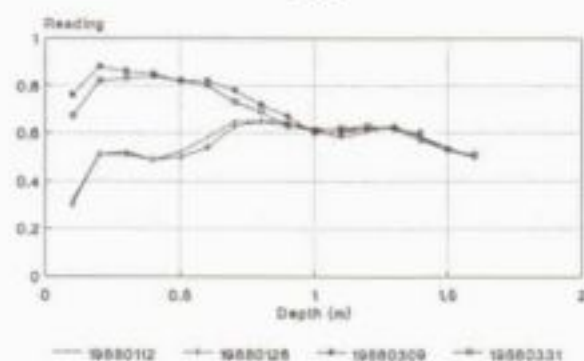
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SOIL MOISTURE TUBE 7
January - March 1987



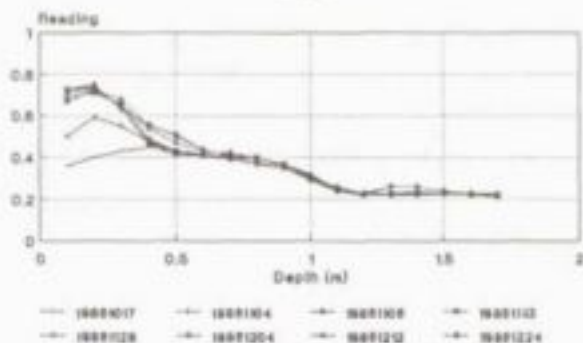
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SOIL MOISTURE TUBE 7
April - December 1987



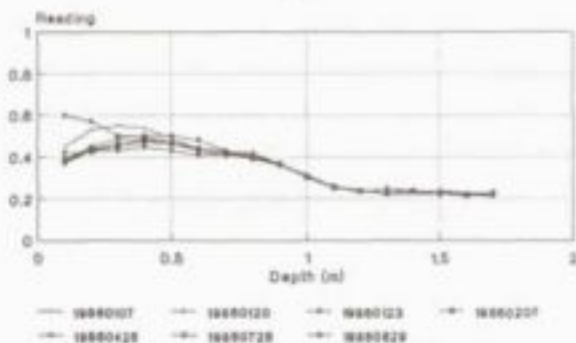
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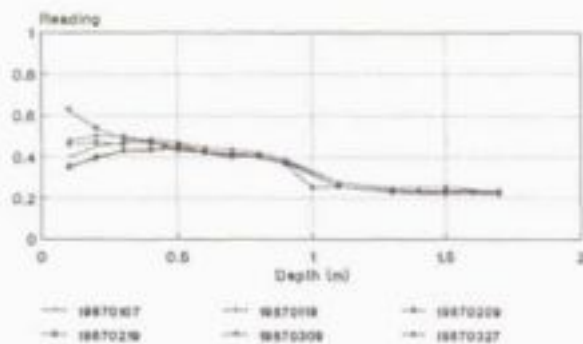
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SOIL MOISTURE TUBE 8
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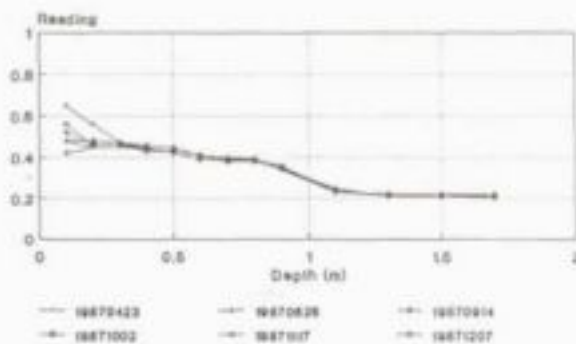
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SOIL MOISTURE TUBE 8
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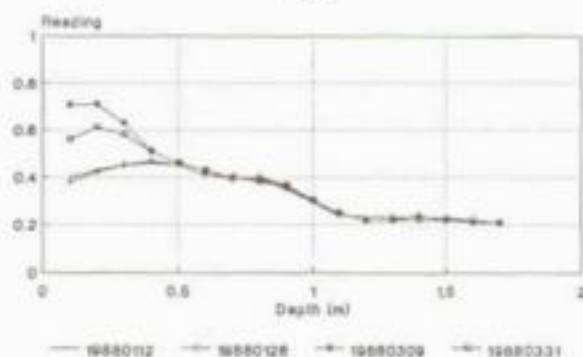
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 8
January - March 1987



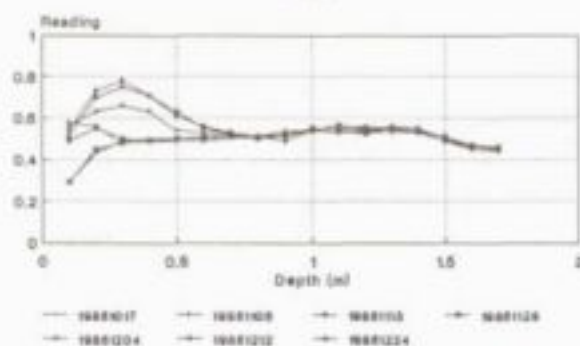
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 8
April - December 1987



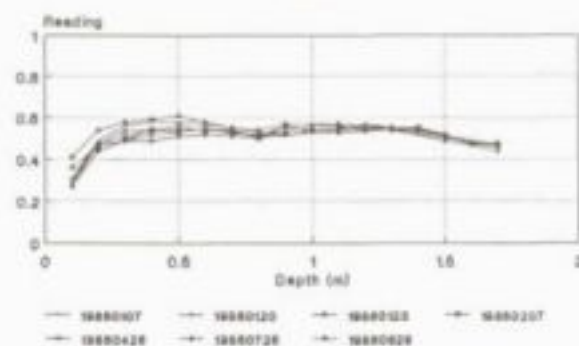
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SOIL MOISTURE TUBE 8
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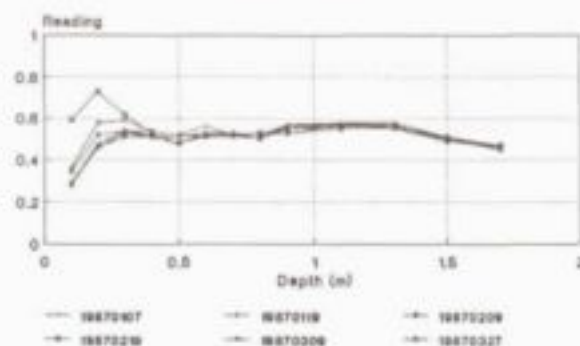
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 9
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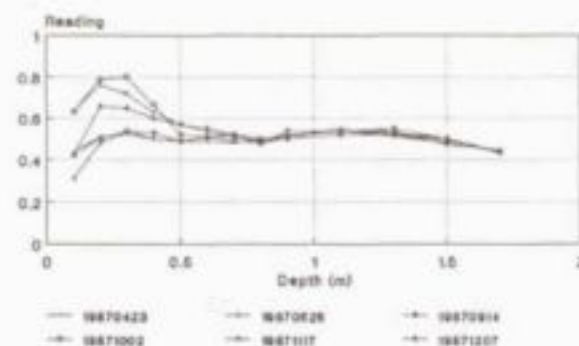
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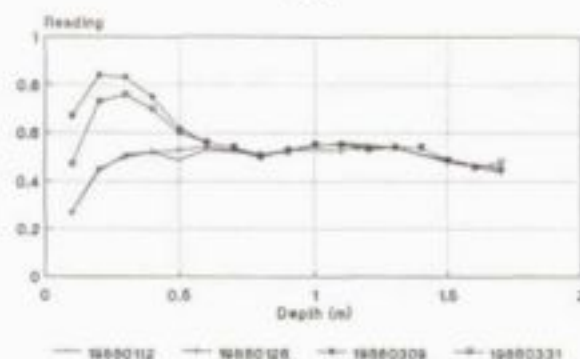
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January - March 1987



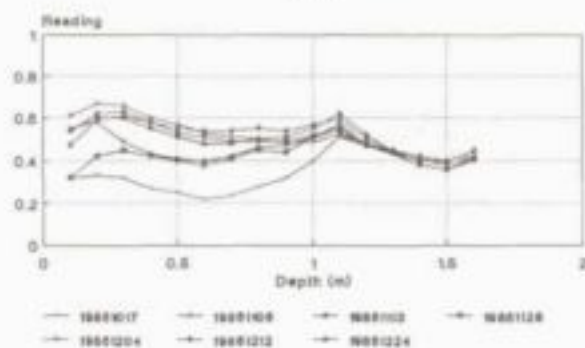
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 9
April - December 1987



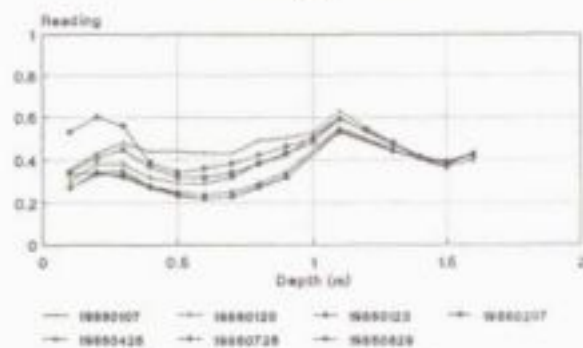
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 9
1988



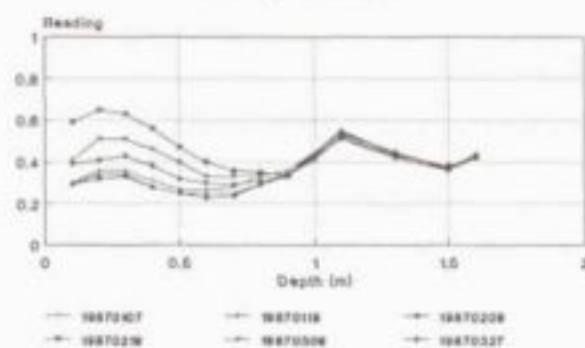
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 10
1985



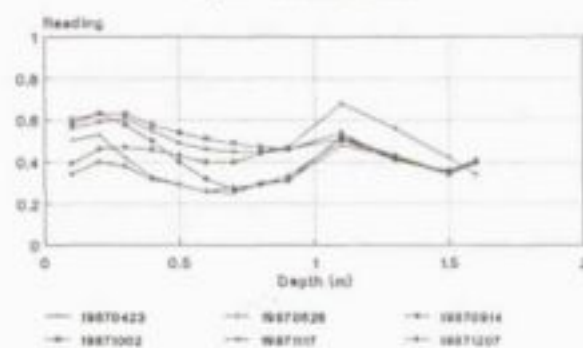
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 10
1986



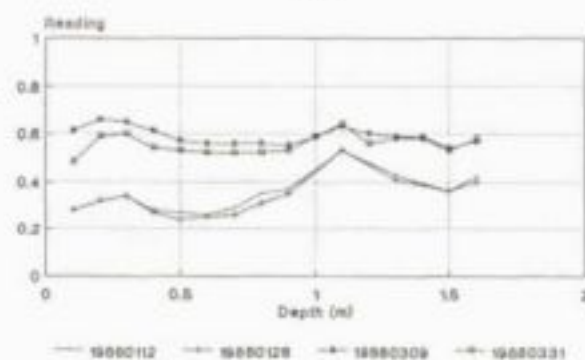
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 10
January - March 1987



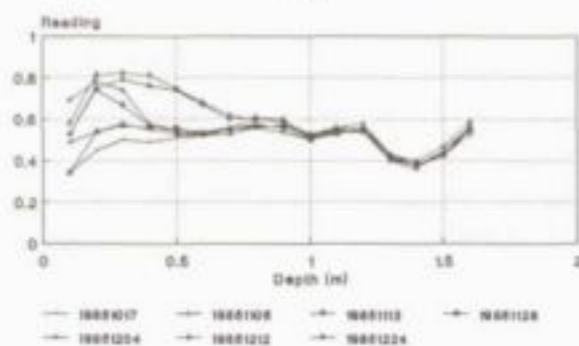
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SOIL MOISTURE TUBE 10
April - December 1987



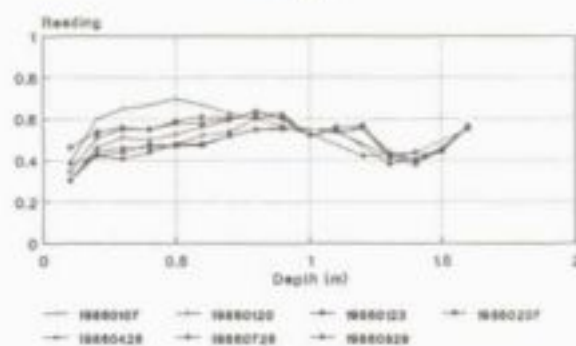
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SOIL MOISTURE TUBE 10
1988



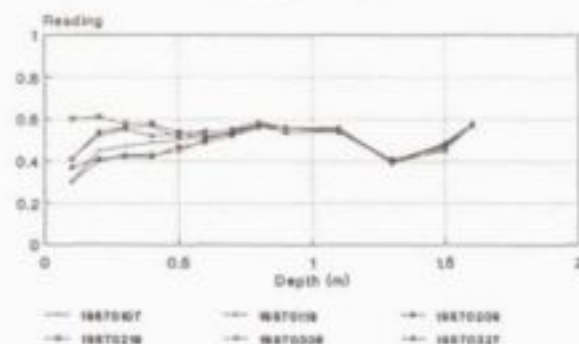
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 11
1985



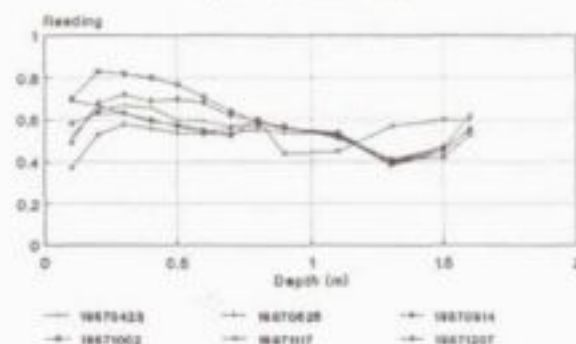
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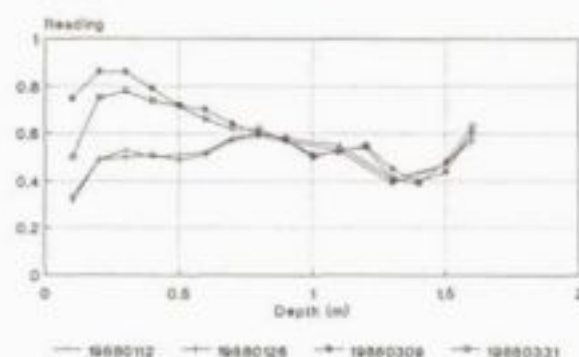
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SOIL MOISTURE TUBE 11
January - March 1987



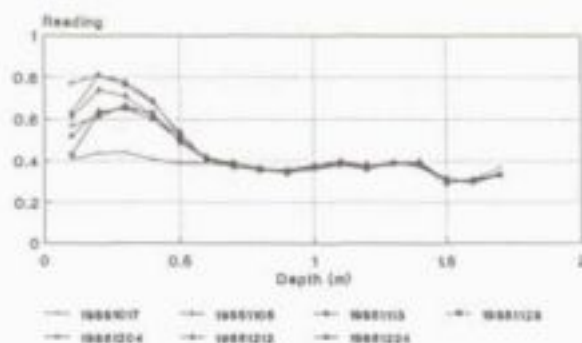
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SOIL MOISTURE TUBE 11
April - December 1987



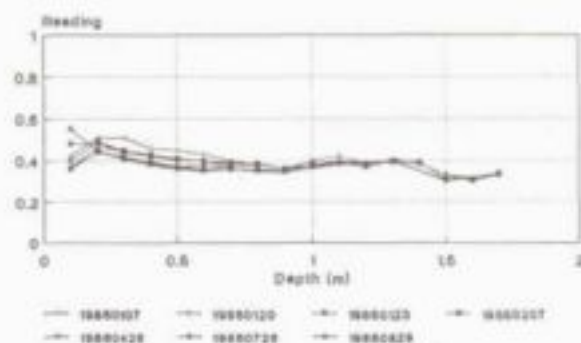
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SOIL MOISTURE TUBE 11
1988



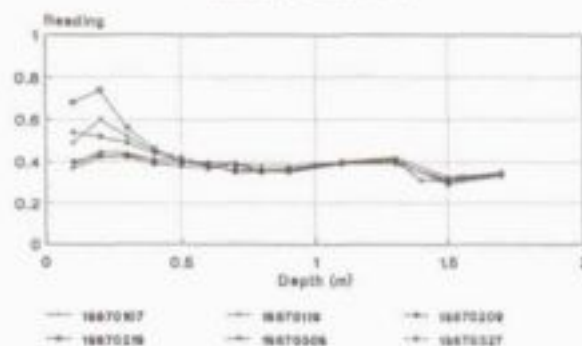
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SOIL MOISTURE TUBE 12
1985



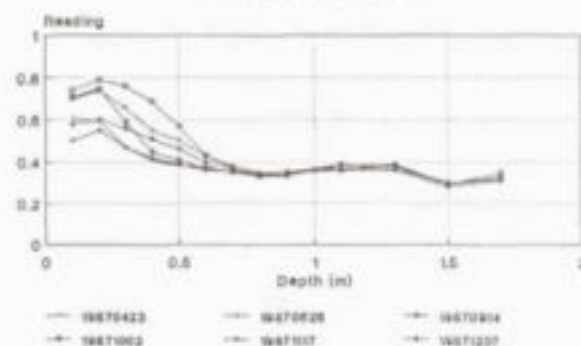
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SOIL MOISTURE TUBE 12
1986



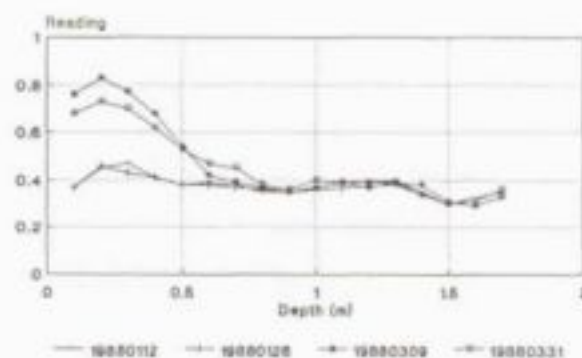
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SOIL MOISTURE TUBE 12
January - March 1987



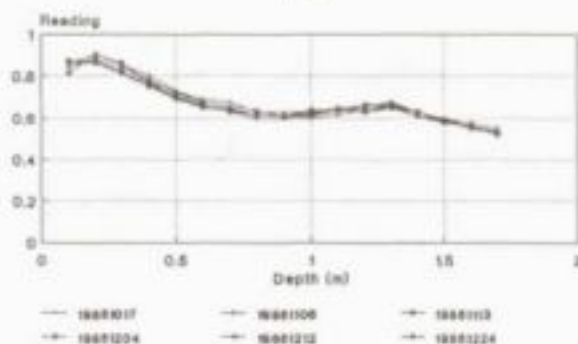
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SOIL MOISTURE TUBE 12
April - December 1987



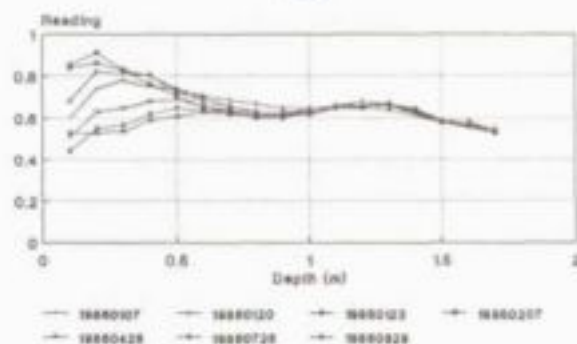
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SOIL MOISTURE TUBE 12
1988



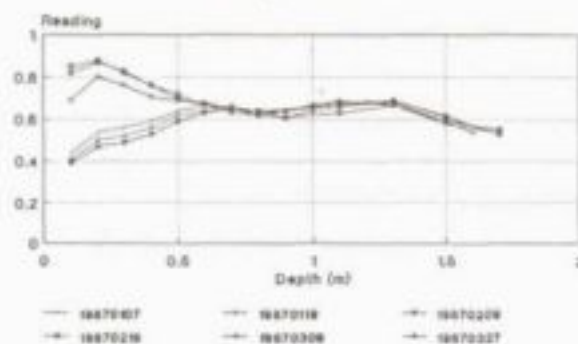
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SOIL MOISTURE TUBE 13
1985



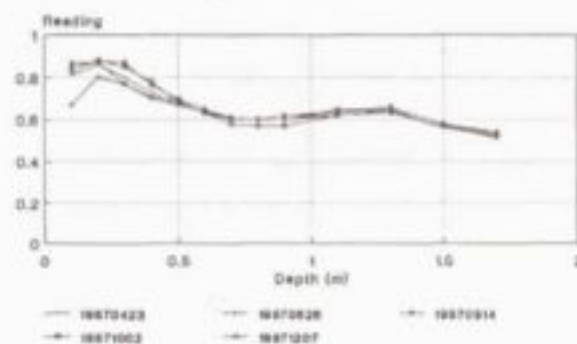
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SOIL MOISTURE TUBE 13
1986



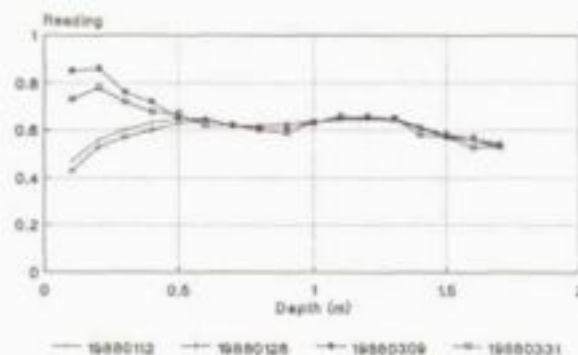
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SOIL MOISTURE TUBE 13
January - March 1987



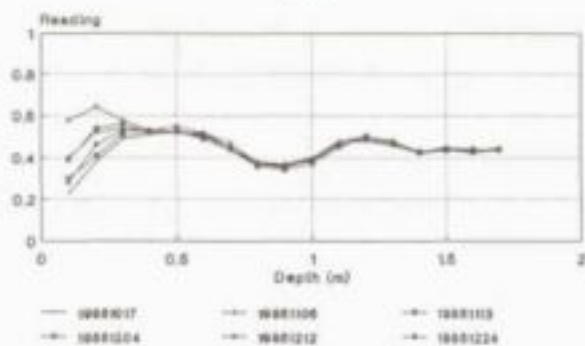
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SOIL MOISTURE TUBE 13
April - December 1987



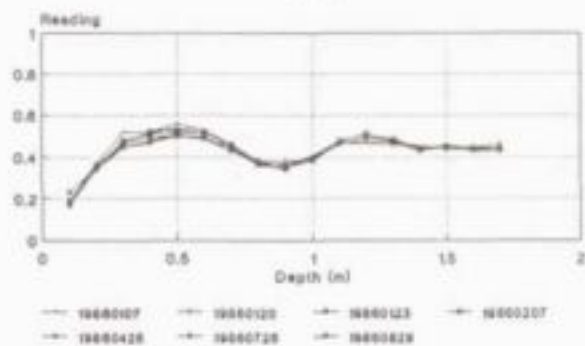
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 13
1988



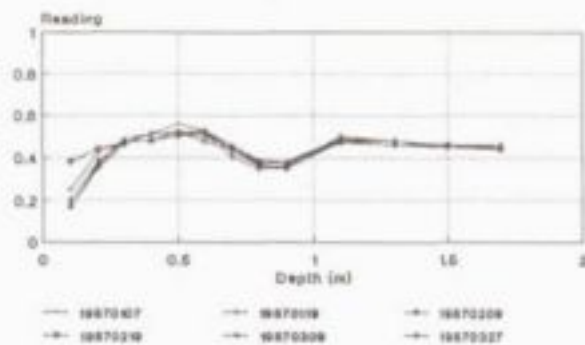
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 14
1985



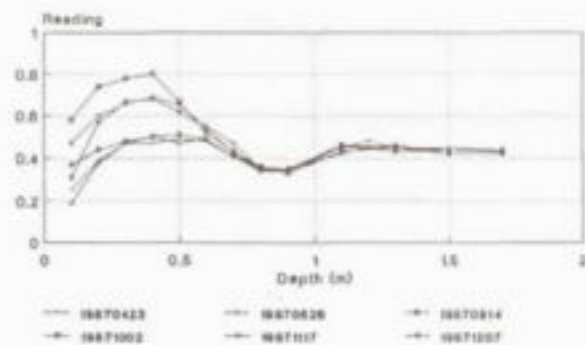
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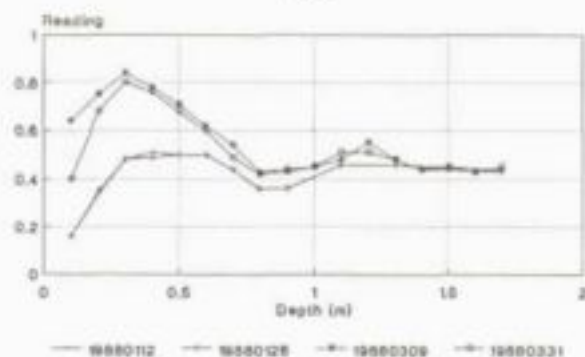
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SOIL MOISTURE TUBE 14
January - March 1987



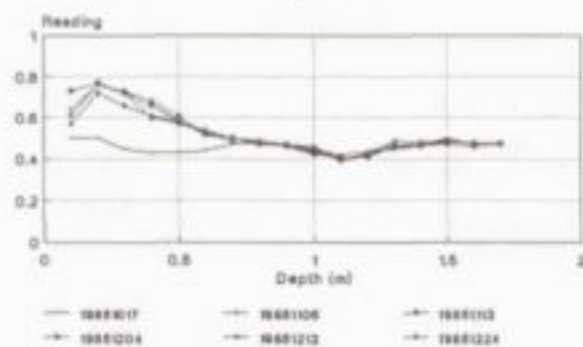
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SOIL MOISTURE TUBE 14
April - December 1987



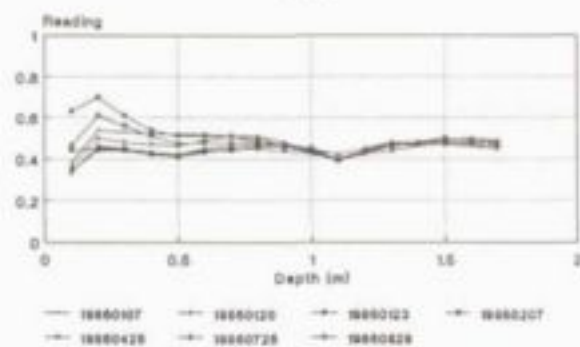
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SOIL MOISTURE TUBE 14
1988



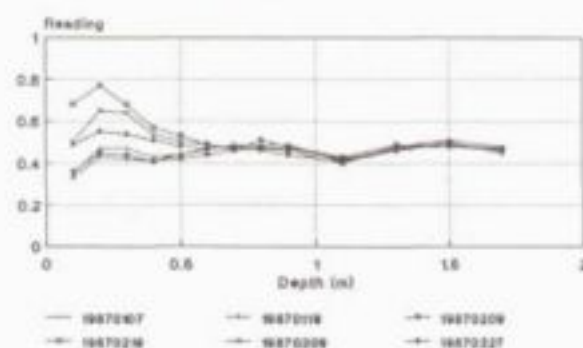
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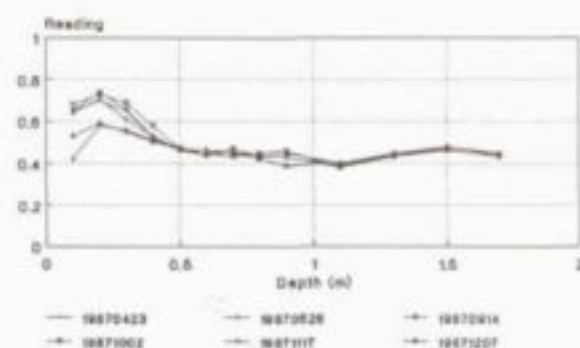
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SOIL MOISTURE TUBE 15
1986



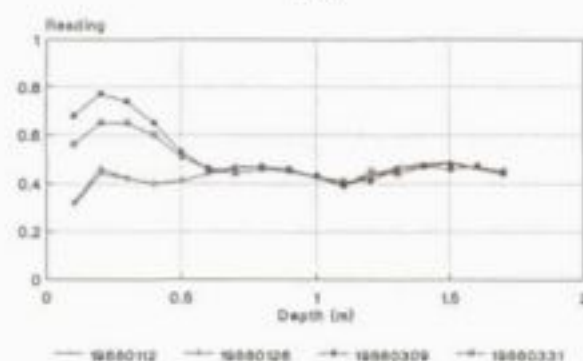
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SOIL MOISTURE TUBE 15
January - March 1987



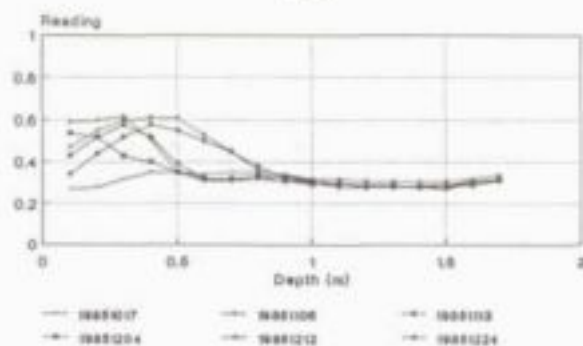
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SOIL MOISTURE TUBE 15
April - December 1987



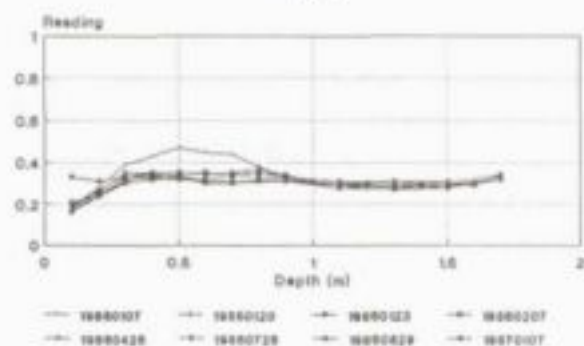
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 15
1988



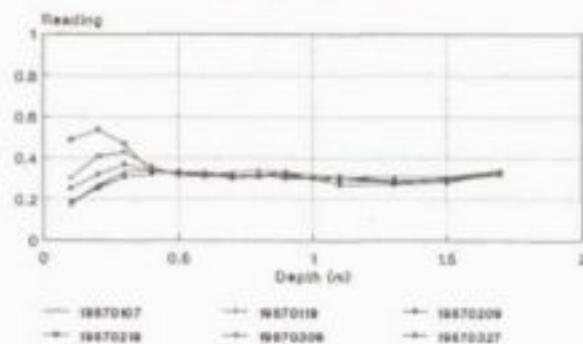
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 16
1985



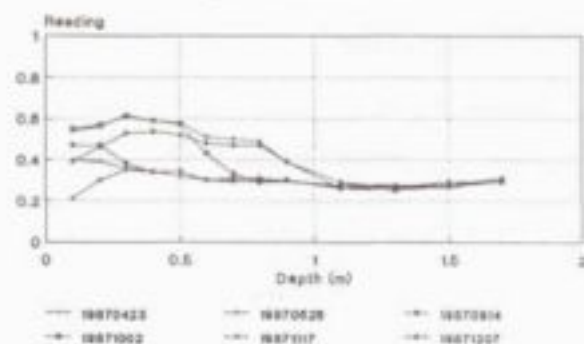
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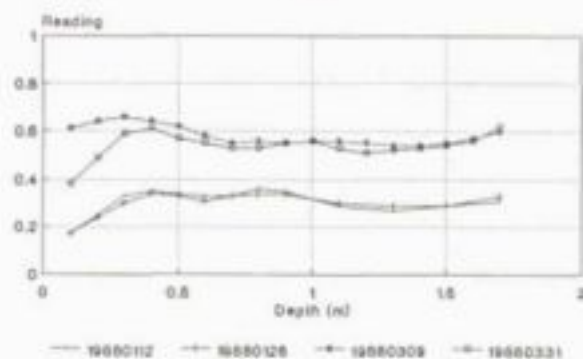
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SOIL MOISTURE TUBE 16
January - March 1987



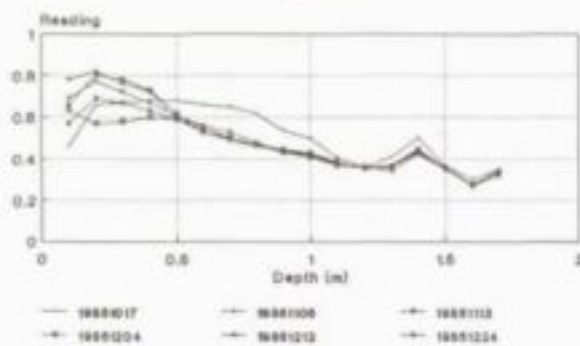
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SOIL MOISTURE TUBE 16
April - December 1987



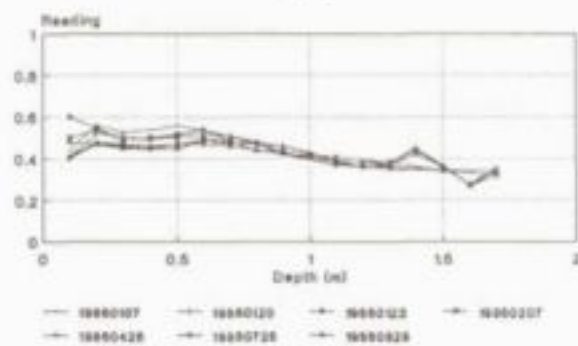
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SOIL MOISTURE TUBE 16
1988



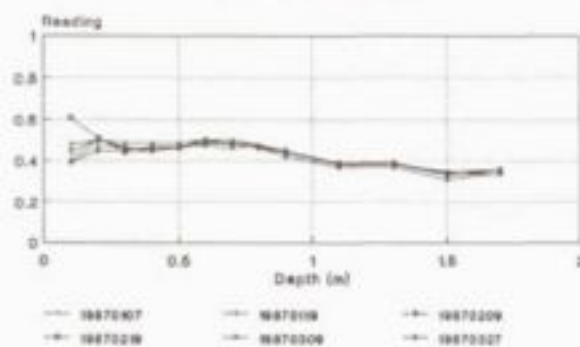
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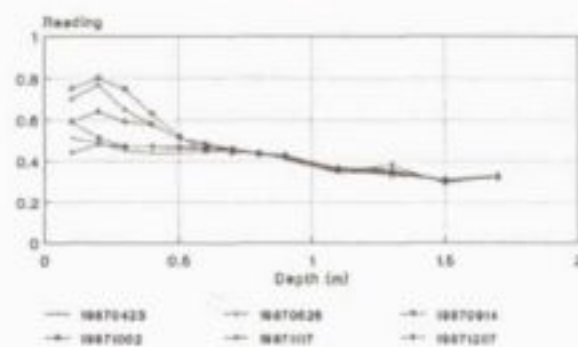
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1986



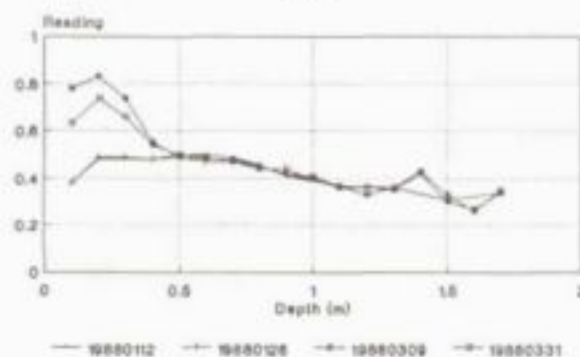
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SOIL MOISTURE TUBE 17
January - March 1987



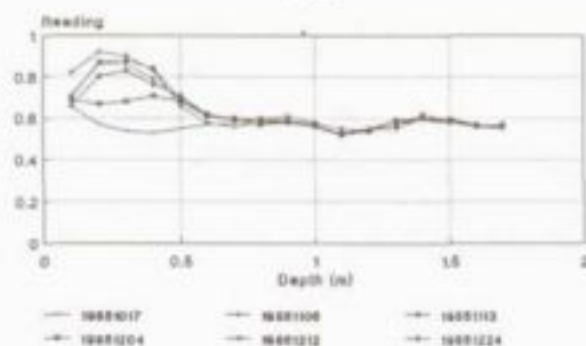
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SOIL MOISTURE TUBE 17
April - December 1987



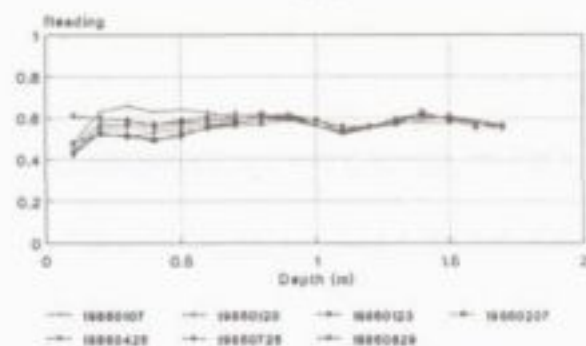
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SOIL MOISTURE TUBE 17
1988



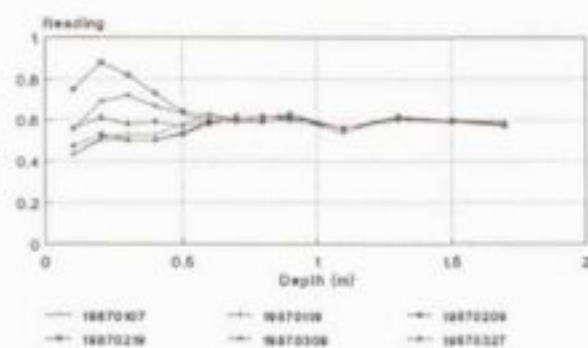
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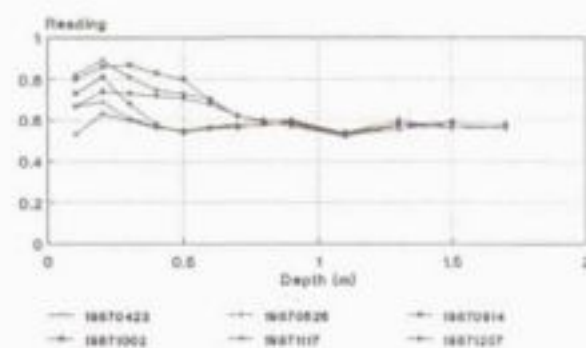
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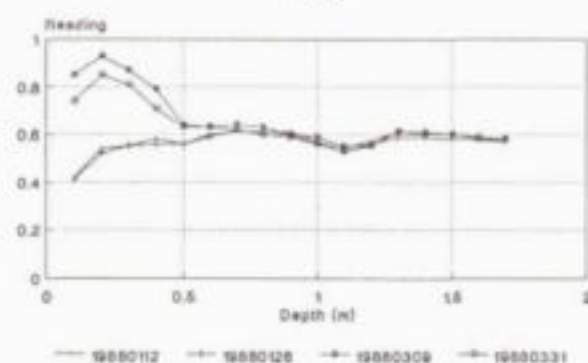
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January - March 1987



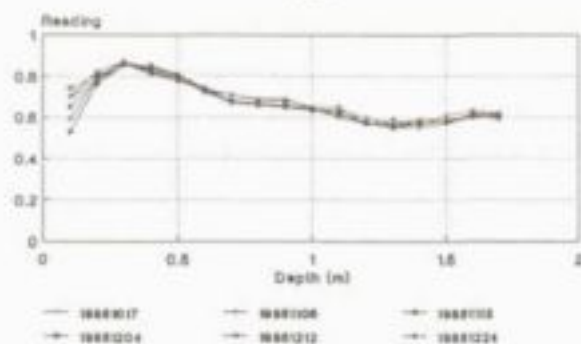
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April - December 1987



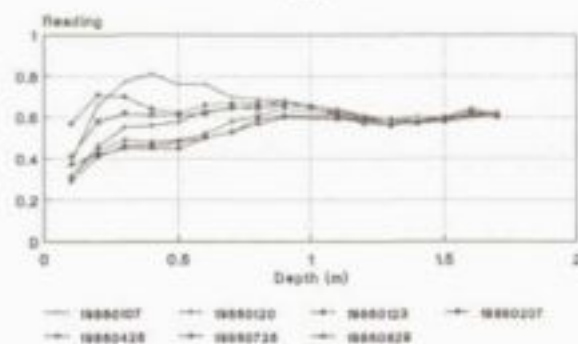
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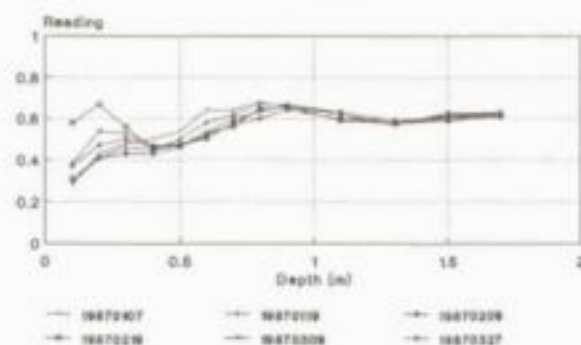
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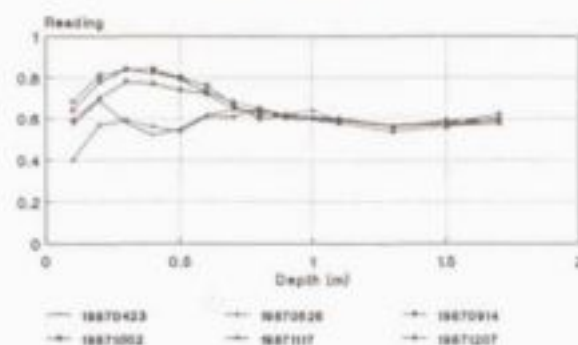
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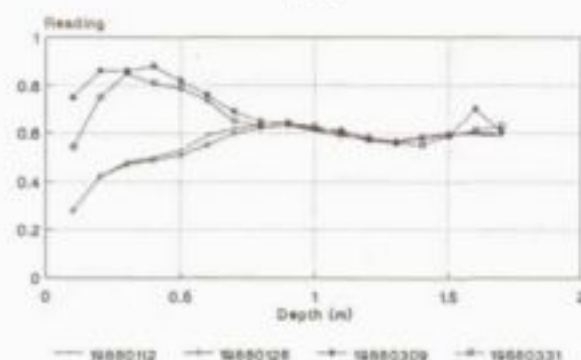
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January - March 1987



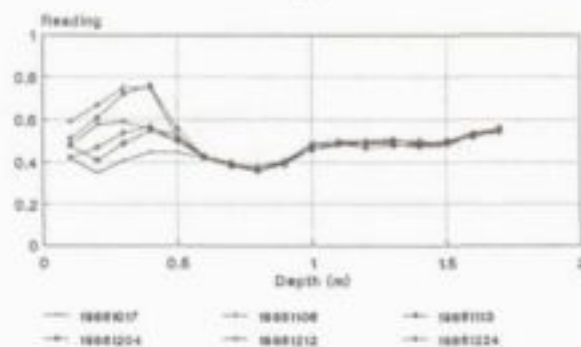
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April - December 1987



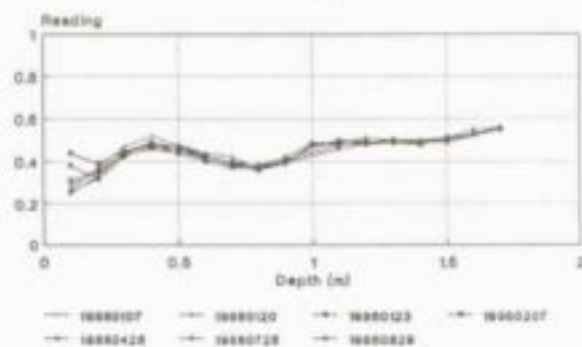
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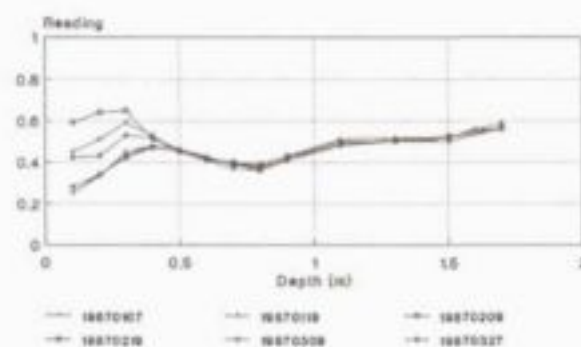
DEWETSDORP : IGS/WRC RESEARCH PROJECT
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1985



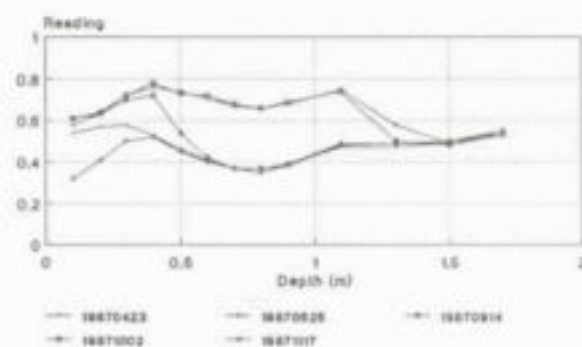
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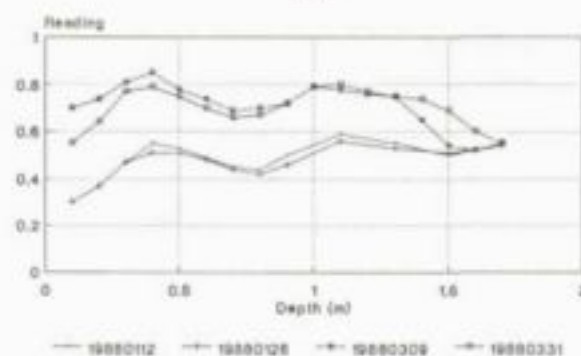
DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 20
January - March 1987



DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 20
April - December 1987



DEWETSDORP : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 20
1988



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* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : RECORDER NEXT TO GATE IN MIDDLE CAMP.

Site ID: 2926DA36429

Number on map: G36429

Y-Coordinate: 31929.55

X-Coordinate: 3271343.14

Ground Elevation: 1516.17 mamsl

Collar Height: 0.00 m

Depth of Casing: 12.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850122

Depth (m)		Thickness	Description
From	To	(m)	
Geology			
0.00	3.00	3.00	SOIL : 46RCNT clayey.
3.00	5.00	2.00	SANDSTONE : 39BFRT green; weathered.
5.00	16.00	11.00	SHALE : 39BFRT light green; slightly weathered.
16.00	23.00	7.00	SHALE : 39BFRT grey; sandy.
23.00	29.00	6.00	SANDSTONE : 39BFRT fine grained; light grey.
29.00	36.00	7.00	SHALE : 39BFRT sandy.
36.00	42.00	6.00	SHALE : 39BFRT grey.
42.00	44.00	2.00	SANDSTONE : 39BFRT
44.00	45.00	1.00	SHALE : 39BFRT
45.00	49.00	4.00	SANDSTONE : 39BFRT
49.00	68.00	19.00	SANDSTONE AND SHALE : 39BFRT
68.00	74.00	6.00	SANDSTONE AND SHALE : 39BFRT fine grained.
74.00	81.00	7.00	SANDSTONE : 39BFRT light grey; hard.
81.00	82.00	1.00	SHALE : 39BFRT baked; sandy.
82.00	100.00	18.00	DOLERITE : 40KRDL

Geohydrology

77.00 360 litres/hour yield

* G-BASE * SITE REPORT

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : RECORDER FURTHEST IN VELD IN MIDDLE CAMP

Site ID: 2926DA36430

Number on map: G36430

Y-Coordinate: 31262.94

X-Coordinate: 3271191.42

Ground Elevation: 1501.61 mamsl

Collar Height: 0.00 m

Depth of Casing: 15.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850123

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	5.00	5.00	SOIL : 45RCNT clayey.
5.00	13.00	8.00	SANDSTONE AND SHALE : 39BFRT yellowish green; very jointed; weathered.
13.00	30.00	17.00	MUDSTONE : 39BFRT purple brown.
30.00	36.00	6.00	SILTSTONE : 39BFRT light grey.
36.00	39.00	3.00	MUDSTONE : 39BFRT pink.
39.00	44.80	5.80	SILTSTONE : 39BFRT light grey.
44.80	45.00	0.20	SILTSTONE : 39BFRT baked.
45.00	50.00	5.00	DOLERITE : 40KRDL
50.00	51.00	1.00	SILTSTONE : 39BFRT dark grey; baked.
51.00	53.00	2.00	SANDSTONE : 39BFRT fine grained.
53.00	54.00	1.00	SHALE : 39BFRT sandy.
54.00	74.00	20.00	SANDSTONE : 39BFRT
74.00	76.00	2.00	SHALE : 39BFRT sandy.
76.00	83.00	7.00	MUDSTONE : 39BFRT purple.
83.00	89.00	6.00	MUDSTONE : 39BFRT
89.00	93.00	4.00	SHALE : 39BFRT greyish green.
93.00	97.00	4.00	SANDSTONE : 39BFRT light green.
97.00	100.00	3.00	MUDSTONE : 39BFRT purple.

Geohydrology

18.50	0 litres/hour yield
44.50	9720 litres/hour yield

 * G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : PRODUCTIONHOLE NEAR ROAD CAMP

Site ID: 2926DA36431

Number on map: G35431

Y-Coordinate: 32603.58

X-Coordinate: 3270940.44

Ground Elevation: 1529.40 mamsl

Collar Height: 0.00 m

Depth of Casing: 5.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850123

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	5.00	5.00	SOIL : 45RCNT clayey.
5.00	17.00	12.00	SHALE : 39BFRT green.
17.00	27.00	10.00	MUDSTONE : 39BFRT purple.
27.00	30.00	3.00	SHALE : 39BFRT
30.00	34.00	4.00	SANDSTONE : 39BFRT massive.
34.00	36.00	2.00	SANDSTONE AND SHALE : 39BFRT
36.00	41.00	5.00	SANDSTONE : 39BFRT light grey.
41.00	49.00	8.00	SANDSTONE AND SHALE : 39BFRT
49.00	50.00	1.00	MUDSTONE : 39BFRT purple.
50.00	51.00	1.00	SANDSTONE : 39BFRT
51.00	57.00	6.00	SHALE : 39BFRT sandy.
57.00	60.00	3.00	SANDSTONE : 39BFRT fine grained.
60.00	62.00	2.00	SANDSTONE AND SHALE : 39BFRT
62.00	64.00	2.00	MUDSTONE : 39BFRT purple.
64.00	65.00	1.00	MUDSTONE : 39BFRT
65.00	68.00	3.00	SILTSTONE : 39BFRT light green.
68.00	77.00	9.00	SANDSTONE : 39BFRT fine to medium grained.
77.00	96.00	19.00	SANDSTONE AND SHALE : 39BFRT
96.00	100.00	4.00	DOLERITE : 40KRDL

Geohydrology

23.00

2160 litres/hour yield

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : WELLCAP UPSTREAM DAM

Site ID: 2926DA36432

Number on map: G36432

Y-Coordinate: 32353.49

X-Coordinate: 3270962.91

Ground Elevation: 1521.50 mamsl

Collar Height: 0.00 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850123

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	2.00	2.00	SOIL : 45RCNT brown; clayey.
2.00	5.00	3.00	CLAY : 45RCNT brown; sandy.
5.00	7.00	2.00	SHALE : 39BFRT light green; weathered.
7.00	10.00	3.00	SANDSTONE : 39BFRT weathered.
10.00	14.00	4.00	SANDSTONE AND SHALE : 39BFRT very fine grained; light green; solid.
14.00	16.00	2.00	MUDSTONE : 39BFRT
16.00	21.00	5.00	MUDSTONE : 39BFRT light green; solid.
21.00	23.00	2.00	SHALE : 39BFRT bluish grey.
23.00	34.00	11.00	SANDSTONE : 39BFRT light grey.
34.00	35.00	1.00	SANDSTONE : 39BFRT light grey.
35.00	38.00	3.00	SHALE : 39BFRT bluish grey; sandy.
38.00	40.00	2.00	SANDSTONE : 39BFRT light grey.

Geohydrology

23.00 360 litres/hour yield

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : WELLCAP FURTHEST IN MIDDLE CAMP

Site ID: 2926DA36433

Number on map: G36433

Y-Coordinate: 31049.15

X-Coordinate: 3271184.47

Ground Elevation: 1498.12 mamsl

Collar Height: 0.00 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850124

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	5.00	5.00	SOIL : 45RCNT brown; sandy.
5.00	6.00	1.00	MUDSTONE : 39BFRT weathered.
6.00	13.00	7.00	SANDSTONE AND SHALE : 39BFRT yellowish green; jointed; weathered.
13.00	15.00	2.00	MUDSTONE : 39BFRT purple.
15.00	18.00	3.00	SHALE : 39BFRT bluish grey; sandy.
18.00	22.00	4.00	SANDSTONE : 39BFRT fine grained; slightly jointed
22.00	24.00	2.00	SHALE : 39BFRT sandy.
24.00	30.00	6.00	MUDSTONE : 39BFRT purple.
30.00	32.00	2.00	SHALE : 39BFRT light grey; sandy.
32.00	33.00	1.00	DOLERITE : 40KRDL dark grey; fresh.
33.00	38.00	5.00	SANDSTONE : 39BFRT fine grained; light grey.
38.00	45.00	7.00	MUDSTONE : 39BFRT bluish grey.
45.00	48.00	3.00	SANDSTONE : 39BFRT fine grained; light grey.
48.00	48.80	0.80	MUDSTONE : 39BFRT

Geohydrology

19.20	360 litres/hour yield
34.00	1080 litres/hour yield

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : 2ND HOLE IN MIDDLE CAMP

Site ID: 2926DA36434

Number on map: G36434

Y-Coordinate: 30000.00

X-Coordinate: 3300000.00

Ground Elevation: 1506.00 mamsl

Collar Height: 0.00 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850125

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	1.00	1.00	SOIL : 45RCNT brown; clayey.
1.00	2.00	1.00	SANDSTONE : 39BFRT weathered.
2.00	13.00	11.00	SANDSTONE AND SHALE : 39BFRT light green; jointed; weathered.
13.00	17.00	4.00	SANDSTONE : 39BFRT light grey.
17.00	20.00	3.00	SHALE : 39BFRT grey; sandy.
20.00	24.00	4.00	SANDSTONE : 39BFRT light grey.
24.00	29.00	5.00	SHALE : 39BFRT light grey; sandy.
29.00	35.00	6.00	MUDSTONE : 39BFRT purple.
35.00	39.00	4.00	MUDSTONE : 39BFRT light grey; sandy.
39.00	42.00	3.00	SANDSTONE : 30BFRT fine grained; light grey.
42.00	55.00	13.00	MUDSTONE : 39BFRT
55.00	60.00	5.00	SHALE : 39BFRT grey.
60.00	68.00	8.00	SANDSTONE : 39BFRT fine grained; light grey.
68.00	81.00	13.00	SANDSTONE AND SHALE : 39BFRT grey.
81.00	86.00	5.00	SANDSTONE : 39BFRT fine grained; light grey.
86.00	90.00	4.00	MUDSTONE : 39BFRT grey.

Geohydrology

34.00 42.00 8.00 720 litres/hour yield

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : WELLCAP, 1ST HOLE IN MIDDLE CAMP

Site ID: 2926DA36435

Number on map: G36435

Y-Coordinate: 31558.07

X-Coordinate: 3271310.50

Ground Elevation: 1508.28 mamsl

Collar Height: 0.00 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850125

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	3.00	3.00	SOIL : 46RCNT brown; sandy; clayey.
3.00	15.00	12.00	SANDSTONE : 39BFRT very fine grained; light green jointed.
15.00	22.00	7.00	SANDSTONE : 39BFRT fine grained; light grey.
22.00	25.00	3.00	SHALE : 39BFRT grey; sandy.
25.00	27.00	2.00	SANDSTONE : 39BFRT light grey.
27.00	28.00	1.00	SHALE : 39BFRT grey; sandy.
28.00	33.00	5.00	MUDSTONE : 39BFRT purple.
33.00	37.00	4.00	SHALE : 39BFRT sandy.
37.00	41.00	4.00	SANDSTONE : 39BFRT fine grained.

Geohydrology

19.00 360 litres/hour yield

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : FURTHEST HOLE IN MIDDLE CAMP

Site ID: 2926DA36436

Number on map: G36436

Y-Coordinate: 31089.44

X-Coordinate: 3271090.75

Ground Elevation: 1499.67 mamsl

Collar Height: 0.00 m

Depth of Casing: 7.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850125

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	2.00	2.00	CLAY : 46RCNT dark blue.
2.00	6.00	4.00	CLAY : 46RCNT brown; sandy.
6.00	13.00	7.00	SHALE : 39BFRT light green; sandy.
13.00	16.00	3.00	MUDSTONE : 39BFRT purple.
16.00	20.00	4.00	SANDSTONE : 39BFRT fine grained; dark grey.
20.00	21.00	1.00	DOLERITE : 40KRDL fine crystalline; dark grey.
21.00	22.00	1.00	SANDSTONE : 39BFRT baked.
22.00	30.00	8.00	MUDSTONE : 39BFRT purple.
30.00	32.00	2.00	SHALE : 39BFRT grey; baked.
32.00	33.00	1.00	DOLERITE : 40KRDL dark grey.
33.00	36.00	3.00	MUDSTONE : 39BFRT light grey.
36.00	40.00	4.00	SILTSTONE : 39BFRT grey.

Geohydrology

16.00	19.00	3.00	0 litres/hour yield
31.00			1080 litres/hour yield
			TOTAL YIELD

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : W OF ROAD AT TURN-OFF TO DEWETSDORP

Site ID: 2926DA36437

Number on map: G36437

Y-Coordinate: 32340.41

X-Coordinate: 3271433.17

Ground Elevation: 1532.79 mamsl

Collar Height: 0.00 m

Depth of Casing: 12.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850128

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	4.00	4.00	SOIL : 46RCNT light brown; clayey.
4.00	8.00	4.00	SANDSTONE : 39BFRT light green; weathered.
8.00	10.00	2.00	MUDSTONE : 39BFRT purple.
10.00	13.00	3.00	SHALE : 39BFRT light green; weathered.
13.00	14.00	1.00	MUDSTONE : 39BFRT purple.
14.00	15.00	1.00	SANDSTONE : 39BFRT fine grained.
15.00	18.00	3.00	MUDSTONE : 39BFRT purple.
18.00	24.00	6.00	SHALE : 39BFRT greyish green; sandy.
24.00	27.00	3.00	SANDSTONE : 39BFRT fine grained; light grey.
27.00	32.00	5.00	SILTSTONE : 39BFRT light grey.
32.00	41.00	9.00	SANDSTONE : 39BFRT fine grained; light grey.
41.00	43.00	2.00	SHALE : 39BFRT dark grey.
43.00	51.00	8.00	SANDSTONE AND SHALE : 39BFRT green.
51.00	61.00	10.00	MUDSTONE : 39BFRT purple.
61.00	63.00	2.00	SHALE : 39BFRT greenish grey; sandy.
63.00	64.00	1.00	SANDSTONE : 39BFRT light grey.
64.00	71.00	7.00	SHALE : 39BFRT greenish grey.
71.00	72.00	1.00	SHALE : 39BFRT sandy; baked.
72.00	74.00	2.00	DOLERITE : 40KRDL dark grey.
74.00	75.00	1.00	SHALE : 39BFRT dark grey; baked.
75.00	78.00	3.00	SANDSTONE : 39BFRT fine grained; light grey.
78.00	90.00	12.00	SHALE : 39BFRT grey; sandy.
90.00	91.00	1.00	SANDSTONE : 39bftr fine grained; light grey.
91.00	98.00	7.00	SHALE : 39BFRT light grey.
98.00	100.00	2.00	DOLERITE : 40KRDL dark grey.

Geohydrology

22.00

0.02 litres/hour yield

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : UPSTREAM OF DAM IN NORTH CAMP

Site ID: 2926DA36438

Number on map: G36438

Y-Coordinate: 32387.72

X-Coordinate: 3270813.71

Ground Elevation: 1521.36 mamsl

Collar Height: 0.00 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850129

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	2.00	2.00	SANDSTONE : 46RCNT brown; clayey.
2.00	7.00	5.00	CLAY : 46RCNT light brown; sandy.
7.00	9.00	2.00	SHALE : 39BFRT green; weathered.
9.00	14.00	5.00	SILTSTONE AND SHALE : 39BFRT green.
14.00	18.00	4.00	MUDSTONE : 39BFRT purple.
18.00	24.00	6.00	SANDSTONE : 39BFRT light grey.
24.00	26.00	2.00	SHALE : 39BFRT fine grained; dark grey.
26.00	33.00	7.00	SHALE : 39BFRT dark grey.
33.00	42.00	9.00	SANDSTONE AND SHALE : 39BFRT
42.00	43.00	1.00	SHALE : 39BFRT dark grey.

Geohydrology

25.00 < 0.02 litres/hour yield

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : RECORDER BELOW QUARRY

Site ID: 2926DA36439

Number on map: G36439

Y-Coordinate: 32522.79

X-Coordinate: 3271545.45

Ground Elevation: 1542.70 mamsl

Collar Height: 0.00 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850129

Depth (m)	Thickness
From	To (m)

Description

Geology

0.00	5.00	5.00	SOIL : 46RCNT brown; sandy.
5.00	8.00	3.00	SANDSTONE AND SHALE : 39BFRT very weathered.
8.00	11.00	3.00	SANDSTONE : 39BFRT light green; jointed.
11.00	16.00	5.00	SANDSTONE AND SHALE : 39BFRT medium grained.
16.00	17.00	1.00	SHALE AND SILTSTONE : 39BFRT greyish blue.
17.00	20.00	3.00	SANDSTONE : 39BFRT medium grained; grey.
20.00	22.00	2.00	MUDSTONE : 39BFRT purple.
22.00	23.00	1.00	SANDSTONE : 39BFRT light grey.
23.00	28.00	5.00	MUDSTONE : 39BFRT purple.
28.00	37.00	9.00	SILTSTONE AND SHALE : 39BFRT
37.00	40.00	3.00	SANDSTONE : 39BFRT fine grained; light grey.

Geohydrology

0.015 litres/hour yield. Interception uncertain.

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : WELLCAP NEAR V3

Site ID: 2926DA36440

Number on map: G36440

Y-Coordinate: 32547.32

X-Coordinate: 3271413.98

Ground Elevation: 1538.50 mamsl

Collar Height: 0.00 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850128

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	2.00	2.00	SOIL : 46RCNT brown; sandy.
2.00	3.00	1.00	SOIL : 46RCNT light brown; clayey.
3.00	6.00	3.00	SOIL : 46RCNT dark brown; clayey.
6.00	14.00	8.00	SANDSTONE : 39BFRT greyish green; weathered.
14.00	17.00	3.00	SILTSTONE AND SHALE : 39BFRT purple.
17.00	19.00	2.00	SHALE : 39BFRT grey; sandy.
19.00	20.00	1.00	SANDSTONE : 39BFRT grey.
20.00	21.00	1.00	SHALE : 39BFRT grey; sandy.
21.00	23.00	2.00	MUDSTONE : 39BFRT purple.
23.00	26.00	3.00	SILTSTONE AND SHALE : 39BFRT
26.00	30.00	4.00	SHALE : 39BFRT grey; sandy.
30.00	34.00	4.00	SANDSTONE : 39BFRT fine grained; light grey.
34.00	38.00	4.00	SHALE : 39BFRT grey; sandy.
38.00	40.00	2.00	SANDSTONE : 39BFRT light grey.

Geohydrology

0.015 litres/hour yield. Interception uncertain.

=====

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

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Site name : KAREEFONTEIN

Site purpose : COORDINATEN FOUT

Site ID: 2926DA36441

Number on map: G36441

Y-Coordinate: 34064.00

Ground Elevation: 1500.00 mamsl

Depth of Casing: 2.00 m

Logged by: IGS

X-Coordinate: 3272905.40

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850128

Depth (m)		Thickness (m)	Description
From	To		

Geology			
0.00	3.00	3.00	SAND : 46RCNT medium to coarse grained; reddish brown; clayey.
3.00	9.00	6.00	SANDSTONE AND SHALE : 39BFRT light green; weathered.
9.00	14.00	5.00	SANDSTONE : 39BFRT fine grained; light grey; slightly weathered.
14.00	19.00	5.00	MUDSTONE : 39BFRT purple.
19.00	20.00	1.00	SANDSTONE : 39BFRT fine grained; light grey.
20.00	28.00	8.00	MUDSTONE : 39BFRT purple.
28.00	31.00	3.00	SHALE AND SILTSTONE : 39BFRT grey; sandy.
31.00	36.00	5.00	SANDSTONE : 39BFRT light grey.
36.00	40.00	4.00	SHALE : 39BFRT bluish grey; sandy.

Geohydrology

31.00

0,07 litres/hour estimated yield

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : WELLCAP NEAR THABA NCHU TURNOFF

Site ID: 2926DA36442

Number on map: G36442

Y-Coordinate: 32756.18

X-Coordinate: 3270974.79

Ground Elevation: 1500.00 mamsl

Collar Height: 0.00 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850129

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	0.00	0.00	:
0.00	3.00	3.00	CLAY : 46RCNT reddish brown; sandy.
3.00	6.00	3.00	SHALE : 39BFRT light green; sandy; weathered.
6.00	9.00	3.00	SANDSTONE : 39BFRT light green; weathered.
9.00	10.00	1.00	SANDSTONE : 39BFRT light grey; soft.
10.00	11.00	1.00	MUDSTONE : 39BFRT purple.
11.00	15.00	4.00	SILTSTONE AND SHALE : 39BFRT purple.
15.00	16.00	1.00	SANDSTONE : 39BFRT very fine grained.
16.00	17.00	1.00	MUDSTONE : 39BFRT purple.
17.00	22.00	5.00	SILTSTONE AND SHALE : 39BFRT purple.
22.00	24.00	2.00	MUDSTONE : 39BFRT purple.
24.00	26.00	2.00	SILTSTONE AND SHALE : 39BFRT
26.00	28.00	2.00	SHALE : 39BFRT greyish green; sandy.
28.00	31.00	3.00	SANDSTONE : 39BFRT fine grained; light grey.
31.00	35.00	4.00	SHALE : 39BFRT grey; sandy.
35.00	39.00	4.00	SANDSTONE : 39BFRT light grey.
39.00	40.00	1.00	SANDSTONE AND SHALE : 39BFRT

Geohydrology

39.00 0 litres/hour yield

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : RECORDER GOLF COURSE

Site ID: 2926DA36443

Number on map: G36443

Y-Coordinate: 32284.42

X-Coordinate: 3272579.41

Ground Elevation: 1534.94 mamsl

Collar Height: 0.00 m

Depth of Casing: 5.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850130

Depth (m)		Thickness	Description
From	To	(m)	
Geology			
0.00	3.00	3.00	SOIL : 46RCNT brown; clayey.
3.00	5.00	2.00	MUDSTONE : 39BFRT very weathered.
5.00	12.00	7.00	SHALE : 39BFRT light green; weathered; sandy.
12.00	15.00	3.00	SHALE : 39BFRT light green; sandy.
15.00	18.00	3.00	MUDSTONE : 39BFRT purple.
18.00	22.00	4.00	SHALE : 39BFRT light green; sandy.
22.00	24.00	2.00	MUDSTONE : 39BFRT purple.
24.00	27.00	3.00	SANDSTONE : 39BFRT fine grained; light grey.
27.00	28.00	1.00	SILTSTONE : 39BFRT grey.
28.00	30.00	2.00	MUDSTONE : 39BFRT purple.
30.00	32.00	2.00	SANDSTONE : 39BFRT fine grained; light grey.
32.00	37.00	5.00	SHALE : 39BFRT grey; sandy.
37.00	38.00	1.00	SANDSTONE : 39BFRT fine grained; grey.
38.00	40.00	2.00	SHALE : 39BFRT sandy.
40.00	45.00	5.00	SANDSTONE : 39BFRT fine to medium grained; grey.
45.00	50.00	5.00	SHALE : 39BFRT grey; sandy.
50.00	56.00	6.00	SANDSTONE : 39BFRT fine grained; grey.
56.00	62.00	6.00	SILTSTONE : 39BFRT
62.00	65.00	3.00	SANDSTONE : 39BFRT fine to medium grained; grey.
65.00	67.00	2.00	SHALE : 39BFRT grey; sandy.
67.00	71.00	4.00	MUDSTONE : 39BFRT purple.
71.00	73.00	2.00	SHALE : 39BFRT grey.
73.00	77.00	4.00	MUDSTONE : 39BFRT purple.
77.00	79.00	2.00	SILTSTONE : 39BFRT grey.
79.00	84.00	5.00	MUDSTONE : 39BFRT purple.
84.00	87.00	3.00	SILTSTONE AND SHALE : 39BFRT grey.
87.00	90.00	3.00	MUDSTONE : 39BFRT purple.
90.00	91.00	1.00	SILTSTONE : 39BFRT grey.
91.00	95.00	4.00	MUDSTONE : 39BFRT purple.
95.00	99.00	4.00	SILTSTONE : 39BFRT grey.
99.00	101.00	2.00	SANDSTONE : 39BFRT fine grained.

Geohydrology

53.00	54.00	1.00	0 litres/hour yield
79.00			1440 litres/hour yield
			TOTAL YIELD 0,49 l/s AFTER 30 MIN BLOW TEST.

* G-BASE * S I T E R E P O R T

DATE: 20 March 1988

Generated for : DEWETSDORP - IGS/WRC RESEARCH PROJECT

Site name : KAREEFONTEIN

Site purpose : CHECK COORDINATES, WELLCAP NEAR MIDDLE CAMP GATE

Site ID: 2926DA36444

Number on map: G36444

Y-Coordinate: 32143.40

X-Coordinate: 3271319.75

Ground Elevation: 1522.90 mamsl

Collar Height: 0.00 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850130

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	3.00	3.00	CLAY : 46RCNT reddish brown.
3.00	4.00	1.00	SHALE : 39BFRT weathered.
4.00	7.00	3.00	SHALE AND SILTSTONE : 39BFRT greyish green.
7.00	10.00	3.00	SANDSTONE : 39BFRT fine grained; greyish green.
10.00	11.00	1.00	SHALE : 39BFRT red.
11.00	13.00	2.00	SILTSTONE : 39BFRT bluish grey.
13.00	15.00	2.00	SANDSTONE : 39BFRT fine grained; bluish grey.
15.00	20.00	5.00	SILTSTONE AND SHALE : 39BFRT greyish blue.
20.00	22.00	2.00	SILTSTONE : 39BFRT
22.00	29.00	7.00	SILTSTONE : 39BFRT
29.00	30.00	1.00	SHALE : 39BFRT black.
30.00	34.00	4.00	SANDSTONE : 39BFRT fine grained.
34.00	37.00	3.00	SILTSTONE AND SHALE : 39BFRT
37.00	41.00	4.00	SANDSTONE AND SHALE : 39BFRT

Geohydrology

25.00 0 litres/hour yield
 MINIMAL WATER STRUCK.

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* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

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Site name : KAREEFONTEIN, next gate in Middle Camp

Remarks : Dry when drilled.

Site ID: 2926DA36445

Number on map: G36445

Y-Coordinate: 32118.59

X-Coordinate: 3271520.02

Ground Elevation: 1526.10 mamsl

Collar Height: 0.15 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850130

Depth (m)	Thickness		
From	To	(m)	Description

Geology

0.00	4.00	4.00	CLAY : 46RCNT light brown.
4.00	7.00	3.00	SHALE : 39BFRT red; weathered.
7.00	9.00	2.00	SHALE : 39BFRT greyish green; slightly weathered.
9.00	11.00	2.00	SANDSTONE : 39BFRT fine grained; bluish grey.
11.00	14.00	3.00	SILTSTONE : 39BFRT greyish blue. LOCALLY SANDY.
14.00	15.00	1.00	SHALE : 39BFRT dark grey.
15.00	18.50	3.50	SILTSTONE : 39BFRT
18.50	20.50	2.00	SHALE : 39BFRT
20.50	28.00	7.50	SANDSTONE : 39BFRT light blue.
28.00	29.00	1.00	SHALE : 39BFRT dark grey.
29.00	36.00	7.00	SANDSTONE : 39BFRT ALTERNATING WITH SILTSTONE.
36.00	38.00	2.00	SILTSTONE AND SHALE : 39BFRT BLACK SHALE.
38.00	41.00	3.00	SANDSTONE : 39BFRT ALTERNATING WITH SILTSTONE.

Geohydrology

(no information.)

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* G-BASE * S I T E R E P O R T * DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

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Site name : KAREEFONTEIN, well cap on Golf Course

Remarks :

Site ID: 2926DA36446

Number on map: G36446

Y-Coordinate: 32198.41
 Ground Elevation: 1523.52 mamsl
 Depth of Casing: 6.00 m
 Logged by: IGS

X-Coordinate: 3272722.35
 Collar Height: 0.45 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850130

Depth (m)		Thickness	Description
From	To	(m)	

Geology			

0.00	5.00	5.00	CLAY : 46RCNT brown.
5.00	17.00	12.00	SILTSTONE AND SHALE : 39BFRT red. RED SHALE ALTERNATING WITH GREYISH GREEN SHALE/MUDSTONE.
17.00	19.00	2.00	SHALE AND SILTSTONE : 39BFRT bluish grey.
19.00	20.00	1.00	SHALE AND SILTSTONE : 39BFRT red. AS AT 5 - 17 M.
20.00	23.00	3.00	SILTSTONE : 39BFRT bluish grey. WITH SHALE, GRADING DOWNWARDS INTO FINE SANDY FACIES.
23.00	25.00	2.00	SANDSTONE : 39BFRT fine grained. WITH THIN DARK GREY SHALE BANDS.
25.00	29.00	4.00	SANDSTONE : 39BFRT fine grained. THIN-LAYERED WITH INTERCALATED SHALE BANDS.
29.00	31.00	2.00	SANDSTONE : 39BFRT
31.00	34.00	3.00	SANDSTONE AND SHALE : 39BFRT dark grey. WITH DARK GREY SHALE; DOWNWARDS MORE MUDDY.
34.00	39.00	5.00	MUDSTONE : 39BFRT WITH INTERCALATED SHALE BANDS.
39.00	42.00	3.00	MUDSTONE : 39BFRT sandy. DOWNWARDS SANDY
42.00	48.00	6.00	SHALE AND SILTSTONE : 39BFRT red.
48.00	54.00	6.00	SANDSTONE AND SHALE : 39BFRT SANDSTONE WITH A FEW THIN SHALE LAYERS.

Geohydrology

41.00	0.00	1080 litres/hour yield
YIELD 0,333 l/s DURING BLOW TEST AFTER COMPL.		

* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : KAREEFONTEIN, at Golf course near brickfield

Remarks :

Site ID: 2926DA36447

Number on map: G36447

Y-Coordinate: 32143.62

X-Coordinate: 3272571.44

Ground Elevation: 1525.34 mamsl

Collar Height: 0.34 m

Depth of Casing: 3.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850130

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	2.00	2.00	CLAY : 46RCNT brown.
2.00	4.00	2.00	MUDSTONE : 39BFRT weathered.
4.00	6.00	2.00	SHALE : 39BFRT red; slightly weathered.
6.00	9.00	3.00	MUDSTONE : 39BFRT yellowish green.
9.00	16.00	7.00	SILTSTONE AND SHALE : 39BFRT red. RED SHALE ALTERNATING WITH PALE GREEN MUDSTONE.
16.00	17.00	1.00	MUDSTONE : 39BFRT
17.00	18.00	1.00	SHALE AND SILTSTONE : 39BFRT red.
18.00	22.00	4.00	MUDSTONE : 39BFRT bluish grey.
22.00	23.00	1.00	SHALE : 39BFRT red.
23.00	25.00	2.00	MUDSTONE : 39BFRT greyish blue.
25.00	30.00	5.00	SANDSTONE : 39BFRT slightly silty. WITH FEW MUDSTONE LAYERS.
30.00	35.00	5.00	SANDSTONE : 39BFRT fine grained.
35.00	36.00	1.00	SILTSTONE AND SHALE : 39BFRT BLACK SHALE BANDS.
36.00	37.00	1.00	SANDSTONE : 39BFRT With siltstone layers.
37.00	39.00	2.00	SILTSTONE AND SHALE : 39BFRT Dark grey shale intercalated.
39.00	40.00	1.00	SANDSTONE : 39BFRT fine grained.

Geohydrology

(no information.)

* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : KAREEFONTEIN, furthest in Pump Camp

Remarks : On dolerite dyke. Dry when drilled.

Site ID: 2926DA36448

Number on map: G36448

Y-Coordinate: 30550.00

X-Coordinate: 3270925.00

Ground Elevation: 1492.00 mamsl

Collar Height: 0.26 m

Depth of Casing: 7.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850131

Depth (m)	Thickness		
From	To	(m)	Description

Geology

0.00	6.00	6.00	CLAY : 46RCNT sandy. WITH SANDY TOP SOIL.
6.00	9.00	3.00	MUDSTONE : 39BFRT reddish yellow.
9.00	15.00	6.00	MUDSTONE : 39BFRT red. RED AND GREYISH GREEN MUDSTONE.
15.00	19.00	4.00	SHALE : 39BFRT greyish blue.
19.00	30.00	11.00	SILTSTONE AND SHALE : 39BFRT greyish blue. INTERCALATED GREY-GREEN SHALE.
30.00	31.00	1.00	SHALE : 39BFRT
31.00	33.00	2.00	MUDSTONE : 39BFRT greyish blue.
33.00	37.00	4.00	SANDSTONE : 39BFRT greyish blue.
37.00	41.00	4.00	SILTSTONE AND SHALE : 39BFRT greyish blue. SILTSTONE WITH SHALE/MUDSTONE GREYISH BLUE/GREEN.

Geohydrology

(no information.)

N-S coordinate : 3270601.34
Collar Height: 0.38 m
Diameter of Hole: 165 mm
Date Drilled: 19850131

18.00 0.00 2520 litres/hour yield

* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : ELIM (JOUBERTS RUST), near railway crossing

Remarks :

Site ID: 2926DA36450

Number on map: G36450

Y-Coordinate: 30200.00

X-Coordinate: 3270575.00

Ground Elevation: 1488.00 mamsl

Collar Height: 0.28 m

Depth of Casing: 12.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850131

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	4.00	4.00	CLAY : 46RCNT yellowish brown.
4.00	8.00	4.00	CLAY : 46RCNT reddish brown.
8.00	11.00	3.00	SHALE : 39BFRT red; weathered.
11.00	15.00	4.00	MUDSTONE : 39BFRT greyish green. sandy facies at bottom.
15.00	18.00	3.00	SHALE : 39BFRT red.
18.00	22.00	4.00	SHALE AND SILTSTONE : 39BFRT alternating greyish blue siltstone and red shale.
22.00	25.00	3.00	SANDSTONE : 39BFRT fine grained; blue.
25.00	28.00	3.00	SILTSTONE AND SHALE : 39BFRT greyish blue. few thin, red shale layers.
28.00	31.00	3.00	SHALE : 39BFRT red.
31.00	35.00	4.00	SANDSTONE : 39BFRT fine grained; blue.
35.00	36.00	1.00	SILTSTONE : 39BFRT
36.00	37.00	1.00	SANDSTONE : 39BFRT
37.00	41.00	4.00	SILTSTONE : 39BFRT sandy. predominantly siltstone alternating with more sandy facies and a few thin dark red shale layers.

Geohydrology

20.00 0.00 3960 litres/hour yield

* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : FRANKFÜRT, recorder site 300 m SE FRT 1

Remarks : Dry when drilled. Depth on 30-5-1988 6.92 m

Site ID: 2926DA36451

Number on map: G36451

Y-Coordinate: 30750.00

X-Coordinate: 3270550.00

Ground Elevation: 1490.00 mamsl

Collar Height: 0.10 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850201

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	6.00	6.00	CLAY : 46RCNT bluish red.
6.00	8.00	2.00	SHALE : 39BFRT red; weathered.
8.00	13.00	5.00	SHALE : 39BFRT red; slightly weathered. with green mudstone.
13.00	16.00	3.00	SHALE : 39BFRT red. with subordinate greenish grey mudstone.
16.00	19.00	3.00	SHALE : 39BFRT red. with green mudstone.
19.00	21.00	2.00	SHALE AND SILTSTONE : 39BFRT red. with greyish blue fine-grained sandstone.
21.00	22.00	1.00	SANDSTONE : 39BFRT fine grained; greyish blue.
22.00	25.00	3.00	MUDSTONE : 39BFRT greyish blue.
25.00	28.00	3.00	SANDSTONE : 39BFRT fine grained; greyish blue.
28.00	30.00	2.00	SANDSTONE : 39BFRT fine grained; greyish blue. alternating with siltstone.

Geohydrology

(no information.)

* G-BASE * SITE REPORT *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : FRANKFÜRT, along road near Kareefonteinspruit

Remarks :

Site ID: 2926DA36452

Number on map: G36452

Y-Coordinate: 30564.23

X-Coordinate: 3270426.68

Ground Elevation: 1488.78 mamsl

Collar Height: 0.35 m

Depth of Casing: 12.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850201

Depth (m)	Thickness		
From	To	(m)	Description

Geology

0.00	11.00	11.00	CLAY : 46RCNT reddish brown.
11.00	13.00	2.00	MUDSTONE : 39BFRT green.
13.00	16.00	3.00	SILTSTONE : 39BFRT in places sandy; with darker shale bands.
16.00	19.00	3.00	SANDSTONE : 39BFRT greyish blue. with coarse fragments; rust stained.
19.00	30.00	11.00	SANDSTONE : 39BFRT fine grained. with intercalated siltstone and shale.

Geohydrology

17.00	0.00	1080 litres/hour	yield
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* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : ELIM (JOUBERTS RUST)

Remarks : In SW corner of farm near concrete reservoir. Dry when drilled. Collapsed since 3-12-1985 (1 m deep).

Site ID: 2926DA36453

Number on map: G36453

Y-Coordinate: 30155.00

X-Coordinate: 3270780.00

Ground Elevation: 1492.00 mamsl

Collar Height: 0.00 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850201

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	1.00	1.00	CLAY : 46RCNT
1.00	2.00	1.00	MUDSTONE : 39BFRT greenish yellow.
2.00	8.00	6.00	MUDSTONE : 39BFRT bluish grey.
8.00	17.00	9.00	SHALE : 39BFRT red. with interclated bluish grey shale.
17.00	21.00	4.00	SILTSTONE : 39BFRT greyish blue.
21.00	25.00	4.00	SHALE : 39BFRT red.
25.00	29.00	4.00	SILTSTONE : 39BFRT greyish blue.
29.00	31.00	2.00	SANDSTONE : 39BFRT fine grained. with siltstone.
31.00	32.00	1.00	SHALE : 39BFRT grey; dark.
32.00	35.00	3.00	SANDSTONE : 39BFRT red. with intercalated fine-grained blue sandstone.
35.00	39.00	4.00	SILTSTONE : 39BFRT greyish blue. in places sandy.
39.00	41.00	2.00	SILTSTONE AND SHALE : 39BFRT red.

Geohydrology

(no information.)

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* G-BASE * S I T E R E P O R T * DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

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Site name : KAREEFONTEIN, recorder W road to Elim

Remarks : AFFECTED BY PUMPING OF MUNICIPAL WELL FIELD.

Site ID: 2926DA36454	Number on map: G36454
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Y-Coordinate: 30190.00	X-Coordinate: 3271230.00
Ground Elevation: 1501.00 mamsl	Collar Height: 0.09 m
Depth of Casing: 2.00 m	Diameter of Hole: 165 mm
Logged by: ****	Date Drilled: 19850204

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	3.00	3.00	SHALE : 46RCNT red. with greyish green mudstone.
3.00	6.00	3.00	SHALE : 46RCNT red.
6.00	7.00	1.00	MUDSTONE : 39BFRT greyish green.
7.00	9.00	2.00	SHALE : 39BFRT red.
9.00	10.00	1.00	MUDSTONE : 39BFRT greyish green.
10.00	11.00	1.00	SHALE : 39BFRT red.
11.00	13.00	2.00	MUDSTONE : 39BFRT greyish green. with dark grey shale.
13.00	18.00	5.00	SANDSTONE AND SHALE : 39BFRT fine grained; yellowish green. with siltstone and dark grey mudstone and few red shale bands.
18.00	21.00	3.00	SILTSTONE AND SHALE : 39BFRT bluish grey. thin black shale layer at 20 m.
21.00	24.00	3.00	SHALE AND SILTSTONE : 39BFRT red. with greyish blue shale/siltstone.
24.00	25.00	1.00	SILTSTONE : 39BFRT greyish blue.
25.00	27.00	2.00	SHALE : 39BFRT red.
27.00	33.00	6.00	SHALE : 39BFRT red. with dark greyish blue mudstone/siltstone.
33.00	35.00	2.00	SILTSTONE AND SHALE : 39BFRT greyish blue.
35.00	36.00	1.00	SANDSTONE : 39BFRT greyish blue.
36.00	39.00	3.00	SILTSTONE : 39BFRT greyish blue. in places sandy; red shale near the bottom.
39.00	41.00	2.00	SILTSTONE : 39BFRT bluish grey. with red shale.

Geohydrology

(no information.)

* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : FRANKFÜRT, next gate on road to Frankfurt

Remarks :

Site ID: 2926DA36455

Number on map: G36455

Y-Coordinate: 32172.45

X-Coordinate: 3270261.06

Ground Elevation: 1525.12 mamsl

Collar Height: 0.12 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850204

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	5.00	5.00	CLAY : 46RCNT reddish brown.
5.00	11.00	6.00	SHALE : 39BFRT red. alternating with light green mudstone/shale.
11.00	15.00	4.00	MUDSTONE : 39BFRT greyish green. with intercalated red and dark grey shale.
15.00	20.00	5.00	SILTSTONE : 39BFRT bluish grey.
20.00	24.00	4.00	SHALE AND SILTSTONE : 39BFRT red. bluish grey intercalated siltstone.
24.00	27.00	3.00	SILTSTONE : 39BFRT bluish grey.
27.00	35.00	8.00	SANDSTONE : 39BFRT fine grained; bluish grey. in places grading into siltstone.

Geohydrology

35.00 0.00 0 litres/hour yield

* G-BASE * SITE REPORT *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : KAREEFONTEIN, along Frankfurt fence

Remarks :

Site ID: 2926DA36456

Number on map: G36456

Y-Coordinate: 31701.96

X-Coordinate: 3271351.36

Ground Elevation: 1512.75 mamsl

Collar Height: 0.12 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850204

Depth (m)	Thickness		
From	To	(m)	Description

Geology

0.00	0.50	0.50	SOIL : 46RCNT
0.50	8.00	7.50	SANDSTONE : 39BFRT greenish yellow.
8.00	9.00	1.00	SILTSTONE : 39BFRT green.
9.00	11.00	2.00	SILTSTONE : 39BFRT bluish grey.
11.00	15.00	4.00	SANDSTONE : 39BFRT fine grained; bluish grey. with alternating siltstone layers.
15.00	16.00	1.00	SILTSTONE : 39BFRT
16.00	20.00	4.00	SANDSTONE : 39BFRT fine grained; blue.
20.00	24.00	4.00	SILTSTONE AND SHALE : 39BFRT blue. (red shale layers).
24.00	25.00	1.00	SANDSTONE : 39BFRT fine grained.
25.00	30.00	5.00	SILTSTONE AND SHALE : 39BFRT bluish grey; sandy. (red shale layers); in places sandy.

Geohydrology

18.00	0.00	1000 litres/hour	yield
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* HydroBase * S I T E R E P O R T * DATE : 23 March 1990

Generated for : Dewetsdorp - IGS/WRC Research project

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Site name : KAREEFONTEIN, well cap N of Cemetery

Site purpose : Dry when drilled.

Site ID: 2926DA36457

Number on map: G36457

E-W coordinate : 32517.44

N-S coordinate : 3273466.28

Ground Elevation: 1565.84 mamsl

Collar Height: 0.48 m

Depth of Casing: 5.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850205

Depth (m)		Thickness	Description
from	to	(m)	

Geology			
0.00	5.00	5.00	CLAY : 46RCNT blue. with fragments of red shale; yellowish green shale; and dolerite.
5.00	6.00	1.00	CLAY : 46RCNT with dolerite gravel.
6.00	16.00	10.00	MUDSTONE : 39BFRT light yellow. sandy at the base.
16.00	21.00	5.00	SILTSTONE : 39BFRT very fine to fine grained.
21.00	29.00	8.00	SANDSTONE : 39BFRT fine grained; silty. Gritty silty sandstone
29.00	31.00	2.00	SILTSTONE AND SHALE : 39BFRT red.
31.00	34.00	3.00	SHALE : 39BFRT red.
34.00	39.00	5.00	SILTSTONE AND SHALE : 39BFRT red.
39.00	41.00	2.00	SHALE : 39BFRT red.
41.00	44.00	3.00	SILTSTONE : 39BFRT
44.00	45.00	1.00	SHALE : 39BFRT red.
45.00	49.00	4.00	SILTSTONE : 39BFRT

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 23 March 1990

Generated for : Dewetsdorp - IGS/WRC Research project

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Site name : KAREEFONTEIN, recorder N of Cemetery

Site purpose : DRY WHEN DRILLED. LOT OF VARIATIONS BEFORE MARCH 1987.

Site ID: 2926DA36458	Number on map: G36458

E-W coordinate : 32635.66	N-S coordinate : 3272671.10
Ground Elevation: 1545.21 mamsl	Collar Height: 0.21 m
Depth of Casing: 2.00 m	Diameter of Hole: 165 mm
Logged by: ****	Date Drilled: 19850205

Depth (m) from	to	Thickness (m)	Description

Geology			
0.00	1.00	1.00	SOIL : 46RCNT sandy.
1.00	2.00	1.00	CLAY : 46RCNT
2.00	5.00	3.00	CLAY : 46RCNT with small pieces of dolerite.
5.00	8.00	3.00	DOLERITE : 40KRDL
8.00	12.00	4.00	SILTSTONE : 39BFRT very fine grained; light grey. Light grey siltstone/mudstone, fine powder
12.00	14.00	2.00	SHALE : 39BFRT red.
14.00	17.00	3.00	SILTSTONE : 39BFRT bluish grey.
17.00	19.00	2.00	SANDSTONE : 39BFRT fine grained; light blue.
19.00	22.00	3.00	SHALE AND SILTSTONE : 39BFRT red. alternating; (greyish blue siltstone).
22.00	23.00	1.00	SILTSTONE : 39BFRT with rust spots.
23.00	24.00	1.00	SANDSTONE : 39BFRT fine grained; light blue. with rust spots.
24.00	27.00	3.00	SILTSTONE AND SHALE : 39BFRT
27.00	31.00	4.00	SHALE : 39BFRT red. with few dark greyish green layers.
31.00	35.00	4.00	SILTSTONE AND SHALE : 39BFRT (red shale); in places sandy.
35.00	37.00	2.00	SILTSTONE AND SHALE : 39BFRT (red and dark grey shale).
37.00	38.00	1.00	SANDSTONE : 39BFRT light blue.
38.00	41.00	3.00	SILTSTONE AND SHALE : 39BFRT greyish blue. (red shale).

Geohydrology

(no information.)

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* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

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Site name : KAREEFONTEIN, near gate opposite Pump Camp

Remarks :

Site ID: 2926DA36459

Number on map: G36459

Y-Coordinate: 31294.16

X-Coordinate: 3272166.84

Ground Elevation: 1508.03 mamsl

Collar Height: 0.21 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850204

Depth (m)	Thickness	
From	To	(m)

Description

Geology

0.00	1.00	1.00	CLAY : 46RCNT brown.
1.00	5.00	4.00	SANDSTONE : 39BFRT yellowish green.
5.00	9.00	4.00	SANDSTONE : 39BFRT bluish grey. alternating with bluish green siltstone.
9.00	17.00	8.00	SANDSTONE : 39BFRT fine grained; blue. downwards slightly coarser (fine-grained) facies.
17.00	18.00	1.00	SILTSTONE : 39BFRT
18.00	19.00	1.00	SANDSTONE : 39BFRT
19.00	22.00	3.00	SILTSTONE : 39BFRT blue.
22.00	24.00	2.00	SANDSTONE : 39BFRT fine grained.
24.00	26.00	2.00	SILTSTONE : 39BFRT
26.00	30.00	4.00	SANDSTONE : 39BFRT fine grained.

Geohydrology

30 litres/hour yield. Moist at 15 m.

* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : KAREEFONTEIN, NE Wepener Road near junction

Remarks : Dry when drilled.

Site ID: 2926DA36460

Number on map: G36460

Y-Coordinate: 30376.68

X-Coordinate: 3272688.35

Ground Elevation: 1518.00 mamsl

Collar Height: 0.31 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850204

Depth (m)	Thickness	
From	To (m)	Description

Geology

0.00	3.00	3.00	SHALE : 39BFRT red; weathered.
3.00	5.00	2.00	SHALE : 39BFRT red. with greyish green mudstone in places.
5.00	10.00	5.00	MUDSTONE : 39BFRT greyish green.
10.00	14.00	4.00	SHALE : 39BFRT red. with greyish green mudstone.
14.00	15.00	1.00	SILTSTONE : 39BFRT greenish grey.
15.00	18.00	3.00	SANDSTONE : 39BFRT fine grained; bluish grey.
18.00	26.00	8.00	SILTSTONE AND SHALE : 39BFRT bluish grey. (red shale intercalated).
26.00	28.00	2.00	SANDSTONE : 39BFRT grading into siltstone.
28.00	30.00	2.00	SILTSTONE : 39BFRT

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 23 March 1990

Generated for : Dewetsdorp - IGS/WRC Research project

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Site name : KAREEFONTEIN, Wepener Road 2km from junction

Site purpose :

Site ID: 2926DA36461

Number on map: G36461

E-W coordinate : 29714.73

N-S coordinate : 3273201.82

Ground Elevation: 1506.45 mamsl

Collar Height: 0.31 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850204

Depth (m)		Thickness	Description
from	to	(m)	

Geology			
0.00	2.00	2.00	CLAY : 39BFRT sandy.
2.00	4.00	2.00	SANDSTONE AND SHALE : 39BFRT brownish yellow; weathered.
4.00	14.00	10.00	SHALE AND SILTSTONE : 39BFRT greyish blue. (alternating red shale).
14.00	17.00	3.00	SILTSTONE : 39BFRT greyish blue. Bluegrey/green siltstone
17.00	18.00	1.00	SANDSTONE : 39BFRT fine grained; blue.
18.00	24.00	6.00	DOLERITE : 40KRDL coarse crystalline. coarse fragments in upper 2 m; rust stained.
24.00	25.00	1.00	SANDSTONE : 39BFRT blue.
25.00	30.00	5.00	SILTSTONE AND SHALE : 39BFRT bluish grey. with dark greyish blue shale layers.

Geohydrology

19.00 0.00 280 litres/hour yield

* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : KAREEFONTEIN, in Stadion

Remarks : Partly collapsed 27-4-1987. Depth 1,20 m (16-5-88)

Site ID: 2926DA36462

Number on map: G36462

Y-Coordinate: 31162.18

X-Coordinate: 3273304.84

Ground Elevation: 1500.00 mamsl

Collar Height: 0.13 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850205

Depth (m)	Thickness	
From	To	(m)

Description

Geology

0.00	5.00	5.00	LOAM : 46RCNT brown; sandy.
5.00	8.00	3.00	SILTSTONE : 39BFRT yellow.
8.00	10.00	2.00	SHALE : 39BFRT red.
10.00	14.00	4.00	SANDSTONE : 39BFRT fine grained; bluish grey. grading into siltstone.
14.00	18.00	4.00	SHALE : 39BFRT red.
18.00	21.00	3.00	SILTSTONE AND SHALE : 39BFRT blue.
21.00	24.00	3.00	SILTSTONE : 39BFRT greyish blue.
24.00	25.00	1.00	SANDSTONE : 39BFRT fine grained.
25.00	29.00	4.00	SILTSTONE : 39BFRT blue. subordinate intercalated sandy facies; few thin shale bands.
29.00	30.00	1.00	SANDSTONE : 39BFRT fine grained.

Geohydrology

30 litres/hour yield.

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* HydroBase * S I T E R E P O R T * DATE : 23 March 1990

Generated for : Dewetsdorp - IGS/WRC Research project

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Site name : KAREEFONTEIN, recorder upstream of Location

Site purpose :

Site ID: 2926DA36463

Number on map: G36463

E-W coordinate : 31268.98

Ground Elevation: 1555.00 mamsl

Depth of Casing: 2.00 m

Logged by: *****

N-S coordinate : 3274592.01

Collar Height: 0.13 m

Diameter of Hole: 165 mm

Date Drilled: 19850205

Depth (m)	Thickness		Description
from	to	(m)	

Geology			
0.00	2.00	2.00	SANDSTONE AND SHALE : 39BFRT yellow. Mudstone and sandstone
2.00	11.00	9.00	SANDSTONE : 39BFRT fine grained; light green.
11.00	21.00	10.00	SHALE AND SILTSTONE : 39BFRT red. (alternating greyish blue siltstone in places).
21.00	23.00	2.00	SILTSTONE : 39BFRT bluish grey.
23.00	30.00	7.00	SANDSTONE : 39BFRT fine grained; blue. alternating with greyish blue siltstone.

Geohydrology

30 litres/hour yield. Moist at 17 m.

* G-BASE * SITE REPORT *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : KAREEFONTEIN, in Middle Camp SW of recorder

Remarks :

Site ID: 2926DA36464

Number on map: G36464

Y-Coordinate: 31291.83

X-Coordinate: 3271197.83

Ground Elevation: 1502.52 mamsl

Collar Height: 0.33 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850207

Depth (m)	Thickness		Description
From	To	(m)	

Geology			
0.00	5.00	5.00	LOAM : 46RCNT fine grained; brown; slightly sandy.
5.00	6.00	1.00	MUDSTONE : 39BFRT weathered.
6.00	10.00	4.00	MUDSTONE : 39BFRT yellowish grey.
10.00	11.00	1.00	SILTSTONE : 39BFRT greyish yellow; jointed. rust stained.
11.00	13.00	2.00	SANDSTONE : 39BFRT greenish yellow; jointed. with heavy rust stains.
13.00	16.00	3.00	SILTSTONE : 39BFRT slightly jointed.
16.00	18.00	2.00	SILTSTONE : 39BFRT grading into sandstone; with few thin shale bands.
18.00	19.00	1.00	SANDSTONE : 39BFRT fine grained; blue.
19.00	22.00	3.00	SHALE AND SILTSTONE : 39BFRT red. (intercalated siltstone).
22.00	24.00	2.00	SILTSTONE : 39BFRT
24.00	31.00	7.00	SHALE AND SILTSTONE : 39BFRT red. (intercalated blue siltstone).
31.00	35.00	4.00	SILTSTONE : 39BFRT
35.00	37.00	2.00	SANDSTONE : 39BFRT fine grained.
37.00	40.00	3.00	SHALE AND SILTSTONE : 39BFRT red. (alternating siltstone).

Geohydrology

30 litres/hour yield.

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* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

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Site name : KAREEFONTEIN, E of Road Camp (S of G 36431)

Remarks :

Site ID: 2926DA36465

Number on map: G36465

Y-Coordinate: 32615.66

X-Coordinate: 3270954.83

Ground Elevation: 1528.41 mamsl

Collar Height: 0.17 m

Depth of Casing: 2.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850207

Depth (m)	Thickness		
From	To	(m)	Description

Geology

0.00	5.00	5.00	CLAY : 46RCNT brown.
5.00	8.00	3.00	SILTSTONE : 39BFRT greyish yellow.
8.00	9.00	1.00	SHALE : 39BFRT red.
9.00	10.00	1.00	MUDSTONE : 39BFRT greyish green.
10.00	11.00	1.00	SHALE : 39BFRT red.
11.00	15.00	4.00	SILTSTONE AND SHALE : 39BFRT red. (alternating).
15.00	16.00	1.00	SHALE : 39BFRT red.
16.00	19.00	3.00	SHALE : 39BFRT bluish grey. alternating with red shale.
19.00	29.00	10.00	SILTSTONE : 39BFRT with intercalated red shale bands; prominent rust stains between 27 and 29 m.
29.00	34.00	5.00	SANDSTONE : 39BFRT fine grained; blue.
34.00	36.00	2.00	SILTSTONE : 39BFRT
36.00	39.00	3.00	SANDSTONE : 39BFRT fine grained.
39.00	41.00	2.00	SILTSTONE : 39BFRT

Geohydrology

29.00	0.00	280 litres/hour	yield.
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* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : KAREEFONTEIN, E of Road Camp (W of G 36431)

Remarks : Dry when drilled.

Site ID: 2926DA36466

Number on map: G36466

Y-Coordinate: 32622.99

X-Coordinate: 3270946.69

Ground Elevation: 1528.54 mamsl

Collar Height: 0.21 m

Depth of Casing: 3.00 m

Diameter of Hole: 165 mm

Logged by: ****

Date Drilled: 19850207

Depth (m)		Thickness	Description
From	To	(m)	

Geology			
0.00	3.00	3.00	CLAY : 46RCNT brown.
3.00	5.00	2.00	LOAM : 46RCNT
5.00	8.00	3.00	MUDSTONE : 39BFRT yellowish grey.
8.00	17.00	9.00	SHALE : 39BFRT red. alternating with greyish green mudstone.
17.00	28.00	11.00	SILTSTONE AND SHALE : 39BFRT bluish grey. (red shale intercalated); rust stains at 21 m.
28.00	29.00	1.00	SILTSTONE : 39BFRT
29.00	34.00	5.00	SANDSTONE : 39BFRT fine grained. alternating with siltstone; rust-stained.
34.00	35.00	1.00	SILTSTONE : 39BFRT
35.00	41.00	6.00	SANDSTONE : 39BFRT fine grained. alternating with siltstone and few thin dark grey shale bands; rust-stained at 36 m.

Geohydrology

(no information.)

* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : KAREEFONTEIN, E of Road Camp (E of G 36431)

Remarks :

Site ID: 2926DA36467

Number on map: G36467

Y-Coordinate: 32599.78

X-Coordinate: 3270937.84

Ground Elevation: 1527.64 mamsl

Collar Height: 0.27 m

Depth of Casing: 4.00 m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850208

Depth	(m)	Thickness	Description
From	To	(m)	

Geology			
0.00	4.00	4.00	GRAVEL AND CLAY : 46RCNT brown. (of sandstone and dolerite origin).
4.00	6.00	2.00	LOAM : 46RCNT brown; slightly sandy. with fragments of black shale and dolerite.
6.00	7.00	1.00	LOAM : 46RCNT brown; slightly sandy. with mudstone fragments.
7.00	8.00	1.00	MUDSTONE : 39BFRT weathered.
8.00	11.00	3.00	SHALE : 39BFRT red; weathered.
11.00	16.00	5.00	MUDSTONE : 39BFRT greyish green. alternating with red shale.
16.00	18.00	2.00	SILTSTONE AND SHALE : 39BFRT greyish green. (red shale layers).
18.00	20.00	2.00	SHALE : 39BFRT bluish grey. with thin red shale bands.
20.00	24.00	4.00	SILTSTONE : 39BFRT very jointed. heavily stained; dendrites on joint planes; coarse fragments.
24.00	26.00	2.00	SILTSTONE AND SHALE : 39BFRT (red shale intercalated).
26.00	29.00	3.00	SILTSTONE : 39BFRT slightly weathered. with fine-grained sandstone and pale green fragments of siltstone.
29.00	32.00	3.00	SANDSTONE : 39BFRT fine grained.
32.00	38.00	6.00	SANDSTONE : 39BFRT fine grained. alternating with siltstone; few slightly weathered pale green siltstone fragments.
38.00	41.00	3.00	SANDSTONE : 39BFRT with few interbedded siltstone layers.

Geohydrology

21.00 0.00 4320 litres/hour yield

* G-BASE * S I T E R E P O R T *

DATE : 12 January 1990

Generated for : DEWETSDORP - IGS/WRC PROJECT

Site name : KAREEFONTEIN, E of Road Camp (N of G36431)

Remarks : Dry when drilled.

Site ID: 2926DA36468

Number on map: G36468

Y-Coordinate: 32630.51

X-Coordinate: 3270906.79

Ground Elevation: 1527.85 mamsl

Collar Height: 0.36 m

Depth of Casing: 6.00 m

Diameter of Hole: 165 mm

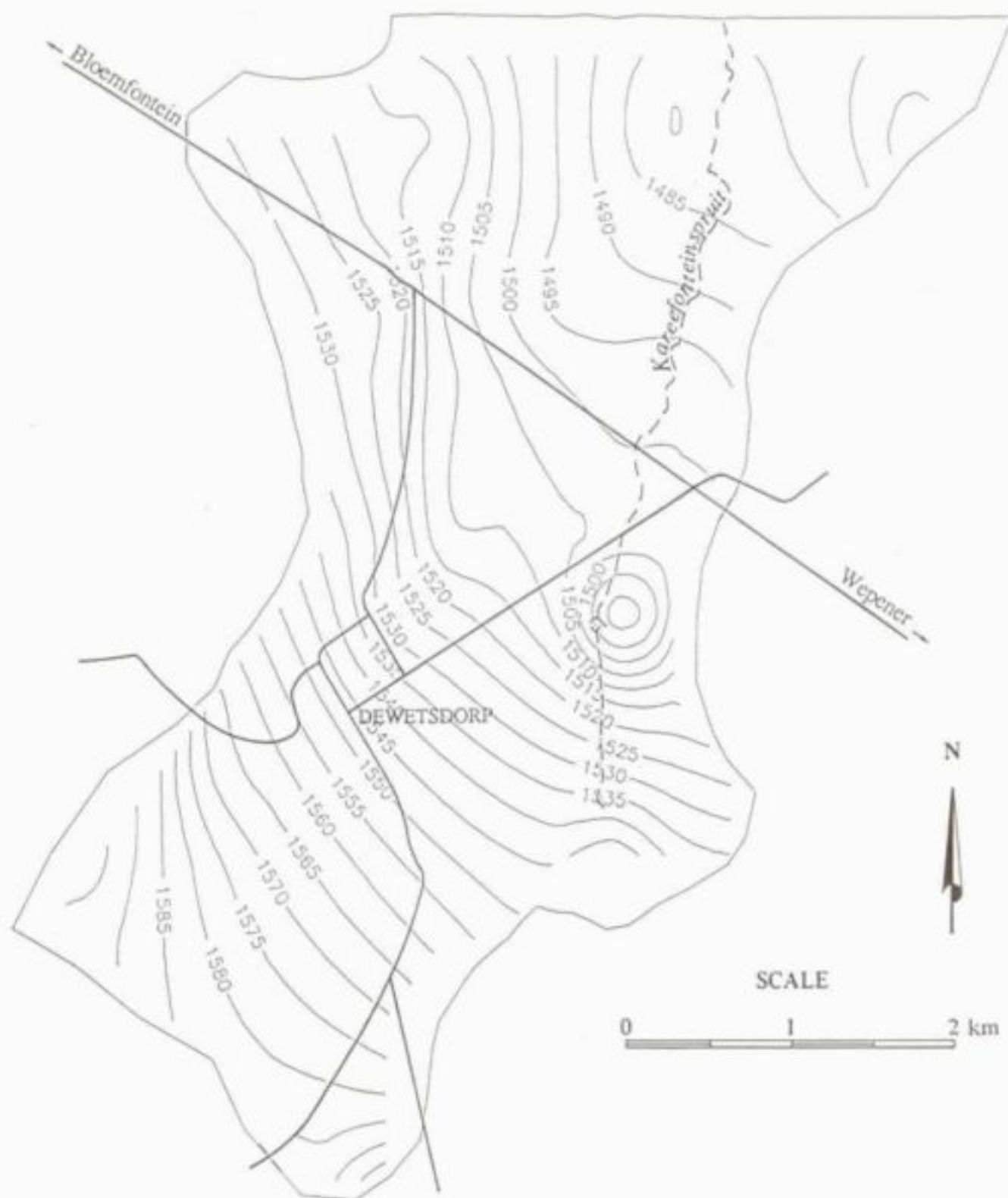
Logged by: ****

Date Drilled: 19850208

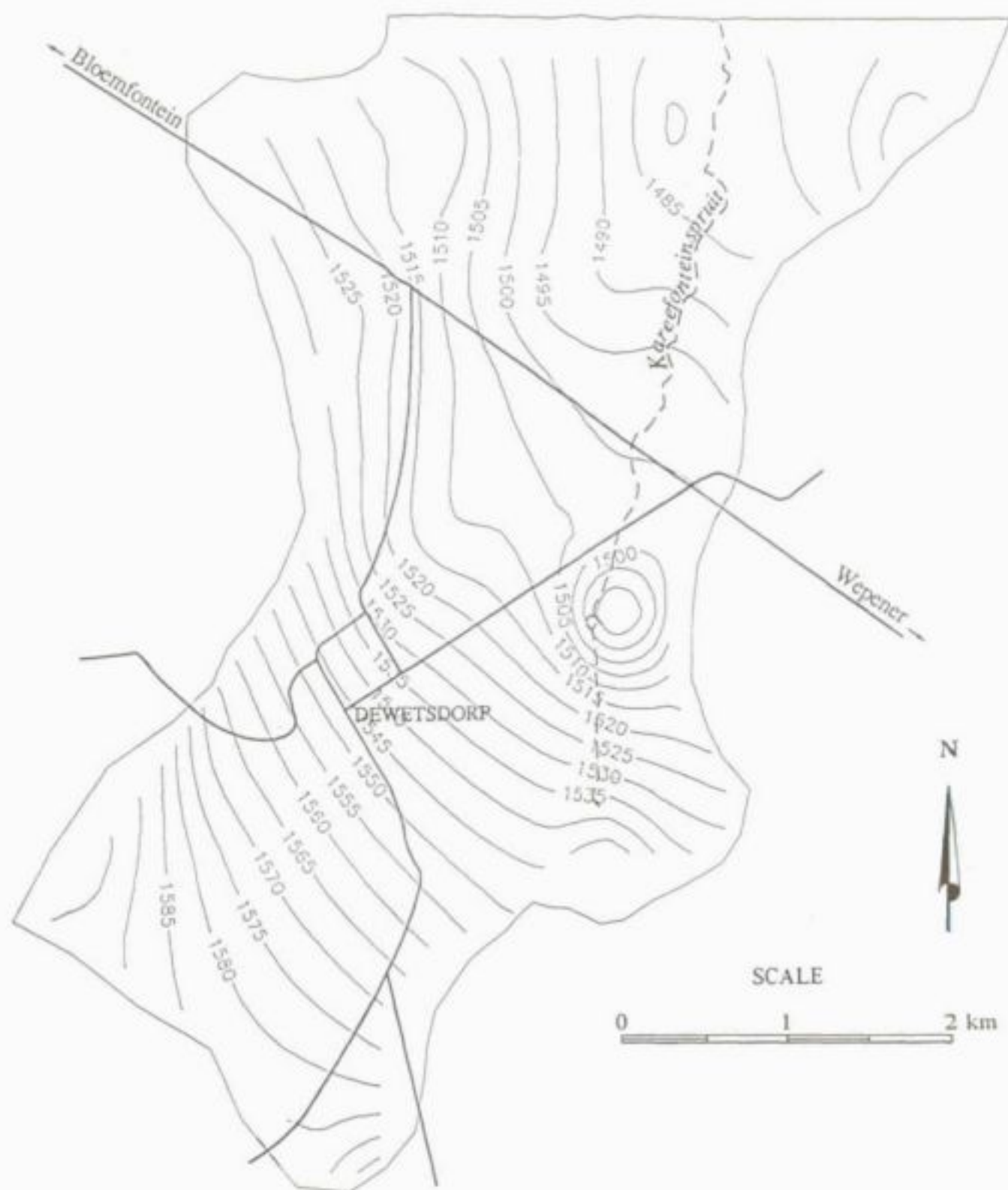
Depth (m)		Thickness	Description
From	To	(m)	
Geology			
0.00	5.00	5.00	CLAY : 46RCNT brown.
5.00	8.00	3.00	SHALE AND SILTSTONE : 39BFRT red; weathered. (pale green siltstone).
8.00	13.00	5.00	SHALE : 39BFRT red; slightly weathered. with pale green siltstone fragments.
13.00	14.00	1.00	SILTSTONE AND SHALE : 39BFRT slightly weathered. (red shale).
14.00	15.00	1.00	SHALE : 39BFRT red; slightly weathered.
15.00	17.00	2.00	SHALE AND SILTSTONE : 39BFRT red. alternating.
17.00	21.00	4.00	SILTSTONE AND SHALE : 39BFRT (few red shale bands).
21.00	23.00	2.00	SANDSTONE : 39BFRT alternating with siltstone; rust stained.
23.00	25.00	2.00	SANDSTONE : 39BFRT with red shale.
25.00	28.00	3.00	SILTSTONE : 39BFRT
28.00	30.00	2.00	SANDSTONE : 39BFRT alternating with siltstone; near bottom interbedded red shale.
30.00	33.00	3.00	SANDSTONE : 39BFRT
33.00	37.00	4.00	SILTSTONE : 39BFRT alternating with sandstone, in places rust-stained.
37.00	40.00	3.00	SANDSTONE : 39BFRT subordinate siltstone intercalated.

Geohydrology

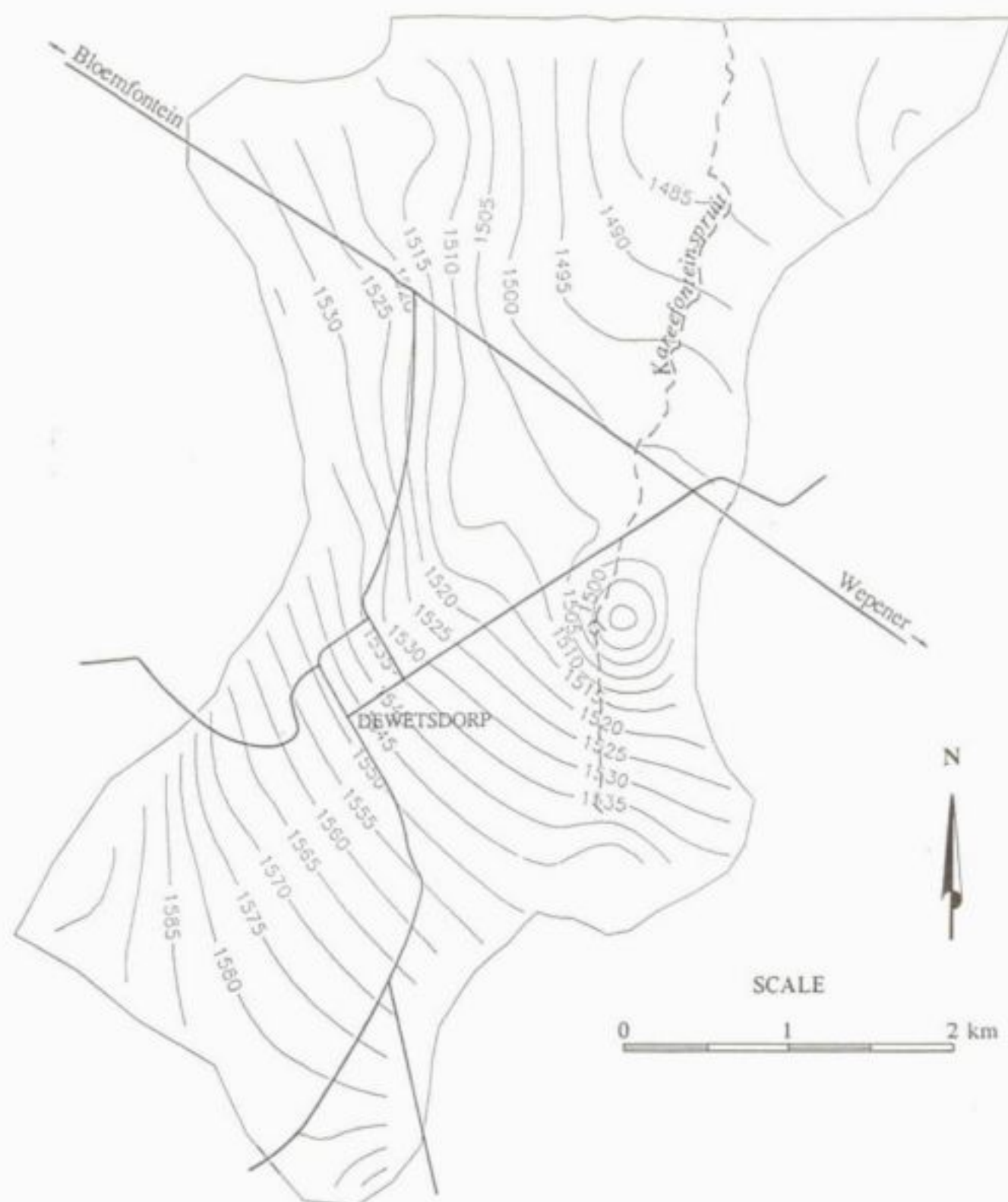
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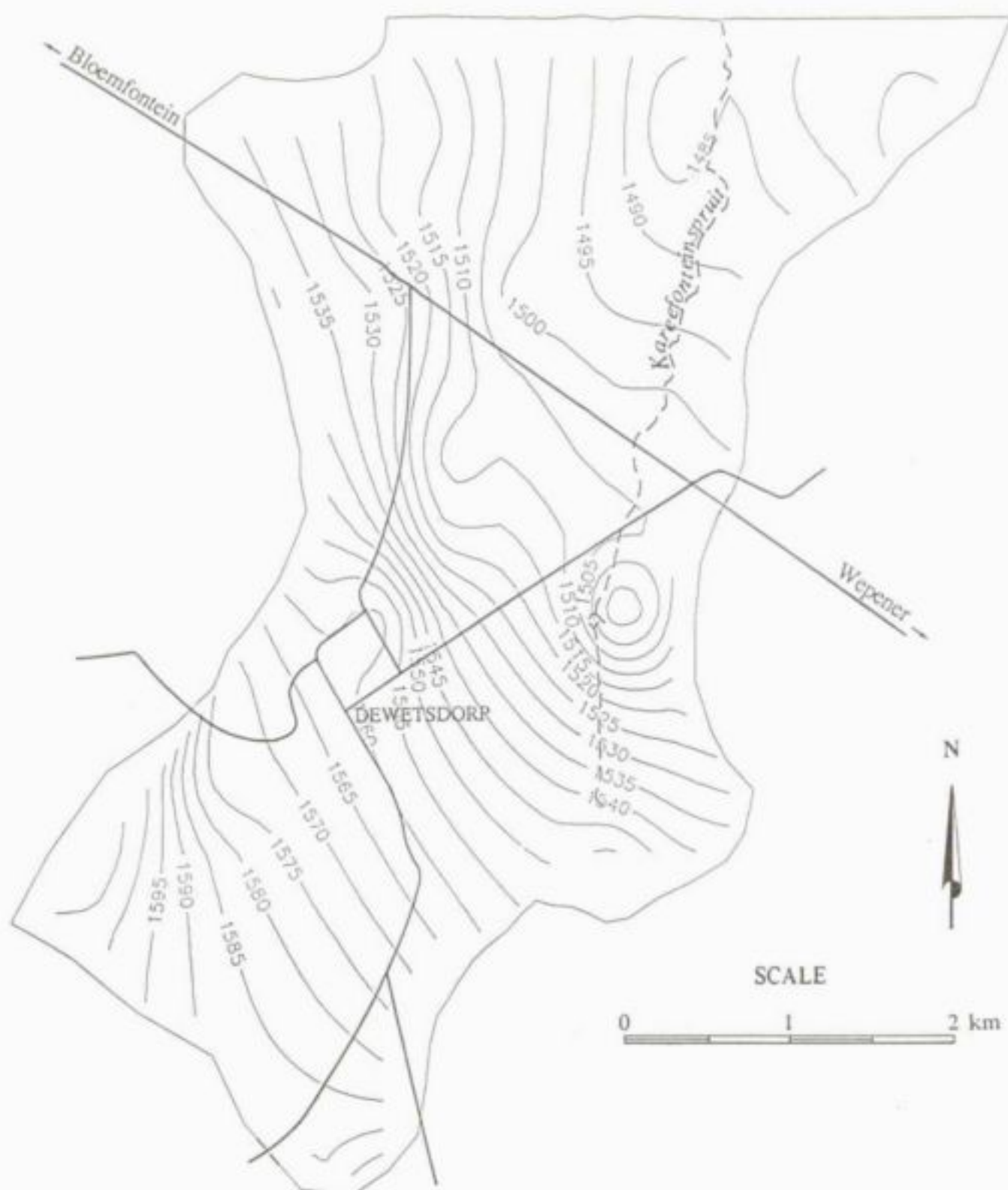
Boundaries of the Dewetsdorp aquifer showing the ground-water contours for October 1986. The western, southern and eastern boundaries are ground-water divides.



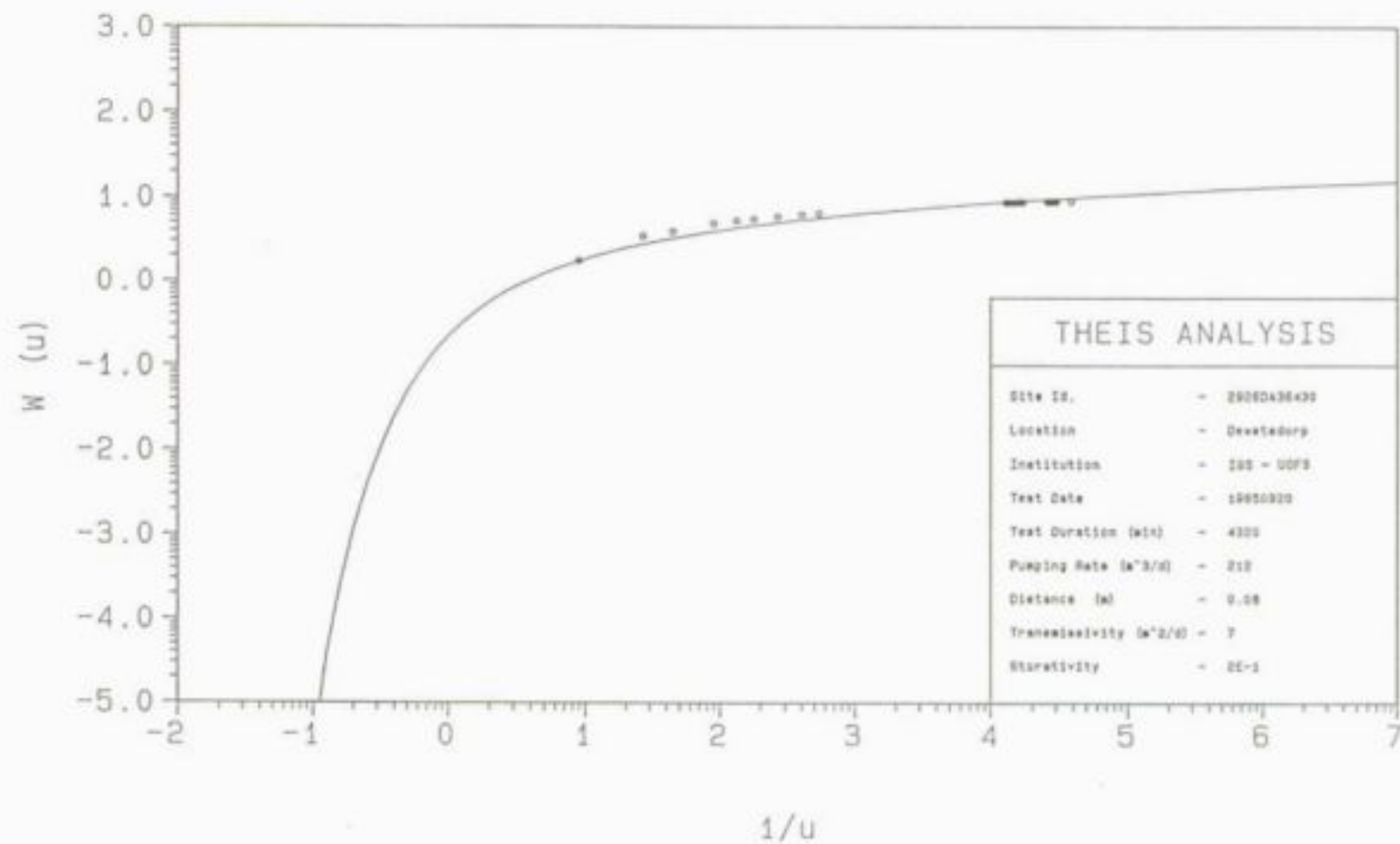
Boundaries of the Dewetsdorp aquifer showing the ground-water contours for October 1987. The western, southern and eastern boundaries are ground-water divides.

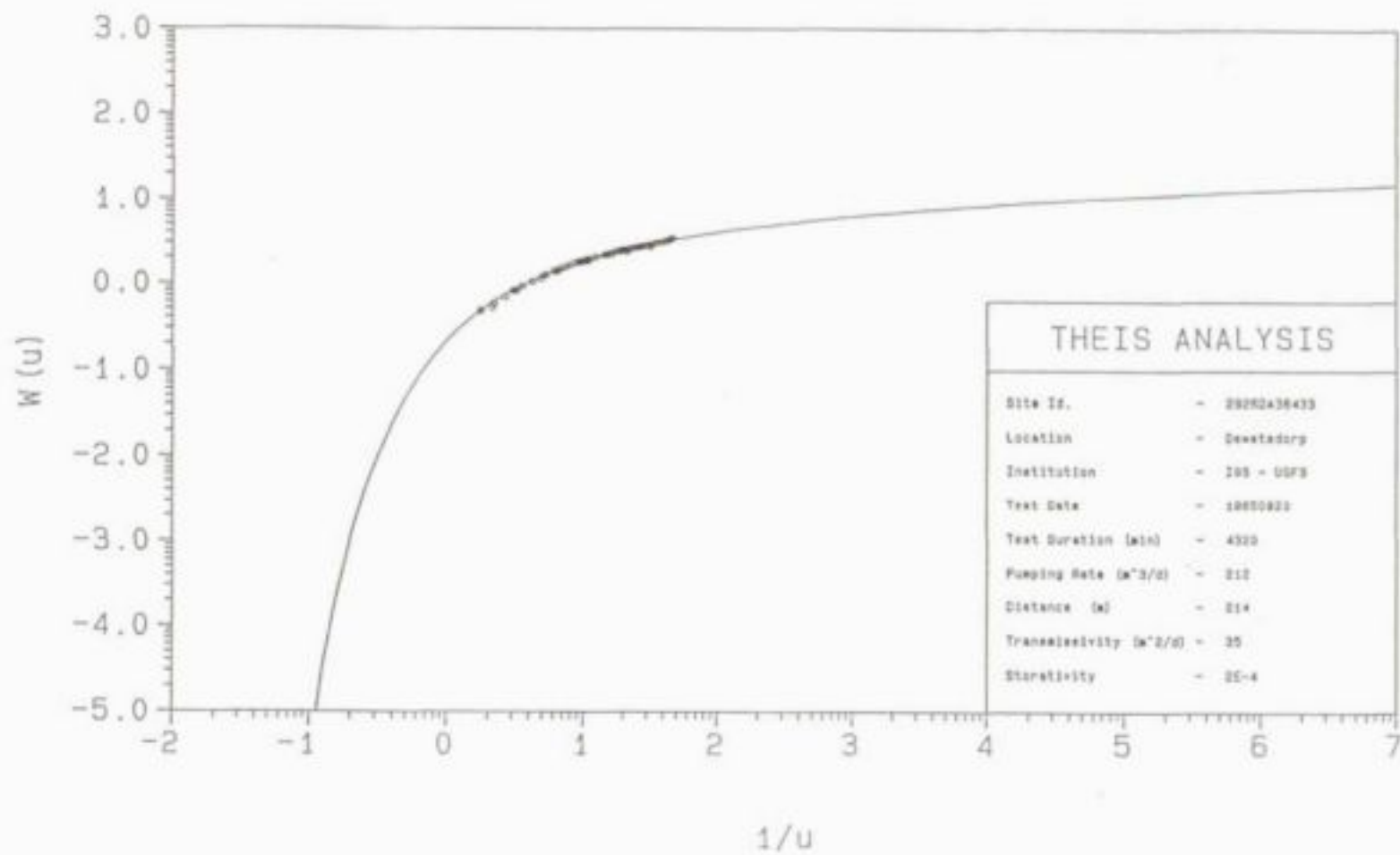


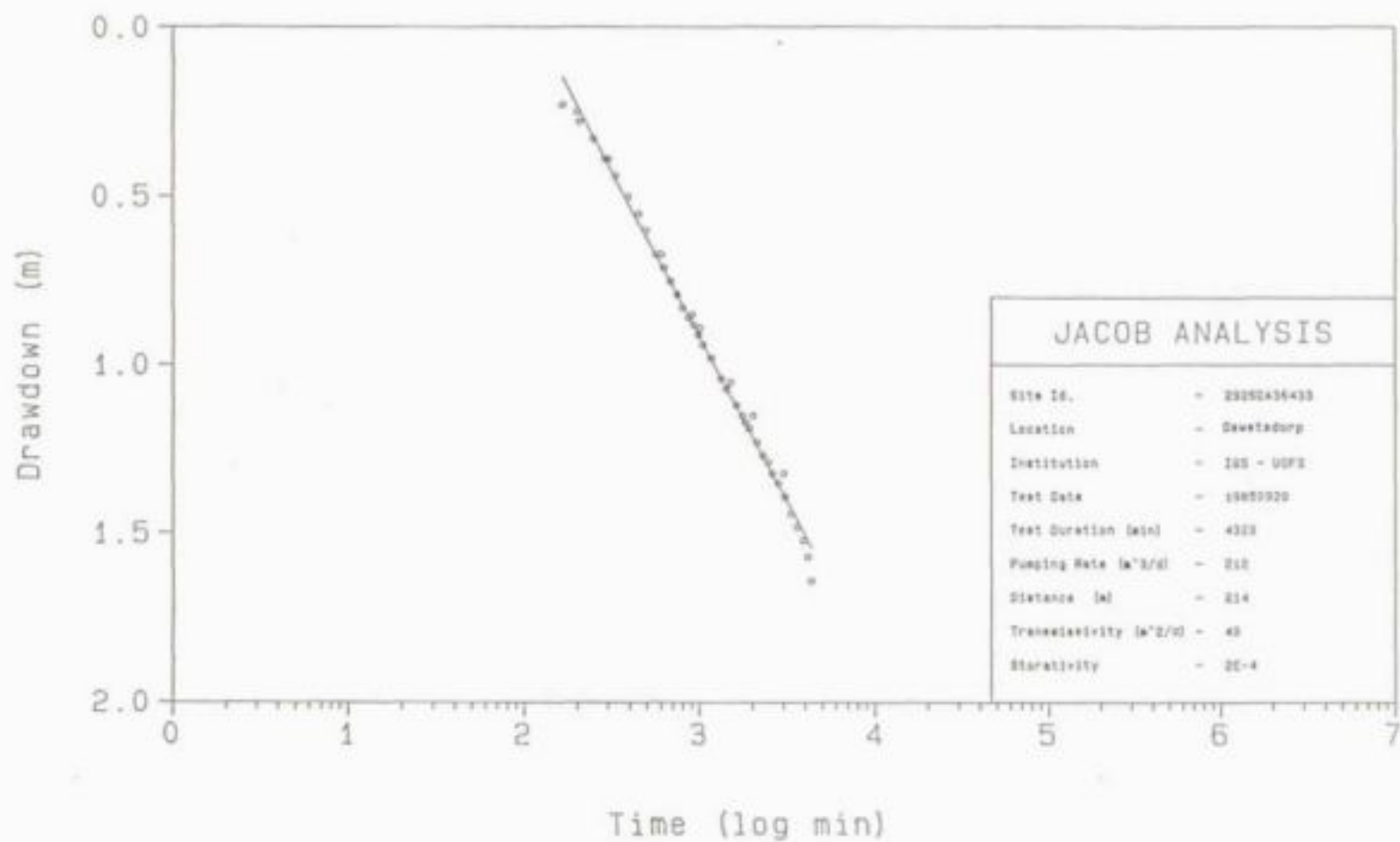
Boundaries of the Dewetsdorp aquifer showing the ground-water contours for January 1988. The western, southern and eastern boundaries are ground-water divides.

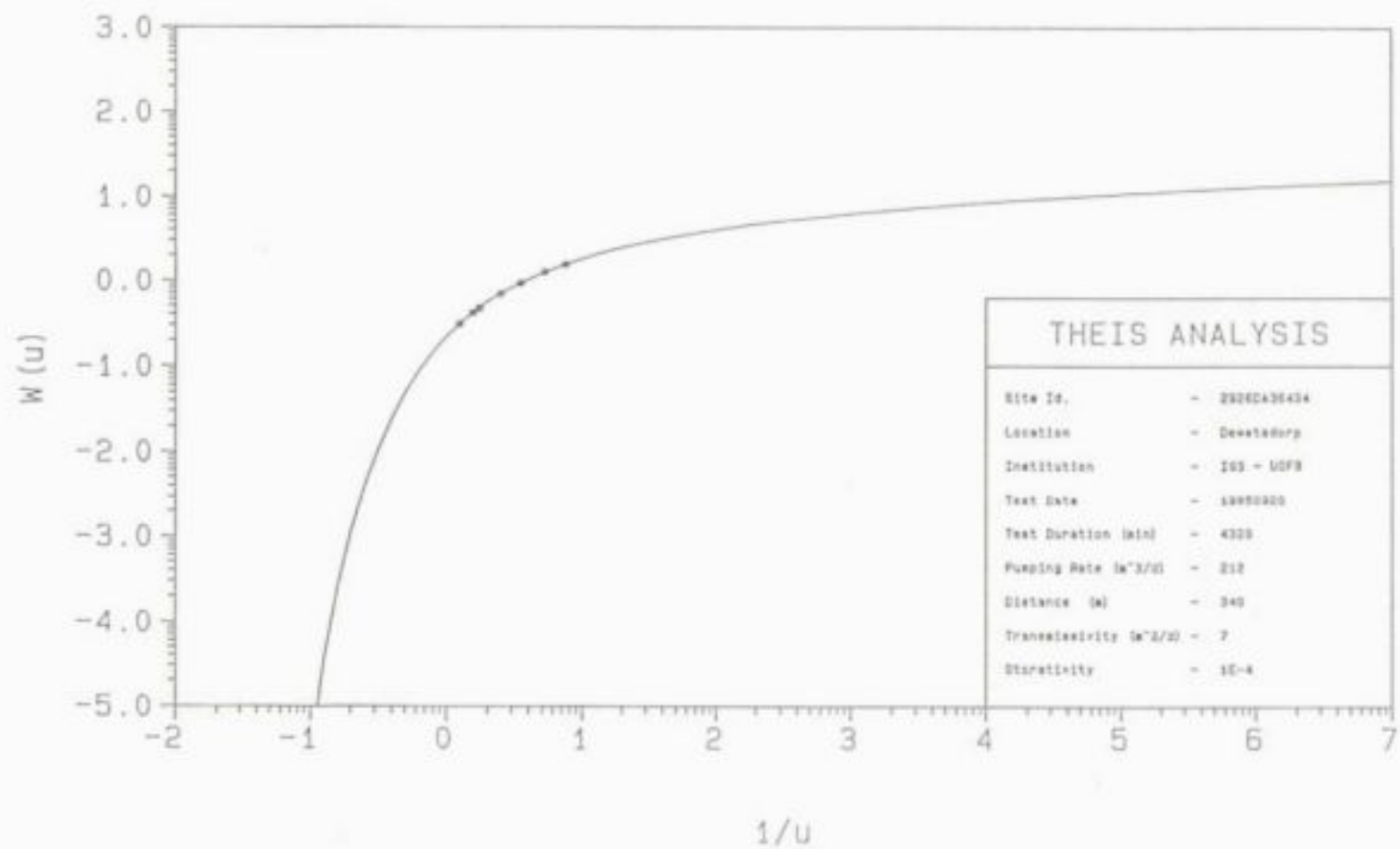


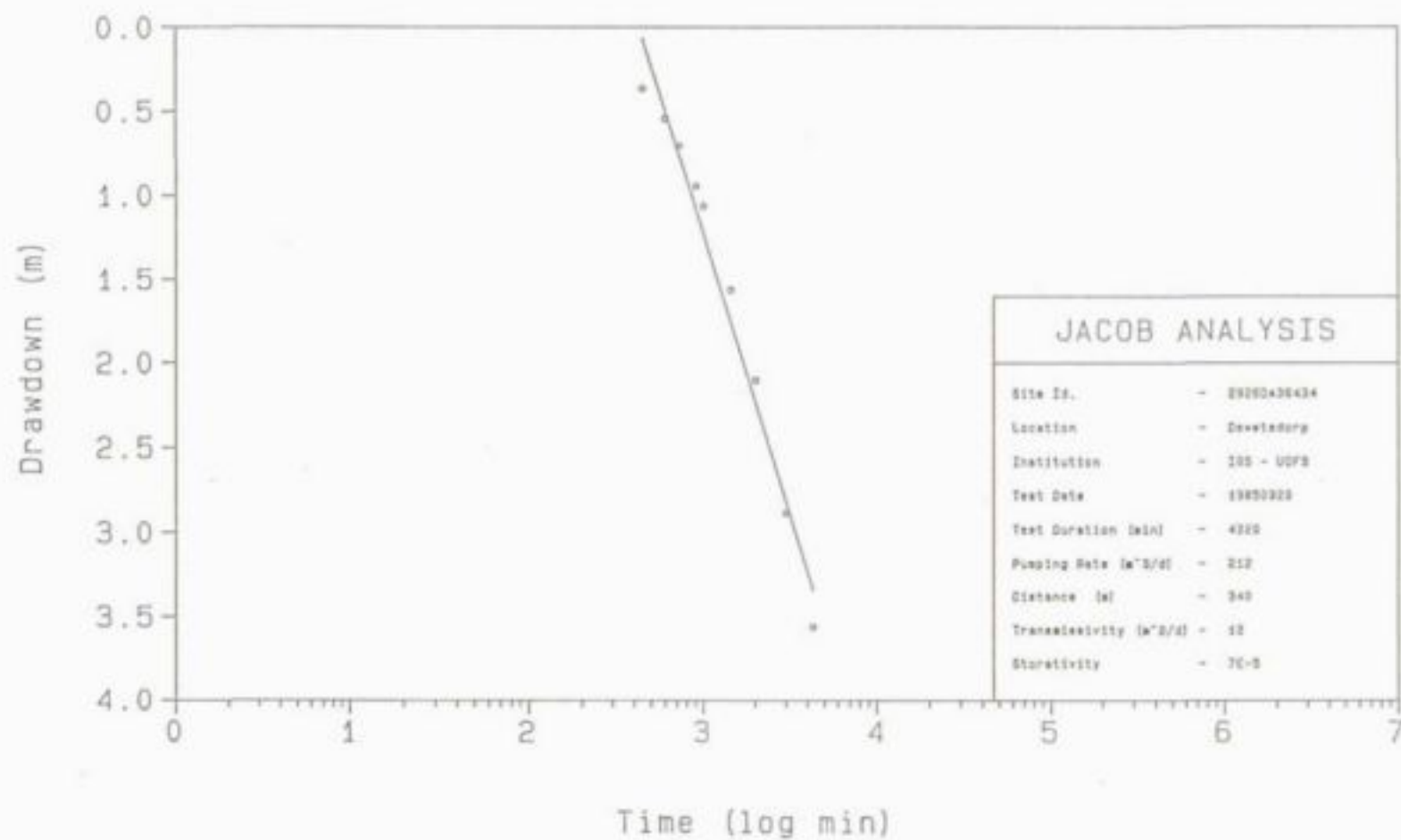
Boundaries of the Dewetsdorp aquifer showing the ground-water contours for April 1988. The western, southern and eastern boundaries are ground-water divides.

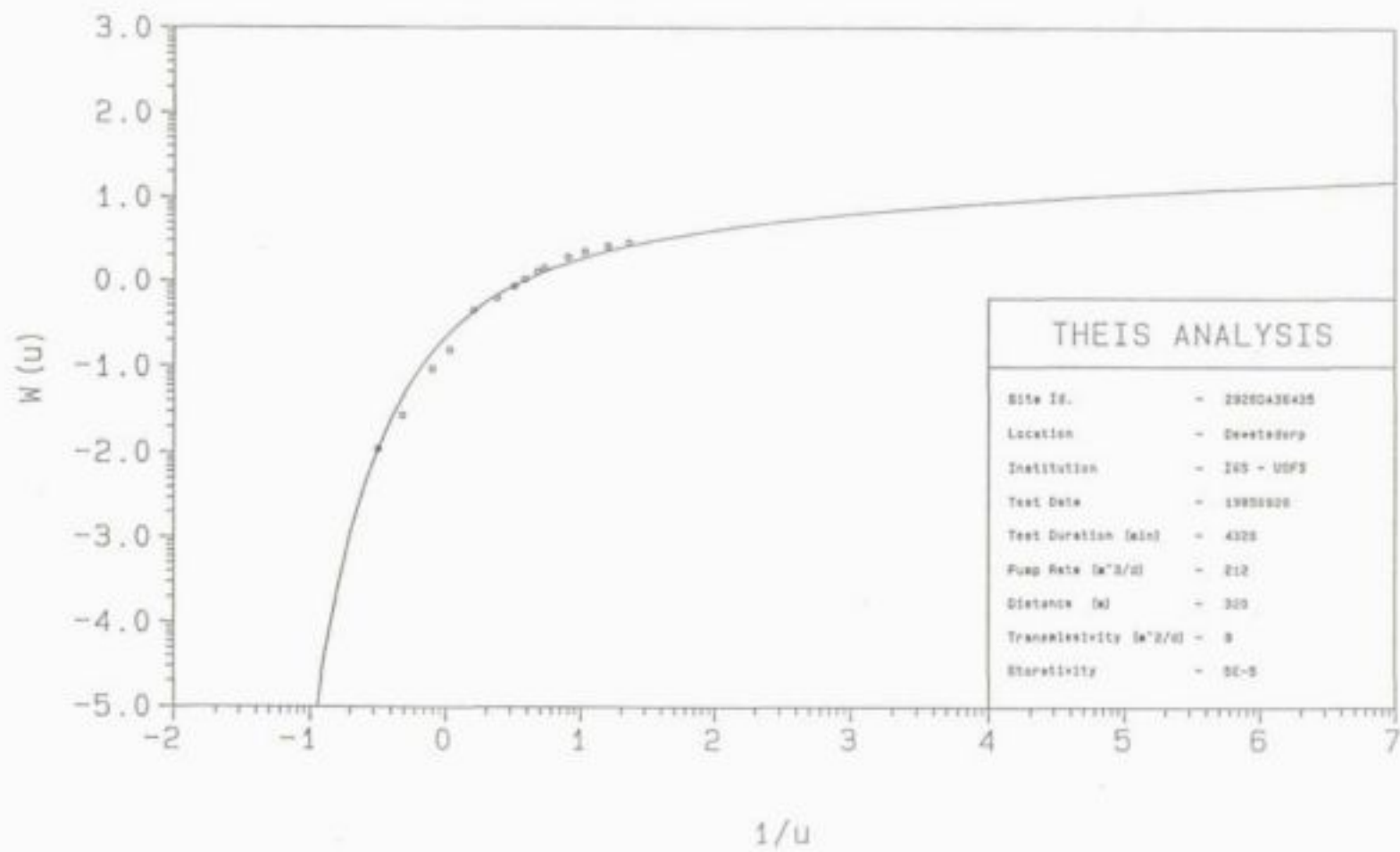


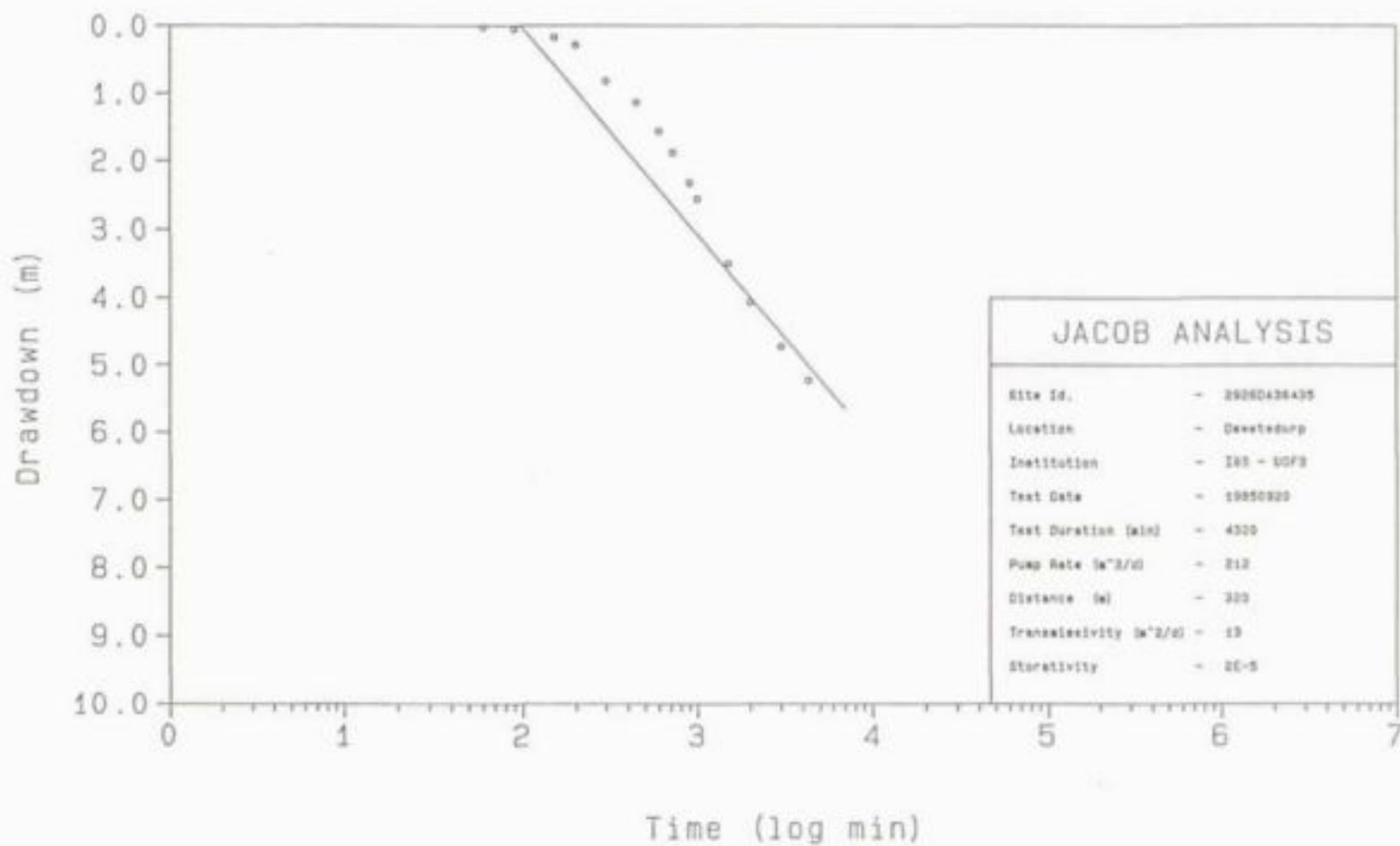


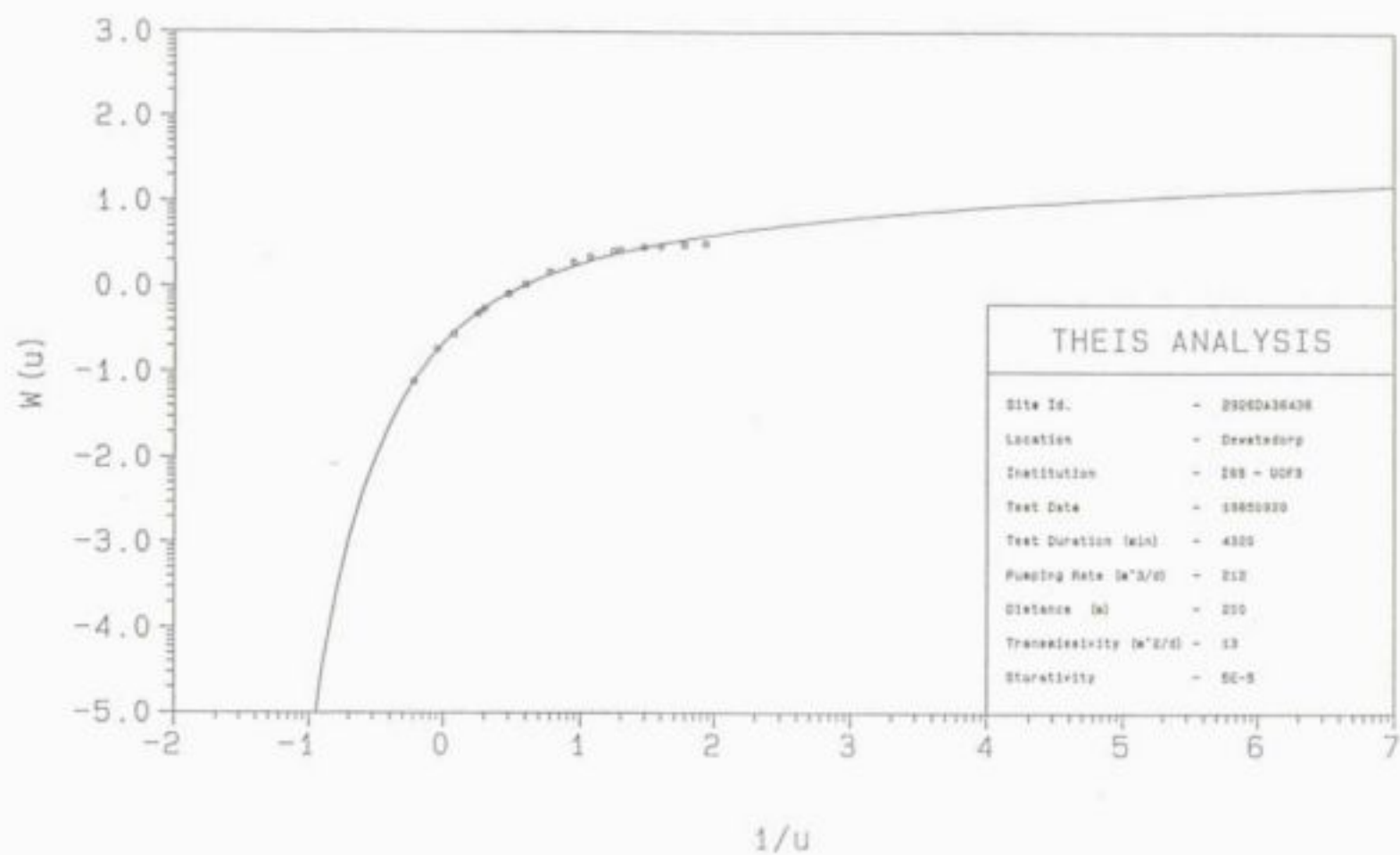


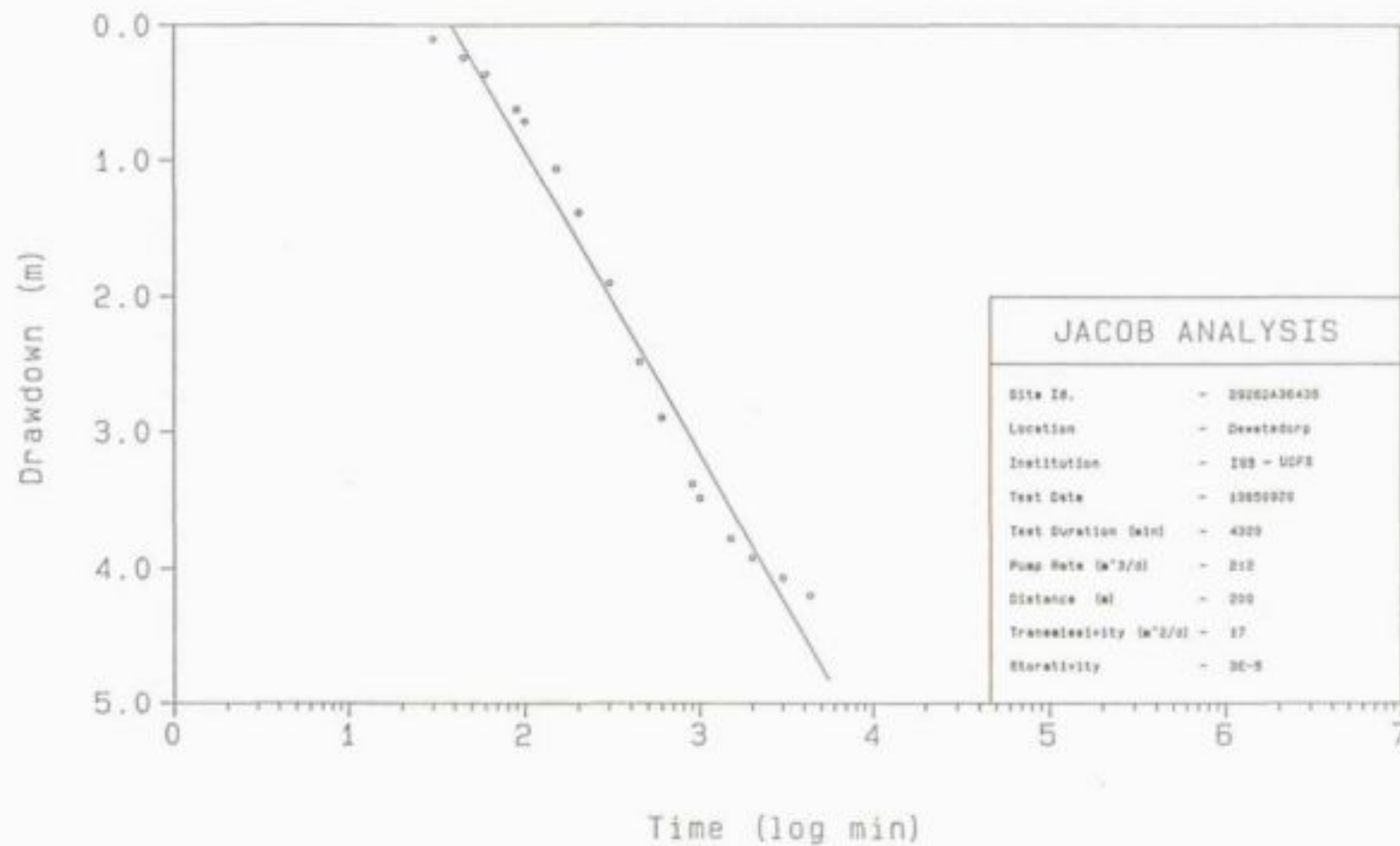


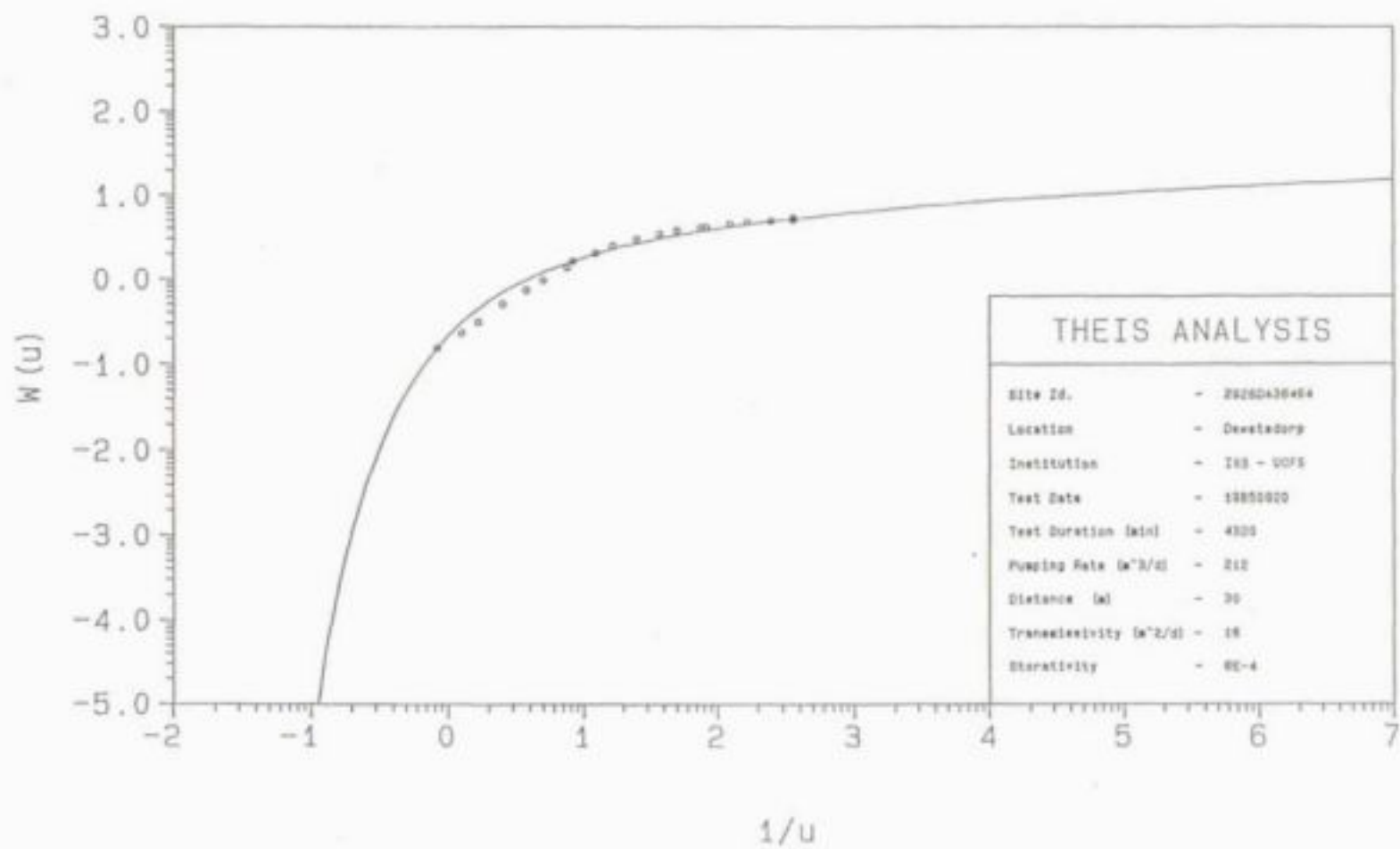


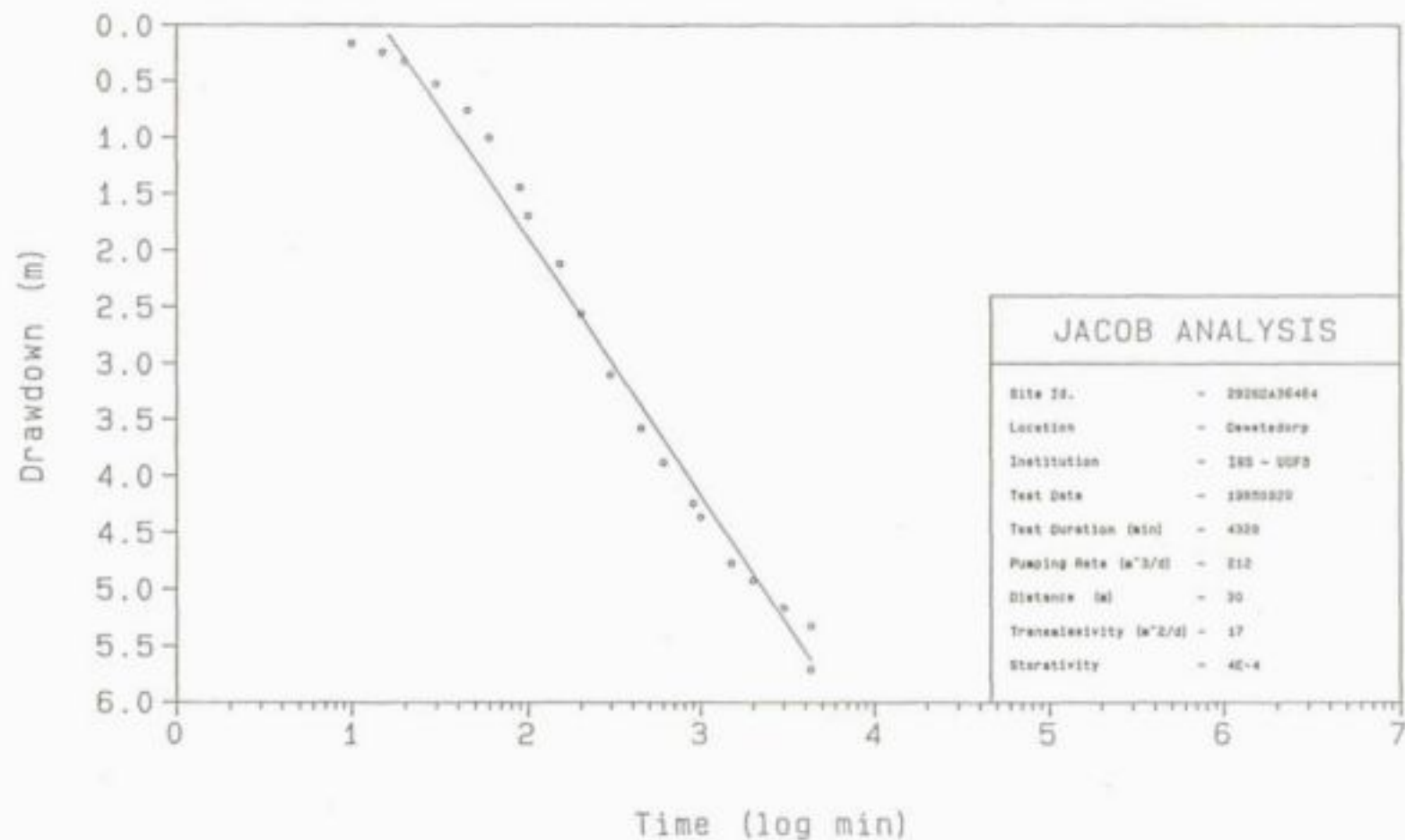


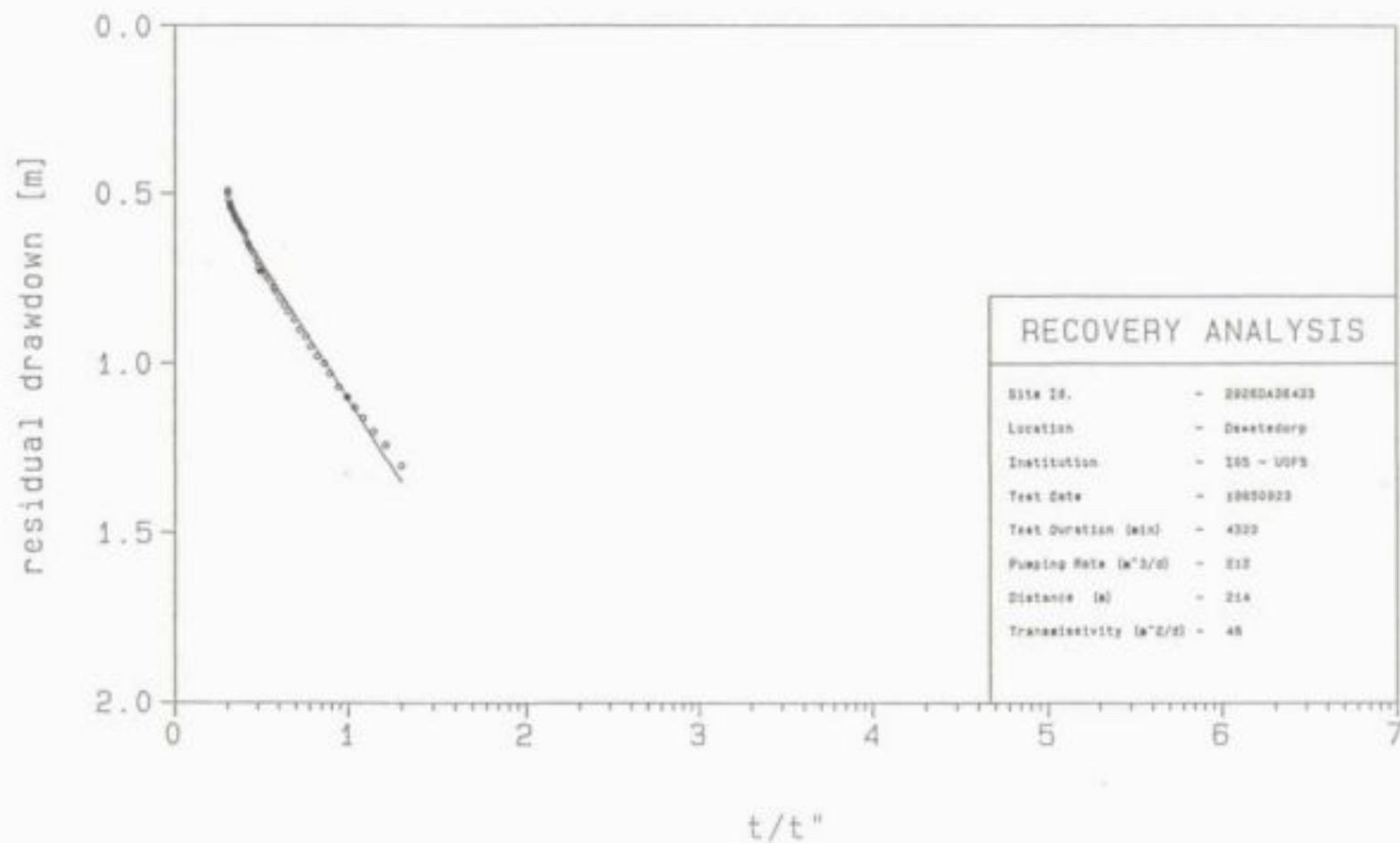


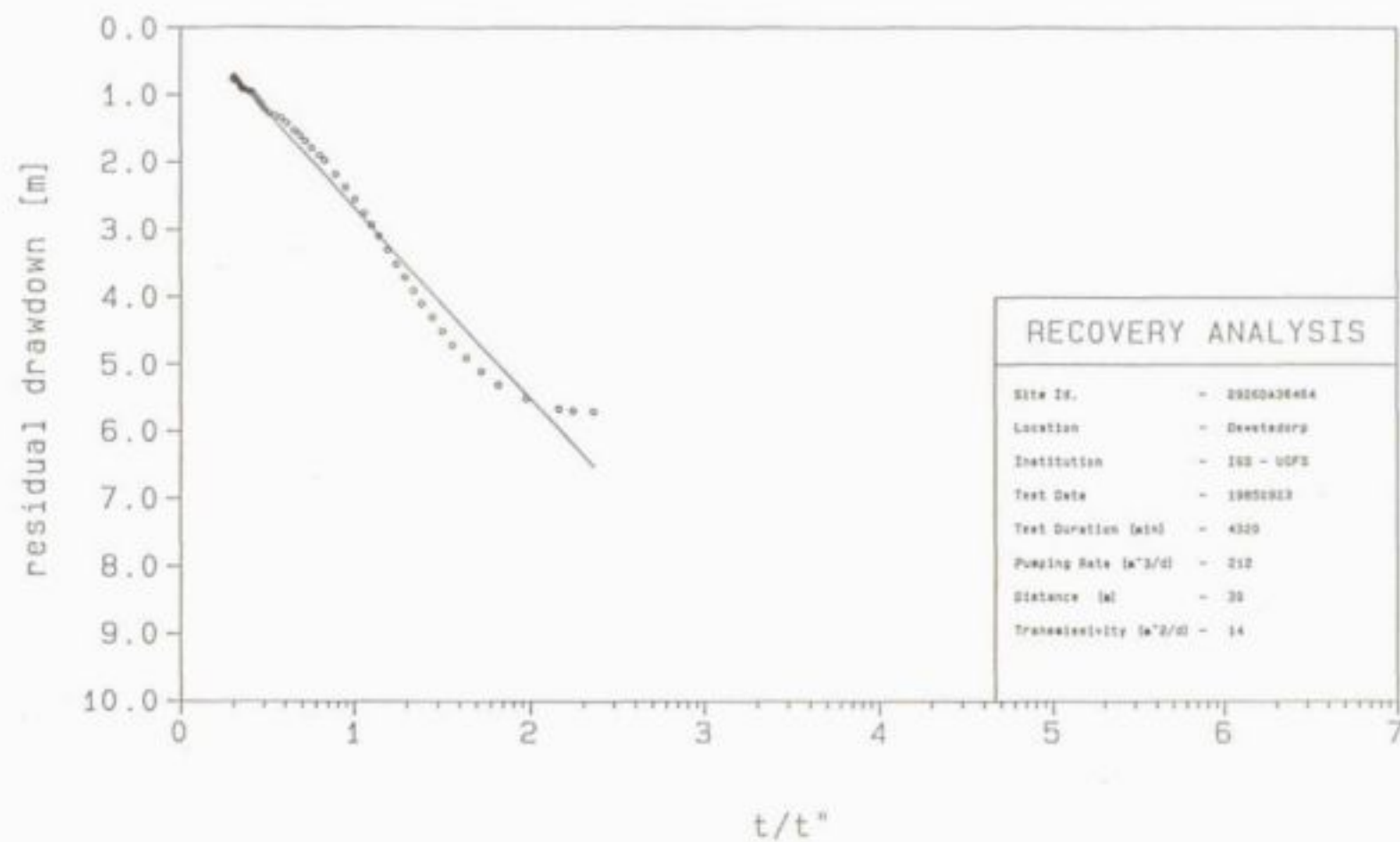


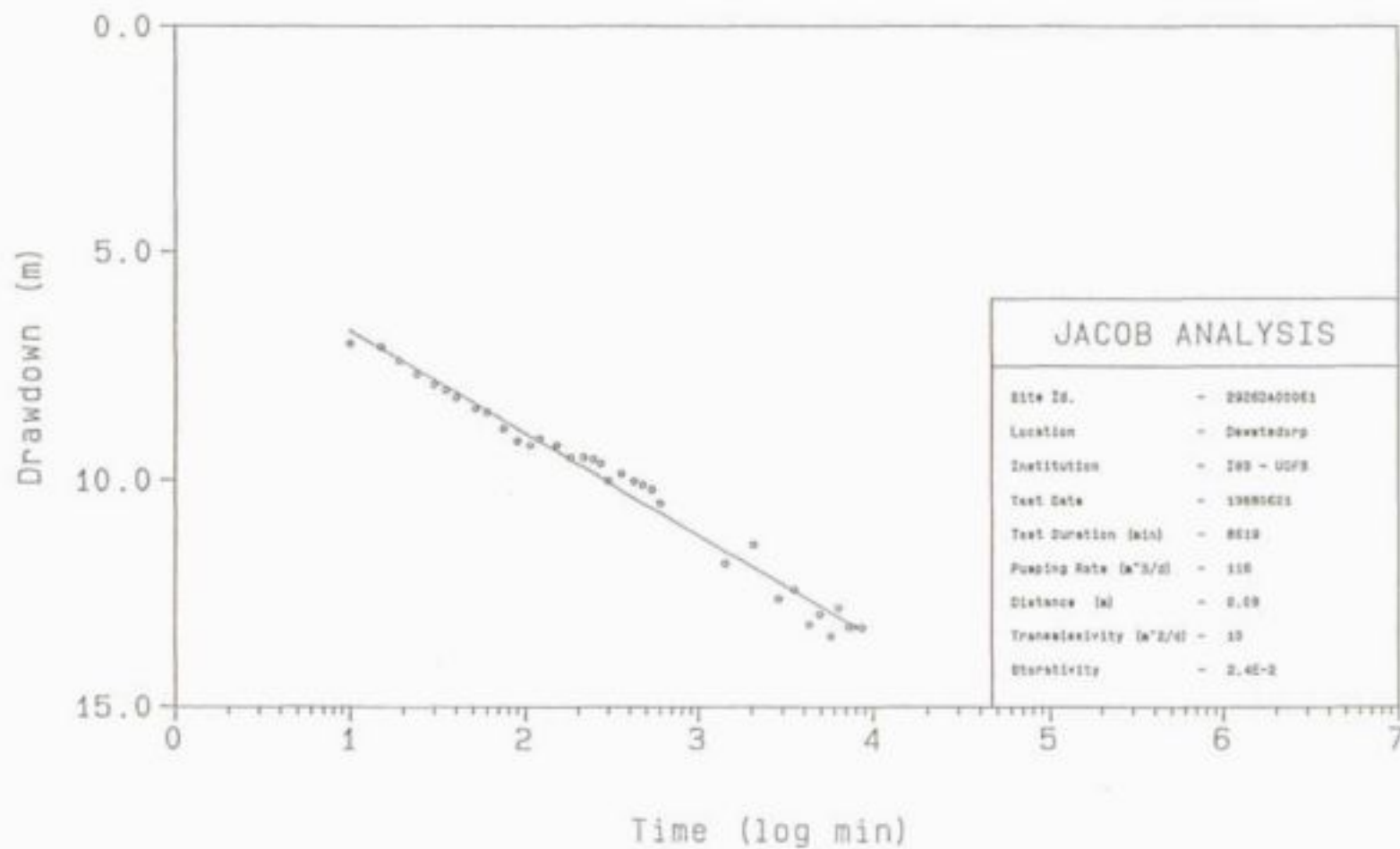


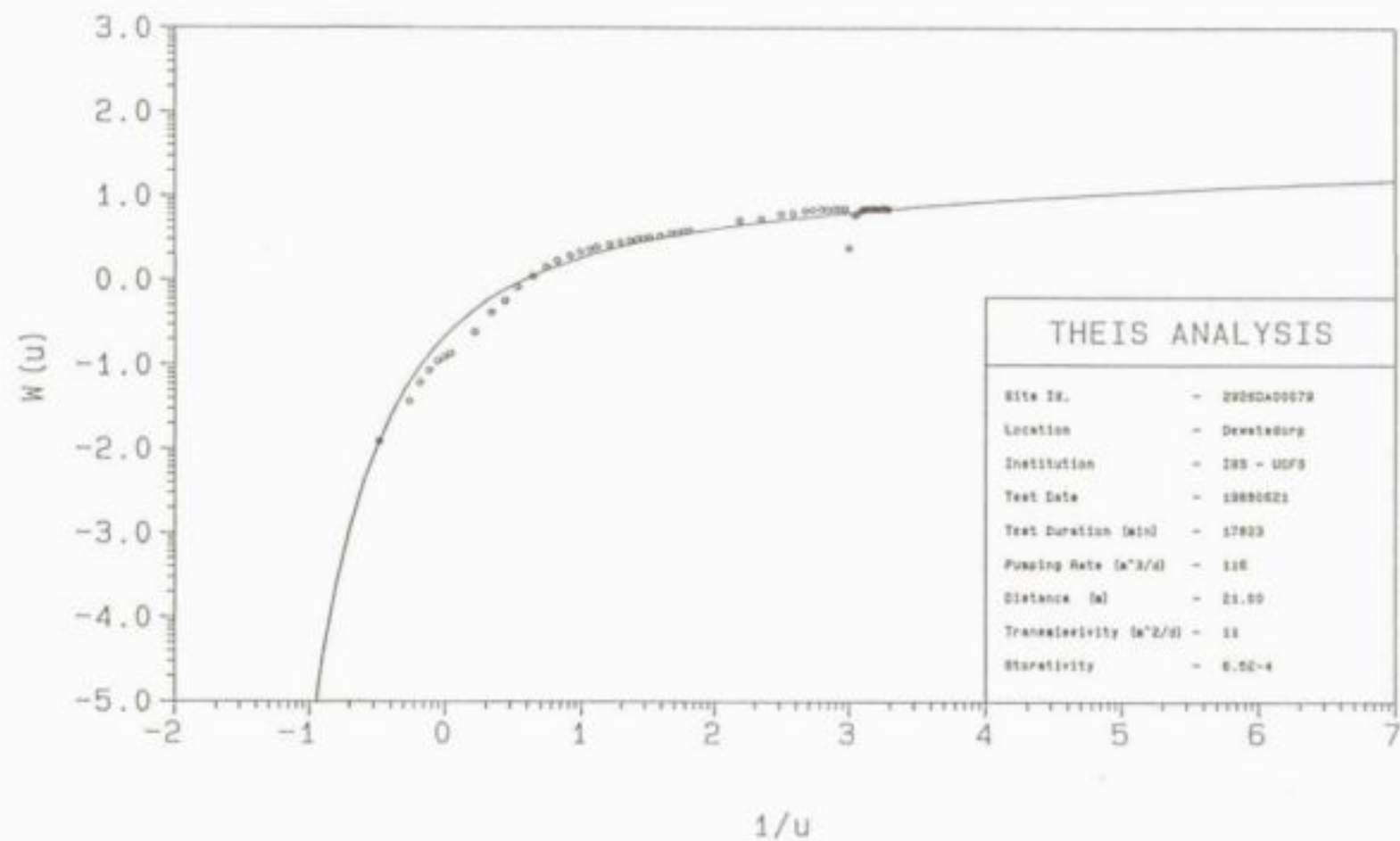


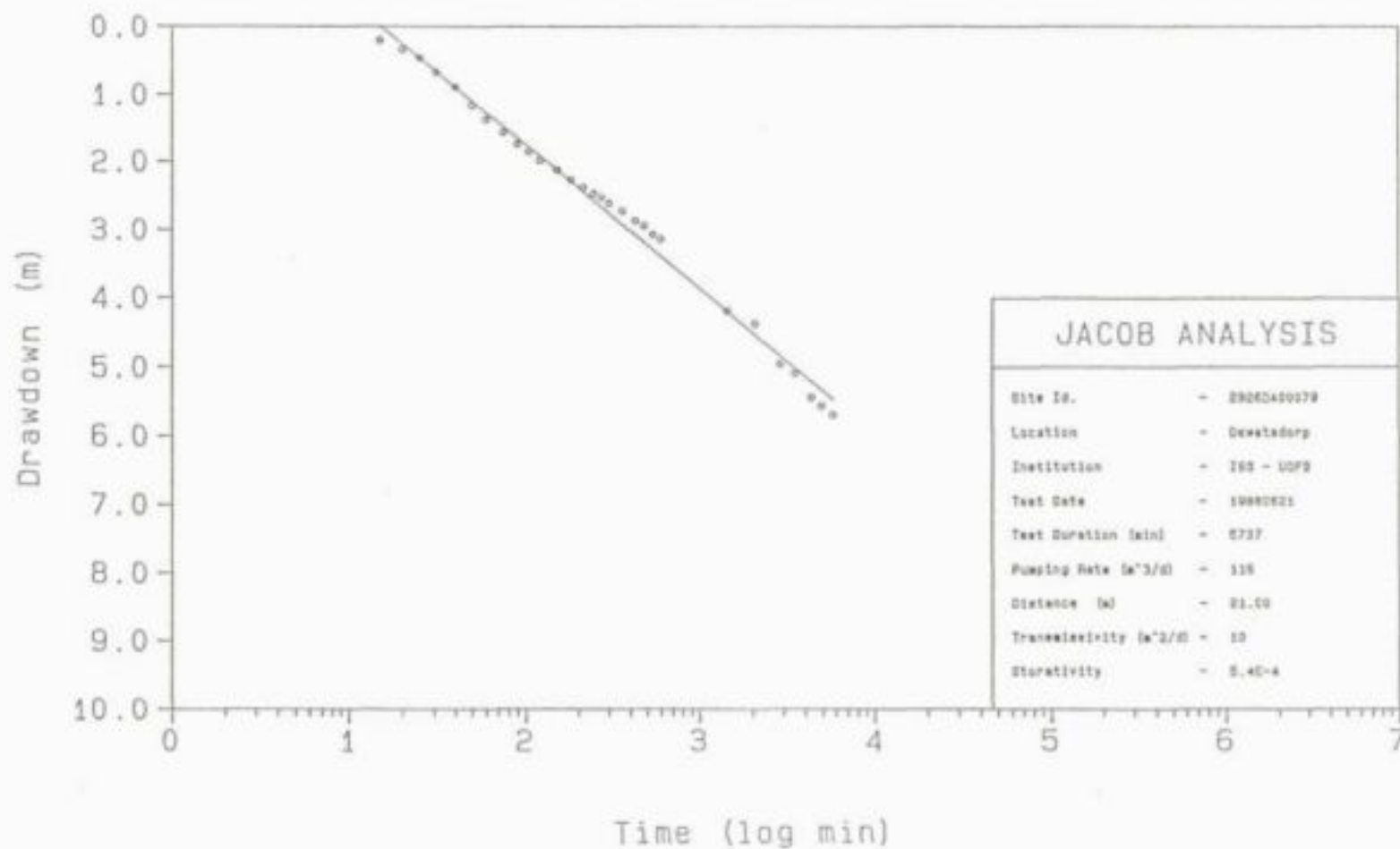


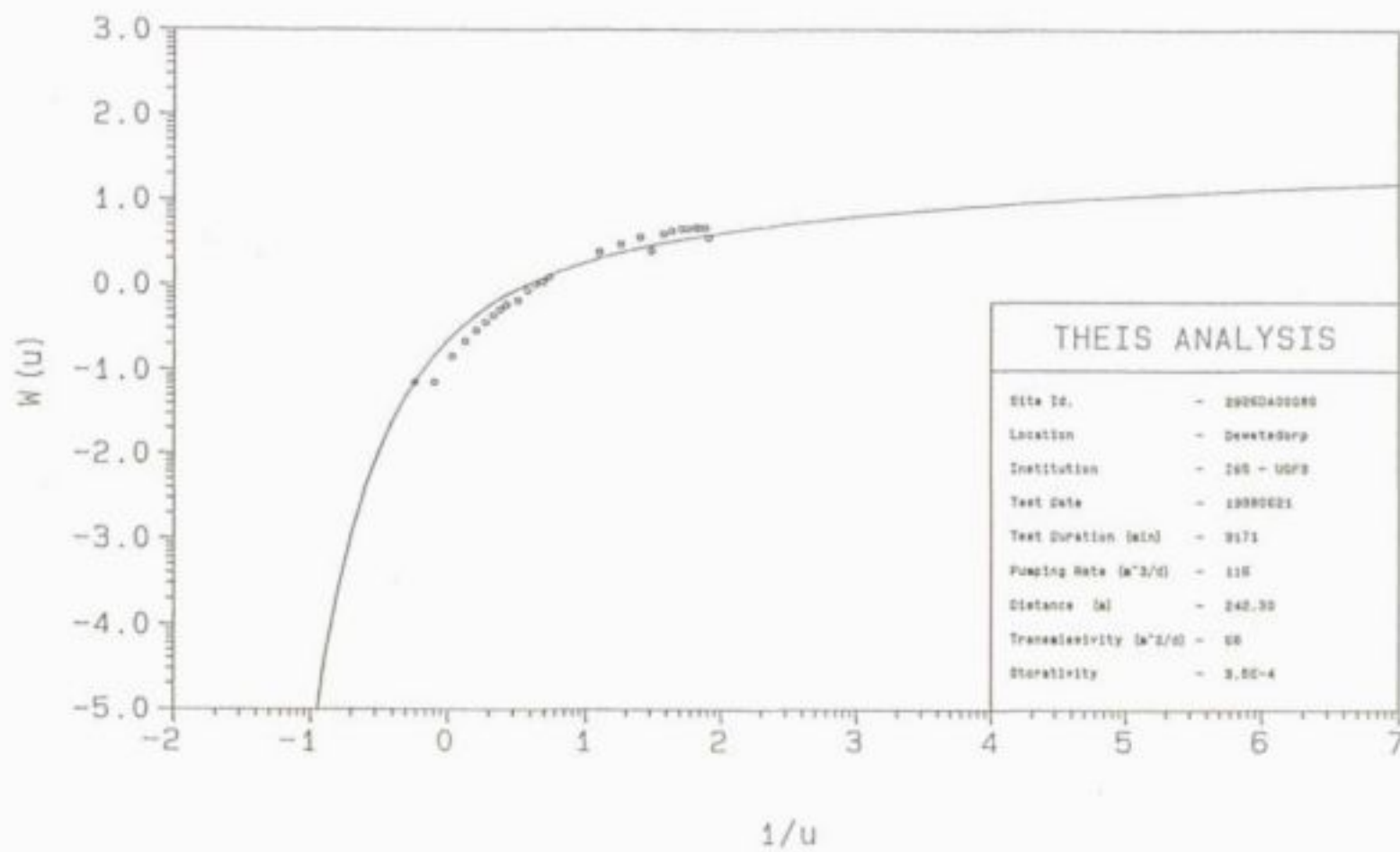


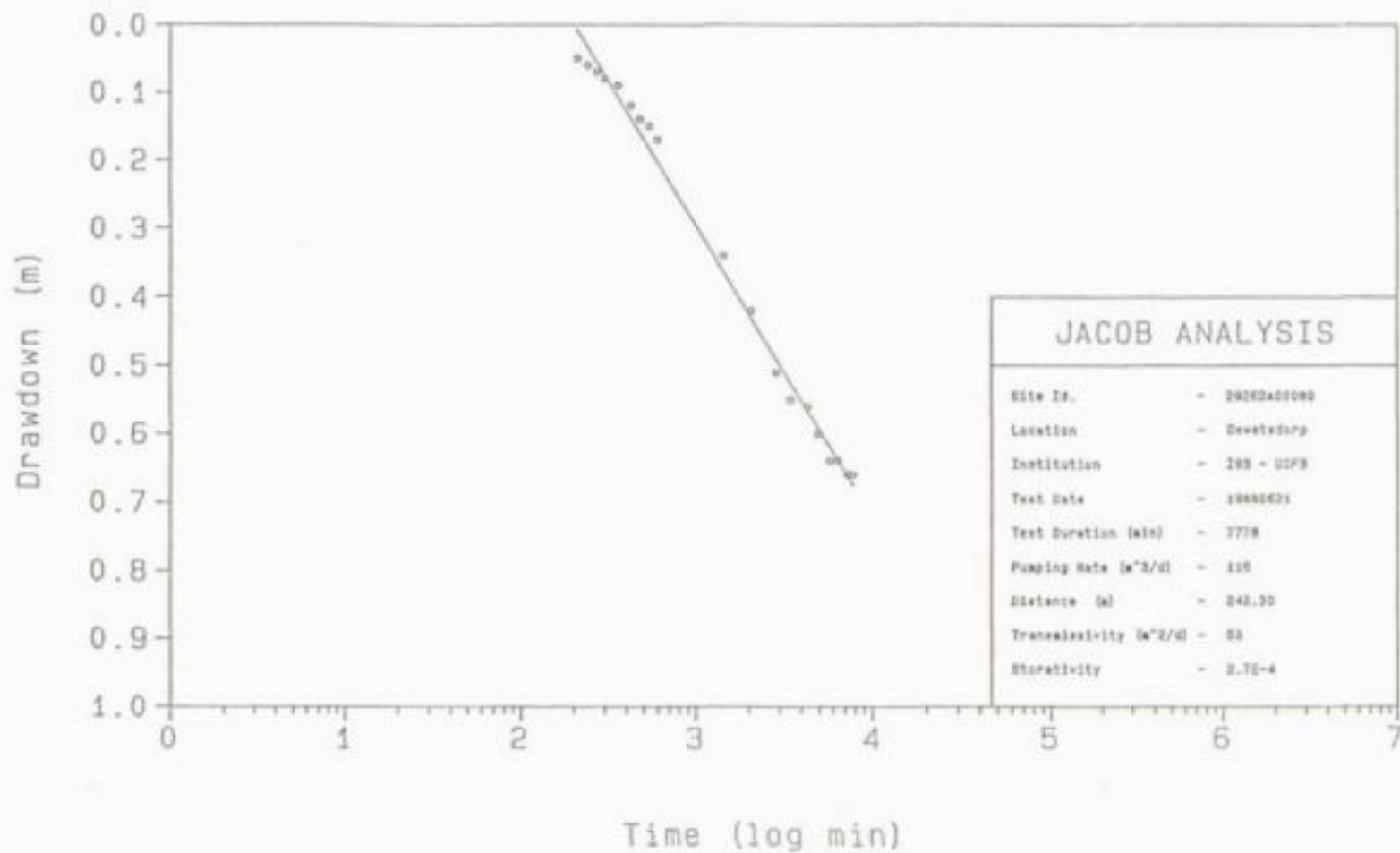


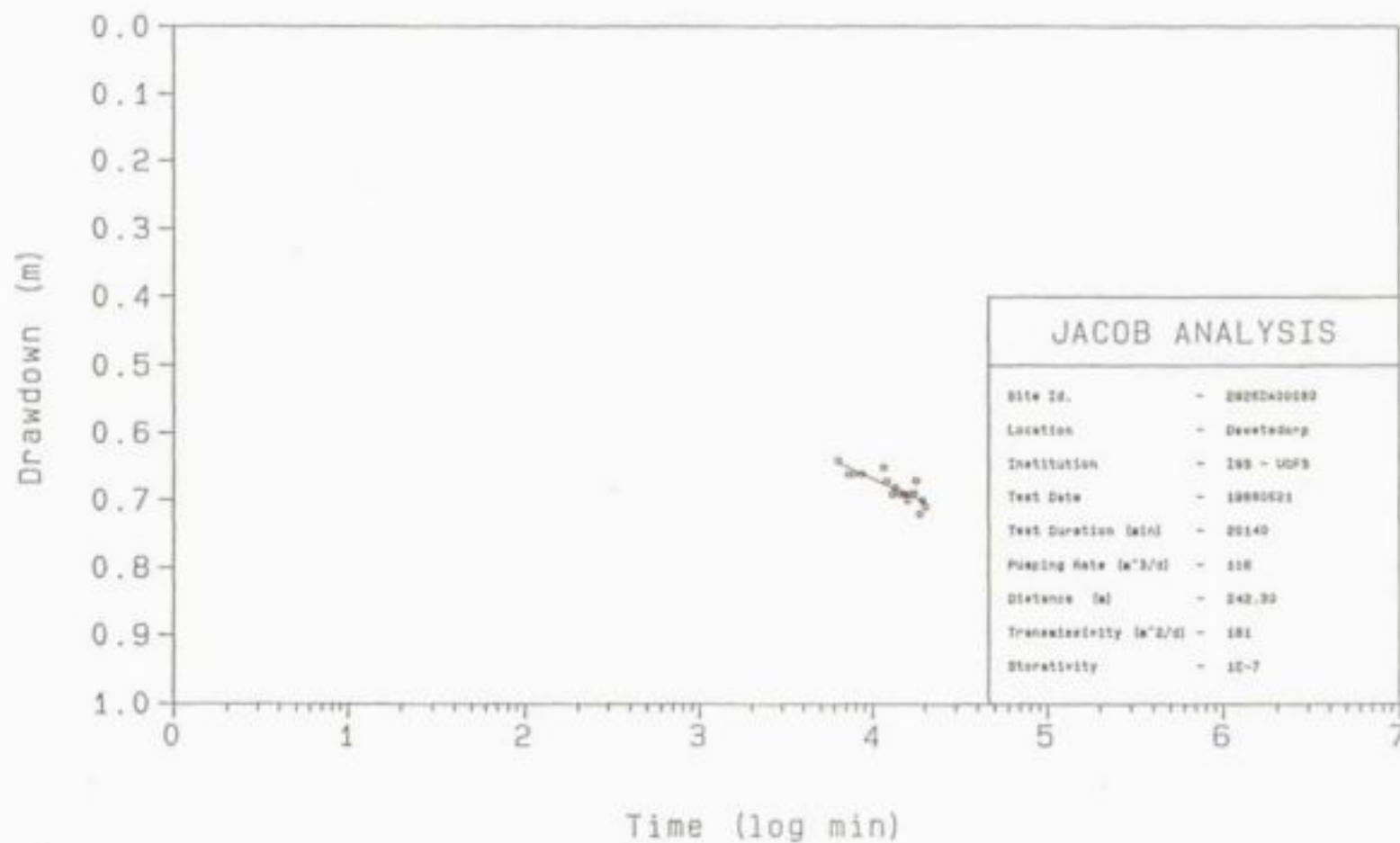


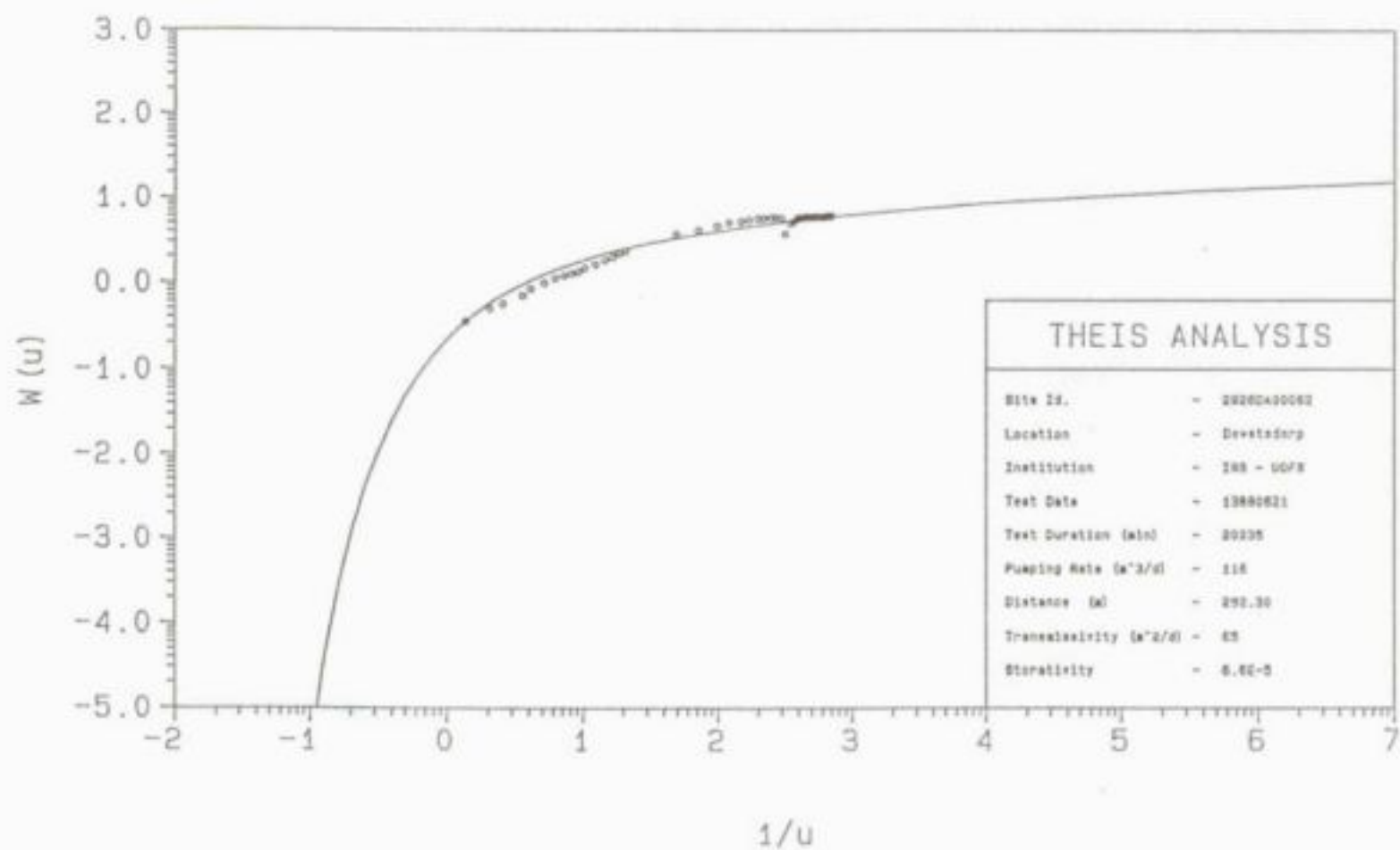


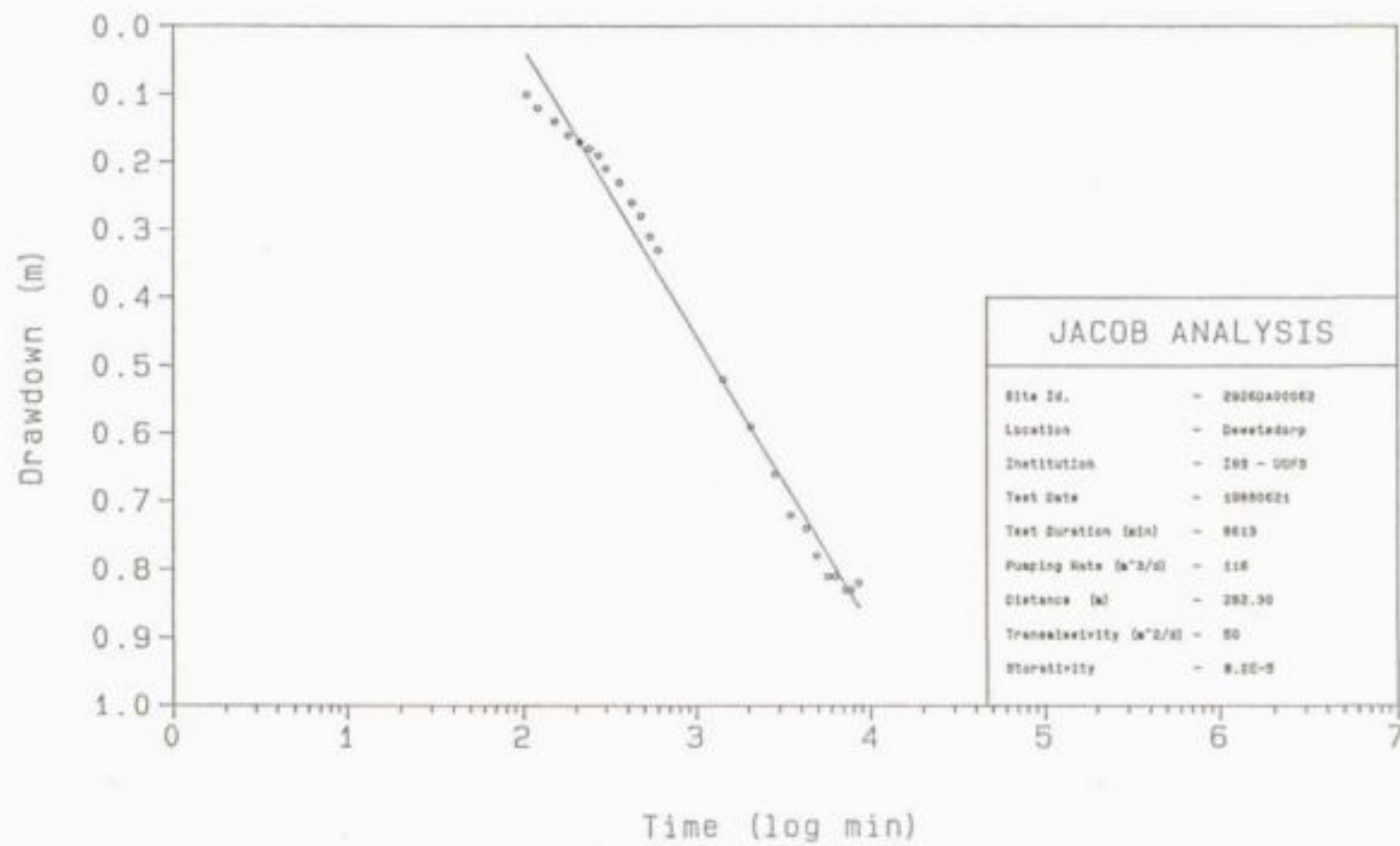


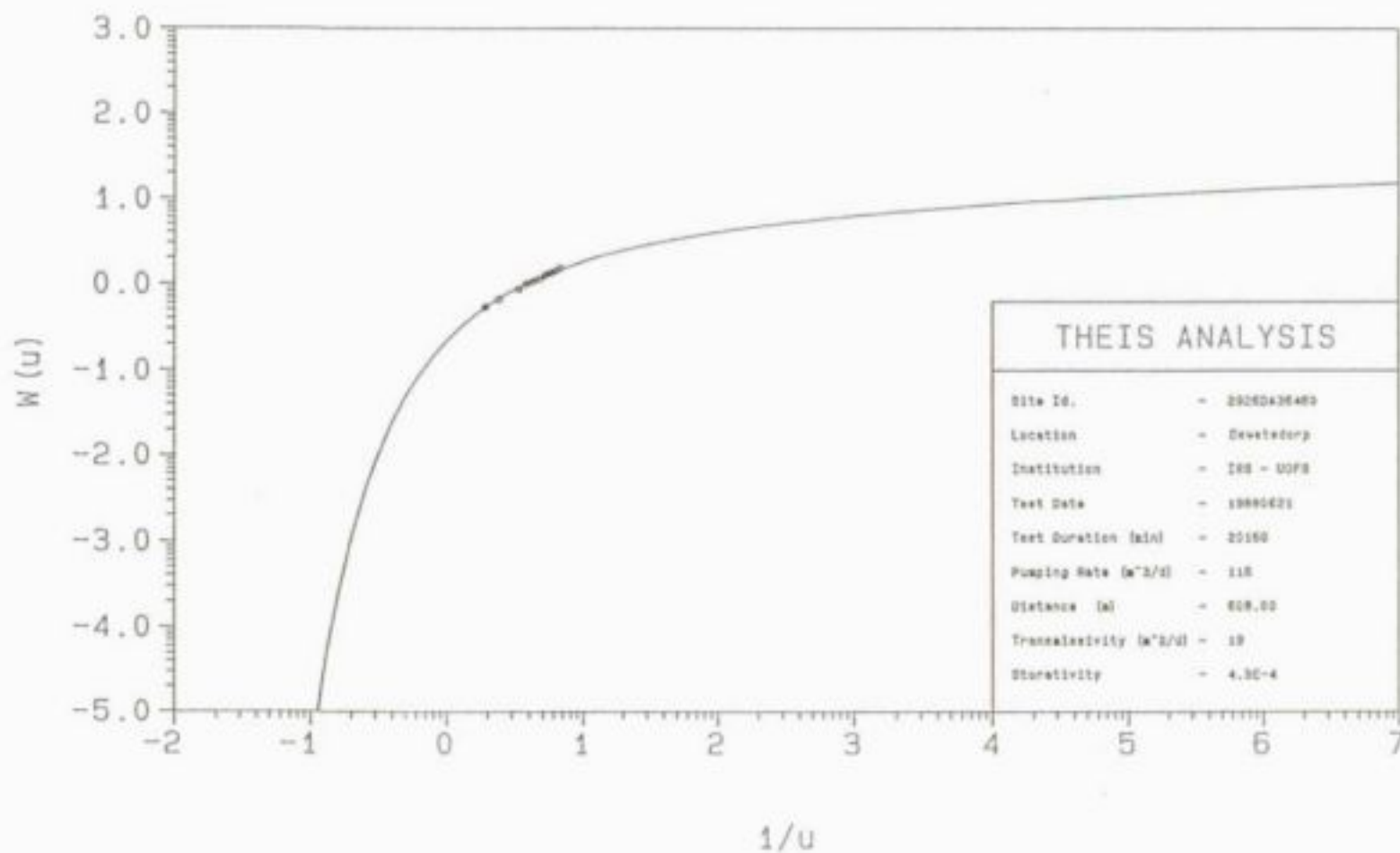


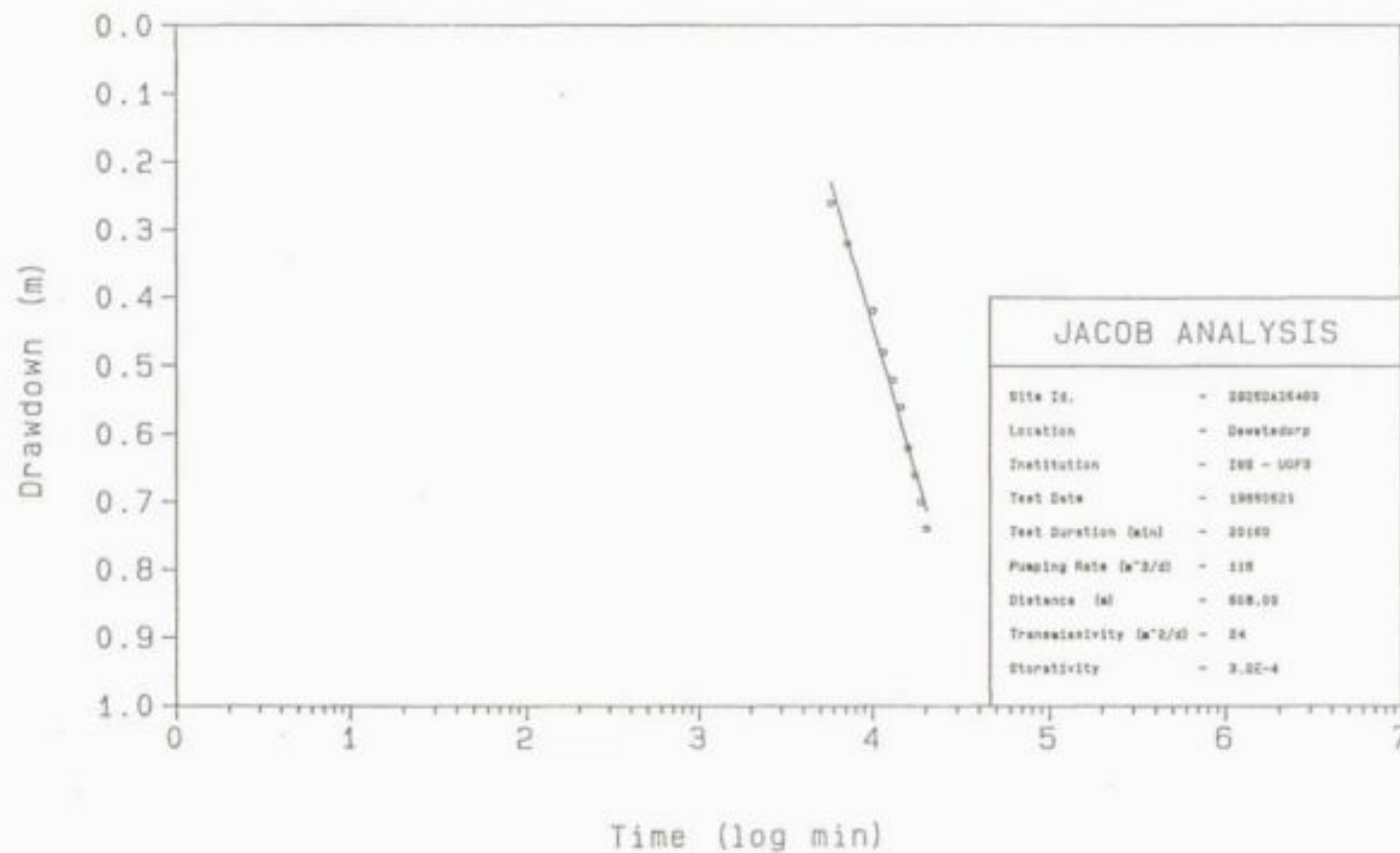


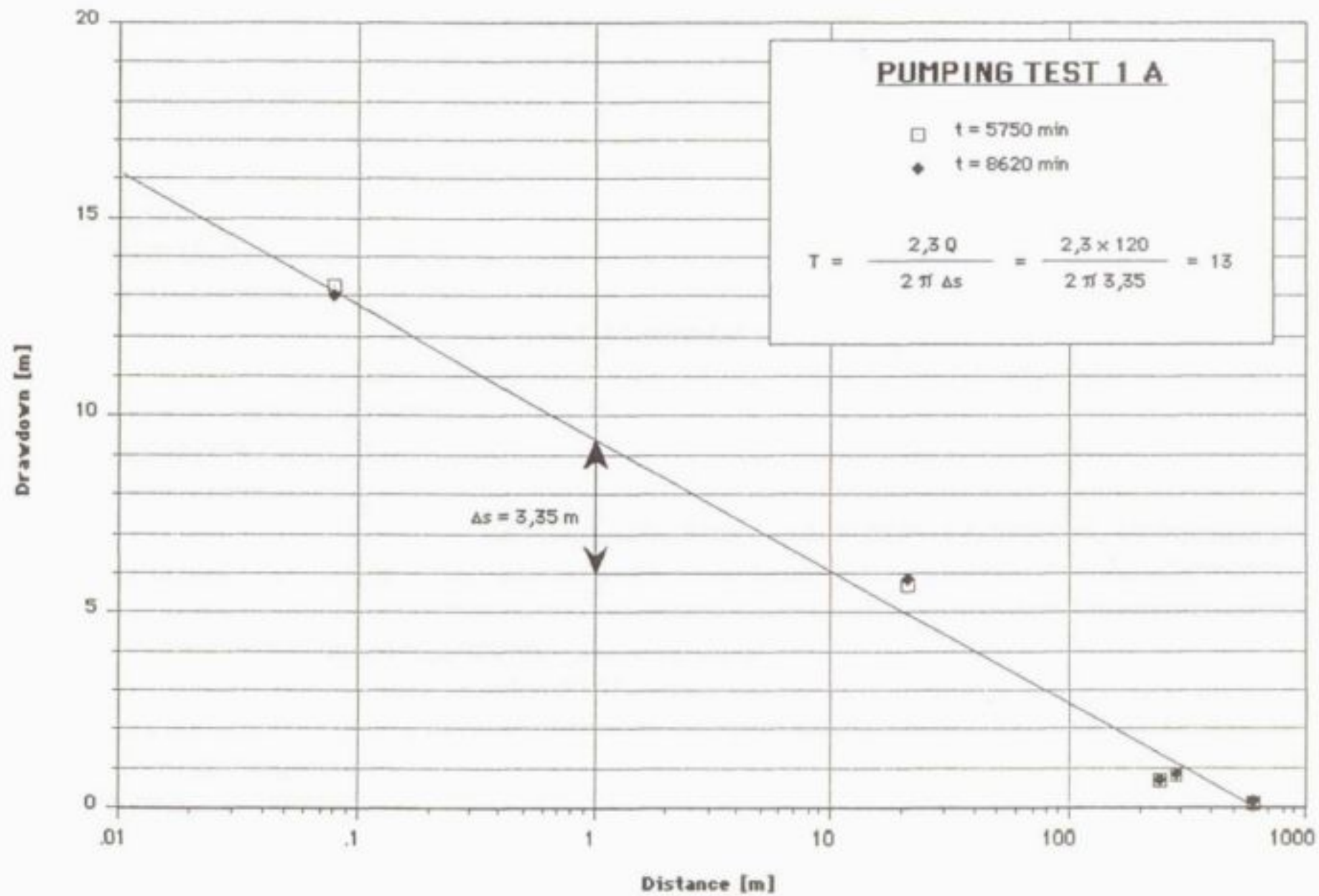


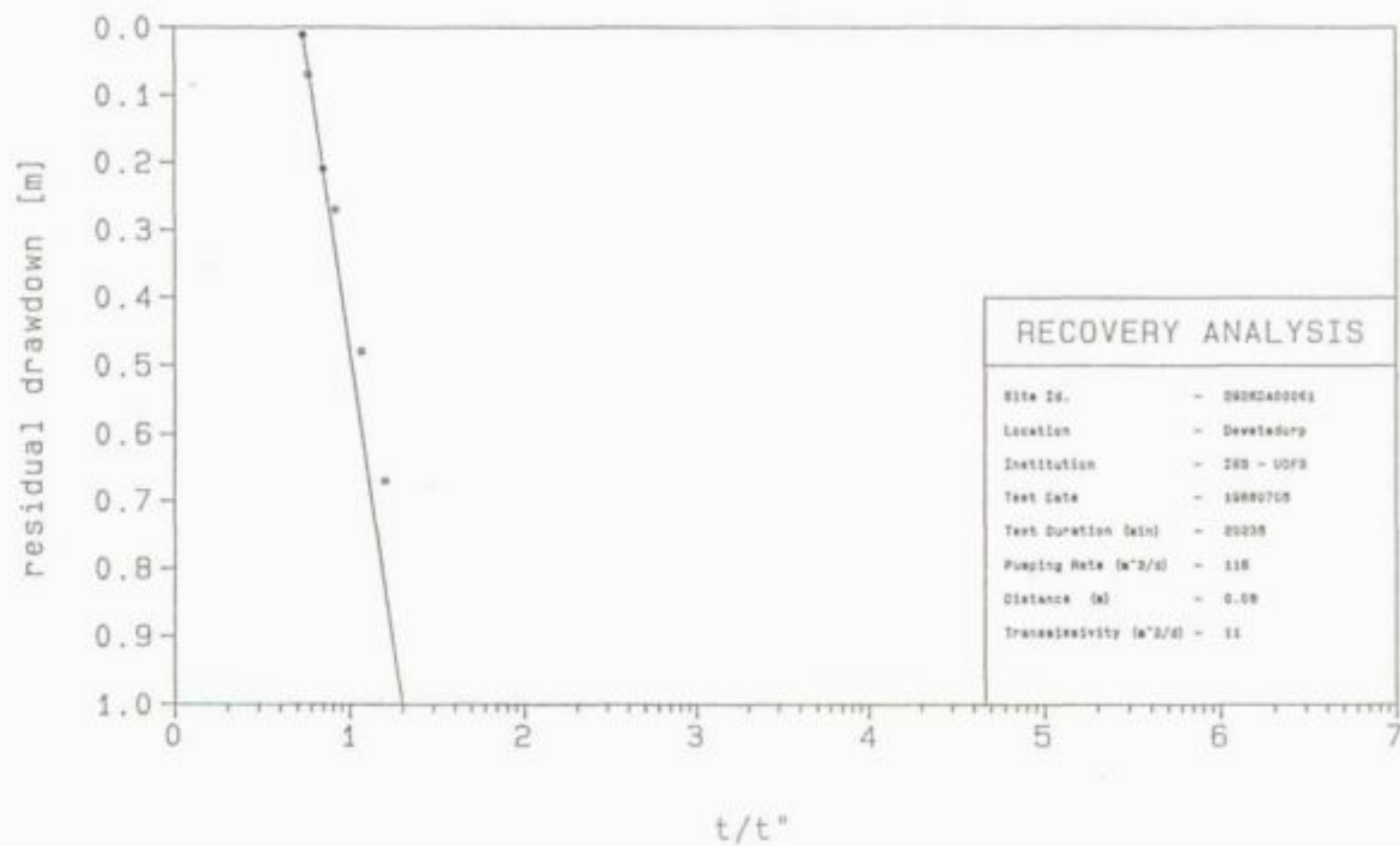


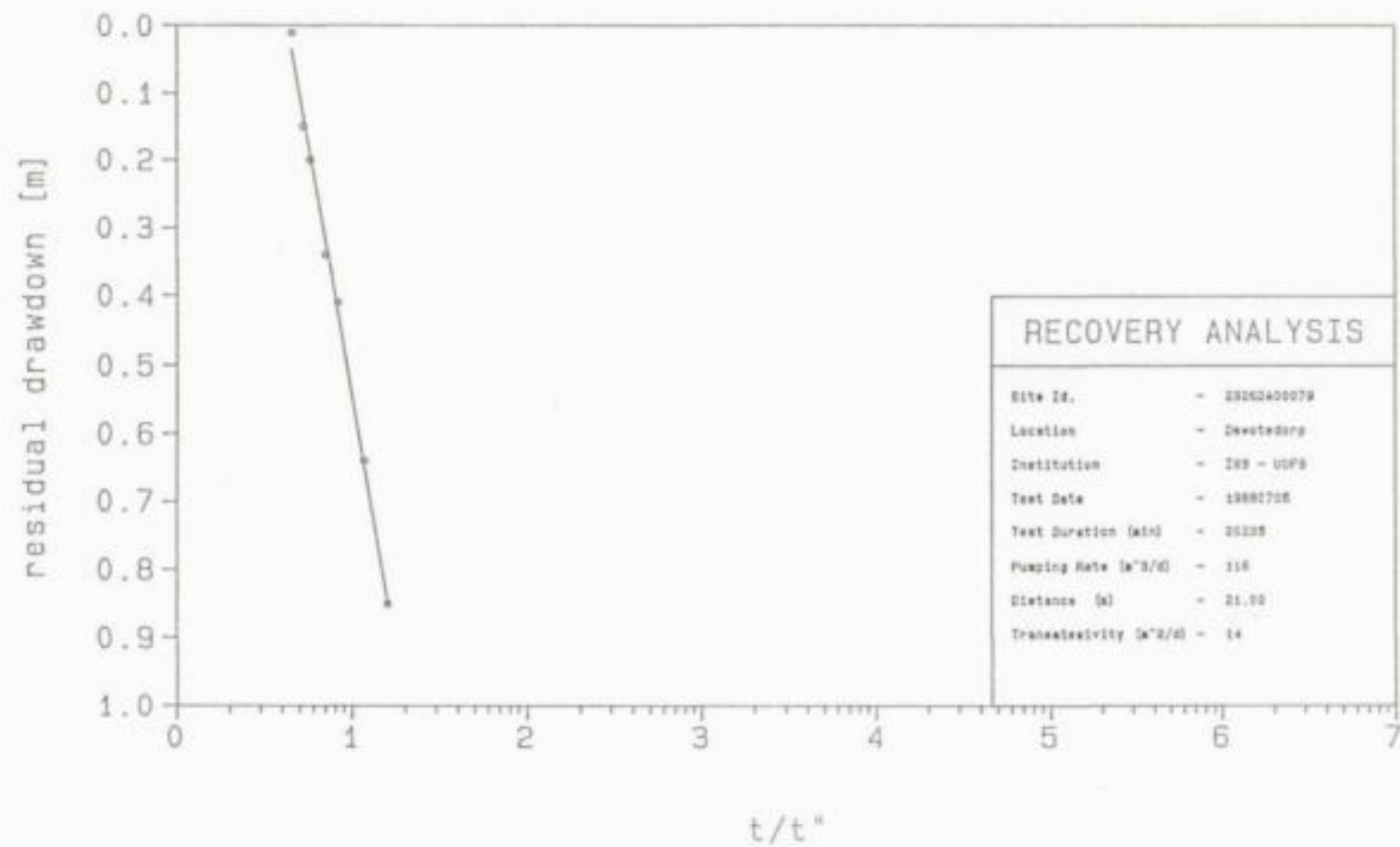


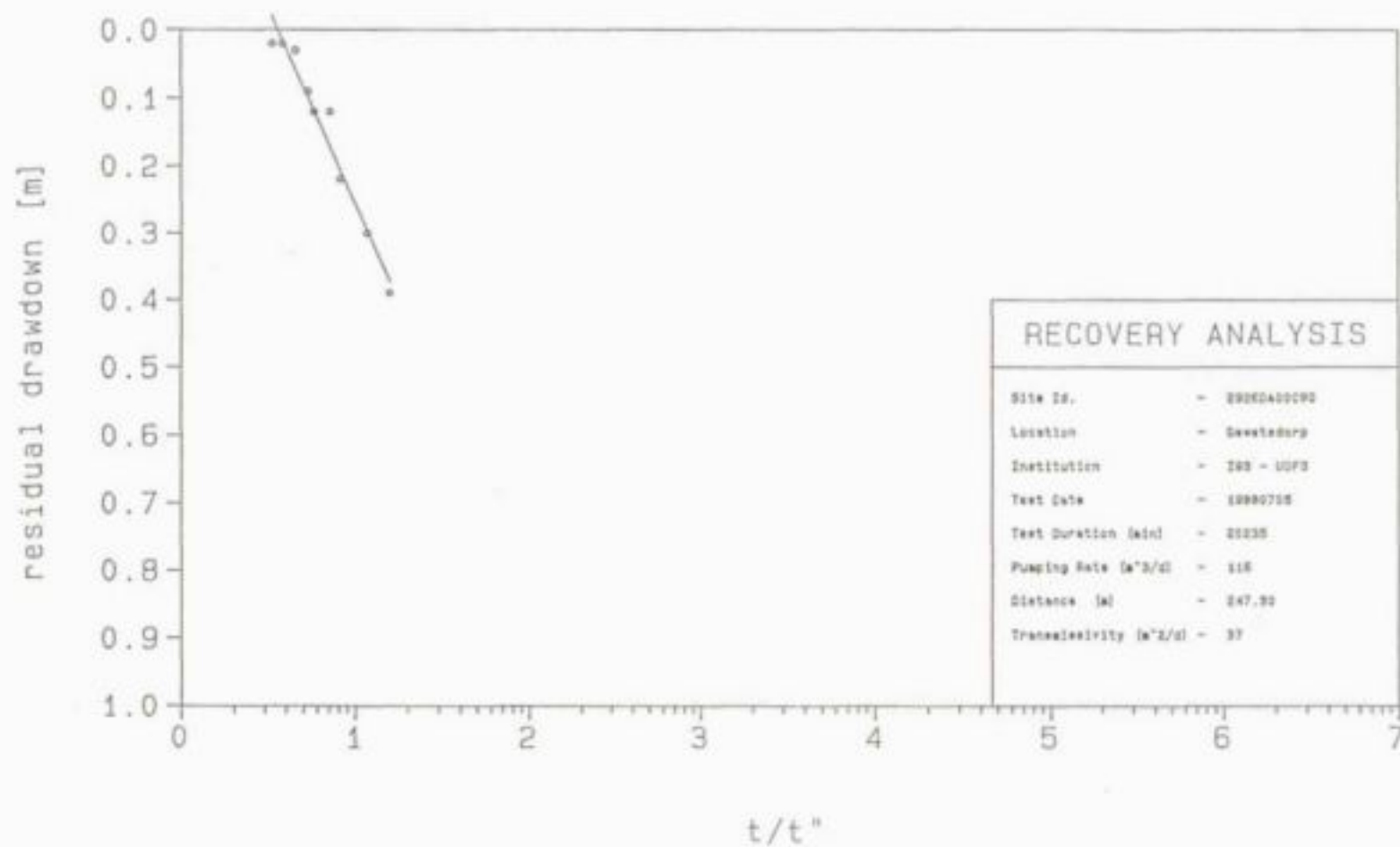


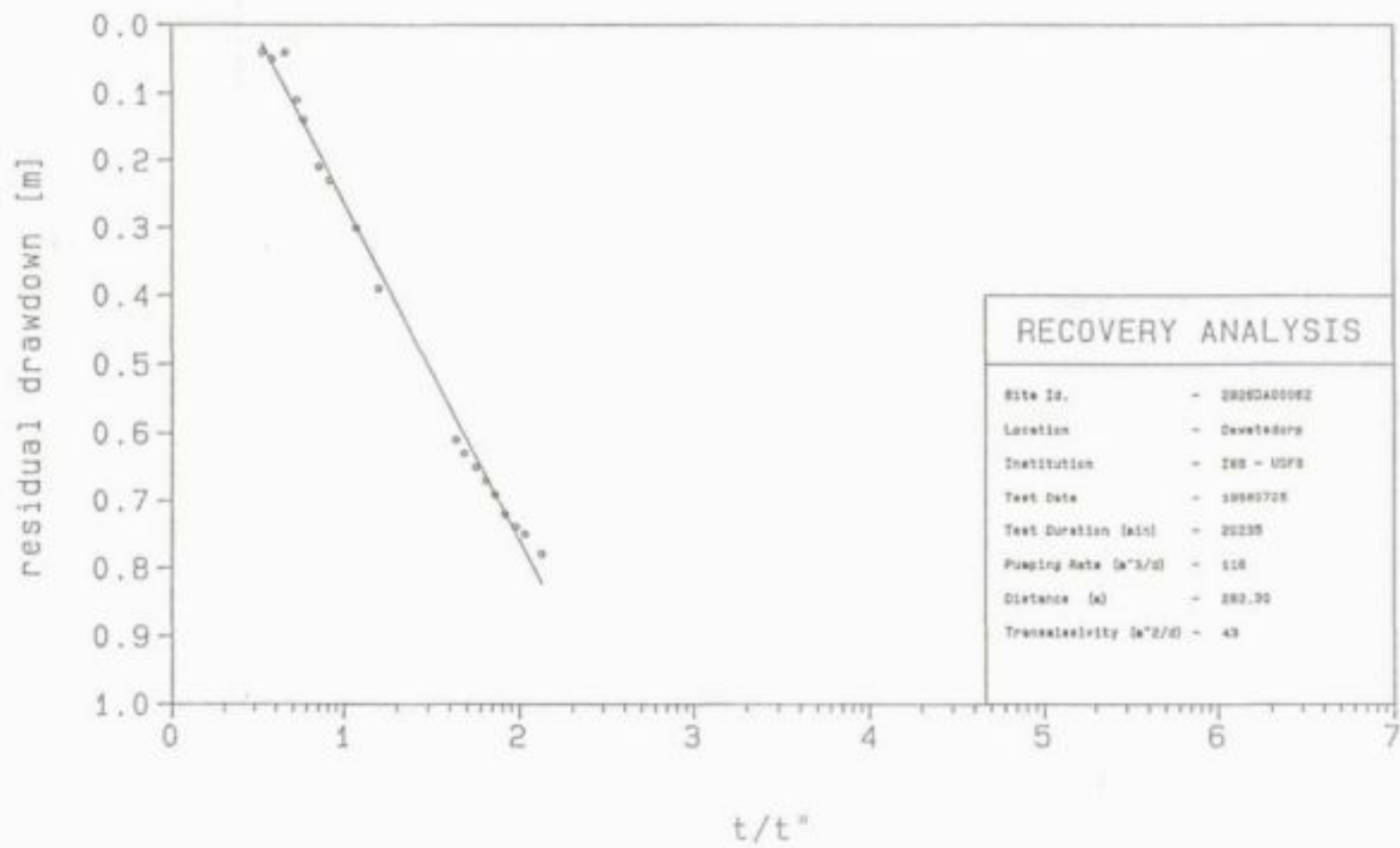


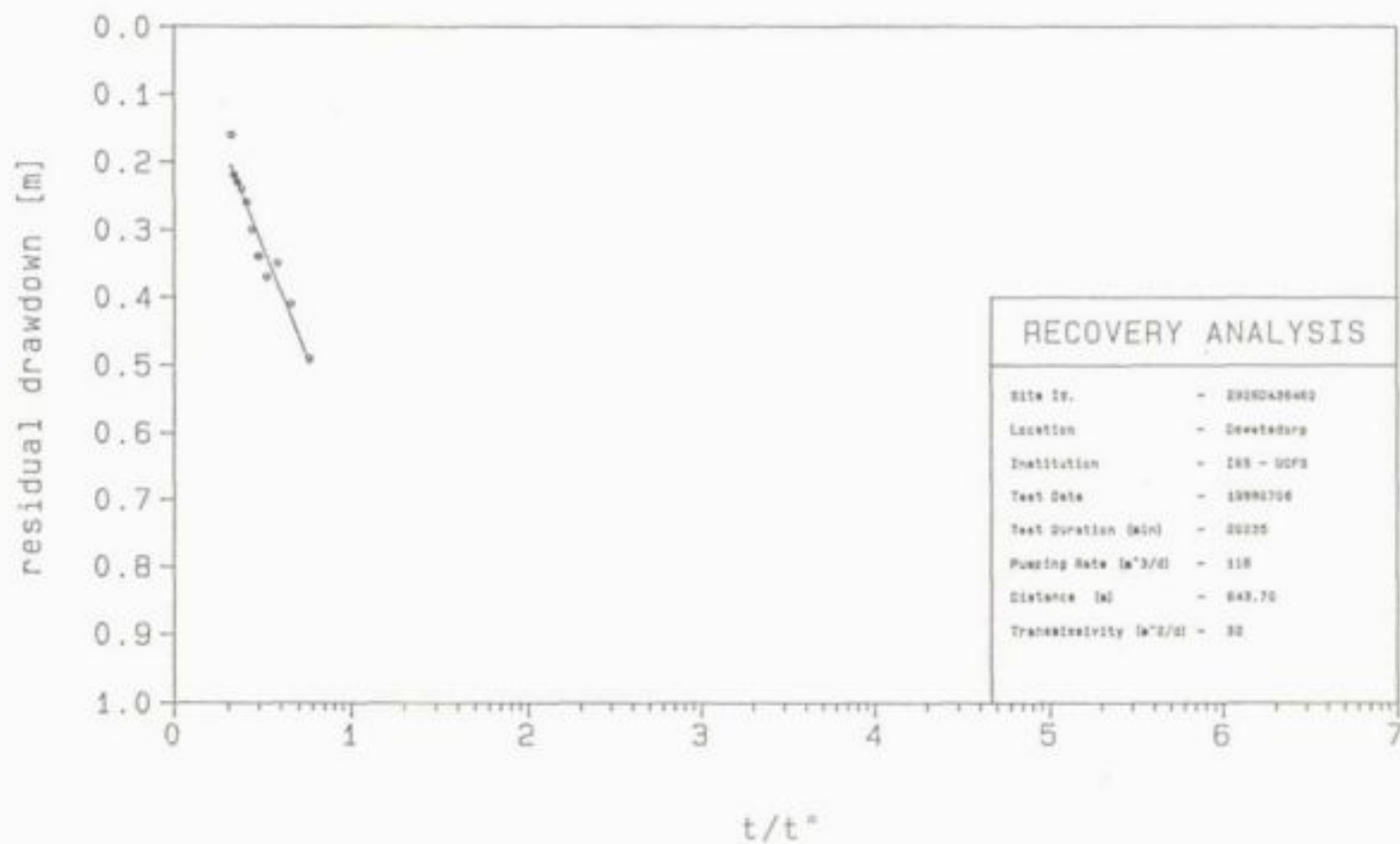












 * HydroBase * Chemistry Report * Date printed : 22 January 1990
 Generated for : Dewetsdorp - ISS/WRC Research project

Nr. on map	Date	Time	Depth m	pH	EC mS/m	TDS mg/L	T.Alk mg/L	Na mg/L	K mg/L	Ca mg/L	Mg mg/L	SI mg/L	Cl mg/L	SO4 mg/L	F mg/L	NO3(N) mg/L
1 A	19671204	12h00		7.40	50.0	368	378	58		64	18		28	10	0.8	
1 A	19760624	08h50		7.94	51.5	390	189	40	1.9	42	16	10.6	27	23	0.6	2.0
2 A	19760624	08h45		8.17	49.8	375	171	46	1.8	33	17	11.4	27	22	0.5	4.1
3 A	19671208	12h00		7.60	52.0	376	415	62		52	26		14	10	0.8	
5 A	19760624	10h05		7.94	65.6	531	298	60	1.7	54	19	13.3	16	14	0.6	0.4
6 A	19760624	09h20		7.83	55.5	451	259	37	0.6	43	26	14.7	14	13	0.4	0.7
8 A	19760624	09h05		7.96	73.9	537	228	100	1.1	34	17	9.6	61	44	0.9	0.5
12 A	19760616	13h10		7.85	48.8	369	201	18	2.2	44	21	14.5	9	15	0.2	3.0
G 2377	19760614	11h20	33.00	8.25	58.1	492	270	84	1.0	24	17	11.0	16	18	1.0	0.6
DEW 22	19760614	16h00		7.80	112.4	717	119	176	1.6	30	12	5.3	164	83	0.6	22.8
DEW 45	19760614	16h00		7.41	66.4	407	100	133	1.3	5	1	0.1	113	18	0.7	2.7
DEW 47	19760614	16h25		7.75	53.9	424	183	122	0.6	3	1	5.4	33	27	2.5	1.9
DEW 51	19760614	17h10		7.97	78.0	637	312	117	1.6	40	18	9.1	37	36	0.6	1.5
DEW 62	19760615	12h00		8.03	66.8	445	180	32	0.9	48	35	13.0	79	13	0.2	2.8
DEW 81	19760615	14h20		7.91	101.1	744	250	202	1.3	16	6	4.3	98	73	0.3	9.2
DEW 134	19760624	12h30		7.88	46.7	394	207	106	0.5	2	1	5.2	14	13	1.9	0.6
G36429	19850122	14h00	77.00	7.90	36.3	291	121	67	4.8	18	3	4.8	36	12	2.8	0.0
G36429	19850122	14h00	101.00	7.50	55.2	429	99	76	12.7	35	7	5.0	47	128	2.2	0.0
G36430	19850123	15h00	19.00	8.00	39.0	323	168	53	3.7	25	10	5.1	6	20	0.7	0.1
G36430	19850123	15h00	45.00	8.00	39.7	394	212	94	5.5	12	4	7.4	16	1	2.7	0.1
G36430	19850123	15h00	100.00	8.05	40.9	447	238	106	15.5	12	3	7.9	13	3	1.9	0.4
G36431	19850223	13h00	23.00	8.09	39.6	330	170	68	2.2	20	6	5.0	5	21	1.2	0.2
G36433	19850124	13h00	48.00	8.30	40.2	343	187	60	1.9	19	15	8.8	7	11	0.9	0.1
G36434	19850125	12h00	90.00	8.20	48.5	359	130	103	8.2	12	2	1.6	63	5	8.3	0.1
G36435	19850125	16h00	19.00	8.00	40.9	307	127	73	3.3	14	8	4.6	36	8	9.9	0.1
G36435	19850125	16h00	41.00	7.90	28.5	236	106	62	7.5	5	2	4.8	18	3	7.1	0.2
G36436	19850125	15h00	19.00	8.20	38.1	322	173	67	2.4	16	8	9.0	7	10	1.1	0.1
G36437	19850128	10h00	22.00	8.00	35.6	291	159	24	4.3	34	17	12.6	4	12	0.3	0.2
G36439	19850129	13h00	40.00	4.85	33.1	299	155	66	6.8	13	3	6.3	8	12	1.3	0.1
G36441	19850128	17h00	41.00	8.20	40.0	358	102	81	5.6	17	2	5.9	5	11	1.4	0.1
G36443	19850130	17h00	100.00	8.50	29.0	265	141	72	1.6	6	1	5.2	3	7	1.1	0.1
G36449	19850130	17h00	30.00	8.34	46.0	443	235	110	2.9	10	6	7.7	6	19	0.8	0.2
G36449	19850130	17h00	101.00	8.50	42.8	418	203	106	2.2	8	7	7.9	6	15	1.1	0.1
G36450	19850131	08h00	41.00	8.11	50.3	413	209	103	2.9	8	3	6.0	14	23	3.1	0.2
G36452	19850204	15h00	30.00	8.30	36.3	308	189	49	1.7	17	16	9.3	6	11	0.6	0.1
G36455	19850204	11h00	35.00	8.40	41.3	368	193	92	4.9	10	5	5.8	12	8	1.6	0.1
G36456	19850204	15h00	30.00	8.30	45.0	400	210	101	5.0	11	4	6.3	7	16	1.0	0.0
G36461	19850205	11h00	30.00	7.90	46.3	391	220	56	3.5	29	13	8.0	8	10	0.7	0.2
G36465	19850207	12h00	29.00	8.20	32.5	316	163	74	3.5	12	5	6.7	4	17	1.1	0.0
G36467	19850208	12h00	21.00	8.30	39.0	353	191	63	1.1	20	13	8.0	4	18	1.1	0.1

Sample No.	$\delta^{18}\text{O}$ [‰]	δD [‰]	^3H (TU)	Sample No.	$\delta^{18}\text{O}$ [‰]	δD [‰]
DG36443/053	-4.67	-29.4	0.4	DR161285/07	-6.39	-36.2
DG36433/100	-4.98	-30.9	0.0	DR161285/08	-7.07	-44.4
DG36444/025	-5.33	-32.2	0.0	DR0230186/01	-1.12	-1.5
DG36429/100	-4.58	-28.4	2.7	DR0230186/02	-0.42	+2.6
DG36433/019	-5.07	-32.2	1.0	DR0230186/03	-2.04	-6.7
DG36433/049	-5.23	-31.7	0.9	AR281185	+4.48	+38.6
DG36430/100	-5.60	-36.5	0.4	AR291185	-4.75	-22.7
DG36450/041	-5.42	-32.4	1.5	AR041285/01	-9.82	-63.8
AG36450/012	-3.54	-28.2	0.2	AR041285/02	-10.18	-65.1
AG36483/127	-3.54	-31.0	2.0	AR061285/01	-4.18	-12.5
AG36491/031	-3.29	-28.1	1.3	AR061285/02	-7.71	-34.5
AG36496/030	-4.07	-31.5	0.4	AR031285/01	-6.52	-36.8
AG36499/068	-4.98	-37.1	0.0	AR031285/02	-7.61	-45.9
AG36499A/45	-4.98	-37.1	0.0	AR031285/03	-7.11	-40.9
AG36502/025	-4.84	-33.7	1.1	AR031285/04	-8.71	-58.7
AG36504/018	-4.47	-28.0	0.5	AR031285/05	-4.90	-27.8
AG36504/100	-4.50	-27.4	0.8	AR031285/06	-4.40	-23.5
AG36505/012	-4.37	-28.5	0.9	AR031285/07	-5.99	-31.8
AG36505/042	-4.45	-31.6	0.3	AR031285/08	-4.83	-21.7
AG36508/025	-4.25	-28.2	1.3	AR031285/09	-4.95	-23.6
AG36515/050	-3.39	-25.1	2.0	AR031285/10	-5.69	
AG36516/030	-4.54	-29.4	1.3	AR031285/11	-5.89	-31.8
DR281185/01	-1.56	-0.9		Aar 1, 880216	-10.9	
DR281185/02	-6.95	-42.9		Aar 2	-7.5	
DR281185/03	-7.63	-47.9		Aar 3	-7.8	
DR281185/04	-7.03	-43.2		Aar 4	-7.7	
DR281185/05	-5.22	-29.9		Aar 5	-10.5	
DR281185/06	-5.49	-26.4		Aar 6	-8.4	
DR281185/07	-6.51	-38.7		Aar 7	-8.7	
DR031285/01	-5.20	-26.6		Aar 8	-9.0	
DR031285/02	-4.31	-20.6		Aar 9	-10.9	
DR031285/03	-6.05	-36.8		Aar 10	-11.2	
DR341285/01	-7.50	-36.6		Aar 11	-11.0	
DR341285/02	-8.77	-46.4		Aar 14, 880219	-12.5	
DR341285/03	-8.21	-45.1		DR 1, 880219	-4.7	
DR341285/04	-8.25	-45.5		DR 2	-6.0	
DR341285/05	-8.18	-46.4		DR 3	-7.1	
DR341285/06	-8.82	-53.5		DR 4	-7.7	
DR041285/01	-2.68	-9.4		DR 5	-7.5	
DR041285/02	-4.93	-18.9		DR 6	-7.9	
DR041285/03	-5.82	-29.4		DR 7	-8.7	
DR041285/04	-5.96	-32.3		DR 8	-6.1	
DR051285/01	-3.20	-11.8		DR 9	-4.4	
DR051285/02	-4.71	-16.6		DR 10	-4.5	
DR051285/03	-4.02	-14.8		DR 11	-4.3	
DR051285/04	-6.50	-36.0		DR 12, 880221	-4.8	
DR051285/05	-9.43	-63.7				
DR051285/06	-10.38	-75.4				
DF111285	-1.69	-15.5				
DR161285/01	-2.59	-9.7				
DR161285/02	-4.55	-21.6				
DR161285/03	-5.41	-25.4				
DR161285/04	-4.36	-15.4				
DR161285/05	-3.71	-8.9				
DR161285/06	-5.84	-32.1				

SOIL PROFILE DESCRIPTIONS AND ANALYTICAL DATA

Profile No. 1: Oakleaf form, Letaba series. Horizon sequence: Orthic A on neocutanic B on unconsolidated parent material.

The orthic A-horizon is 25 cm deep, apedal, single-grained with good root development. It changes into a B21-horizon, found between a depth of 25 and 50 cm. It has cutans, is red, calcareous and contains roots to a depth of 40 cm. The B1-horizon changes gradually into a B22-horizon with few cutans and plentiful limestone layers. This horizon changes gradually into unconsolidated material.

	A1	B21	B22
Sand (%)	61	59	60
Silt (%)	9	13	18
Clay (%)	30	28	22
Depth(cm)	- 25	- 50	50 +

Profile No. 2: Mispah form, Kalkbank series. Horizon sequence: Orthic A on calcrete.

The orthic A-horizon varies in thickness between 20 and 60 cm and has a good root distribution.

The calcrete consists of separate layers with soil of varying texture in between.

	A	C
Sand (%)	84	82
Silt (%)	7	9
Clay (%)	9	9
Depth(cm)	- 40	40 +

Profile No. 4: Sterkspruit form, Swaerskloof series. Horizon sequence: Orthic A on prismaeutanic B on weathered shale.

The orthic A-horizon is unstructured, massive, 25 cm thick and changes abruptly in the prismaeutanic B-horizon which is red coloured with moderately developed prisms. It occurs between 20 to 40 cm and changes into a weakly structured B horizon which reaches a depth of 50 cm. The underlying shale is weathered.

	A1	B2	B3
Sand (%)	60	58	58
Silt (%)	20	13	19
Clay (%)	20	29	23
Depth(cm)	- 20	- 40	- 50 +

Profile No. 13: Hutton form, Shigalo series. Horizon sequence: Orthic A on red apedal B-horizon.

The soil probably originated from wind-blown material. The orthic A is 30 cm thick and changes gradually into the red apedal B which is calcareous, unstructured (single-grained) and reaches a depth of 90 cm.

	A	C
Sand (%)	86	84
Silt (%)	5	6
Clay (%)	9	10
Depth(cm)	- 30	-90

DRY- AND WET BULK DENSITIES IN DE AAR AREA.

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DD
AAR - 1	/0.10 :	10.48 +/- 1.09	0.224	1.88 +/- 0.03	2.117	1.78 +/- 0.03
AAR - 1	/0.20 :	11.31 +/- 0.55	0.260	1.91 +/- 0.01	2.194	1.79 +/- 0.01
AAR - 1	/0.40 :	11.20 +/- 0.29	0.260	1.81 +/- 0.02	2.314	1.69 +/- 0.02
AAR - 1	/0.70 :	11.14 +/- 0.30	0.234	1.79 +/- 0.04	2.336	1.68 +/- 0.04
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DD
AAR - 3	/0.10 :	6.47 +/- 0.31	0.193	1.78 +/- 0.03	2.586	1.72 +/- 0.03
AAR - 3	/0.20 :	9.49 +/- 0.75	0.220	1.88 +/- 0.02	3.009	1.78 +/- 0.01
AAR - 3	/0.40 :	12.11 +/- 0.54	0.251	1.97 +/- 0.09	3.439	1.85 +/- 0.08
AAR - 3	/0.70 :	10.79 +/- 0.33	0.311	1.87 +/- 0.06	2.719	1.76 +/- 0.05
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DD
AAR - 2	/0.10 :	14.08 +/- 0.74	0.144	1.63 +/- 0.02	2.523	1.49 +/- 0.02
AAR - 2	/0.20 :	13.83 +/- 0.77	0.162	1.63 +/- 0.03	2.747	1.49 +/- 0.02
AAR - 2	/0.40 :	6.28 +/- 0.07	0.172	1.82 +/- 0.02	2.703	1.76 +/- 0.02
AAR - 2	/0.70 :	18.78 +/- 0.29	0.265	2.03 +/- 0.03	2.785	1.85 +/- 0.03
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DD
AAR - 8	/0.10 :	8.53 +/- 1.59	0.237	1.71 +/- 0.06	2.060	1.62 +/- 0.05
AAR - 8	/0.20 :	12.33 +/- 0.31	0.290	1.87 +/- 0.03	2.028	1.75 +/- 0.03
AAR - 8	/0.40 :	11.09 +/- 0.53	0.312	1.85 +/- 0.09	2.147	1.74 +/- 0.08
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DD
AAR - 9	/0.10 :	7.82 +/- 0.33	0.217	1.64 +/- 0.03	2.365	1.56 +/- 0.02
AAR - 9	/0.20 :	9.20 +/- 0.55	0.254	1.78 +/- 0.08	2.162	1.69 +/- 0.08
AAR - 9	/0.40 :	10.31 +/- 0.65	0.274	1.87 +/- 0.03	2.348	1.77 +/- 0.03
AAR - 9	/0.70 :	10.49 +/- 0.94	0.268	1.82 +/- 0.03	2.218	1.71 +/- 0.03
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DD
AAR - 10	/0.10 :	3.45 +/- 0.16	0.107	1.81 +/- 0.00	1.963	1.78 +/- 0.00
AAR - 10	/0.20 :	5.95 +/- 0.65	0.137	1.85 +/- 0.02	1.984	1.79 +/- 0.02
AAR - 10	/0.40 :	6.64 +/- 0.30	0.171	1.87 +/- 0.08	2.258	1.81 +/- 0.08
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DD
AAR - 11	/0.10 :	4.97 +/- 0.86	0.256	1.62 +/- 0.04	2.269	1.57 +/- 0.03
AAR - 11	/0.20 :	12.41 +/- 1.18	0.317	1.40 +/- 0.03	2.481	1.28 +/- 0.03
AAR - 11	/0.40 :	21.23 +/- 0.20	0.361	1.56 +/- 0.01	2.415	1.35 +/- 0.01
AAR - 11	/0.70 :	30.86 +/- 0.39	0.448	1.94 +/- 0.04	2.248	1.63 +/- 0.04
SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DD
AAR - 12	/0.10 :	5.60 +/- 0.88	0.156	1.72 +/- 0.01	2.485	1.66 +/- 0.01
AAR - 12	/0.20 :	5.73 +/- 1.01	0.253	1.68 +/- 0.04	2.038	1.62 +/- 0.05
AAR - 12	/0.40 :	18.48 +/- 0.47	0.313	1.69 +/- 0.04	2.541	1.50 +/- 0.04
AAR - 12	/0.70 :	23.05 +/- 1.51	0.392	1.91 +/- 0.01	2.357	1.68 +/- 0.01

SITE : ACCESS TUBE NUMBER (-).
 WATER% : VOLUME MOISTURE CONTENTS (%).
 GAM C.R. : GAMMA-GAMMA COUNT RATIO (-).
 WBD : WET BULK DENSITY (Mg/m³).

DEPTH : DEPTH BELOW SURFACE (m).
 NEU C.R. : NEUTRON COUNT RATIO (-).
 GAM CPM : GAMMA-GAMMA COUNTS PER MINUTE (-).
 DD : DRY BULK DENSITY (Mg/m³).

DRY- AND WET BULK DENSITIES IN DE AAR AREA.

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
AAR - 13/0.10 :		4.70 +/- 0.29	0.286	1.84 +/- 0.06	1.760	1.80 +/- 0.03
AAR - 13/0.20 :		10.02 +/- 0.88	0.347	1.73 +/- 0.06	1.941	1.63 +/- 0.06
AAR - 13/0.40 :		15.40 +/- 0.63	0.352	1.91 +/- 0.06	2.000	1.76 +/- 0.05
AAR - 13/0.70 :		11.94 +/- 0.38	0.307	2.05 +/- 0.02	1.836	1.93 +/- 0.02

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
AAR - 14/0.10 :		8.66 +/- 2.36	0.188	1.85 +/- 0.01	2.409	1.76 +/- 0.02
AAR - 14/0.20 :		13.23 +/- 0.91	0.236	2.01 +/- 0.02	2.101	1.88 +/- 0.01
AAR - 14/0.40 :		12.68 +/- 0.22	0.292	2.00 +/- 0.04	2.154	1.87 +/- 0.03
AAR - 14/0.70 :		11.30 +/- 0.11	0.376	2.00 +/- 0.02	2.049	1.88 +/- 0.02
AAR - 14/1.10 :		18.10 +/- 0.43	0.414	2.17 +/- 0.05	1.985	1.98 +/- 0.05

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
AAR - 16/0.10 :		4.88 +/- 1.52	0.169	1.62 +/- 0.02	2.141	1.57 +/- 0.02
AAR - 16/0.20 :		8.29 +/- 0.79	0.219	1.60 +/- 0.09	2.067	1.52 +/- 0.09
AAR - 16/0.40 :		9.87 +/- 0.45	0.277	1.53 +/- 0.07	2.527	1.43 +/- 0.06
AAR - 16/0.70 :		9.92 +/- 0.38	0.361	1.54 +/- 0.06	2.396	1.44 +/- 0.05
AAR - 16/1.10 :		12.58 +/- 0.28	0.344	1.61 +/- 0.04	2.291	1.48 +/- 0.03

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
AAR - 20/0.10 :		8.97 +/- 0.83	0.222	1.28 +/- 0.03	2.485	1.19 +/- 0.03
AAR - 20/0.20 :		13.68 +/- 0.53	0.287	1.67 +/- 0.08	2.038	1.53 +/- 0.08
AAR - 20/0.40 :		18.25 +/- 0.60	0.399	1.85 +/- 0.03	2.541	1.66 +/- 0.03
AAR - 20/0.70 :		16.96 +/- 1.43	0.409	1.67 +/- 0.02	2.357	1.50 +/- 0.00

SITE	DEPTH	WATER%	NEU C.R.	WBD	GAM C.R.	DBD
AAR - 22/0.10 :		7.63 +/- 0.65	0.259	1.65 +/- 0.04	2.084	1.57 +/- 0.03
AAR - 22/0.20 :		11.71 +/- 0.66	0.362	1.70 +/- 0.08	2.099	1.58 +/- 0.07
AAR - 22/0.40 :		19.13 +/- 0.52	0.366	1.74 +/- 0.07	2.136	1.55 +/- 0.07
AAR - 22/0.70 :		19.12 +/- 0.99	0.297	1.73 +/- 0.02	2.250	1.54 +/- 0.02

SITE : ACCESS TUBE NUMBER(-).
 WATER% : VOLUME MOISTURE CONTENTS(%).
 GAM C.R. : GAMMA-GAMMA COUNT RATIO(-).
 WBD : WET BULK DENSITY (Mg/m³).

DEPTH : DEPTH BELOW SURFACE (m).
 NEU C.R. : NEUTRON COUNT RATIO(-).
 GAM CPM : GAMMA-GAMMA COUNTS PER MINUTE(-).
 DBD : DRY BULK DENSITY (Mg/m³).

TEXTURE ANALYSIS IN DE AAR AREA.

SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 1/0.1	:	3.14	6.19	9.15	43.69	3.64	14.00	10.63	98.43
AAR - 1/0.2	:	1.66	4.68	8.42	43.76	4.18	15.60	20.70	99.00
AAR - 1/0.4	:	.12	3.53	7.22	45.38	6.85	18.90	17.30	99.30
AAR - 1/0.7	:	.72	2.42	3.80	54.96	9.78	19.20	8.60	99.48
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 2/0.1	:	.68	.24	.84	44.36	5.52	21.60	26.20	99.44
AAR - 2/0.2	:	.40	.28	.86	48.52	4.08	18.20	27.20	99.52
AAR - 2/0.4	:	2.52	7.53	15.14	42.99	3.42	15.70	12.60	99.90
AAR - 2/0.7	:	.04	2.06	5.60	32.94	4.34	18.40	34.40	99.38
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 3/0.1	:	2.96	6.18	9.14	29.10	7.40	24.50	18.43	97.71
AAR - 3/0.2	:	3.93	8.25	14.66	37.66	3.56	13.20	17.13	98.39
AAR - 3/0.4	:	4.82	10.38	12.57	24.95	4.60	22.70	18.60	98.62
AAR - 3/0.7	:	8.31	14.11	15.05	28.58	5.18	16.60	11.90	99.74
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 8/0.1	:	.56	2.84	6.63	40.40	4.60	17.70	26.60	99.32
AAR - 8/0.2	:	1.58	3.54	6.92	39.24	2.86	16.40	26.50	97.04
AAR - 8/0.4	:	1.01	4.16	6.87	40.75	6.52	18.60	14.50	101.20
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 9/0.1	:	1.22	2.82	5.49	43.91	6.12	18.50	20.90	98.96
AAR - 9/0.2	:	1.34	3.12	5.64	46.46	5.36	15.80	22.40	100.12
AAR - 9/0.4	:	3.26	5.62	7.40	45.69	1.48	14.20	19.40	97.04
AAR - 9/0.7	:	3.72	5.82	7.16	47.16	7.34	10.50	15.83	97.53
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 10/0.1	:	3.16	5.82	7.82	65.04	4.78	5.40	7.40	99.42
AAR - 10/0.2	:	1.42	4.32	6.96	65.12	4.40	6.90	10.00	99.12
AAR - 10/0.4	:	2.22	4.28	6.52	66.13	2.88	7.10	8.70	97.84
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 12/0.1	:	.20	.34	1.52	49.00	.80	22.30	23.10	97.26
AAR - 12/0.2	:	.12	.22	1.04	60.18	7.92	18.90	10.40	98.78
AAR - 12/0.4	:	.08	.42	1.46	42.44	7.82	26.00	21.53	99.75
AAR - 12/0.7	:	.20	.48	1.34	45.04	5.08	25.60	21.83	99.57
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 13/0.1	:	.40	2.06	9.79	48.98	3.62	18.00	14.80	97.64
AAR - 13/0.7	:	.02	.62	5.92	58.50	4.28	4.70	25.40	99.44

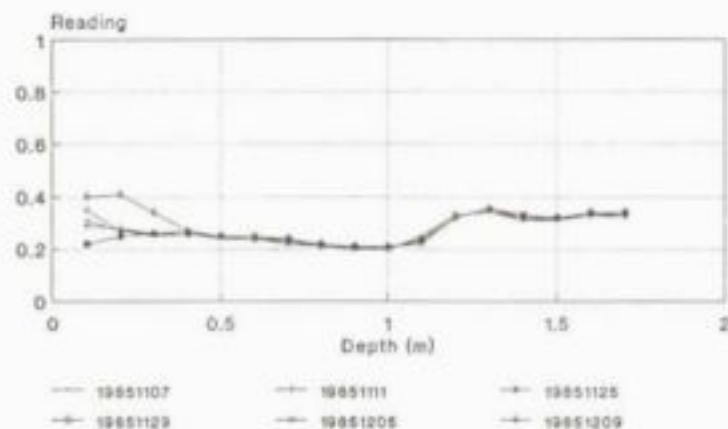
SITE	:ACCESS TUBE NUMBER(-)	DEPTH	:DEPTH BELOW SURFACE(m).
F1	:FRACTION <2.000 >1.000	F2	:FRACTION <1.000 >0.500
F3	:FRACTION <0.500 >0.250	F4	:FRACTION <0.250 >0.045
F5	:GROSS SILT FRACTION	F6	:FINE SILT FRACTION
F7	:CLAY FRACTION	FT	:TOTAL (MUST BE = 100%)

TEXTURE ANALYSIS IN DE AAR AREA.

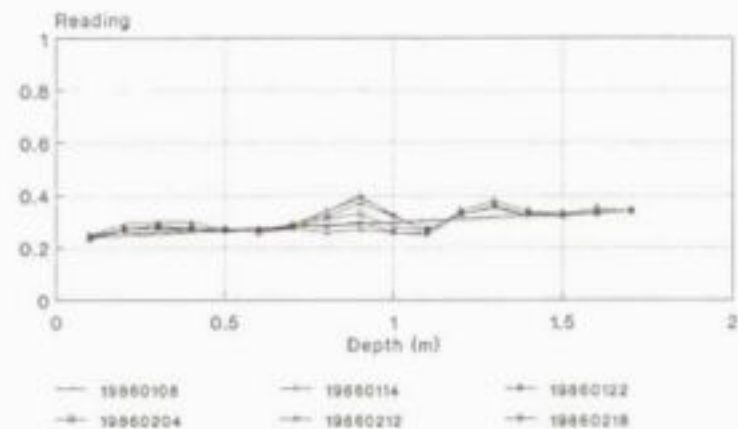
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 14/0.1 :		.98	3.86	10.89	44.97	1.84	17.50	17.70	97.74
AAR - 14/0.2 :		1.82	6.98	13.56	35.08	3.74	12.20	26.10	99.48
AAR - 14/0.4 :		2.97	9.76	17.23	39.22	4.30	12.00	14.70	100.18
AAR - 14/0.7 :		6.27	16.28	32.87	26.19	3.58	7.60	7.00	99.80
AAR - 14/1.1 :		5.45	11.96	18.85	42.66	3.04	10.80	6.60	99.36
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 16/0.1 :		1.30	2.64	10.36	55.54	3.10	13.70	10.60	97.24
AAR - 16/0.2 :		.50	2.40	10.60	45.18	5.04	17.50	17.70	98.82
AAR - 16/0.4 :		.86	3.04	10.64	42.73	5.60	21.90	15.60	100.36
AAR - 16/0.7 :		.50	2.79	10.72	38.75	9.22	22.40	14.20	98.58
AAR - 16/1.1 :		.80	1.93	9.71	31.24	11.82	27.20	16.50	99.20
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 20/0.2 :		.38	.84	1.84	39.01	2.20	22.90	30.53	97.71
AAR - 20/0.4 :		.62	.90	2.02	49.97	2.00	19.00	23.93	98.43
SITE	/DEPTH	F1	F2	F3	F4	F5	F6	F7	FT
AAR - 22/0.1 :		1.46	2.38	4.52	56.20	6.76	12.30	18.13	101.75
AAR - 22/0.2 :		1.90	2.98	5.54	51.73	1.54	13.50	24.73	101.91
AAR - 22/0.4 :		.38	1.24	2.96	52.60	3.44	19.00	21.90	101.52
AAR - 22/0.7 :		3.12	5.71	7.19	40.20	6.26	22.30	14.80	99.58

SITE	:ACCESS TUBE NUMBER(-)	DEPTH	:DEPTH BELOW SURFACE(m)
F1	:FRACTION <2.000 >1.000	F2	:FRACTION <1.000 >0.500
F3	:FRACTION <0.500 >0.250	F4	:FRACTION <0.250 >0.045
F5	:GROVE SILT FRACTION	F6	:FINE SILT FRACTION
F7	:CLAY FRACTION	FT	:TOTAL (MUST BE = 100%)

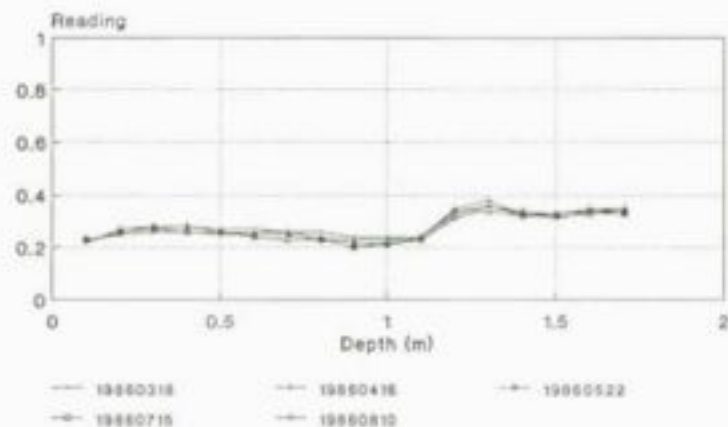
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SOIL MOISTURE TUBE 1
1985



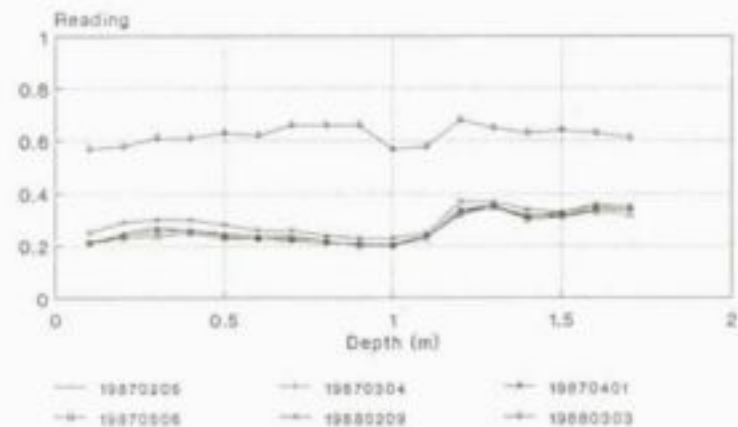
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SOIL MOISTURE TUBE 1
January - February 1986



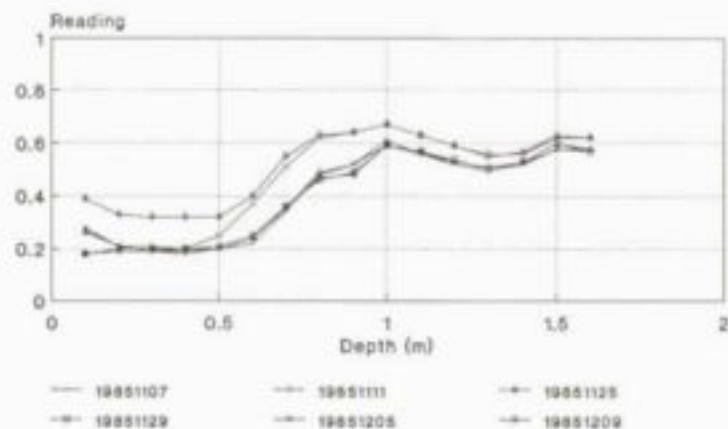
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SOIL MOISTURE TUBE 1
March - August 1986



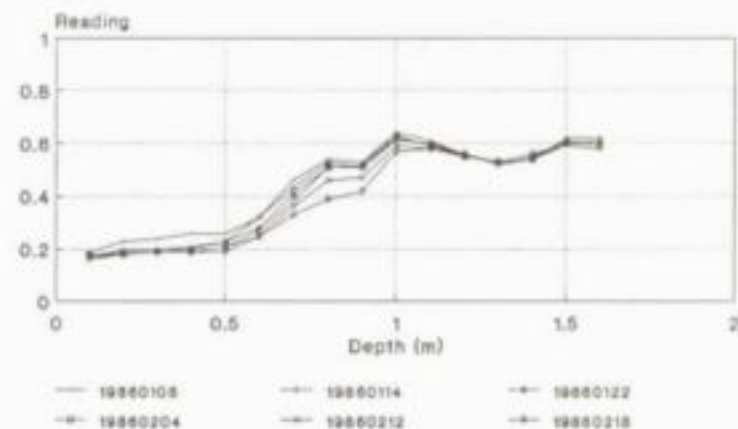
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SOIL MOISTURE TUBE 1
February 1987 - March 1988



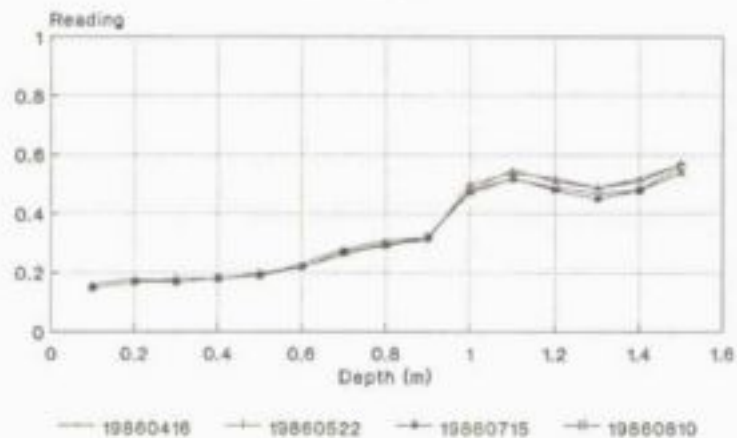
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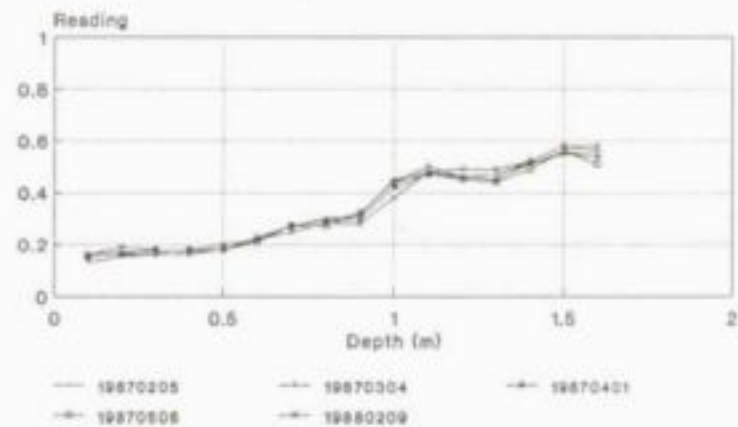
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January - February 1986



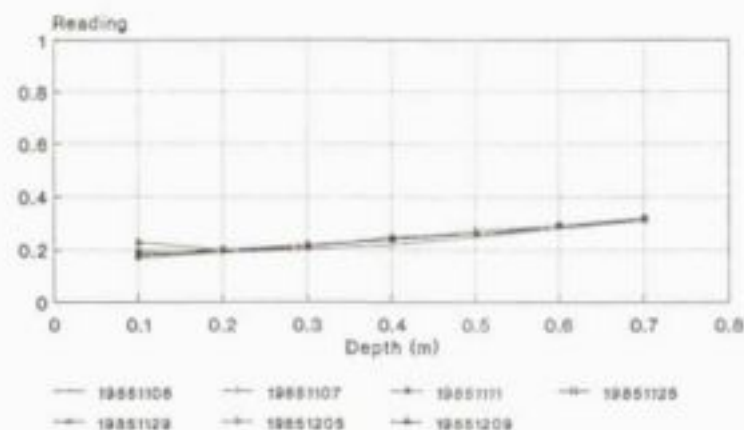
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March - August 1986



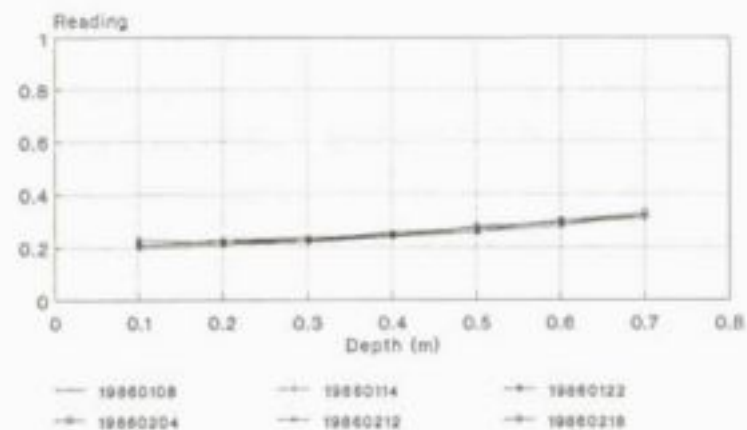
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February 1987 - February 1988



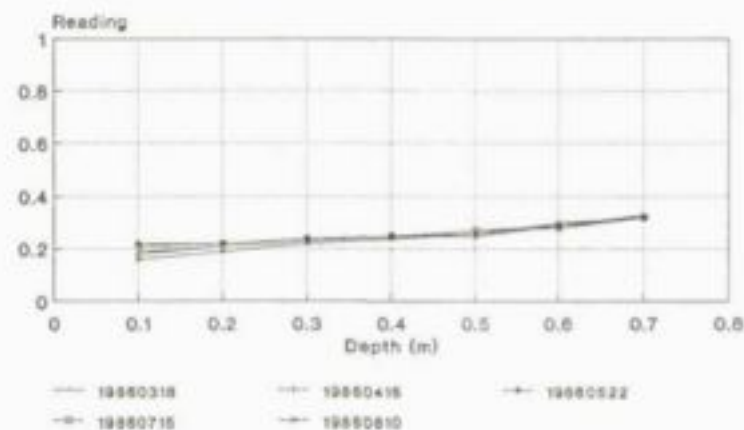
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1985



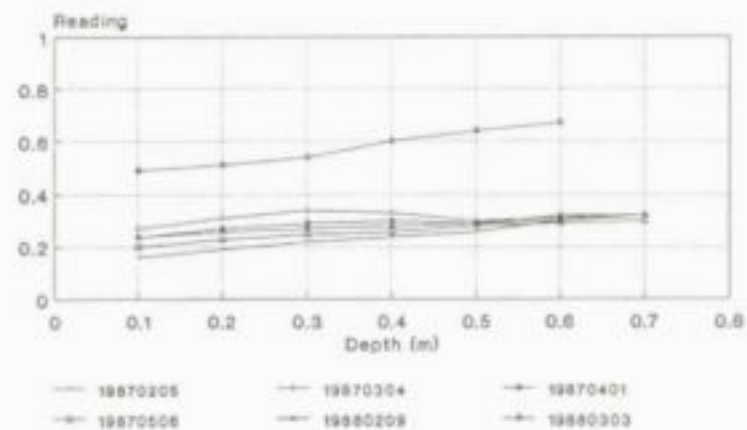
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January - February 1986



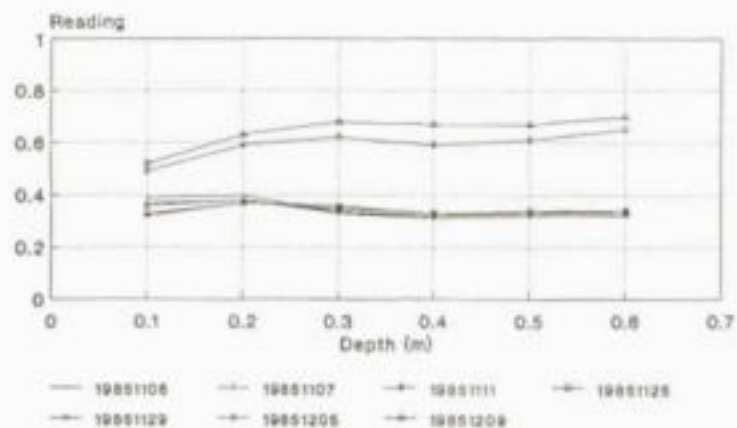
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March - August 1986



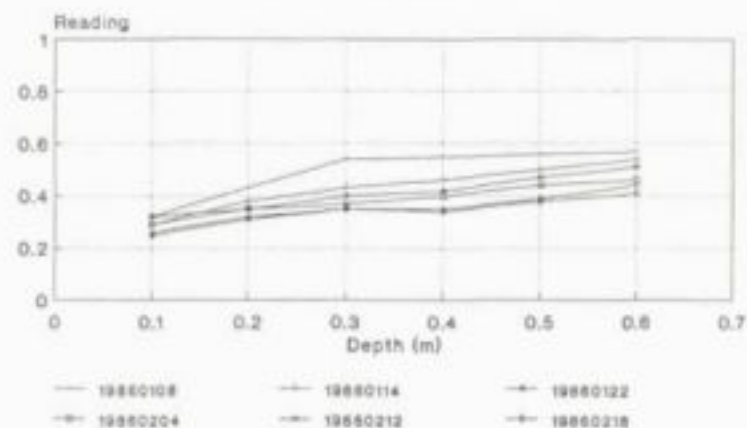
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February 1987 - March 1988



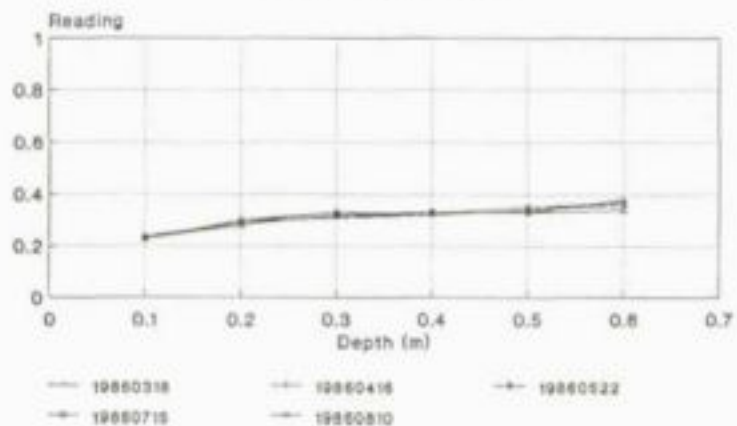
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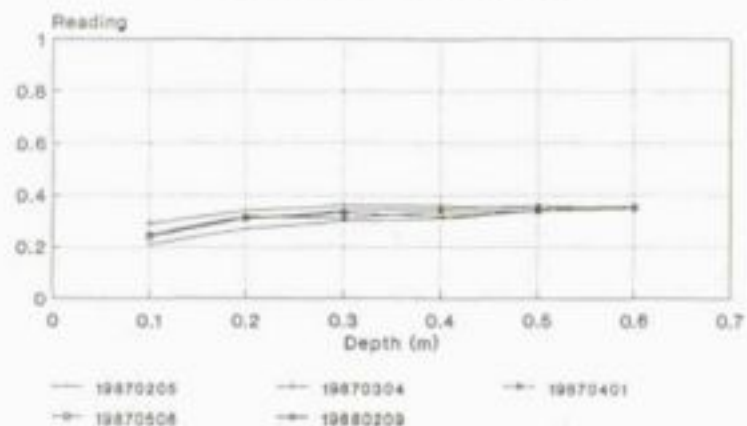
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SOIL MOISTURE TUBE 4
January - February 1986



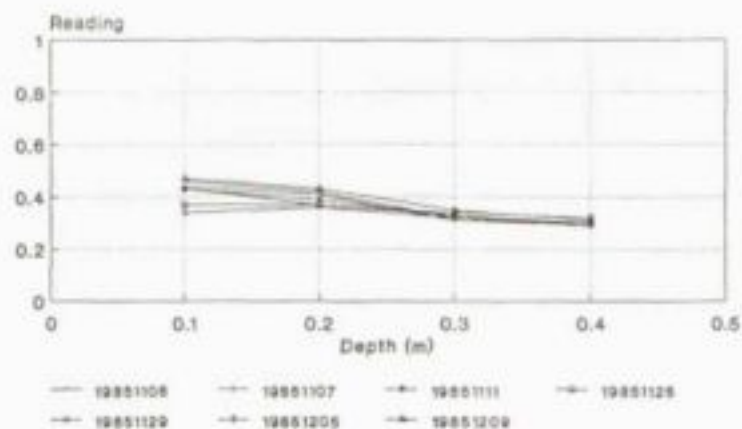
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March - August 1986



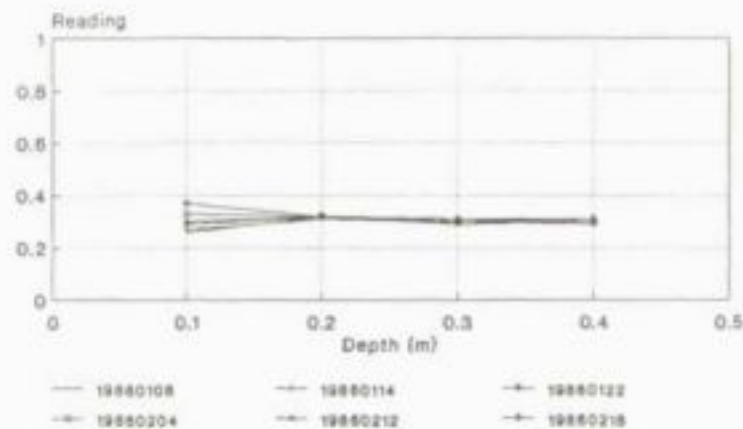
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February 1987 - February 1988



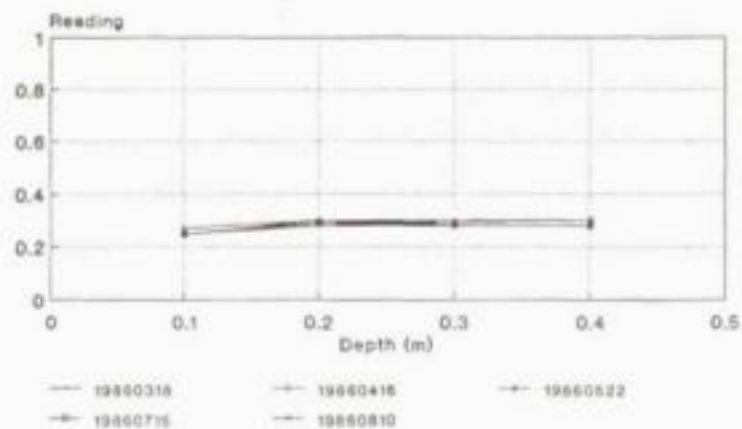
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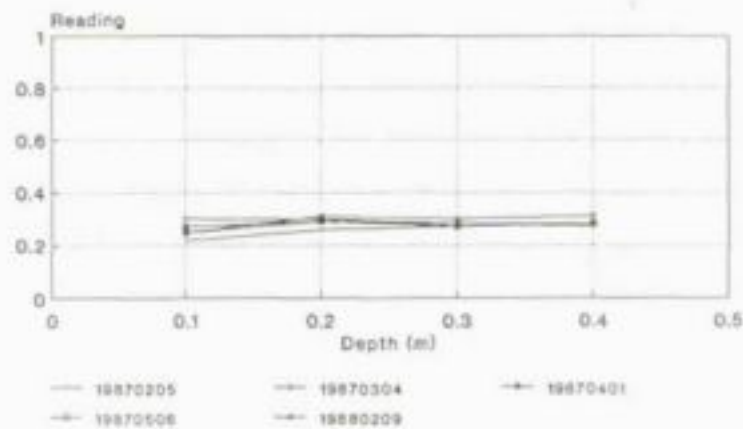
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SOIL MOISTURE TUBE 5
January - February 1986



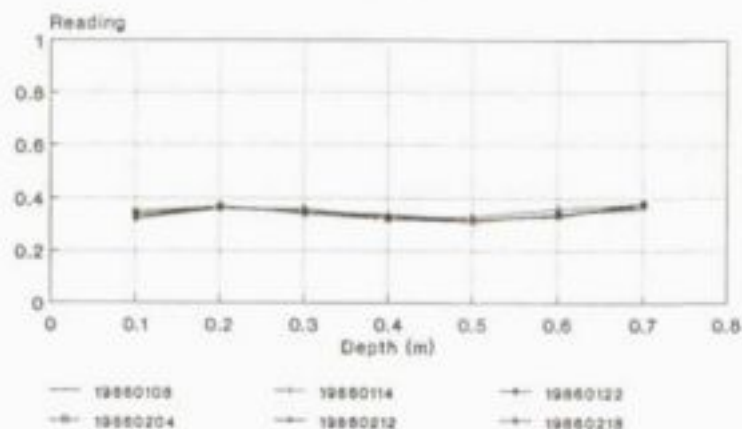
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March - August 1986



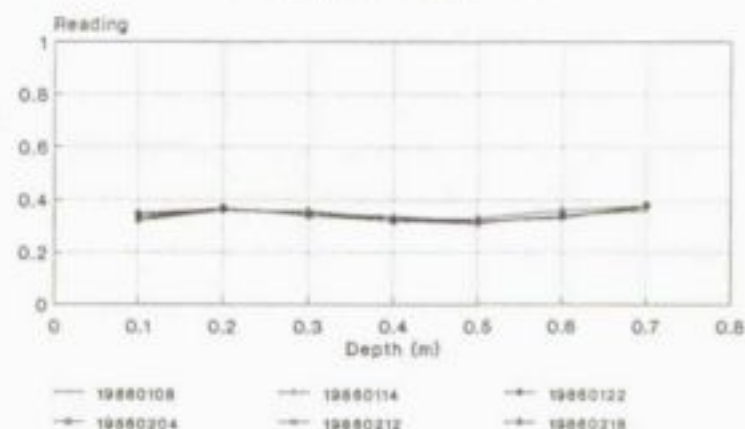
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February 1987 - February 1988



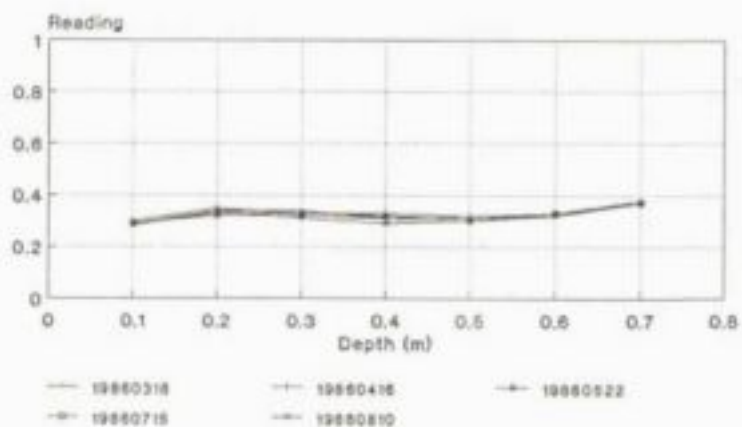
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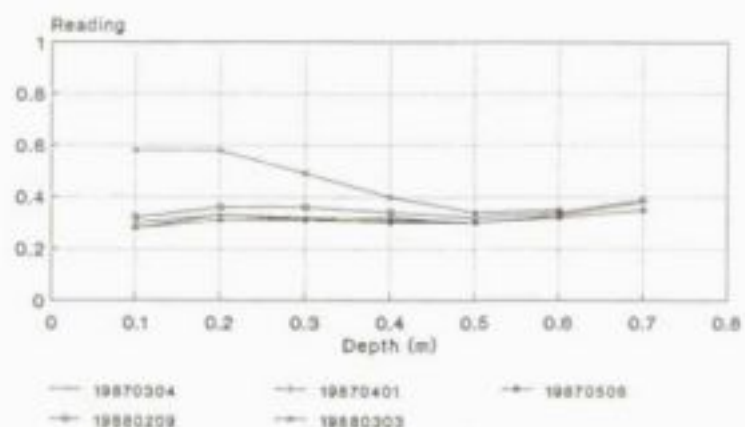
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January - February 1986



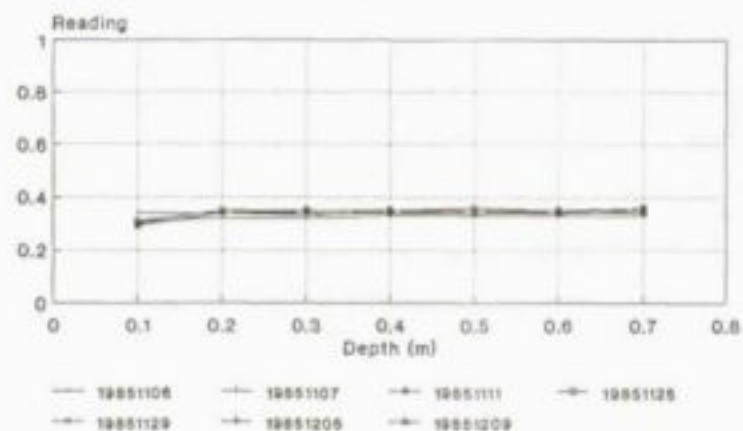
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March - February 1986



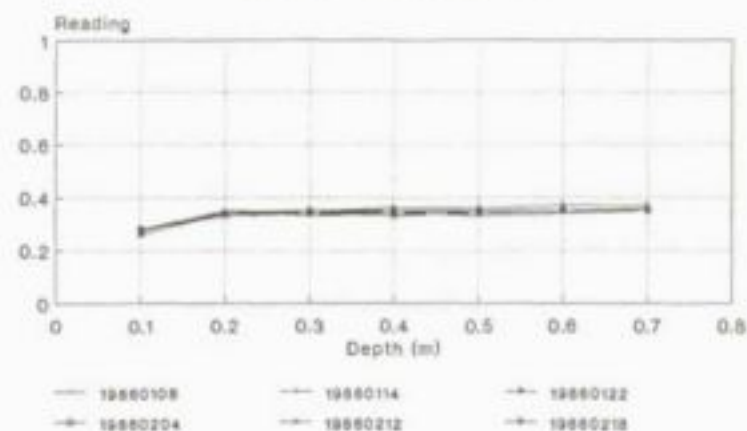
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March 1987 - March 1988



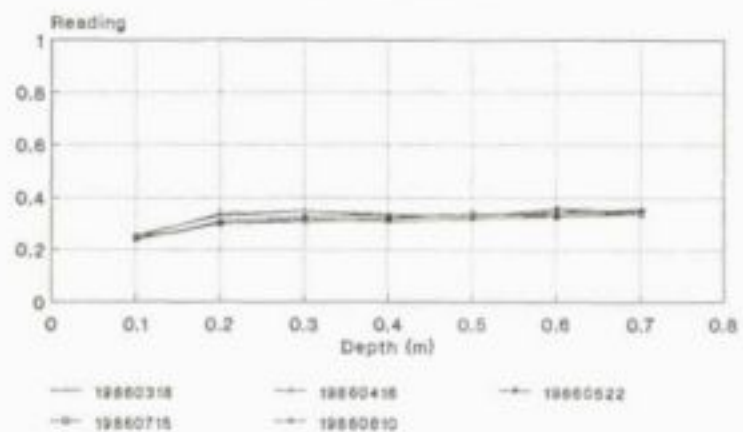
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SOIL MOISTURE TUBE 7
1985



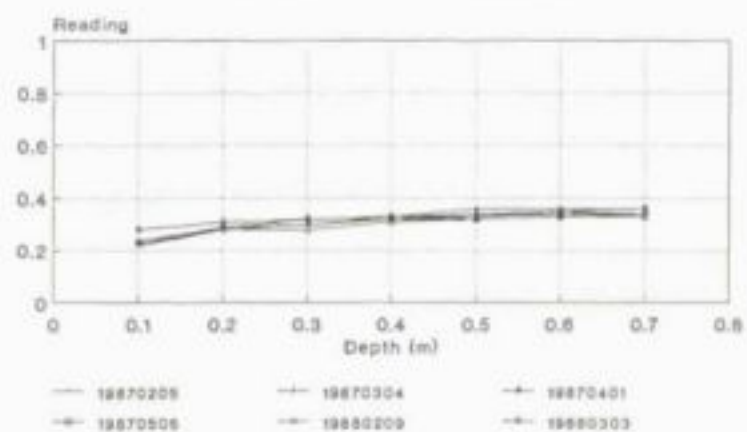
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SOIL MOISTURE TUBE 7
January - February 1986



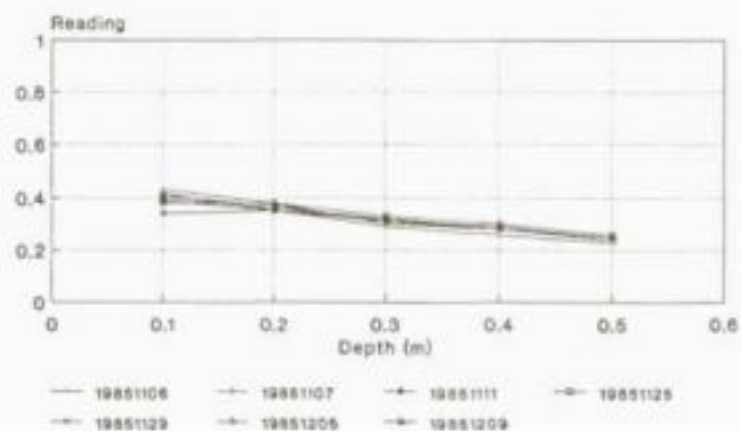
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SOIL MOISTURE TUBE 7
March - August 1986



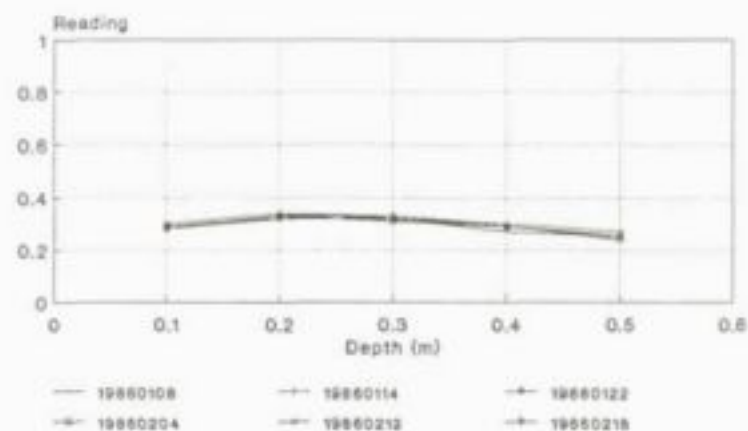
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SOIL MOISTURE TUBE 7
February 1987 - March 1988



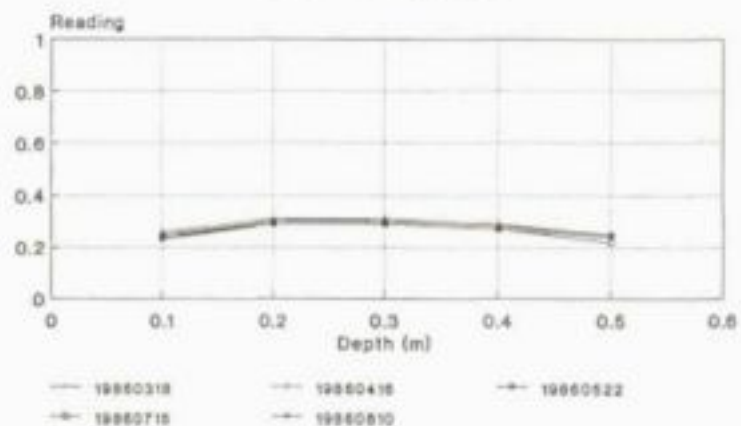
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SOIL MOISTURE TUBE 8
1985



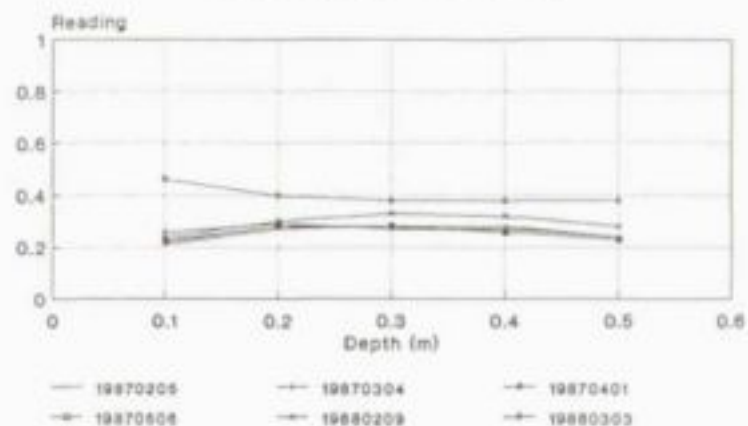
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SOIL MOISTURE TUBE 8
January - February 1986



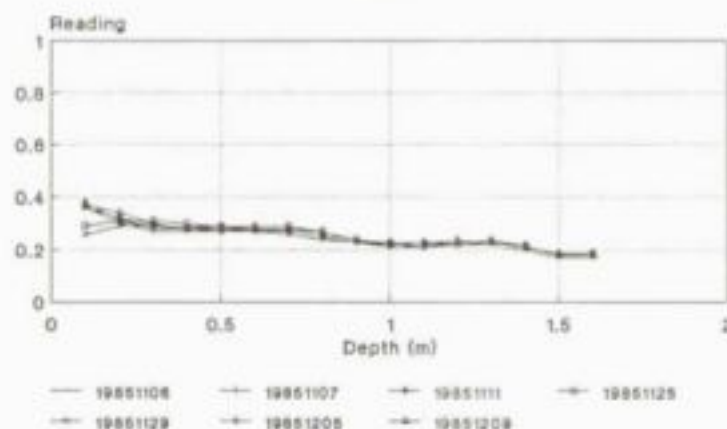
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March - August 1986



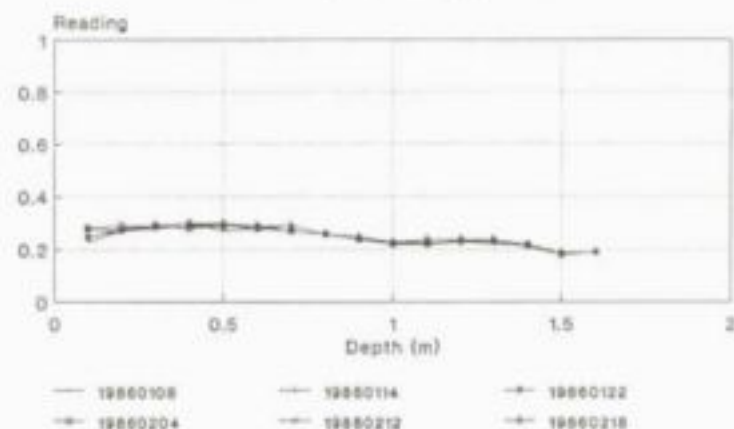
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February 1987 - March 1988



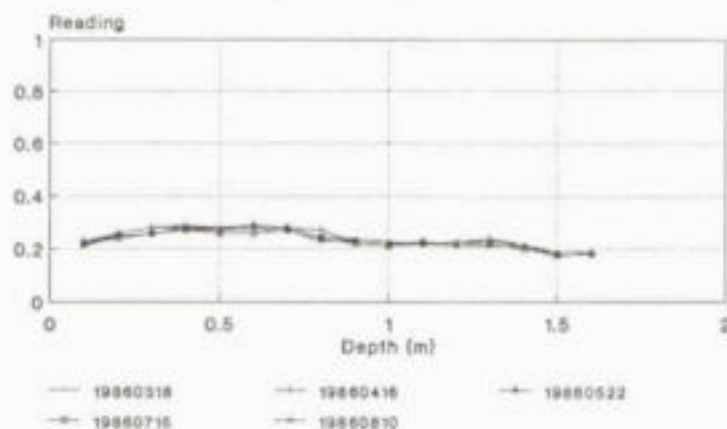
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SOIL MOISTURE TUBE 9
1985



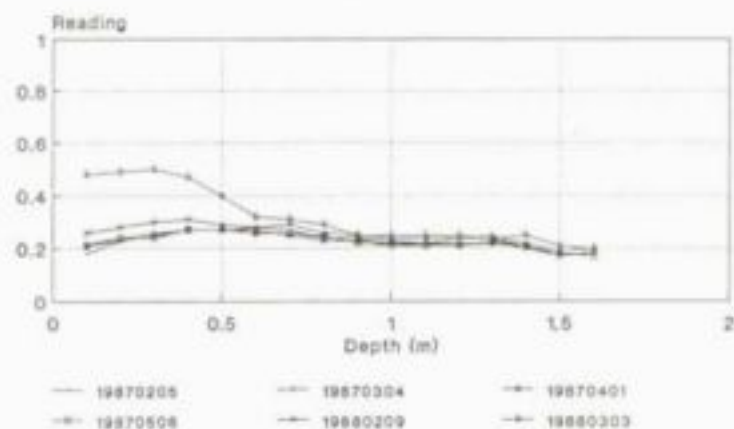
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SOIL MOISTURE TUBE 9
January - February 1986



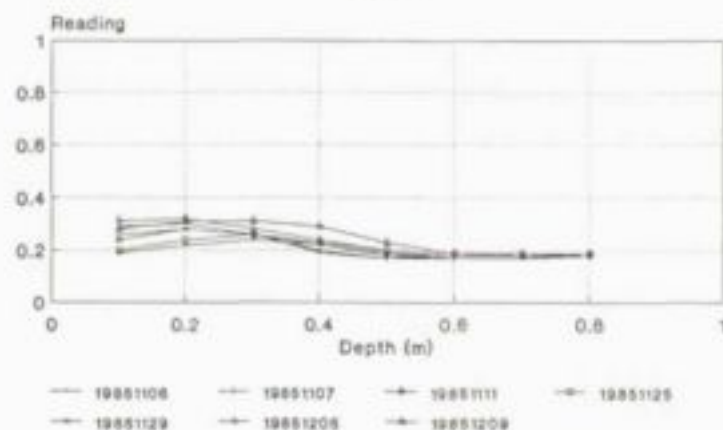
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SOIL MOISTURE TUBE 9
March - August 1986



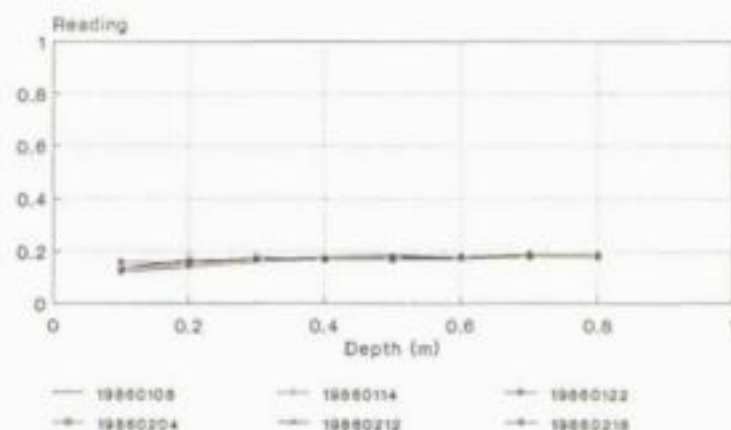
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SOIL MOISTURE TUBE 9
February 1987 - March 1988



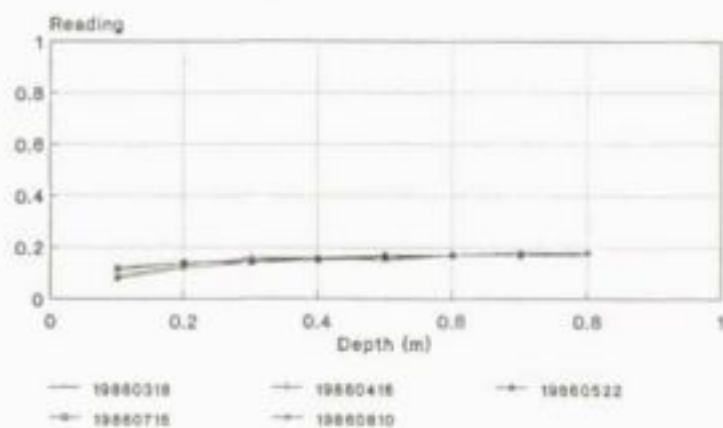
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SOIL MOISTURE TUBE 10
1985



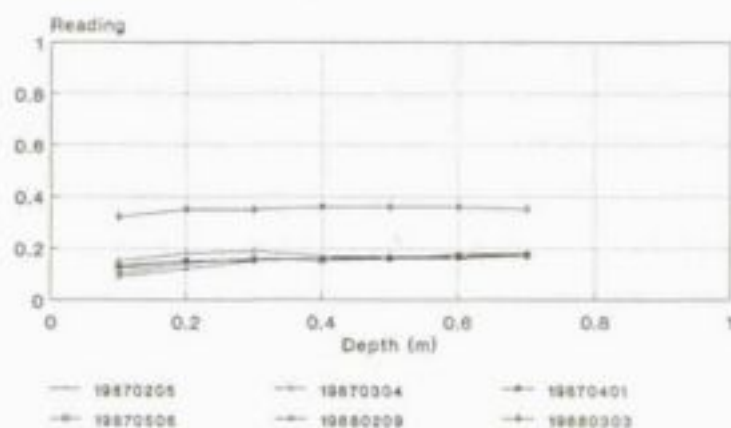
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January - February 1986



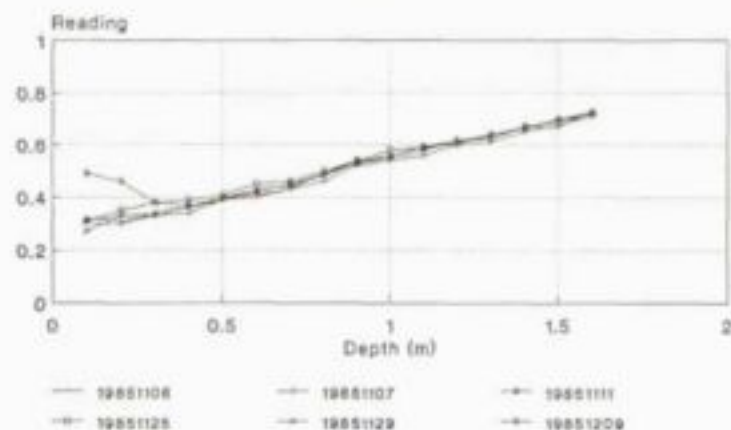
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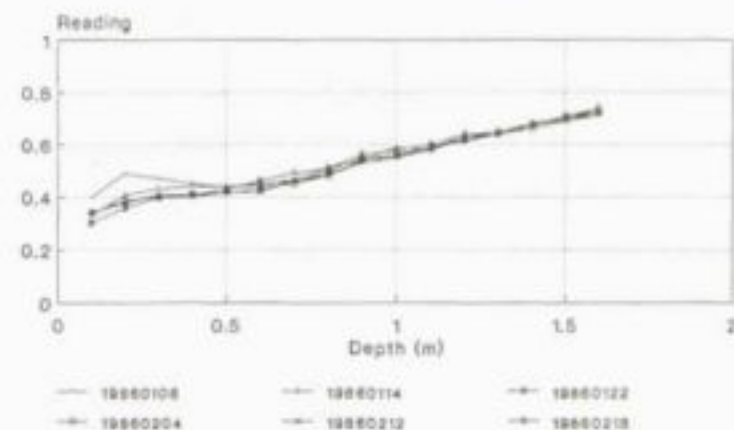
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February 1987 - March 1988



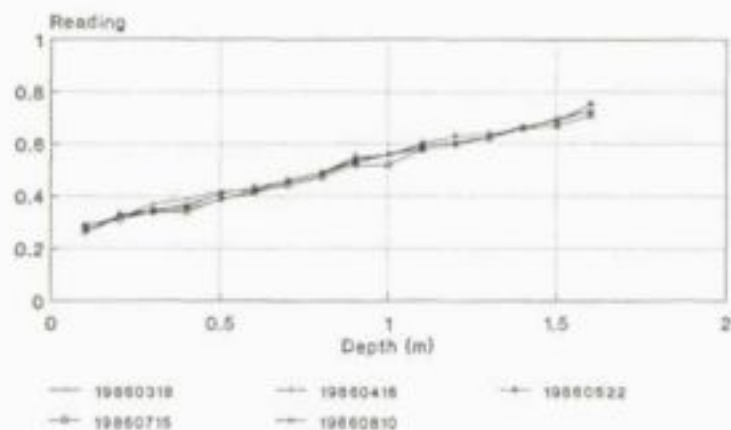
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SOIL MOISTURE TUBE 11
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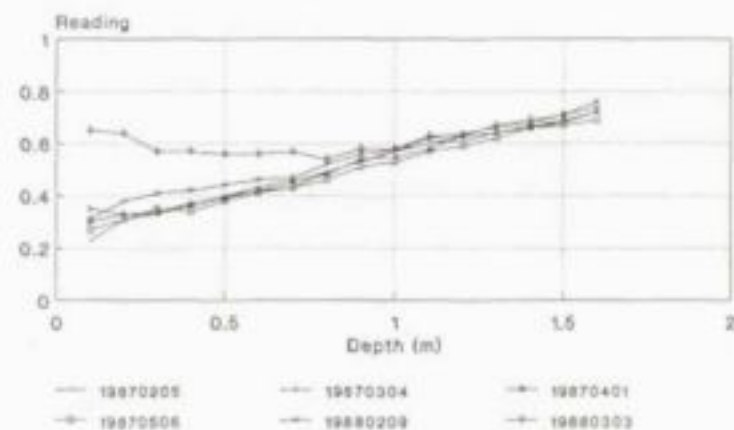
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SOIL MOISTURE TUBE 11
January - February 1986



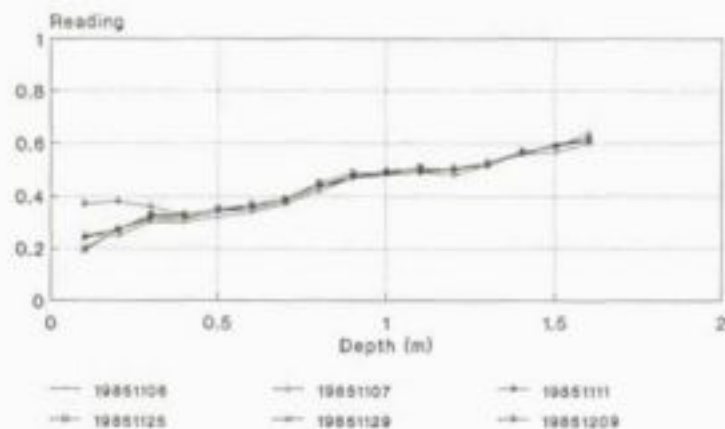
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SOIL MOISTURE TUBE 11
March - August 1986



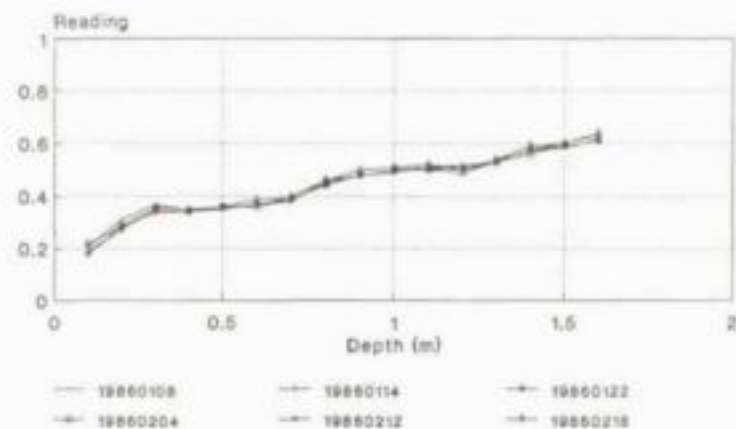
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February 1987 - March 1988



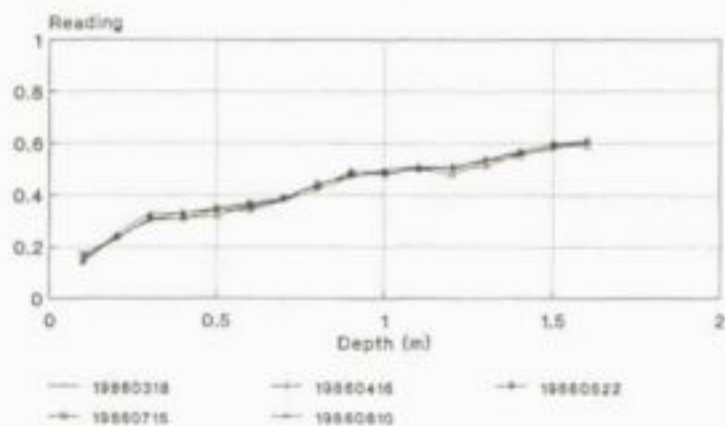
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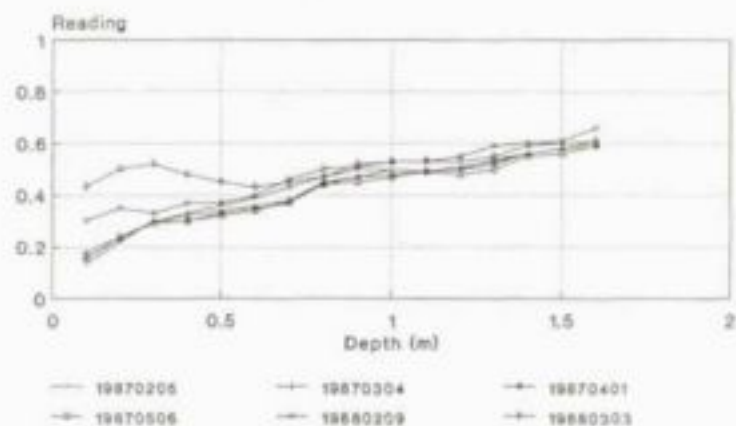
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January - February 1986



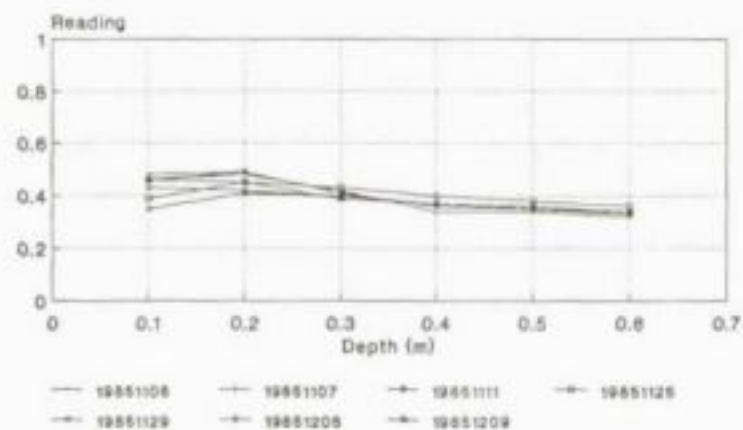
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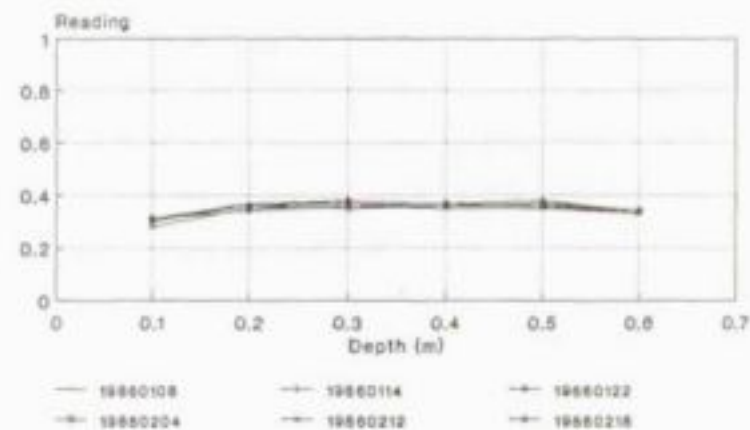
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SOIL MOISTURE TUBE 12
February 1987 - March 1988



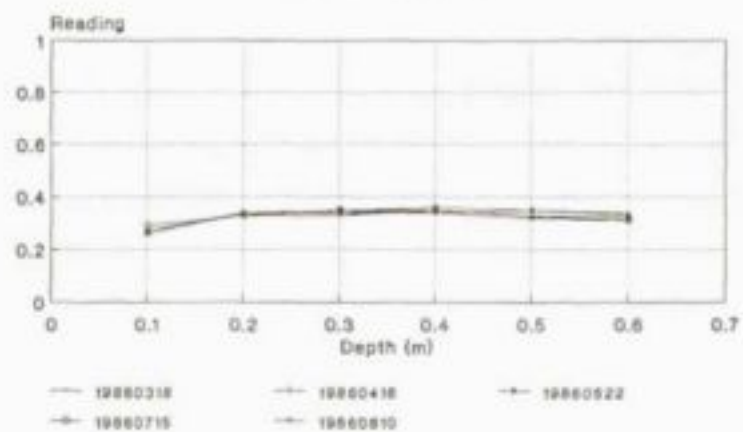
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SOIL MOISTURE TUBE 13
1985



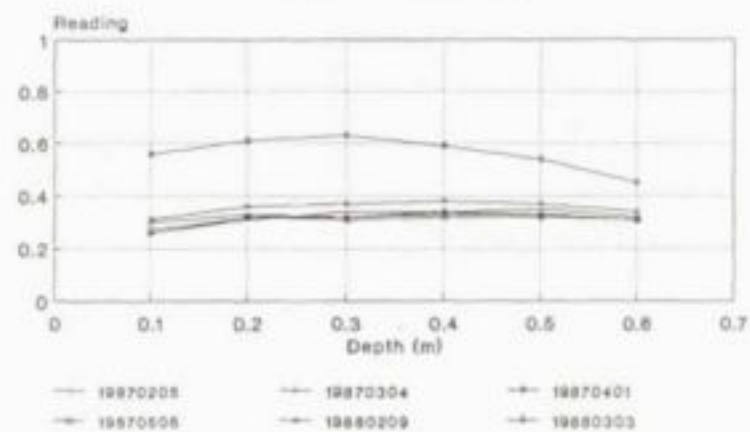
DE AAR : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 13
January - February 1986



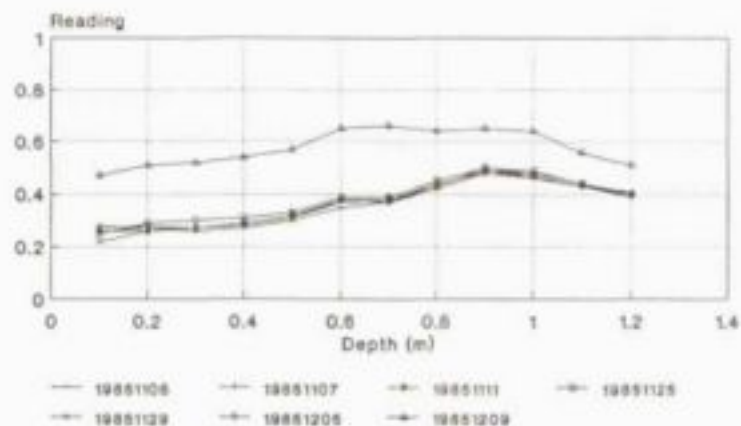
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SOIL MOISTURE TUBE 13
March - August 1986



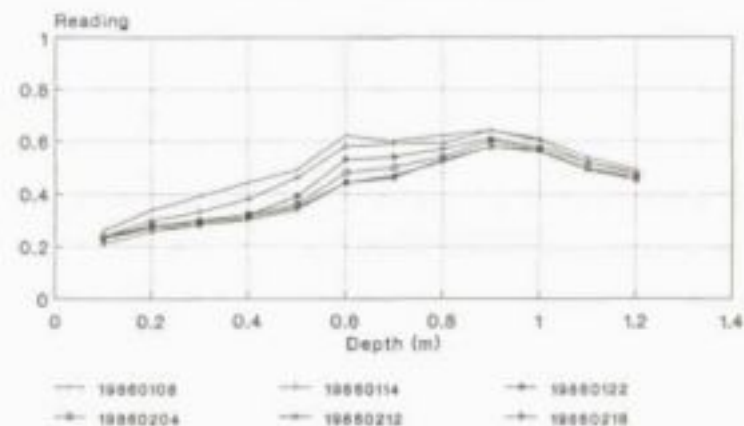
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SOIL MOISTURE TUBE 13
February 1987 - February 1988



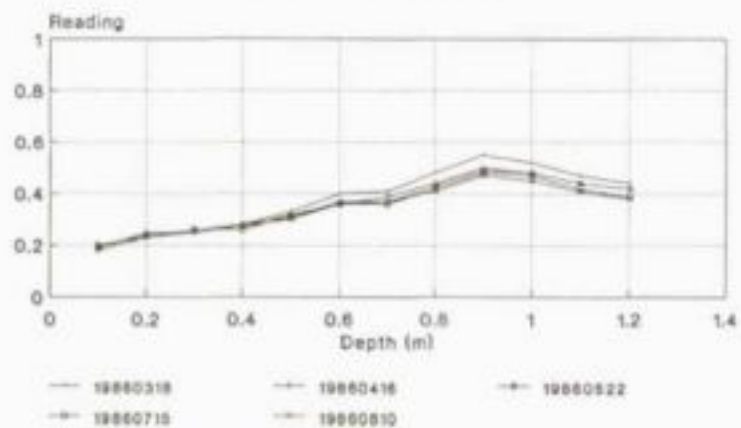
DE AAR : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 14
1985



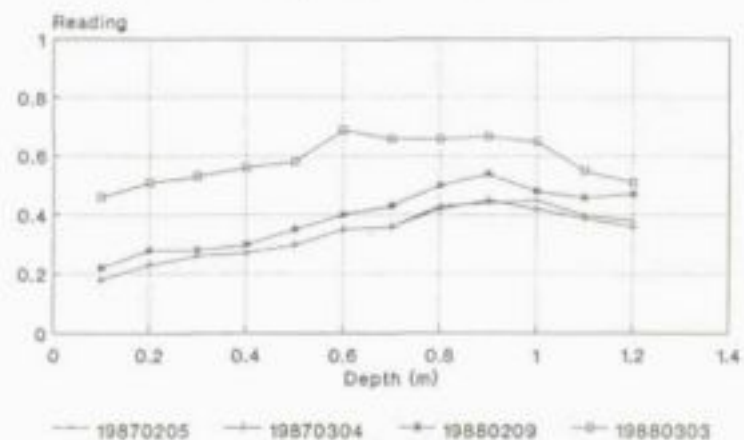
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SOIL MOISTURE TUBE 14
January - February 1986



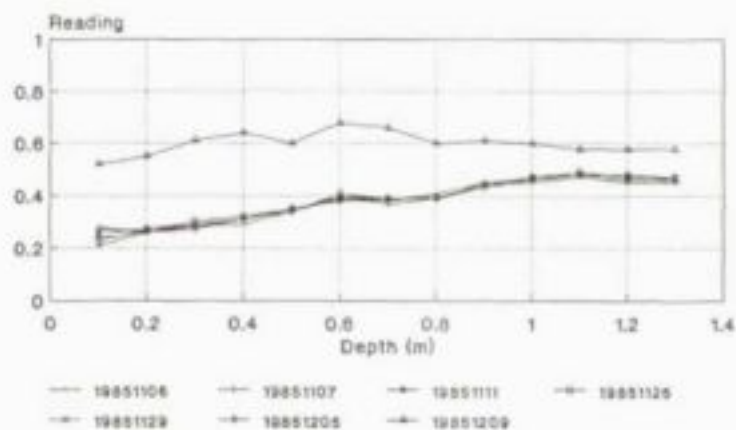
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SOIL MOISTURE TUBE 14
March - August 1986



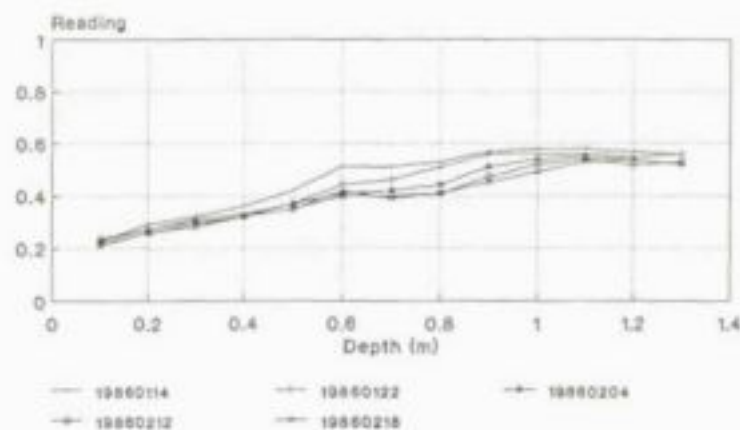
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SOIL MOISTURE TUBE 14
February 1987 - March 1988



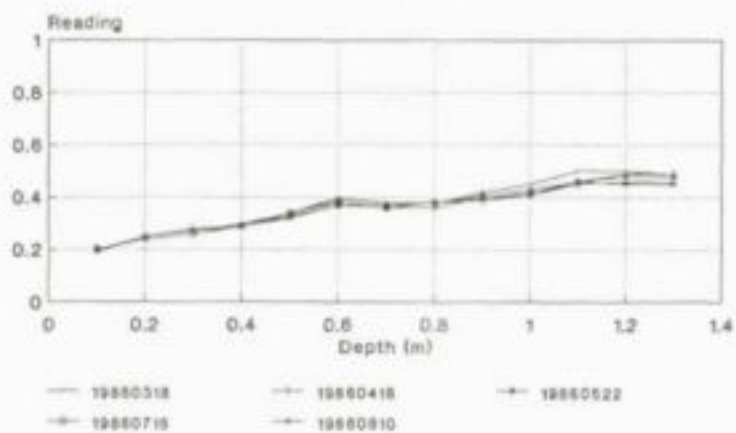
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SOIL MOISTURE TUBE 15
1985



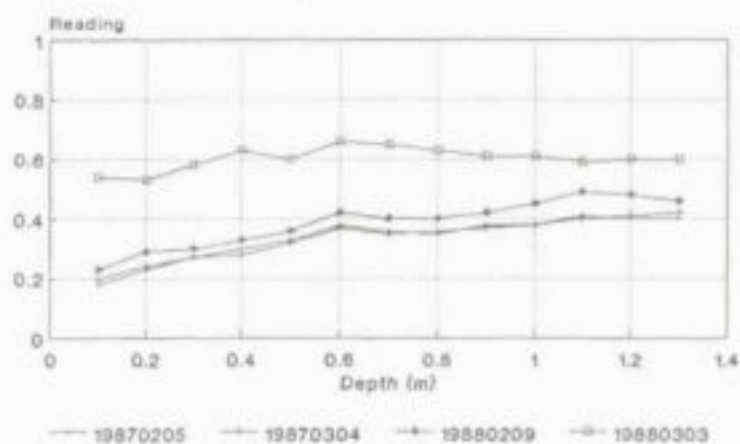
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SOIL MOISTURE TUBE 15
January - February 1986



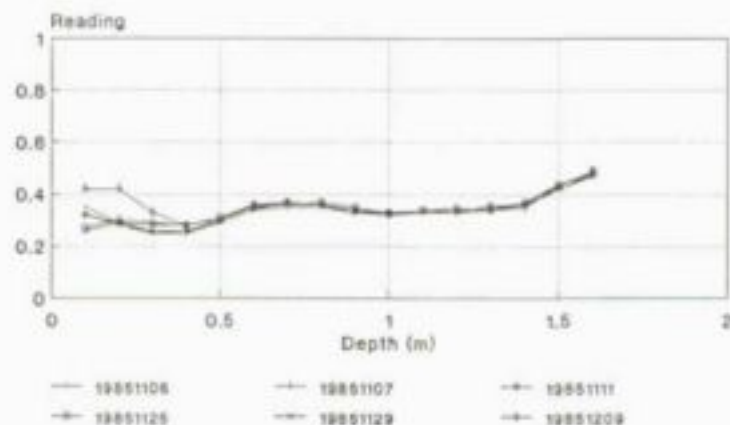
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SOIL MOISTURE TUBE 15
March - August 1986



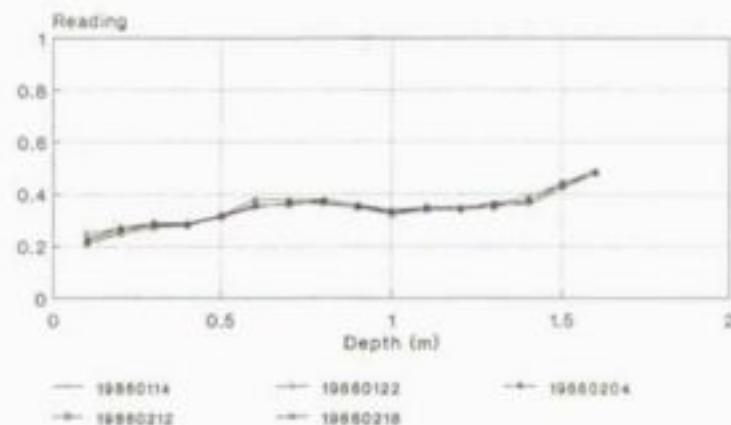
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SOIL MOISTURE TUBE 15
February 1987 - March 1988



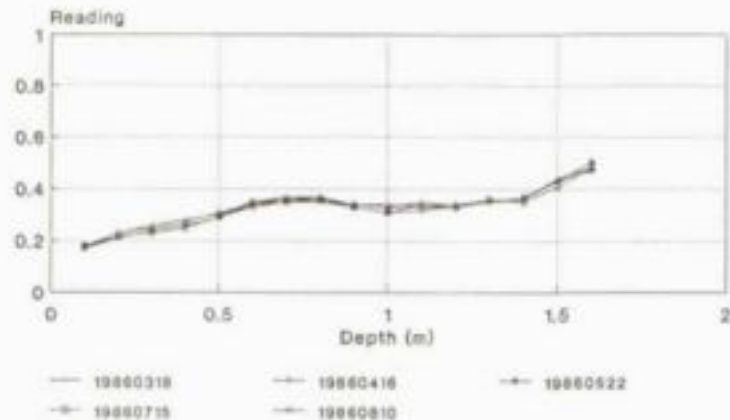
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SOIL MOISTURE TUBE 16
1985



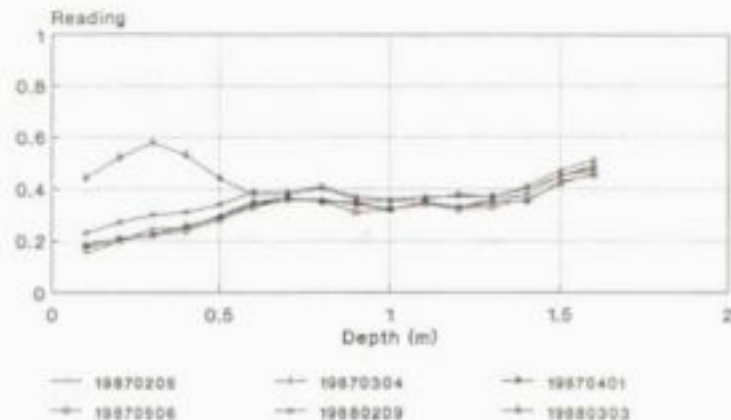
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SOIL MOISTURE TUBE 16
January - February 1986



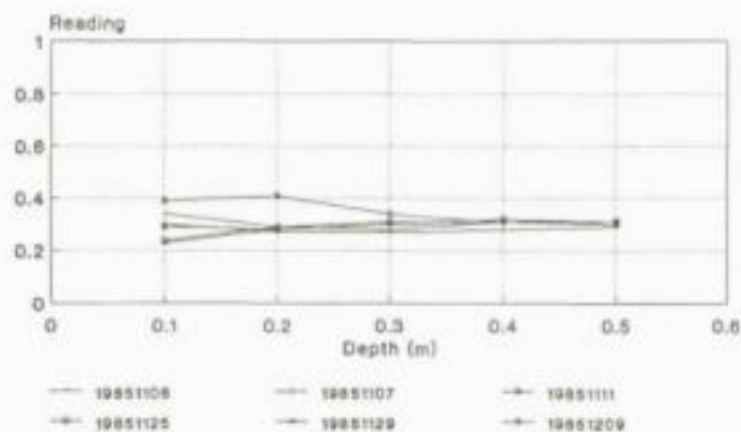
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SOIL MOISTURE TUBE 16
March - August 1986



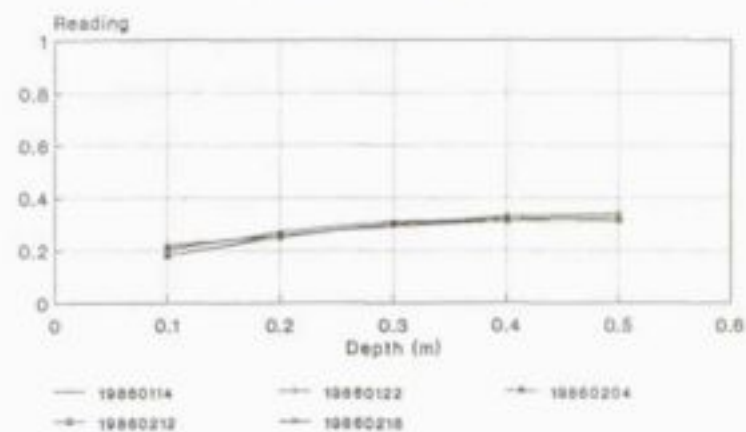
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SOIL MOISTURE TUBE 16
February 1987 - March 1988



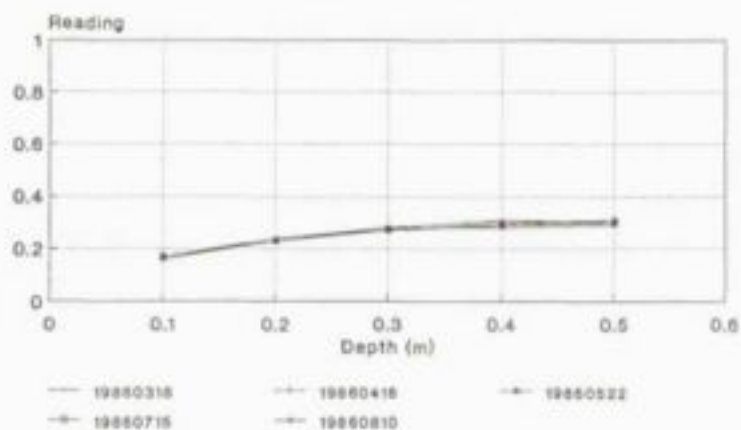
DE AAR : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 17
1985



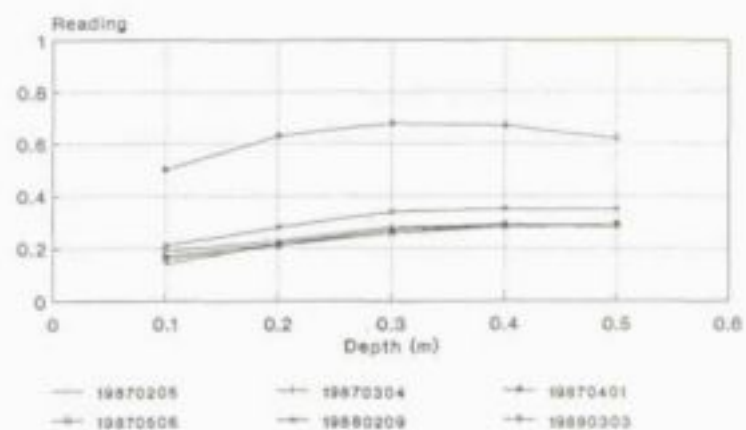
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SOIL MOISTURE TUBE 17
January - February 1986



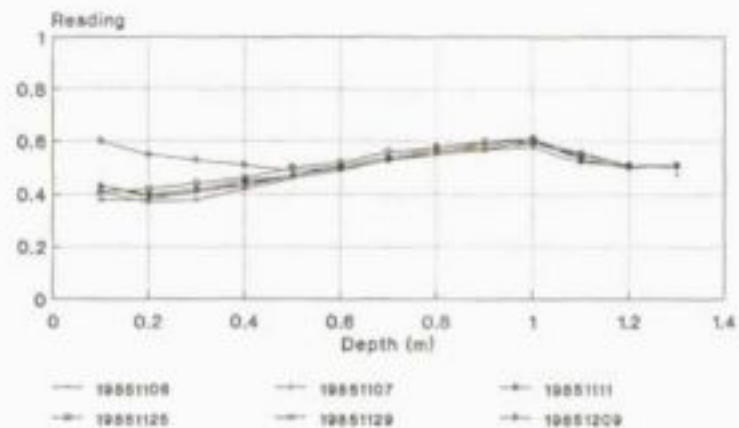
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SOIL MOISTURE TUBE 17
March - August 1986



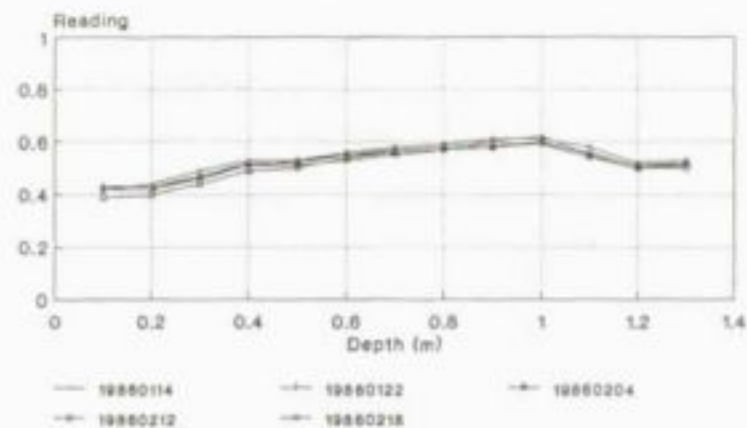
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February 1987 - March 1988



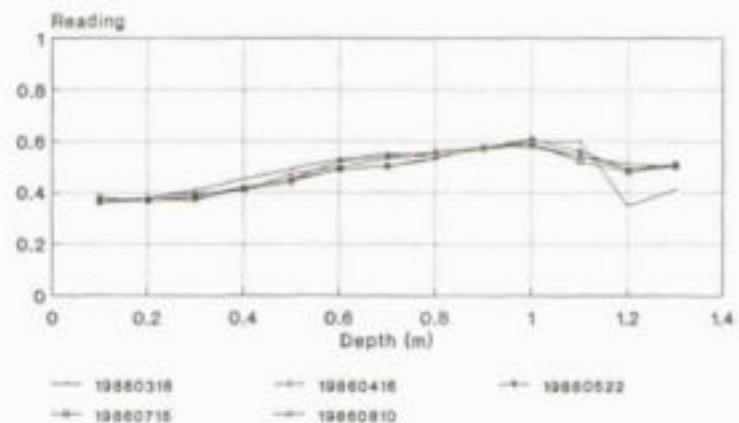
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SOIL MOISTURE TUBE 18
1985



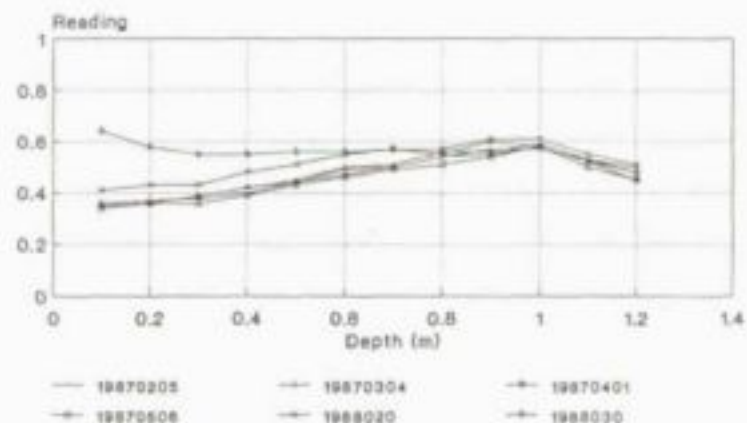
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SOIL MOISTURE TUBE 18
January - February 1986



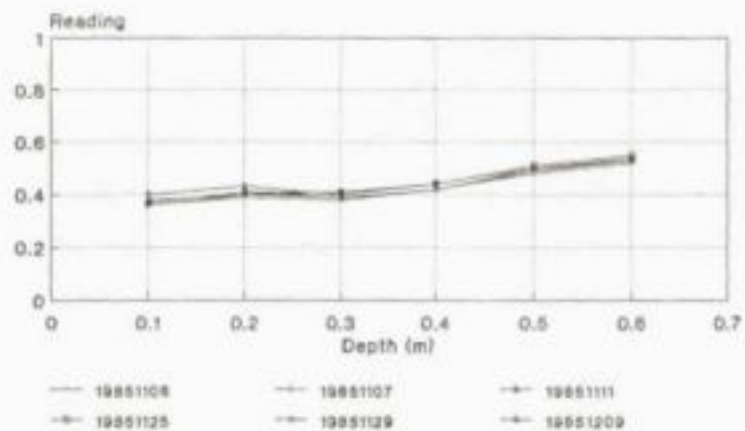
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March - August 1986



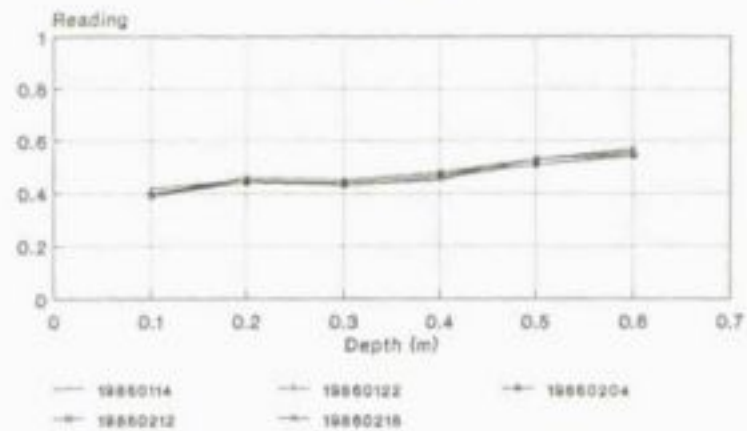
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SOIL MOISTURE TUBE 18
February 1987 - March 1988



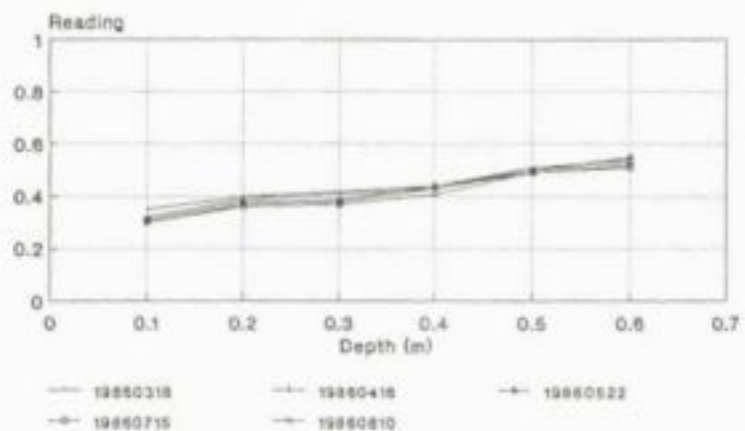
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SOIL MOISTURE TUBE 19
1985



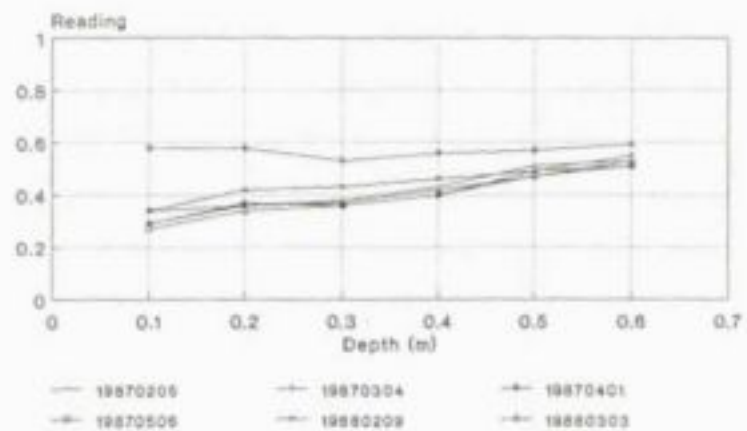
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SOIL MOISTURE TUBE 19
January - February 1986



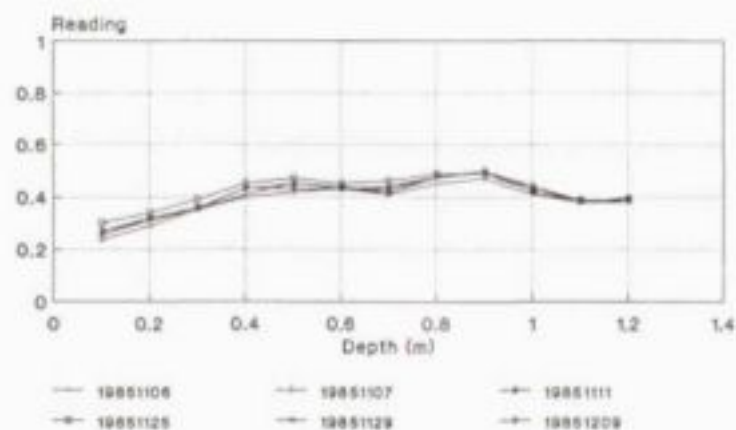
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SOIL MOISTURE TUBE 19
March - August 1986



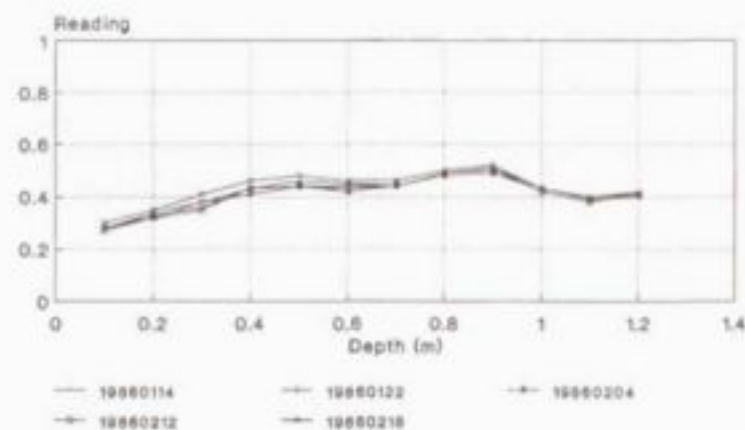
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February 1987 - March 1988



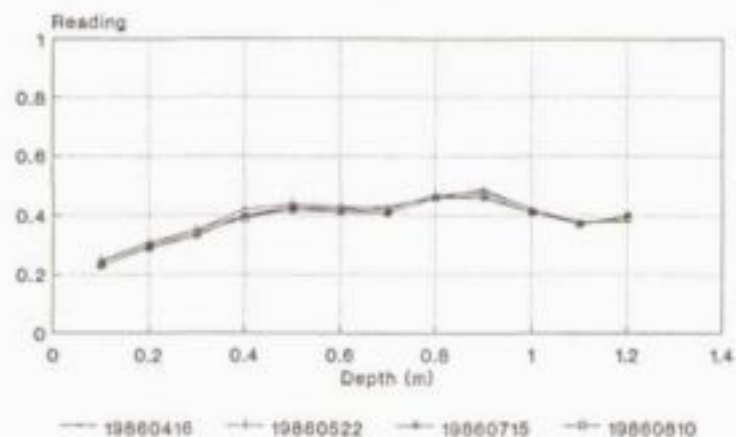
DE AAR : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 20
1985



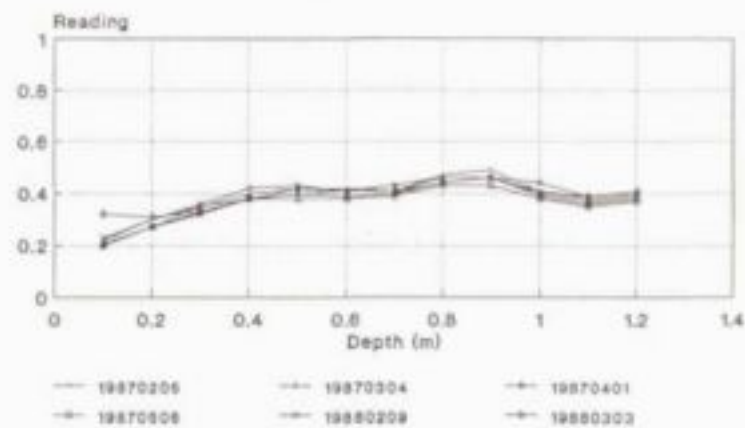
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SOIL MOISTURE TUBE 20
January - February 1986



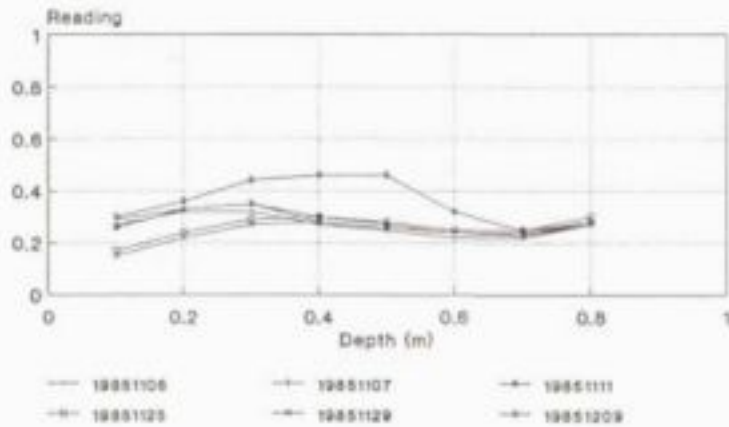
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SOIL MOISTURE TUBE 20
April - August 1986



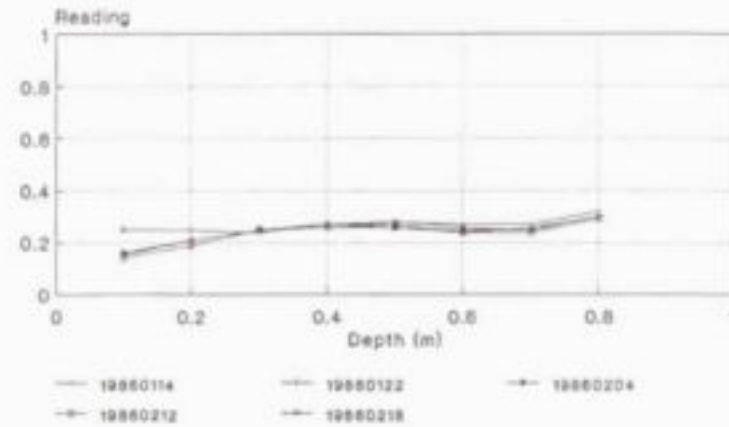
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SOIL MOISTURE TUBE 20
February 1987 - March 1988



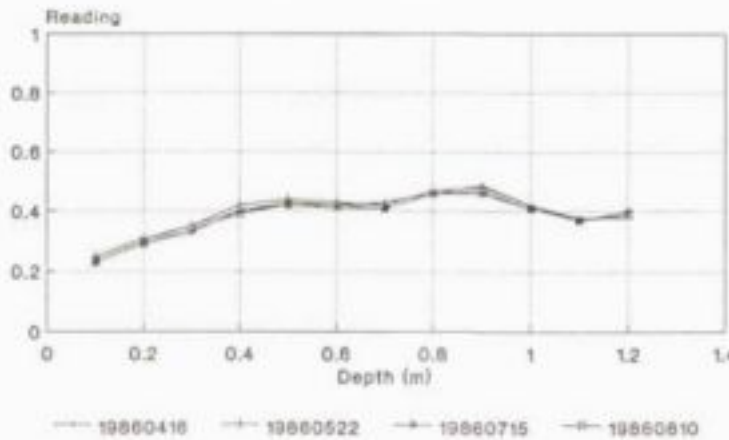
DE AAR : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 21
1985



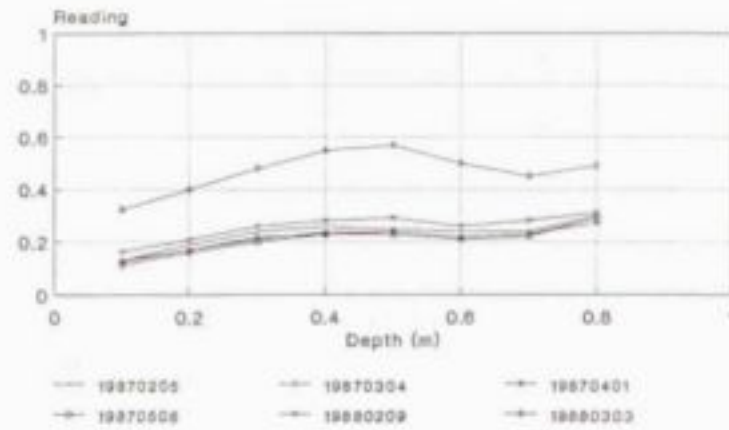
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SOIL MOISTURE TUBE 21
January - February 1986



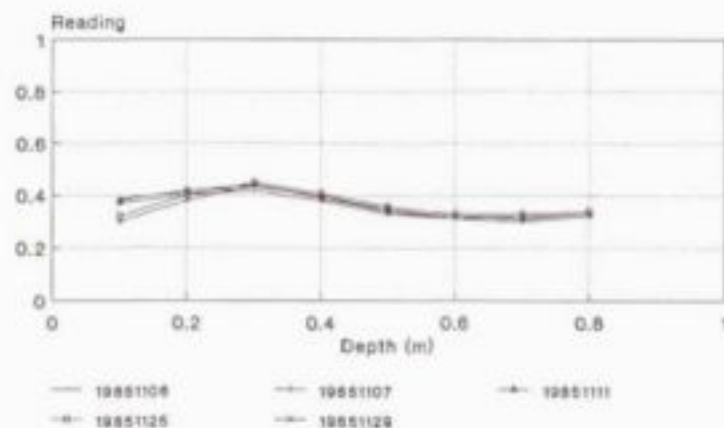
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SOIL MOISTURE TUBE 20
April - August 1986



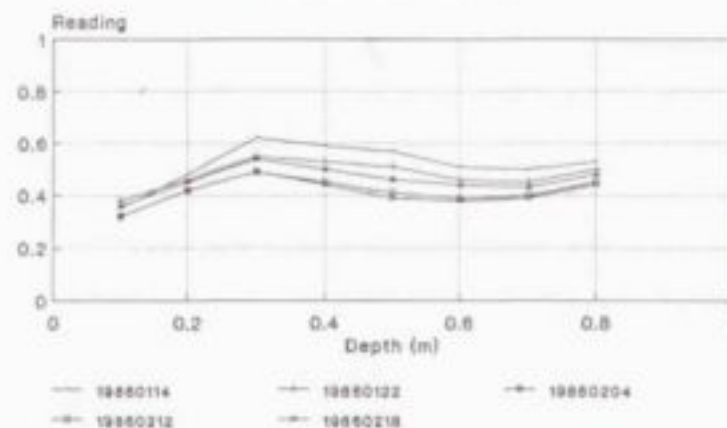
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SOIL MOISTURE TUBE 21
February 1987 - March 1988



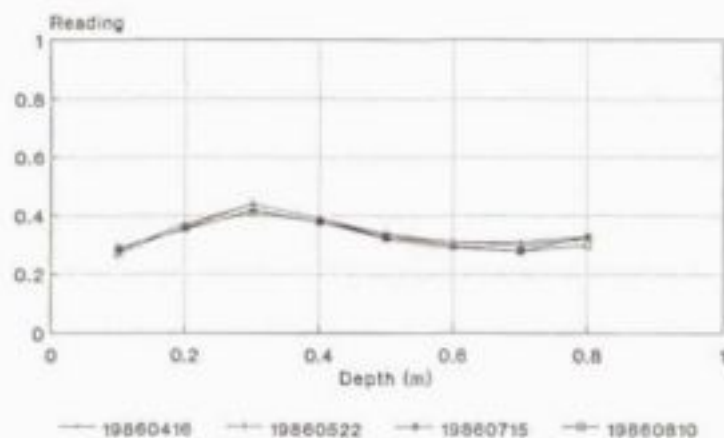
DE AAR : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 22
1985



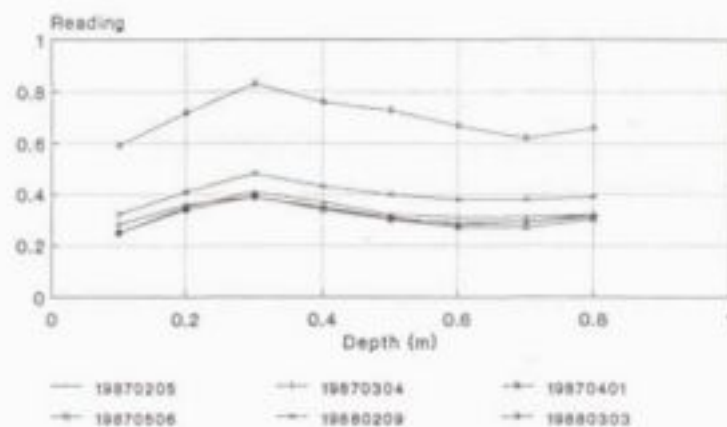
DE AAR : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 22
January - February 1986



DE AAR : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 22
April - August 1986



DE AAR : IGS/WRC RESEARCH PROJECT
SOIL MOISTURE TUBE 22
February 1987 - March 1988



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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : NEW VAALKOP

Remarks :

Site ID: 3023DB36469

Number on map: G36469

E-W coordinate : -88566.48

N-S coordinate : 3397014.33

Ground Elevation: 1242.72 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850219

Depth (m)	Thickness			
from	to	(m)		Description

Geology

0.00	2.00	2.00	SHALE : 39ECCA fractured. With some dolerite fragments
2.00	7.00	5.00	SHALE : 39ECCA blue; jointed; hard.
7.00	13.00	6.00	SHALE : 39ECCA weathered; jointed. With rust marks on joints
13.00	31.00	18.00	SHALE : 39ECCA blue; hard.

=====

* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : NEW VAALKOP

Remarks :

Site ID: 3023DB36470

Number on map: G36470

E-W coordinate : -88569.40

N-S coordinate : 3397007.75

Ground Elevation: 1243.28 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850220

Depth (m)	Thickness			
from	to	(m)		Description

Geology

0.00	2.00	2.00	DOLERITE : 40KRDL very weathered; jointed.
2.00	9.00	7.00	DOLERITE : 40KRDL very jointed.
9.00	13.00	4.00	SHALE : 39ECCA baked; jointed. With some dolerite
13.00	25.00	12.00	SHALE : 39ECCA hard; jointed. With mineral spots on joints
25.00	50.00	25.00	SHALE : 39ECCA blue; hard. With some calcite in places

Geohydrology

44.00	44.00	0.00	0.07 m ³ /h Blow test yield
			YIELD $\approx$ 0,015 l/s

=====

* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : NEW VAALKOP

Remarks :

Site ID: 3023DB36471

Number on map: G36471

E-W coordinate : -88570.34

N-S coordinate : 3397003.87

Ground Elevation: 1242.88 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 25/02/85

Depth (m)	Thickness			
from	to	(m)		Description

Geology

0.00	10.00	10.00	SHALE : 39ECCA jointed.
10.00	11.00	1.00	SHALE : 39ECCA very jointed.
11.00	30.00	19.00	DOLERITE : 40KRDL hard; jointed. And shale with large fragments
30.00	38.00	8.00	DOLERITE : 40KRDL slightly jointed. With rust marks
38.00	75.00	37.00	DOLERITE : 40KRDL solid.

Geohydrology

44.00	44.00	0.00	0.01 L/sec Blow test yield
			YIELD $\approx$ 0,013 l/s

=====

* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36472

Number on map: G36472

E-W coordinate : -92426.08

Ground Elevation: 1267.79 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3396207.25

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850219

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	1.00	1.00	SOIL : 46RCNT
1.00	22.00	21.00	SHALE : 39ECCA dark green; very jointed.
22.00	34.00	12.00	SHALE : 39ECCA blue; silty.
34.00	72.00	38.00	SHALE : 39ECCA black; silty; hard.
72.00	78.00	6.00	SHALE : 39ECCA bluish red; baked; hard. With prominent calcite on 79m

Geohydrology

40.00	40.00	0.00	0.01 L/sec Blow test yield
YIELD $\approx$ 0,013 l/s			

=====

* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36473

Number on map: G36473

E-W coordinate : -93152.40

Ground Elevation: 1287.84 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3394604.00

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850221

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	11.00	11.00	DOLERITE : 40KRDL
11.00	16.00	5.00	SHALE : 39ECCA hard; jointed.
16.00	18.00	2.00	SHALE : 39ECCA blue. With rust marks
18.00	42.00	24.00	SHALE : 39ECCA blue; silty.

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : BRANDFONTEIN

Remarks :

Site ID: 3023DB36474

Number on map: G36474

E-W coordinate : -85505.17

Ground Elevation: 1210.30 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3389903.18

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850226

Depth (m)		Thickness	Description
from	to	(m)	

Geology			

0.00	7.00	7.00	LIMESTONE : 39ECCA very calcareous; jointed.
7.00	12.00	5.00	SHALE : 39ECCA bluish red; baked. With calcite on some places
12.00	75.00	63.00	SHALE : 39ECCA greenish blue; baked; hard. Hard black shale on 50m with calcite
75.00	101.00	26.00	DOLERITE : 40KRDL

Geohydrology

12.00	12.00	0.00	0.01 L/sec Estimate yield
			YIELD $\approx$ 0,013 l/s

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : KLEINBRANDFONTEIN (BRANDFONTEIN)

Remarks :

Site ID: 3023DB36475

Number on map: G36475

E-W coordinate : -85275.41

Ground Elevation: 1211.49 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3390401.75

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850225

Depth (m)	Thickness		
from	to	(m)	Description

Geology			
0.00	8.00	8.00	SHALE : 39ECCA jointed; weathered. And baked
8.00	14.00	6.00	SHALE : 39ECCA baked; jointed. And some minerals
			on joints
14.00	30.00	16.00	SHALE : 39ECCA greenish blue; baked.

Geohydrology

7.00 7.00 0.00 0.00 L/sec yield

14.00 14.00 0.00 0.02 L/sec Blow test yield

=====

* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : KLEINBRANDFONTEIN (BRANDFONTEIN)

Remarks :

Site ID: 3023DB36476

Number on map: G36476

E-W coordinate : -85023.39

Ground Elevation: 1209.15 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3390404.00

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850226

Depth (m)	Thickness		
from	to	(m)	Description

Geology			
0.00	4.00	4.00	SHALE : 39ECCA jointed; weathered. Well jointed
			and baked.
4.00	27.00	23.00	SHALE : 39ECCA greenish blue; baked. Some places
			jointed as at 15m with argillaceous minerals and
			at 25m calcite.
27.00	31.00	4.00	SHALE : 39ECCA blue; baked; hard.

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : KLEINBRANDFONTEIN (BRANDFONTEIN)

Remarks :

Site ID: 3023DB36477

Number on map: G36477

E-W coordinate : -85728.46
 Ground Elevation: 1212.63 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3389747.75
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850227

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	5.00	5.00	SHALE : 39ECCA very baked; jointed.
5.00	12.00	7.00	SHALE : 39ECCA dark green; baked.
12.00	15.00	3.00	DOLERITE : 40KRDL Fresh dolerite
15.00	30.00	15.00	SHALE : 39ECCA greenish blue; baked. With red marks on places and on 25m purple with olive green baked shale

Geohydrology

17.00 17.00 0.00 0.38 L/sec Estimate yield

=====

* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : KLEINBRANDFONTEIN (BRANDFONTEIN)

Remarks :

Site ID: 3023DB36478

Number on map: G36478

E-W coordinate : -85426.36
 Ground Elevation: 1209.65 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3389504.50
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850227

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	8.00	8.00	SHALE : 39ECCA very baked; jointed.
8.00	30.00	22.00	SHALE : 39ECCA greenish blue; baked; hard, some joints with rust marks.

Geohydrology

8.00 8.00 0.00 1.37 m3/h Estimate yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : KLEINBRANDFONTEIN (BRANDFONTEIN)

Remarks :

Site ID: 3023DB36479

Number on map: G36479

E-W coordinate : -85252.01
 Ground Elevation: 1217.32 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3391999.50
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850217

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	8.00	8.00	SHALE : 39ECCA green; weathered.
8.00	14.00	6.00	SHALE : 39ECCA dark green; jointed. With rust marks on joints
14.00	18.00	4.00	SHALE : 39ECCA dark grey; slightly jointed.
18.00	31.00	13.00	SHALE : 39ECCA blue.

Geohydrology

11.00	11.00	0.00	0.25 L/sec Estimate yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : KLEINBRANDFONTEIN (BRANDFONTEIN)

Remarks :

Site ID: 3023DB36480

Number on map: G36480

E-W coordinate : -84545.77
 Ground Elevation: 1221.55 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3392668.50
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850227

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	7.00	7.00	SHALE : 39ECCA very hard; jointed.
7.00	12.00	5.00	SHALE : 39ECCA jointed. With lots of rust marks on joints
12.00	37.00	25.00	SHALE : 39ECCA greenish blue; hard.

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36481

Number on map: G36481

E-W coordinate : -89266.88

N-S coordinate : 3391901.25

Ground Elevation: 1237.52 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850301

Depth (m)	Thickness	Description
from to	(m)	

Geology

0.00	6.00	6.00	SHALE : 39ECCA dark green; very jointed.
6.00	23.00	17.00	SHALE : 39ECCA greenish green; jointed.
23.00	40.00	17.00	SHALE : 39ECCA blue; silty.

Geohydrology

29.00	29.00	0.00	0.01 L/sec Estimate yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36482

Number on map: G36482

E-W coordinate : -89344.46

Ground Elevation: 1241.52 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3393767.50

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850304

Depth (m)		Thickness	Description
from	to	(m)	

Geology			
0.00	6.00	6.00	SHALE : 39ECCA blue; jointed; weathered. With a soil layer of some desimetres
6.00	22.00	16.00	SHALE : 39ECCA dark green; jointed; weathered. With rust marks on joints
22.00	51.00	29.00	SHALE : 39ECCA hard.
51.00	65.00	14.00	SHALE : 39ECCA bluish blue. With calcite on joints as on 52 up to 56m and again on 62m
65.00	71.00	6.00	SHALE : 39ECCA greenish blue. And some red shale in between
71.00	102.00	31.00	SHALE : 39ECCA greenish blue; slightly baked.

Geohydrology

29.00 29.00 0.00 0.36 L/sec Blow test yield

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* HydroBase * S I T E R E P O R T * DATE : 26 March 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36483

Number on map: G36483

E-W coordinate : -89134.38

N-S coordinate : 3393714.75

Ground Elevation: 1239.25 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: IGS

Date Drilled: 19850307

Depth (m)		Thickness	Description
from	to	(m)	

Geology			
0.00	5.00	5.00	SHALE : 39ECCA dark green; very jointed.
5.00	24.00	19.00	SHALE : 39ECCA dark green; jointed. With rust marks and a prominent calcite layer at 24m.
24.00	30.00	6.00	SHALE : 39ECCA blue; silty; jointed.
30.00	32.00	2.00	SHALE : 39ECCA blue; hard.
32.00	36.00	4.00	SHALE : 39ECCA bluish blue. Calcite at some places.
36.00	85.00	49.00	SHALE : 39ECCA bluish blue. 49 to 53m some calcite, 73 to 75m calcite, 80 to 82m calcite and some rust spots.
85.00	103.00	18.00	SHALE : 39ECCA greenish blue; baked; hard. With calcite at 86m.
103.00	127.00	24.00	SHALE : 39ECCA greenish blue; baked; hard. With some rust at 122m.

Geohydrology

23.00 23.00 0.00 9.00 m3/h Container yield

34.00 34.00 0.00 3.24 m3/h V-notch yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM
Remarks :

Site ID: 3023DB36484

Number on map: G36484

E-W coordinate : -88843.47
Ground Elevation: 1237.83 mamsl
Depth of Casing: m
Logged by: H. Willemink

N-S coordinate : 3393672.75
Collar Height: 0.00 m
Diameter of Hole: 165 mm
Date Drilled: 19850308

Depth (m)	Thickness	
from	to	(m)

Description

Geology

0.00	6.00	6.00	SHALE : 39ECCA dark green; jointed. And some weathered black shale
6.00	40.00	34.00	SHALE : 39ECCA blue. 20m some rust
		25m	" "

Geohydrology

16.00	16.00	0.00	0.19 L/sec Container yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36485

Number on map: G36485

E-W coordinate : -88864.45

N-S coordinate : 3393838.25

Ground Elevation: 1236.66 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willeminck

Date Drilled: 19850308

Depth (m)	Thickness			
from	to	(m)		Description

Geology

0.00 7.00 7.00 SHALE : 39ECCA dark green; very jointed.

7.00 31.00 24.00 SHALE : 39ECCA silty; jointed. On 10 to 15m some
purple mineral clay in joints and on 27 to 29 m
well jointed with lots of rust in joints

31.00 42.00 11.00 SHALE : 39ECCA blue; hard. With calcite in joints

Geohydrology

30.00 40.00 10.00 0.81 L/sec V-notch yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36486

Number on map: G36486

E-W coordinate : -89362.85

N-S coordinate : 3393614.00

Ground Elevation: 1242.99 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850309

Depth (m) Thickness

from to (m)

Description

Geology

0.00	12.00	12.00	SHALE : 39ECCA greenish green; very jointed; weathered.
12.00	32.00	20.00	SHALE : 39ECCA slightly jointed. With some rust spots in joints
32.00	34.00	2.00	SHALE : 39ECCA blue. Some rust spots
34.00	37.00	3.00	SHALE : 39ECCA bluish blue; soft.
37.00	41.00	4.00	SHALE : 39ECCA blue.
41.00	45.00	4.00	SHALE : 39ECCA bluish blue.

Geohydrology

31.00	31.00	0.00	0.02 L/sec Estimate yield
			Moist at 25 m.

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36487

Number on map: G36487

E-W coordinate : -89638.41

Ground Elevation: 1244.14 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3395226.50

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850309

Depth (m)	Thickness	Description
from	to (m)	

Geology

0.00	11.00	11.00	SHALE : 39ECCA greenish green; very jointed.
11.00	16.00	5.00	DOLERITE : 40KRDL greenish green; baked; jointed.
			And shale
16.00	22.00	6.00	SHALE : 39ECCA greenish green; slightly jointed.
22.00	33.00	11.00	DOLERITE : 40KRDL fresh.
33.00	40.00	7.00	SHALE : 39ECCA blue; hard.

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36488

Number on map: G36488

E-W coordinate : -90136.30

Ground Elevation: 1245.91 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3395316.50

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850309

Depth (m)	Thickness	Description
from	to (m)	

Geology

0.00	10.00	10.00	DOLERITE : 40KRDL slightly weathered.
10.00	15.00	5.00	DOLERITE : 40KRDL fresh; jointed.
15.00	17.00	2.00	DOLERITE : 40KRDL fresh.
17.00	20.00	3.00	SHALE : 39ECCA greenish green; baked; jointed.
20.00	22.00	2.00	SHALE : 39ECCA greenish blue; baked. Red spots.
22.00	42.00	20.00	SHALE : 39ECCA greenish blue; baked. Some rust spots and red spots.

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36489

Number on map: G36489

E-W coordinate : -89848.22
 Ground Elevation: 1243.67 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3395265.52
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850312

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	7.00	7.00	SHALE : 39ECCA greenish green; baked; jointed.
7.00	10.00	3.00	DOLERITE : 40KRDL jointed; weathered.
10.00	19.00	9.00	DOLERITE : 40KRDL fresh.
19.00	21.00	2.00	DOLERITE : 40KRDL weathered.
21.00	32.00	11.00	DOLERITE : 40KRDL fresh.
32.00	102.00	70.00	SHALE : 39ECCA black; silty; hard. Rust in joints

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36490

Number on map: G36490

E-W coordinate : -89763.55
 Ground Elevation: 1241.84 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3395420.75
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850311

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	7.00	7.00	SHALE : 39ECCA very jointed.
7.00	13.00	6.00	DOLERITE : 40KRDL fresh; jointed.
13.00	19.00	6.00	DOLERITE : 40KRDL slightly fresh; jointed.
19.00	25.00	6.00	DOLERITE : 40KRDL solid.
25.00	27.00	2.00	SHALE : 39ECCA greenish blue; baked. Light brown grey to red spotted blue grey baked shale with dolerite and some large fragments with rust on joints.
27.00	40.00	13.00	SHALE : 39ECCA blue; hard.

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36491

Number on map: G36491

E-W coordinate : -89958.60
 Ground Elevation: 1247.10 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3395132.00
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850311

Depth (m) from	to	Thickness (m)	Description
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Geology

0.00	2.00	2.00	DOLERITE : 40KRDL fresh. With baked shale fragments
2.00	11.00	9.00	SHALE : 39ECCA very jointed.
11.00	17.00	6.00	SHALE : 39ECCA slightly jointed.
17.00	19.00	2.00	SHALE : 39ECCA very jointed.
19.00	22.00	3.00	SHALE : 39ECCA slightly jointed.
22.00	25.00	3.00	SHALE : 39ECCA very jointed.
25.00	30.00	5.00	SHALE : 39ECCA slightly jointed.
30.00	32.00	2.00	SHALE : 39ECCA blue; jointed.
32.00	35.00	3.00	SHALE : 39ECCA slightly jointed.
35.00	60.00	25.00	SHALE : 39ECCA blue. On 41m blue grey shale On 44m calcite and again on 48m and 53 m

Geohydrology

31.00 31.00 0.00 1.11 L/sec V-notch yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36492

Number on map: G36492

E-W coordinate : -89999.00

Ground Elevation: 1247.33 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3395142.50

Collar Height: 0.00 m

Diameter of Hole: 165 mm

Date Drilled: 19850312

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	4.00	4.00	SHALE : 39ECCA fresh. With calcrete
4.00	12.00	8.00	SHALE : 39ECCA very jointed.
12.00	19.00	7.00	SHALE : 39ECCA jointed. With a prominent joint on 18m
19.00	42.00	23.00	SHALE : 39ECCA blue; slightly jointed. Between 24 and 27m somewhat jointed

Geohydrology

31.00	31.00	0.00	0.37 L/sec Estimate yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36493

Number on map: G36493

E-W coordinate : -91051.92

N-S coordinate : 3395885.75

Ground Elevation: 1251.27 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850313

Depth (m)	Thickness			
from	to	(m)		Description

Geology

0.00	19.00	19.00	SHALE : 39ECCA dark green; very weathered; jointed.
19.00	25.00	6.00	SHALE : 39ECCA blue; slightly jointed.
25.00	27.00	2.00	SHALE : 39ECCA greenish blue; hard.
27.00	31.00	4.00	SHALE : 39ECCA blue; slightly baked.
31.00	34.00	3.00	DOLERITE : 40KRDL fine crystalline; fresh.
34.00	35.00	1.00	SHALE : 39ECCA greenish blue; baked. Red spots
35.00	50.00	15.00	DOLERITE : 40KRDL fresh.

Geohydrology

26.00	26.00	0.00	0.04 L/sec Estimate yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36494

Number on map: G36494

E-W coordinate : -90904.60

N-S coordinate : 3396187.75

Ground Elevation: 1250.78 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850312

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	6.00	6.00	SHALE : 39ECCA dark green; fractured.
6.00	13.00	7.00	SHALE : 39ECCA dark green; weathered; jointed.
13.00	18.00	5.00	DOLERITE : 40KRDL very jointed; weathered.
18.00	19.00	1.00	SHALE : 39ECCA very baked; jointed.
19.00	22.00	3.00	SHALE : 39ECCA jointed.
22.00	42.00	20.00	SHALE : 39ECCA silty. From 30m a lot of calcite

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36495

Number on map: G36495

E-W coordinate : -90785.05

N-S coordinate : 3396437.25

Ground Elevation: 1251.09 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850313

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	5.00	5.00	SHALE : 39ECCA dark green; very jointed; weathered.
5.00	18.00	13.00	SHALE : 39ECCA dark green; jointed.
18.00	42.00	24.00	SHALE : 39ECCA blue; silty; hard. Rust marks at 22m.

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36496

Number on map: G36496

E-W coordinate : -90668.30

N-S coordinate : 3396338.17

Ground Elevation: 1248.75 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850319

Depth (m)		Thickness	Description
from	to	(m)	

Geology			
0.00	2.00	2.00	SHALE : 39ECCA fractured.
2.00	13.00	11.00	SHALE : 39ECCA jointed; weathered.
13.00	14.00	1.00	DOLERITE : 40KRDL coarse crystalline; jointed. And hard baked shale with mineral rich clay in joints
14.00	27.00	13.00	SHALE : 39ECCA dark green; jointed.
27.00	33.00	6.00	SHALE : 39ECCA blue; slightly jointed.
33.00	68.00	35.00	SHALE : 39ECCA greenish blue; silty; hard. Sandstone bands on 45m Calcite on 49m and again on 51m
68.00	69.00	1.00	SHALE : 39ECCA greenish blue. And red spots
69.00	73.00	4.00	SHALE : 39ECCA coarse grained; greenish blue; baked. Red spots and dolerite fragments
73.00	78.00	5.00	DOLERITE : 40KRDL coarse crystalline; fresh.
78.00	80.00	2.00	DOLERITE : 40KRDL greenish black; baked. Dolerite and black shale with some rust spots
80.00	94.00	14.00	DOLERITE : 40KRDL coarse crystalline; fresh.

Geohydrology

27.00 27.00 0.00 0.75 L/sec V-notch yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36497

Number on map: G36497

E-W coordinate : -90408.30
 Ground Elevation: 1246.41 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3396465.75
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850314

Depth (m)		Thickness	Description
from	to	(m)	

Geology			
0.00	5.00	5.00	SHALE : 39ECCA dark green; very weathered; jointed.
5.00	23.00	18.00	SHALE : 39ECCA coarse grained; dark green; baked; hard. Mineral rich clay
23.00	33.00	10.00	SHALE : 39ECCA blue; jointed. On 30m joint with dark green grey coarse fragments of weathered shale
33.00	86.00	53.00	SHALE : 39ECCA blue; silty. Some rust spots on 40m anda prominent calcite layer on 85m
86.00	88.00	2.00	SHALE : 39ECCA dark grey; baked. Some red spots
88.00	96.00	8.00	DOLERITE : 40KRDL coarse crystalline; fresh.

Geohydrology

55.00 55.00 0.00 0.00 L/sec yield

59.00 59.00 0.00 0.01 L/sec Estimate yield

=====

* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36498

Number on map: G36498

E-W coordinate : -90592.52

N-S coordinate : 3396274.61

Ground Elevation: 1249.34 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850318

Depth (m) Thickness

from to (m)

Description

Geology

0.00	2.00	2.00	SHALE : 39ECCA dark green; very jointed.
2.00	22.00	20.00	SHALE : 39ECCA blue; slightly jointed.
22.00	40.00	18.00	SHALE : 39ECCA blue; silty.

Geohydrology

25.00	25.00	0.00	0.04 L/sec Estimate yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36499

Number on map: G36499

E-W coordinate : -83290.54

N-S coordinate : 3396992.77

Ground Elevation: 1222.14 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850320

Depth (m)		Thickness	Description
from	to	(m)	

Geology			
0.00	1.00	1.00	SAND AND SILT : 39ECCA fine grained; soft. With clay and soft calcrete and dolerite fragments
1.00	2.00	1.00	SAND AND CLAY : 39ECCA fine grained.
2.00	6.00	4.00	SAND, GRAVEL AND CLAY : 39ECCA fine grained; weathered.
6.00	7.00	1.00	SAND, GRAVEL AND CLAY : 39ECCA fine to coarse grained.
7.00	9.00	2.00	SHALE : 39ECCA coarse grained; greyish green; weathered.
9.00	25.00	16.00	SHALE : 39ECCA greyish green; slightly weathered. Rust spots and mineral dendrites on bedding planes
25.00	48.00	23.00	SHALE : 39ECCA dark green. Rusty spots on some places
48.00	69.00	21.00	SHALE : 39 ECCA black. Prominent zone on 68m filled with calcite and very large fragments
69.00	76.00	7.00	SHALE : 39ECCA coarse grained; blue; silty.
76.00	81.00	5.00	SHALE : 39ECCA blue; silty.

Geohydrology

39.00 52.00 13.00 0.24 L/sec Container yield

68.00 76.00 8.00 16.26 L/sec V-notch yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36500

Number on map: G36500

E-W coordinate : -83428.38

N-S coordinate : 3396762.75

Ground Elevation: 1218.77 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850321

Depth (m)	Thickness	
from	to	(m)

Description

Geology

0.00	2.00	2.00	SAND AND CLAY : 39ECCA calcareous; silty.
2.00	4.00	2.00	SAND AND CLAY : 39ECCA fine grained; silty.
4.00	6.00	2.00	SAND, GRAVEL AND CLAY : 39ECCA fine to coarse grained; baked; silty.
6.00	7.00	1.00	SAND, GRAVEL AND CLAY : 39ECCA coarse grained; blue; baked. With hornfels
7.00	8.00	1.00	SAND, GRAVEL AND CLAY : 39ECCA coarse grained; blue; baked. With hornfels
8.00	18.00	10.00	SHALE : 39ECCA greyish green; jointed. Rust marks
18.00	48.00	30.00	SHALE : 39ECCA dark grey; hard.

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36501

Number on map: G36501

E-W coordinate : -83160.10
Ground Elevation: 1223.85 mamsl
Depth of Casing: m
Logged by: H. Willemink

N-S coordinate : 3397213.10
Collar Height: 0.00 m
Diameter of Hole: 165 mm
Date Drilled: 19850322

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	3.00	3.00	SAND AND CLAY : 39ECCA fine grained; silty; sandy.
3.00	4.00	1.00	SAND, GRAVEL AND CLAY : 39ECCA coarse and fine grained; sandy; silty.
4.00	5.00	1.00	SAND AND CLAY : 39ECCA sandy; silty.
5.00	8.00	3.00	SAND, GRAVEL AND CLAY : 39ECCA fine to coarse grained; sandy; silty.
8.00	12.00	4.00	SHALE : 39ECCA greyish green; jointed; weathered.
12.00	18.00	6.00	SHALE : 39ECCA dark grey; slightly jointed.
18.00	26.00	8.00	SHALE : 39ECCA dark grey.
26.00	40.00	14.00	SHALE : 39ECCA blue.

Geohydrology

16.00 16.00 0.00 0.10 L/sec Container yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36502

Number on map: G36502

E-W coordinate : -83569.37

Ground Elevation: 1219.53 mamsl

Depth of Casing: m

Logged by: H. Willemink

N-S coordinate : 3396924.40

Collar Height: 0.00 m

Diameter of Hole: 203 mm

Date Drilled: 19850325

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	3.00	3.00	SAND AND CLAY : 39ECCA fine grained; sandy; silty.
3.00	4.00	1.00	SAND AND CLAY : 39ECCA argillaceous; silty.
4.00	7.00	3.00	SAND, GRAVEL AND CLAY : 39ECCA fine to coarse grained; arenaceous; silty. Weathered shale and sharp dolerite and calc
7.00	13.00	6.00	SAND, GRAVEL AND CLAY : 39ECCA fine to coarse grained; greyish green; sandy; silty. And weathered shale
13.00	30.00	17.00	SHALE : 39ECCA dark grey. With rust marks
30.00	42.00	12.00	SHALE : 39ECCA blue.

Geohydrology

25.00	25.00	0.00	0.31 L/sec V-notch yield
YIELD increased during drilling to 1,0 l/s.			

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36503

Number on map: G36503

E-W coordinate : -83021.11

N-S coordinate : 3397062.50

Ground Elevation: 1222.58 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850329

Depth (m)	Thickness		Description
from	to	(m)	

Geology			
0.00	3.00	3.00	SAND, GRAVEL AND CLAY : 39ECCA fine grained; sandy; silty. Shale and dolerite with rubble and calc
3.00	6.00	3.00	SAND AND GRAVEL : 39ECCA fine grained; sandy; silty.
6.00	11.00	5.00	SAND AND SILT : 39ECCA fine to coarse grained; silty.
11.00	13.00	2.00	SHALE : 39ECCA dark grey; weathered.
13.00	15.00	2.00	SHALE : 39ECCA jointed.
15.00	24.00	9.00	SHALE : 39ECCA dark grey; weathered; jointed. And clay
24.00	42.00	18.00	SHALE : 39ECCA dark grey. With rust marks

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36504

Number on map: G36504

E-W coordinate : -82809.36

N-S coordinate : 3395257.65

Ground Elevation: 1207.14 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850329

Depth (m) from	to	Thickness (m)	Description
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Geology

0.00	1.00	1.00	SILT : 39ECCA fine grained; sandy.
1.00	2.00	1.00	SAND AND GRAVEL : 39ECCA fine grained; silty; calcareous.
2.00	3.00	1.00	SANDSTONE AND SHALE : 39ECCA fine grained; silty; calcareous. And weathered shale
3.00	9.00	6.00	SHALE : 39ECCA jointed; weathered.
9.00	17.00	8.00	SHALE : 39ECCA dark grey; jointed. With rust
17.00	31.00	14.00	SHALE : 39ECCA bluish blue; silty; jointed.
31.00	100.00	69.00	SHALE : 39ECCA bluish blue; soft; silty. Some chert bands and calcite in joints somewhat weathered

Geohydrology

11.00 11.00 0.00 0.13 L/sec Estimate yield

18.00 42.00 24.00 3.27 L/sec V-notch yield

YIELD increased during drilling to 4,98 l/s.

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36505

Number on map: G36505

E-W coordinate : -83065.16
 Ground Elevation: 1208.58 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3395225.50
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850329

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	5.00	5.00	SAND AND SILT : 39ECCA fine to coarse grained; calcareous; silty.
5.00	6.00	1.00	SHALE : 39ECCA weathered.
6.00	10.00	4.00	SHALE : 39ECCA dark grey; jointed; weathered.
10.00	33.00	23.00	SHALE : 39ECCA coarse grained; bluish blue; soft; jointed.
33.00	42.00	9.00	SHALE : 39ECCA bluish blue; jointed.

Geohydrology

12.00	12.00	0.00	0.80	L/sec V-notch yield
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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36506

Number on map: G36506

E-W coordinate : -82492.69
 Ground Elevation: 1221.76 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3396050.75
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850328

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	6.00	6.00	SHALE : 39ECCA weathered.
6.00	30.00	24.00	SHALE : 39ECCA dark grey; weathered; jointed.

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36507

Number on map: G36507

E-W coordinate : -82522.84
 Ground Elevation: 1208.15 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3395282.63
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850329

Depth (m)	Thickness			
from	to	(m)		Description

Geology

0.00	10.00	10.00	SHALE : 39ECCA greenish grey; jointed; weathered.
10.00	18.00	8.00	SHALE : 39ECCA black; weathered; jointed. With rust marks on joints
18.00	22.00	4.00	CALCITE : 39ECCA slightly jointed.
22.00	40.00	18.00	SHALE : 39ECCA bluish black; jointed; soft.

Geohydrology

14.00	14.00	0.00	0.39 L/sec Container yield
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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36508

Number on map: G36508

E-W coordinate : -82581.39

N-S coordinate : 3395103.00

Ground Elevation: 1207.87 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850329

Depth (m) Thickness
from to (m)

Description

Geology

0.00	2.00	2.00	SHALE : 39ECCA weathered; jointed. And calc in joints
2.00	4.00	2.00	SHALE : 39ECCA weathered.
4.00	10.00	6.00	SHALE : 39ECCA weathered; jointed.
10.00	20.00	10.00	SHALE : 39ECCA dark grey. With rust
20.00	30.00	10.00	SHALE : 39ECCA black. Some rust marks

Geohydrology

25.00	25.00	0.00	0.20	L/sec Estimate yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36509

Number on map: G36509

E-W coordinate : -83017.46

N-S coordinate : 3395396.60

Ground Elevation: 1208.29 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850330

Depth (m)	Thickness	
from	to	(m)

Description

Geology

0.00	4.00	4.00	SAND, GRAVEL AND CLAY : 39ECCA fine grained; calcareous; silty. Sand with shale and dolerite
4.00	10.00	6.00	SHALE : 39ECCA greyish green; weathered.
10.00	17.00	7.00	SHALE : 39ECCA dark grey; jointed.
17.00	30.00	13.00	SHALE : 39ECCA black; slightly weathered; jointed. Some prominent rust marks on 23m and on 25 m some calcite in joints

Geohydrology

18.00	18.00	0.00	0.81 L/sec Container yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36510

Number on map: G36510

E-W coordinate : -82643.17

N-S coordinate : 3394669.02

Ground Elevation: 1204.94 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850330

Depth (m)		Thickness	Description
from	to	(m)	

Geology			
0.00	3.00	3.00	SHALE : 39ECCA fine grained; silty; calcareous. Sand weathered shale
3.00	6.00	3.00	SHALE : 39ECCA jointed; weathered.
6.00	22.00	16.00	SHALE : 39ECCA dark grey; slightly jointed. Prominent rust marks in joints
22.00	30.00	8.00	SHALE : 39ECCA dark grey; solid.
30.00	54.00	24.00	SHALE : 39ECCA black. on 48m zone with grey white calcite

Geohydrology

37.00 37.00 0.00 0.04 L/sec Estimate yield

60.00 60.00 0.00 0.27 L/sec Estimate yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36511

Number on map: G36511

E-W coordinate : -82570.37
 Ground Elevation: 1204.43 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3394429.54
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850330

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	3.00	3.00	SAND, GRAVEL AND CLAY : 39ECCA fine grained; silty; calcareous.
3.00	8.00	5.00	SHALE : 39ECCA weathered.
8.00	24.00	16.00	SHALE : 39ECCA coarse grained; greyish green; hard.

Geohydrology

5.00	5.00	0.00	0.16 L/sec	yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : RHENOSTERPOORT (KLEINBRANDFONTEIN)

Remarks :

Site ID: 3023DB36512

Number on map: G36512

E-W coordinate : -82963.23
Ground Elevation: 1204.68 mamsl
Depth of Casing: m
Logged by: H. Willemink

N-S coordinate : 3393891.50
Collar Height: 0.00 m
Diameter of Hole: 165 mm
Date Drilled: 19850330

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	5.00	5.00	SAND, GRAVEL AND CLAY : 39ECCA fine grained; silty.
5.00	9.00	4.00	SILT AND CLAY : 39ECCA
9.00	11.00	2.00	GRAVEL AND CLAY : 39ECCA coarse grained; weathered.
11.00	12.00	1.00	DOLERITE : 40KRDL very jointed.
12.00	13.00	1.00	DOLERITE : 40KRDL coarse crystalline; slightly weathered.

Geohydrology

6.00	11.00	5.00	4.21 L/sec V-notch yield Strong water at 11 m.
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N-S coordinate : 3397827.50
Collar Height: 0.00 m
Diameter of Hole: 165 mm
Date Drilled: 19870331

(no information.)

* HydroBase * SITE REPORT * DATE : 1 February 1990
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N-S coordinate : 3398064.63
Collar Height: 0.00 m
Diameter of Hole: 165 mm
Date Drilled: 19850331

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : NEW VAALKOP

Remarks :

Site ID: 3023DB36515

Number on map: G36515

E-W coordinate : -83995.50

N-S coordinate : 3397891.23

Ground Elevation: 1224.88 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850401

Depth (m)	Thickness		Description
from	to	(m)	

Geology			
0.00	8.00	8.00	SHALE : 39ECCA greyish green; jointed; weathered.
8.00	11.00	3.00	SHALE : 39ECCA reddish green; slightly baked.
11.00	16.00	5.00	SHALE : 39ECCA bluish grey; slightly baked; jointed. Red stains
16.00	33.00	17.00	DOLERITE : 40KRDL solid.
33.00	36.00	3.00	SHALE : 39ECCA coarse grained; greyish green; baked. Some calcite in joints and red spots
36.00	46.00	10.00	SHALE : 39ECCA bluish green; mineralised; baked. And calcite and CU and FE combinations
46.00	61.00	15.00	SHALE : 39ECCA coarse grained; bluish grey; jointed; baked. With some rust and red spots
61.00	62.00	1.00	DOLERITE : 40KRDL solid.

Geohydrology

33.00 33.00 0.00 3.41 L/sec V-notch yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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=====

Site name : NEW VAALKOP

Remarks :

Site ID: 3023DB36516

Number on map: G36516

E-W coordinate : -83858.68

N-S coordinate : 3398115.80

Ground Elevation: 1227.68 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850401

Depth (m)	Thickness			
from	to	(m)		Description

Geology

0.00	2.00	2.00	DOLERITE : 40KRDL weathered. And calcrete
2.00	27.00	25.00	DOLERITE : 40KRDL coarse crystalline; weathered. And brittle
27.00	42.00	15.00	DOLERITE : 40KRDL fresh.

Geohydrology

25.00	25.00	0.00	0.29 L/sec Container yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : NEW VAALKOP

Remarks :

Site ID: 3023DB36517

Number on map: G36517

E-W coordinate : -83948.52

N-S coordinate : 3397968.00

Ground Elevation: 1225.71 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 1985

Depth (m)	Thickness			
from	to	(m)		Description

Geology

(no information.)

Geohydrology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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=====

Site name : NEW VAALKOP

Remarks :

Site ID: 3023DB36518

Number on map: G36518

E-W coordinate : -84009.86
 Ground Elevation: 1224.56 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3397867.20
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 1985

Depth (m)	Thickness	
from	to (m)	Description

Geology

(no information.)

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36519

Number on map: G36483A

E-W coordinate : -89114.88
 Ground Elevation: 1238.62 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3393719.50
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850318

Depth (m)	Thickness	
from	to (m)	Description

Geology

0.00	3.00	3.00	SHALE : 39ECCA very jointed; weathered.
3.00	6.00	3.00	SHALE : 39ECCA dark green; jointed.
6.00	20.00	14.00	SHALE : 39ECCA dark grey; slightly jointed. At 19m joints with weathered shale.
20.00	42.00	22.00	SHALE : 39ECCA black; hard. At 14m rust and between 30 and 36 m calcite in joints.

Geohydrology

24.00 24.00 0.00 1.37 m3/h Estimate yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

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Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36520

Number on map: G36483B

E-W coordinate : -89134.00
 Ground Elevation: 1239.25 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3393714.75
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850319

Depth (m)	Thickness		
from	to	(m)	Description

Geology

0.00	4.00	4.00	SHALE : 39ECCA greenish grey; very jointed.
4.00	10.00	6.00	SHALE : 39ECCA greenish grey; jointed.
10.00	19.00	9.00	SHALE : 39ECCA greenish grey; slightly jointed. With minerals
19.00	23.00	4.00	SHALE : 39ECCA bluish blue; soft; hard.

Geohydrology

17.00	17.00	0.00	0.00	L/sec	yield
19.00	19.00	0.00	0.00	L/sec	yield
23.00	23.00	0.00	1.06	L/sec	V-notch yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36521

Number on map: G36483C

E-W coordinate : -89135.86

N-S coordinate : 3393760.00

Ground Elevation: 1240.23 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19880319

Depth (m)	Thickness	Description
from to	(m)	

Geology		
0.00 6.00	6.00	SHALE : 39ECCA greenish grey; very jointed.
6.00 21.00	15.00	SHALE : 39ECCA greyish green; silty.
21.00 40.00	19.00	SHALE : 39ECCA bluish blue; soft; silty. On 22
		and 24m fine sandstone with calcite
		On 26 and 28m weathered joints
		On 30m fine sandstone with quartzite bands
		On 32m joints prominent with coarse weathered
		fragments

Geology

Geohydrology

13.00	13.00	0.00	0.50	L/sec V-notch yield
16.00	16.00	0.00	0.50	L/sec V-notch yield
19.00	19.00	0.00	2.40	L/sec V-notch yield

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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : SINCLAIRS DAM

Remarks :

Site ID: 3023DB36522

Number on map: G36483D

E-W coordinate : -89108.83

N-S coordinate : 3393729.00

Ground Elevation: 1238.97 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850318

Depth (m)	Thickness	
from	to	(m)

Description

Geology

0.00	7.00	7.00	SHALE : 39ECCA greyish green; very jointed.
7.00	20.00	13.00	SHALE : 39ECCA greyish green; slightly jointed. Lots of minerals on places
20.00	42.00	22.00	SHALE : 39ECCA black; hard. Some rust on 23m and calcite on some places

Geohydrology

24.00	24.00	0.00	0.38 L/sec Estimate yield
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* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

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Site name : RHENOSTERPOORT

Remarks :

Site ID: 3023DB36523

Number on map: G36499A

E-W coordinate : -83305.68
 Ground Elevation: 1221.81 mamsl
 Depth of Casing: m
 Logged by: H. Willemink

N-S coordinate : 3396966.75
 Collar Height: 0.00 m
 Diameter of Hole: 165 mm
 Date Drilled: 19850327

Depth (m)	Thickness		Description
from	to	(m)	

Geology			
0.00	1.00	1.00	SAND AND CLAY : 39ECCA argillaceous.
1.00	4.00	3.00	SAND AND CLAY : 39ECCA fine grained; silty; calcareous.
4.00	6.00	2.00	SAND, GRAVEL AND CLAY : 39ECCA coarse grained; silty.
6.00	7.00	1.00	SHALE : 39ECCA coarse grained; weathered.
7.00	15.00	8.00	SHALE : 39ECCA greenish grey; weathered.
15.00	60.00	45.00	SHALE : 39ECCA dark grey.
60.00	72.00	12.00	SHALE : 39ECCA coarse grained; bluish blue; silty; hard.
72.00	94.00	22.00	CHERT : 39ECCA
94.00	100.00	6.00	SHALE : 39ECCA greenish blue. With chert bands
100.00	102.00	2.00	SHALE : 39ECCA With chert bands

Geohydrology

24.00 45.00 21.00 0.13 L/sec Container yield

71.00 71.00 0.00 1.12 L/sec V-notch yield

=====

* HydroBase * S I T E R E P O R T * DATE : 1 February 1990

Generated for : DE AAR - IGS-WRC RESEARCH PROJECT

=====

Site name : RHENOSTERPOORT

Remarks :

Site ID: 3023DB36524

Number on map: G36499B

E-W coordinate : -83243.42

N-S coordinate : 3397070.50

Ground Elevation: 1222.12 mamsl

Collar Height: 0.00 m

Depth of Casing: m

Diameter of Hole: 165 mm

Logged by: H. Willemink

Date Drilled: 19850327

Depth (m)		Thickness	Description
from	to	(m)	

Geology			
0.00	3.00	3.00	SAND AND CLAY : 39ECCA fine grained; calcareous; sandy.
3.00	4.00	1.00	SAND AND CLAY : 39ECCA fine grained; silty; calcareous.
4.00	5.00	1.00	SAND AND CLAY : 39ECCA fine grained; sandy; silty.
5.00	6.00	1.00	SAND, GRAVEL AND CLAY : 39ECCA fine grained; sandy; silty.
6.00	9.00	3.00	SAND, GRAVEL AND CLAY : 39ECCA fine to coarse grained; sandy; silty.
9.00	13.00	4.00	SHALE : 39ECCA greyish green; jointed; weathered.
13.00	25.00	12.00	SHALE : 39ECCA dark grey. With rust spots
25.00	53.00	28.00	SHALE : 39ECCA dark grey.
53.00	72.00	19.00	SHALE : 39ECCA blue.

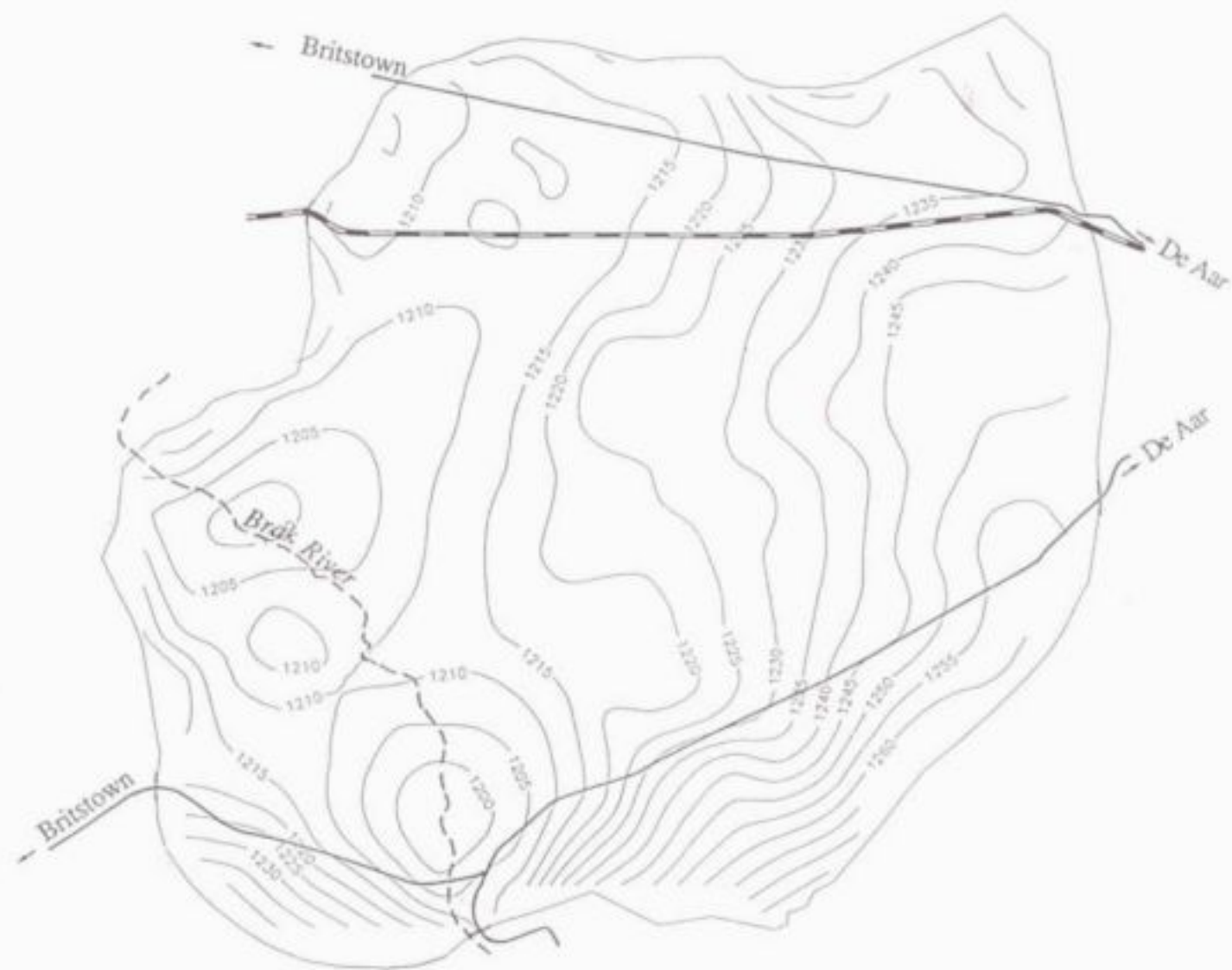
Geohydrology

52.00 52.00 0.00 0.14 L/sec Container yield

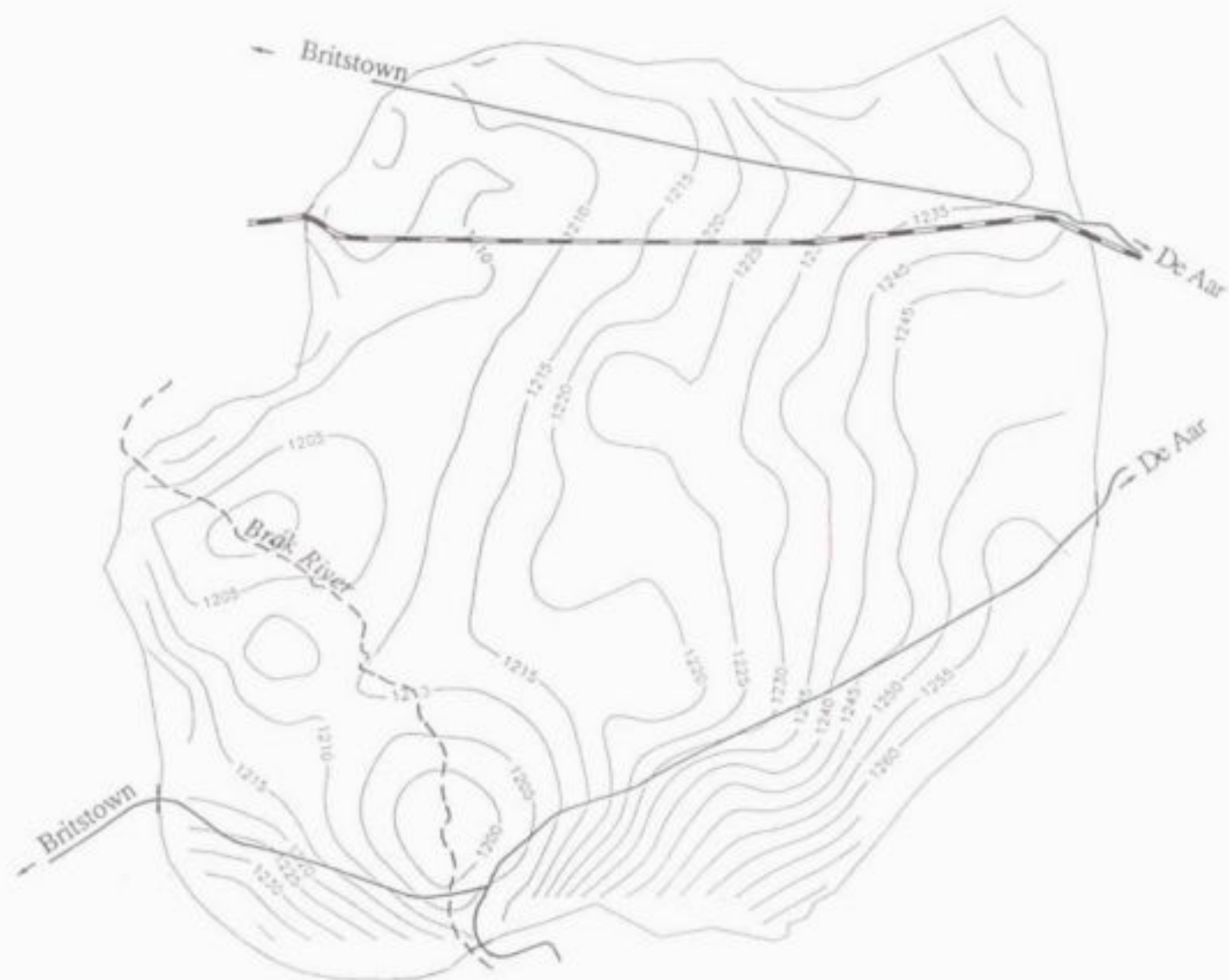
G-BASE DE AAR Site ID and Mapnumbers.

All Site ID's start with 3023DB.....

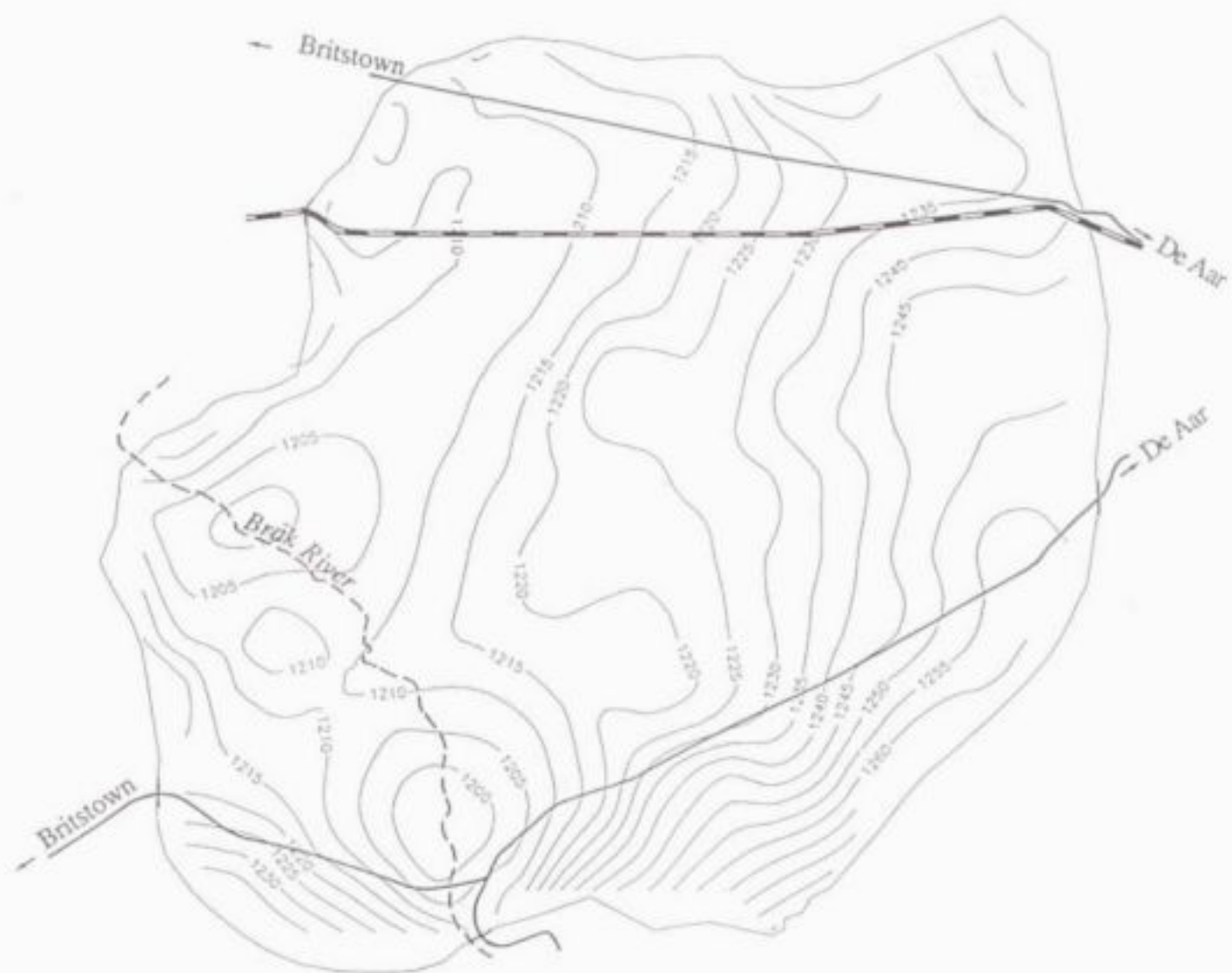
S-ID	Num.on Map	S-ID	Num.on Map	S-ID	Num.on Map	S-ID	Num.on Map
00001	SNM1	00046	NVP 8	00091	POMP 11	36481	G36481
00002	SNM2	00047	NVP 9	00092	POMP 12	36482	G36482
00003	SNM3	00048	NVP 10	10001	NEUTRON 1	36483	G36483
00004	SNM4	00049	BRN 1	10002	NEUTRON 2	36484	G36484
00005	SNM5	00050	BRN 2	10003	NEUTRON 3	36485	G36485
00006	SNM6	00051	BRN 3	10004	NEUTRON 4	36486	G36486
00007	RHT1	00053	BRN 5	10005	NEUTRON 5	36487	G36487
00008	RHT2	00054	BRN 4	10006	NEUTRON 6	36488	G36488
00009	ZS1	00055	BRN 7	10007	NEUTRON 7	36489	G36489
00010	G23202	00056	BRN 8	10008	NEUTRON 8	36490	G36490
00011	G23202A	00057	BRN 9	10009	NEUTRON 9	36491	G36491
00012	G27703	00058	BRN 10	10010	NEUTRON 10	36492	G36492
00013	G27702G	00059	BRN 11	10011	NEUTRON 11	36493	G36493
00014	G27708D	00060	BRN 11A	10012	NEUTRON 12	36494	G36494
00015	G23203A	00061	BRN 12	10013	NEUTRON 13	36495	G36495
00016	VK1 (W)	00062	BRN 13	10014	NEUTRON 14	36496	G36496
00017	G23204D	00063	BRN 63	10015	NEUTRON 15	36497	G36497
00018	G23205C	00064	BRN 16	10016	NEUTRON 16	36498	G36498
00019	G23205F	00065	DAR 1	10017	NEUTRON 17	36499	G36499
00020	G23205B	00066	SNE 1	10018	NEUTRON 18	36500	G36500
00021	G27715G	00067	DPT 1	10019	NEUTRON 19	36501	G36501
00022	VP 1	00068	DPT 2	10020	NEUTRON 20	36502	G36502
00023	G23206A	00069	ZWS 1	10021	NEUTRON 21	36503	G36503
00024	RT 2	00070	ZWS 2	10022	NEUTRON 22	36504	G36504
00026	RT 3	00071	ZWS 3	20000	WEATHER STA	36505	G36505
00027	RT 1	00072	ZWS 4	20001	RAINGAUGE 1	36506	G36506
00028	G27719I	00073	ZWS 5	20002	CASSELLA	36507	G36507
00029	BN 1	00074	ZWS 6	27704	G27704	36508	G36508
00030	BN 2	00075	ZWS 7	27707	G27707	36509	G36509
00031	RHT 3	00076	ZWS 8	27723	G27723	36510	G36510
00032	RHT 4	00077	ZWS 9A	28402	G28402	36511	G36511
00033	RHT 4	00078	ZWS 10	28405	G28405	36512	G36512
00034	RHT 5	00079	ZWS 11	36469	G36469	36513	G36513
00035	RHT 6	00080	ZWS 12	36470	G36470	36514	G36514
00036	RHT 7	00081	POMP 1	36471	G36471	36515	G36515
00037	RHT 8	00082	POMP 2	36472	G36472	36516	G36516
00038	RHT 9	00083	POMP 3	36473	G36473	36517	G36517
00039	NVP 1	00084	POMP 4	36474	G36474	36518	G36518
00040	NVP 2	00085	POMP 5	36475	G36475	36519	G36483A
00041	NVP 3	00086	POMP 6	36476	G36476	36520	G36483B
00042	NVP 4	00087	POMP 7	36477	G36477	36521	G36483C
00043	NVP 5	00088	POMP 8	36478	G36478	36522	G36483D
00044	NVP 6	00089	POMP 9	36479	G36479	36523	G36499A
00045	NVP 7	00090	POMP 10	36480	G36480	36524	G36499B



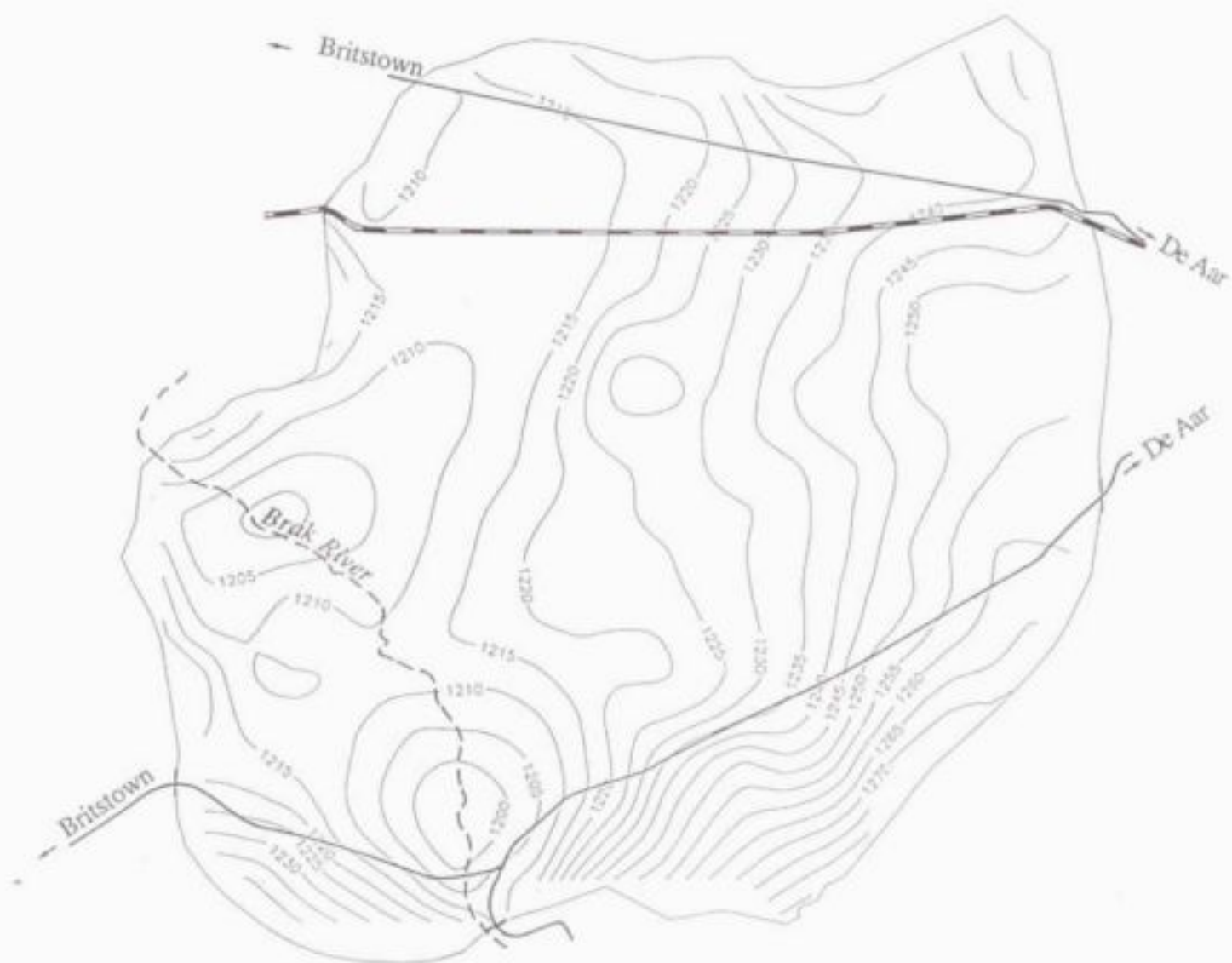
Boundaries of the De Aar aquifer showing the ground-water contours for October 1986.



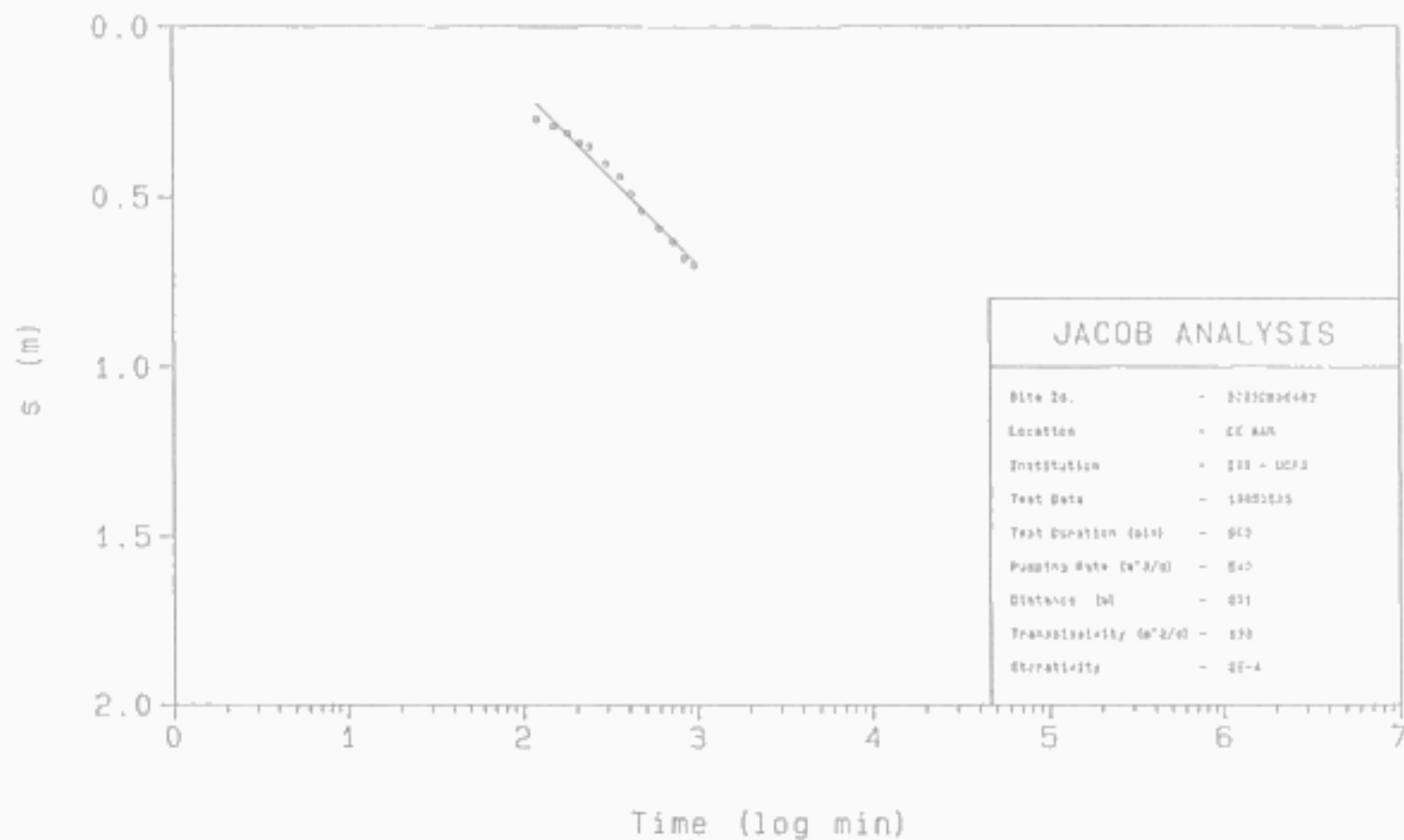
Boundaries of the De Aar aquifer showing the ground-water contours for October 1987.

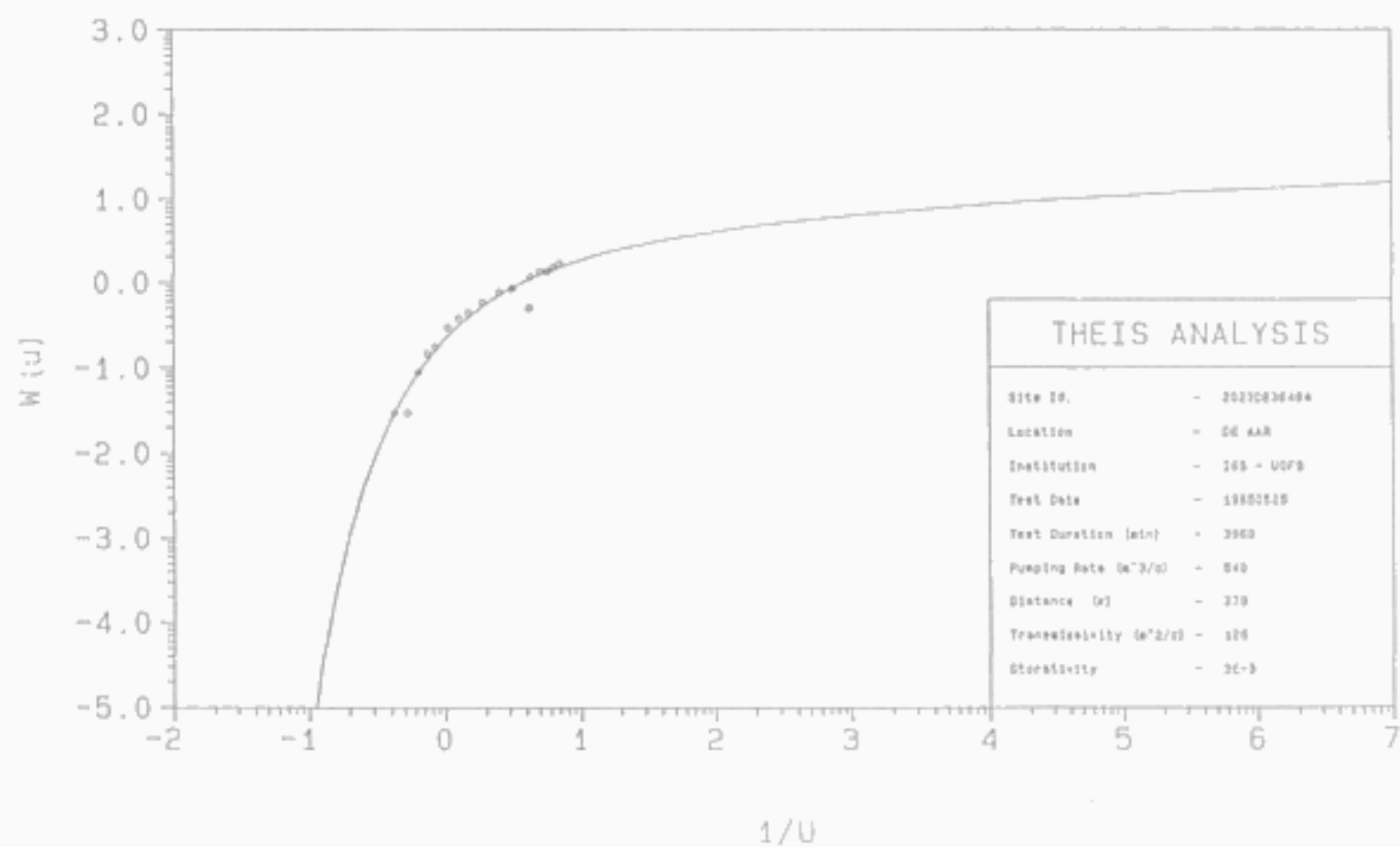


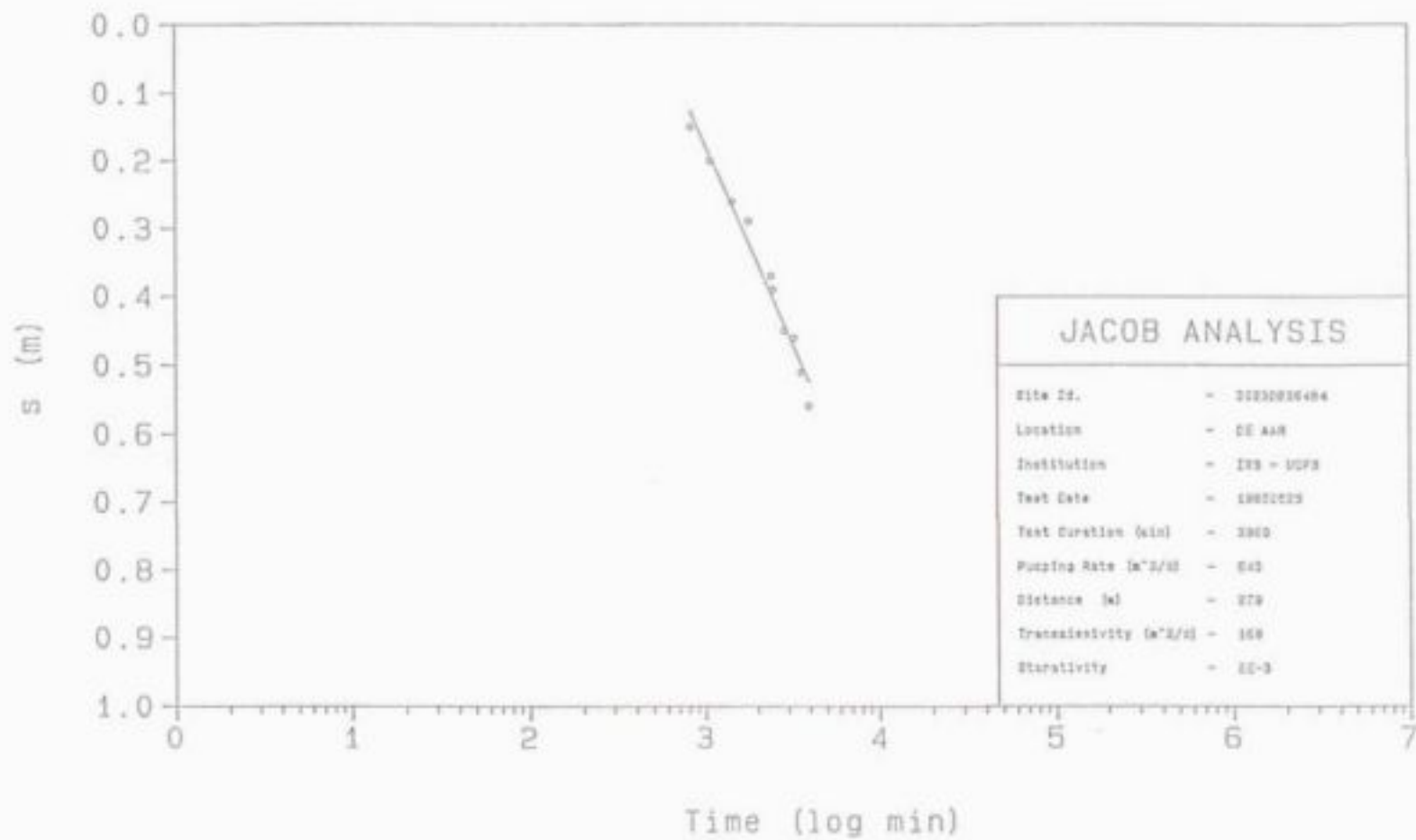
Boundaries of the De Aar aquifer showing the ground-water contours for January 1988.

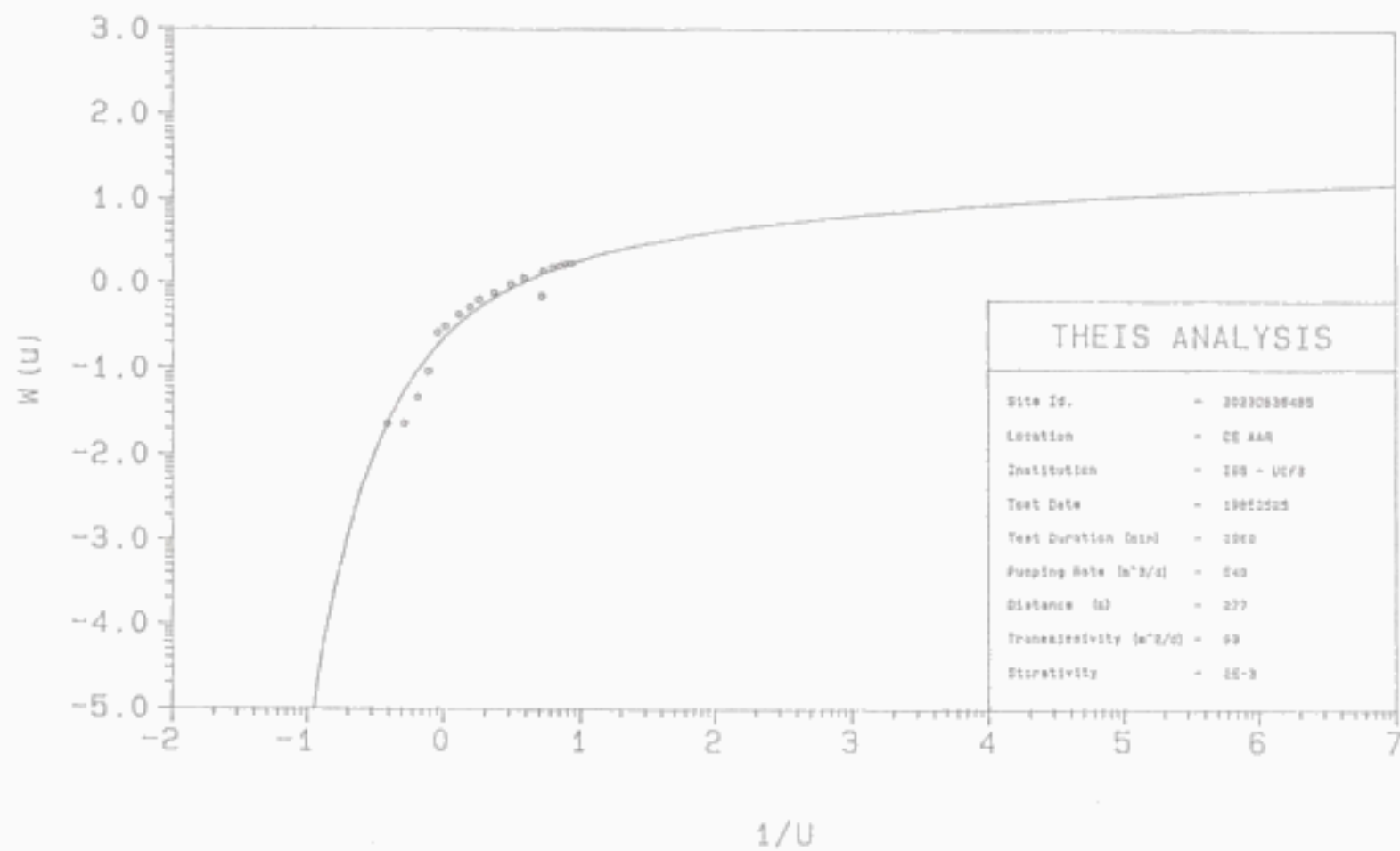


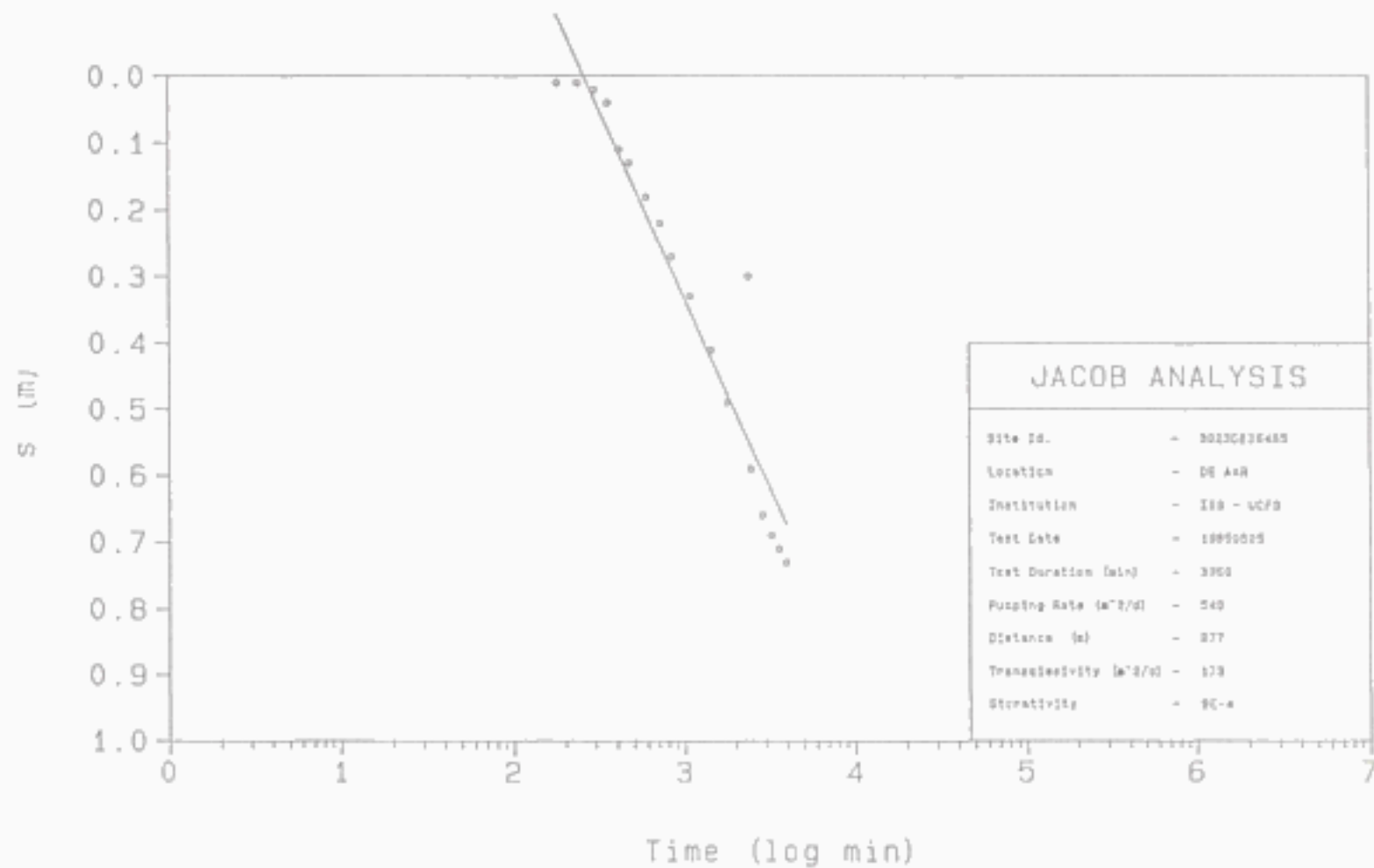
Boundaries of the De Aar aquifer showing the ground-water contours for April 1988.

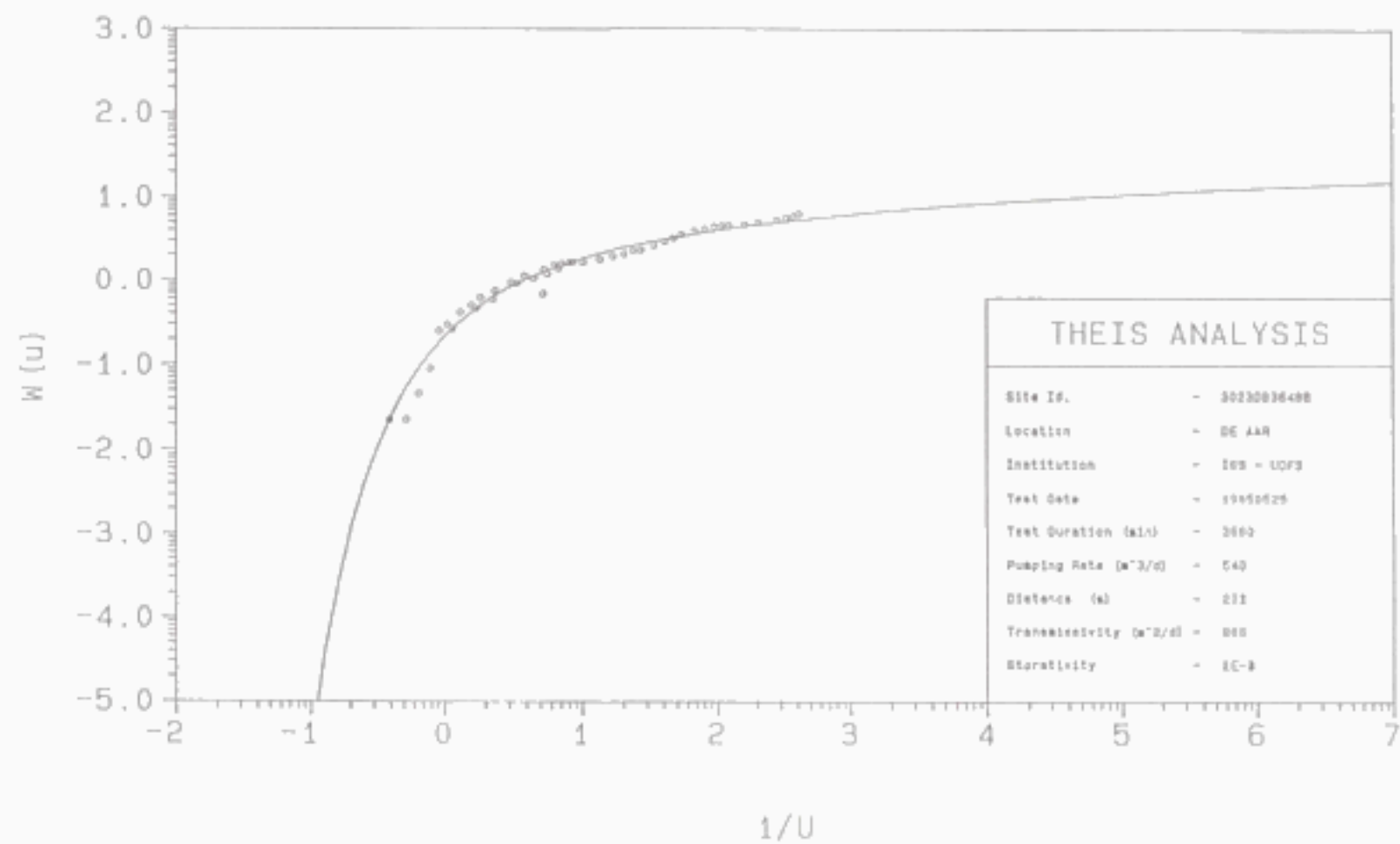


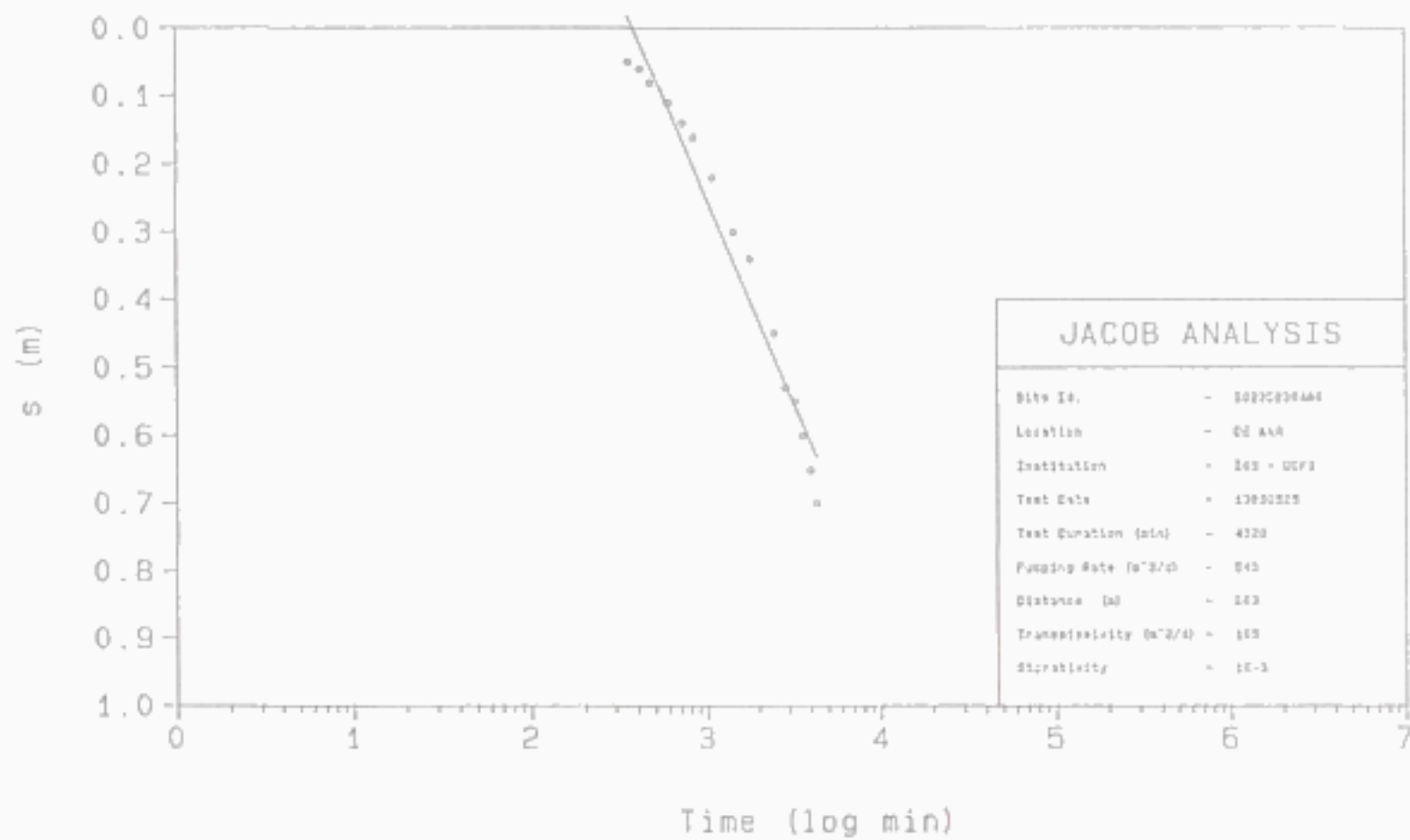


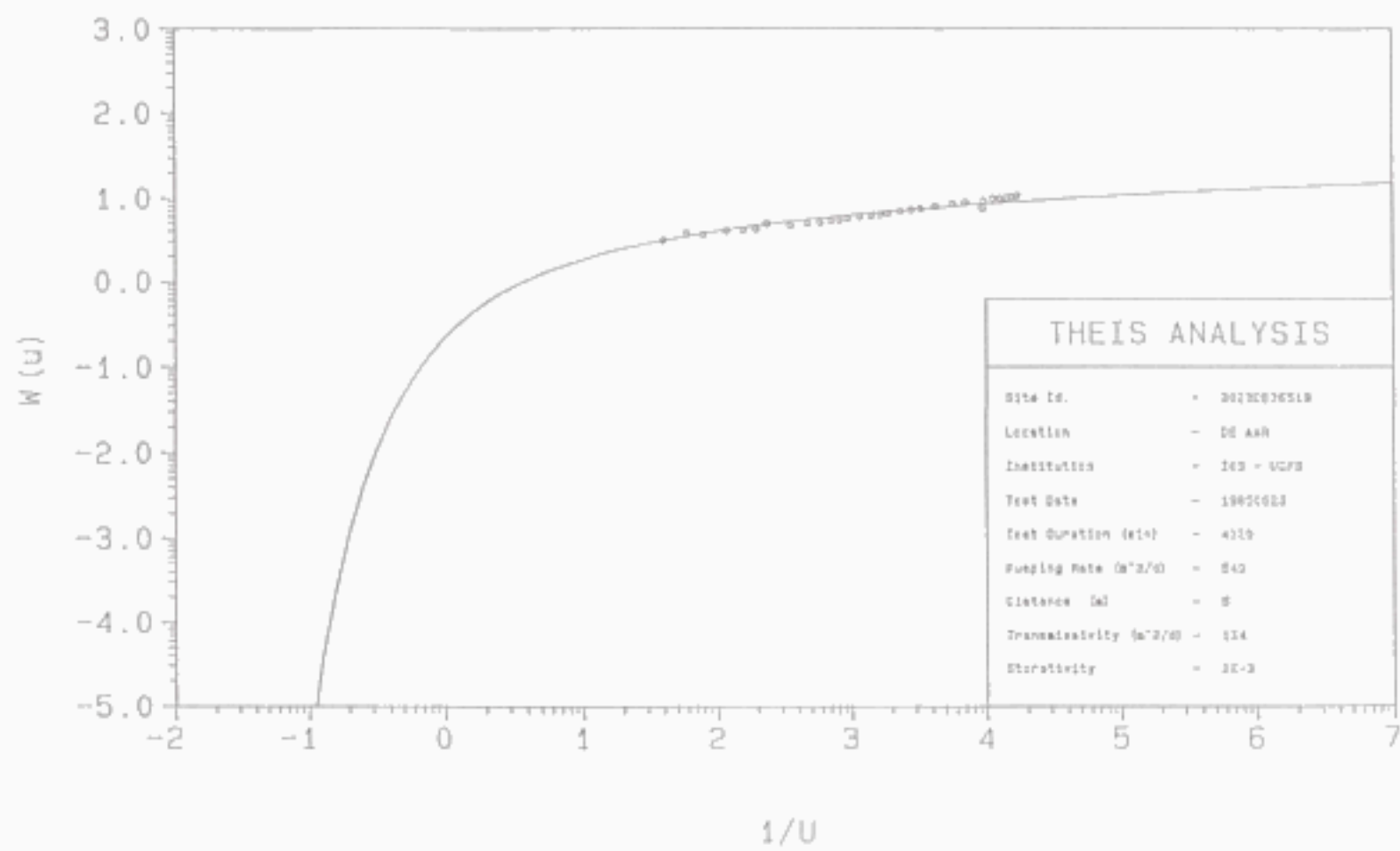


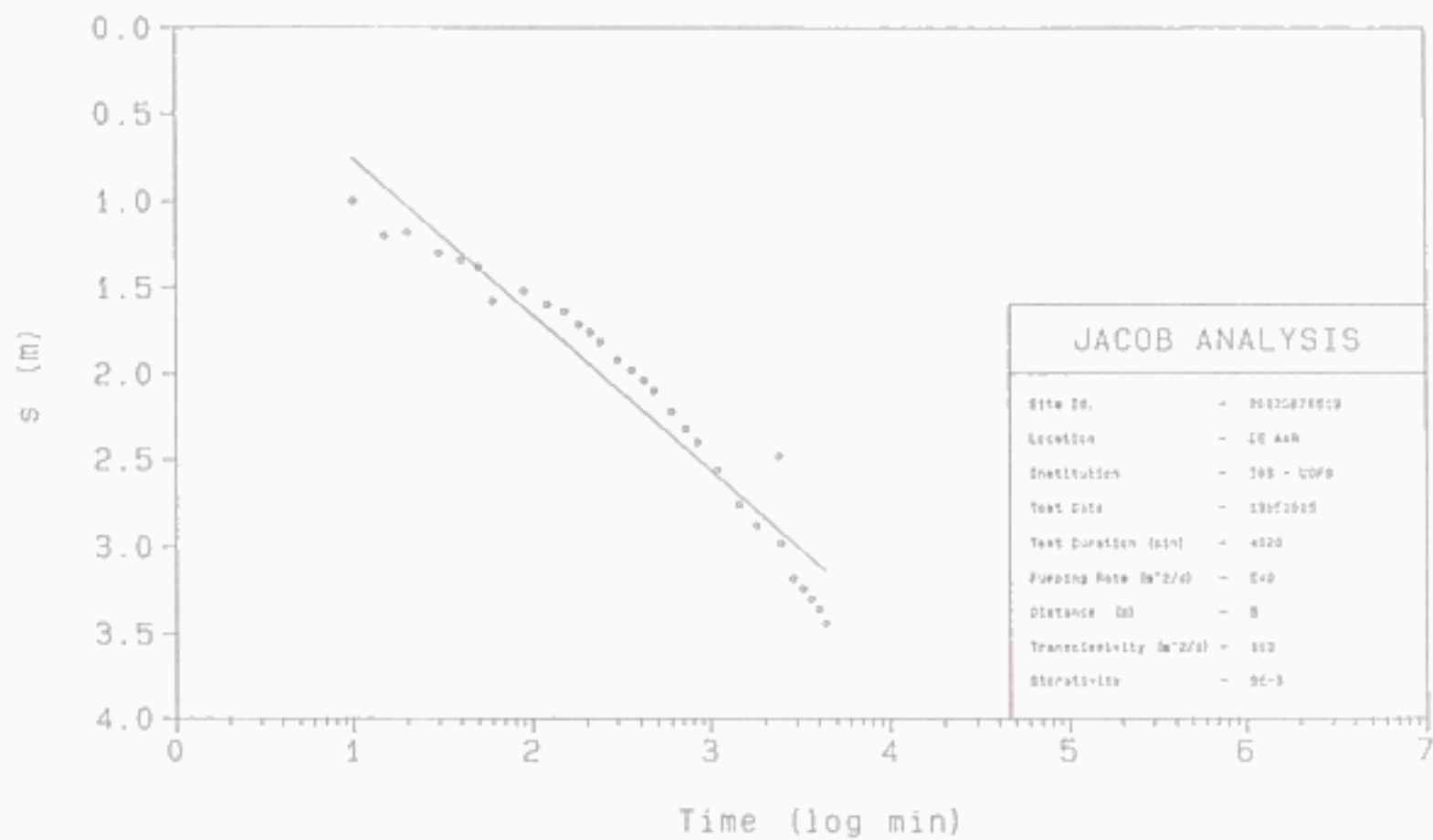


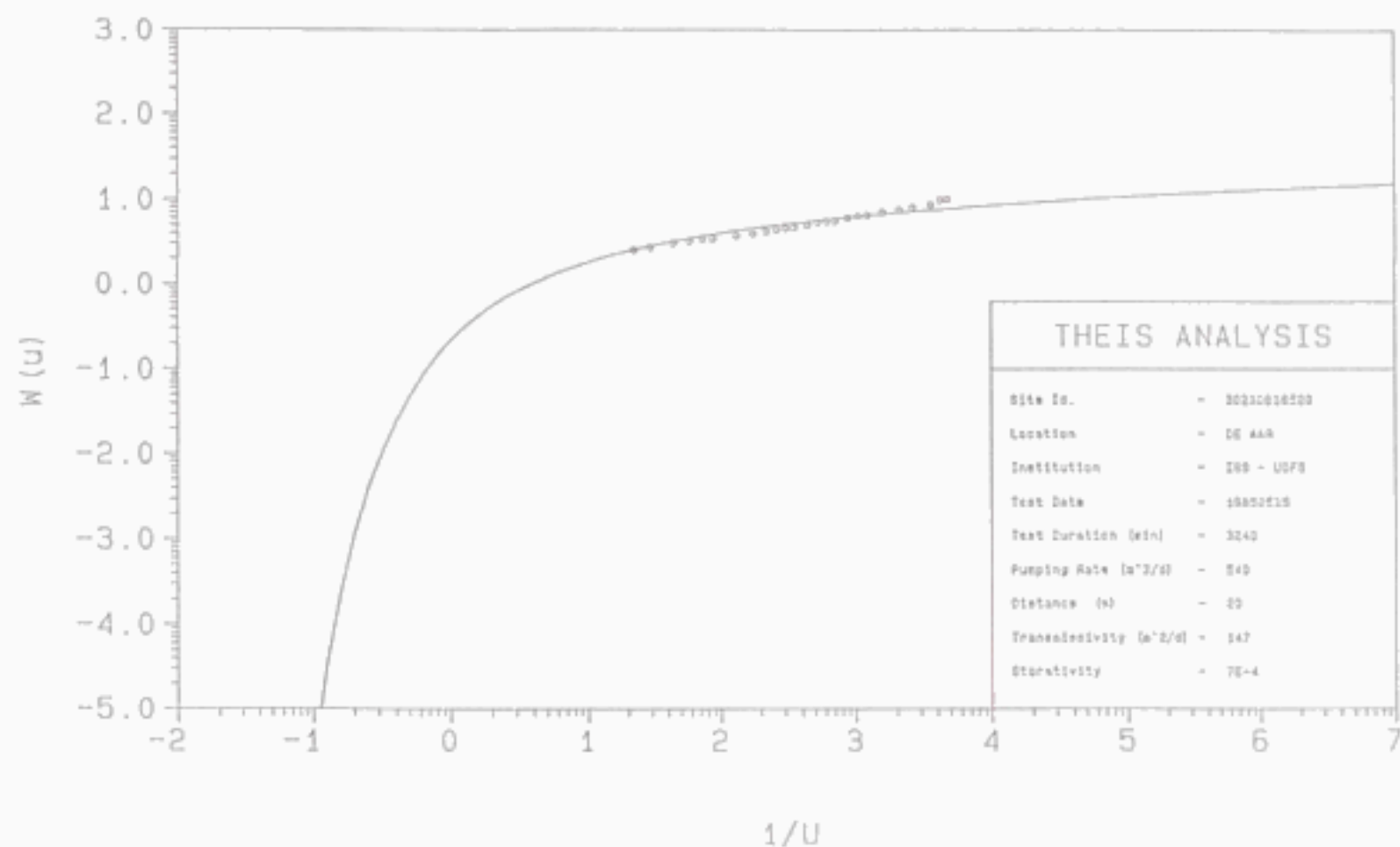


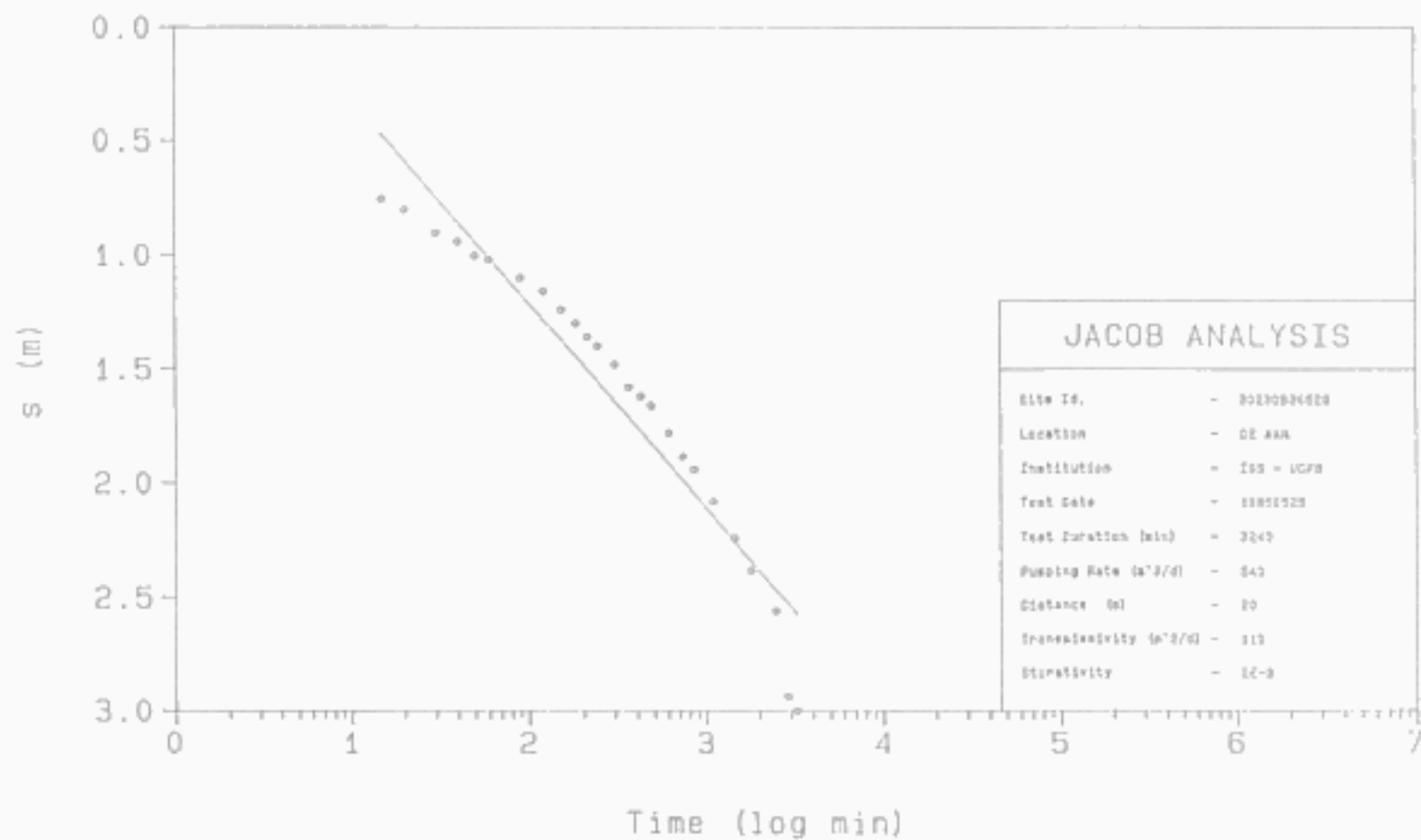


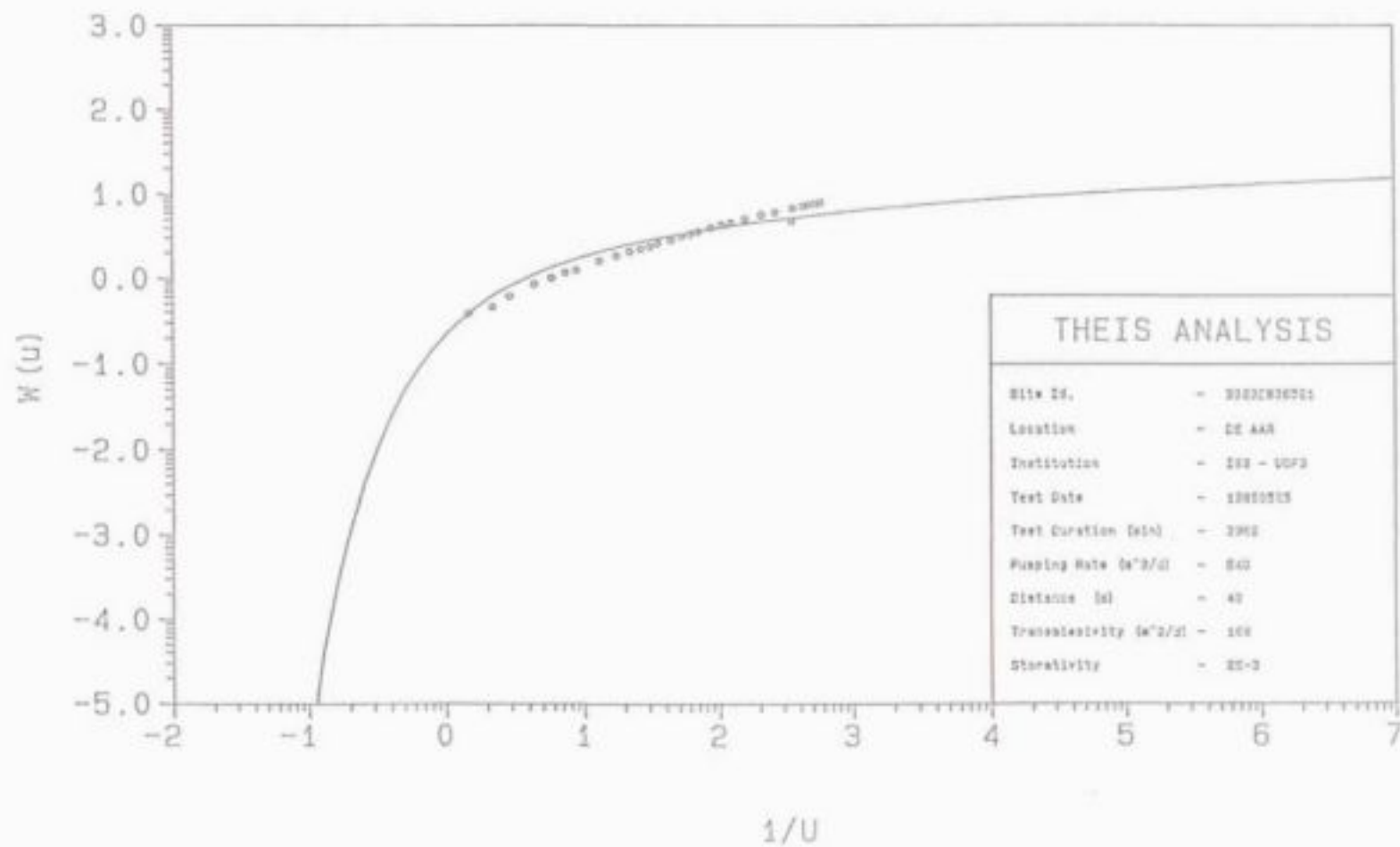


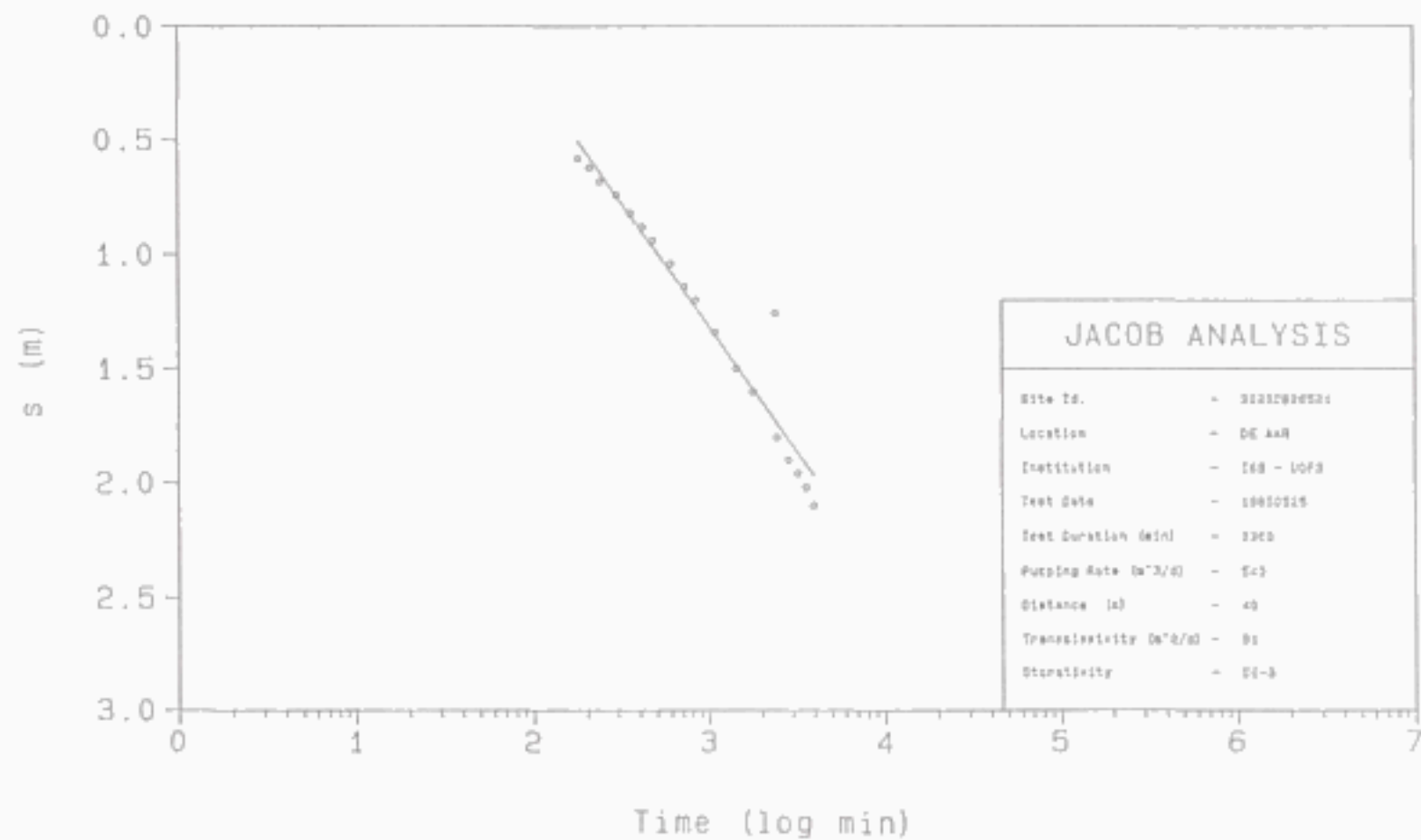


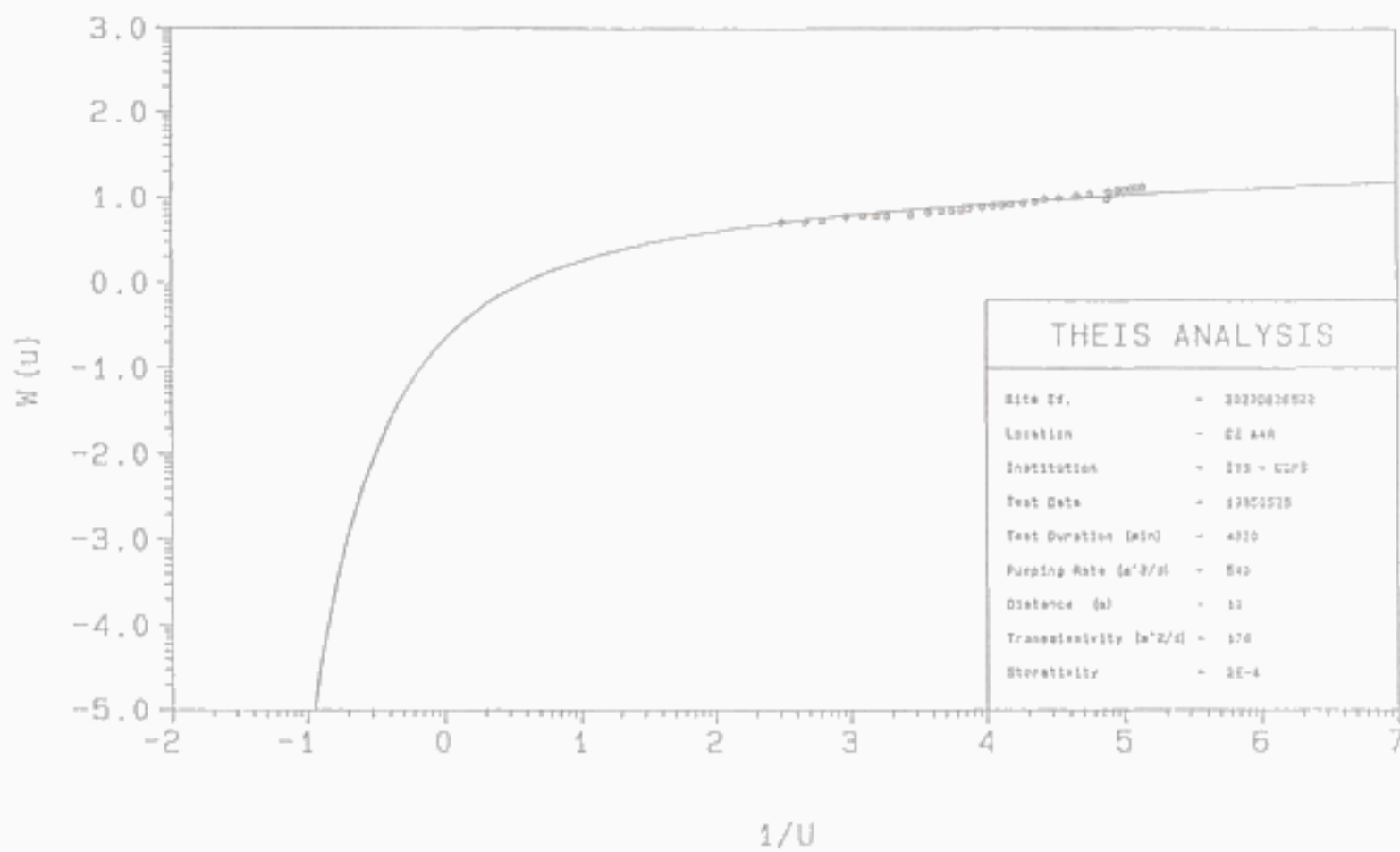


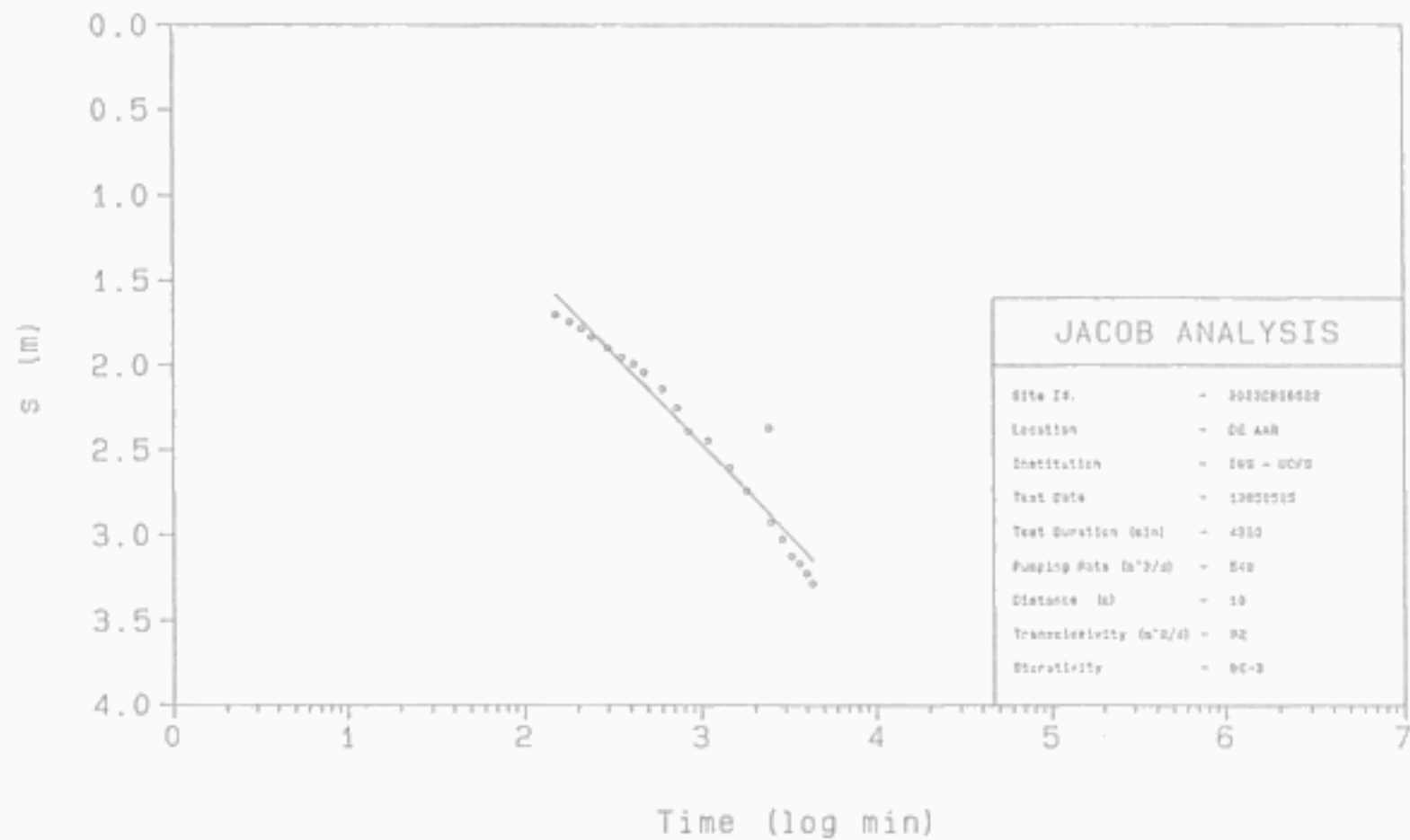


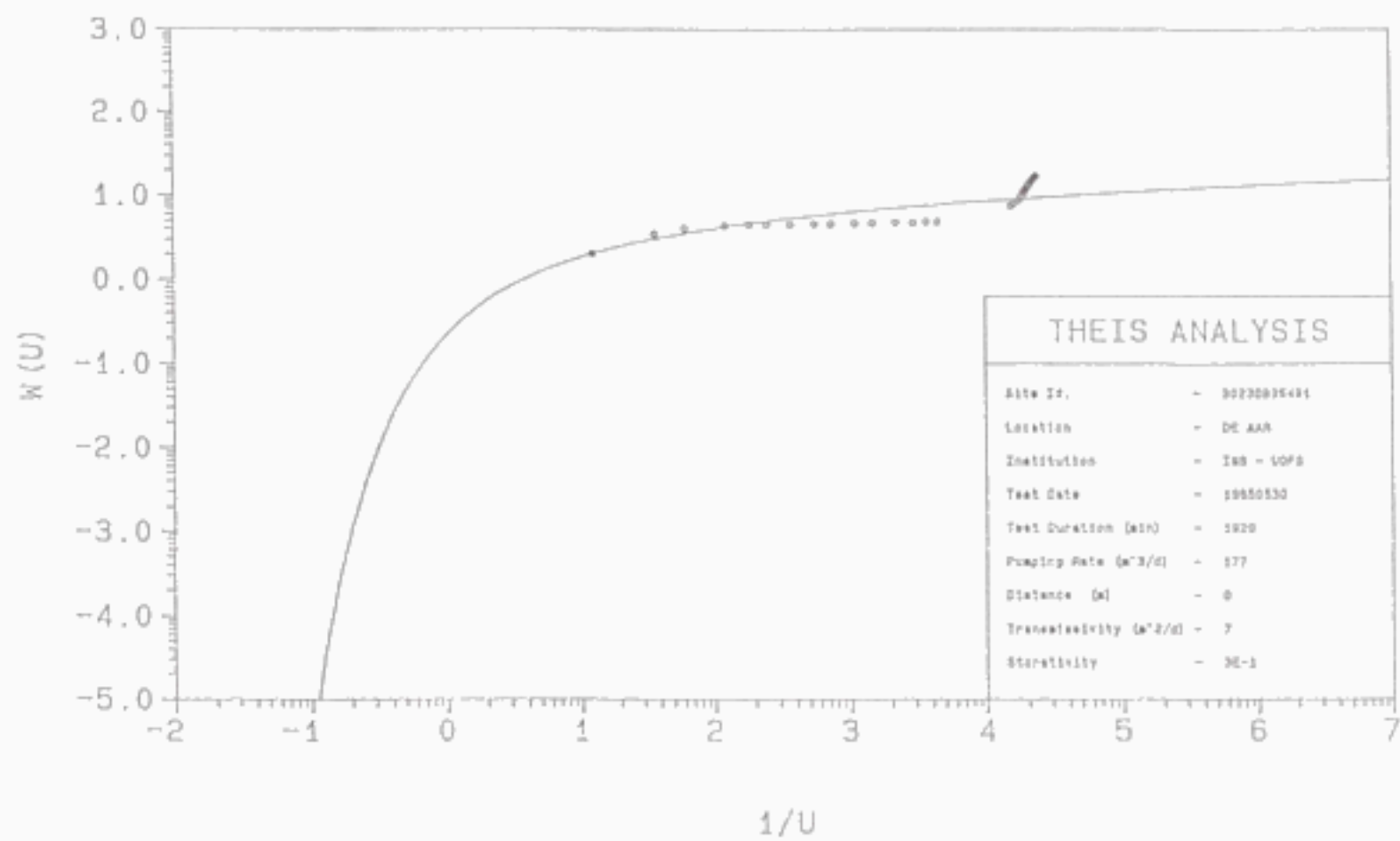


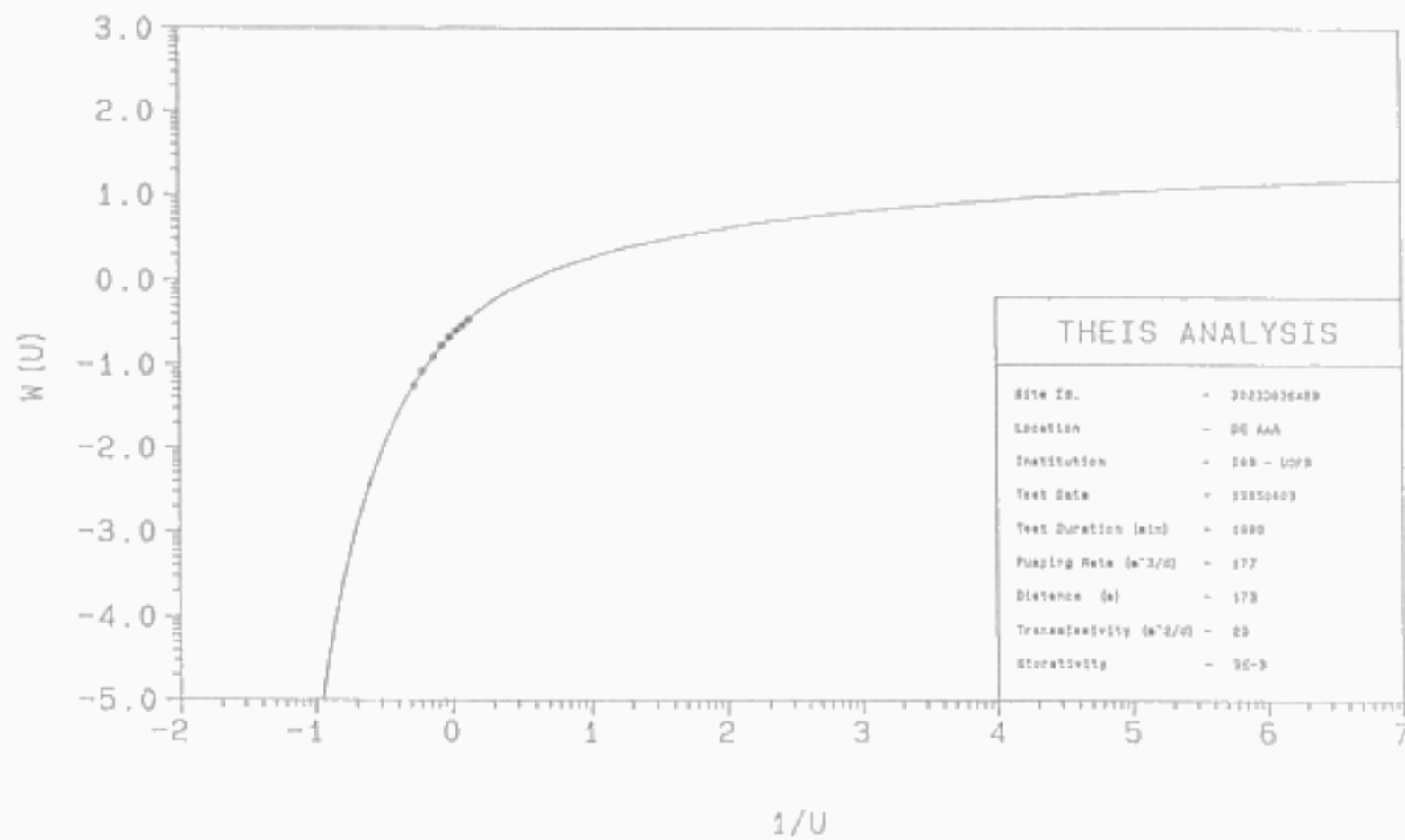


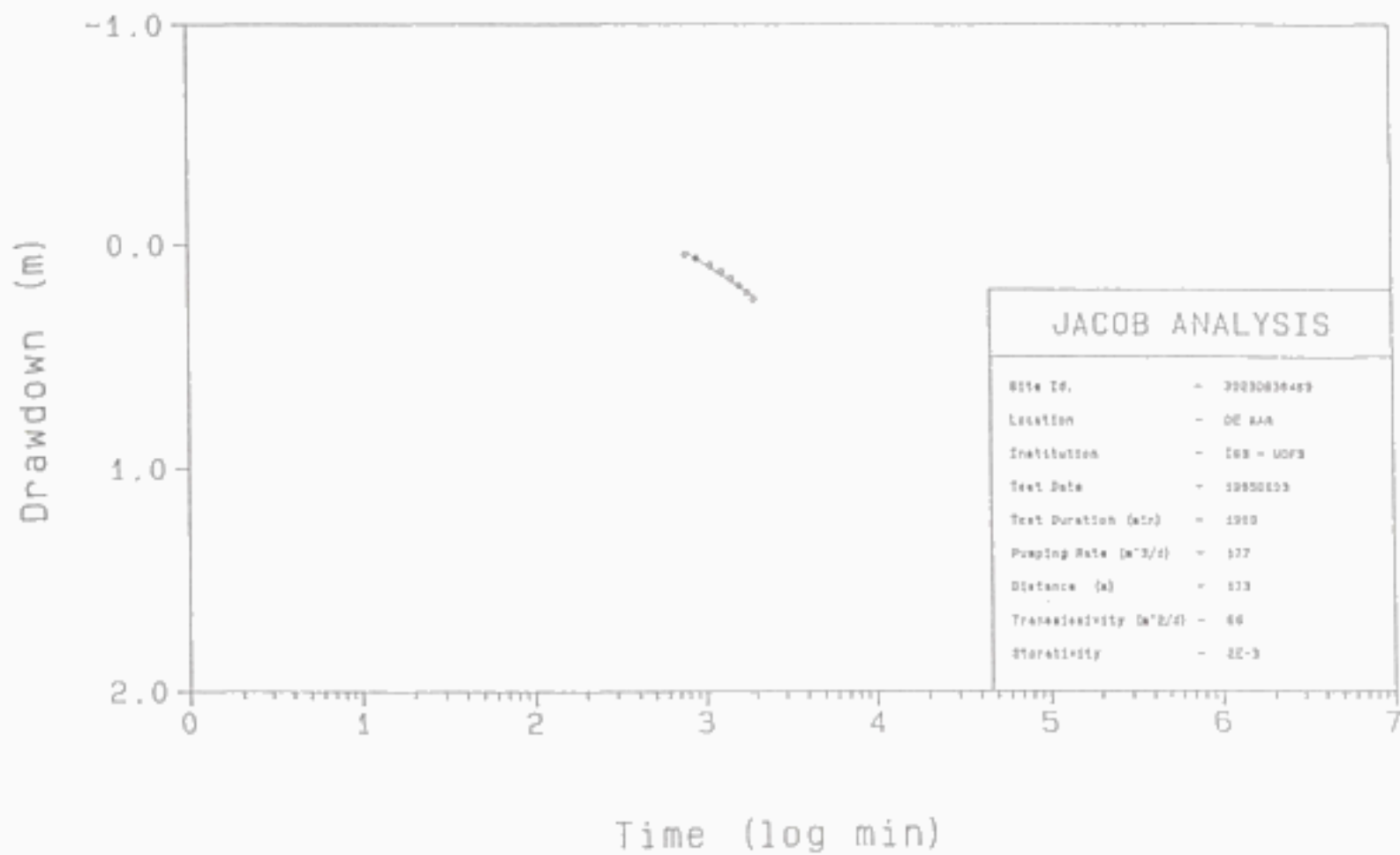


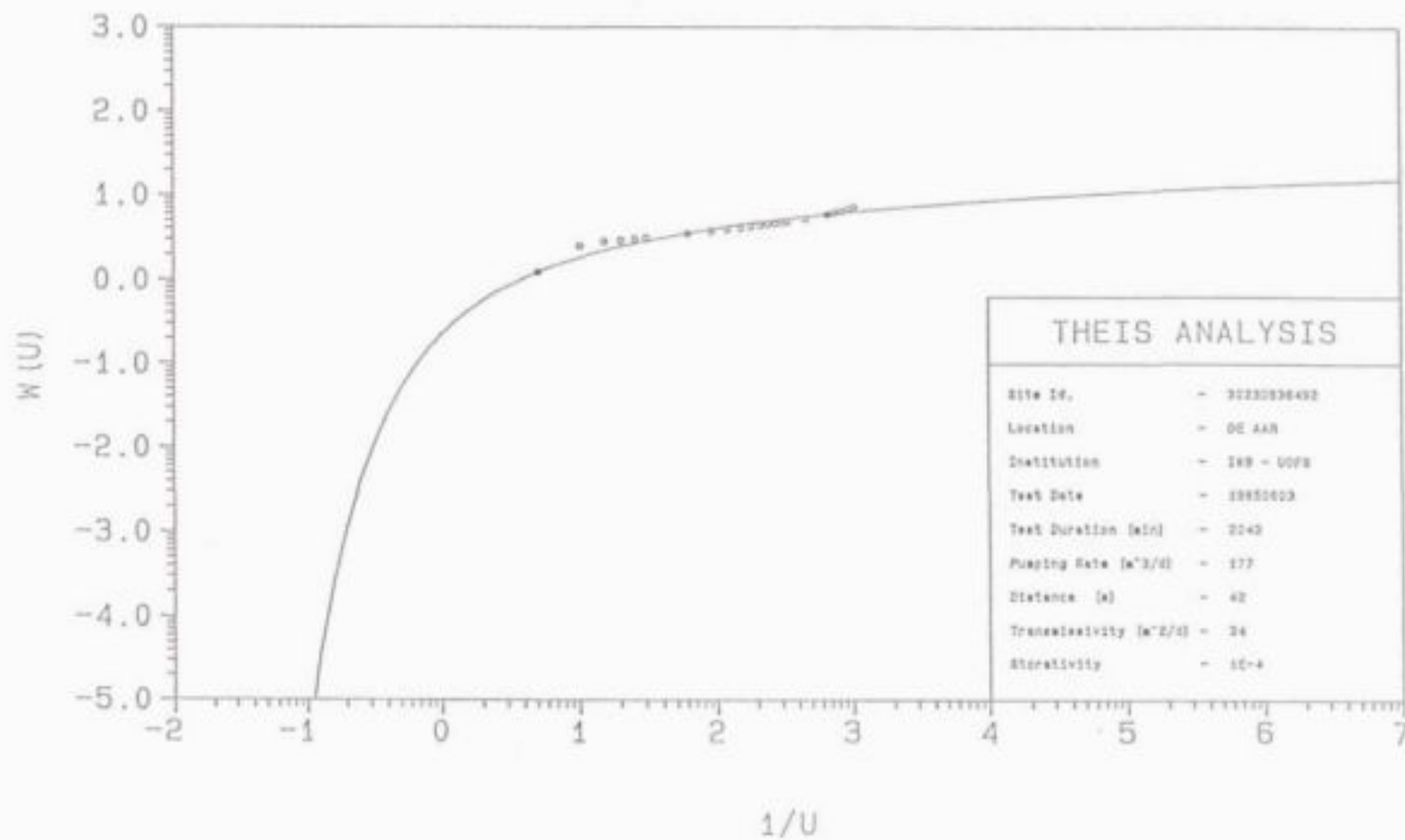


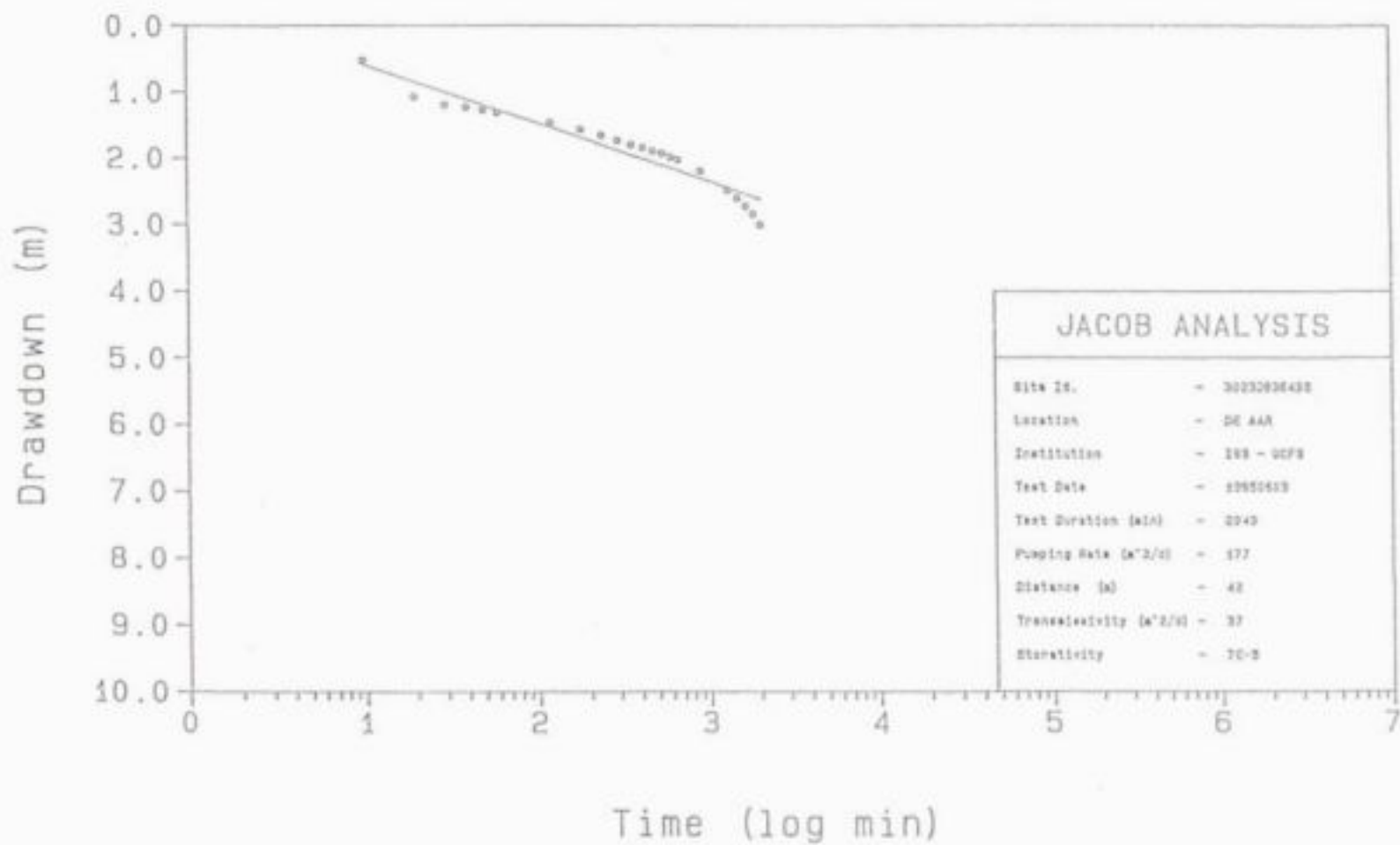


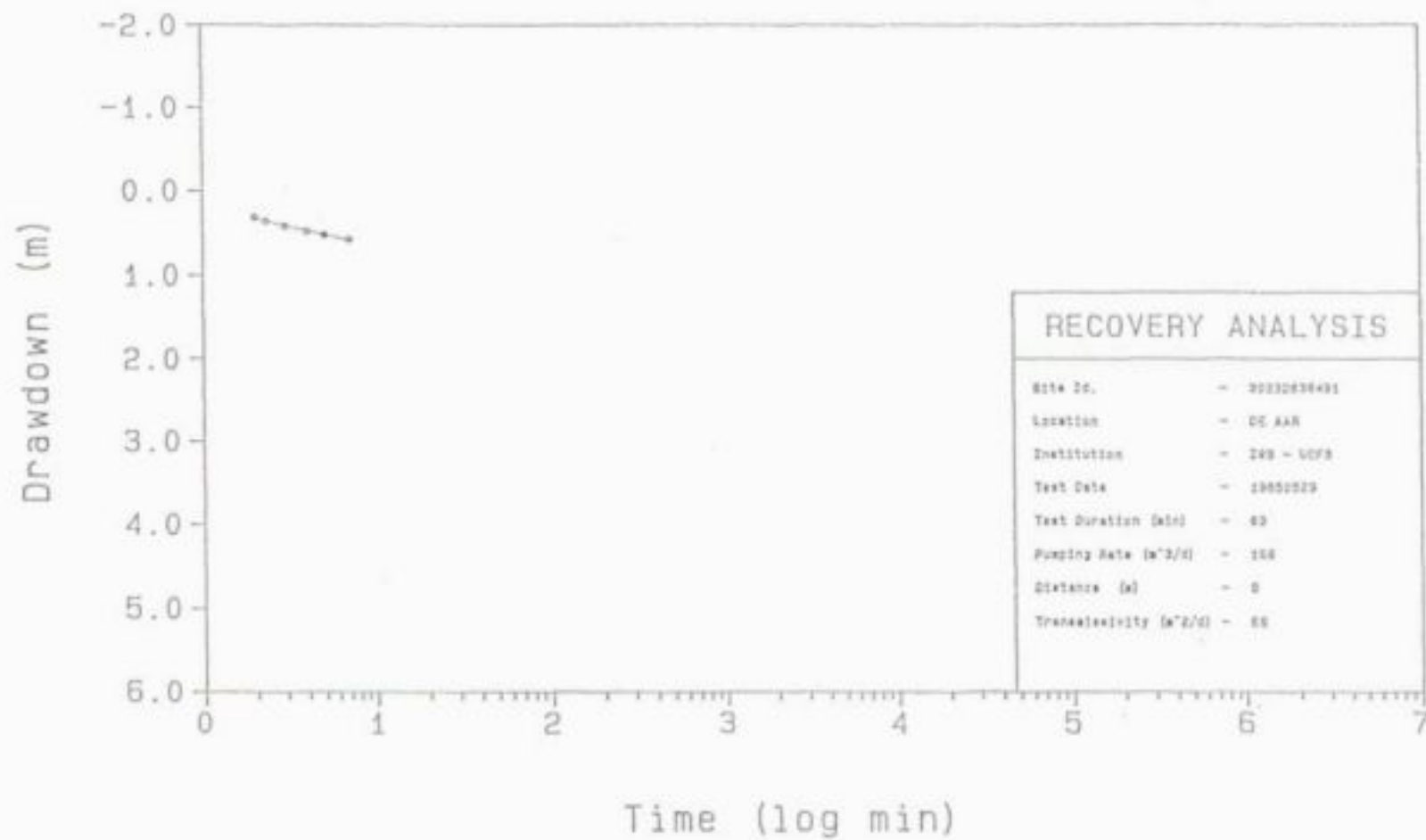


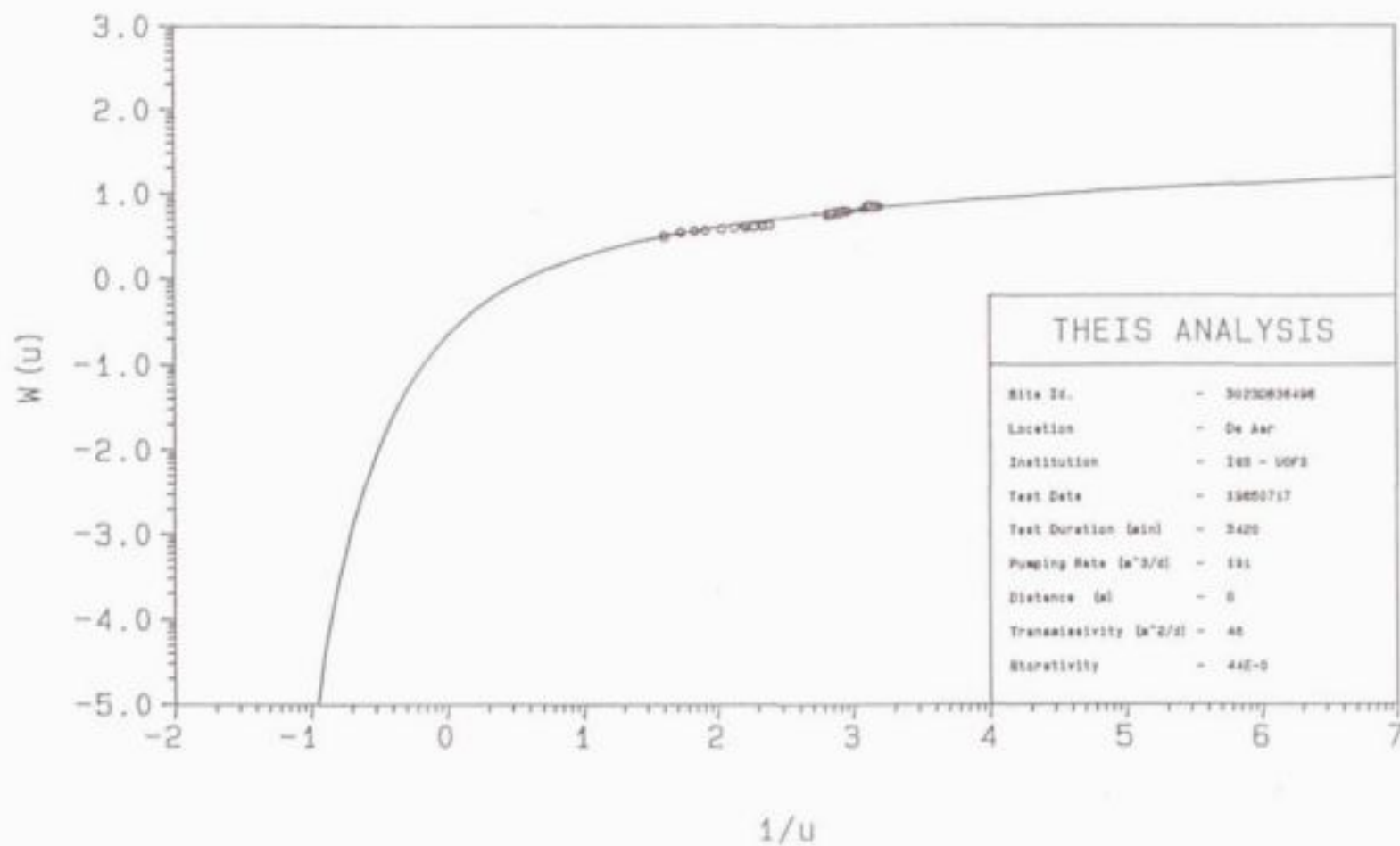


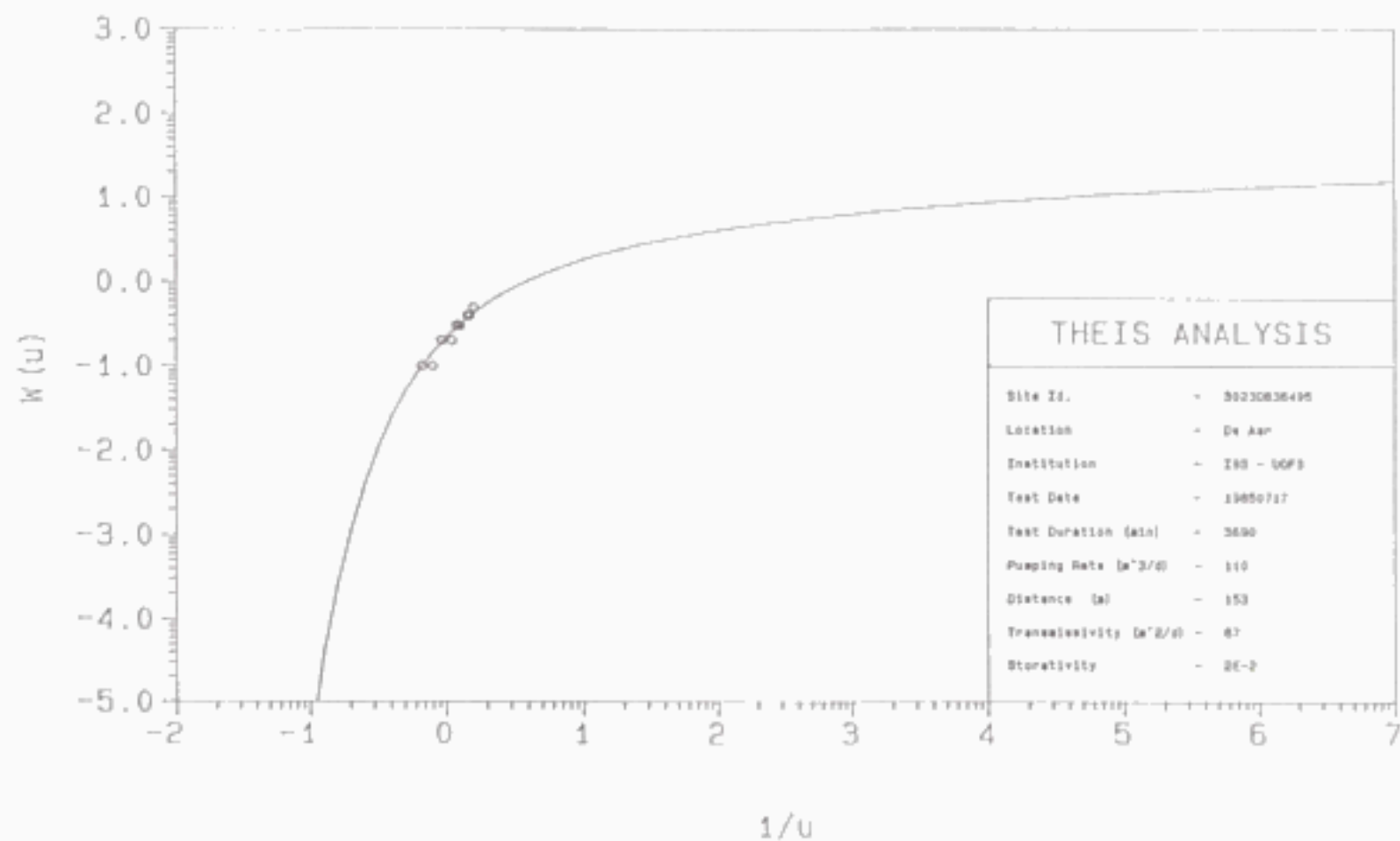


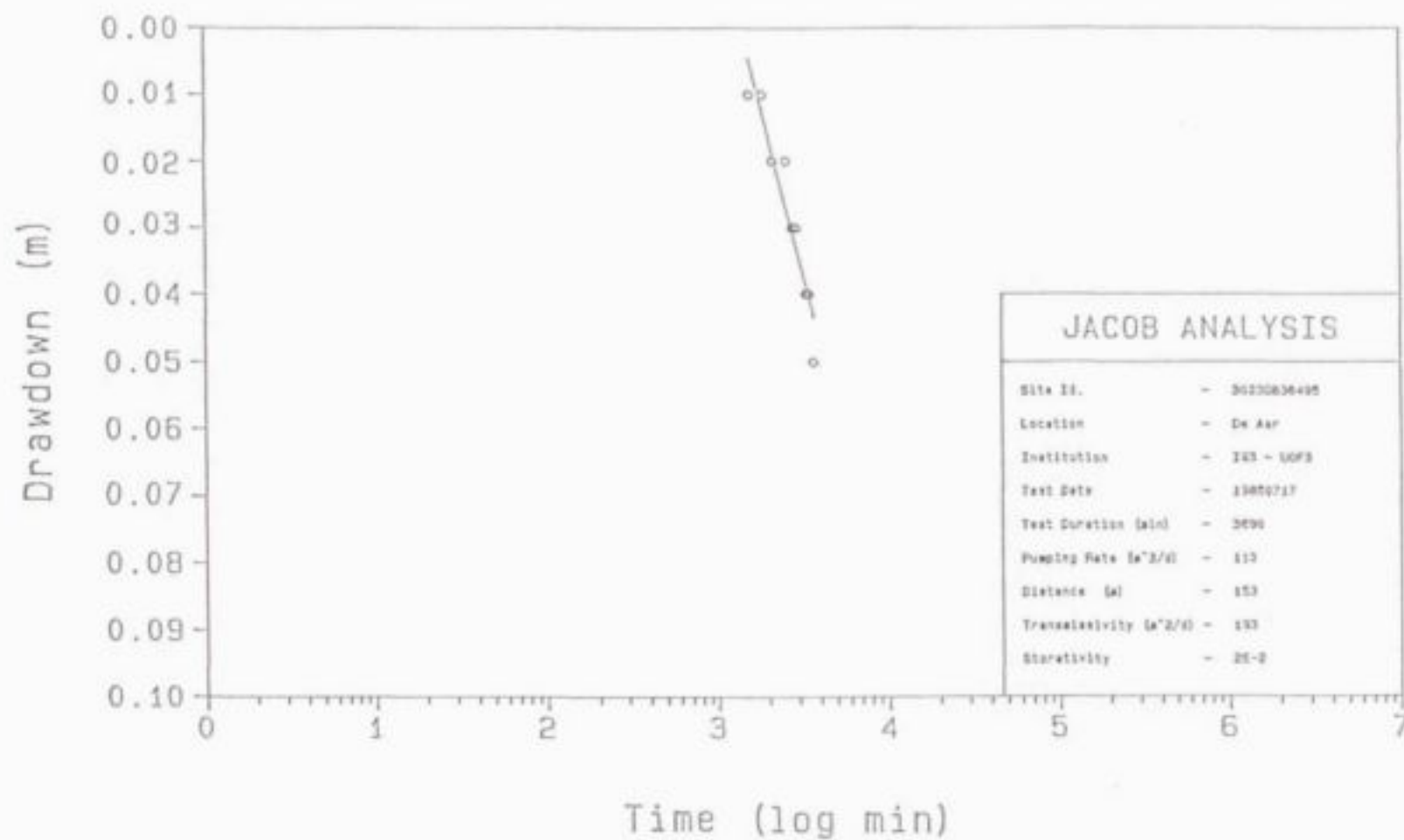


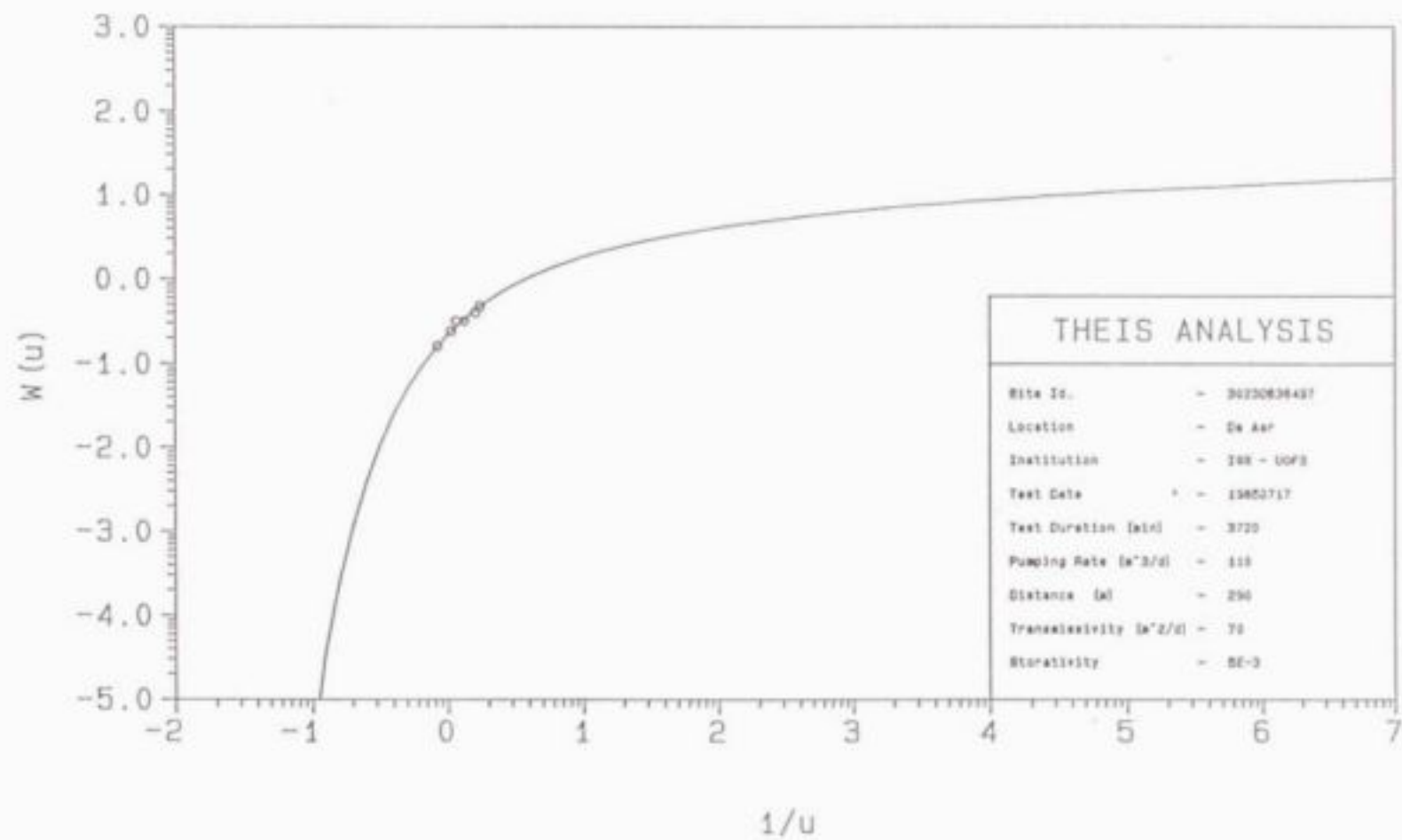


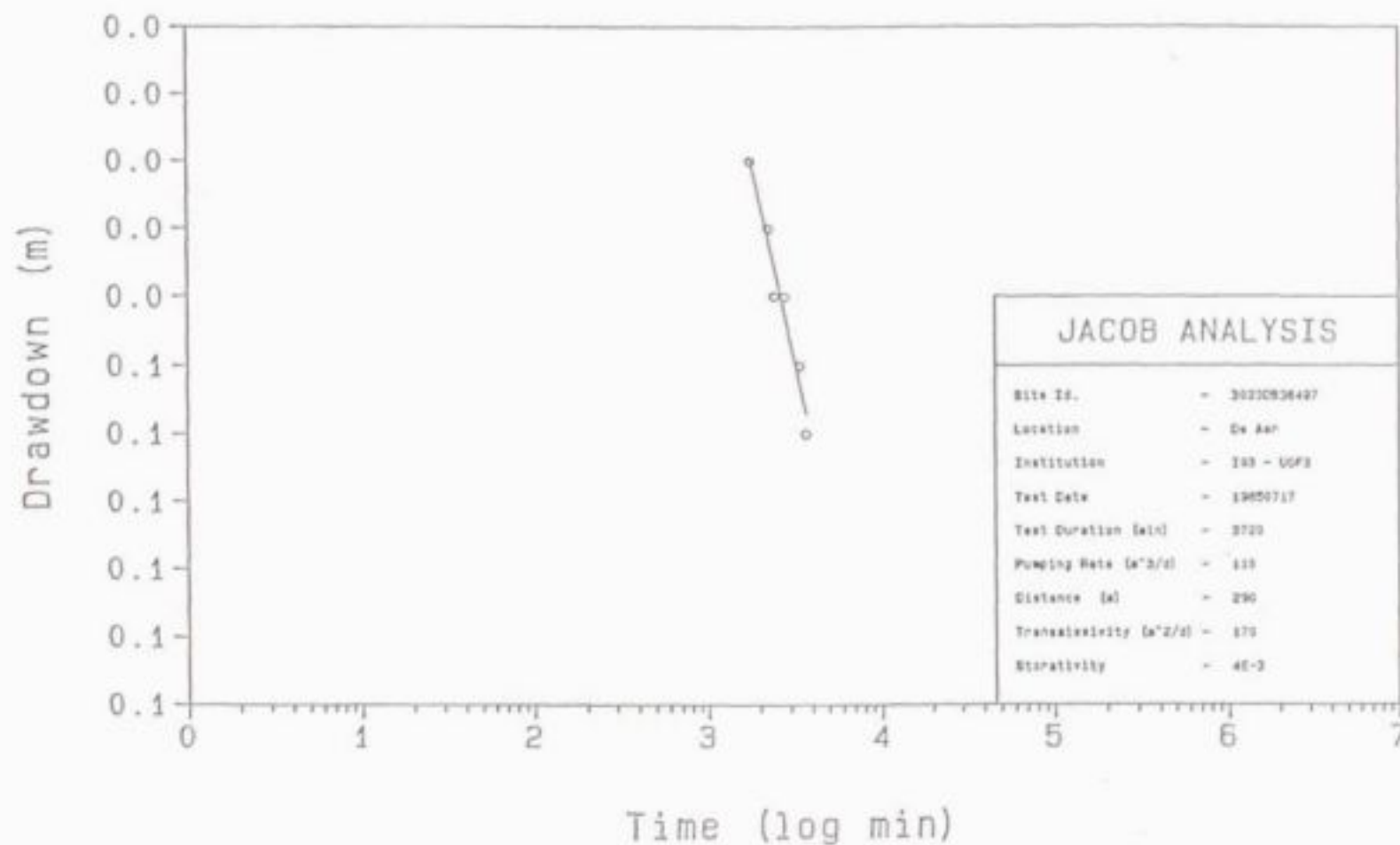


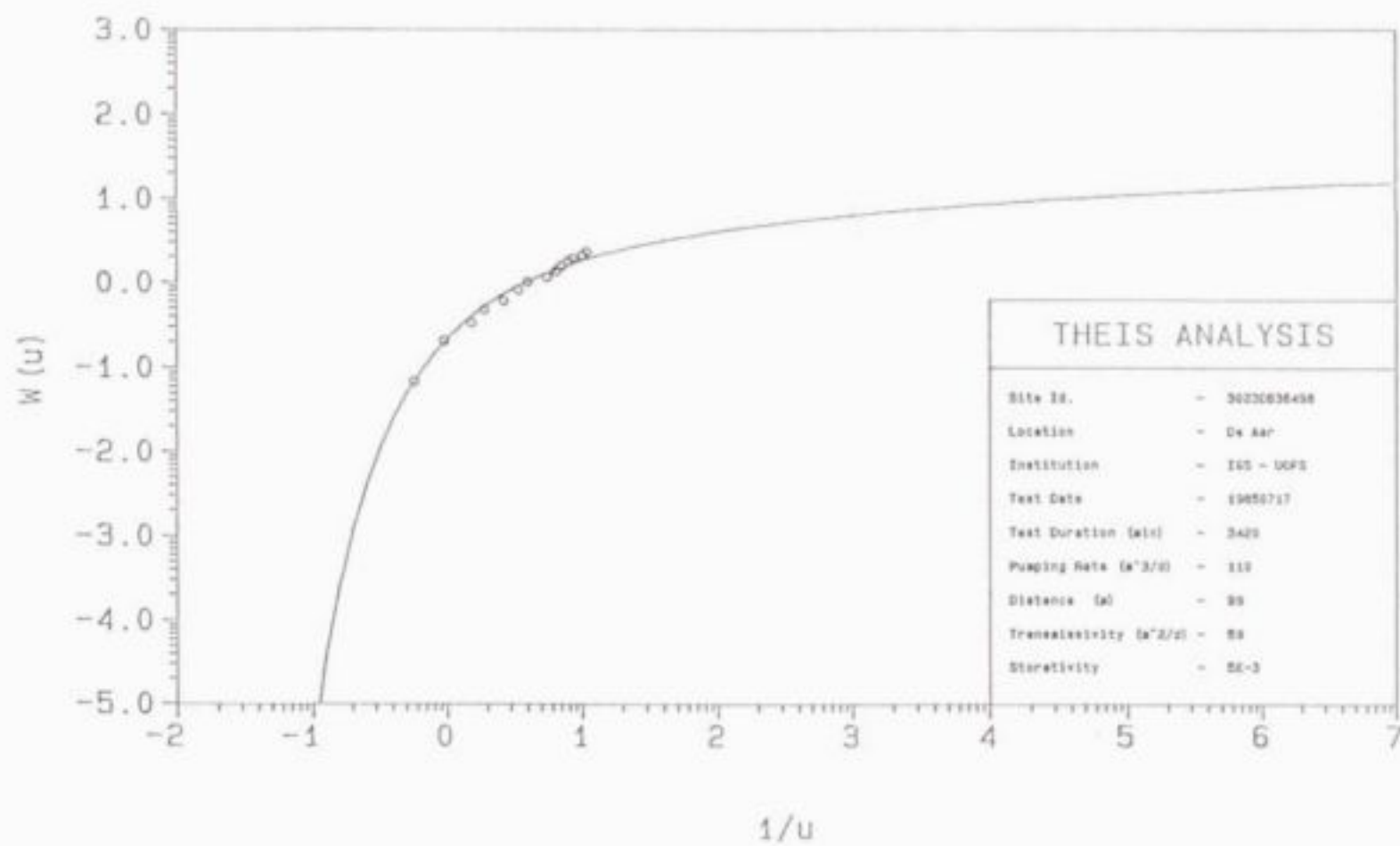


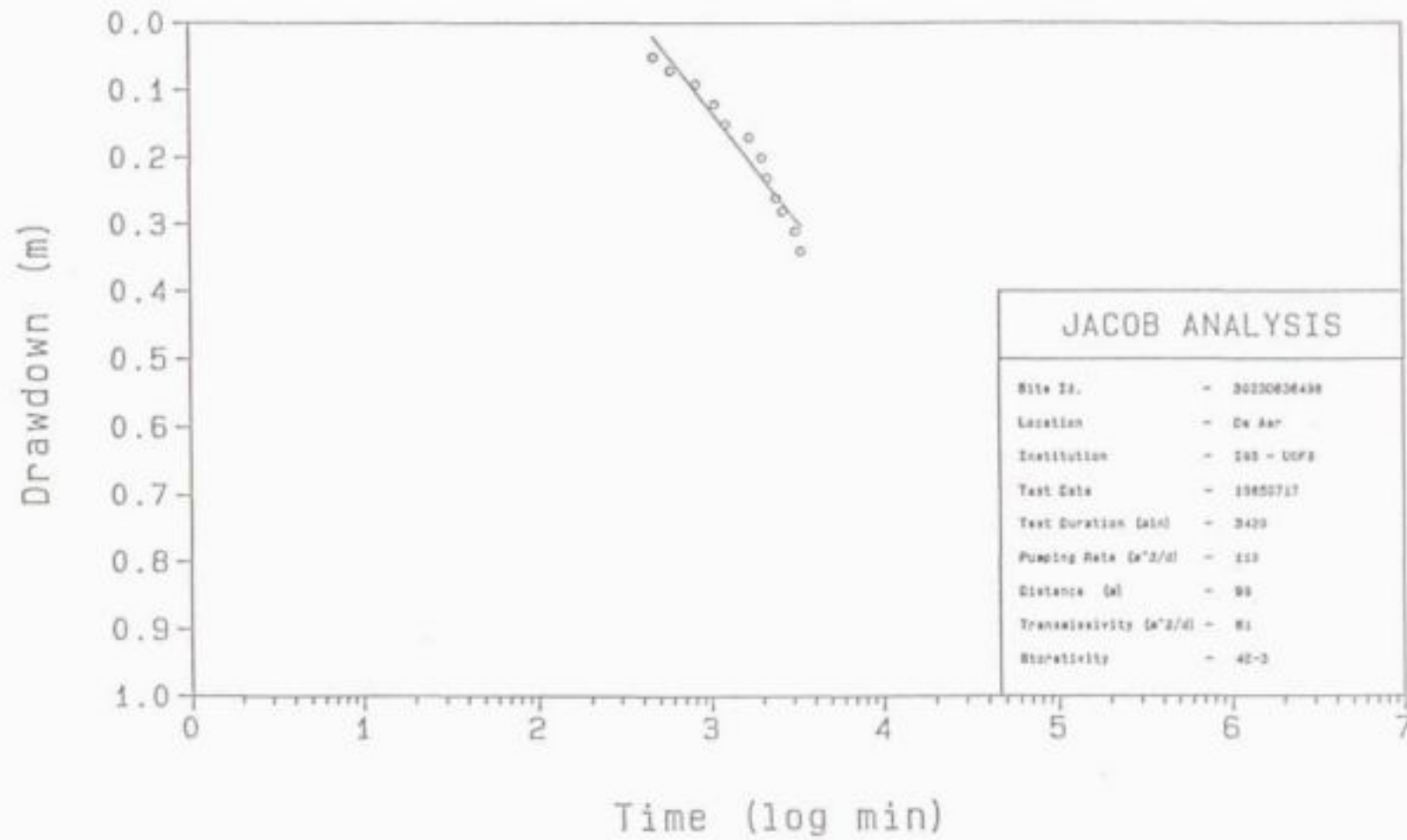


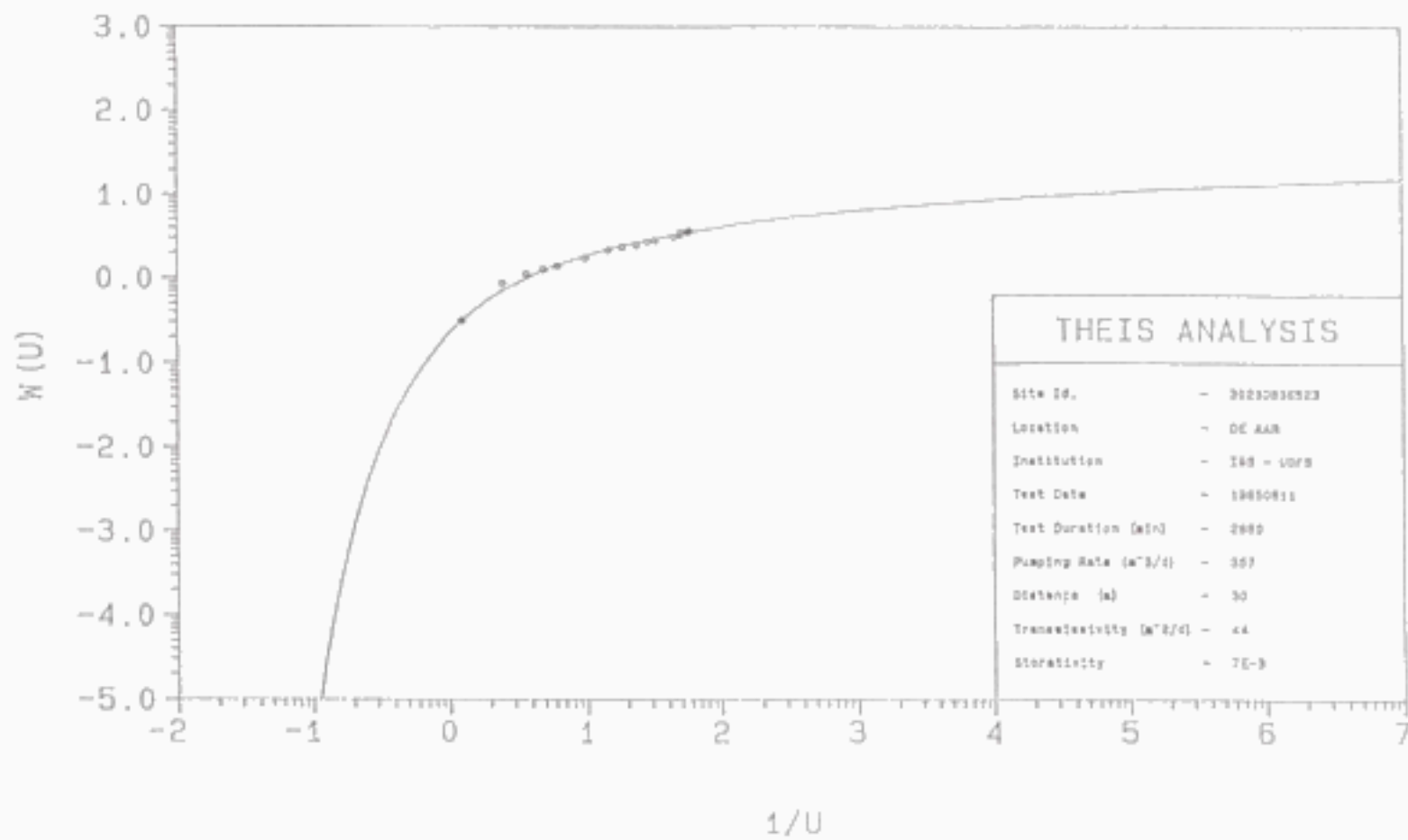


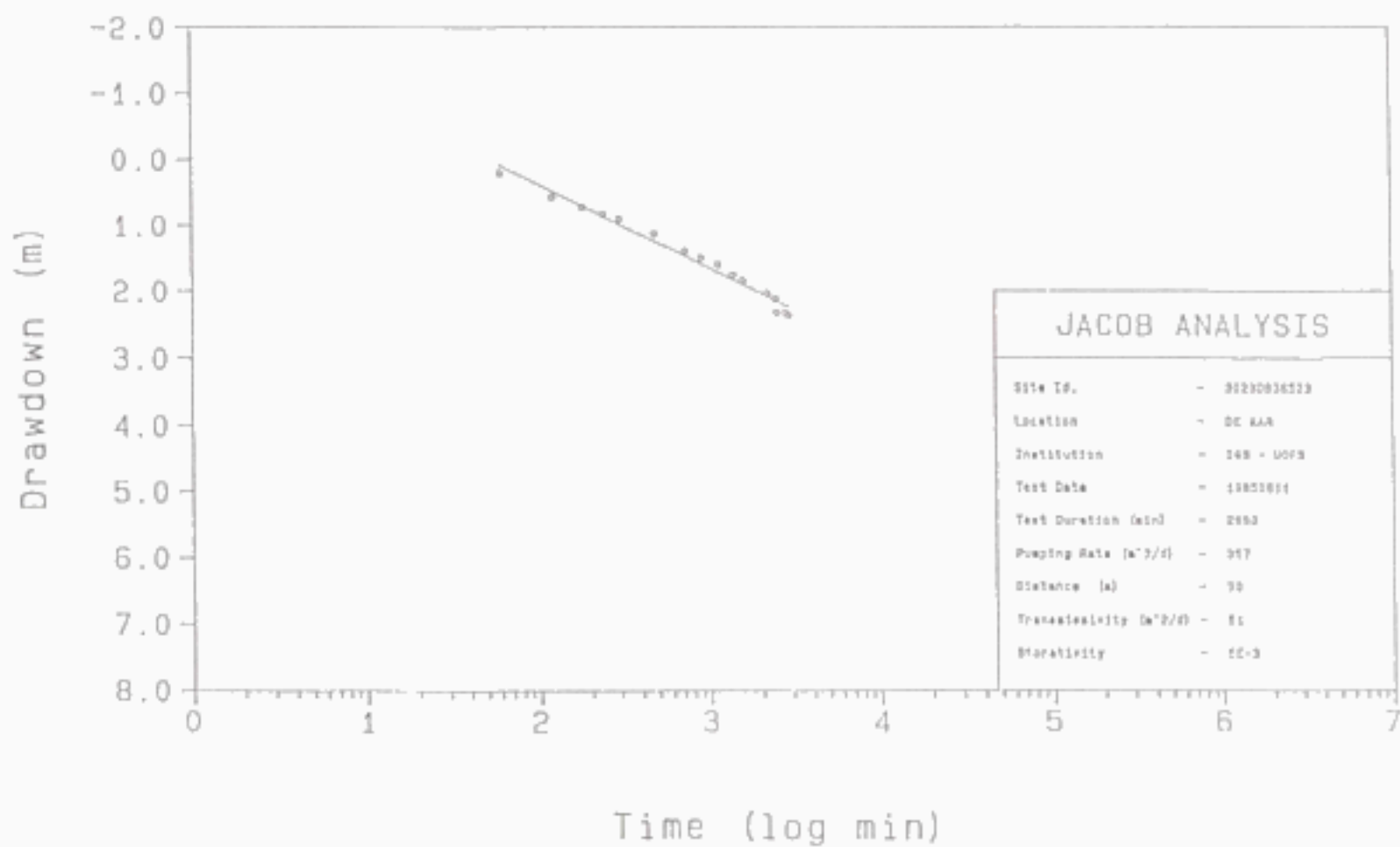


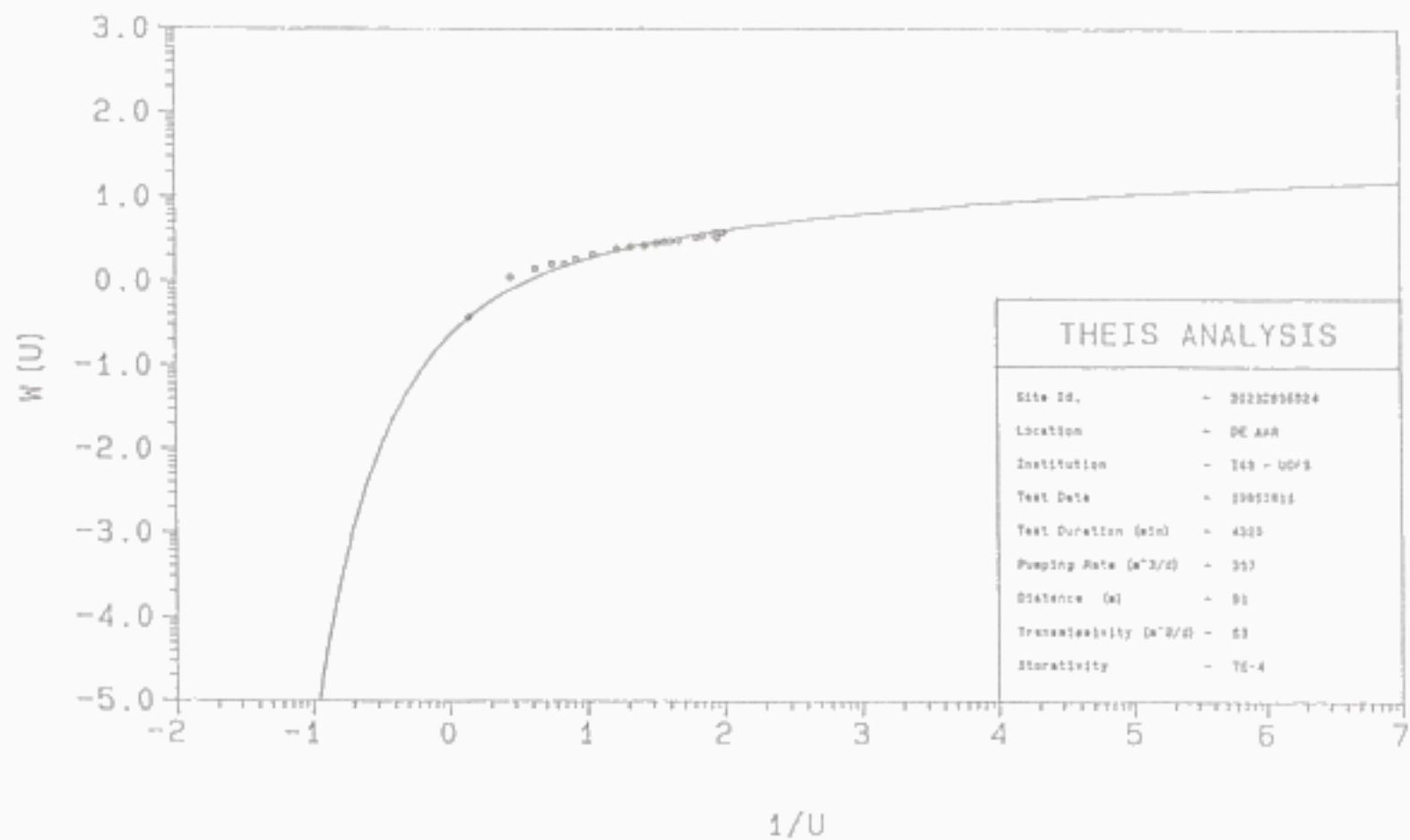


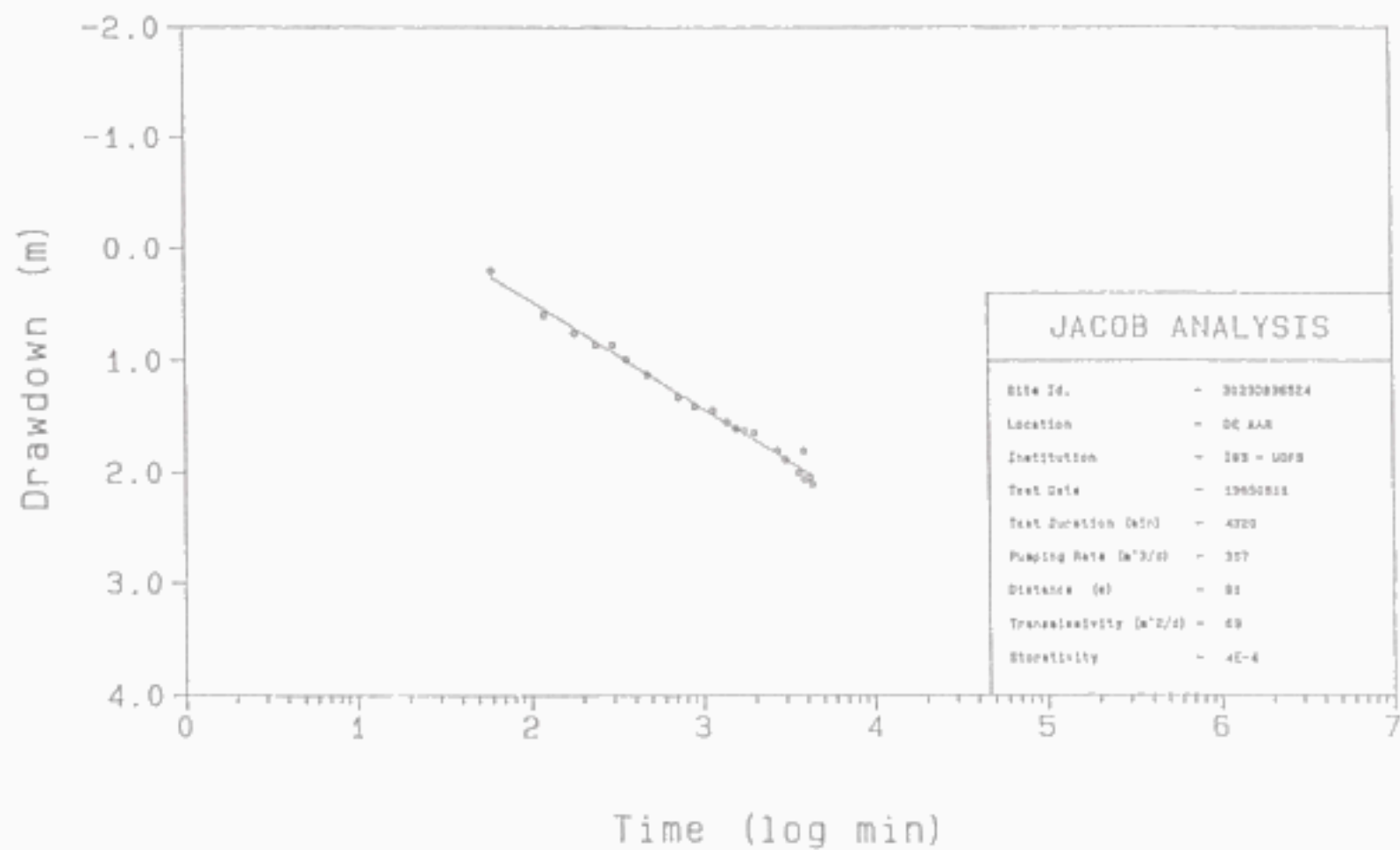


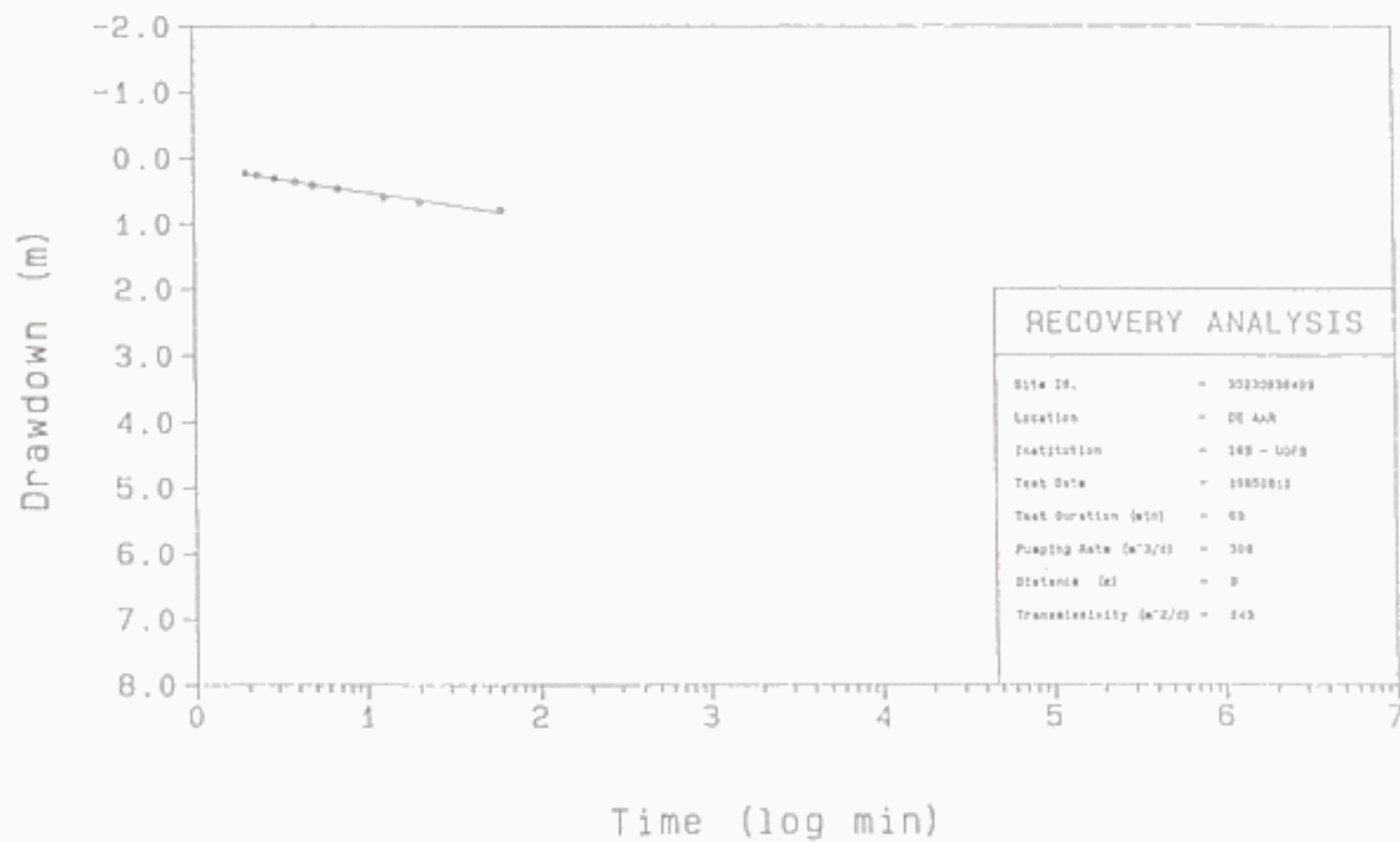


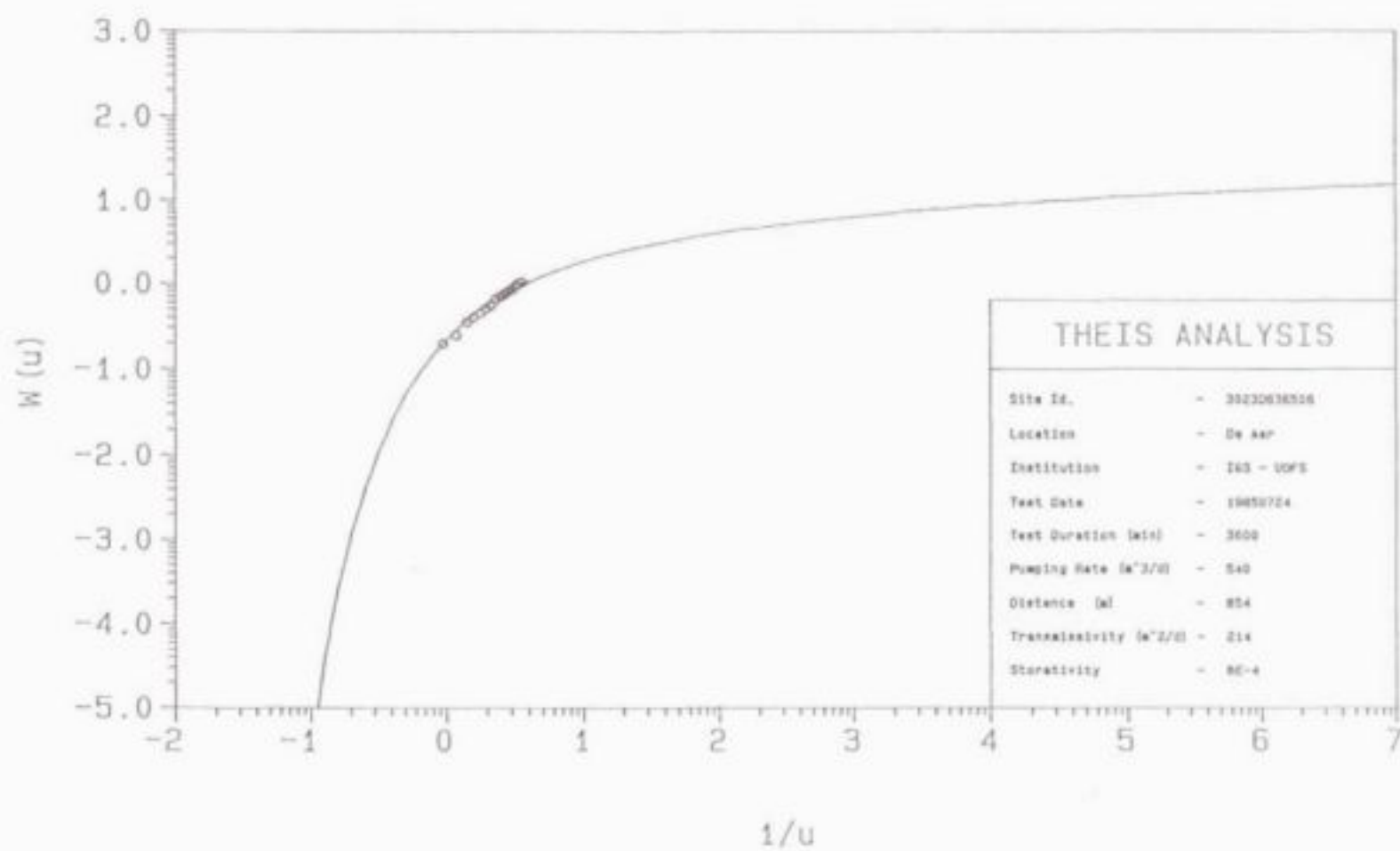


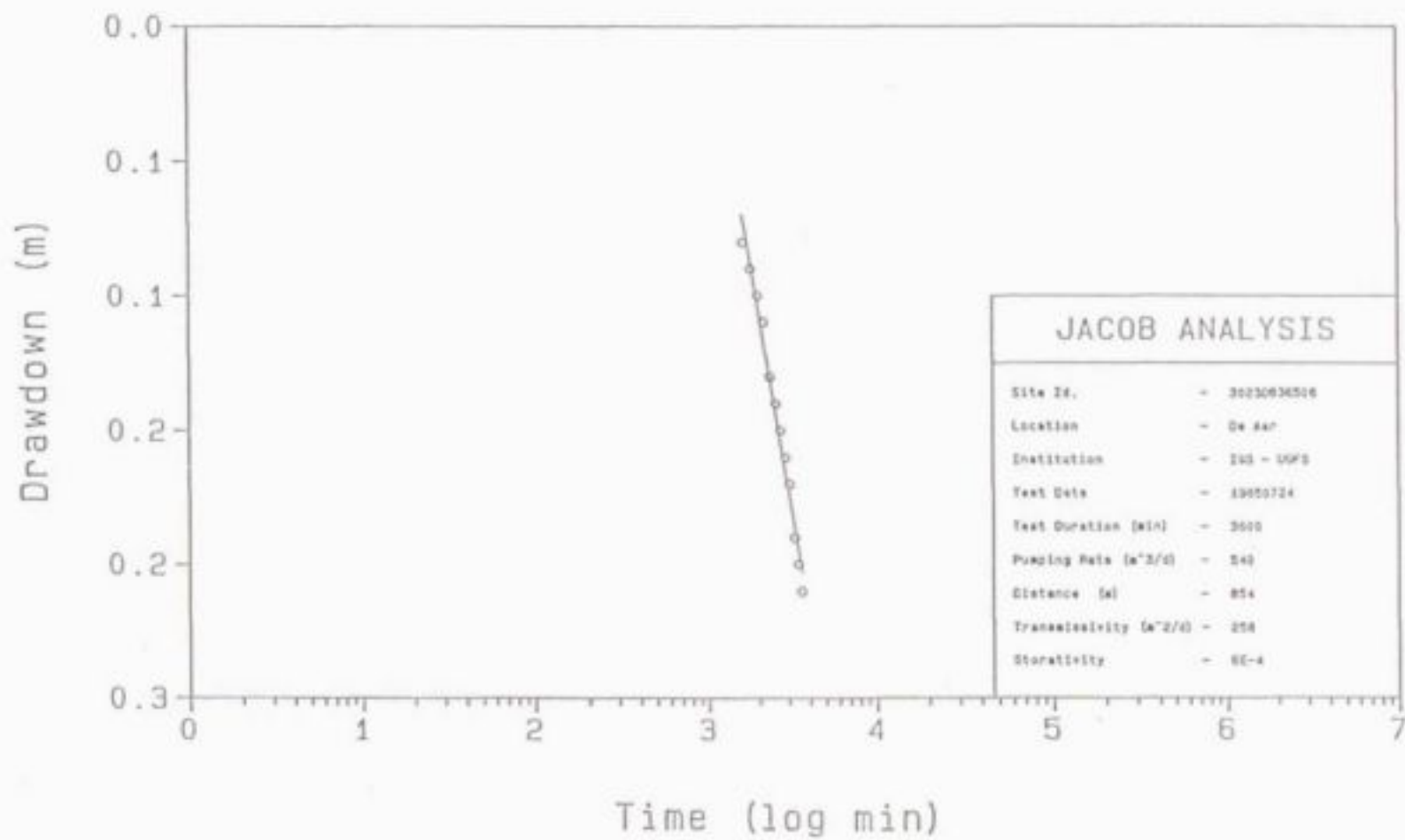


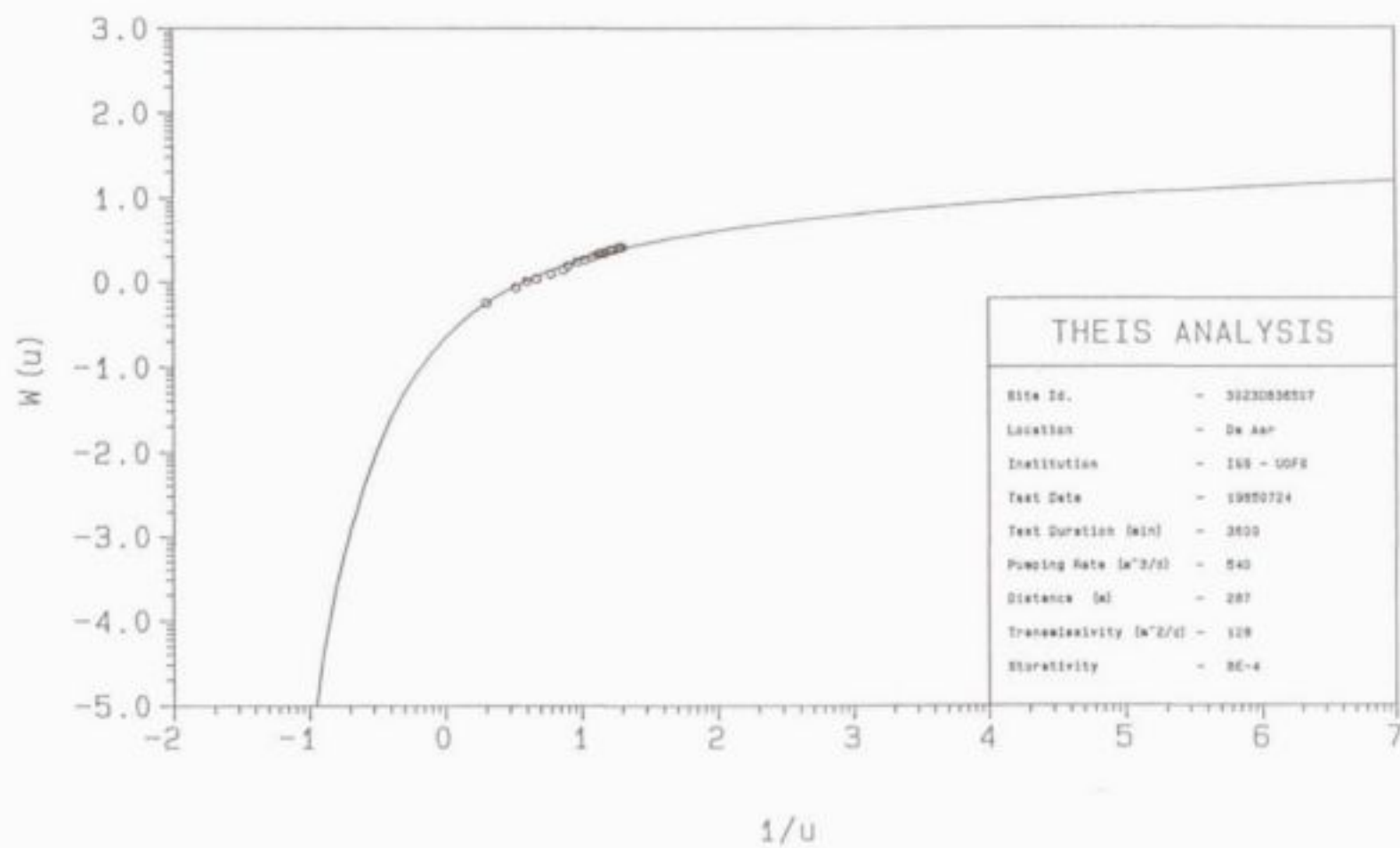


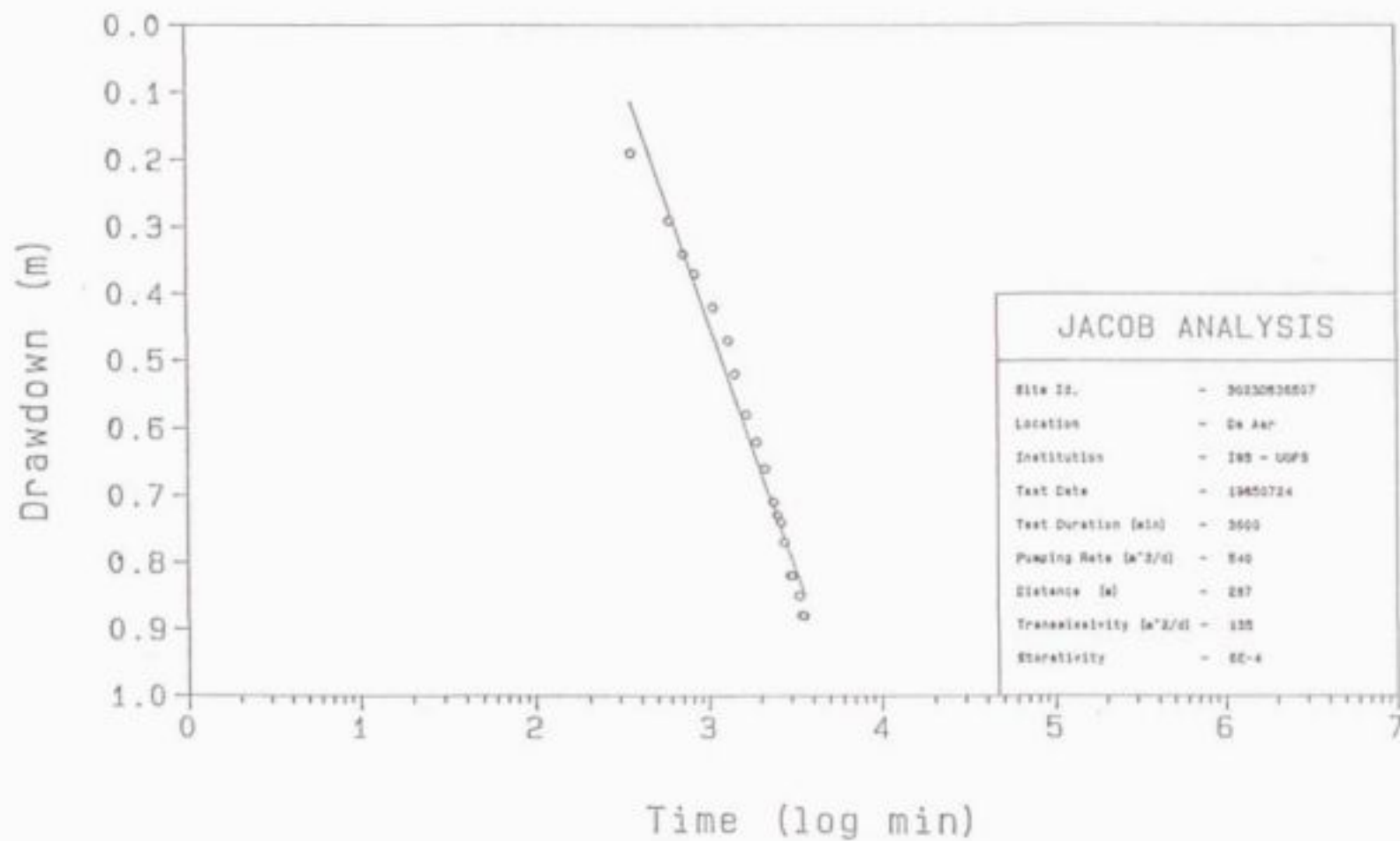


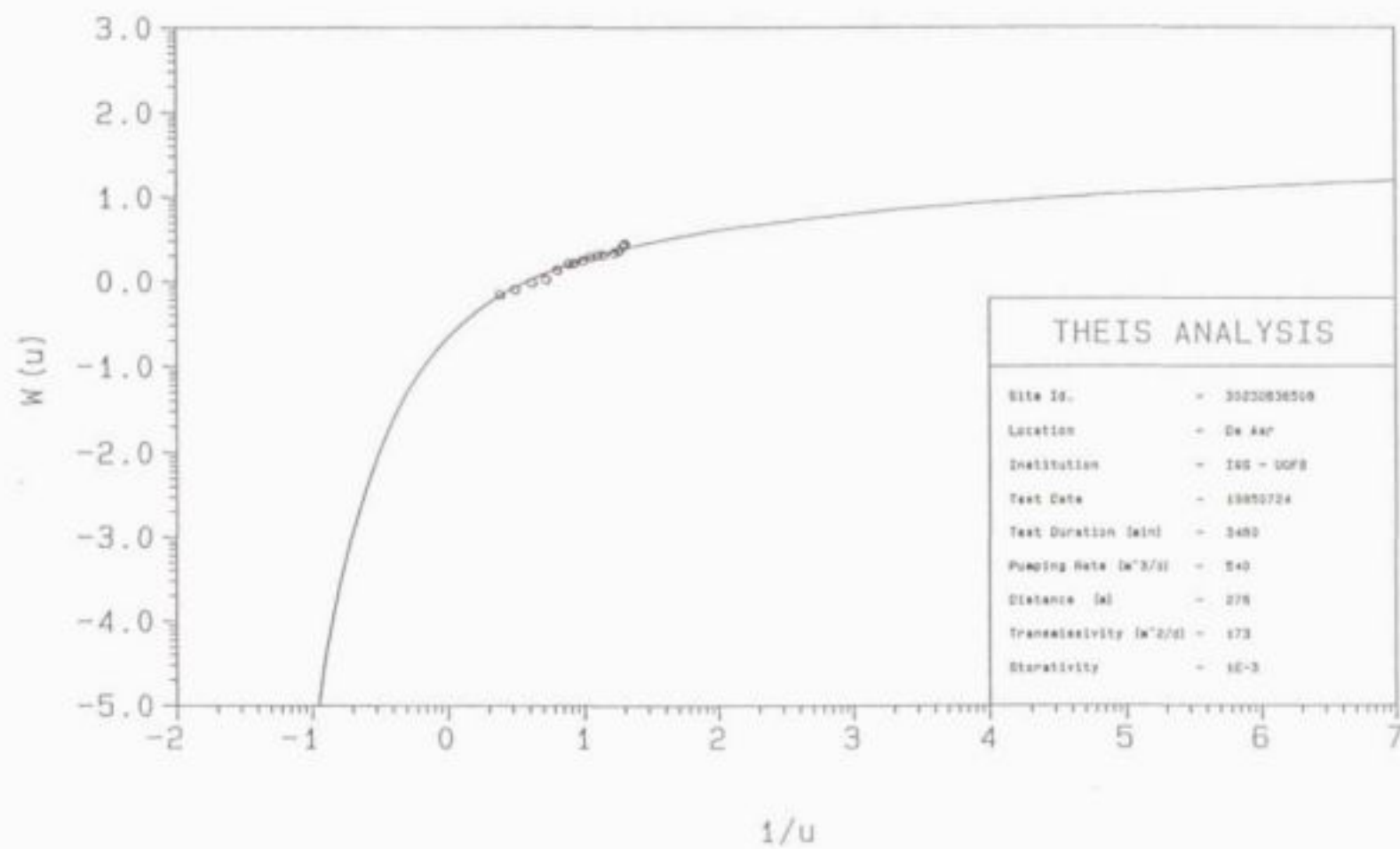


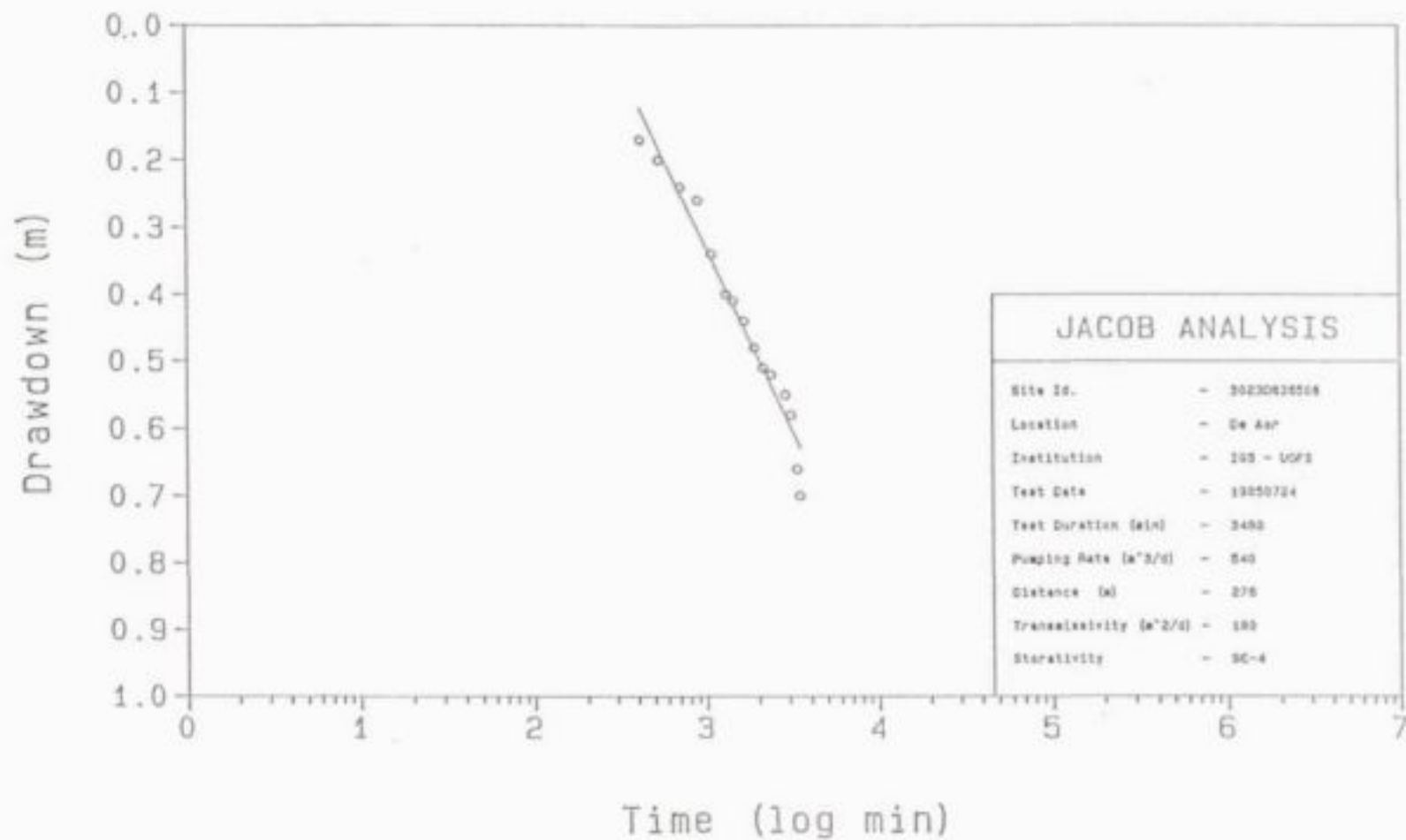


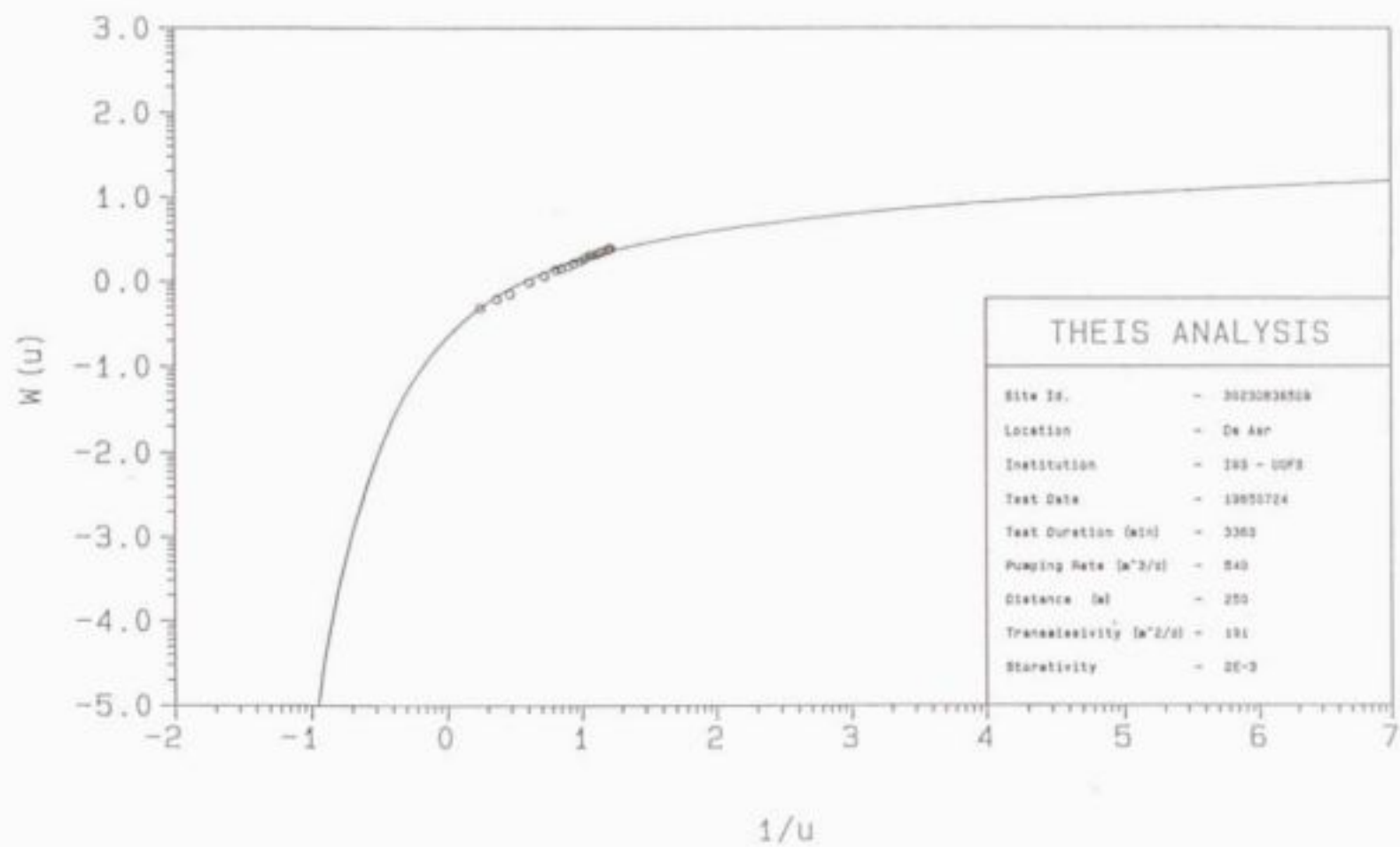


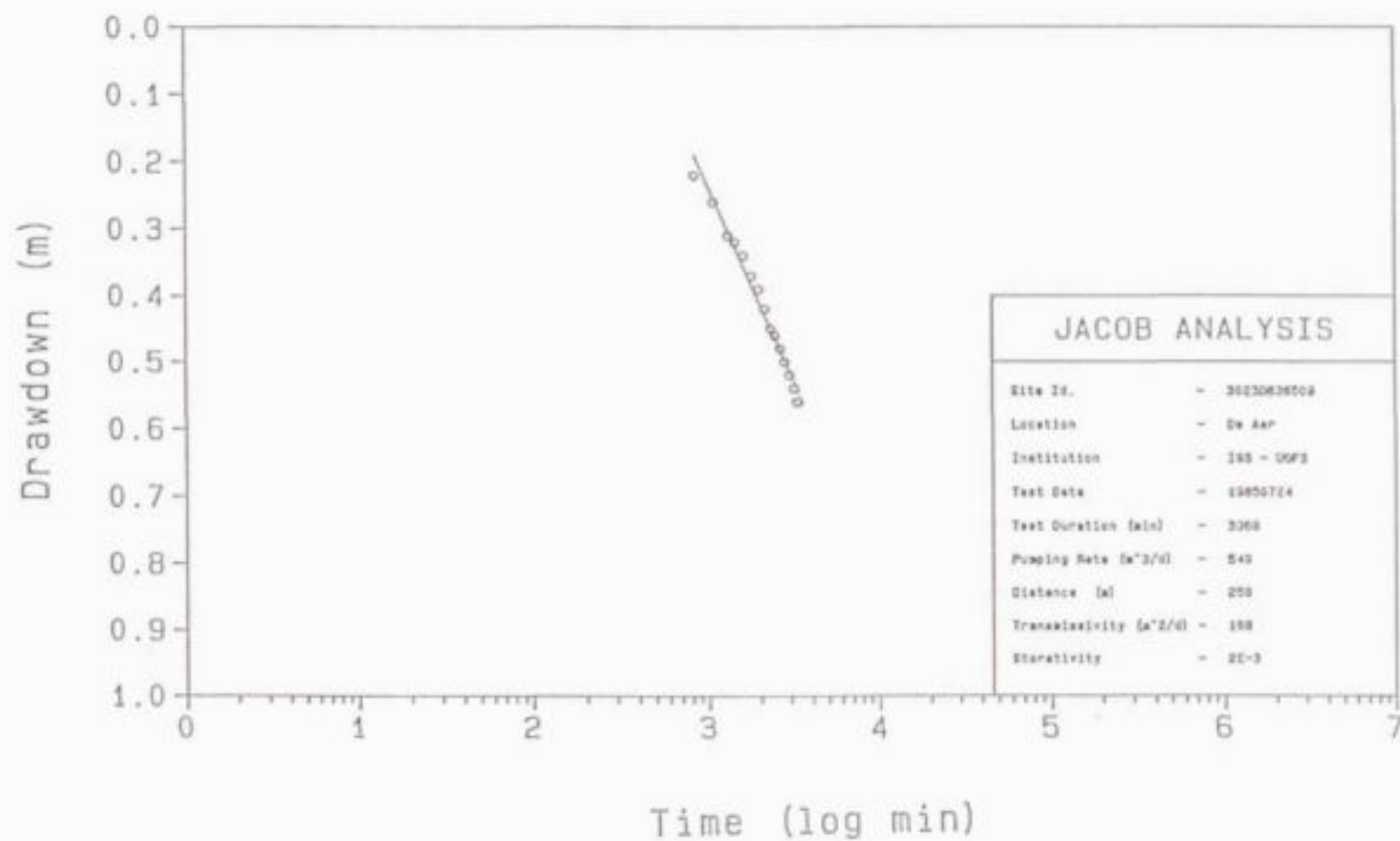


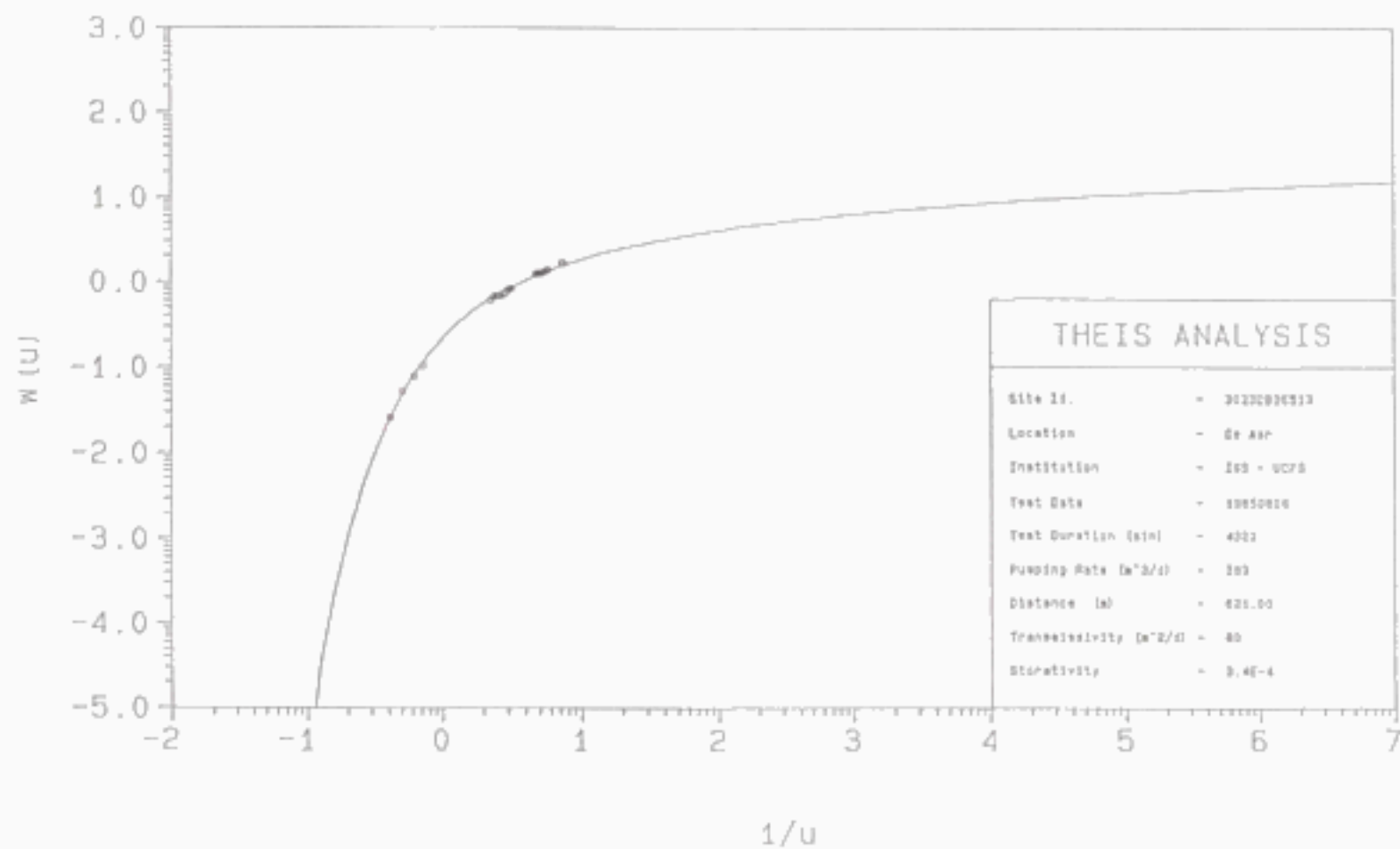


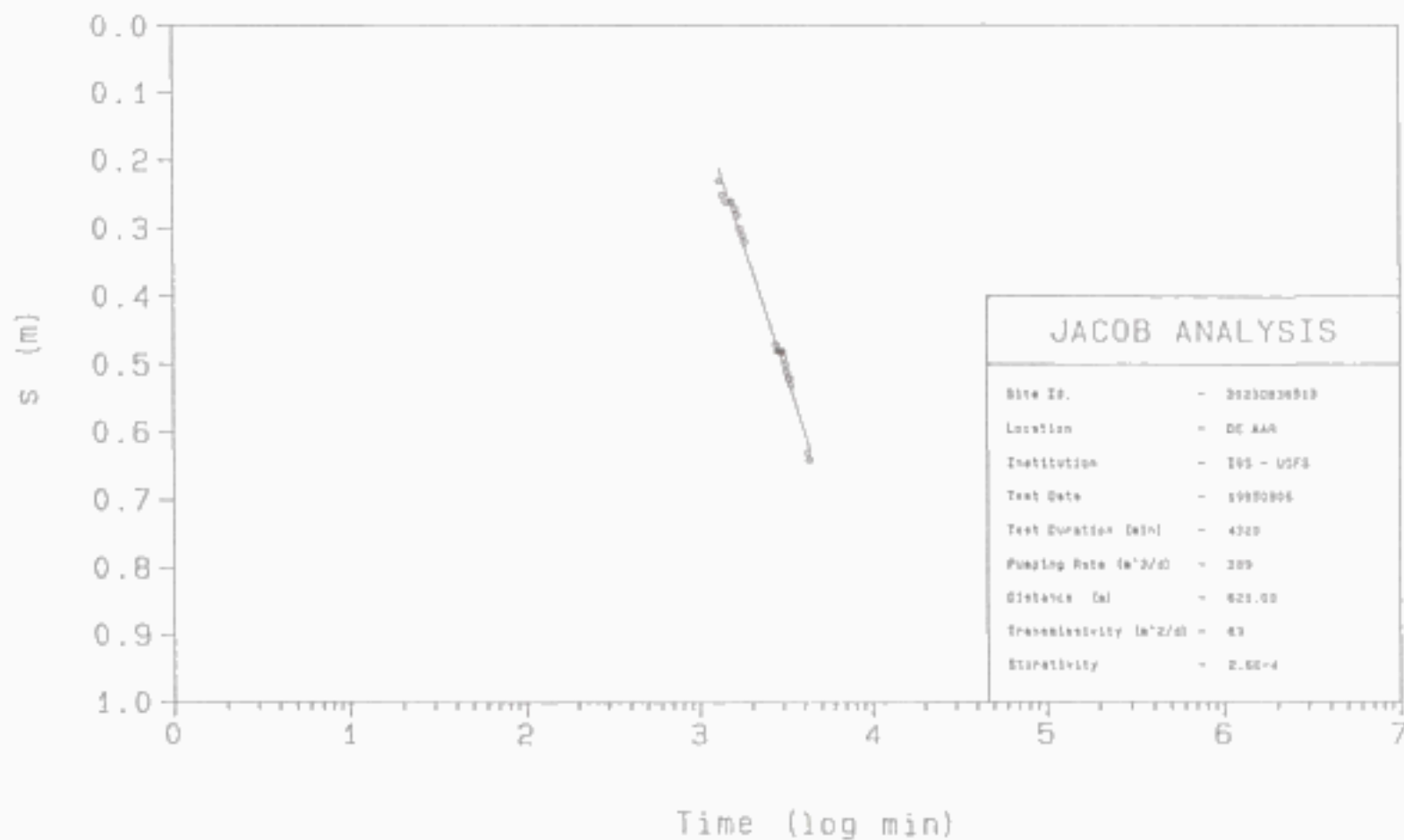


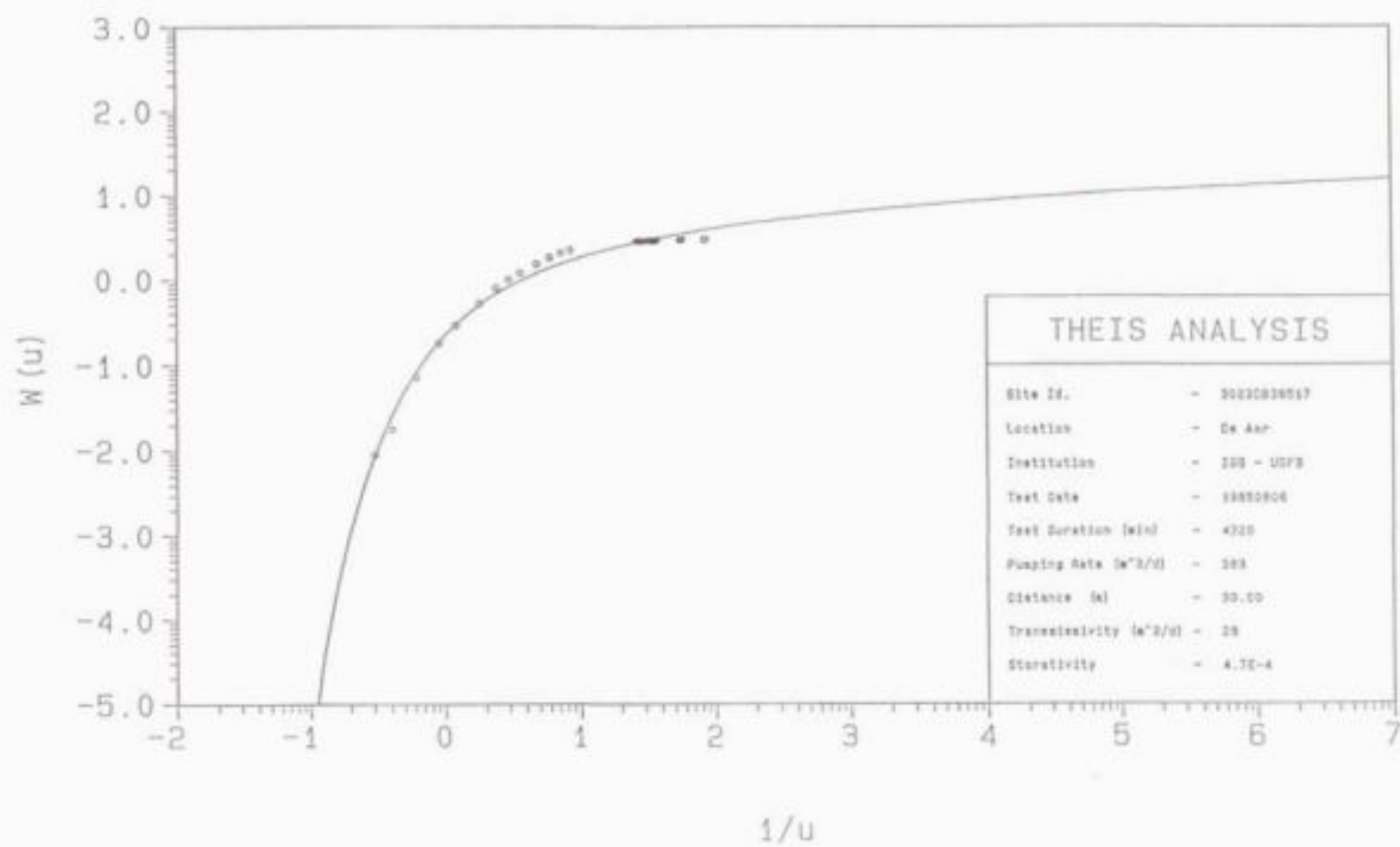


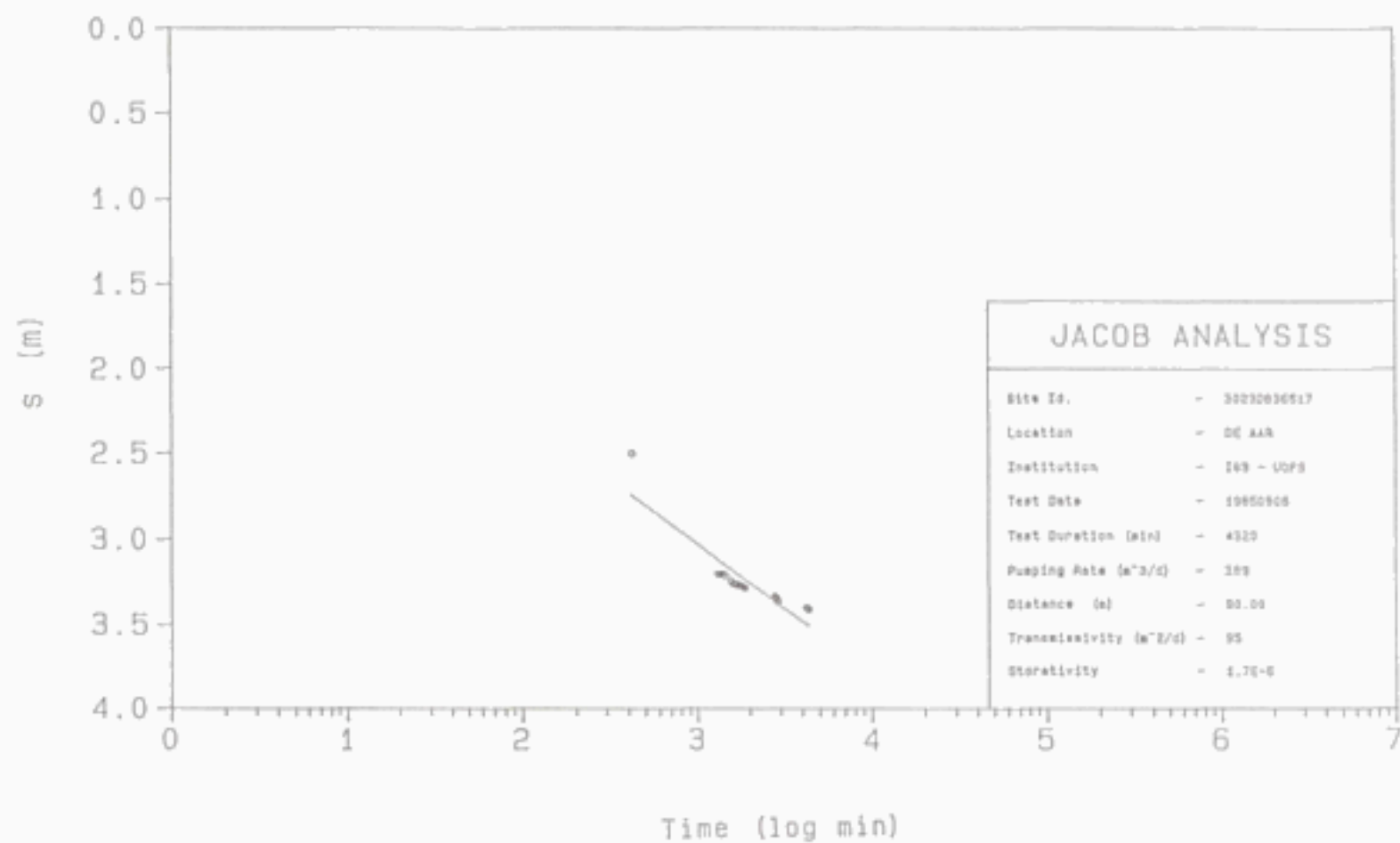


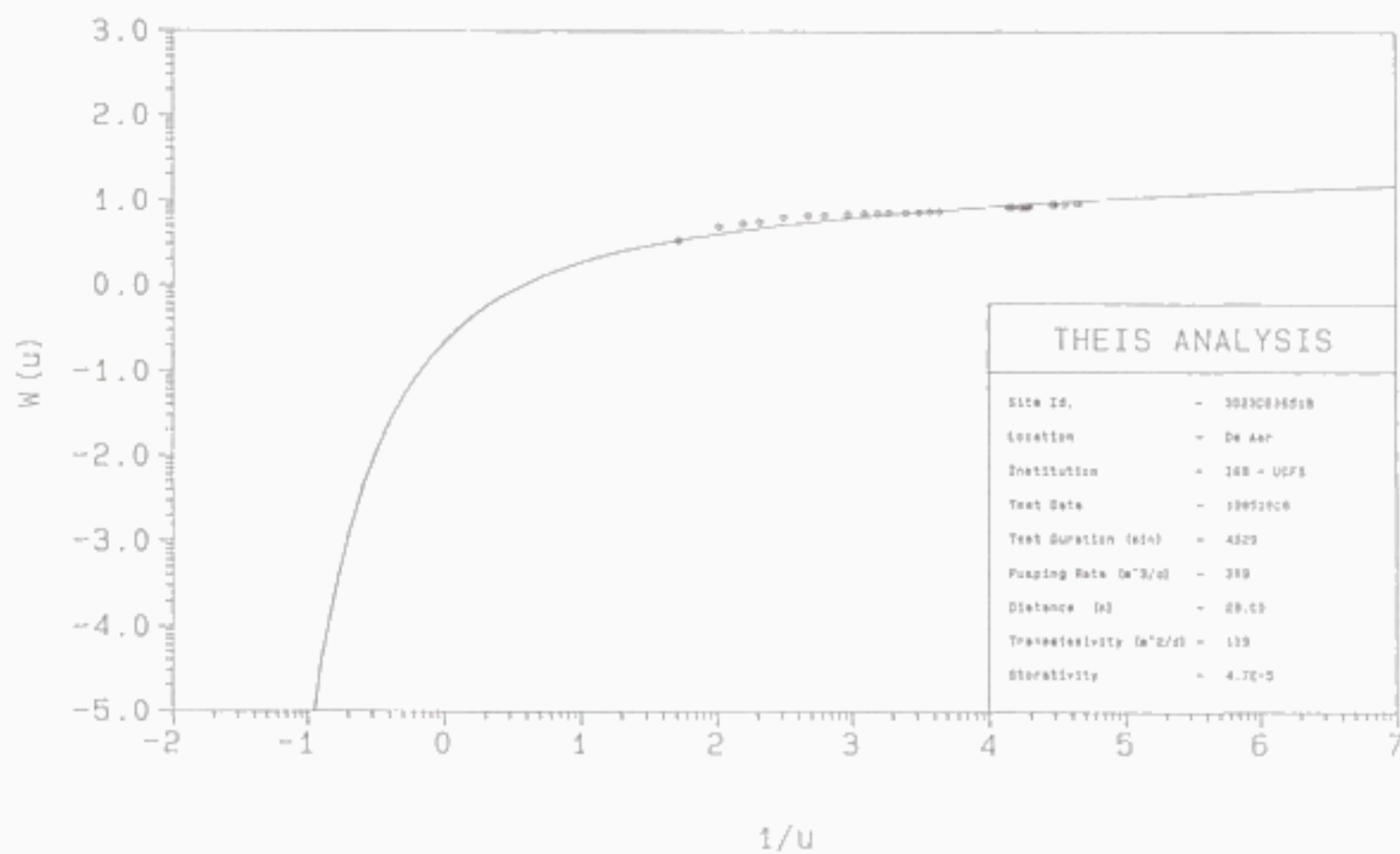


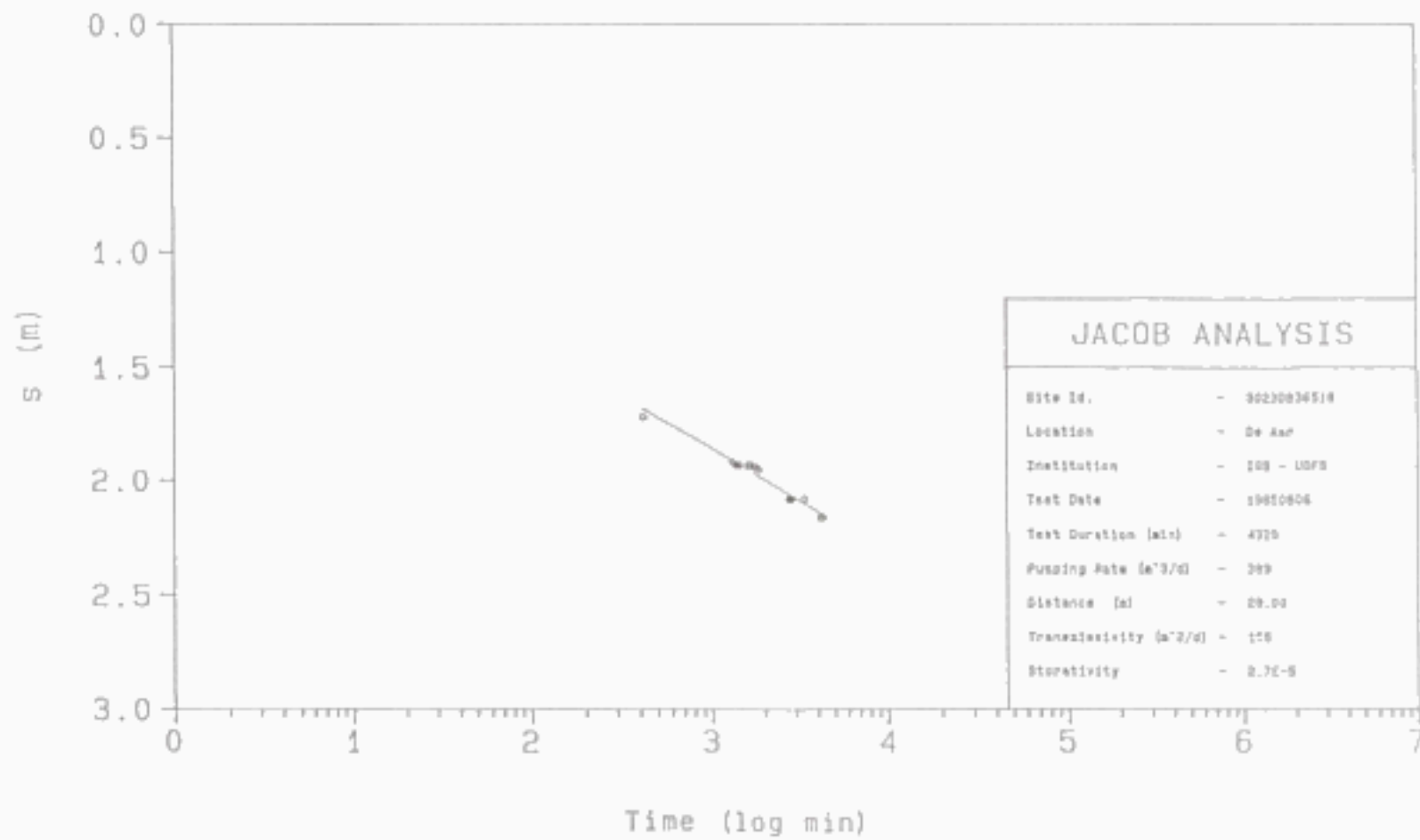


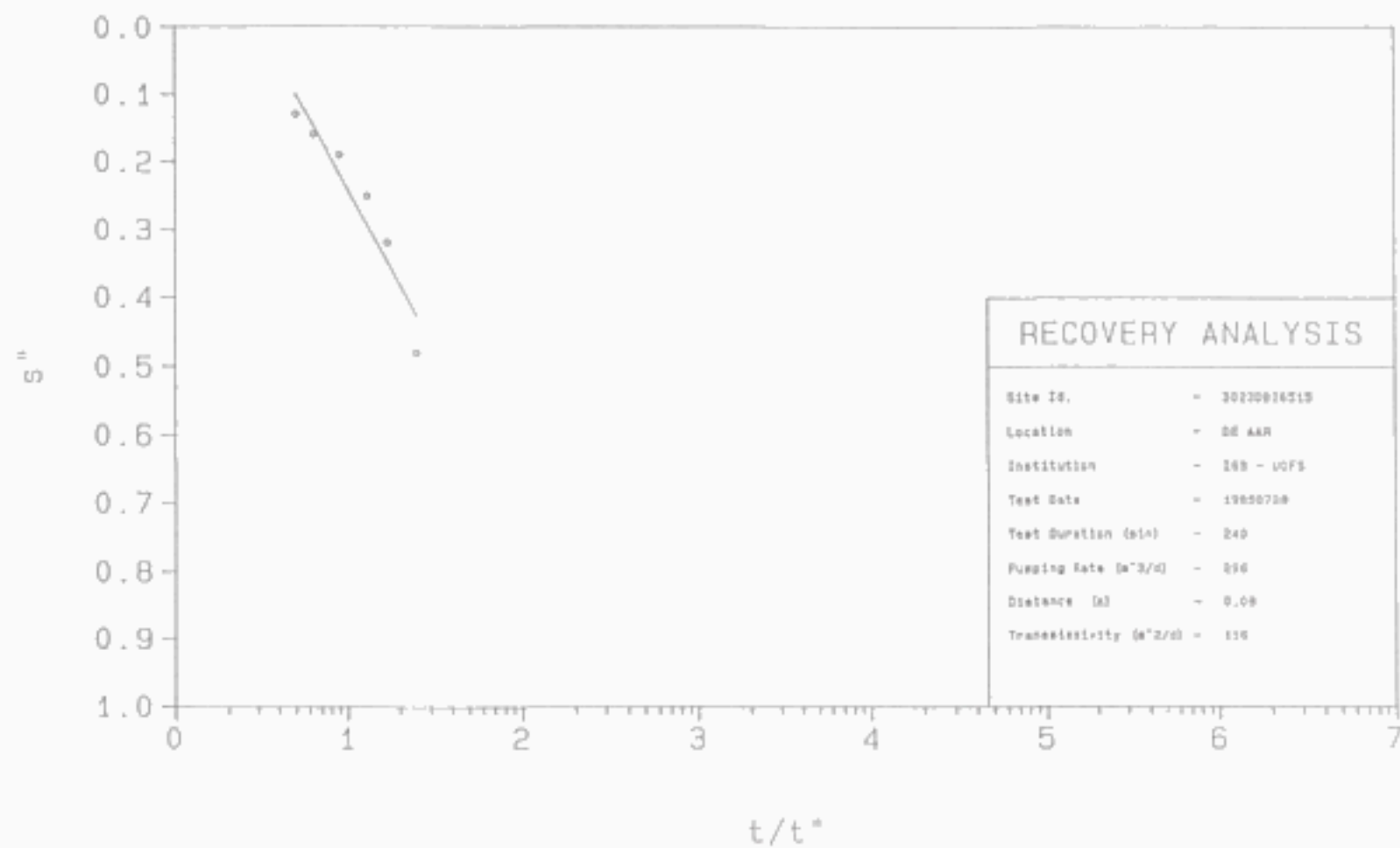












 * G-BASE * CHEMISTRY REPORT * Date printed : 16 May 1989

Generated for : DE AAR - IGS/WRC PROJECT

Nr. on map	Date	Depth m	EC mS/m	TDS mg/L	ALK. mg/L	Ca mg/L	Mg mg/L	Na mg/L	K mg/L	Si mg/L	SO4 mg/L	Cl mg/L	NO3 mg/L	F mg/L
Z51	19841030		89	705	248	62	44	58	1.6	22.3	88	83	9.7	0.5
G23202	19730831		145	1055	262	80	12	308			173	213	0.0	0.7
G23202	19730831		145	1058	440	90	7	306			173	213	0.0	0.7
G23202A	19841101		121	856	299	24	18	203	0.5	21.7	117	87	4.3	0.8
G23202A	19890120		95	635	348	66	53	98			110	96	0.0	0.2
G27703	19720818		150	1080	416	56	46	286			226	213	0.0	0.4
G27703	19720818		150	1088	438	60	46	286			216	213	0.0	0.5
G27702G	19731121		75	563	333	55	47	91			102	65	0.0	0.4
G27702G	19841106		146	1074	214	43	62	184	1.1	23.7	169	193	30.6	0.5
G27702G	19890120		95	661	350	72	61	90			106	118	0.0	0.5
G27708D	19730911		160	1295	505	44	54	370			271	248	0.0	0.6
G27708D	19730914		170	1196	504	120	6	333			173	248	0.0	0.6
G23203A	19720829		95	635	348	66	53	98			110	96	0.0	0.1
G23203A	19841026		190	1346	337	48	70	273	0.4	22.7	284	236	0.0	0.5
VK1 (W)	19730102		225	1347	321	190	123	133			91	593	4.3	0.0
VK1 (W)	19841031		261	1716	304	71	82	380	3.2	18.9	373	400	3.7	0.8
G23204D	19720721		135	945	373	18	33	299			163	204	0.0	1.3
G23204D	19841031		282	1836		48						488	1.4	1.1
G23205C	19720706		135	915	383	24	30	270			163	0	0.0	1.2
G23205C	19720706		135	901	361	38	39	250			168	186	0.0	0.8
G23205F	19730330		110	708	338	55	50	146			85	163	0.7	0.4
G23205F	19841031		149	963	228	64	62	140	1.8	24.0	188	2	2.5	0.5
G23205B	19841031		269	1704	227	73	115	330	0.8	22.9	406	473	0.2	0.6
G23205B	19890120		135	915	383	24	30	270			163	195	0.0	1.2
G23205B	19890120		135	901	361	38	39	250			168	186	0.0	0.8
G27715G	19730521		85	601	330	67	53	83			82	96	4.3	0.5
G27715G	19841031		143	945	207	85	68	118	3.5	25.9	177	199	3.1	0.4
VP 1	19730718		119	745	350	114	85	33			53	172	16.7	0.2
VP 1	19841031		91	616	192	67	53	37	2.5	29.1	60	96	8.6	0.4
G23206A	19730205		90	633	338	13	25	201			82	106	0.0	1.9
G23206A	19730208		105	743	370	21	29	229			94	142	0.0	1.8
G23206A	19841105		313	2044	354	55	108	484	3.2	24.8	380	552	1.3	1.4
RT 2	19730402		75	472	285	75	50	35			60	78	0.0	0.4
RT 2	19841101		102	737	211	54	55	66	3.5	20.9	115	122	9.7	0.3
RT 3	19730718		250	1915	405	254	181	154			259	628	43.4	
RT 3	19841101		229	113	279	113	112	124	2.8	20.5	248	367	8.2	0.8
RT 1	19841101		109	752	228	59	60	73	5.4	21.6	99	124	7.4	0.4
G27719I	19730716		135	830	345	88	79	144			168	240	0.0	
G27719I	19730719		125	834	345	84	75	124			91	249	0.0	0.2
G27719I	19871031		148	1009	227	60	66	150	1.8	21.4	196	212	5.3	0.5
BN 1	19841030		78	591	185	41	48	46	1.7	21.6	59	106	9.1	1.1
BN 2	19841030		39	280	78	8	1	70	2.4	10.1	15	73	1.1	0.0
G23204	19890120		130	853	330	18	24	294			111	204	0.0	1.8
G27704	19730123		130	853	330	18	24	294			111	204	0.0	1.8
G27704	19841031		227	1442	274	38	49	312	0.5	20.0	294	312	4.5	1.1
G27707	19730306		110	645	295	76	60	84			48	188	2.0	0.4
G27707	19841031		231	1398	194	137	127	143	1.4	22.7	270	447	0.7	0.6
G27723	19841030		90	5752	180	56	47	53	2.2	19.3	64	80	7.1	0.8
G28402	19841030		272	1657	282	57	102	366	14.4	22.4	283	471	1.9	1.3
G28405	19841030		307	1993	276	55	162	376	3.8	25.3	430	601	0.4	1.1

 * G-BASE * CHEMISTRY REPORT * Date printed : 16 May 1989
 Generated for : DE AAR - IGS/WRC PROJECT

Nr. on map	Date	Depth m	EC mS/m	TDS mg/L	ALK. mg/L	Ca mg/L	Mg mg/L	Na mg/L	K mg/L	Si mg/L	SO4 mg/L	Cl mg/L	NO3 mg/L	F mg/L
G36474	19850226	12.00	76	519	172	49	37	43	8.9	7.4	76	59	6.5	0.8
G36477	19850227	25.00	79	566	218	62	36	46	7.3	10.4	57	56	5.6	0.9
G36479	19850227	31.00	71	485	170	31	35	59	5.8	11.8	41	61	7.9	0.8
G36482	19850304	48.00	36	246	96	9	3	61	8.4	4.8	8	27	0.5	6.7
G36483	19850307	23.00	74	528	174	54	41	32	8.9	16.1	70	50	9.8	0.7
G36483	19850307	127.00	76	544	209	65	38	35	6.1	15.8	51	46	7.0	0.8
G36484	19850308	40.00	69	475	148	37	32	43	19.1	13.2	55	58	8.9	0.9
G36485	19850308	42.00	69	508	177	53	40	32	3.7	17.3	62	49	7.9	0.5
G36491	19850312	31.00	77	523	204	46	36	41	9.8	13.9	72	55	0.0	0.8
G36491	19850312	60.00	66	478	146	25	38	40	4.9	16.6	80	53	9.1	0.5
G36492	19850312	42.00	76	524	167	32	38	45	11.9	13.2	81	55	9.7	1.0
G36496	19850319	30.00	71	529	210	36	33	59	3.3	12.2	53	54	5.1	0.5
G36496	19850319	94.00	113	850	286	44	27	126	37.8	12.7	150	103	0.0	0.6
G36497	19850318	96.00	56	409	173	23	20	56	9.4	8.1	31	35	3.3	1.7
G36499	19850327	52.00	65	388	68	6	2	120	6.8	4.3	9	149	0.0	8.1
G36499	19850327	68.00	61	353	48	4	0	119	1.0	9.7	12	141	0.0	7.9
G36499	19850327	81.00	63	367	59	9	3	110	8.6	6.1	6	151	0.0	1.5
G36501	19850325	40.00	115	734	153	33	41	112	24.3	7.1	93	225	1.1	1.3
G36502	19850325	25.00	82	497	100	24	11	113	18.3	4.7	24	172	0.2	5.0
G36502	19850325	42.00	82	514	96	26	10	116	23.5	4.0	33	180	0.0	5.0
G36504	19850329	18.00	136	896	230	45	82	92	2.4	17.8	149	215	2.3	0.8
G36505	19850329	12.00	147	957	185	73	84	106	3.6	16.6	168	267	2.6	0.9
G36505	19850329	42.00	149	1042	199	110	85	107	3.7	17.0	180	286	2.3	0.9
G36507	19850329	14.00	107	761	188	87	57	63	5.5	17.0	126	166	2.2	0.5
G36507	19850329	40.00	105	722	173	80	53	68	6.6	15.3	116	157	3.1	0.5
G36508	19850329	25.00	126	807	230	40	72	92	7.1	15.8	142	153	1.0	0.6
G36508	19850329	30.00	123	832	212	70	71	83	6.2	16.4	126	187	2.8	0.5
G36509	19850330	18.00	137	880	144	68	77	103	4.9	18.3	165	259	2.4	0.8
G36509	19850330	30.00	144	909	196	55	79	100	3.3	17.8	166	237	2.6	0.8
G36511	19850330	24.00	88	601	182	40	24	101	12.2	11.1	26	161	0.0	4.2
G36515	19850401	34.00	95	659	228	26	58	65	2.2	18.3	96	115	0.0	0.7
G36515	19850401	50.00	88	610	199	15	58	62	4.4	19.7	93	110	0.6	0.6

```

C                                PROGRAM GLF                                231
C*****
C    PROGRAM TO CALCULATE:
C    1.  THE MEAN WATER LEVEL OF AN AQUIFER ON A MONTHLY BASIS*
C    2.  THE RECHARGE (INFILTRATION) INTO THE AQUIFER
C    PROGRAM DEVELOPED AT THE I.G.S., BOX 339, BLOEMFONTEIN
C*****
C
C    INPUT
C    -----
C    1.  N,NTYE,AREA
C           N=NUMBER OF BOREHOLES
C           NTYE=NUMBER OF MONTHS
C           AREA=AREA IN SQUARED METRES
C    2.  GROUND-WATER LEVEL INFORMATION:  A,X,Y,Z
C           WHERE A=BOREHOLE NUMBER
C           X=X-COORDINATE OF BOREHOLE
C           Y=Y-COORDINATE OF BOREHOLE
C           Z=GROUND-WATER LEVELS (NMON OF THEM)
C    3.  RAINFALL AND ABSTRACTION RATES: RAIN,QP
C           RAIN IN MM/MONTH  AND QP IN CUB.M/DAY
C    4.  MEAN WL
C           FOR THE FIRST RUN OF THE PROGRAM THESE DATA CAN
C           BE OMIT. THE MEAN WL NEEDED FOR
C           THE INFILTRATION CALCULATIONS ARE WRITTEN TO FILE
C           8.TXT BY PROGRAM GLF
C           ADD THIS 8.TXT FILE AFTER THE DATA OF POINT 3 ABOVE
C*****
C
$LARGE
    CHARACTER*20 FNAME
    CHARACTER*1  TYPE,TE
    CHARACTER*6  A(72)
    DIMENSION X(72),Y(72),Z(72,34)
    DIMENSION WLMEAN(600),SATVOL(34),RAIN(34),FILT(34),QP(34)
    OPEN(7,FILE='7.TXT',STATUS='UNKNOWN')
    OPEN(8,FILE='8.TXT',STATUS='UNKNOWN')
    OPEN(9,FILE='9.TXT',STATUS='UNKNOWN')
    WRITE(*,*) 'ENTER FILE NAME'
    READ(*,113) FNAME
113  FORMAT(A20)
    OPEN(5,FILE=FNAME)
    WRITE(*,*) '    MEAN WL CAL. =  V  '
    WRITE(*,*) '    RECHARGE CAL. =  I  '
    READ(*,700) TYPE
700  FORMAT(A1)
    IF(TYPE.EQ.'I') THEN
    WRITE(*,*) ' ARE THE MEAN WL ALREADY CALULATED (Y/N) '
    READ(*,112) TE
112  FORMAT(A1)
    ELSE
    ENDIF
    WRITE(*,*) ' INTERVAL SIZE IN MONTHS'
    READ(*,*) IM
C
    READ(5,*) N,NTYE,AREA
C
C    INPUT WATER LEVEL INFORMATION
C
    DO 3 I=1,N
    READ(5,50) A(I),X(I),Y(I)
50  FORMAT(A6,2F10.0)
    READ(5,*) (Z(I,J),J=1,NTYE)
3    CONTINUE

```

```

232
C
C RAINFALL INPUT IN MM/MAAND AND ABSTRACTION INPUT IN M**3/DAY
C
C READ(5,*) (RAIN(I),QP(I),I=1,NTYE)
C
C IF(TE.EQ.'Y') THEN
C   READ(5,*) (L,WLMEAN(I),I=1,NTYE)
C   ELSE
C   ENDIF
C   WRITE(*,*) ' FINISH WITH DATA READING '
C   START PROGRAM LOOP
C
C   IF(TE.EQ.'Y') GO TO 2000
C   IT=0
C   DO 100 L=1,NTYE
C   SUM=0.
C   DO 29 I=1,N
C   SUM=SUM+Z(I,L)
29 CONTINUE
C   WLMEAN(L)=SUM/FLOAT(N)
C   WRITE(8,291) L,WLMEAN(L)
C   WRITE(*,291) L,WLMEAN(L)
291 FORMAT(I5,E15.6)
100 CONTINUE
C
C
C   IF(TYPE.EQ.'V') THEN
C   WRITE(*,*) 'FINISH WITH MEAN WL CALCULATION'
C   WRITE(*,*) ' DATA ARE IN FILE 8.TXT'
C   WRITE(*,*) ' '
C   GO TO 3000
C   ELSE
C   ENDIF
C
C
C   IF TYPE = I STARTS RECHARGE CALCULATIONS
C   -----
2000 IF(TYPE.EQ.'V') GO TO 3000
C
C   COEF=1000000.
C   DO 301 I=1,NTYE
C   SATVOL(I)=WLMEAN(I)*AREA
301 CONTINUE
C
C   CALCULATE MINIMUM S NOW
C
C   IT=0
C   ALOW=COEF
C   COEF1=AREA/1000./ (FLOAT(IM)*30.)
C   DO 300 I=IM+1,NTYE
C   IT=IT+1
C   A3=(SATVOL(I)/COEF-SATVOL(I-IM)/COEF)/ (FLOAT(IM)*30.)
C   IF(A3.EQ.0.0) A3=.001
C   IF(A3.LT.ALLOW) THEN
C       ALOW=A3
C       QQP=QP(I)
C       SMIN=ABS(QQP/(A3*COEF))
C       ELSE
C       ENDIF
300 CONTINUE
C
C   WRITE(*,*) ' '
C
C
C

```

```

C      CALCULATE S-VALUE FROM LARGEST DECREASE IN SAT. VOLUME
C
      STOR=ABS( -QQP/(ALOW*COEF) )
      WRITE(*,*) 'FOR DELV= ',ALOW*FLOAT(IM)*30., ' MILLION M**3'
      WRITE(*,*) '-----'
      WRITE(*,*) ' '
      WRITE(*,*) 'S-VALUE = ',STOR
      WRITE(*,*) ' '
      WRITE(*,*) ' ENTER S-VALUE '
      READ(*,*)STOR

C
C      START INFILTRATION CALCULATION IF TYPE='I'
C      -----
C
      SOM=0.
      CALL GR(SATVOL,STOR,AREA,IM,RAIN,NTYE,FILT,QP,WLMEAN)
      WRITE(*,*) ' '
      WRITE(*,*) ' FILE 8.TXT = INFILTRATION VALUES'
      WRITE(*,*) ' FILE 9.TXT = RAIN AND INFILTRATION'

C
3000  STOP
      END

C*****
      SUBROUTINE GR(VOL,STOR,AREA,IM,R,N,FILTM,QP,WL)
C*****
C
C      PROGRAM TO CALCULATE GR=S*VOL +QP
C
      DIMENSION R(34),VOL(34),RAIN(34),FILTM(34)
      DIMENSION WL(34),QP(34),QPOM(34),DIF(34)

C
      COEF=1000000.
      K=0
      DO 2 I=IM+1,N
      K=K+1
      DIF(K)=VOL(I)/COEF-VOL(I-IM)/COEF
      A3=(VOL(I)/COEF-VOL(I-IM)/COEF)/(FLOAT(IM)*30.)
      SOM=0.
      SOMP=0.
      DO 5 J=I-IM+1,I
      SOM=SOM+R(J)
      SOMP=SOMP+QP(J)
5      CONTINUE
      RAIN(K)=SOM
      QPOM(K)=SOMP*30.
      QQP=SOMP/FLOAT(IM)
      RCUBM=SOM*.001*AREA
      FILT=(QQP +COEF*A3*STOR )*(FLOAT(IM)*30.)
      IF(RCUBM.EQ.0.) THEN
      RPER=0.
      ELSE
      RPER=(FILT/RCUBM)*100.
      ENDIF
      FILTM(K)=FILT*1000./AREA
      WRITE(8,200) I,DIF(K),FILTM(K),RAIN(K),WL(I),QPOM(K)
200  FORMAT(I5,F10.3,F15.1,4F10.3)
      WRITE(7,330) RAIN(K),FILTM(K),rper
      WRITE(9,330) RAIN(K),FILTM(K)
330  FORMAT(3F10.2)
2      CONTINUE
      RETURN
      END

```

PROGRAM SVF

```

C
C
C*****
C
C    PROGRAM TO CALCULATE:
C    1.  THE SATURATED VOLUME OF AN AQUIFER ON A MONTHLY BASIS*
C    2.  THE RECHARGE (INFILTRATION) INTO THE AQUIFER.
C
C        PROGRAM DEVELOPED BY G.J. VAN TONDER
C        I.G.S., BOX 339, BLOEMFONTEIN
C*****
C
C    THE SVF-METHOD EQUATION TO BE SOLVED:
C     $GR + A1 \cdot Ti - A2 \cdot To - Q = A3 \cdot S$ 
C
C    -----
C    WHERE  GR = GROUND-WATER RECHARGE
C           A1 = INFLOW LENTH * GRADIENT
C           Ti = INFLOW TRANSMISSIVITY
C           A2 = OUTFLOW LENTH * GRADIENT
C           To = OUTFLOW TRANSMISSIVITY
C           Q = NET ABSTRACTION + ET, ETC.
C           A3 =  $dv/dt$  = CHANGE IN SATURATED VOLUME FOR TIME
C               dt
C
C    INPUT
C    -----
C    1.  NN,NE,N,NMON,NIN,NOUT,BASE,ICODE
C        WHERE  NN=NUMBER OF NODES
C               NE=NUMBER OF ELEMENTS
C               N=NUMBER OF BOREHOLES
C               NMON=NUMBER OF MONTHS
C               NIN=NUMBER OF INFLOW NODES
C               NOUT=NUMBER OF OUTFLOW NODES
C               BASE=ANY VALUE LESS THAN THE SMALLEST WATER LEVEL*
C               ICODE=1 IF S-VALUES ARE READ IN AT EVERY NODE
C    2.  INFLOW NODE NUMBERS (ONLY IF NIN.NE.0)
C        OUTFLOW NODE NUMBERS ( " " " " )
C        COMMENT:
C        THE PROGRAM CALCULATES THE GROUND-WATER GRADIENT AT
C        THESE NODES AS WELL AS THE INFLOW AND OUTFLOW AMOUNT.
C        THE NET LATERAL INFLOW-OUTFLOW CAN BE CALCULATED
C        BY THE USER, IN WHICH CASE NIN=0=NOUT. THIS NET FLOW
C        MUST THEN BE INCORPORATED IN THE QP-TERM AT 6. BELOW
C    3.  NODAL COORDINATES: L,XX,YY,(SYIELD,ONLY IF ICODE=1)
C        WHERE  L=NODE NUMBER
C               XX=X-COORDINATE
C               YY=Y-COORDINATE
C               SYIELD=S-VALUE AT EVERY NODE IF ICODE=1
C    4.  ELEMENT INCIDENCES: LL,IN(I,J) (COUNTER CLOCKWISE)
C        WHERE LL=ELEMENT NUMBER
C               IN(I,J)=THREE NODE NUMBERS OF ELEMENT LL
C    5.  GROUND-WATER LEVEL INFORMATION:  A,X,Y,Z
C        WHERE A=BOREHOLE NUMBER
C               X=X-COORDINATE OF BOREHOLE
C               Y=Y-COORDINATE OF BOREHOLE
C               Z=GROUND-WATER LEVELS (NMON OF THEM)
C    6.  RAINFALL AND ABSTRACTION RATES: RAIN,QP
C        RAIN IN MM/MONTH  AND QP IN CUB.M/DAY
C    7.  SATURATED VOLUME INFORMATION.
C        FOR THE FIRST RUN OF THE PROGRAM THESE DATA CAN
C        BE OMIT. THE SATURATED VOLUME RESULTS NEEDED FOR
C        THE INFILTRATION CALCULATIONS ARE WRITTEN TO FILE
C        8.TXT BY PROGRAM SVF
C        ADD THIS 8.TXT FILE AFTER THE DATA OF POINT 6 ABOVE
C        IF ICODE=1 THE VOLUME OF GROUND WATER IS CALCULATED
C        AND NOT THE SATURATED VOLUME
C*****

```

```

$ LARGE
C
C
C      N1 = NUMBER OF NODES
C      N2 = NUMBER OF ELEMENTS
C      N3 = NUMBER OF BOREHOLES
C      N4 = NUMBER OF MONTHS
C
      PARAMETER (N1=600,N2=1000,N3=72,N4=100)
      CHARACTER*20 FNAME
      CHARACTER*1 TYPE,TE
      CHARACTER*6 A(N3)
      DIMENSION X(N3),Y(N3),Z(N3,N4),ZZ(N3),XX(N1),YY(N1)
      DIMENSION IN(N2,3),X1(N3),Y1(N3),WL(N4),QP(N4)
      DIMENSION VAL(N1),SATVOL(N4),RAIN(N4),FILT(N4)
      DIMENSION IIN(N4),IOUT(N4),GRADI(N4),GRADO(N4)
      DIMENSION SA1(N4),SA2(N4),SA3(N4),SYIELD(N1)
C
      OPEN(8,FILE='8.TXT',STATUS='UNKNOWN')
      OPEN(9,FILE='9.TXT',STATUS='UNKNOWN')
      OPEN(10,FILE='10.TXT',STATUS='UNKNOWN')
      OPEN(12,FILE='12.TXT',STATUS='UNKNOWN')
C
C      SCREEN INPUT
C
      WRITE(*,*) 'ENTER FILE NAME'
      READ(*,113) FNAME
113  FORMAT(A20)
      OPEN(5,FILE=FNAME)
      WRITE(*,*) '    VOLUME CAL. =  V  '
      WRITE(*,*) '    INFILT CAL. =  I  '
      READ(*,700) TYPE
700  FORMAT(A1)
      IF (TYPE.EQ.'I'.OR.TYPE.EQ.'i') THEN
      WRITE(*,*) ' ARE THE SAT. VOL. ALREADY CALCULATED (Y/N) '
      READ(*,112) TE
112  FORMAT(A1)
      ELSE
      ENDIF
      WRITE(*,*) ' INTERVAL SIZE IN MONTHS '
      READ(*,*) IM
      COEF=1000000.
      READ(5,*) NN,NE,N,NMON,NIN,NOUT,BASE,ICODE
C
C      INPUT TRIANGULAR INFORMATION
C
C      FIRST THE INFLOW NODE NUMBERS AND THEN THE OUTFLOW NODE NUMBERS
C
      IF (NIN.NE.0) THEN
      READ(5,*) (IIN(I),I=1,NIN)
      ELSE
      ENDIF
      IF (NOUT.NE.0) THEN
      READ(5,*) (IOUT(I),I=1,NOUT)
      ELSE
      ENDIF
C
C      INPUT THE NODAL COORDINATES
C
      DO 1 I=1,NN
      IF (ICODE.EQ.1) THEN
      READ(5,*) L,XX(I),YY(I),SYIELD(I)
      ELSE

```

```

      READ(5,*)L,XX(I),YY(I)
      ENDIF
1    CONTINUE
C
C    INPUT INCIDENCES
C
      DO 2 I=1,NE
      READ(5,*)L,(IN(I,J),J=1,3)
2    CONTINUE
C
C    INPUT WATER LEVEL INFORMATION
C
      DO 3 I=1,N
      READ(5,50)A(I),X(I),Y(I)
50   FORMAT(A6,2F11.0)
      READ(5,*)(Z(I,J),J=1,NMON)
3    CONTINUE
C
C    RAINFALL INPUT IN MM/MAAND AND ABSTRACTION INPUT IN M**3/DAY
C
      READ(5,*)(RAIN(I),QP(I),I=1,NMON)
C
C    INPUT SATURATED VOLUM INFORMATION FROM FILE 8.TXT
C
      IF(TE.EQ.'Y'.or.TE.EQ.'y')THEN
      READ(5,*)(L,SATVOL(I),GRADI(I),GRADO(I),WL(I),I=1,NMON)
      READ(5,*)AREA
      ELSE
      ENDIF
      WRITE(*,*)' FINISH WITH DATA READING'
C
C    START PROGRAM LOOP
C
      IF(TE.EQ.'Y'.OR.TE.EQ.'y')GO TO 2000
      IT=0
      DO 100 L=1,NMON
      IT=IT+1
      ITEL=0
      DO 4 I=1,N
      IF(Z(I,L).NE.0.)THEN
      ITEL=ITEL+1
      X1(ITEL)=X(I)
      Y1(ITEL)=Y(I)
      ZZ(ITEL)=Z(I,L)
      ELSE
      ENDIF
4    CONTINUE
C
C    INTERPOLATION STARTS
C
      SOMWL=0.
      DO 5 I=1,NN
      XP=XX(I)
      YP=YY(I)
      CALL AGM(X1,Y1,ZZ,ITEL,4,1,XP,YP,SS)
      VAL(I)=SS
      SOMWL=SOMWL+SS
5    CONTINUE
      WL(L)=SOMWL/NN
C
C    CALCULATE SATURATED VOLUME OF MATERIAL
C    -----
      CALL VOL(NN,NE,XX,YY,VAL,IN,SVOL,AREA,BASE,SYIELD,ICODE)
      SATVOL(L)=SVOL

```

```

C      WRITE(*,*) L, SVOL
C
C      CALCULATES GRADIENT DIFFERENCE BETWEEN TWO SIDES
C      -----
C      CALL TRAN(NE, IN, XX, YY, VAL, NIN, NOUT, IIN, IOUT, GRI, GRO)
C      GRADI(L)=GRI
C      GRADO(L)=GRO
C      WRITE(8,301) L, SVOL, GRI, GRO, WL(L)
C      WRITE(*,301) L, SVOL, GRI, GRO, WL(L)
301    FORMAT(I5, E20.10, 2E15.5, E15.6)
100    CONTINUE
C      WRITE(8,702) AREA
702    FORMAT(F15.5)
C
C      IF(TYPE.EQ.'V'.OR.TYPE.EQ.'v') THEN
C      WRITE(*,*) 'FINISH WITH VOLUME CALCULATION'
C      WRITE(*,*) ' DATA ARE IN FILE 8.TXT'
C      WRITE(*,*) ' '
C      GO TO 3000
C      ELSE
C      ENDIF
2000  CONTINUE
C
C
C      IF TYPE = I STARTS RECHARGE CALCULATIONS
C      -----
C      FIRST TRY TO OBTAIN AN ESTIMATE OF THE S-VALUE
C
C      DISO=0.
C      DISI=0.
C      IF(NOUT.EQ.0) THEN
C      DISO=0.
C      ELSE
C      DO 401 I=1, NOUT-1
C      D1=( XX(IOUT(I+1))-XX(IOUT(I)) )**2
C      D2=( YY(IOUT(I+1))-YY(IOUT(I)) )**2
C      DISO=SQRT(D1+D2)+DISO
401    CONTINUE
C      ENDIF
C      IF(NIN.EQ.0) THEN
C      DISI=0.
C      ELSE
C      DO 451 I=1, NIN-1
C      D1=( XX(IIN(I+1))-XX(IIN(I)) )**2
C      D2=( YY(IIN(I+1))-YY(IIN(I)) )**2
C      DISI=SQRT(D1+D2)+DISI
451    CONTINUE
C      ENDIF
C      WRITE(*,*) 'INFLOW LENGHT = ', DISI, ' OUTFLOW LENGHT= ', DISO
C      WRITE(*,*) ' '
C
C
C      ENTER T-VALUES AT BOUNDARIES
C
C      IF(NIN.NE.0) THEN
C      WRITE(*,*) 'ENTER T-VALUE AT INFLOW BOUNDARY'
C      READ(*,*) TRANSI
C      ELSE
C      TRANSI=0.
C      ENDIF
C      IF(NOUT.NE.0) THEN
C      WRITE(*,*) 'ENTER T-VALUE AT OUTFLOW BOUNDARY'
C      READ(*,*) TRANSO
C      ELSE
C      TRANSO=0.

```

```

      ENDIF
C
C      CALCULATION OF A PROBABLE MEAN S-VALUE
C
      IF(IM.GT.2.OR.ICODE.EQ.1)GO TO 407
      SOMSY=0.
      LK=0
      DO 310 I=IM+1,NMON
      LK=LK+1
      SA1(LK)=DISI*(GRADI(I)+GRADI(I-IM))/2.
      SA2(LK)=DISO*(GRADO(I)+GRADO(I-IM))/2.
      SA3(LK)=(SATVOL(I)/COEF-SATVOL(I-IM)/COEF)/(FLOAT(IM)*30.)
310    CONTINUE
      DO 320 J=1,3
      VOLMIN=SA3(1)
      IK=1
      DO 330 I=2,LK
      IF(SA3(I).LT.VOLMIN)THEN
      VOLMIN=SA3(I)
      IK=I
      ELSE
      ENDIF
      SOMP=0.
      DO 256 K=IK,IK+IM -1
      SOMP=SOMP+QP(K+1)
256    CONTINUE
      330    CONTINUE
      SSY=ABS((SA1(IK)*TRANSI-SA2(IK)*TRANSO-QP(IK+1))/(SA3(IK)*COEF))
      AC=FLOAT(IM)*30.*SA3(IK)
      WRITE(*,*)' FOR DELV = ',AC, ' MILLION CBM :   S = ',SSY
      SOMSY=SOMSY+SSY
      SA3(IK)=1.0E+9
      320    CONTINUE
      AMEANS=SOMSY/3.
      WRITE(*,*)' '
      WRITE(*,*)' PROBABLE MEAN S-VALUE = ',AMEANS
      WRITE(*,*)' -----'
      WRITE(*,*)' '
      407    IF(ICODE.NE.1)THEN
      WRITE(*,*)' ENTER S-VALUE '
      READ(*,*)STOR
      ELSE
      ENDIF
C
C      START INFILTRATION CALCULATION
C      -----
C
      SOM=0.
      CALL INF(SATVOL,STOR,AREA,IM,TRANSI,TRANSO,RAIN,NMON,FILT,
      $ DISI,DISO,GRADI,GRADO,WL,QP,ICODE)
      WRITE(*,*)' AREA = ',AREA
      WRITE(*,*)' '
      WRITE(*,*)' FILE 8.TXT = INFILTRATION VALUES'
      WRITE(*,*)' FILE 9.TXT = RAIN AND INFILTRATION'
      WRITE(*,*)' FILE 10.TXT = DATA FOR STATMEN1.EXE'
C
      3000 STOP
      END
C*****
      SUBROUTINE AGM(X,Y,T,N,NUM,IWEIG,X1,Y1,SS)
C*****
C      SUBROUTINE TO CALULATE A VALUE WITH A WEIGHTED
C      DISTANCE METHOD

```

```

C
C   IWEIG = 1 FOR 1/D
C   IWEIG = 2 FOR 1/D**2
C   IWEIG = 3 FOR (1-D/1.1*D(MAX))**2/(D/1.1*D(MAX))**2
C
C   PARAMETER (N1=600,N2=1000,N3=72,N4=100)
C   DIMENSION X(N3),Y(N3),T(N3),XX(20),YY(20),TT(20)
C   DIMENSION DIST(N3)
C   DO 891 I=1,N
C     H=(X(I)-X1)**2+(Y(I)-Y1)**2
C     DIST(I)=SQRT(H)
891  CONTINUE
C
C   DO 863 I=1,NUM
C     IC=1
C     DO 689 KL=2,N
C       IF(DIST(KL).LT.DIST(IC)) IC=KL
689  CONTINUE
C     XX(I)=X(IC)
C     YY(I)=Y(IC)
C     TT(I)=T(IC)
C     IF(I.EQ.NUM) DM=DIST(IC)
C     DIST(IC)=+9.0E+20
863  CONTINUE
C
C     SUM=0.
C
C   DO 1 I=1,NUM
C     DI=SQRT((XX(I)-X1)**2 + (YY(I)-Y1)**2)
C     IF(DI.EQ.0.) THEN
C       SS=TT(I)
C       RETURN
C     ELSE
C       ENDIF
C     IF(IWEIG.EQ.1) DIST(I)=1./DI
C     IF(IWEIG.EQ.2) DIST(I)=1./(DI*DI)
C     IF(IWEIG.EQ.3) DIST(I)=(1.-DI/(1.1*DM))**2/(DI/(1.1*DM))**2
C     SUM=SUM+DIST(I)
1    CONTINUE
C
C     SS=0.
C     DO 2 I=1,NUM
C       DIST(I)=DIST(I)/SUM
C       SS=DIST(I)*TT(I)+SS
2    CONTINUE
C     RETURN
C     END
C*****
C   SUBROUTINE VOL(NN,NE,X,Y,WL,IN,SVOL,AREA,BASE,SYIELD,ICODE)
C*****
C
C   CALCULATION OF SATURATED VOLUME OF MATERIAL
C
C   PARAMETER (N1=600,N2=1000,N3=72,N4=100)
C   DIMENSION WL(N1),X(N1),Y(N1),B(N1),IN(N2,3)
C   DIMENSION SYIELD(N1)
C   DO 201 I=1,NN
C     B(i)=BASE
C     IF(ICODE.NE.1) SYIELD(I)=1.
201  CONTINUE
C     SOM=0.
C     SOMVD=0.
C     SOM1=0.
C     SOM2=0.

```

```

DO 1 I=1,NE
IA=IN(I,1)
IB=IN(I,2)
IC=IN(I,3)
SS=(SYIELD(IA)+SYIELD(IB)+SYIELD(IC))/3.
VD=SS*ABS( WL(IA)+WL(IB)+WL(IC)-B(IA)-B(IB)-B(IC) )
VD=VD/3.
IF (VD.LT.0.0) VD = 0.0
SOMVD=SOMVD+VD
B1=X(IB)*Y(IC)-X(IC)*Y(IB)
A1=X(IA)*Y(IB)-X(IA)*Y(IC)-Y(IA)*X(IB)+Y(IA)*X(IC)+B1
AREA=.5*A1
VOLW=AREA*VD*SS
SOM=SOM+VOLW
SOM1=SOM1 + AREA*VD
SOM2=SOM2+AREA
1 CONTINUE
GVD=SOMVD/NE
SVOL=SOM1
AREA=SOM2
RETURN
END
C*****
SUBROUTINE INF(VOL,STOR,AREA,IM,TRANSI,TRANSO,R,N,FILTM,DISI,
$ DISO,GRADI,GRADO,WL,QP,ICODE)
C*****
C
C PROGRAM TO CALCULATE INFILTRATION I= QP + (A2*T2-A1*T1) +A3*S
C
C PARAMETER (N1=600,N2=1000,N3=72,N4=100)
C DIMENSION R(N4),DIF(N4),VOL(N4),RAIN(N4),FILTM(N4)
C DIMENSION GRADI(N4),GRADO(N4),WL(N4),QP(N4),QPOM(N4)
C
C WRITE(8,*)' # dV(10**6) GR(mm) RAIN WL Q(m**3)'
C WRITE(8,398)
398 FORMAT(1H ,70('-',))
C
IF(ICODE.EQ.1)STOR=1.
COEF=1000000.
K=0
SUMTI=0.
SUMTO=0.
DO 2 I=IM+1,N
K=K+1
DIF(K)=VOL(I)/COEF-VOL(I-IM)/COEF
A1=DISI*(GRADI(I)+GRADI(I-IM))/2.
A2=DISO*(GRADO(I)+GRADO(I-IM))/2.
A3=(VOL(I)/COEF-VOL(I-IM)/COEF)/(FLOAT(IM)*30.)
SUMTI=SUMTI+A1*TRANSI
SUMTO=SUMTO+A2*TRANSO
SOM=0.
SOMP=0.
DO 5 J=I-IM+1,I
SOM=SOM+R(J)
SOMP=SOMP+QP(J)
5 CONTINUE
RAIN(K)=SOM
QPOM(K)=SOMP*30.
QQP=SOMP/FLOAT(IM)
RCUBM=SOM*.001*AREA
FILTM=(QQP+(A2*TRANSO-A1*TRANSI) +COEF*A3*STOR )*(FLOAT(IM)*30.)
IF(RCUBM.EQ.0.)THEN
RPER=0.
ELSE

```

```

RPER=(FILTR/RCUBM)*100.
ENDIF
FILTM(K)=FILTR*1000./AREA
WRITE(8,200)I,DIF(K),FILTM(K),RAIN(K),WL(I),QPOM(K)
200 FORMAT(I5,F10.3,F10.1,2F10.3,2E15.6)
WRITE(9,330)RAIN(K),FILTM(K)
330 FORMAT(2F10.2)
2 CONTINUE
C
SUMTI=SUMTI/FLOAT(K)
SUMTO=SUMTO/FLOAT(K)
WRITE(*,*)' '
WRITE(*,*)' MEAN LATERAL INFLOW(m**3/d) = ',SUMTI
WRITE(*,*)' MEAN LATERAL OUTFLOW(m**3/d) = ',SUMTO
C
C WRITE TO FILE 10 FOR STATMEN1 CALCULATION FOR LAGS
C
NN=K
WRITE(10,22)NN,1
WRITE(12,22)NN,1
WRITE(10,600)(DIF(J),J=1,NN)
WRITE(12,600)(FILTM(J),J=1,NN)
WRITE(10,22)NN,1
WRITE(12,22)NN,1
WRITE(10,600)(RAIN(J),J=1,NN)
WRITE(12,600)(RAIN(J),J=1,NN)
22 FORMAT(I5,2X,I1)
600 FORMAT(F15.3)
RETURN
END
C*****
SUBROUTINE TRAN(NE,IN,X,Y,Z,NIN,NOUT,IIN,IOUT,GRI,GRO)
C*****
C PROGRAM TO CALCULATE GRADIENT VALUES
C
PARAMETER (N1=600,N2=1000,N3=72,N4=100)
DIMENSION X(N1),Y(N1),Z(N1),IN(N2,3),XI(3),YI(3),ZI(3)
DIMENSION IIN(N4),IOUT(N4)
C
IF(NIN.NE.0) THEN
SOM1=0.
DO 200 II=1,NIN
DO 100 L=1,NE
I1=IN(L,1)
I2=IN(L,2)
I3=IN(L,3)
IF(IIN(II).EQ.I1.OR.IIN(II).EQ.I2.OR.IIN(II).EQ.I3) THEN
DO 51 I=1,3
J = IN(L,I)
ZI(I)=Z(J)
XI(I) = X(J)
51 YI(I) = Y(J)
DD=XI(2)*YI(3)-XI(3)*YI(2)-XI(1)*(YI(3)-YI(2))
& + YI(1)*(XI(3)-XI(2))
GX=ZI(1)*(YI(2)-YI(3))+ZI(2)*(YI(3)-YI(1))+ZI(3)*(YI(1)-YI(2))
GY=ZI(1)*(XI(3)-XI(2))+ZI(2)*(XI(1)-XI(3))+ZI(3)*(XI(2)-XI(1))
GX=-GX/DD
GY=-GY/DD
GXY=SQRT(GX*GX+GY*GY)
SOM1=SOM1+GXY
GO TO 200
ELSE
ENDIF

```

```

100  CONTINUE
200  CONTINUE
    SOM1=SOM1/FLOAT(NIN)
    GRI=SOM1
    ELSE
    GRI=0.
    ENDIF
C
    IF(NOUT.NE.0) THEN
    SOM1=0.
    DO 201 II=1,NOUT
    DO 101 L=1,NE
    I1=IN(L,1)
    I2=IN(L,2)
    I3=IN(L,3)
    IF(IOUT(II).EQ.I1.OR.IOUT(II).EQ.I2.OR.IOUT(II).EQ.I3) THEN
    DO 52 I=1,3
    J = IN(L,I)
    ZI(I)=Z(J)
    XI(I) = X(J)
52  YI(I) = Y(J)
    DD=XI(2)*YI(3)-XI(3)*YI(2)-XI(1)*(YI(3)-YI(2))
    & + YI(1)*(XI(3)-XI(2))
    GX=ZI(1)*(YI(2)-YI(3))+ZI(2)*(YI(3)-YI(1))+ZI(3)*(YI(1)-YI(2))
    GY=ZI(1)*(XI(3)-XI(2))+ZI(2)*(XI(1)-XI(3))+ZI(3)*(XI(2)-XI(1))
    GX=-GX/DD
    GY=-GY/DD
    GXY=SQRT(GX*GX+GY*GY)
    SOM1=SOM1+GXY
    GO TO 201
    ELSE
    ENDIF
101  CONTINUE
201  CONTINUE
    SOM1=SOM1/FLOAT(NOUT)
    GRO=SOM1
    ELSE
    GRO=0.
    ENDIF
    RETURN
    END

```

PROGRAM FORMULA

```

C
C
C      THIS PROGRAM ESTIMATES THE EXPLOITATION POTENTIAL OF AN
C      AQUIFER IN THE KAROO. THE RECHARGE ESTIMATE MUST BE SEEN
C      AS THE FIRST STEP IN OBTAINING A RELIABLE VALUE OF THE
C      EXPLOITATION POTENTIAL OF AN AQUIFER. A TRUSTWORTHY ESTIMATE
C      MAY ONLY BE OBTAINED AFTER A NUMBER OF YEARS DURING WHICH THE
C      AQUIFER IS OPERATED AND THOROUGH MEASUREMENTS ARE MADE REGARDING
C      THE GROUND-WATER LEVEL FLUCTUATIONS AND ABSTRACTION IN THE
C      AQUIFER.
C      INPUT
C      -----
C      1. ANNUAL RAINFALL VALUES AS OBTAINED FROM THE CCWR (PMB,NATAL)
C          ENTER THIS DATA IN A FILE NAMED "FORMULA.DAT"
C
C      DIMENSION X(100),Y(100),R(100)
C      OPEN(5,FILE='FORMULA.DAT')
C      OPEN(8,FILE='8.txt',STATUS='UNKNOWN')
C
C      SCREEN INPUT
C
C      WRITE(*,*)' NUMBER OF YEARS FOR WHICH RECHARGE IS TO BE CALC?'
C      READ(*,*)IRET
C      WRITE(*,*)'  % OF AREA WITH A THICK SOIL COVER'
C      READ(*,*)THICK
C      WRITE(*,*)'  % OF AREA WITH A THIN SOIL COVER( < 200 mm)'
C      READ(*,*)THIN
C      WRITE(*,*)'  % OF AREA WITH A ALLUVIUM COVER'
C      READ(*,*)ALL
C      INT=IRET/2
C      L=0
C
C      READ ANNUAL RAINFALL DATA
C
C      DO 2 I=1,100
C      READ(5,*,END=10)X(I)
C      L=L+1
C      CONTINUE
C      N=L
C
C      RANK DATA
C
C      MIDP=L/2
C      MAX=0.
C      M=1
C      DO 1 I=1,N
C      IF(X(I).GT.MAX)THEN
C      MAX=X(I)
C      K=I
C      ELSE
C      ENDIF
C      CONTINUE
C      Y(M)=X(K)
C      F=FLOAT(M)*100./FLOAT(N+1)
C      AN=FLOAT(N)
C      AM=FLOAT(M)
C      M=M+1
C      X(K)=0.
C      MAX=0.
C      IF(M.NE.N)GO TO 3
C      SUM=0.
C      DO 20 I=1,IRET
C      R(I)=Y(MIDP-INT+I-1)
C      GR1=.023*(R(I)-51)*THICK/100.

```

```
GR2=.06*(R(I)-120)*THIN/100.  
GR3=.12*(R(I)-20)*ALL/100.  
S1=GR1+GR2+GR3  
SUM=SUM+S1  
WRITE(8,50)R(I),S1  
50  FORMAT(2F10.2)  
20  CONTINUE  
AMEAN=SUM/FLOAT(IRET)  
WRITE(*,*)' '  
WRITE(*,60)AMEAN  
60  FORMAT(1H0,' MEAN RECHARGE FOR THE YEARS = ',F10.2,' mm')  
STOP  
END
```