JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

ARUSHA REGIONAL DEVELOPMENT DIRECTORATE
THE UNITED REPUBLIC OF TANZANIA

THE FEASIBILITY STUDY
ON
MONDULI TOWN
AND
THE SURROUNDING AREA WATER SUPPLY
IN
ARUSHA REGION

FINAL REPORT

DATA AND DRAWINGS

MARCH 199[illegible]

SANYU CONSULTANTS INC.
JAPAN ENGINEERING CONSULTANTS CO., LTD.

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

ARUSHA REGIONAL DEVELOPMENT DIRECTORATE
THE UNITED REPUBLIC OF TANZANIA

THE FEASIBILITY STUDY ON MONDULI TOWN AND THE SURROUNDING AREA WATER SUPPLY IN ARUSHA REGION

FINAL REPORT

DATA AND DRAWINGS

MARCH 1996

SANYU CONSULTANTS INC.
JAPAN ENGINEERING CONSULTANTS CO., LTD.

CONTENTS

1. EXISTING WELL LOGS

EXPLORATORY WELL LOG

WELL No.	10/52	LOCATION	Makuyuni IV; MONDULI			SITE ALT.	masl
DEPTH	102.1 m	DRILL. DIA.	mm	CASING DIA.	100 mm	RIG TYPE	
S. W. L.	31.1 mbgs	Y I E L D	1.26 l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity SP
1.2					
4.6			Calcareous mudstone		
			No sampling	SWL	
28.8					
50					
52.7			Dolerite, bouldered, clayey		
69.7			Marl, gry.		
100					
102.1			Marl, gry		

EXPLORATORY WELL LOG

WELL No.	23/68 (12)	LOCATION	Makuyuni, Mondul			SITE ALT.	masl
DEPTH	144 m	DRILL. DIA	mm	CASING DIA	mm	RIG TYPE	
S. W. L.	24 mbgs	Y I E L D	0.612 l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick (m)	Geologic log	Lithology /Formation
4.9	4.9		boulder
12.4	7.5		
47.4	37.0		rock, dark brn
69.0	19.6		clay, gry
79.1	10.1		rock, pale gry
91.2	12.1		rock, brownish
130.3	39.1		rock, white
142.2	11.9		rock, soft, clayey
144	1.8		rock, gry

Well Structure: SWL

Borehole Logging: Resistivity SP

EXPLORATORY WELL LOG

WELL No.	110/79 (18)	LOCATION	Mswakini, MONDULI			SITE ALT.	masl
DEPTH	103.7 m	DRILL. DIA.	mm	CASING DIA.	300 mm	RIG TYPE	mlo
S. W. L.	30 mbgs	Y I E L D	0.522 l/s	DRAWDOWN	43 m	SPEC. CAP.	0.73 l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
3.0			Top soil			
				SWL		
42.4			Clay mixed few gravel			
48.5			c. sand w/gravel.			
50						
54.5			sandy clay, w/gravel.			
				PWL		
90.9			Sand w/little gravel			
100						
103			sand w/gravel			

EXPLORATORY WELL LOG

WELL No.	7/82 (19)	LOCATION	Meseran; MONDULI			SITE ALT.	masl
DEPTH	106.75 m	DRILL. DIA	mm	CASING DIA.	331 mm	RIG TYPE	
S. W. L.	89.9 mbgs	Y I E L D	0.47 l/s	DRAWDOWN	7.25 m	SPEC. CAP.	0.065 l/s/m
TRANS.	sqm/d	SCREEN	m-m			D A T E	

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
1.5			top soil			
4.5			Gravel w/clay			
16.1			sand & gravel			
21.1			c. sand			
27.2			clay w/ basaltic gravel			
39.4			clay, brnish gry w/ gravel			
50						
56.0			fractured basalt, weathrd			
72.3			Basalt, boulddered, silty			
86.4			Gravelley basalt w/silt	SWL		
100				PWL		
106.0			Gravelly rock w/ sand			

EXPLORATORY WELL LOG

WELL No.	112/84 (22)	LOCATION	Enguiki, Manduli			SITE ALT.	amsl
DEPTH	29 m	DRILL. DIA	mm	CASING DIA	mm	RIG TYPE	
S. W. L.	mbgs	Y I E L D	0.605 l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	July 16, 1984

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
9.2	9.2		top soil, soft			
15.3	6.1		clay w/soft wht boulder			
21.4	6.1		soft soil			
25.9	4.5		clay w/soft wht boulder			
29	3.1		soft soil			

EXPLORATORY WELL LOG

WELL No.	142/79	LOCATION	Kirany Mission, Arusha Urban			SITE ALT.	masl
DEPTH	94.6 m	DRILL DIA	250 mm	CASING DIA.	168 mm	RIG TYPE	Rotary
S.W.L.	1.5 mbgs	Y I E L D	24.75 l/s	DRAWDOWN	10.75 m	SPEC. CAP.	2.3 l/s/m
TRANS.	sqm/d	SCREEN			=29.3 m-m	D A T E	Nov 22 ~ Nov 30 79

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
6.1			sand clay			
9.2			gravel w/clay			
15.3			gravel w/clay			
22.9			gravel w/sand clay			
50						
71.9			boulder gravel w/sand, clay			
83.9			boulder w/sand, clay			
90			boulder w/sand			
94.6			clay w/gravel			
100						

EXPLORATORY WELL LOG

WELL No.	39/80	LOCATION	Arusha Seed Farm			SITE ALT.	masl
DEPTH	152.5 m	DRILL. DIA.	306 mm	CASING DIA.	219~156 mm	RIG TYPE	Rotary
S. W. L.	4.5.9 mbgs	Y I E L D	13.3 l/s	DRAWDOWN	3.0[illegible] m	SPEC. CAP.	4.4 l/s/m
TRANS.	sqm/d	SCREEN	20.2~30.4	48.8~58.6	70.8~80.5 118.9 m (123)	D A T E	Apr. 1980

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
3.1			clay, bl			
6.1			sandy clay lig bl			
12.2			clay, bl			
19.8			sandy clay, brn-grysh			
29.5			f-c grained basalt			
33.6			f-c sand			
36			f. sand clayey			
50				SWL		
70.2			f-c grained basalt			
77.8			clay, brn-gry			
100						
105.2			clay w/few gravel			
115.9			c. sand w/gravel, clay			
128.1			f-c. sand w/clay, gravel			
135.9			f-c, sand w/clay, gr			
141.4			clay w/sand & gravel			
150						
152.5			sand & gravel, few clay			

EXPLORATORY WELL LOG

WELL No.	47/80	LOCATION	Foundation Seed Farm,			SITE ALT.	masl
DEPTH	127.2m	DRILL. DIA.	375 mm	CASING DIA.	219 mm	RIG TYPE	Rotary
S. W. L.	38 mbgs	Y I E L D	1.67 l/s	DRAWDOWN	8.8 m	SPEC. CAP.	0.19 l/s/m
TRANS.	sqm/d	SCREEN	36.6~48.8	61~73.2	85.4~97.6 m-m	D A T E	April~June 5, '80

Depth (m)	Thick (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
12.2			silty clay, gry			
27.5			sand & gravel, volcanic			
47.3			weathered basaltic boulder,			
59.5			basaltic boulder			
88.5			basalt boulder fresh			
91.5			clay, dark brn			
97.5			basalt, weathered			
127.2			brn clay, w/ some gravel			

EXPLORATORY WELL LOG

WELL No.	79/80	LOCATION	Arusha Seed Farm			SITE ALT.	masl
DEPTH	91.5 m	DRILL. DIA.	375 mm	CASING DIA.	168 mm	RIG TYPE	
S.W.L.	42.7 mbgs	Y I E L D	1.41 l/s	DRAWDOWN	25.3 m	SPEC. CAP.	0.06 l/s/m
TRANS.	sqm/d	SCREEN	43.6 ~ 63.4		m-m	D A T E	Jun 7 ~ Jul 10'80

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity SP
6			Top Soil		
12			m. sand,		
17			basalt, bouldering		
24.2			clay w/ basalt frag.		
41			basalt, boulder in clay	SWL	
53			basalt, bould. in sand		
60.6			gravel in clay		
90.3			clay, grey		

EXPLORATORY WELL LOG

WELL No.	78/80	LOCATION	AFSE, Arusha Seed Farm			SITE ALT.	masl
DEPTH	140 m	DRILL. DIA.	375 mm	CASING DIA.	200 mm	RIG TYPE	
S.W.L.	31.7 mbgs	Y I E L D	11 l/s	DRAWDOWN	12.44 m	SPEC. CAP.	0.89 l/s/m
TRANS.	sqm/d	SCREEN	Johnson 56.7~72, 90.3~105.2 m-m			D A T E	Jul. 31 – Sep 3680

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity SP
3			Top soil		
9.5			sand, m~c		
16.6			clay, w/silt		
24.2			c. sand w/gravel		
30.3			c~m sand	SWL	
40.9			c. sand w/gravel		
42.4			gravel, weathered	PWL	
50					
58.5			c. sand w/gravel		
64.5			c. sand w/silt, clay		
62.0			silt, w/c. sand		
68.2			gravel in silt matrix		
72.2			silt & clay w/gravel, c. sand		
81.8			silt & clay w/sand		
100					
106.0			clay & silt w/sand		
112.1			clay, silt		
133.3			basalt, bouldering		
140			silt & f. sand		

EXPLORATORY WELL LOG

WELL No.	37/67 (1Y0)	LOCATION	Arda' Arsala, MONDULI			SITE ALT.	masl
DEPTH	287.9 m	DRILL. DIA	mm	CASING DIA	100 mm	RIG TYPE	
S. W. L.	mbgs	Y I E L D	l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m~m	D A T E	

Depth (m)	Thick (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
4.2			Top soil			
12.1			sand, red			
15.1			clay, w/boulder			
18.5			lava			
22.7			lava, blocky			
30.3			lava			
36.4			clay, brn			
37.4			basalt, blocky			
43.9			lava			
50						
51.5			basalt			
60.6			lava			
80.3			basalt, decomposed			
86.3			clay, sandy			
93.9			sandy, clay, red			
97			sandy, clay, brn			
100						
133.3			basalt, heavily weathered			
142.4			basalt, blocky			
150			clay, brn, bedding			
151.5			lava			
166.7			sand clay, brn			
200						
218.7			sandy clay, red			
230.3			clay, brn			
			(Limestone or Granit?)	Precambrian ?		
250			Rock, wht, soft			
			(Limestone?)			
268.2			clay stone, brn			
273			Rock, gry			
280			clay stone, brn			

EXPLORATORY WELL LOG

WELL No.	28/68 (115)	LOCATION	Monduli Town, Bennets Farm			SITE ALT.	masl
DEPTH	394 m	DRILL. DIA	mm	CASING DIA.	150 mm	RIG TYPE	
S.W.L.	mbgs	Y I E L D	l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
7.7			Clay, yellow			
9.1			Lava			
19.6			clay			
13.7			Lava			
22.7			Tuff			
25.8			Lava			
42.4			Tuff			
56.1			Lava			
62.1			Tuff			
69.7			Lava, gry			
78.3			Tuff			
81.8			Lava, gry blue			
92.4			Lava, gry			
100						
121.2			Lava, brn			
127.3			Tuff			
145.5			Lava, gry			
155.2			Lava, gry red			
181.8			Lava, gry			
200						
209.6			Tuff, yellow			
234.9			Tuff, red			
248.4			Tuff, reddish			
251.5			Lava, gry			
262.1			Tuff red-gry			
274.2			Lava, hard, gry			
280.0			Tuff, red			
294.0			Tuff, yellow			
300						
363			volcanic rock, gry			
383			Tuff, gry			
394			Tuff, brn			
400						

EXPLORATORY WELL LOG

WELL No.	275/76 (122)	LOCATION	Laskaine, Mondul:		Masai Project	SITE ALT.	msl
DEPTH	169.6 m	DRILL. DIA	150 ~ 300 mm	CASING DIA	150 mm	RIG TYPE	
S. W. L.	mbgs	Y I E L D	l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN	abandon		m-m	D A T E	

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
50						
87.9	87.9		Clay			
100						
150			Volcanic ? Granite, heavily weathered, clayey.			
169.6	81.7					
			76.25m } water 130 m } struck			

EXPLORATORY WELL LOG

WELL No.	74/79(B)	LOCATION	Mswakini, MONDULI			SITE ALT.	masl
DEPTH	24.24 m	DRILL. DIA.	mm	CASING DIA.	mm	RIG TYPE	
S. W. L.	22.73 mbgs	Y I E L D	l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
3.0			Limestone			
15.2			clay, blue	SWL		
24.2			clay, black.			

EXPLORATORY WELL LOG

WELL No.	82/79 (124)	LOCATION	Mswakini, Mondoli			SITE ALT.	masl
DEPTH	30,5 m	DRILL. DIA	mm	CASING DIA.	mm	RIG TYPE	
S. W. L.	mbgs	Y I E L D	l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
1.5	1.5		Surface soil, bl			
13.6	12.1		Limestone			
22.7	9.1		Limestone, bl.			
30.3	7.6		clay, gry			

EXPLORATORY WELL LOG

WELL No.	87/79 (125)	LOCATION	Mondul: Jun.		3°13.951, 36°21.660	SITE ALT.	masl
DEPTH	91 m	DRILL. DIA	200~165 mm	CASING DIA	Uncased mm	RIG TYPE	
S. W. L.	(87) mbgs	Y I E L D	l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
4.5	4.5		clay, bl			
15.3	10.8		clay, w/ gravel			
18.3	3		clay, calcareous			
20	1.7		clay, bl			
40	20		clay, brn			
52	12		clay w/ calcareous			
59	7		clay, wht			
61	2		gravel, Pebble			
80			water loss in 87 m weathered			
88	27		gravel, boulder			
91	3		volcanic rock			

EXPLORATORY WELL LOG

WELL No.	107/79 (126)	LOCATION	Monduli Jun. School, capped			SITE ALT.	mast
DEPTH	m	DRILL. DIA	349 mm	CASING DIA	222 mm	RIG TYPE	
S.W.L.	3.97 mbgs	Y I E L D	l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN	11.8 ~ 16.7 = 4.9 m		m-m	D A T E	

Depth (m)	Thick (m)	Geologic Log	Lithology /Formation
1.5	1.5		clay, bl
3.5	2		sandy clay
7.6	4.1		laterite
10.6	3		clay w/ gravel
16.7	6.1		sandy clay, w/gravel

Well Structure: SWL; 11.8 m

Borehole Logging: Resistivity, SP

EXPLORATORY WELL LOG

WELL No.	5782	LOCATION	Minjingu Phosphate Mine, Manyara			SITE ALT.	masl
DEPTH	109.8 m	DRILL. DIA.	375 mm	CASING DIA.	356 mm	RIG TYPE	Mud-Rotary
S. W. L.	33.75 mbgs	Y I E L D	4.5 l/s	DRAWDOWN	20.25 m	SPEC. CAP.	0.22 l/s/m
TRANS.	sqm/d	SCREEN	79.6 ~ 104.9		m-ra	D A T E	Dec 11 ~ Jan 17, 92

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
15			Top soil, clayey w/pebble			
18.1			clay w/c. sand, greenish			
24.4			clay w/sand, greenish			
				SWL		
50.3			clay, dark blu, plastic			
74.8			clay, dark grn w/c. sand			
83.9			c~m. sand in clay matrix			
93			m. sand, well sorted w/clay			
100						
109.8			m~c. sand w/dk gry clay			

EXPLORATORY WELL LOG

WELL. No.	16/83 (129)	LOCATION	Ngarasik, MONDULI			SITE ALT.	masl
DEPTH	112 m	DRILL. DIA	325 mm	CASING DIA	225 mm	RIG TYPE	
S. W. L.	mbgs	Y I E L D	dry. l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
1.5			Top soil			
4.7			silt, tuffaceous, brn			
14.1			f-m. sand, volcanic			
17.8			Gravel, w/ silt			
20.3			m. sand			
26.5			f-m sand w/ clay			
36.6			silty sand			
50						
62.5			clay, sandy			
68.7			sand			
92.9			Gravel w/ clay			
100						
106			Gravel, Pebb~cobbles			
112.4			Basalt			

EXPLORATORY WELL LOG

WELL No.	108/84 (21)	LOCATION	Sinoniki, Monduli			SITE ALT.	masl
DEPTH	33.3 m	DRILL. DIA.	mm	CASING DIA.	200 mm	RIG TYPE	
S.W.L.	7.01 mbgs	Y I E L D	82.3 l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity SP
3.0			f.-m sand		
4.6			Quartzite		
				SWL.	
10					
15.2			Quartzite, blocky		
20					
30	30		Quartzite, blocky		
33.3			Quartzite in rich biotite		

EXPLORATORY WELL LOG

WELL No.	129/84 (129)	LOCATION	Meserani, MONDULI			SITE ALT.	masl
DEPTH	m	DRILL. DIA.	200 mm	CASING DIA.	mm	RIG TYPE	
S. W. L.	mbgs	Y I E L D	Dry l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
7.6			m-c. Sand.			
20						
25.9			Gravel, angular			
29			Sand & gravel			
32			Gravel, angular			
38.1			Gravel, pebbles, angular			
40						
51.8			Gravel, angular, pinkish			
60						
64.0			Gravel, angular, dk gry			

EXPLORATORY WELL LOG

WELL No.	73/86	LOCATION	KIRANYI, ARUMERU			SITE ALT.	· msl
DEPTH	150 m	DRILL DIA.	95~38 mm	CASING DIA.	none mm	RIG TYPE	Mud Rotary
S.W.L.	54.9 mbgs	Y I E L D	good l/s	DRAWDOWN	— m	SPEC. CAP.	· l/s/m
TRANS.	sqm/d	SCREEN	—	open hole	m-m	D A T E	oct 30 - Feb 8 '87

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
3.2						
6.1			sand, clayey			
9.3			clay, vol ash			
12.2			basalt, fractured			
25			basalt, weathered			
50						
55.7			basalt, hd, fractured	▽		
78.2			volcanic sand, micr.			
100						
120.4			basalt, weathered			
126.6			no sampled			
133.8			basalt, weathered			
144			no sampled			
150	142.4		clay			

EXPLORATORY WELL LOG

WELL No.	39/87	LOCATION	SAKINA, ARUMERU			SITE ALT.	masl
DEPTH	170 m	DRILL. DIA.	15~38 mm	CASING DIA.	open hole mm	RIG TYPE	Mud Drill
S. W. L.	0.3 mbgs	Y I E L D	-- l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	Apr.9 - May 6, 87

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity	SP
1.4			clay, brn			
36.5			c. vol sand			
33.6			basalt, vol sand			
45.8			f. vol sand			
98.8			basalt, fractured			
50						
54.3			f. vol sand			
57.3			basalt, fractured			
66.4			basalt, weather. w/f.v.s.			
75.6			basalt, solid			
87.5			f. vol sand			
100						
128.9			basalt, weath. w/clay			
147			basalt, minor fract.			
150			basalt, solid			
155			basalt, fract.			
170			clay, brn			

EXPLORATORY WELL LOG

WELL No.	144/87 (133)	LOCATION	Elkanato Nanja Swamp, ARKATAN			SITE ALT.	amsl
DEPTH	120 m	DRILL. DIA.	mm	CASING DIA.	mm	RIG TYPE	
S.W.L.	dry. mbgs	Y I E L D	l/s	DRAWDOWN	m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			m-m	D A T E	

Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity 20 40 60 80 SP m.in/mc.
4	4		clay, bl		Penetration rate
20	16		clay, gry'sh		
24	4		clay, limestone boulders		
72	48		clay, red'sh		
90	18		f-C. Sand derived from basalt		
100	10		volcanic ash w/ clay		
108	8		volcanic ash, gry		
112	4		volcanic ash, brn		
120	8		fine vol. sand, gry		

EXPLORATORY WELL LOG

WELL No.		LOCATION	Selian Agricultural Research Inst, Arusha			SITE ALT.	masl
DEPTH	102 m	DRILL. DIA.	250 mm	CASING DIA	150 mm	RIG TYPE	
S. W. L.	@ 48 mbgs	Y I E L D	@ 3.9 l/s	DRAWDOWN	0.9 m	SPEC. CAP.	l/s/m
TRANS.	sqm/d	SCREEN			Total 22 m-m	D A T E	Jun 29-Sept 95

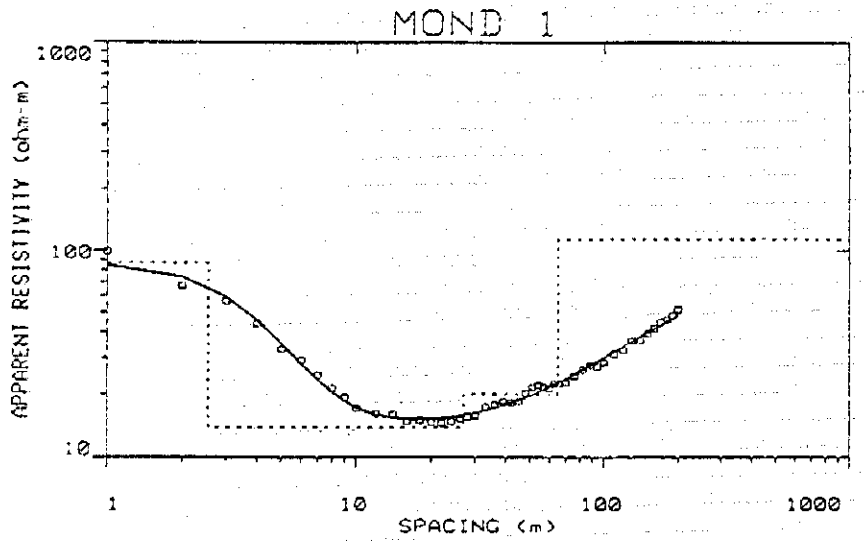
Depth (m)	Thick (m)	Geologic log	Lithology /Formation	Well Structure	Borehole Logging Resistivity SP
11			Top Soil Vol ash		
25			tuff. clayey		
			48m. water struck 63.6 m³/Hr		
			58m. w.s.		
70			Vol sand w/clay		
102			Basalt, weathered w/tuff		

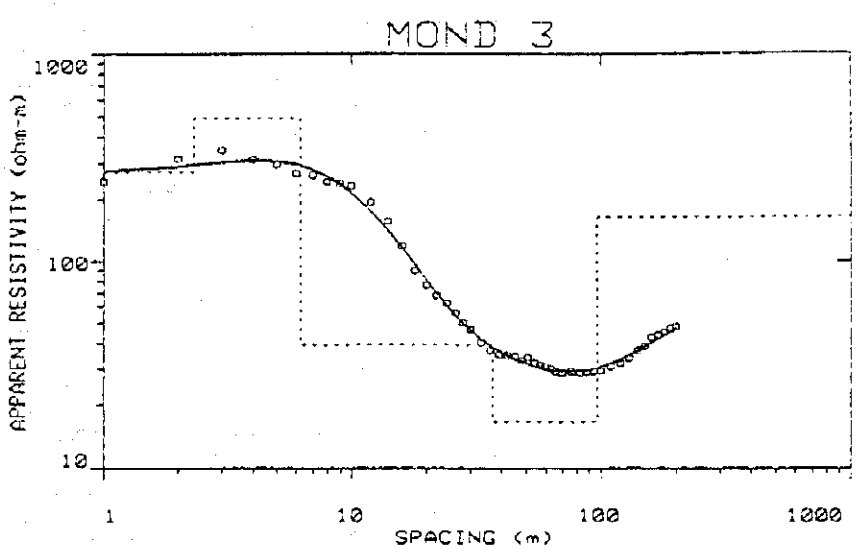
EXPLORATORY WELL LOG

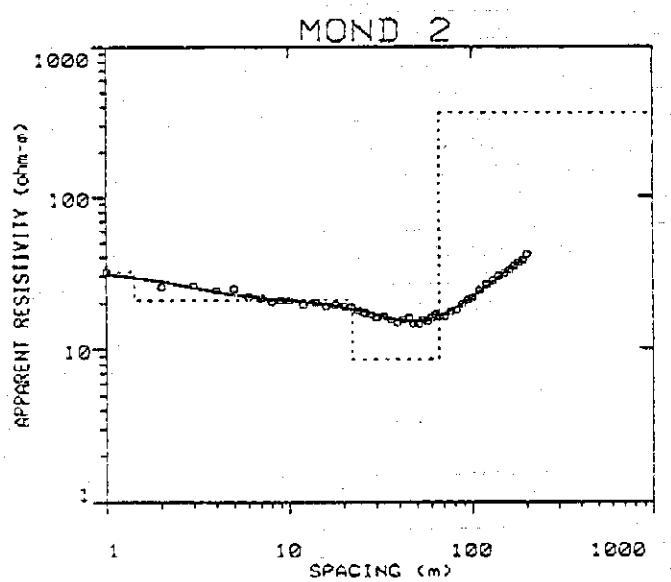
WELL No.	164/95	LOCATION	Sinodi, Mondulí			SITE ALT.	1,540 masl
DEPTH	202 m	DRILL. DIA.	222 mm	CASING DIA.	150 mm	RIG TYPE	Mud drill
S. W. L.	130 mbgs	Y I E L D	0.2 l/s	DRAWDOWN	— m	SPEC. CAP.	— l/s/m
TRANS.	sqm/d	SCREEN	25.9~29.9, 133.9~181.9=52m m-m			D A T E	Nov~Dec. 1995

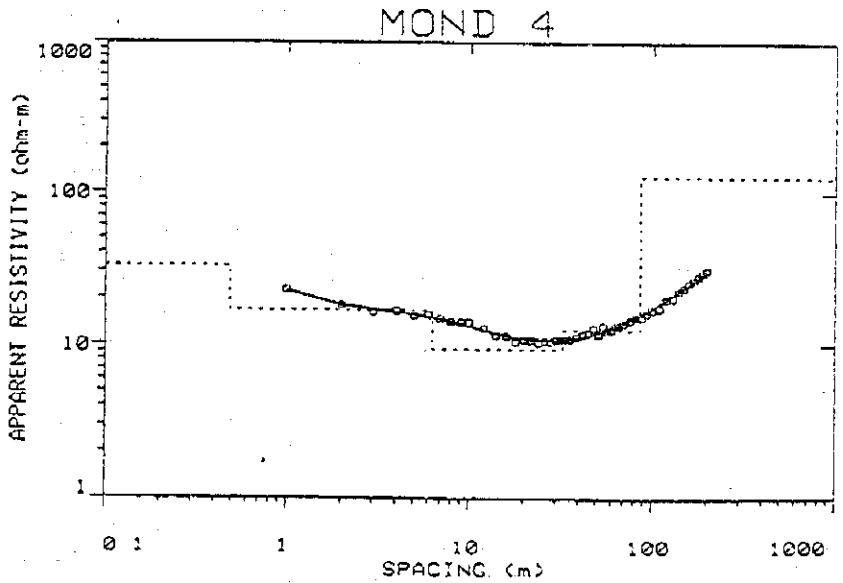
Depth (m)	Thick. (m)	Geologic Log	Lithology /Formation	Well Structure	Borehole Logging Resistivity SP
2			Top soil		
4			gravel		
10			sand & gravel w/clay		
18			sand & gravel		
50			weathered		
56			vol. rock. fractured		
90			Agglomeratic tuff. breccia		
96			Lateritic Aggl-tic breccia		
100					
			102~104. mud loss		
120			tuff breccia gry		
144			tuff. breccia, dark gry		
150					
			160-162m mud loss		
			165m 50% mud loss		
196			tuff breccia, gry		
200					
202			volcanic rock		

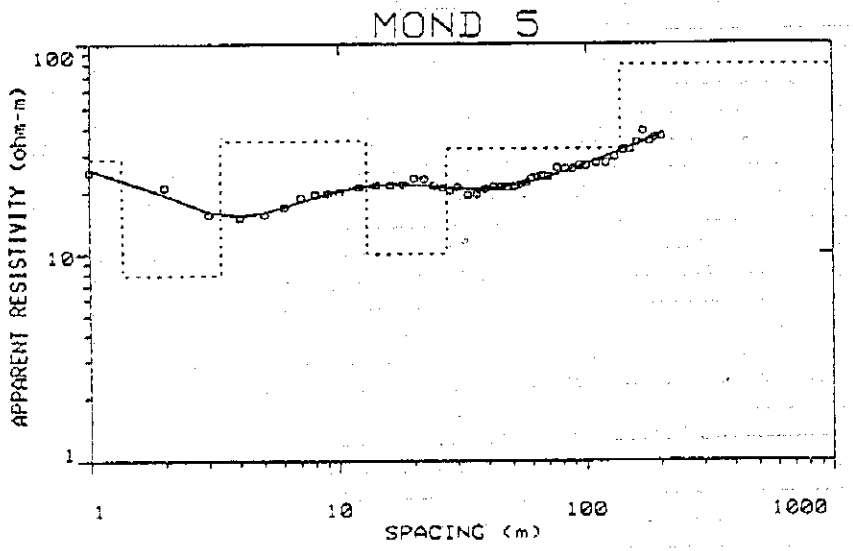
2. RESISTIVITY VES CURVES

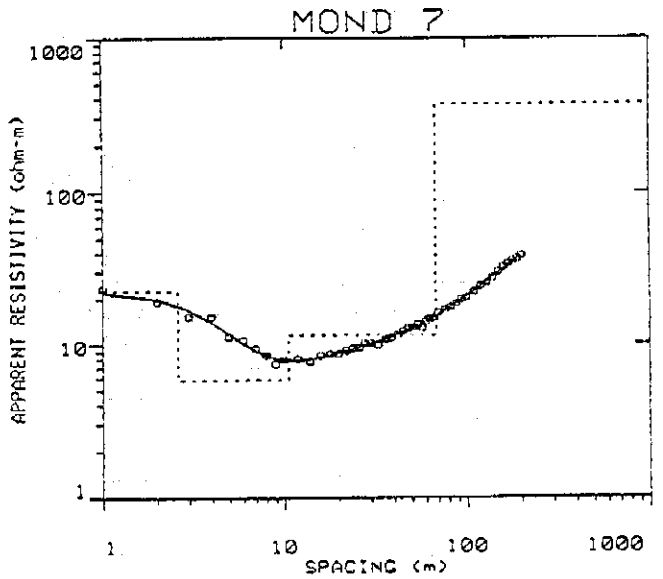

MOND 1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
SPACING (m)

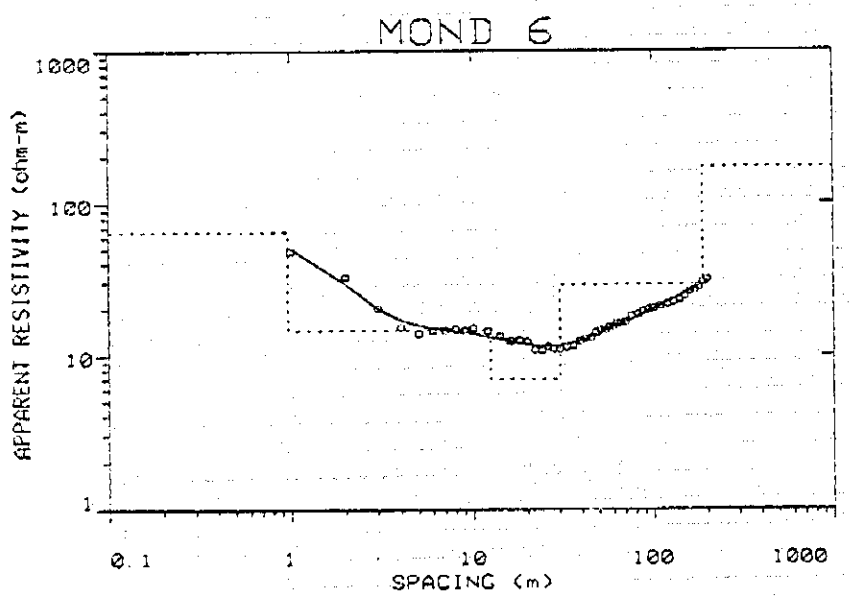

MOND 3
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
SPACING (m)

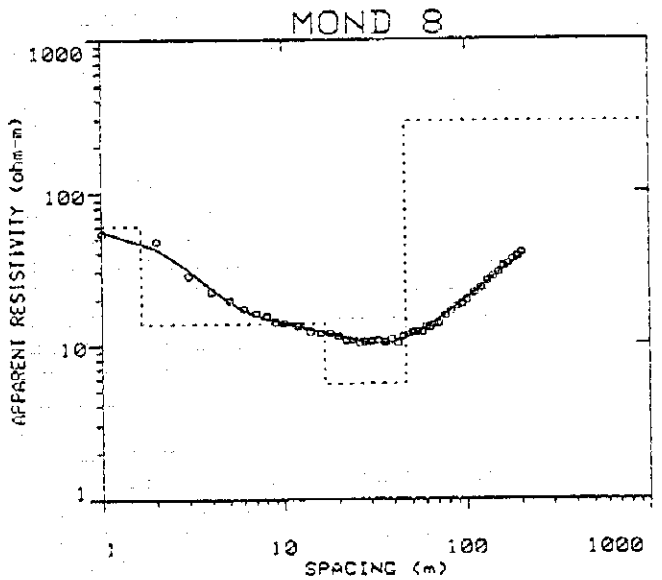

MOND 2
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
SPACING (m)

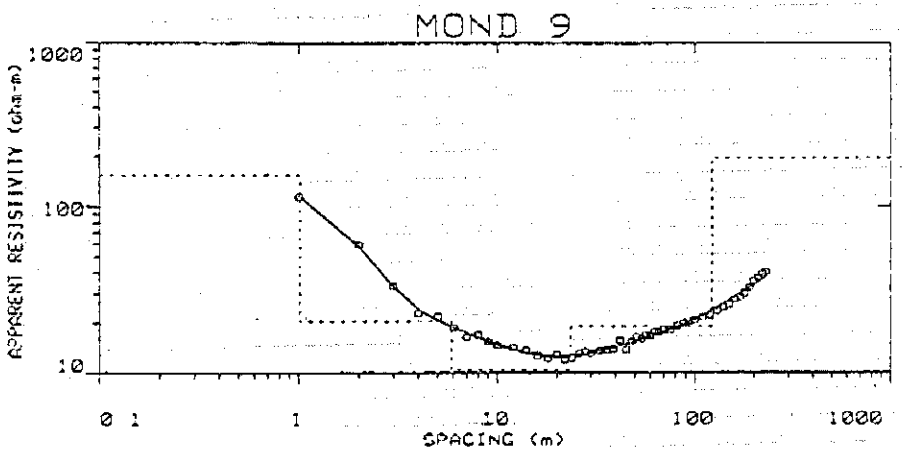

MOND 4
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1000
SPACING (m)

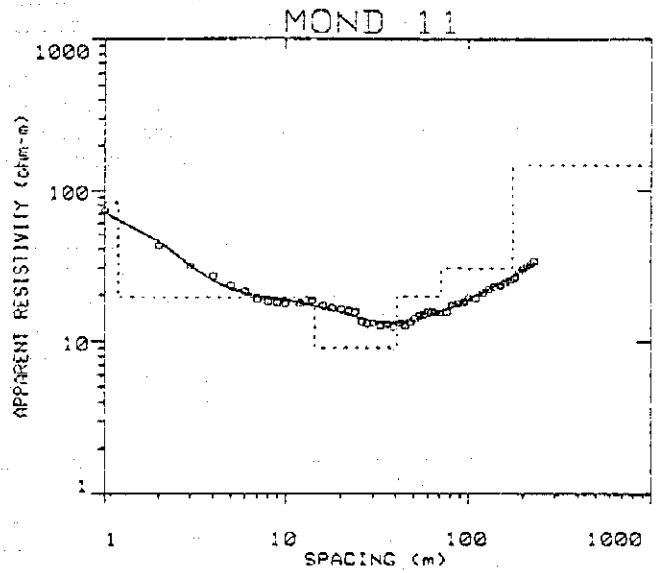

MOND 5
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
SPACING (m)

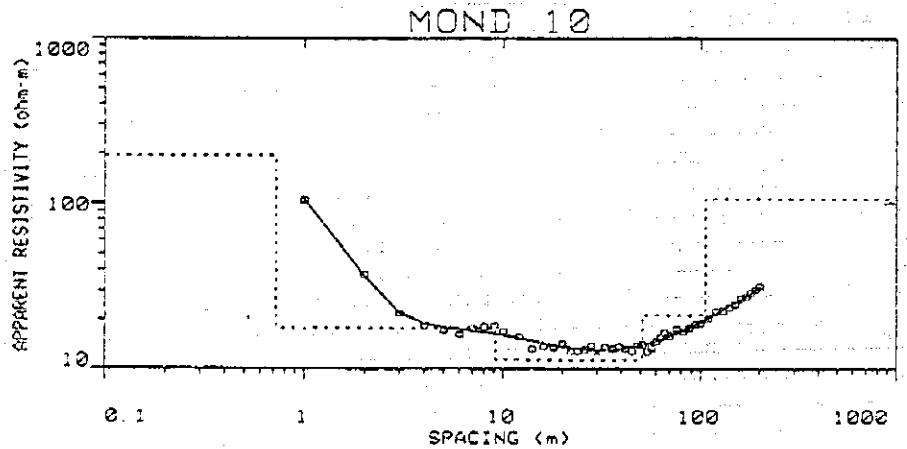

MOND 7
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
SPACING (m)

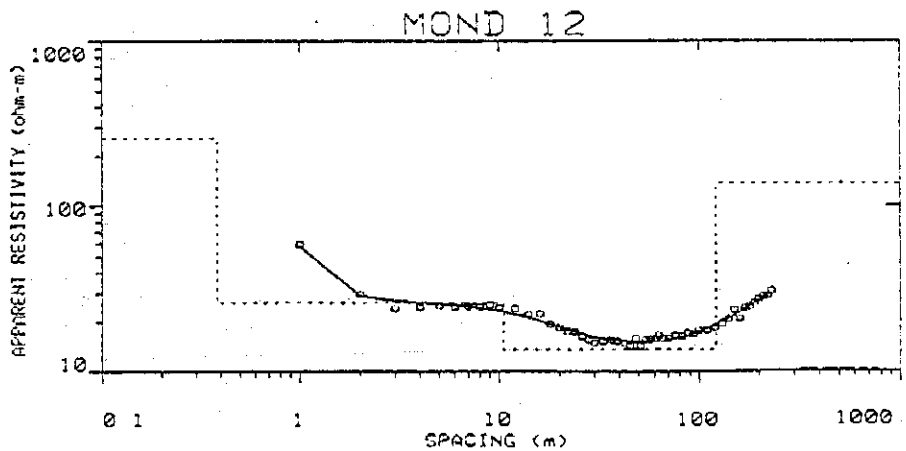

MOND 6
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
SPACING (m)

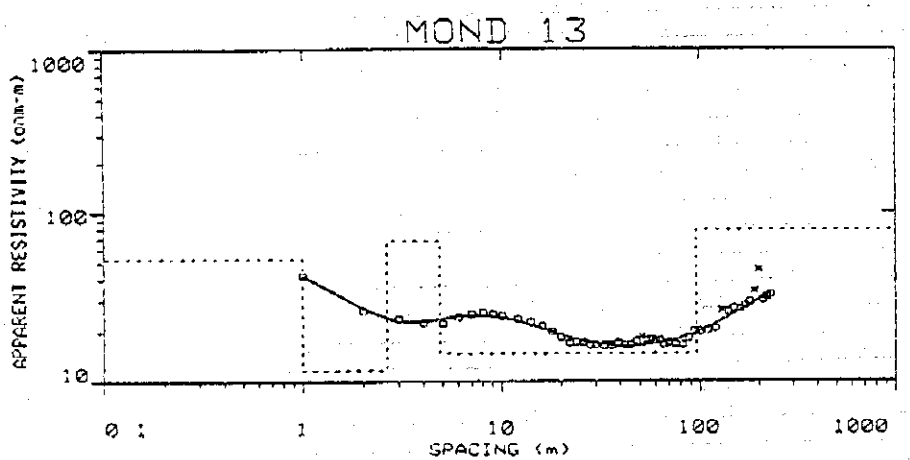

MOND 8
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
SPACING (m)

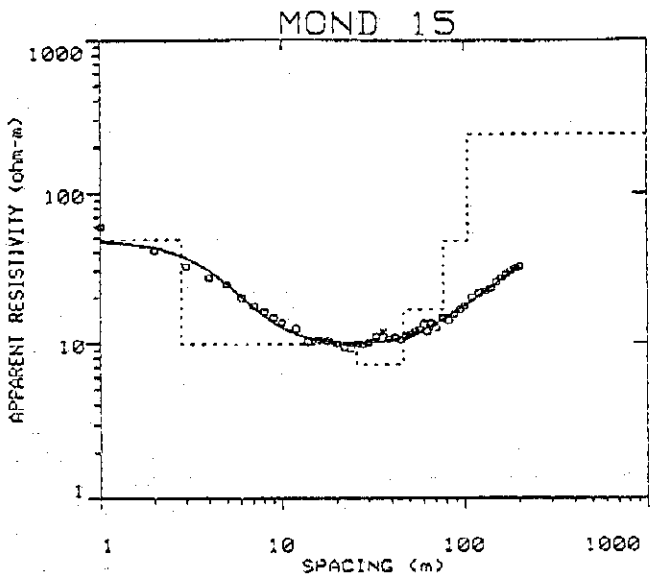

MOND 9
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
SPACING (m)

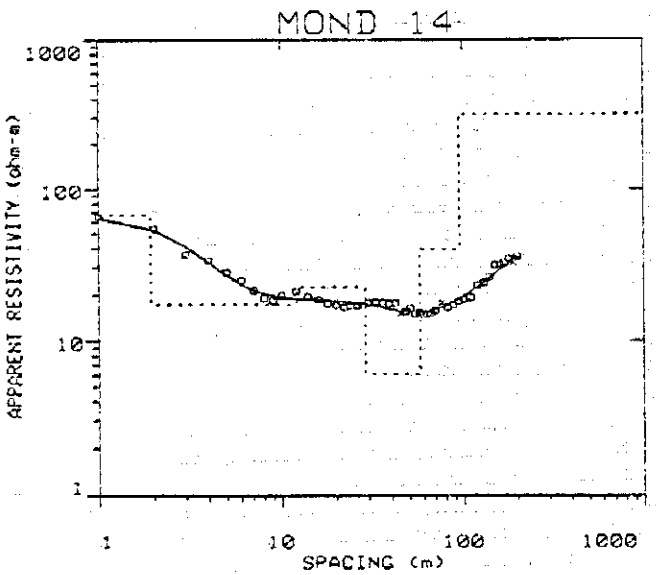

MOND 11
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
SPACING (m)

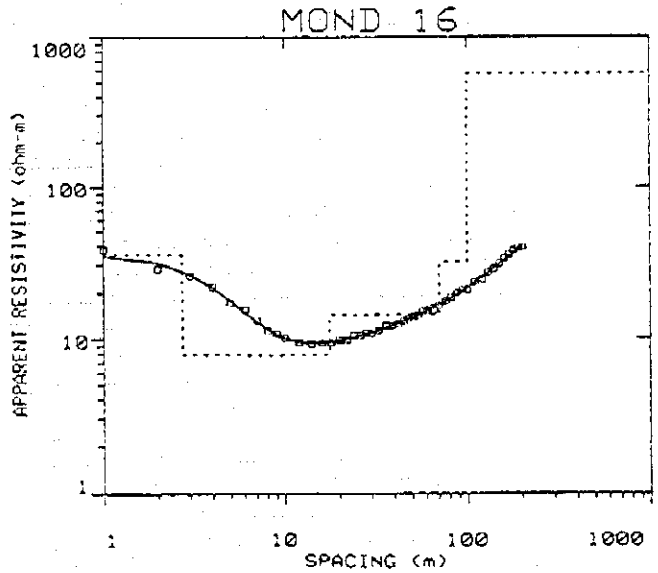

MOND 10
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
SPACING (m)

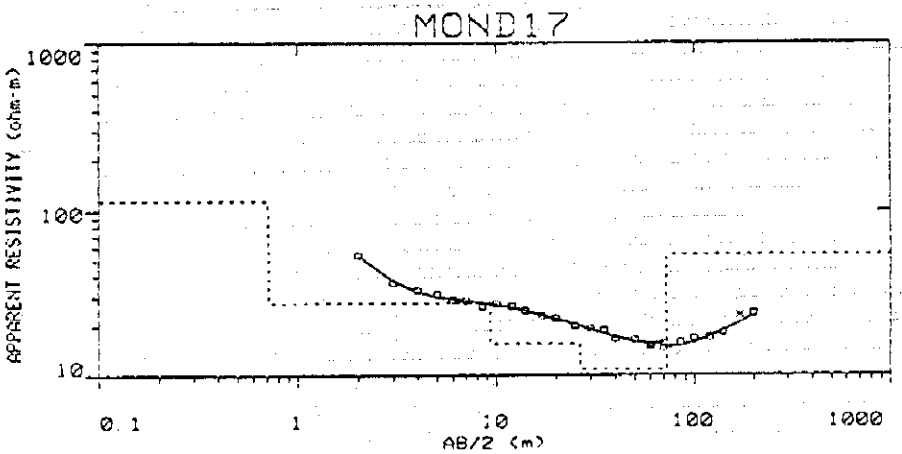

MOND 12
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
SPACING (m)

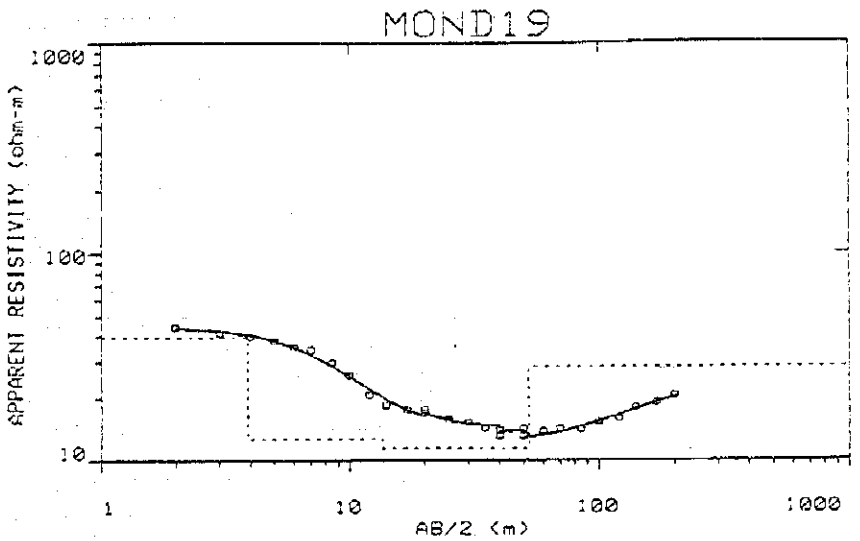

MOND 13
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
SPACING (m)

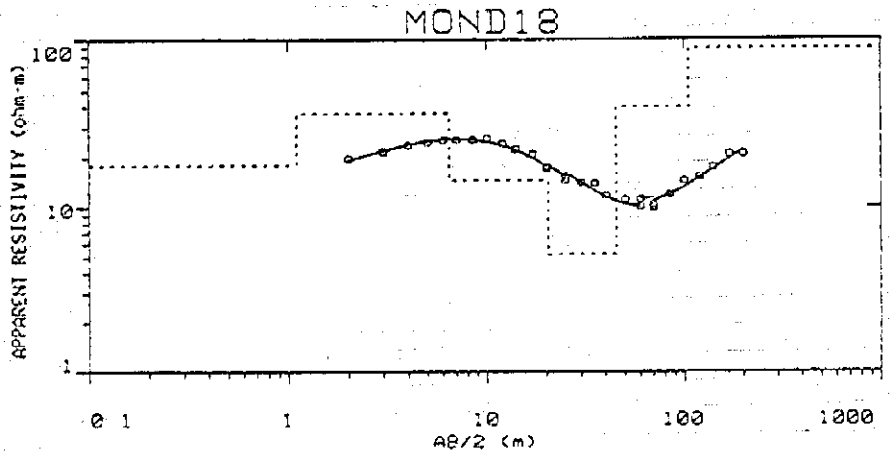

MOND 15
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
SPACING (m)

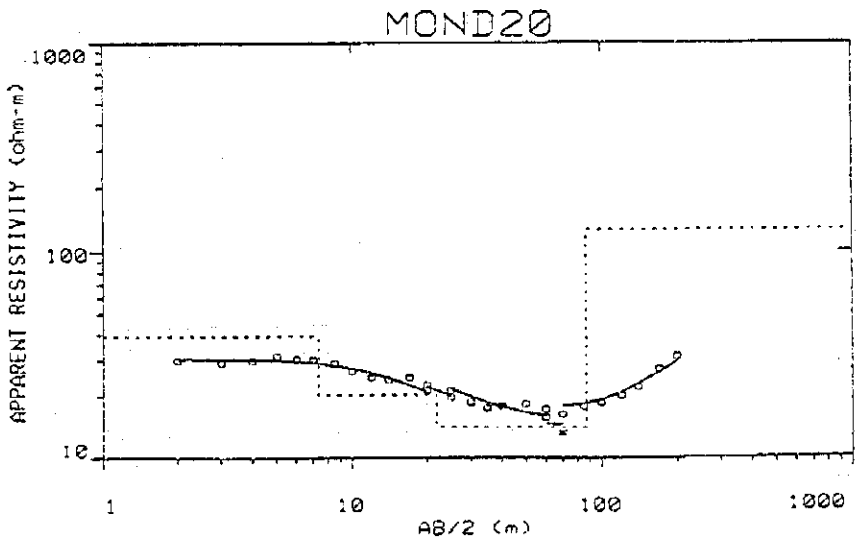

MOND 14
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
SPACING (m)

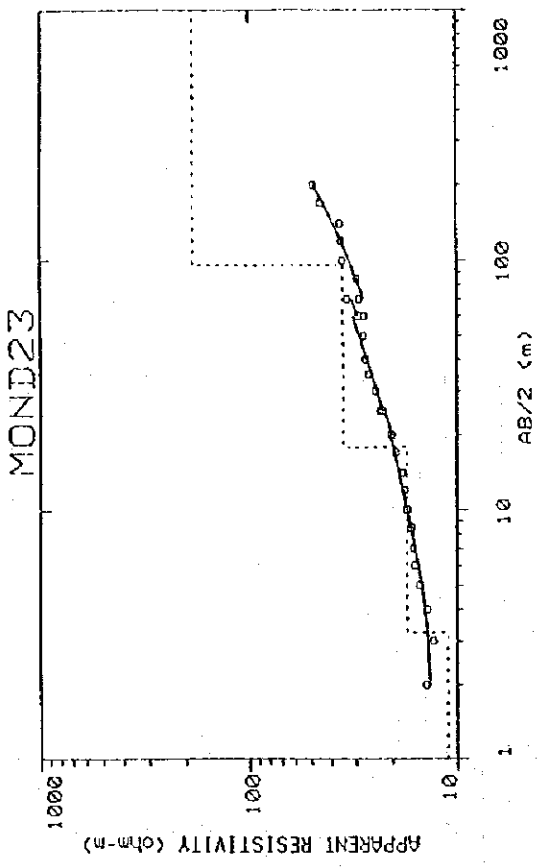

MOND 16
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
SPACING (m)

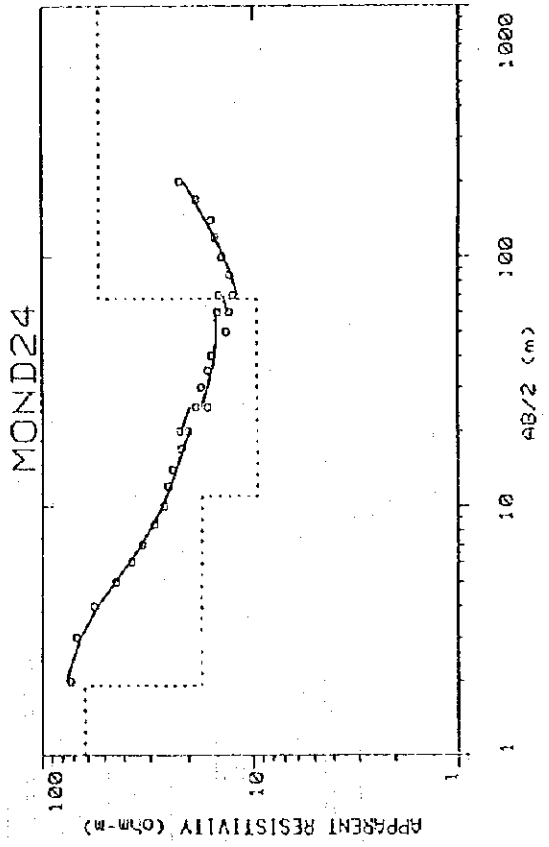

MOND17
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

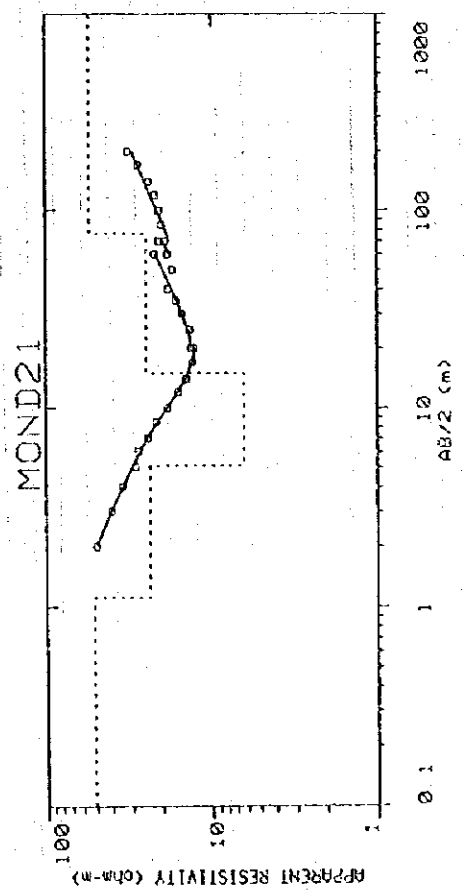

MOND19
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

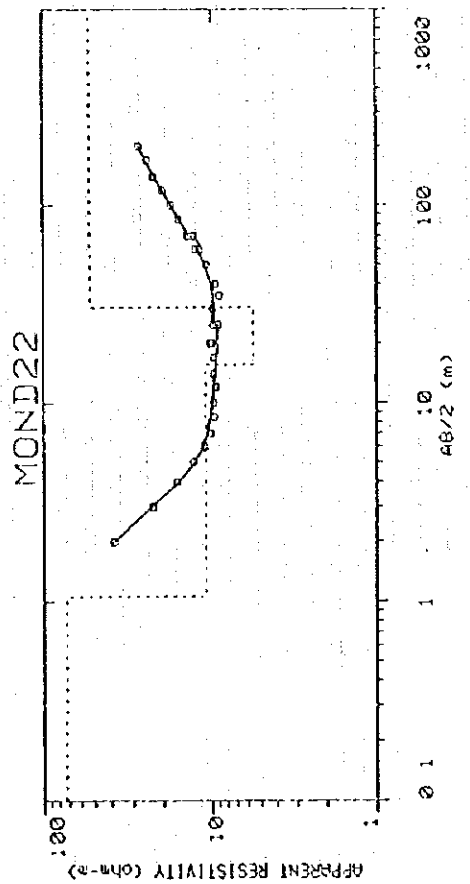

MOND18
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

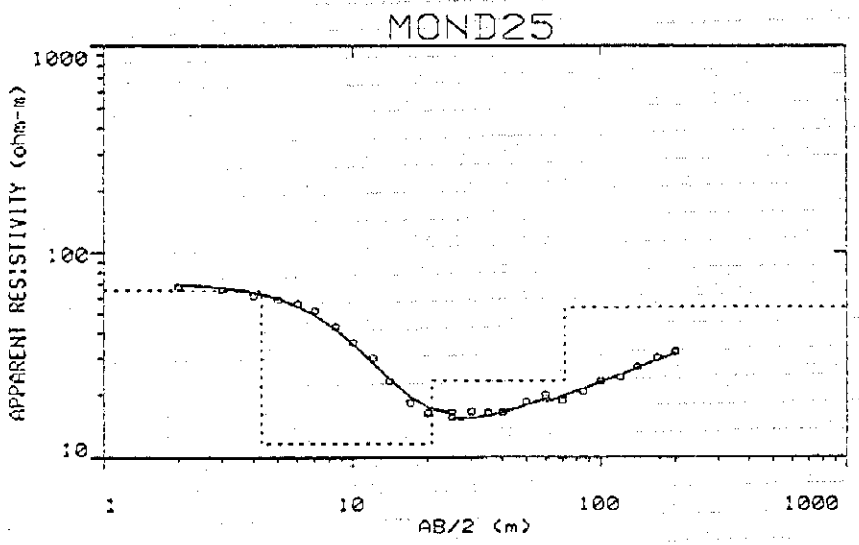

MOND20
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

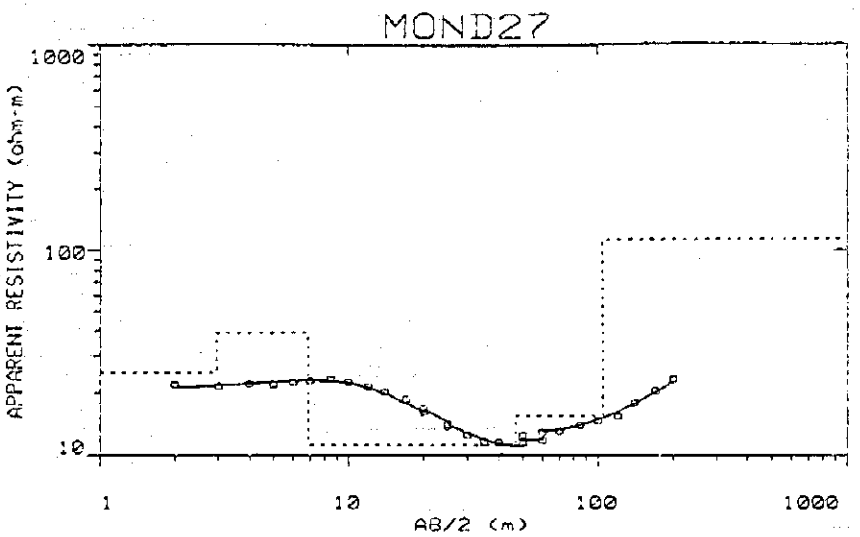

MOND23
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

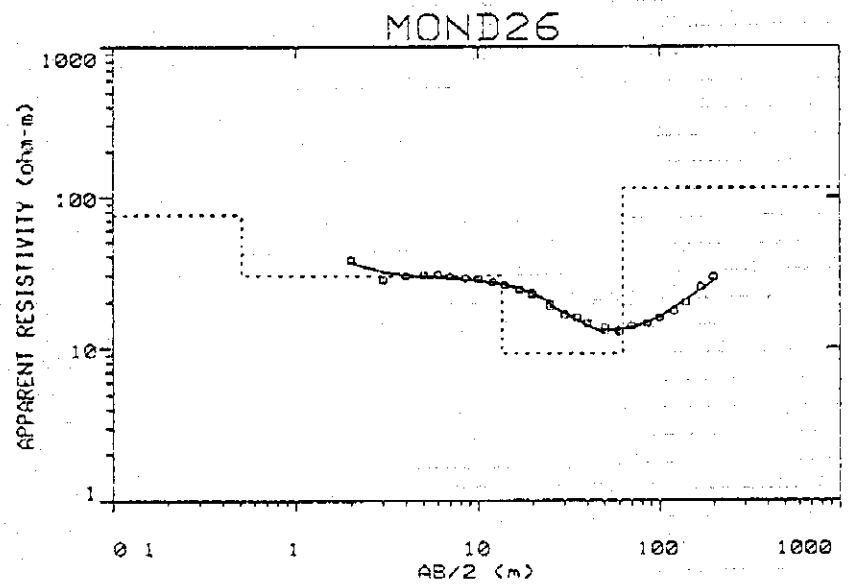

MOND24
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

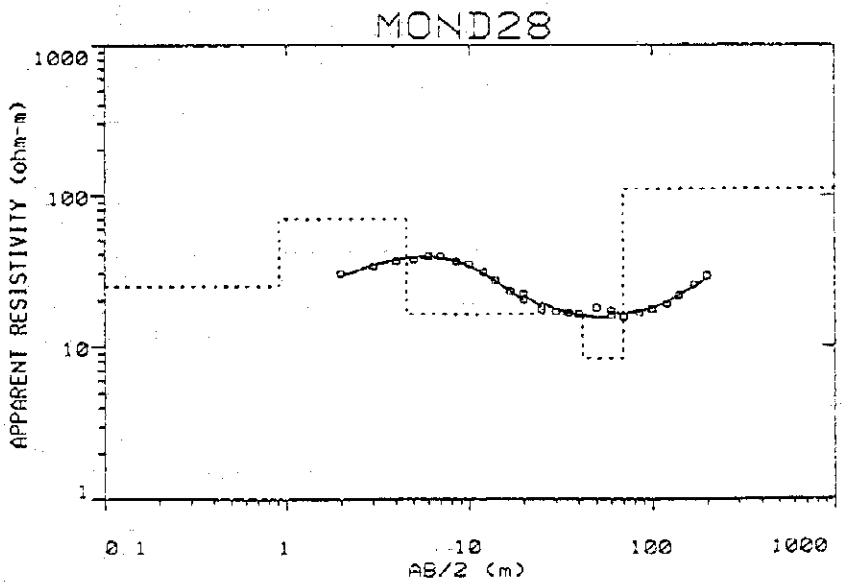

MOND21
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

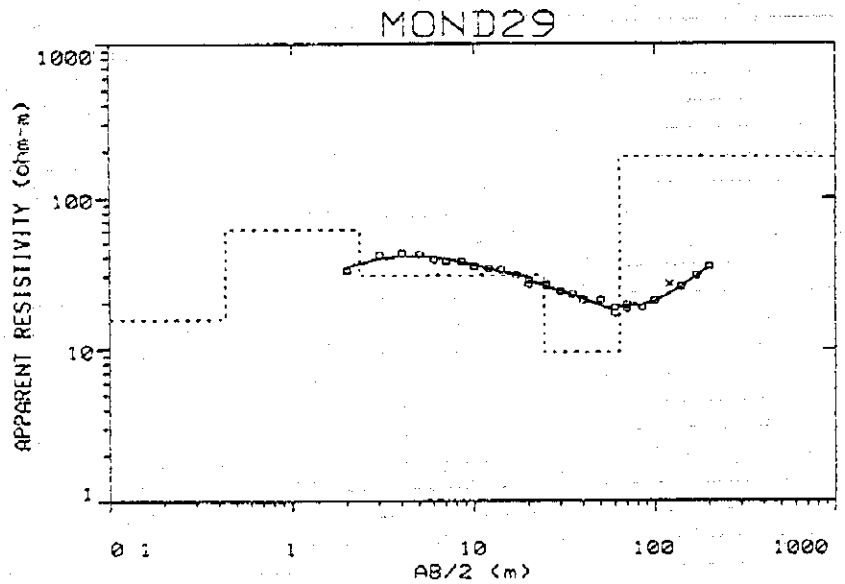

MOND22
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

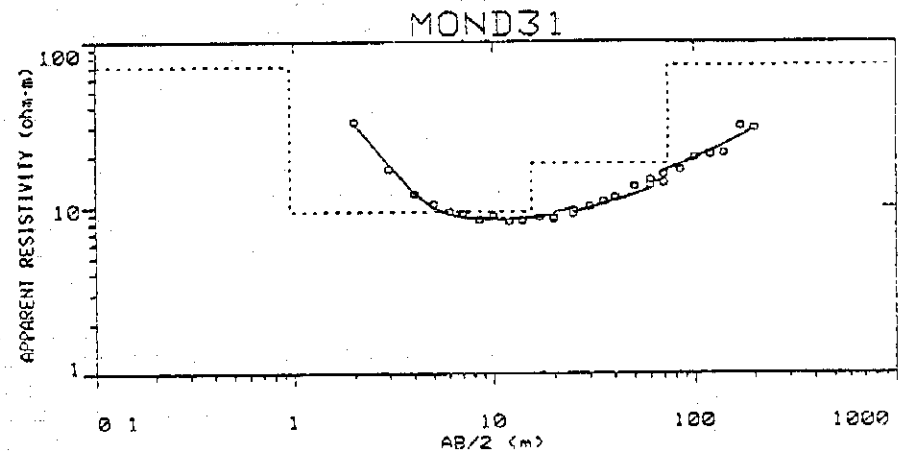

MOND25
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

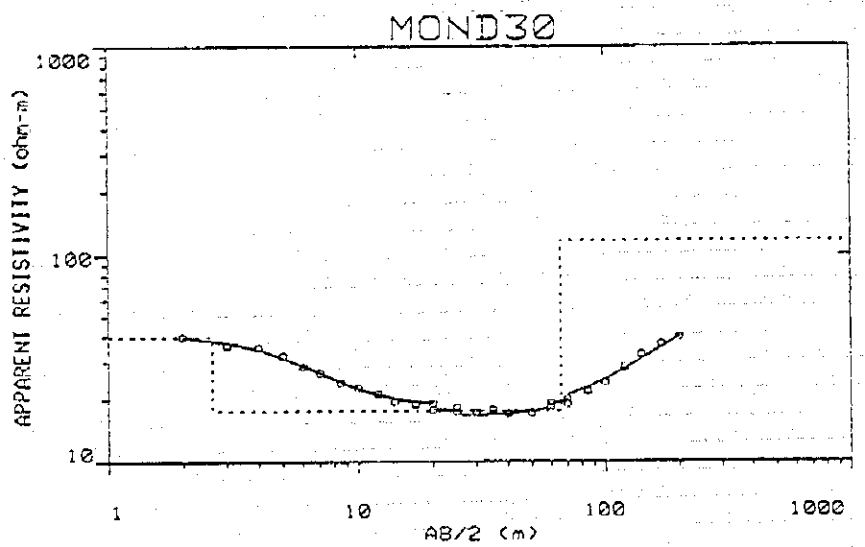

MOND27
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

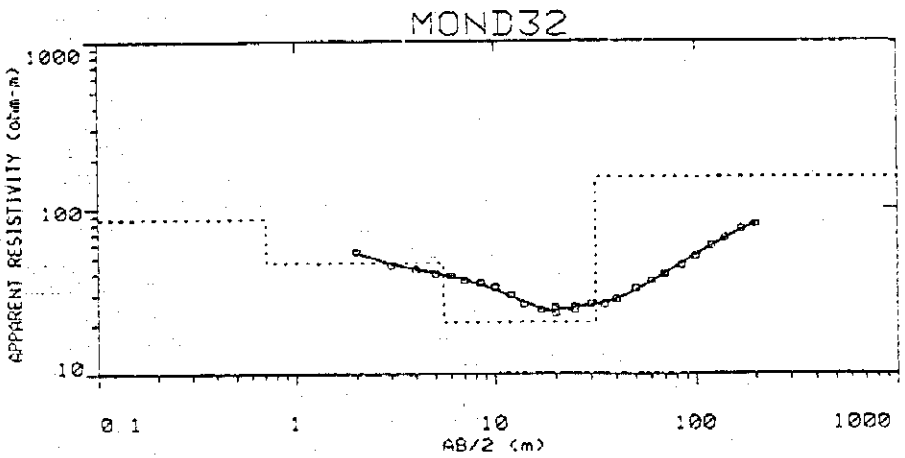

MOND26
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

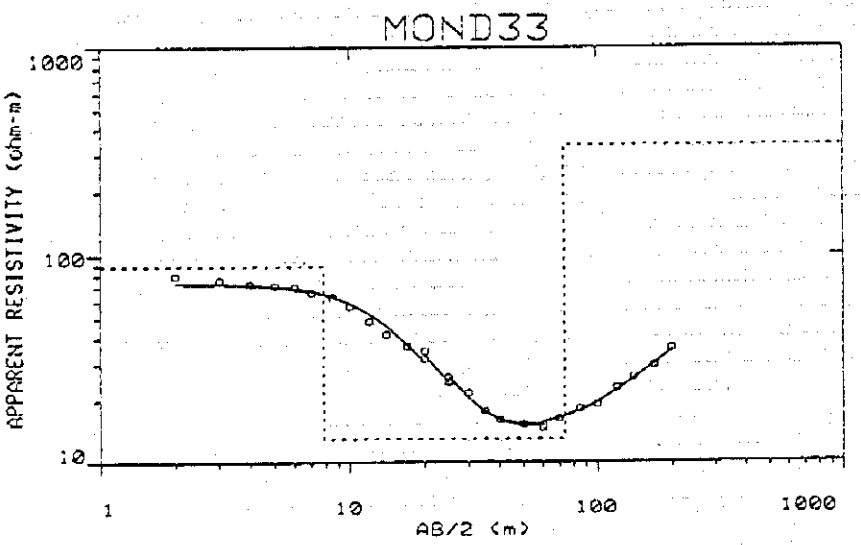

MOND28
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

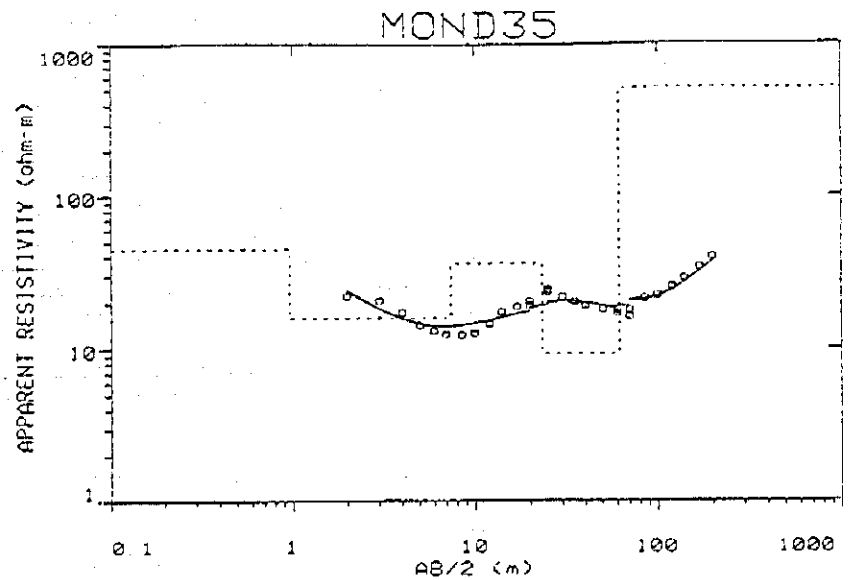

MOND29
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

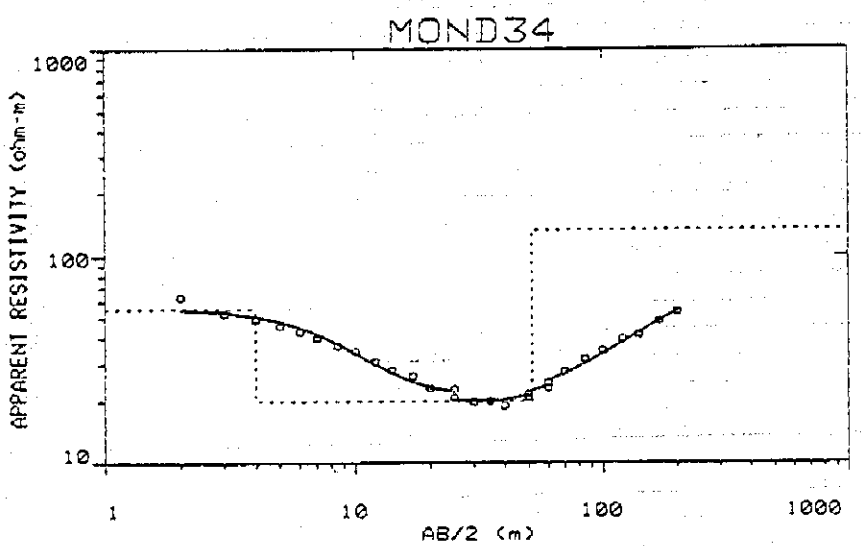

MOND31
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

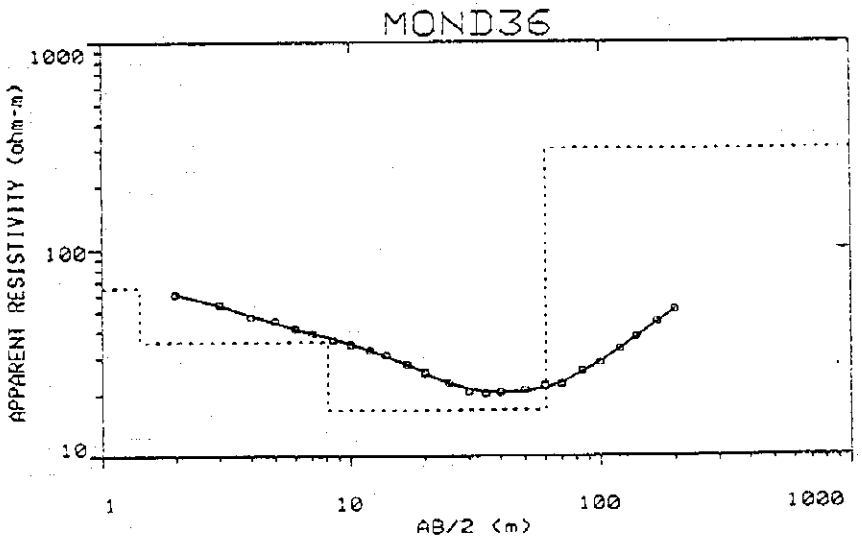

MOND30
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

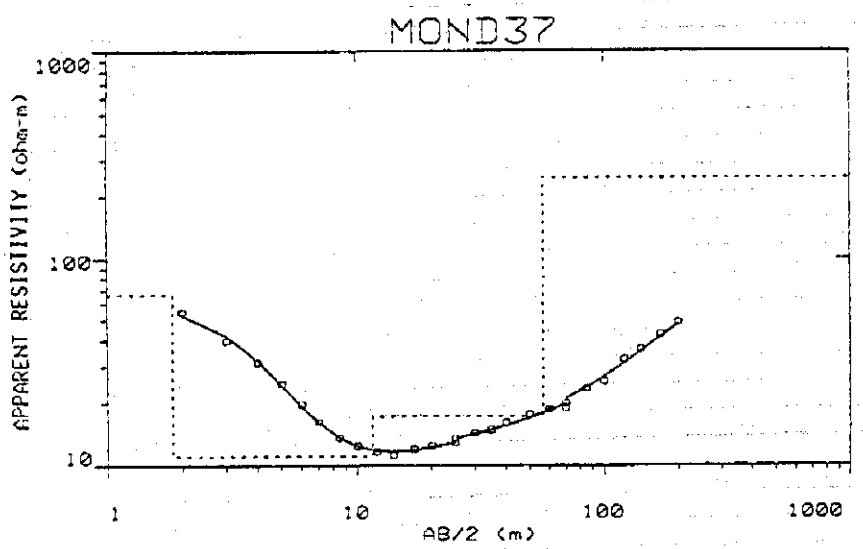

MOND32
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

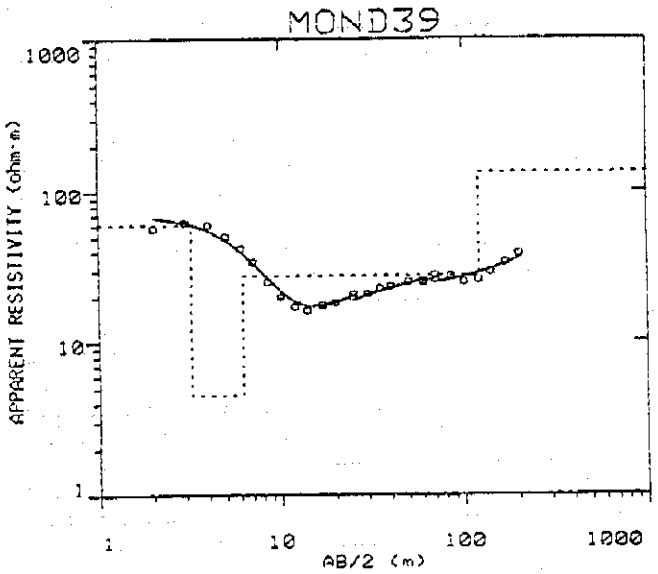

MOND33
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

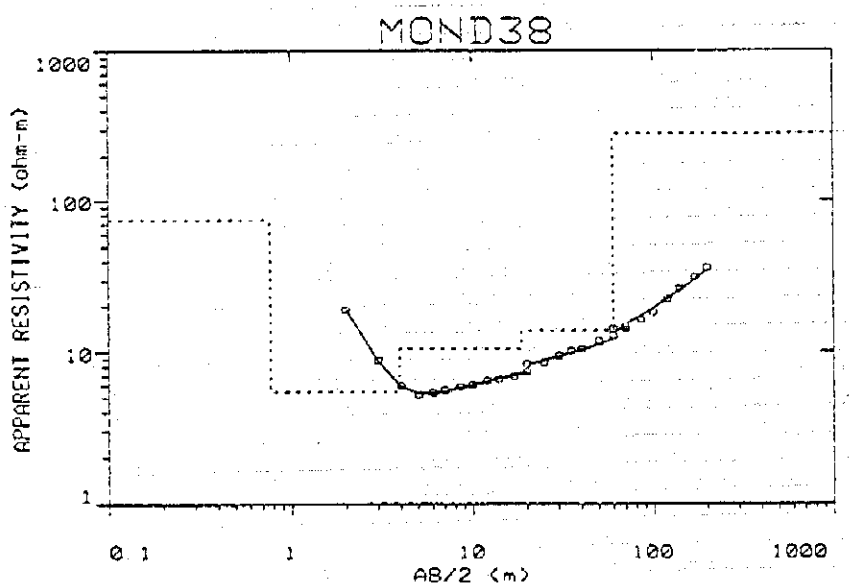

MOND35
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

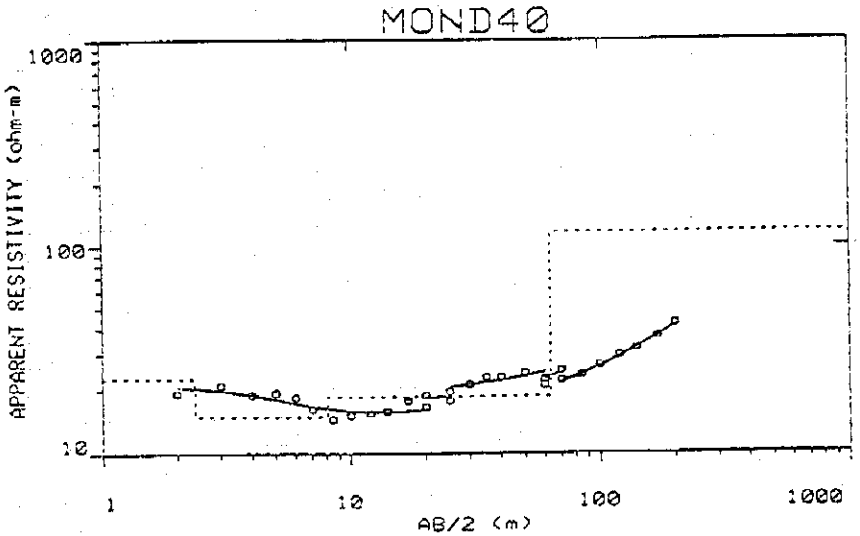

MOND34
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

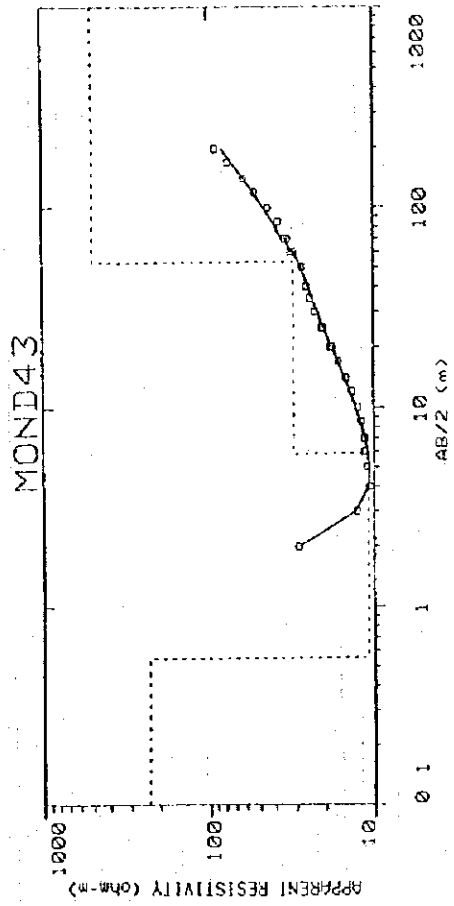

MOND36
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

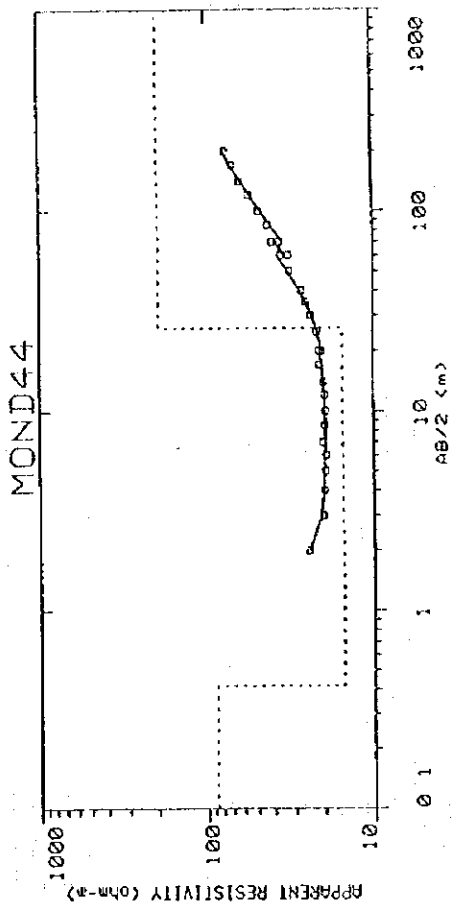

MOND37
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

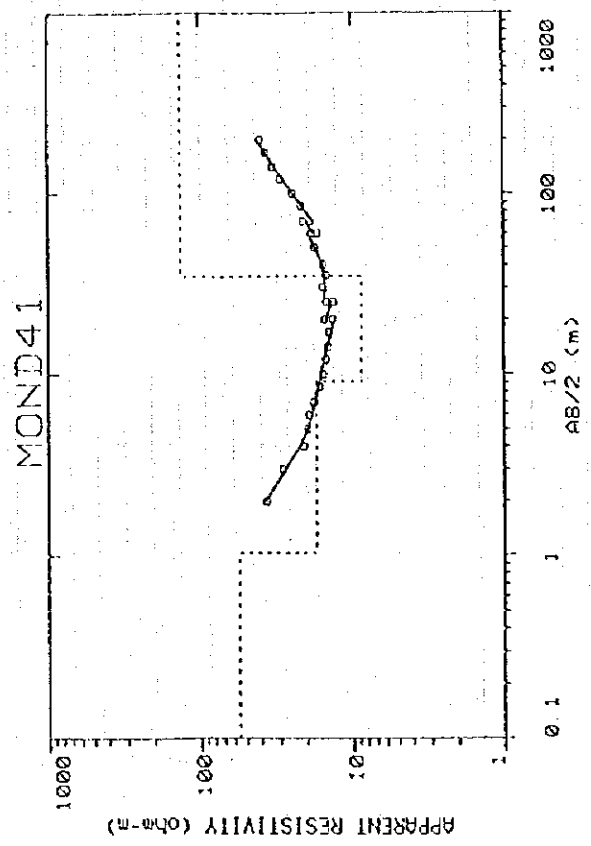

MOND39
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

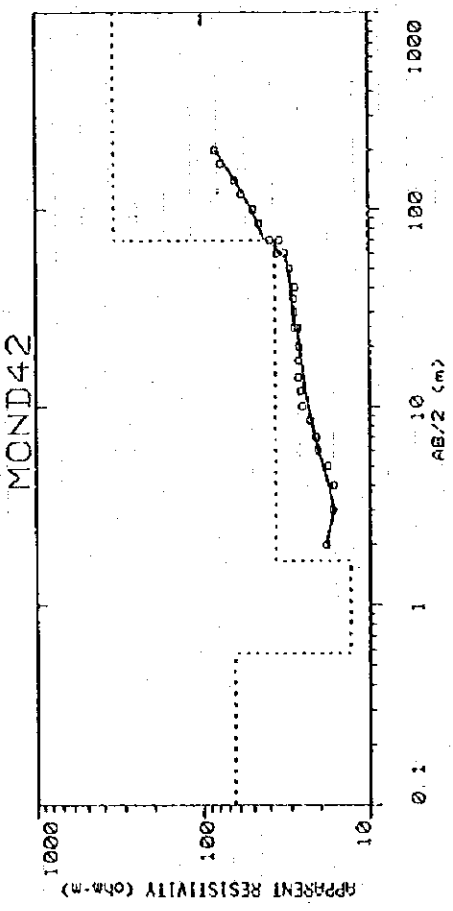

MOND38
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

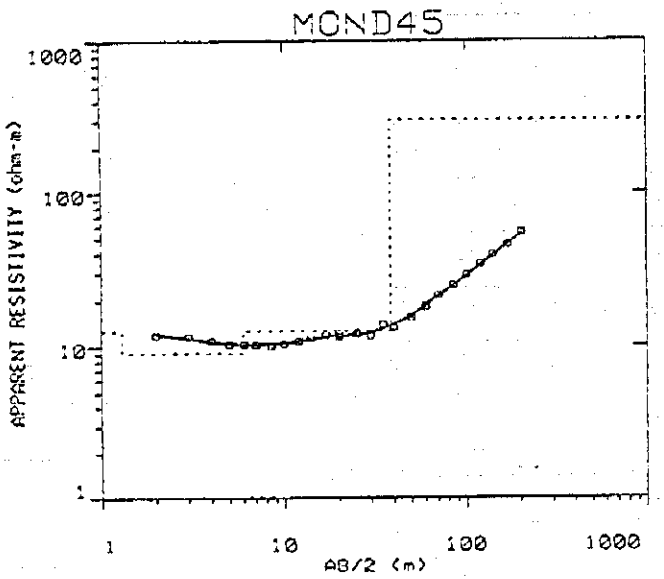

MOND40
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

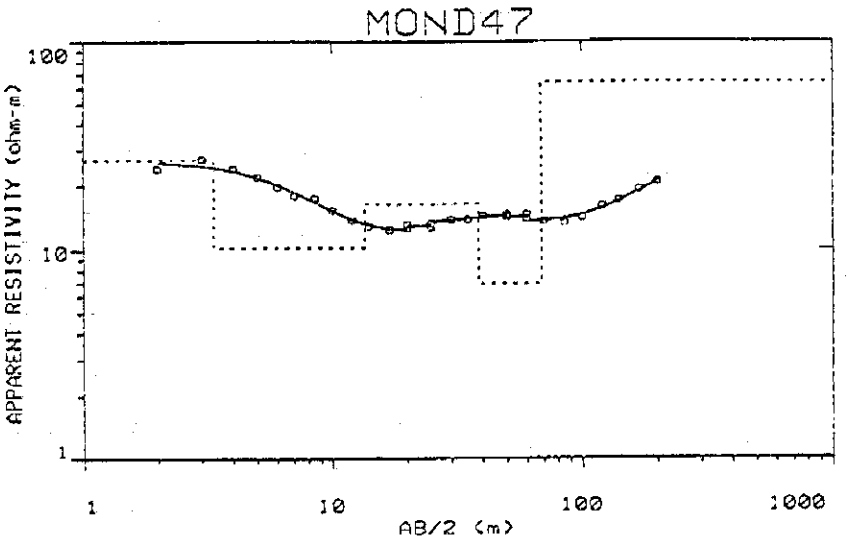

MOND43
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

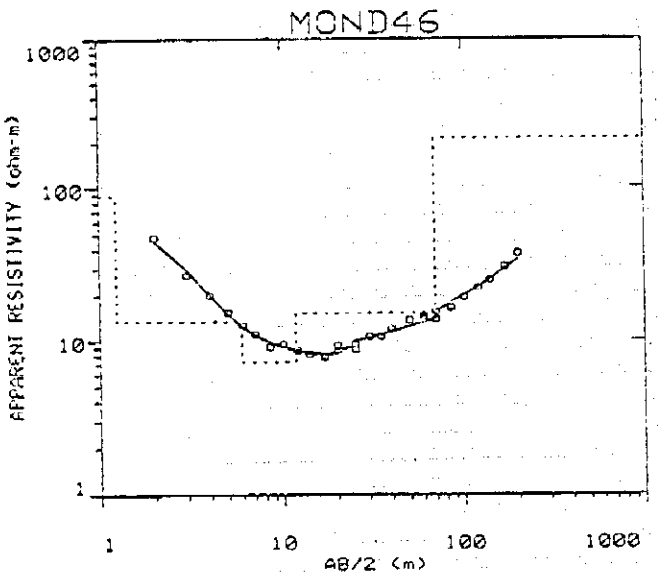

MOND44
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

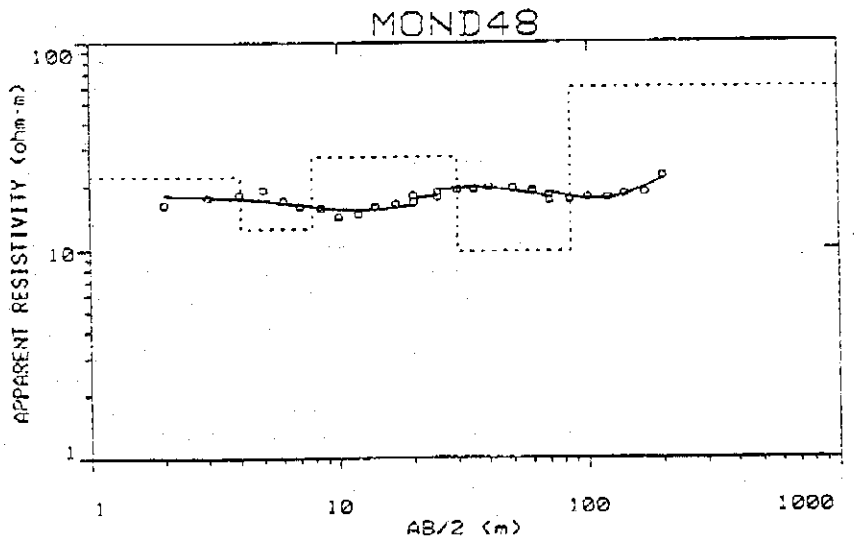

MOND41
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

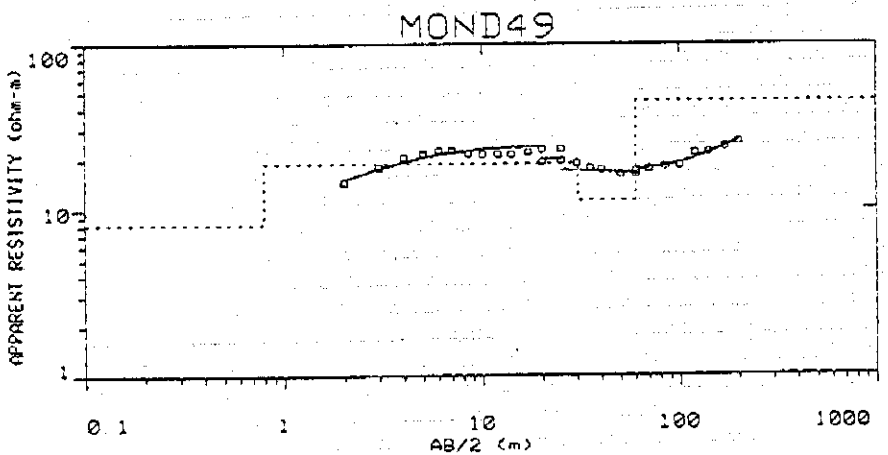

MOND42
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

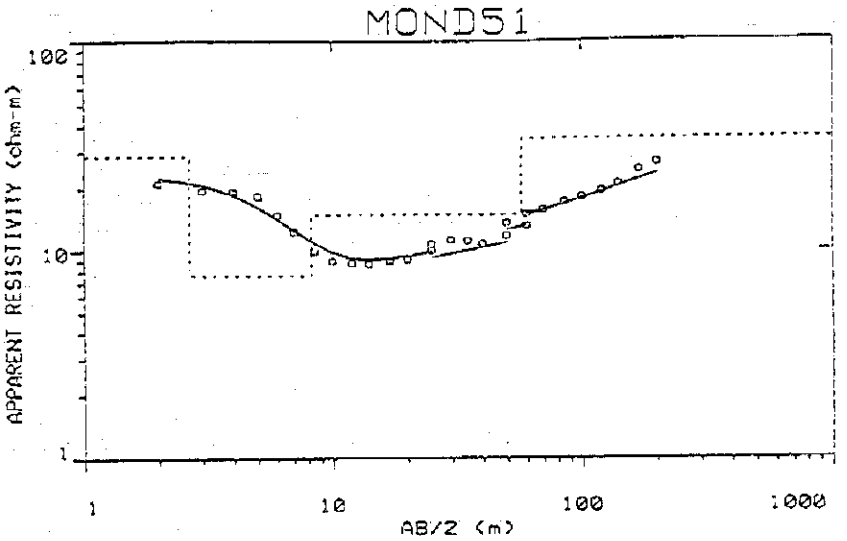

MOND45
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

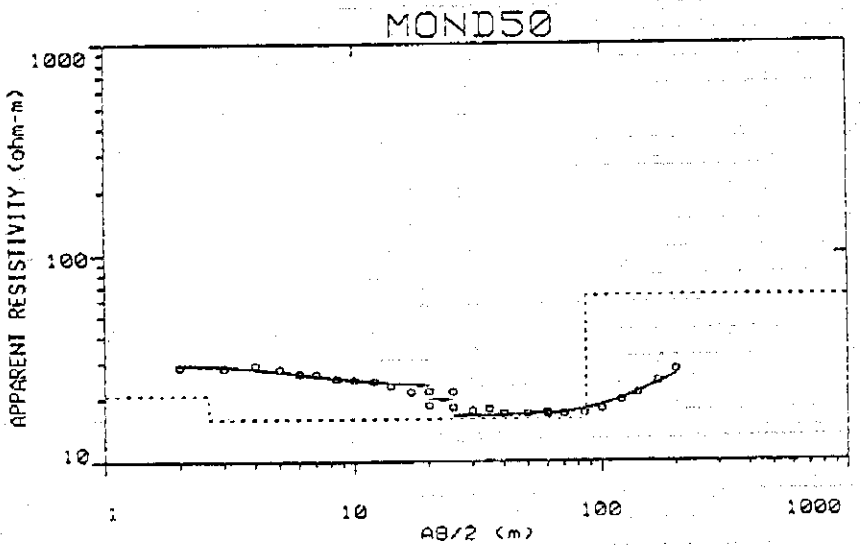

MOND47
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

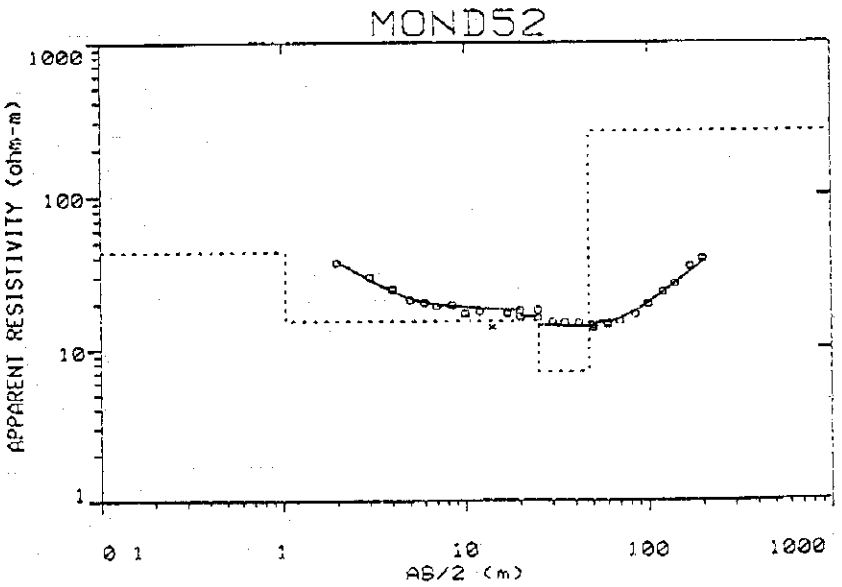

MOND46
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

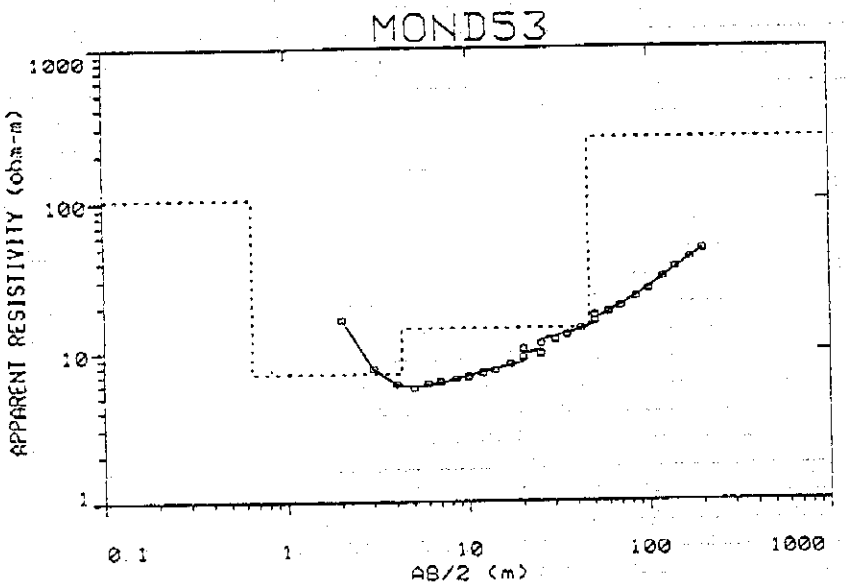

MOND48
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

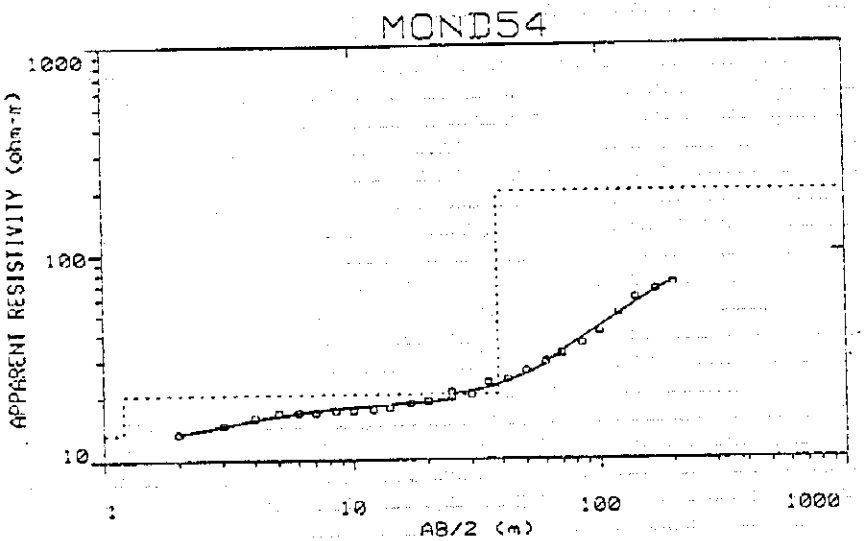

MOND49
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

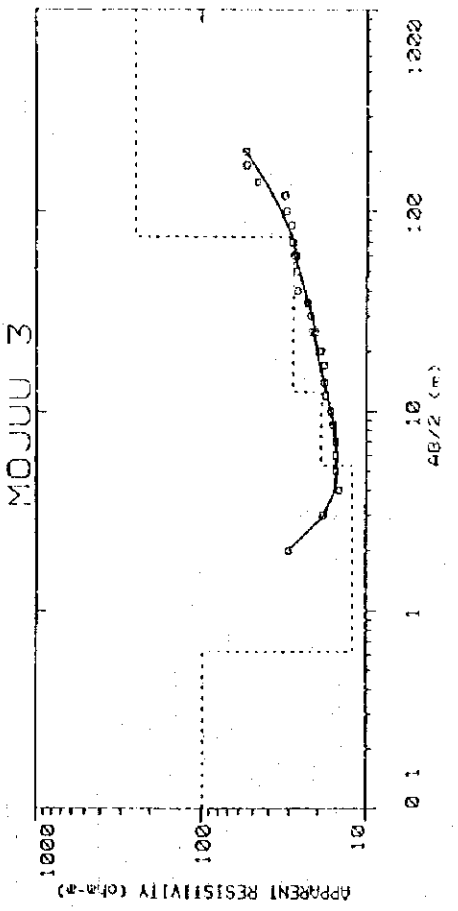

MOND51
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

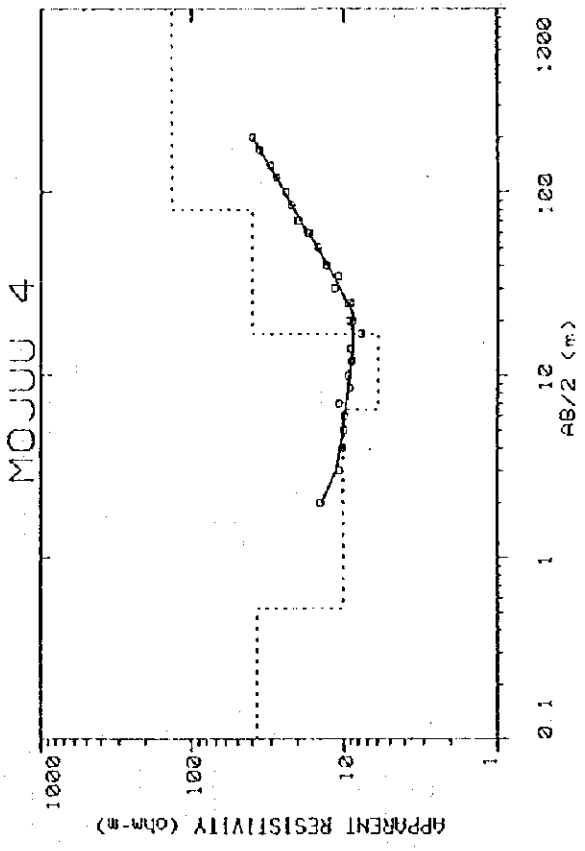

MOND50
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

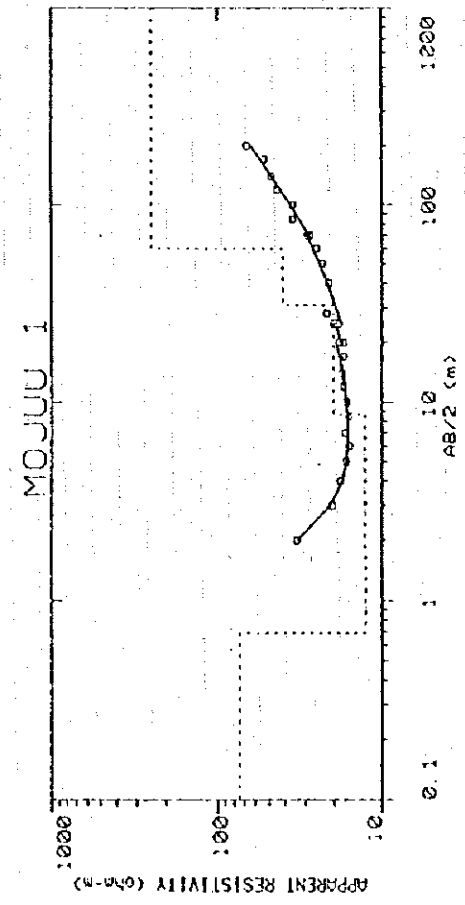

MOND52
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

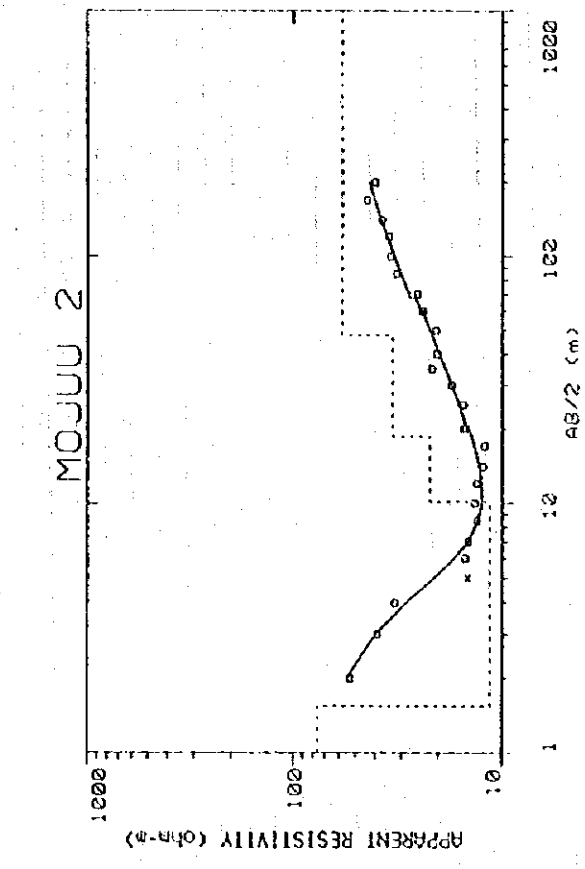

MOND53
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

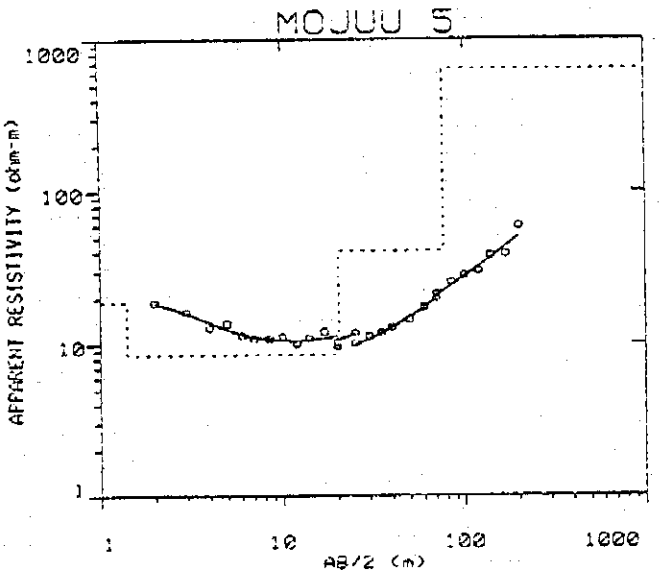

MOND54
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

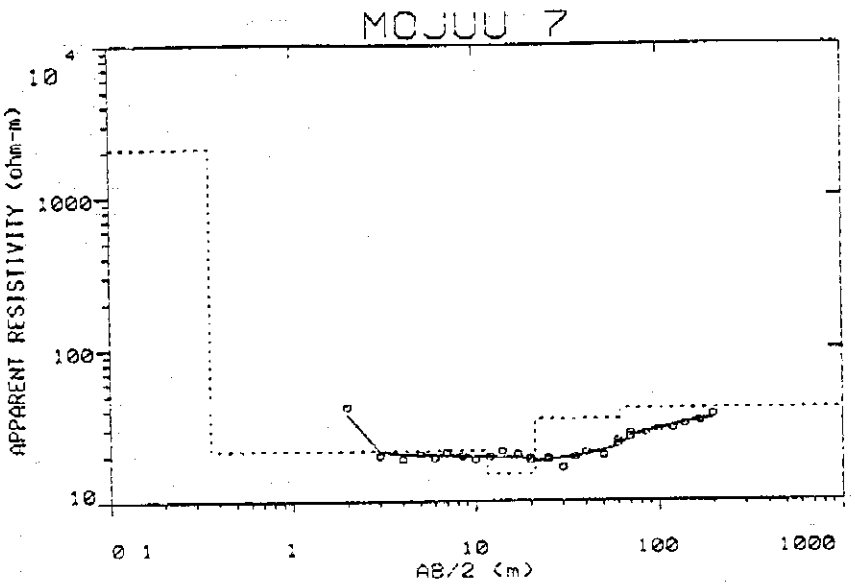

MOJUU 3
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

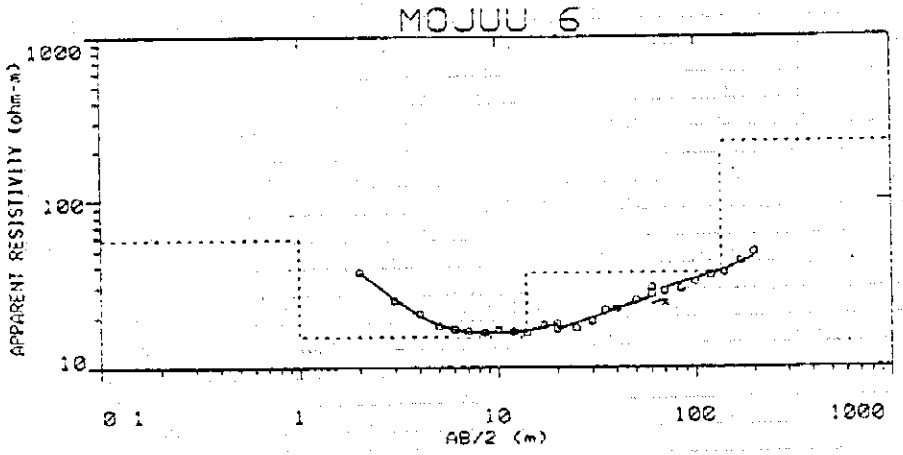

MOJUU 4
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

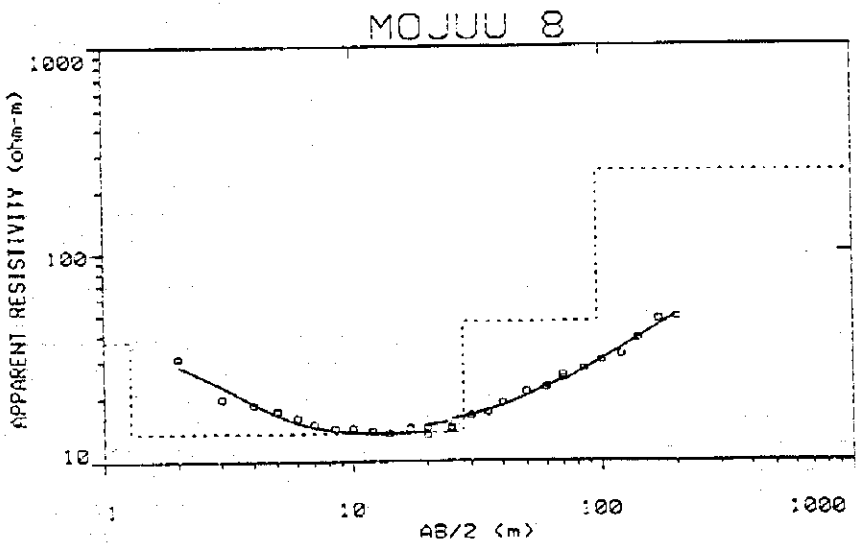

MOJUU 1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

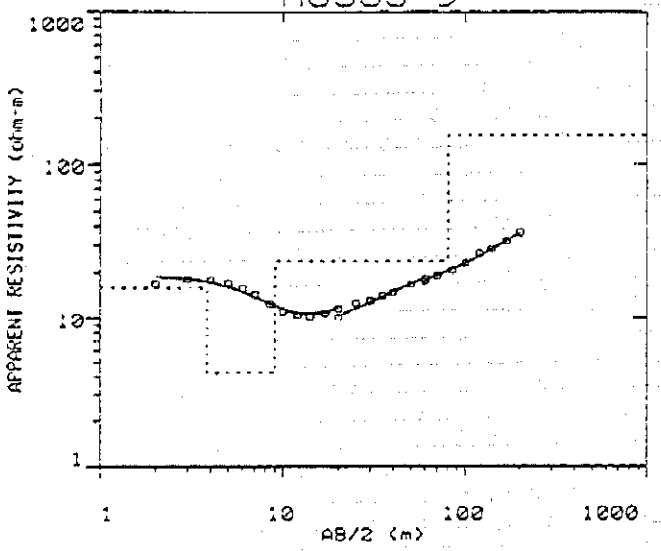

MOJUU 2
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

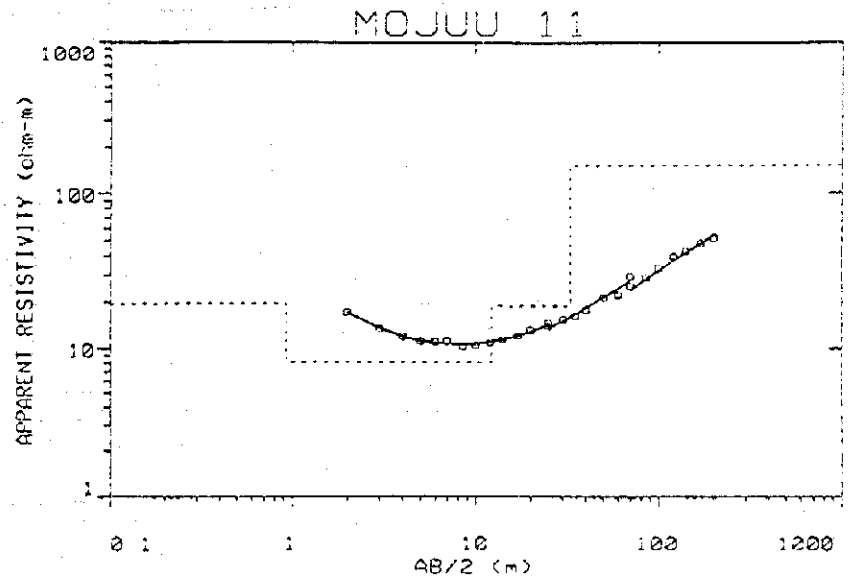

MOJUU 5
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

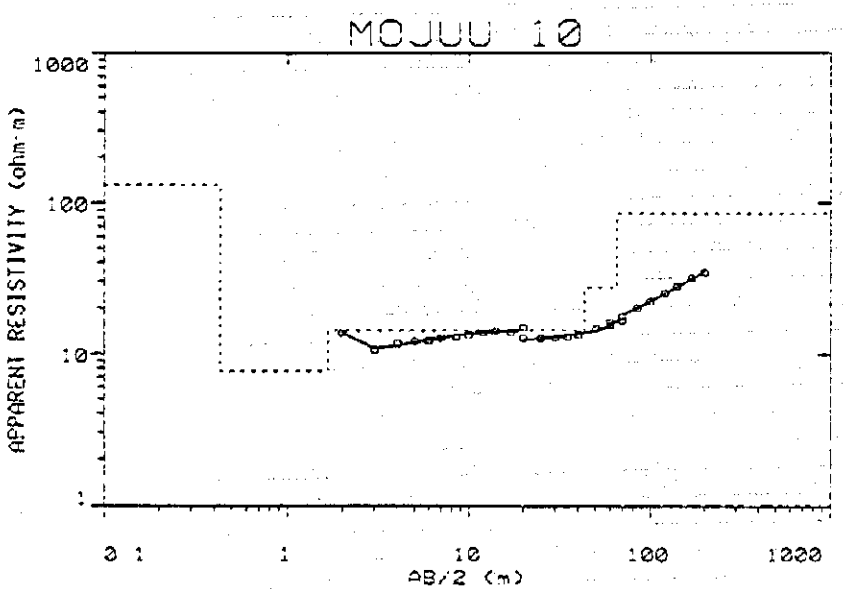

MOJUU 7
APPARENT RESISTIVITY (ohm-m)
10 4
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

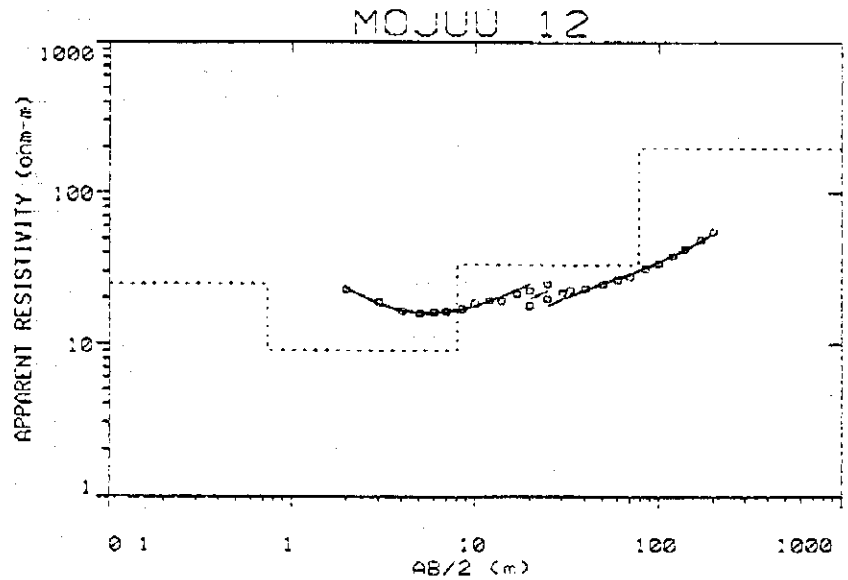

MOJUU 6
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

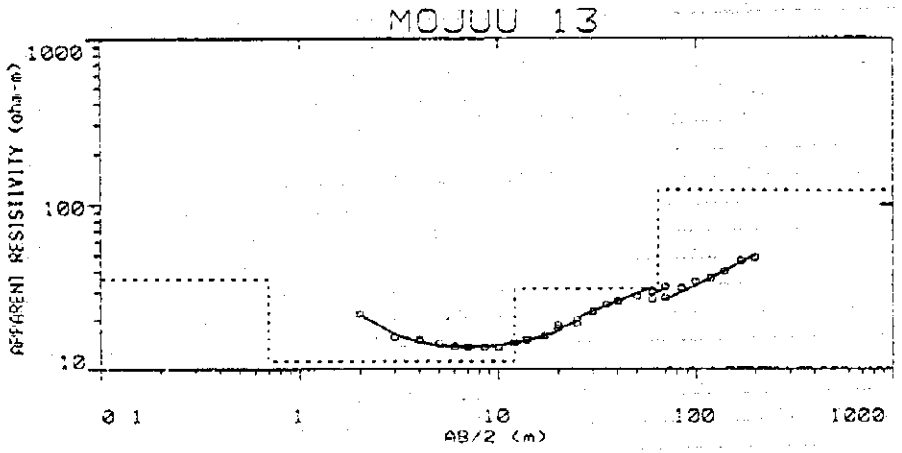

MOJUU 8
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

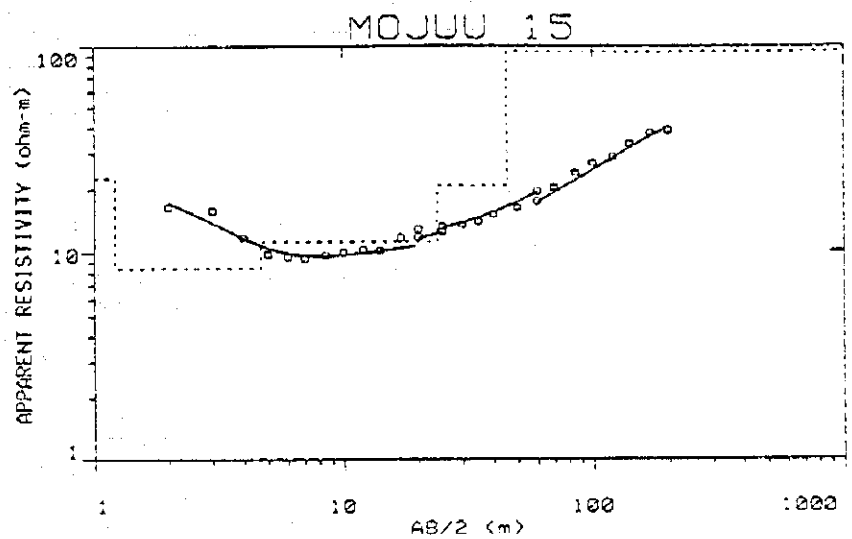

MOJUU 9
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

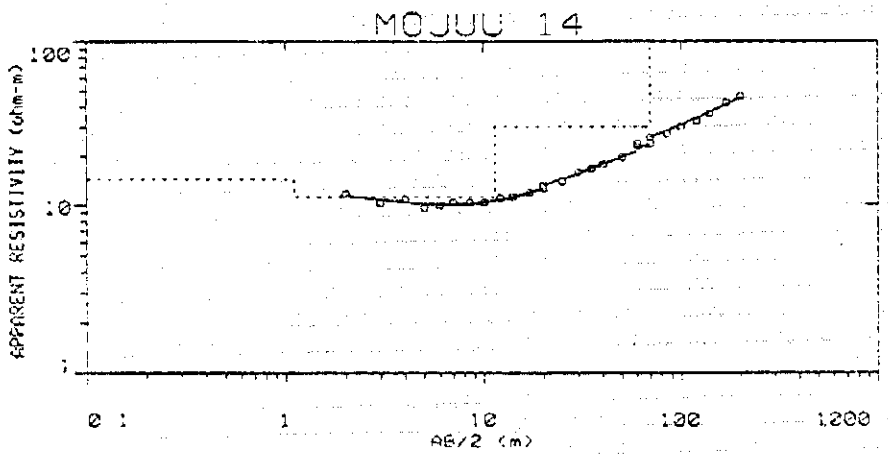

MOJUU 11
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1200
AB/2 (m)

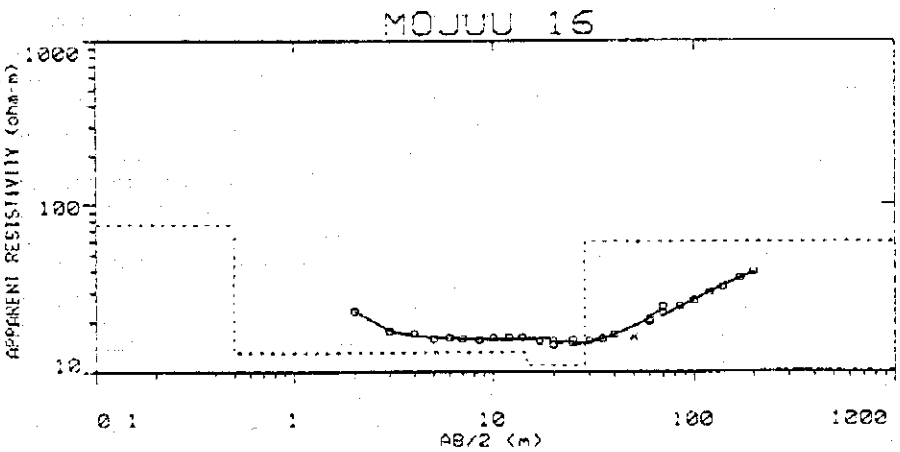

MOJUU 10
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1000
AB/2 (m)

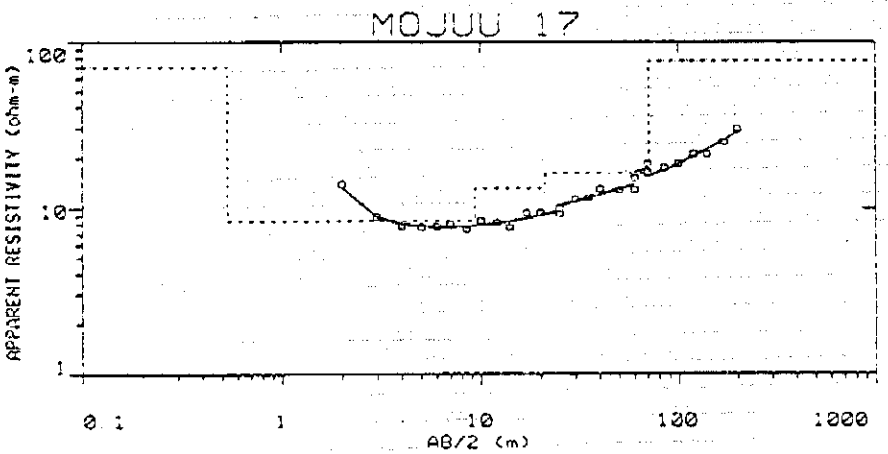

MOJUU 12
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1000
AB/2 (m)

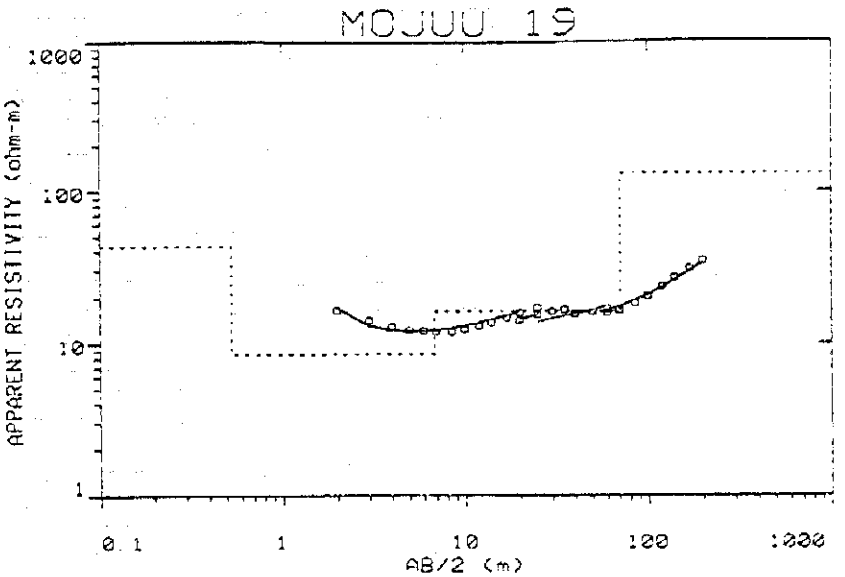

MOJUU 13
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

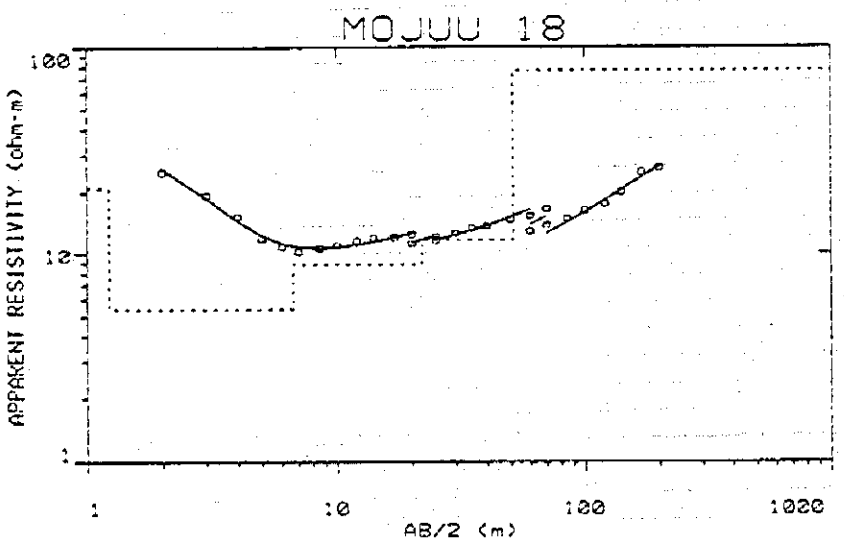

MOJUU 15
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

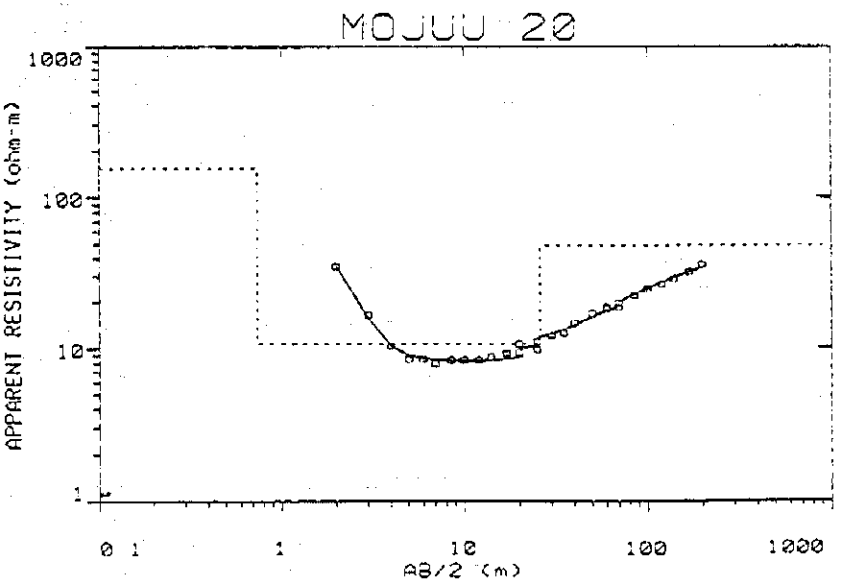

MOJUU 14
APPARENT RESISTIVITY (ohm-m)
100
10
1
0 1
1
10
100
1200
AB/2 (m)

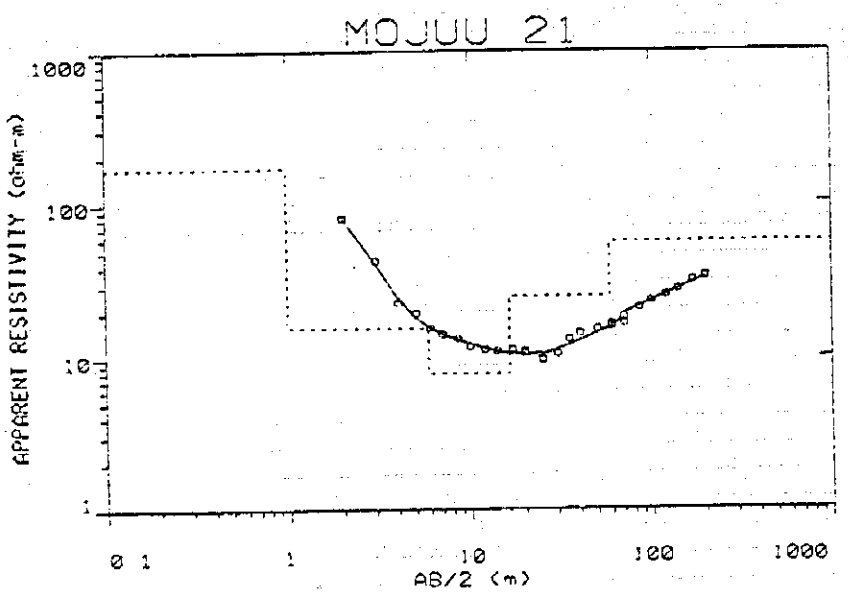

MOJUU 16
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1200
AB/2 (m)

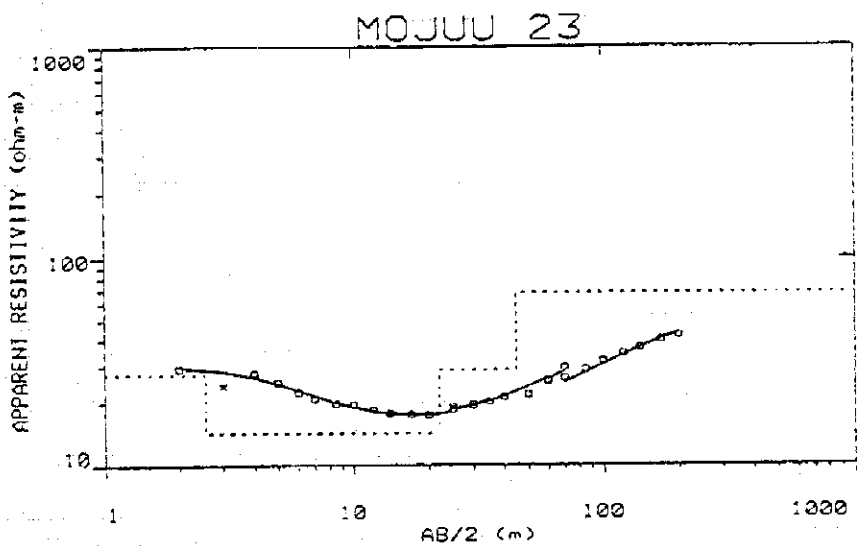

MOJUU 17
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

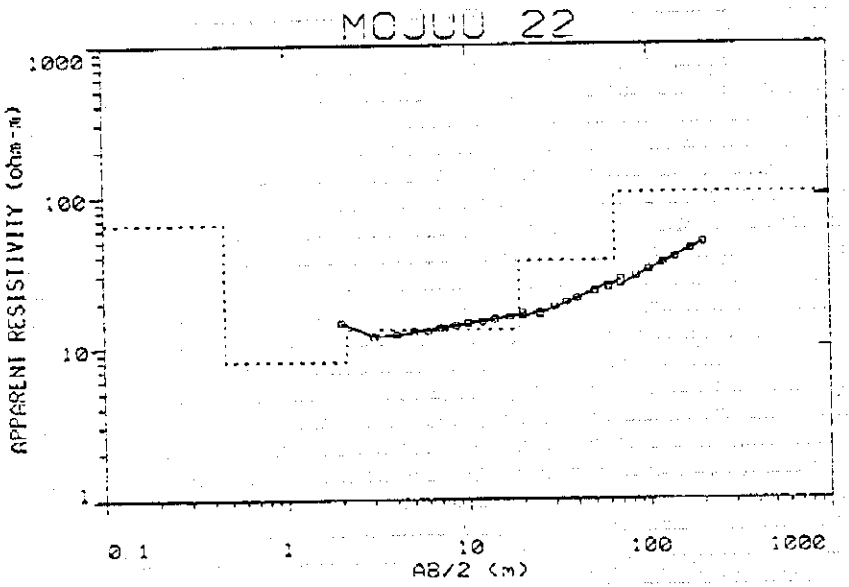

MOJUU 19
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

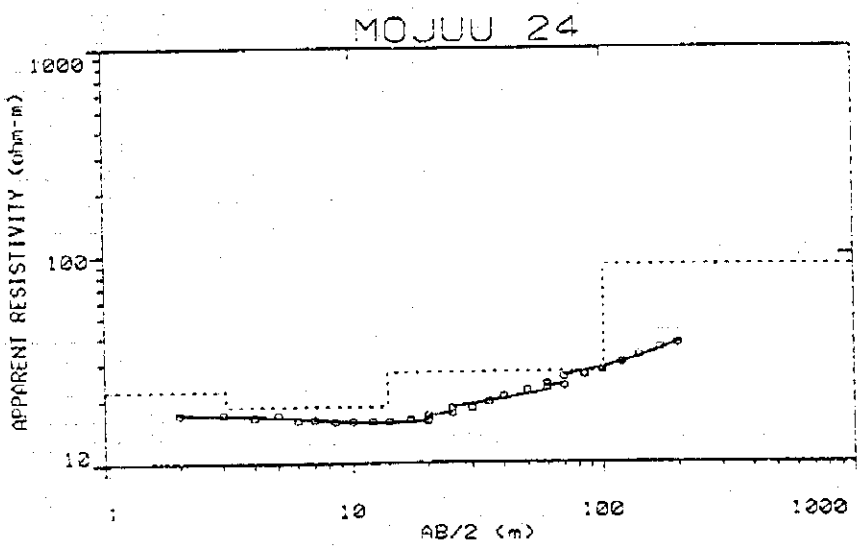

MOJUU 18
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

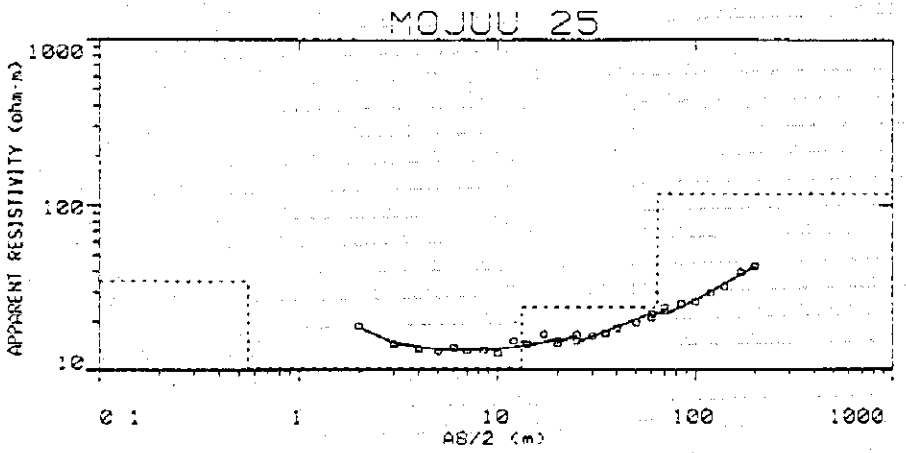

MOJUU 20
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

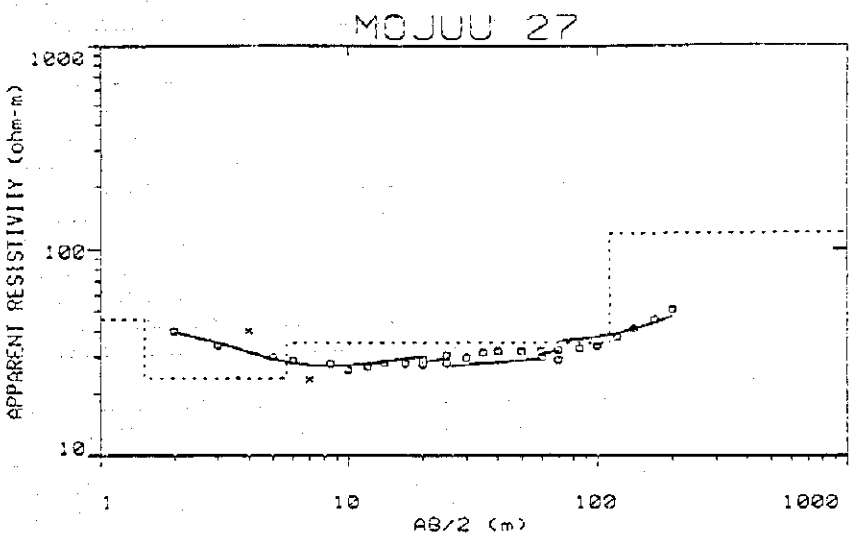

MOJUU 21
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

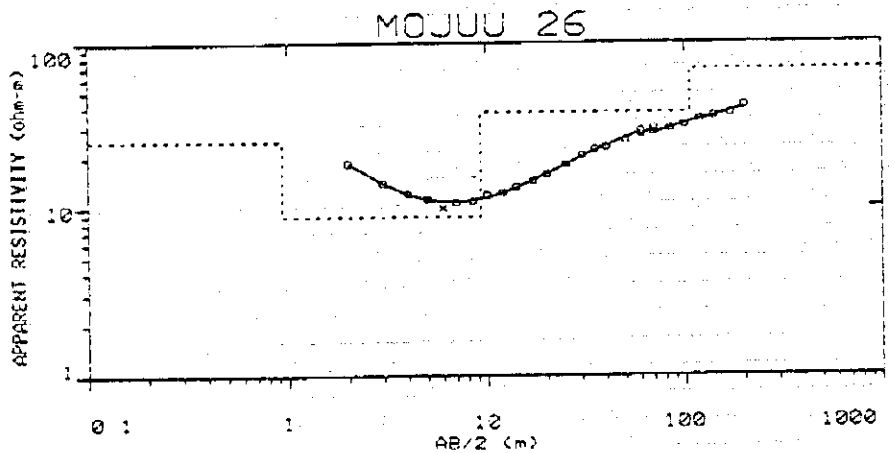

MOJUU 23
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

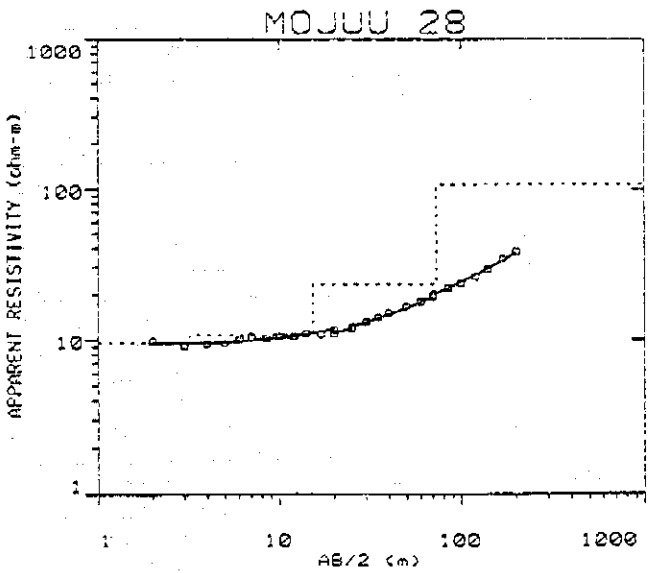

MOJUU 22
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

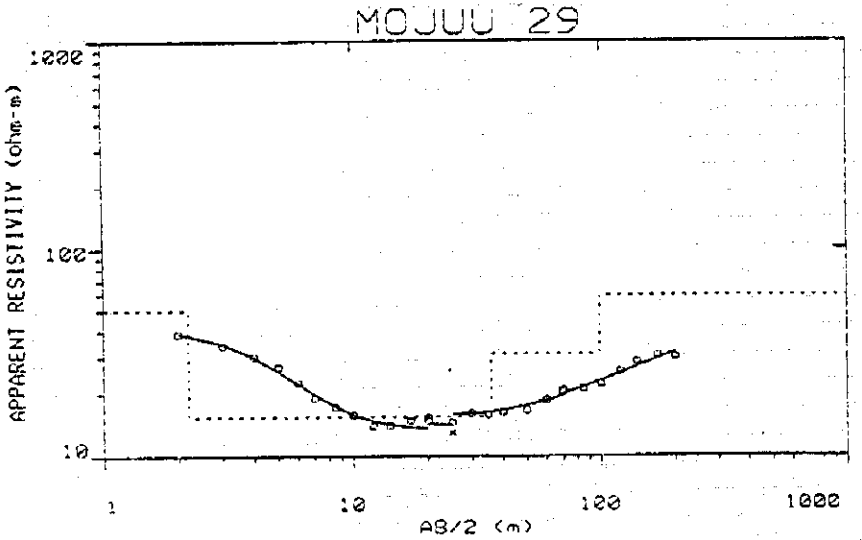

MOJUU 24
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

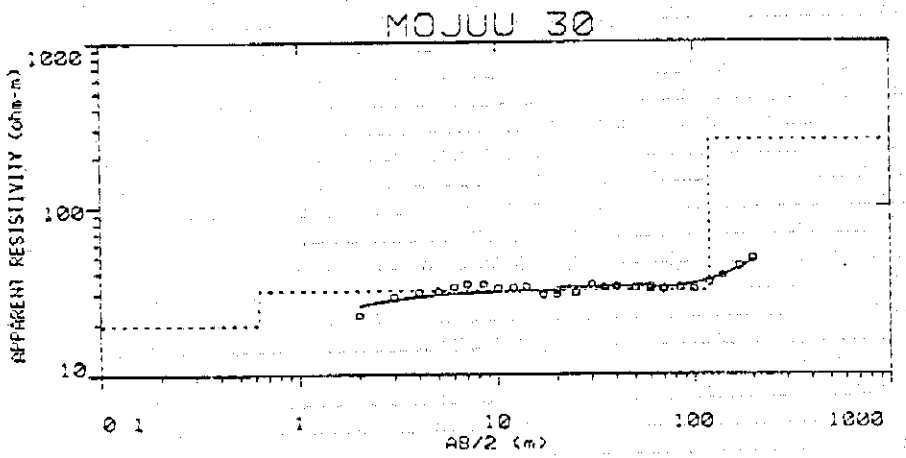

MOJUU 25
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

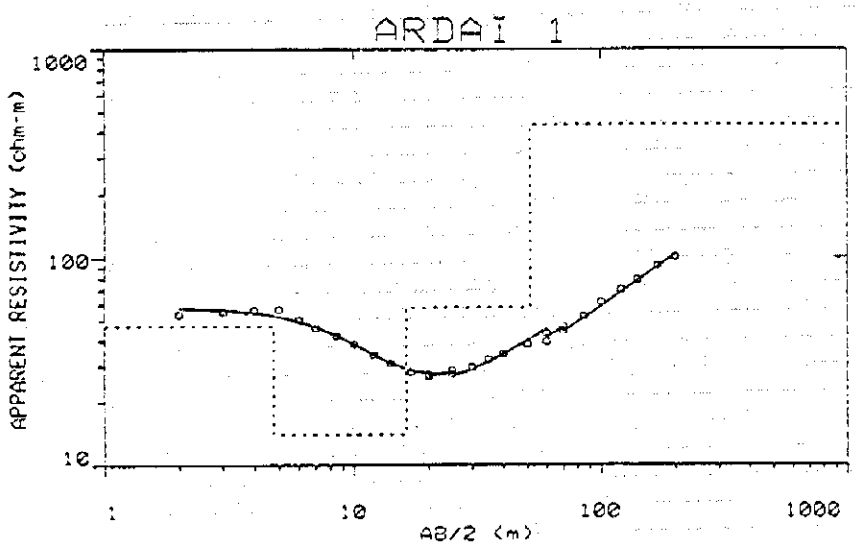

MOJUU 27
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

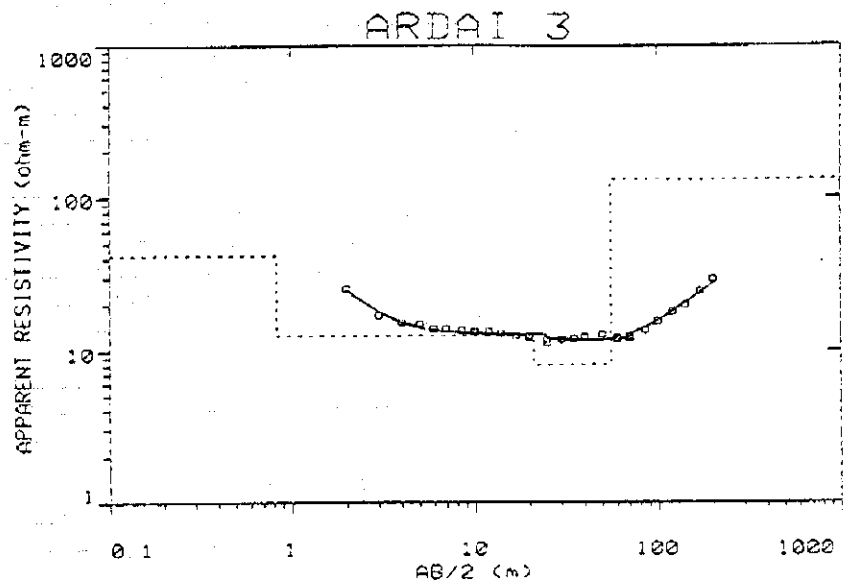

MOJUU 26
APPARENT RESISTIVITY (ohm-m)
100
10
1
0 1
1
10
100
1000
AB/2 (m)

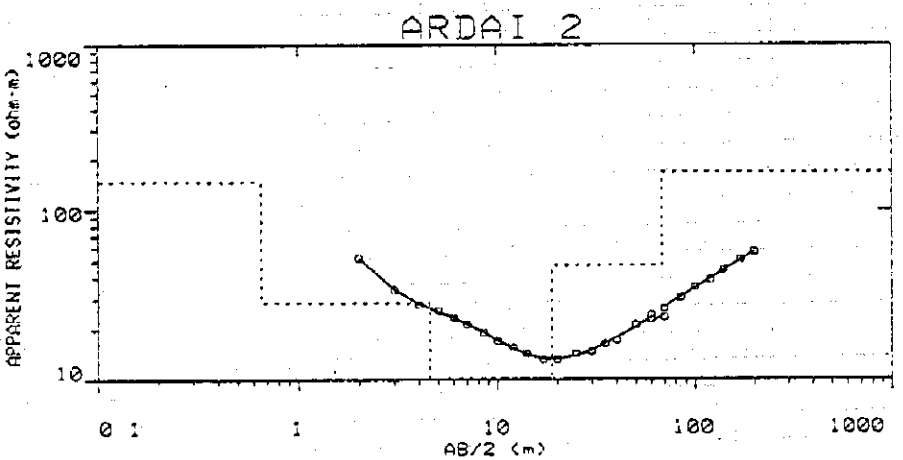

MOJUU 28
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

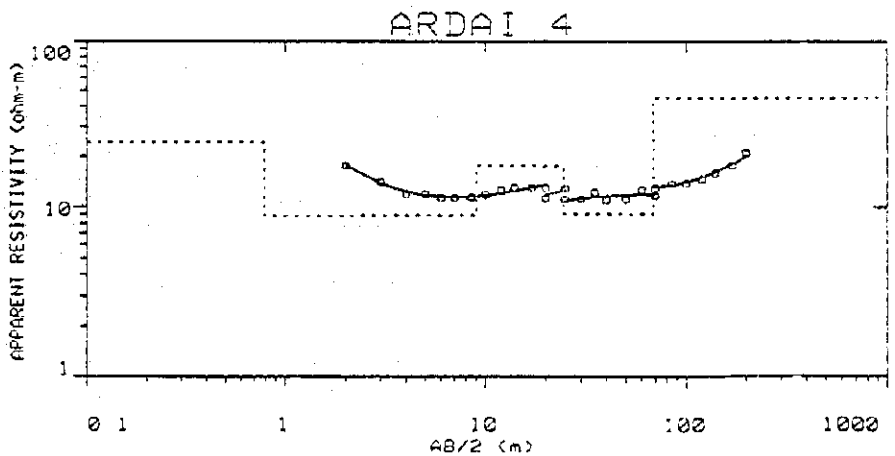

MOJUU 29
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

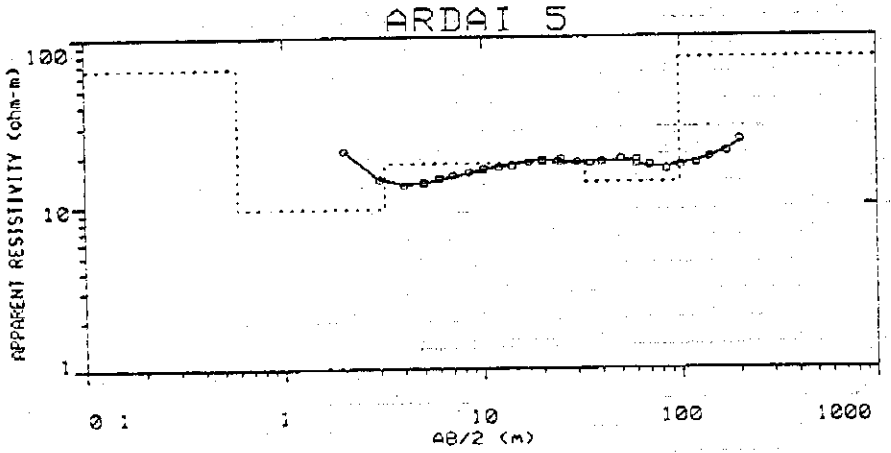

MOJUU 30
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

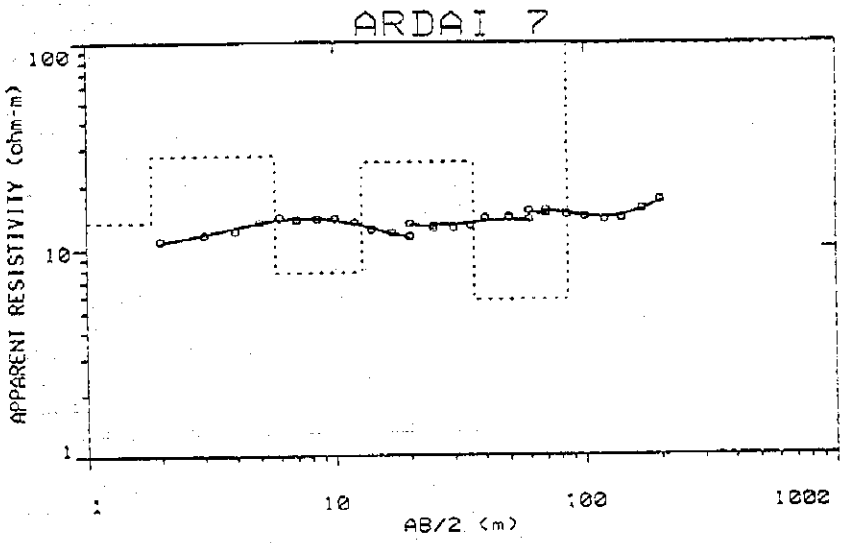

ARDAI 1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

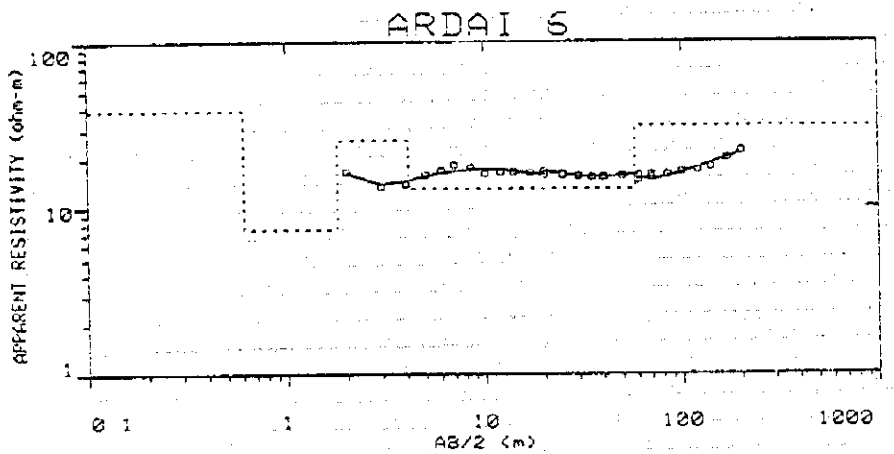

ARDAI 3
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

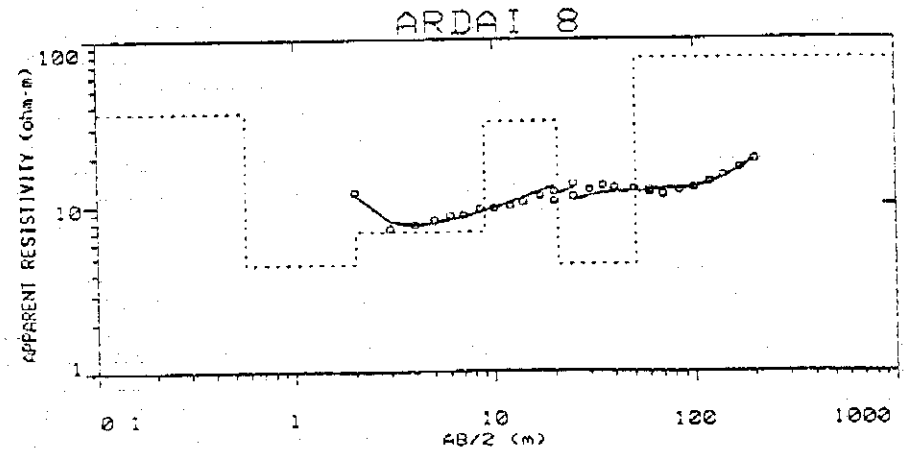

ARDAI 2
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

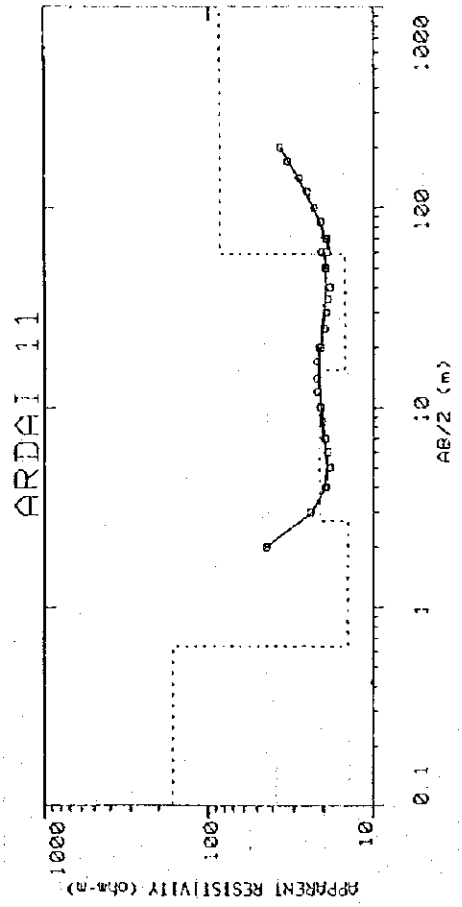

ARDAI 4
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

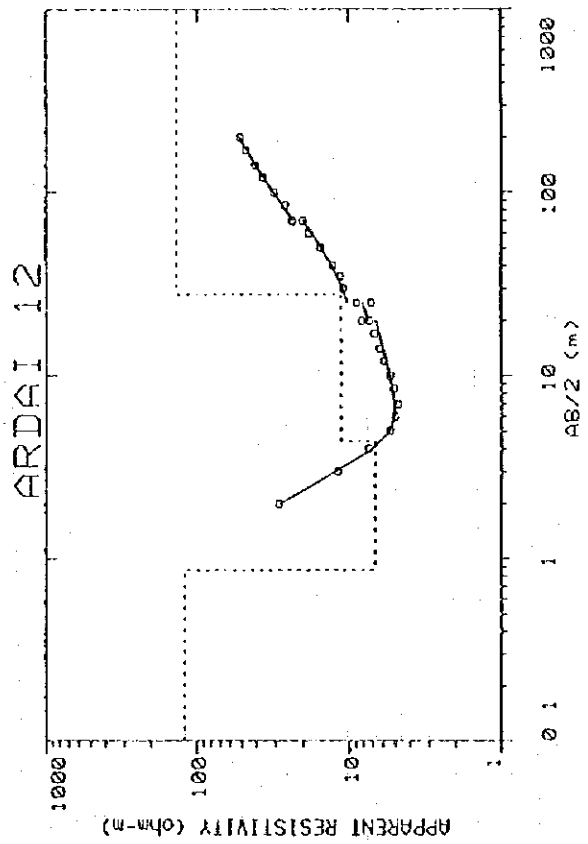

ARDAI 5
APPARENT RESISTIVITY (ohm-m)
100
10
1
0 1
1
10
100
1000
AB/2 (m)

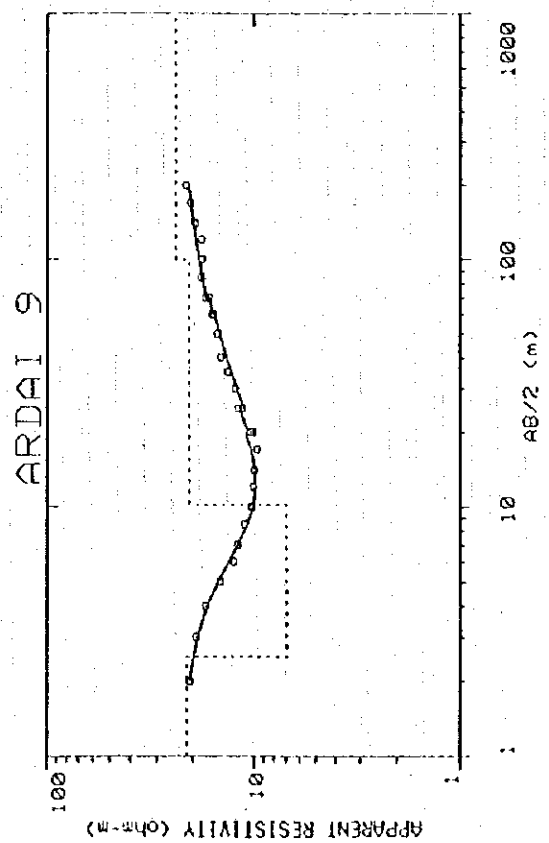

ARDAI 7
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

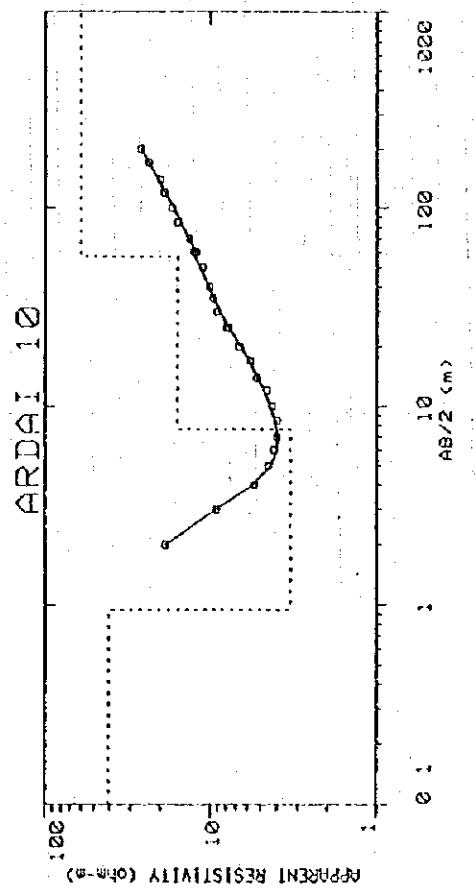

ARDAI 6
APPARENT RESISTIVITY (ohm-m)
100
10
1
0 1
1
10
100
1000
AB/2 (m)

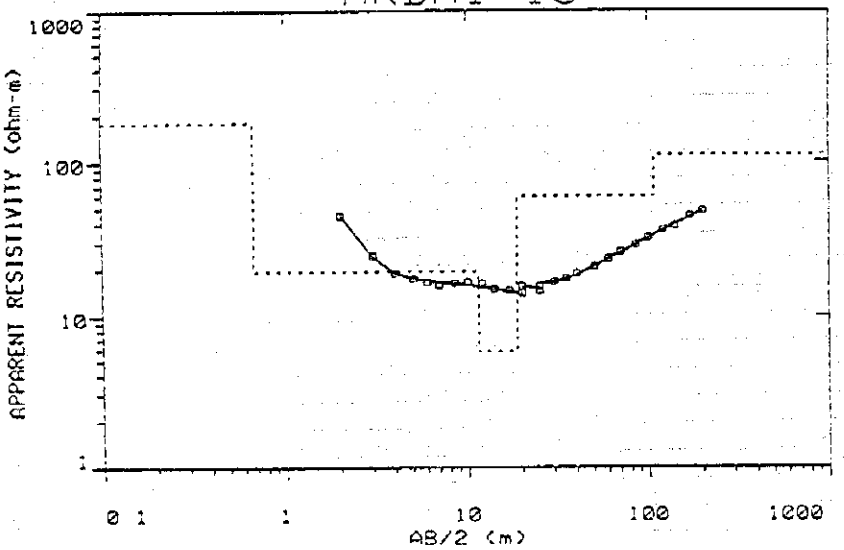

ARDAI 8
APPARENT RESISTIVITY (ohm-m)
100
10
1
0 1
1
10
100
1000
AB/2 (m)

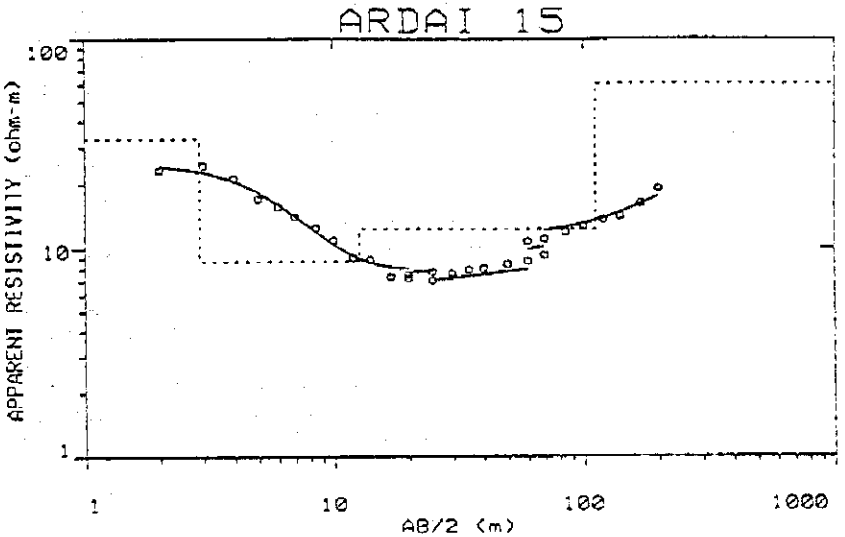

ARDAI 11
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

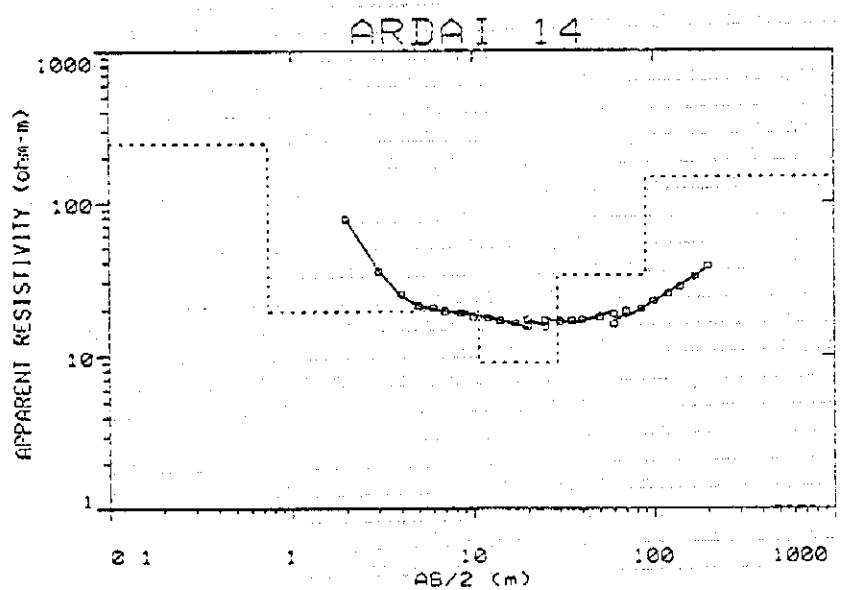

ARDAI 12
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

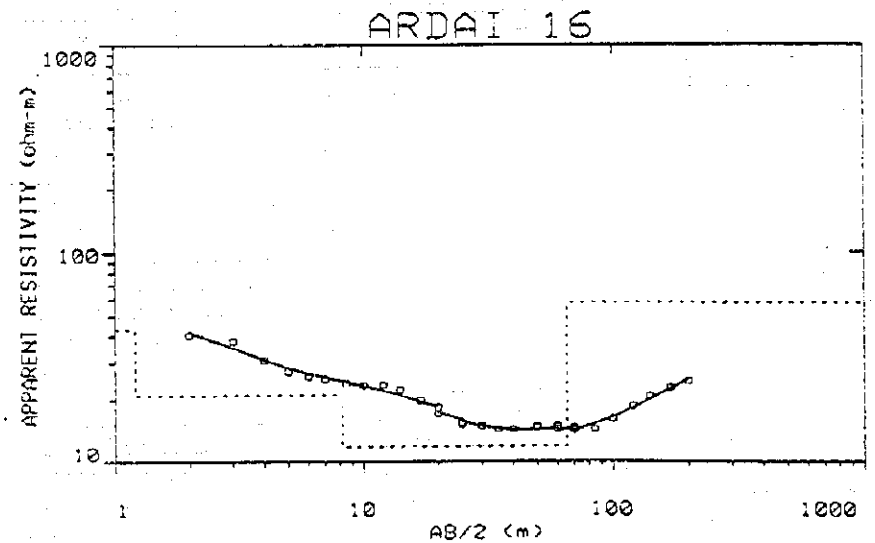

ARDAI 9
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

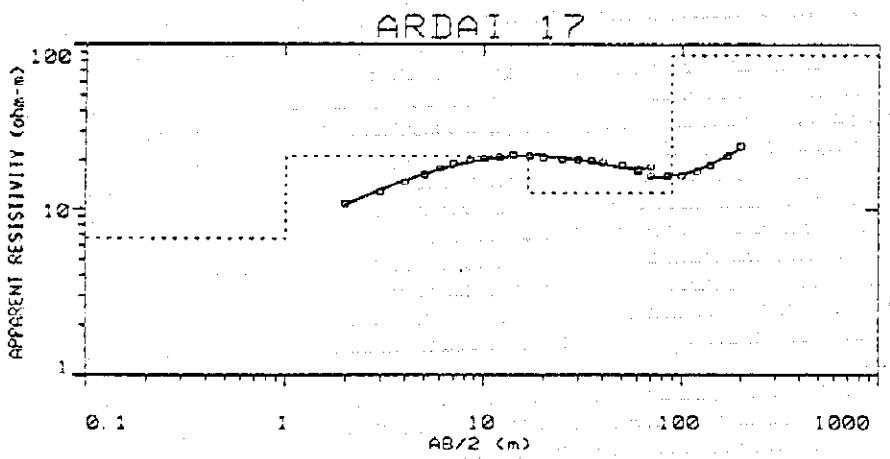

ARDAI 10
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

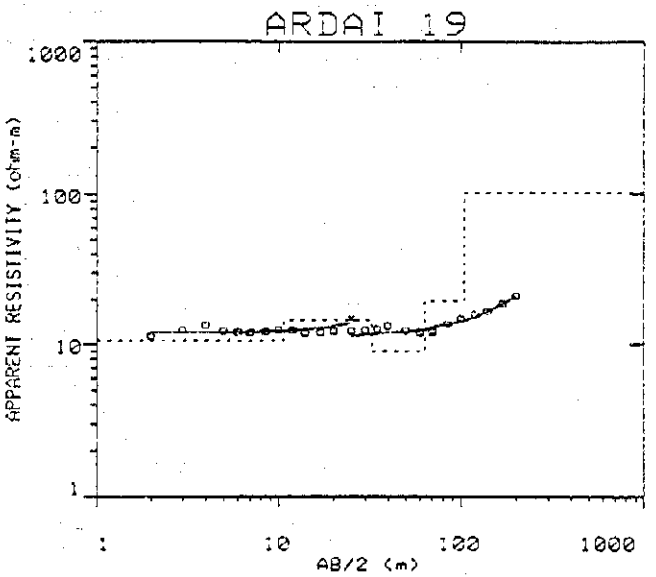

ARDAI 13
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1000
AB/2 (m)

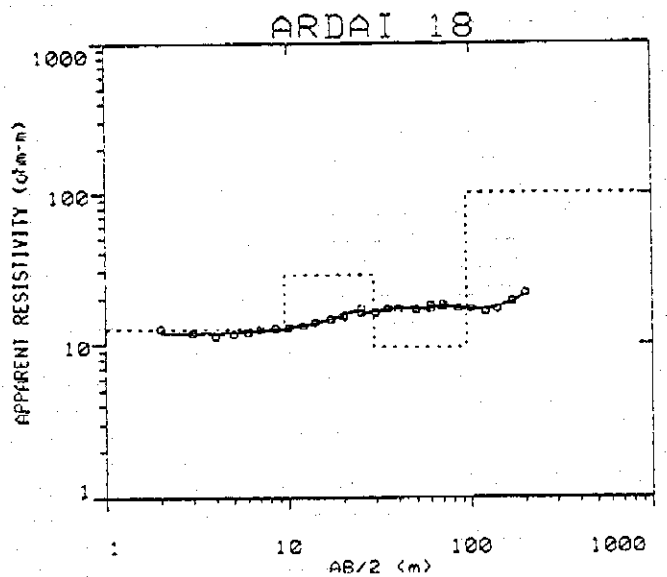

ARDAI 15
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

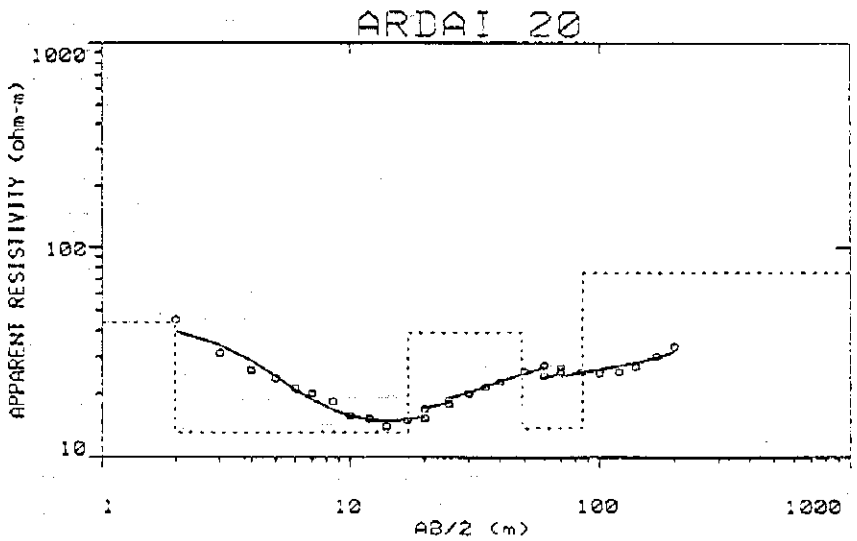

ARDAI 14
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1000
AB/2 (m)

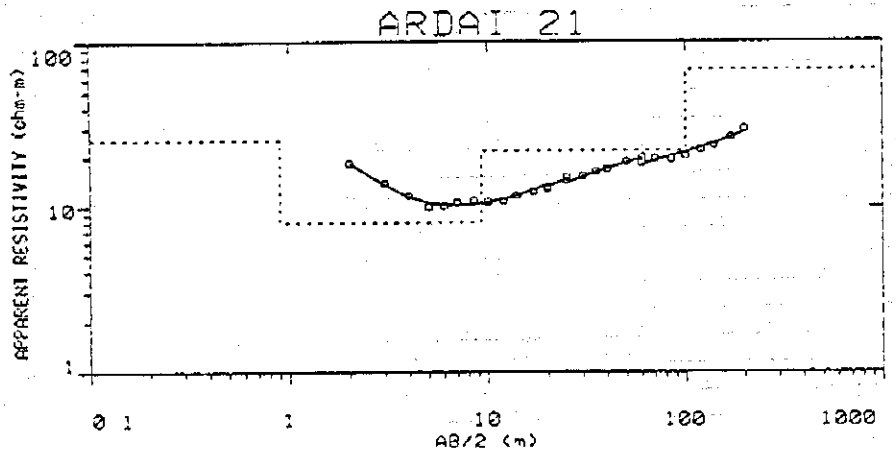

ARDAI 16
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

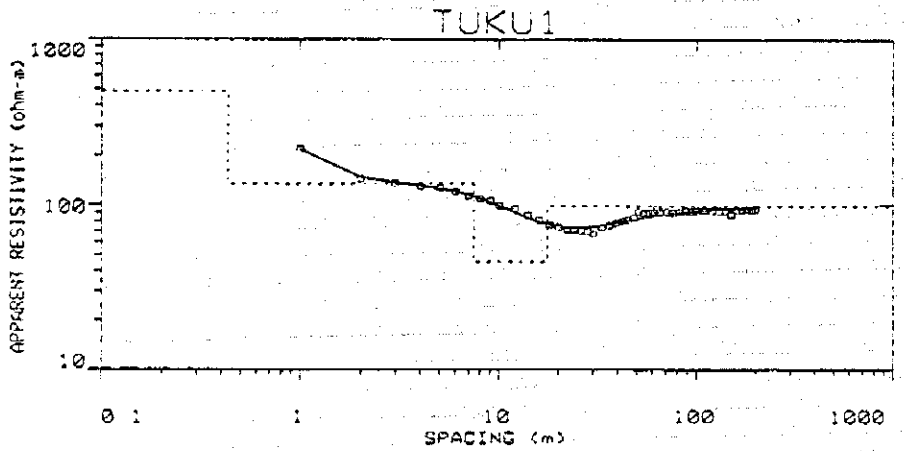

ARDAI 17
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

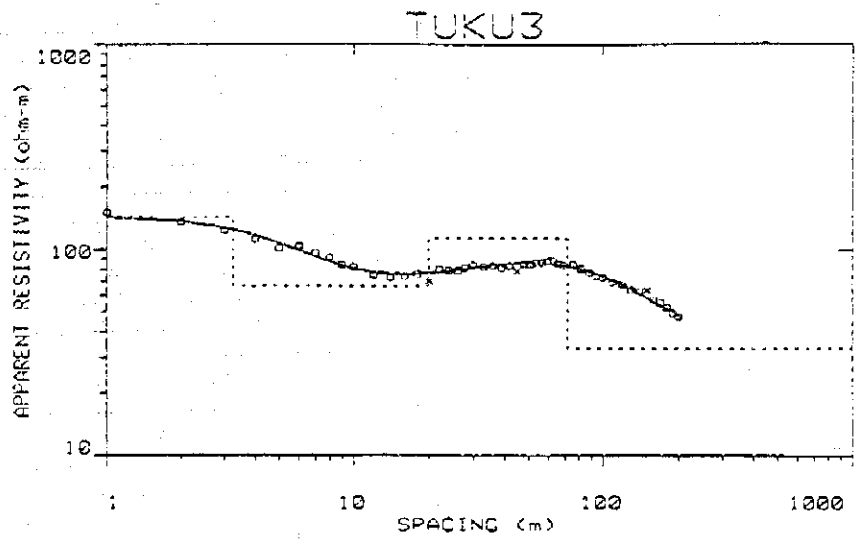

ARDAI 19
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

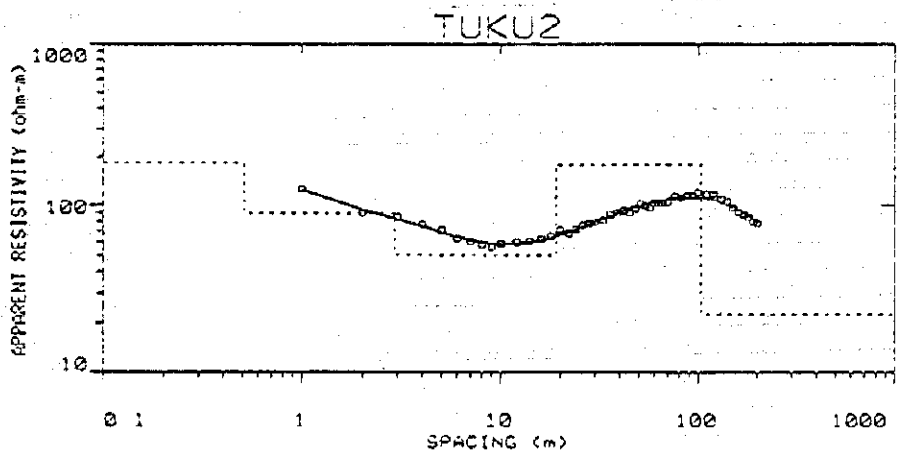

ARDAI 18
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

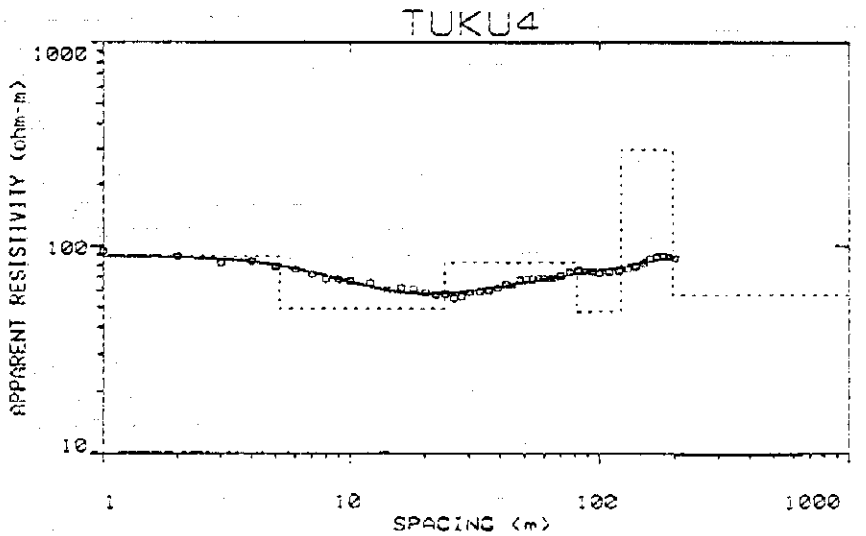

ARDAI 20
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

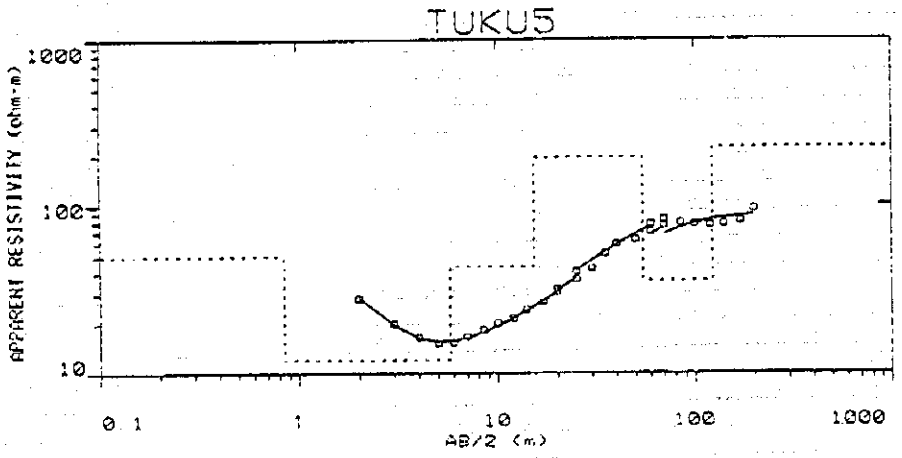

ARDAI 21
APPARENT RESISTIVITY (ohm-m)
100
10
1
0 1
1
10
100
1000
AB/2 (m)

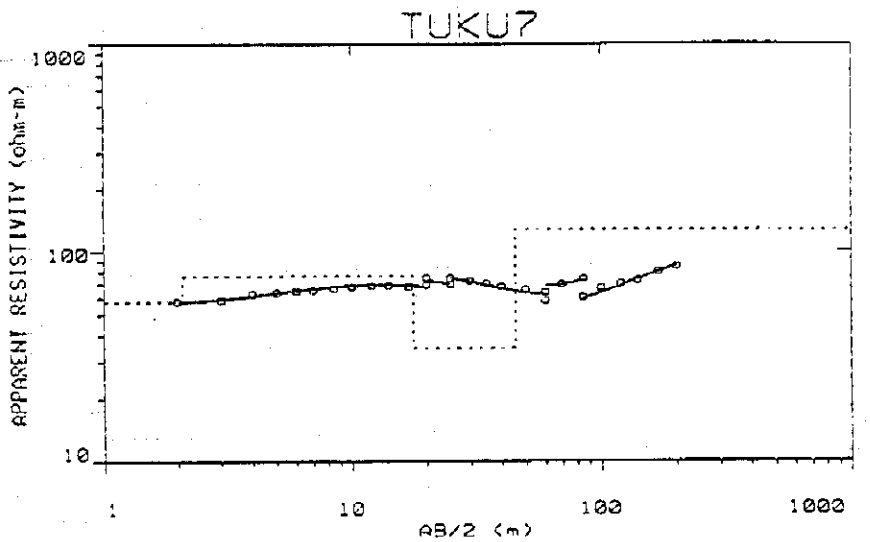

TUKU1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
SPACING (m)

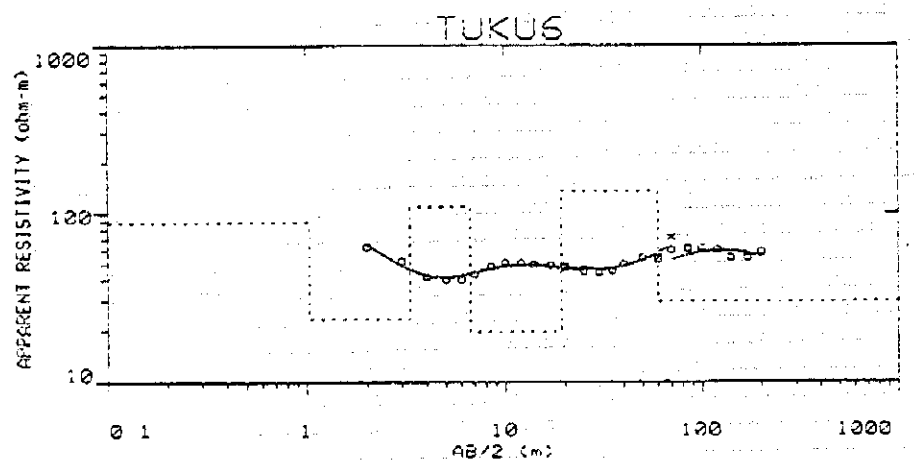

TUKU3
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
SPACING (m)

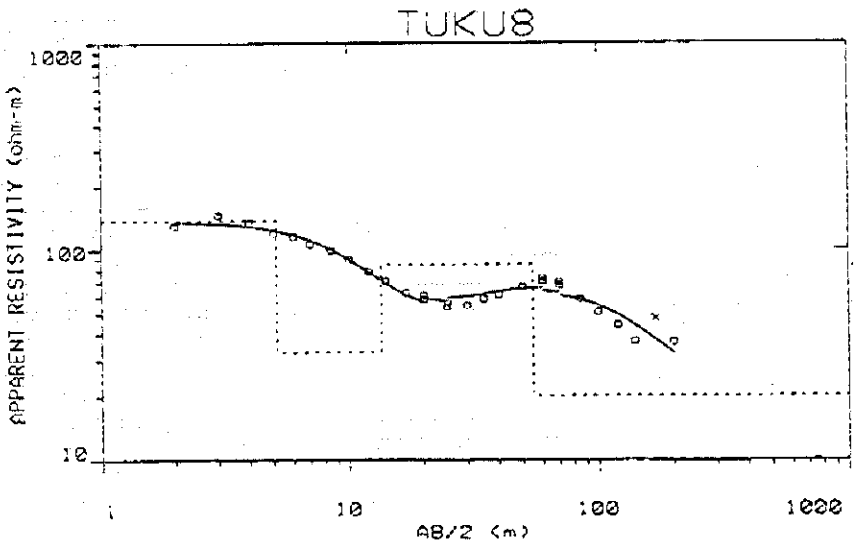

TUKU2
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
SPACING (m)

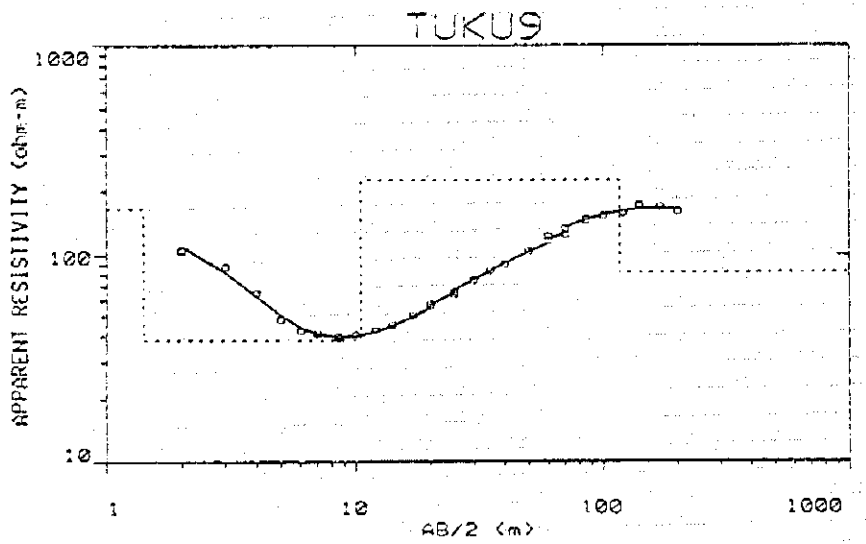

TUKU4
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
SPACING (m)

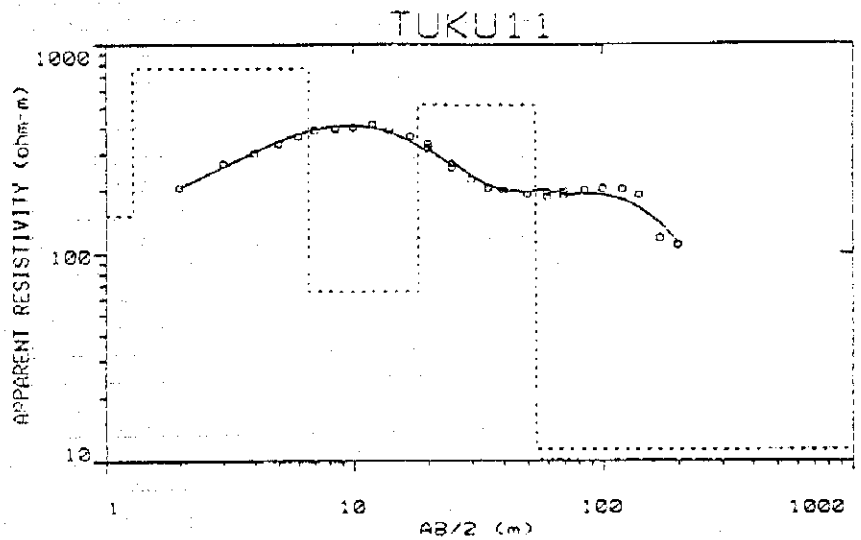

TUKU5
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

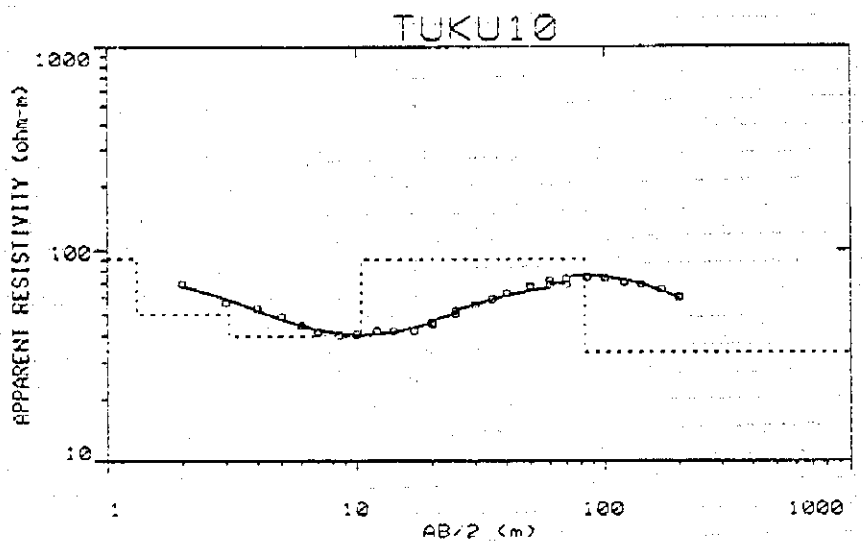

TUKU7
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

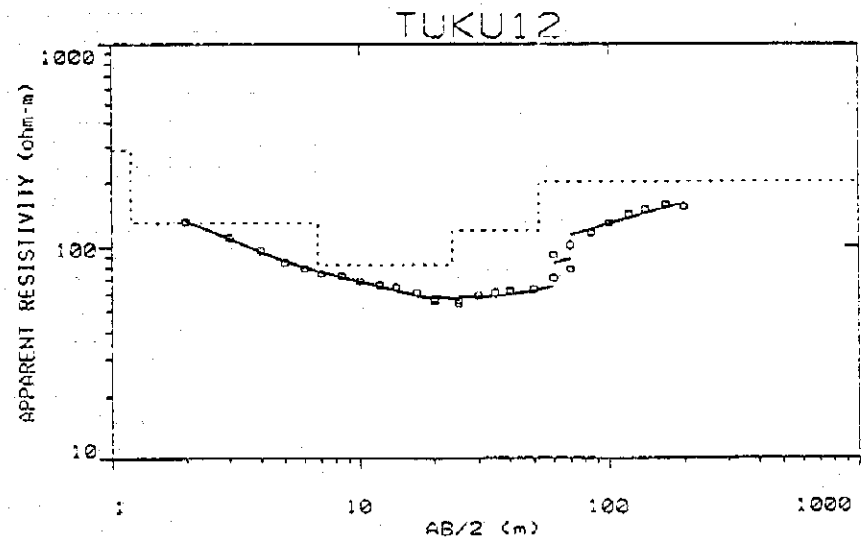

TUKU6
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

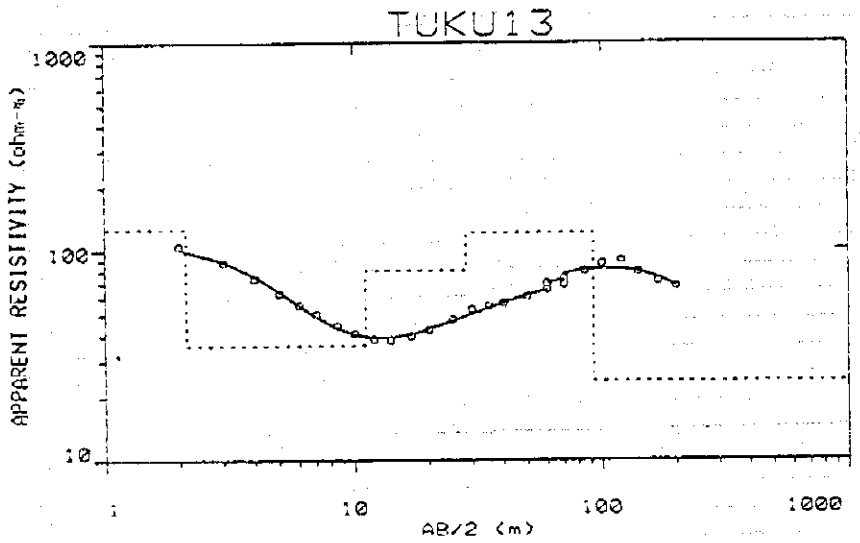

TUKU8
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

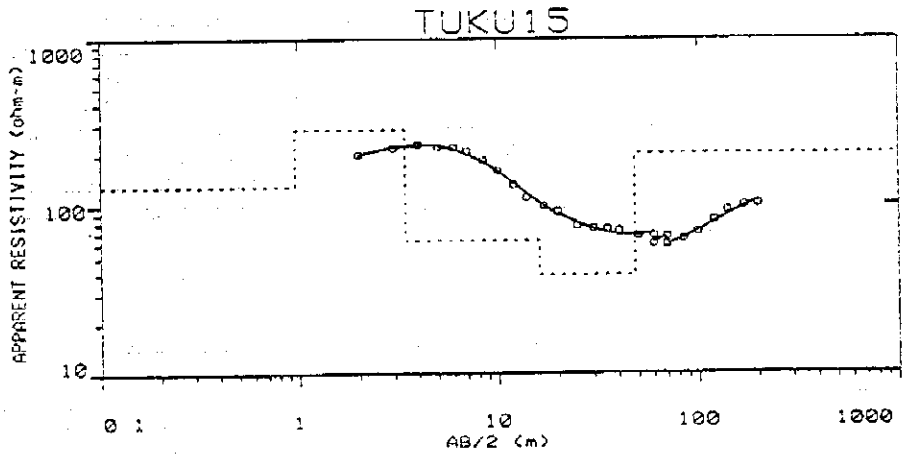

TUKU9
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

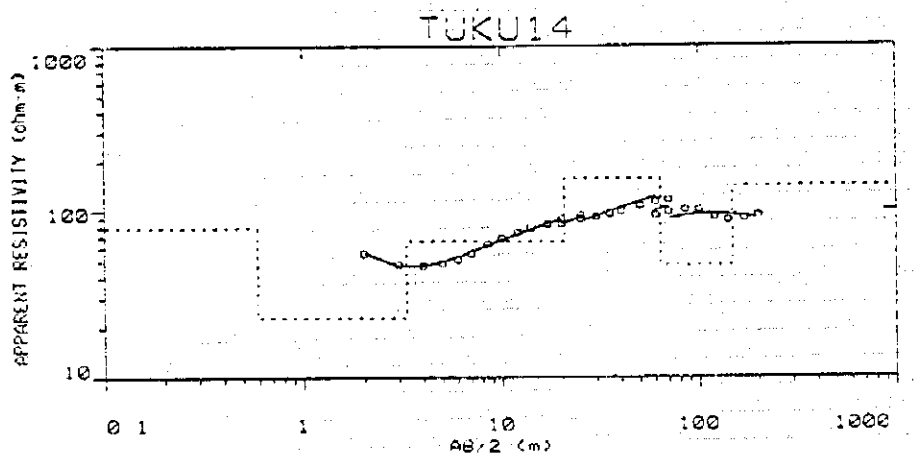

TUKU11
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

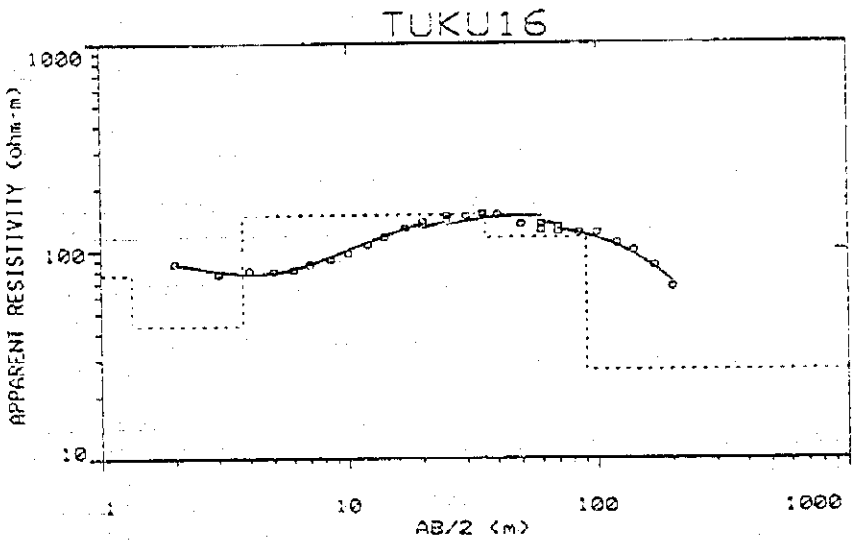

TUKU10
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

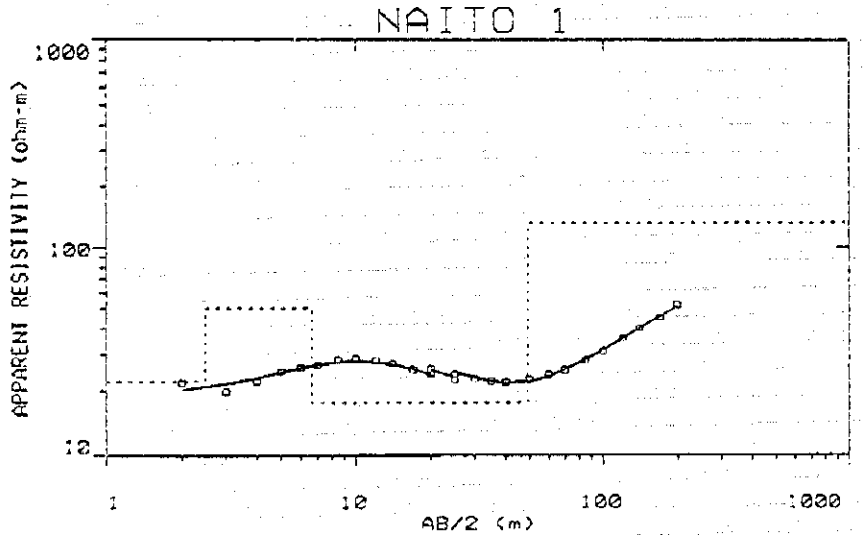

TUKU12
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

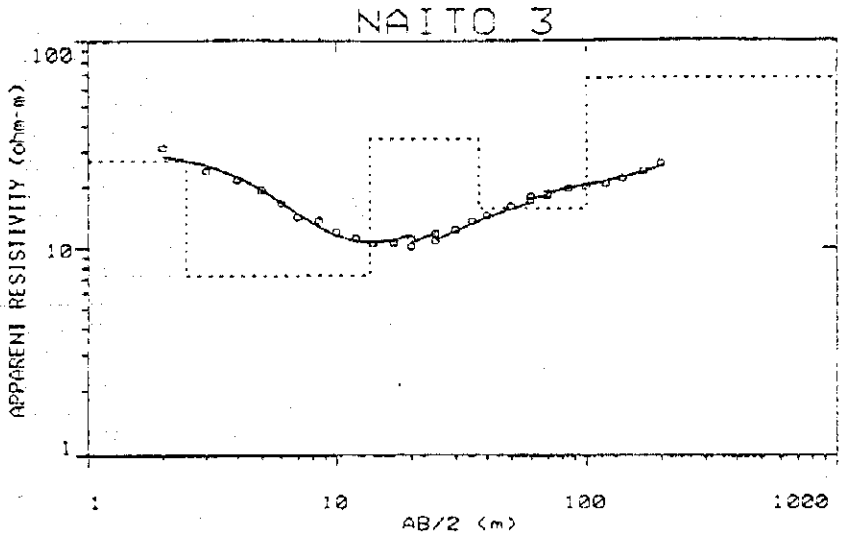

TUKU13
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

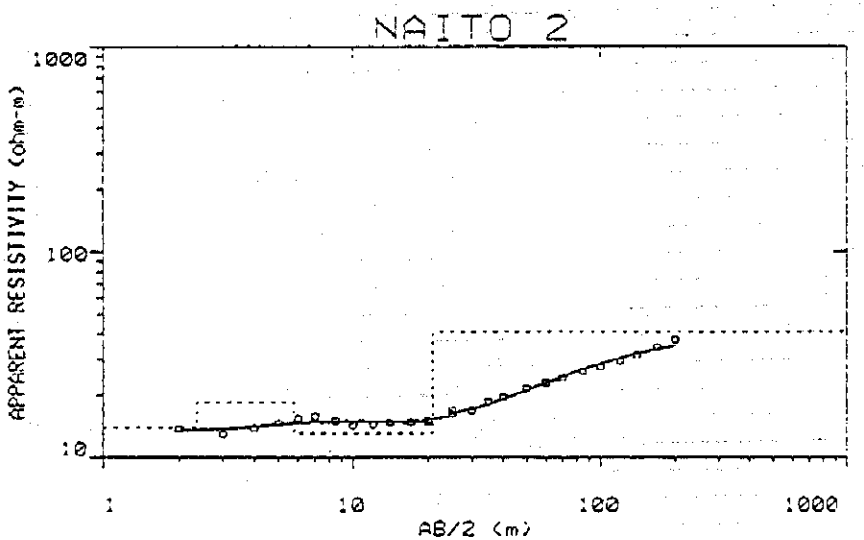

TUKU15
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

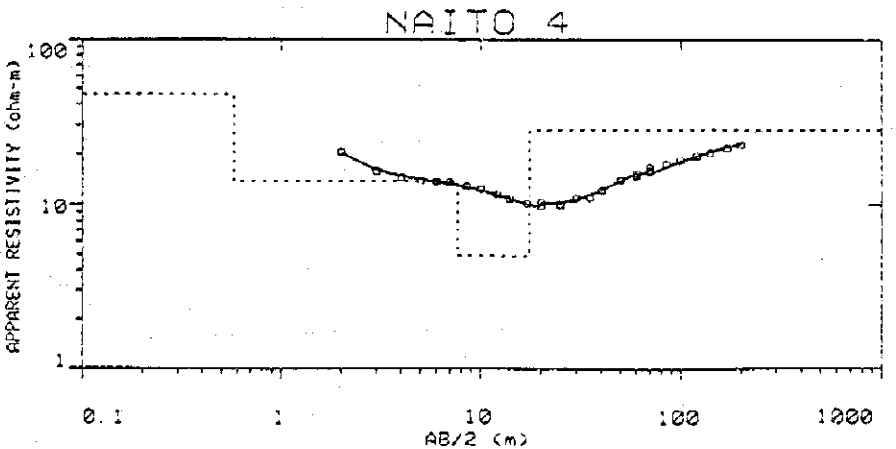

TUKU14
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

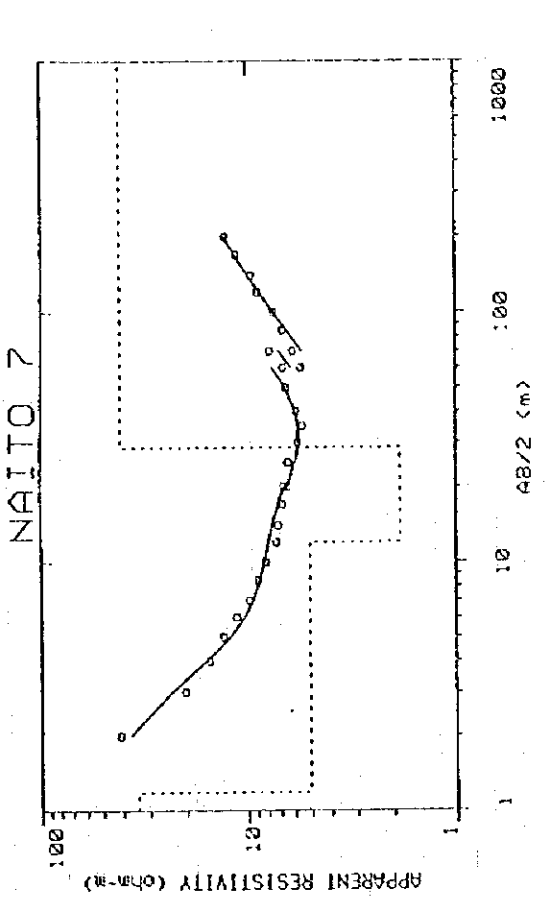

TUKU16
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

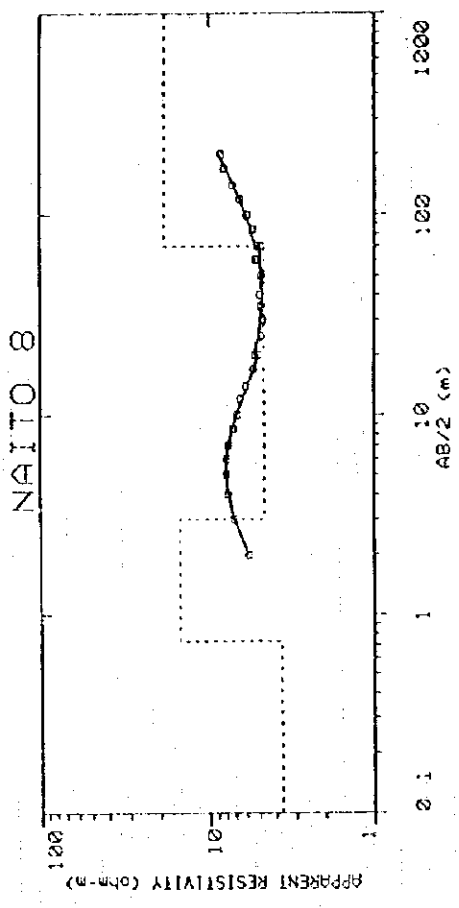

NAITO 1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

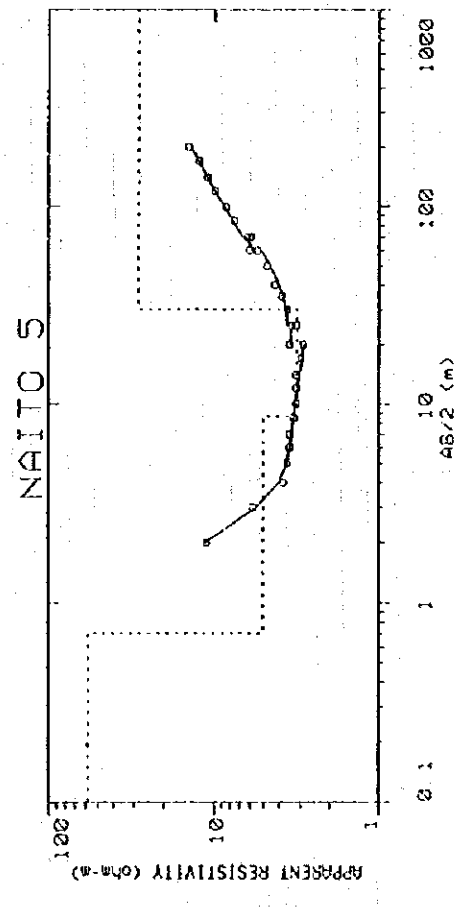

NAITO 3
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

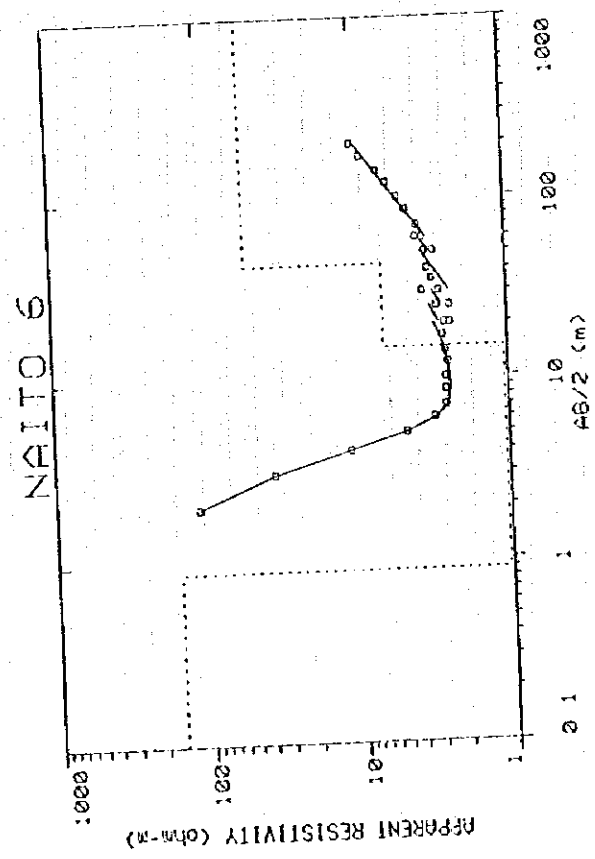

NAITO 2
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

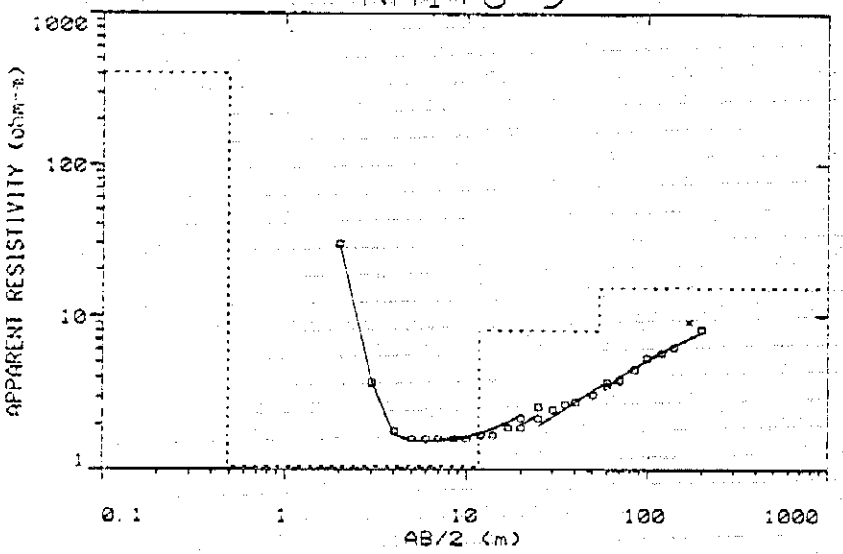

NAITO 4
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

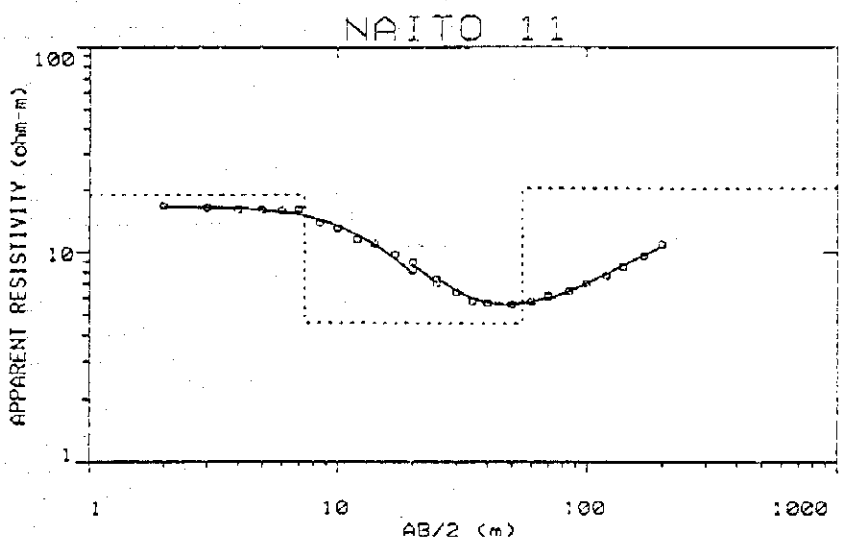

NAITO 7
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

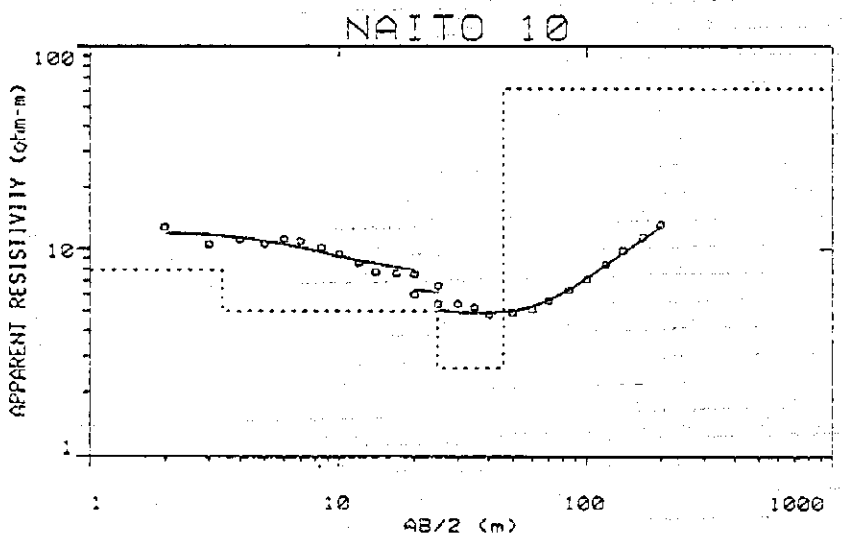

NAITO 8
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

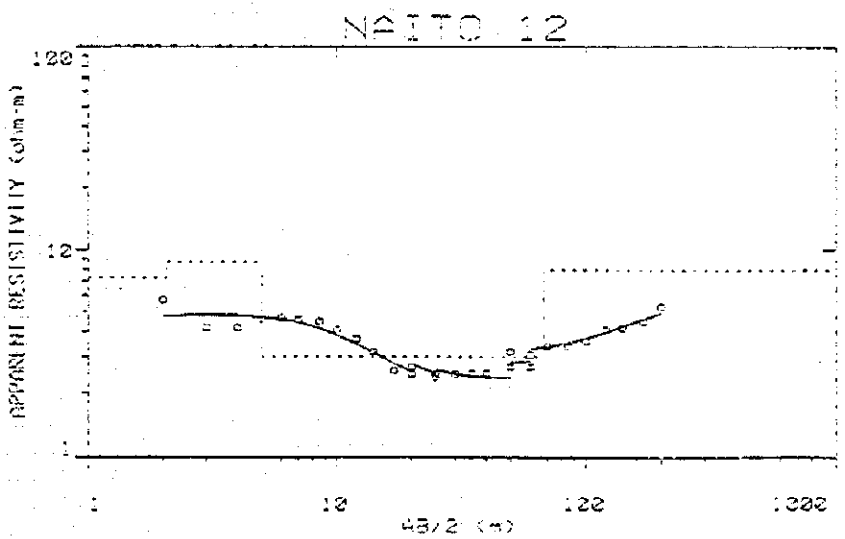

NAITO 5
APPARENT RESISTIVITY (ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

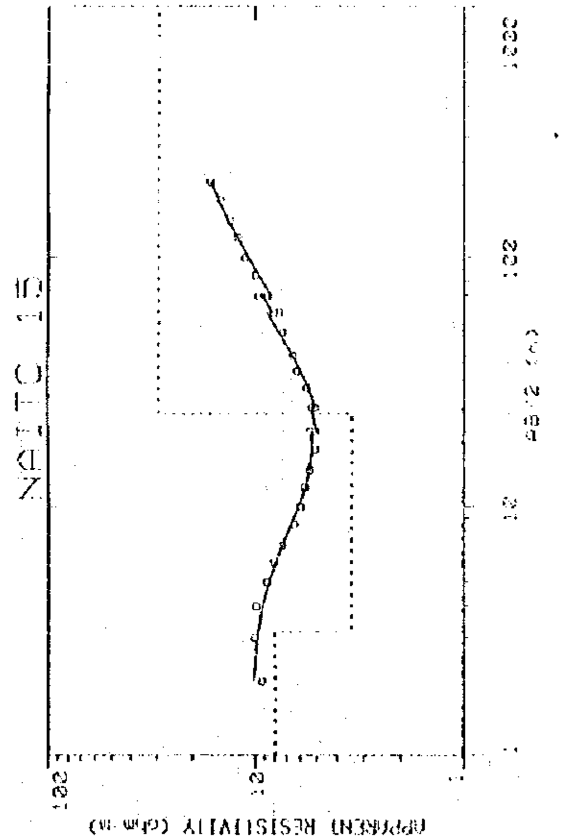

NAITO 6
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

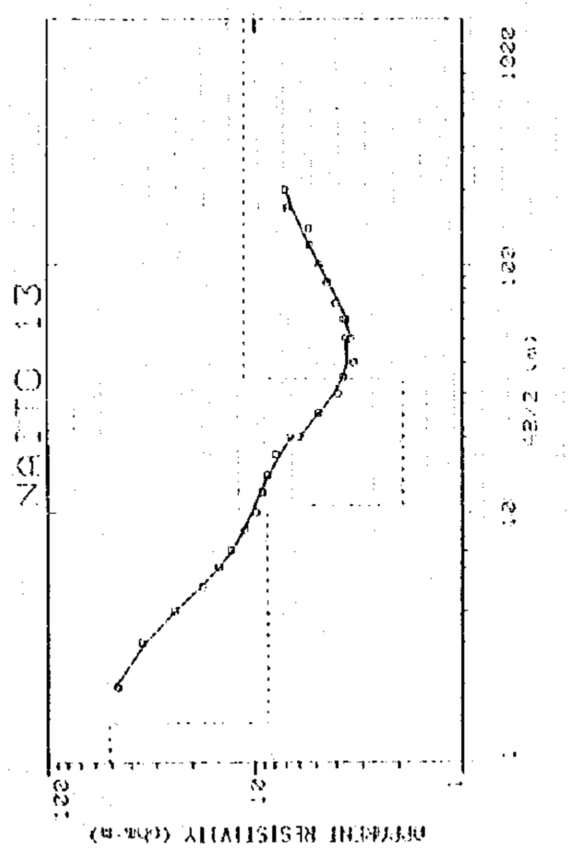

NAITO 9
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

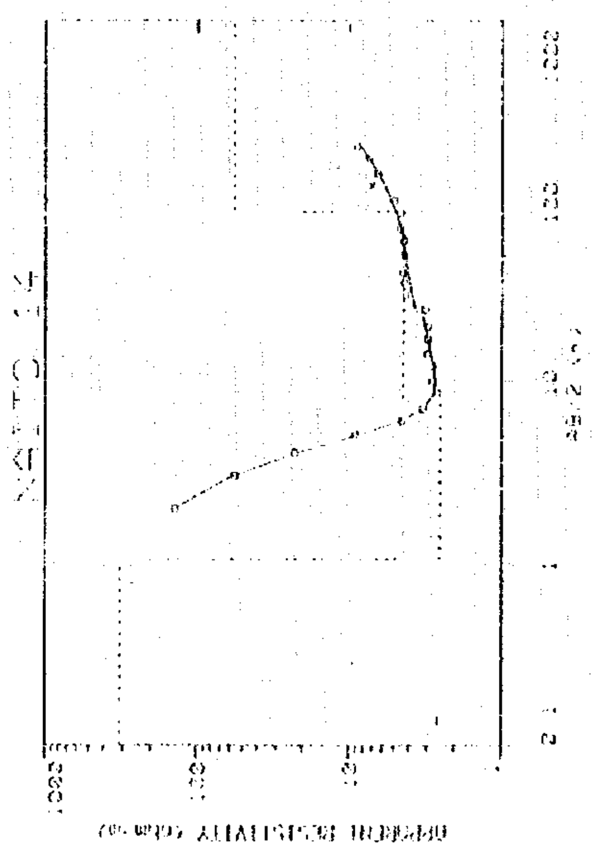

NAITO 11
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

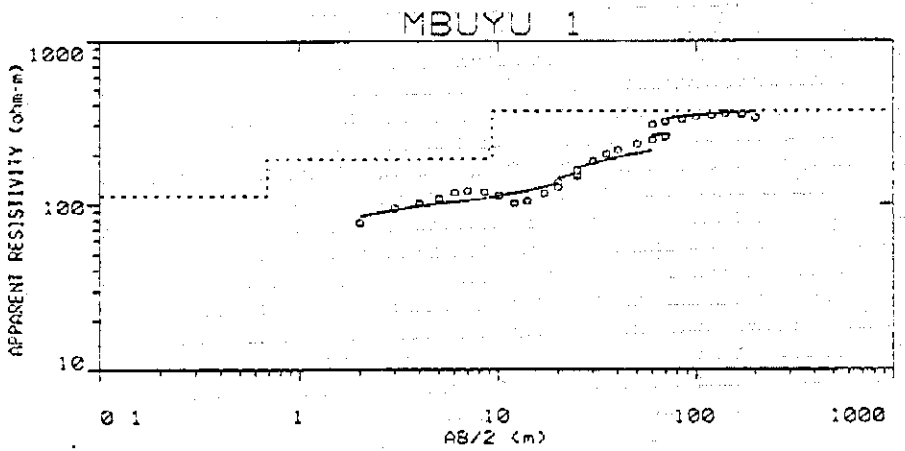

NAITO 10
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

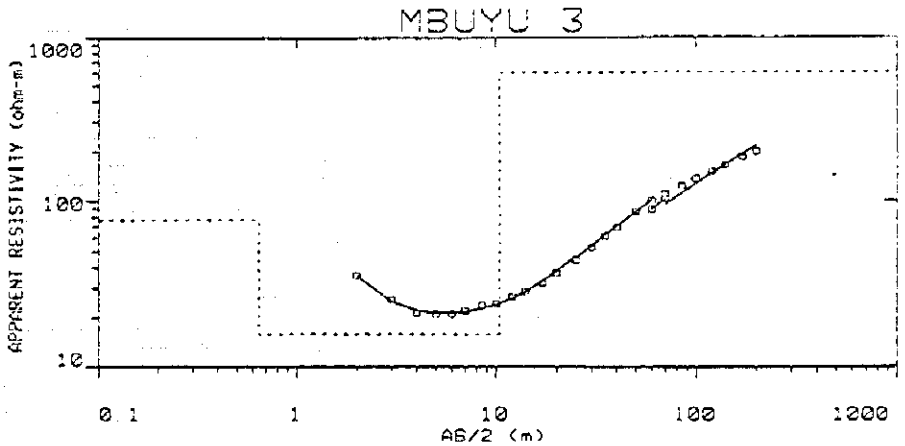

NAITO 12
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

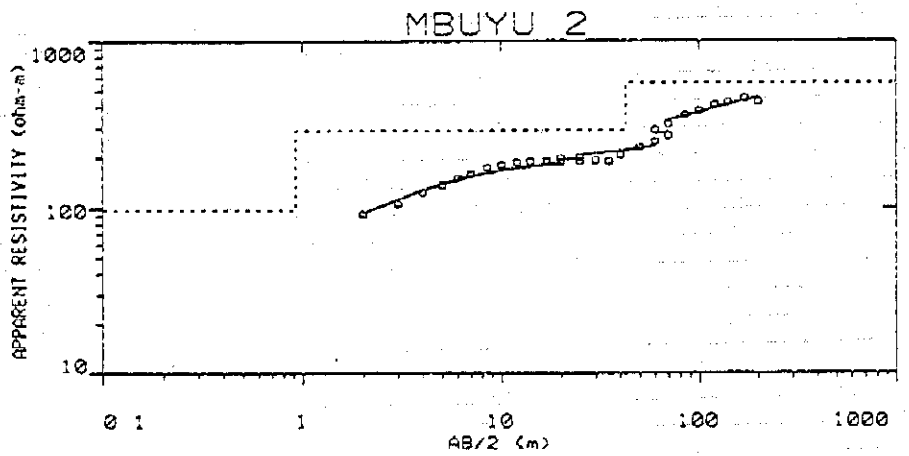

NATO 15

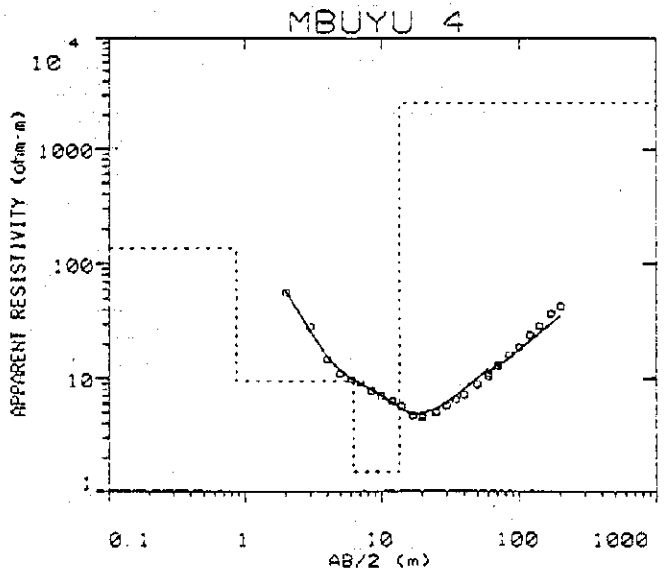

NATO 13

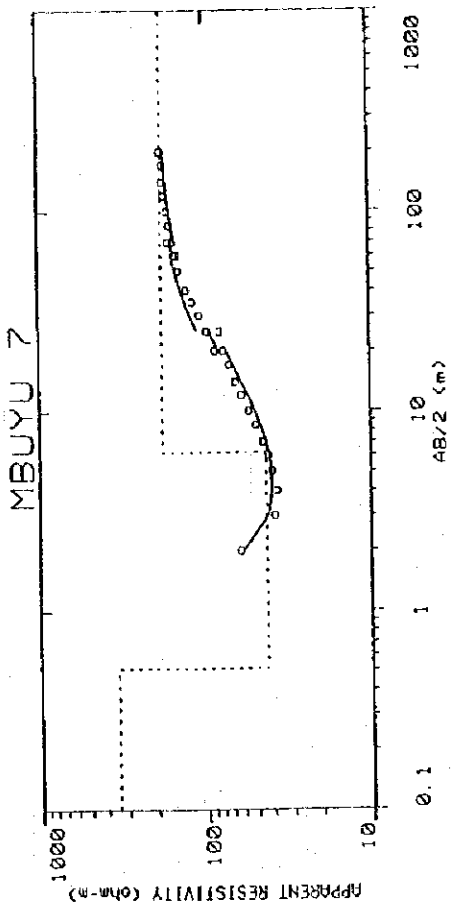


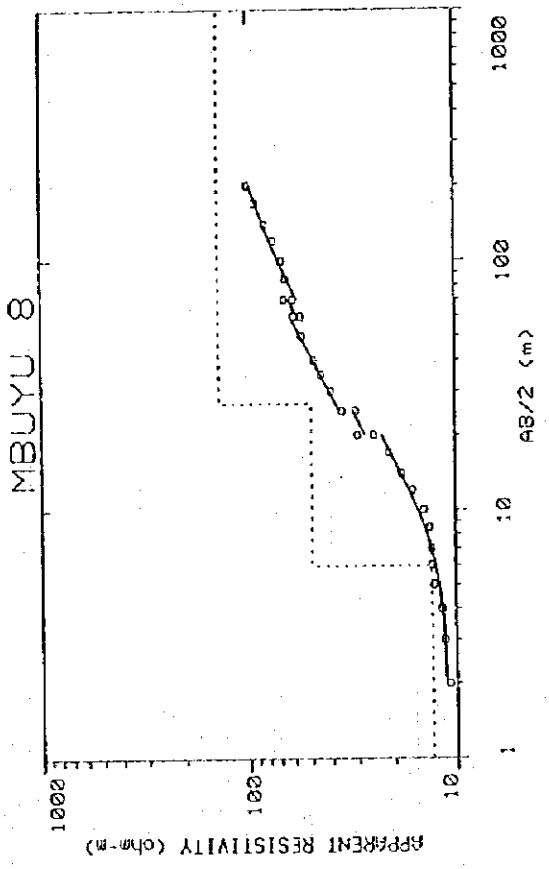

MBUYU 1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

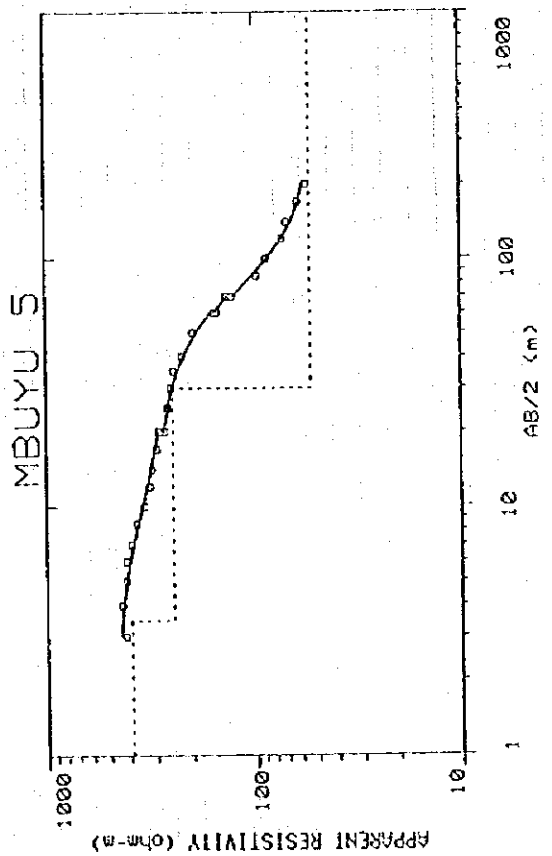

MBUYU 3
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

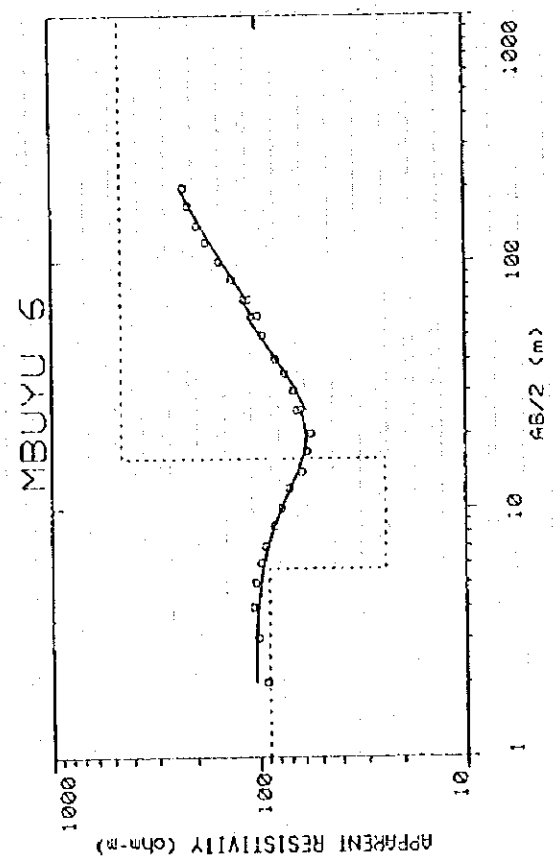

MBUYU 2
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

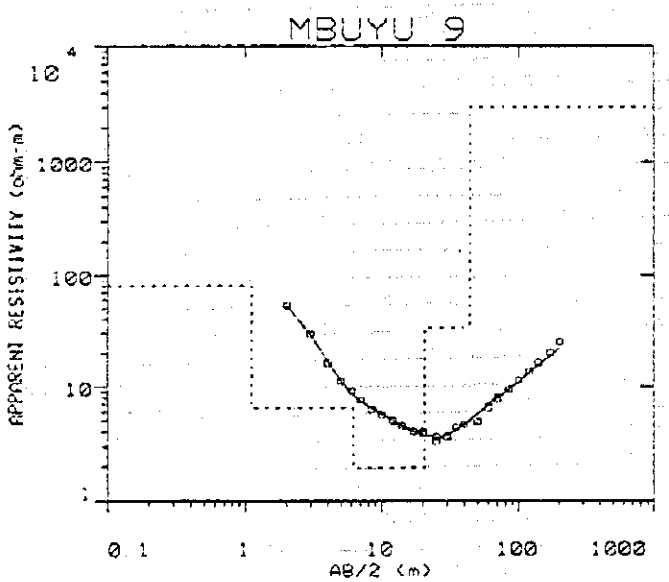

MBUYU 4
APPARENT RESISTIVITY (ohm-m)
10^4
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

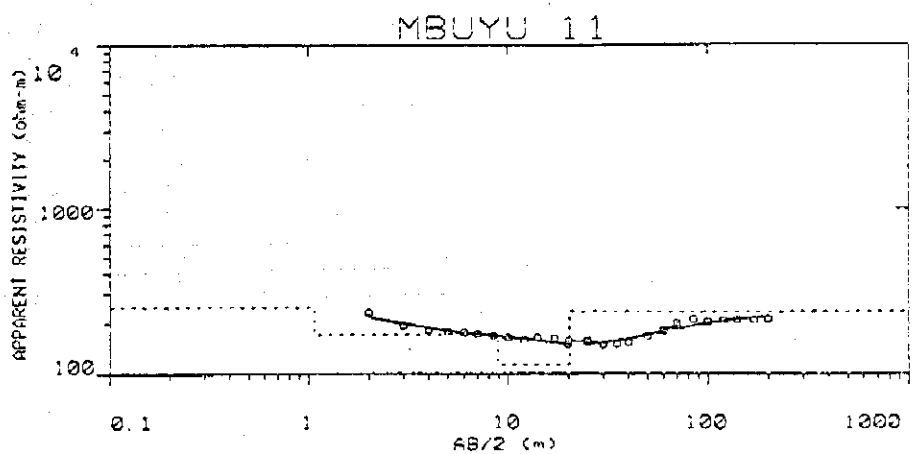

MBUYU 7
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

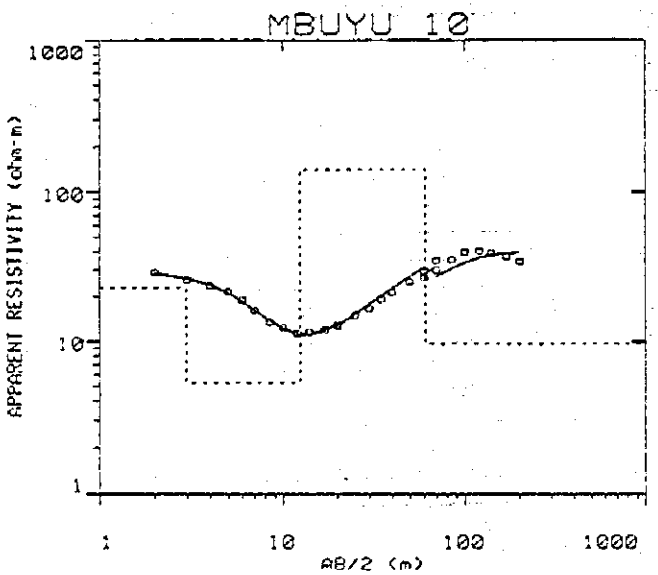

MBUYU 8
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

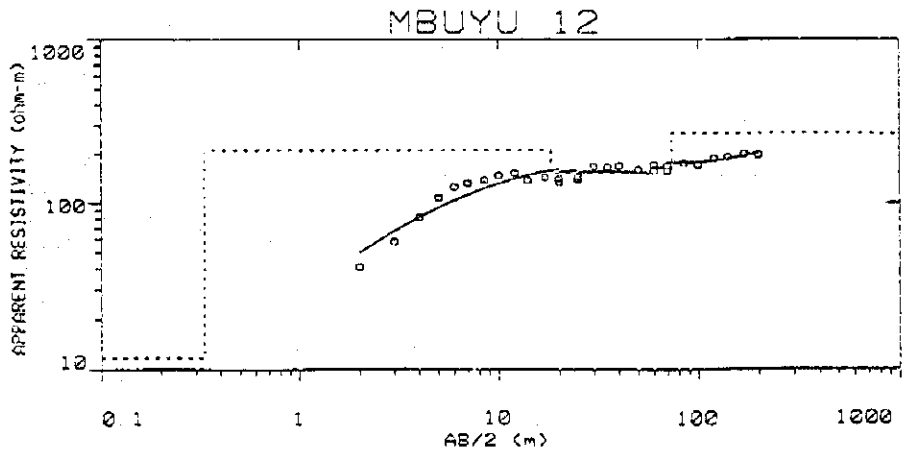

MBUYU 5
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

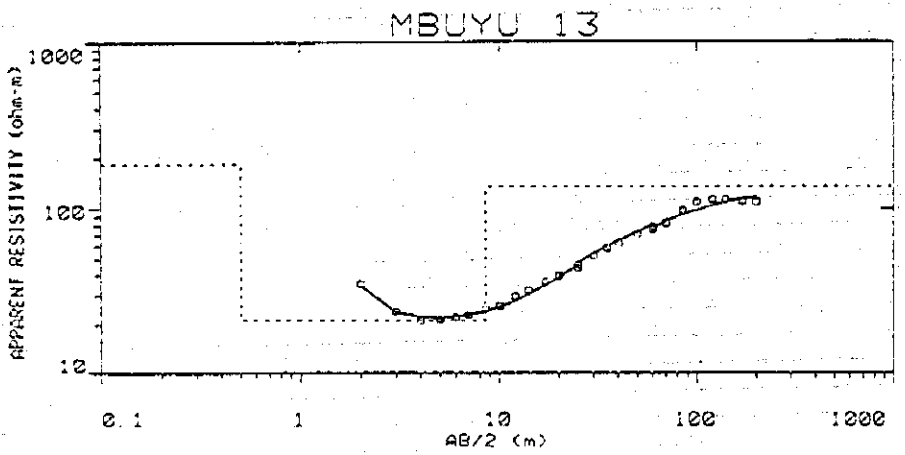

MBUYU 6
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

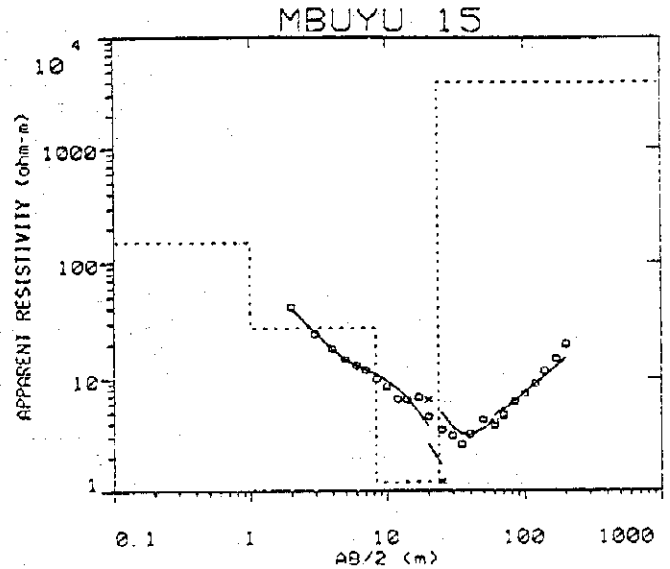

MBUYU 9
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

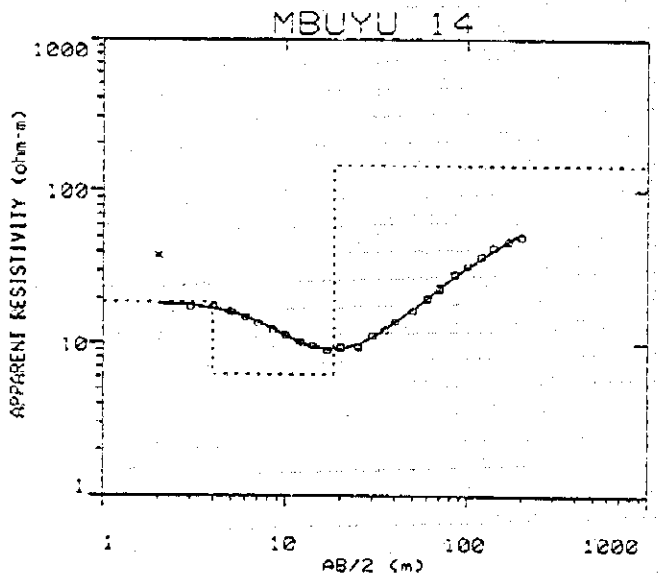

MBUYU 11
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

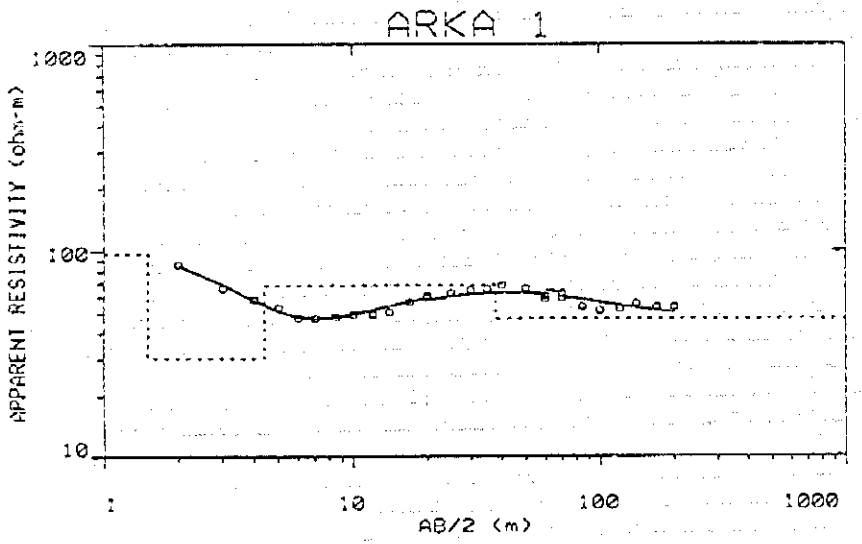

MBUYU 10
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

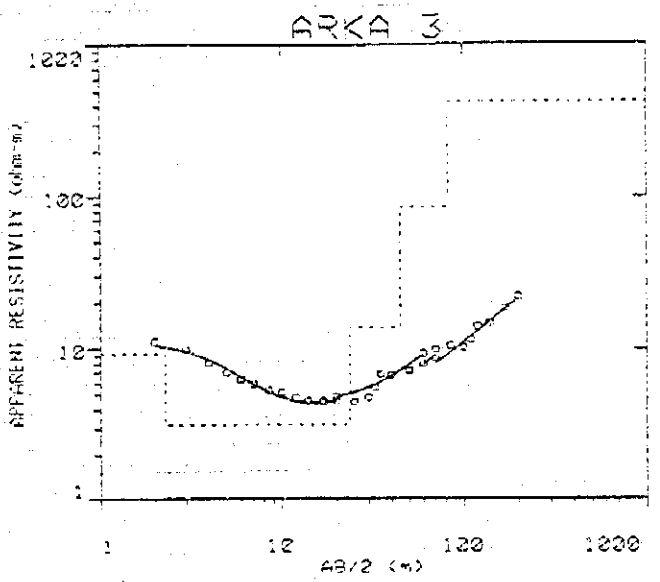

MBUYU 12
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

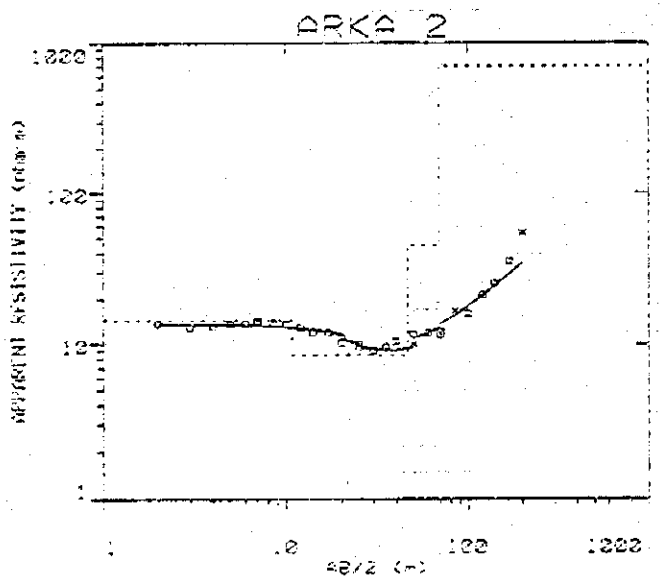

MBUYU 13
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

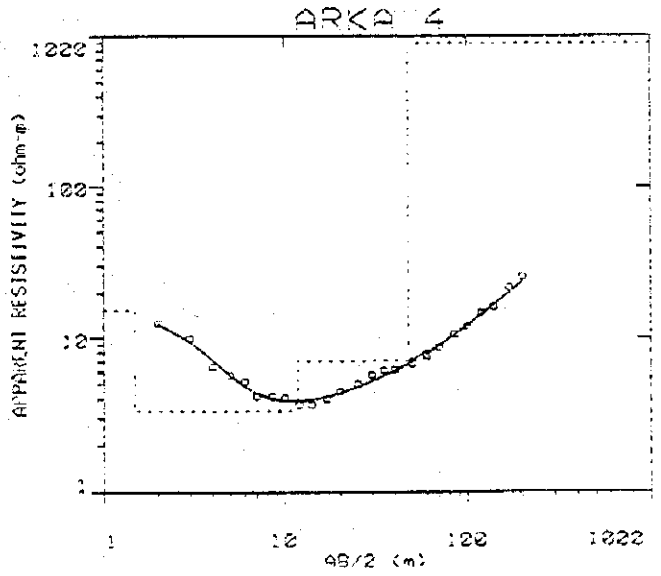

MBUYU 15
APPARENT RESISTIVITY (ohm-m)
10 4
1000
100
10
1
0.1
1
10
100
1000
AB/2 (m)

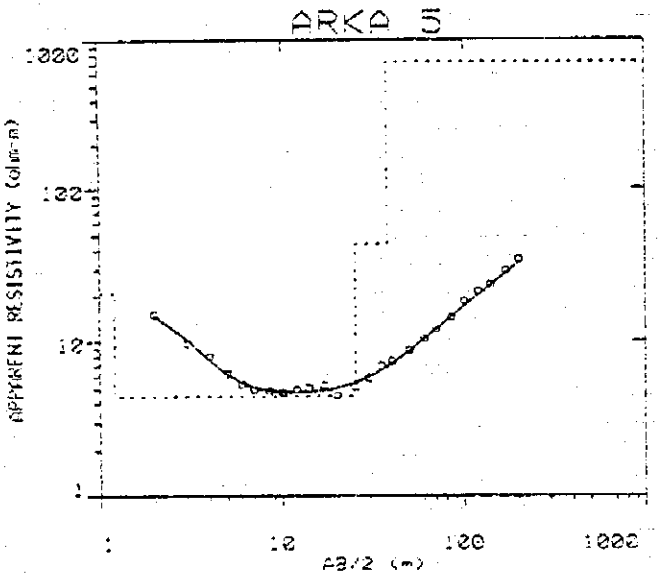

MBUYU 14
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

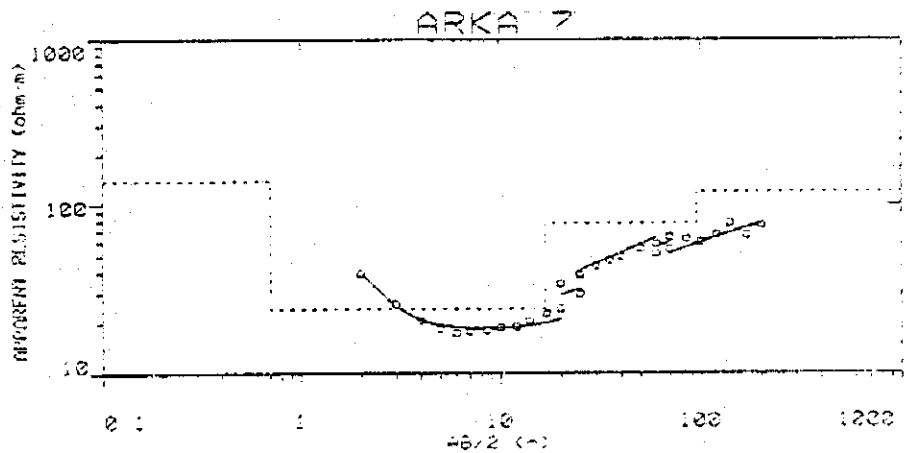

ARKA 1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

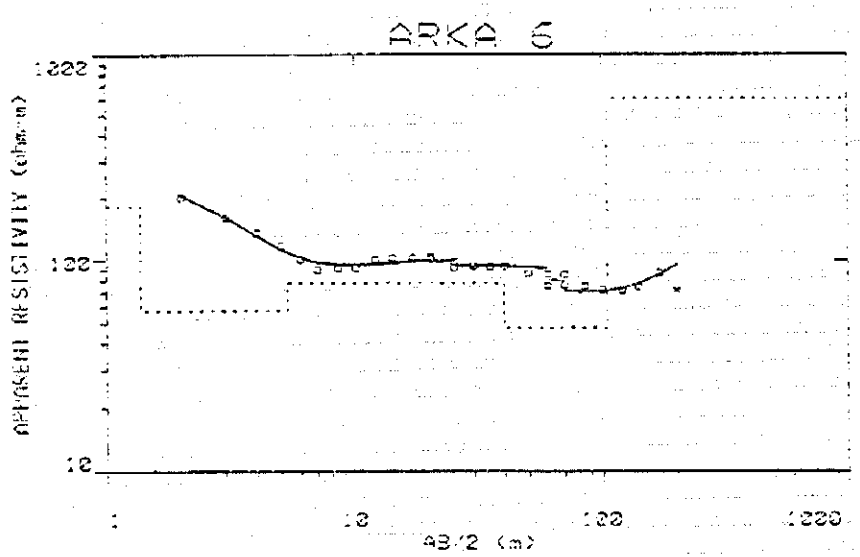

ARKA 3
APPARENT RESISTIVITY (ohm-m)
100
10
1
10
100
AB/2 (m)

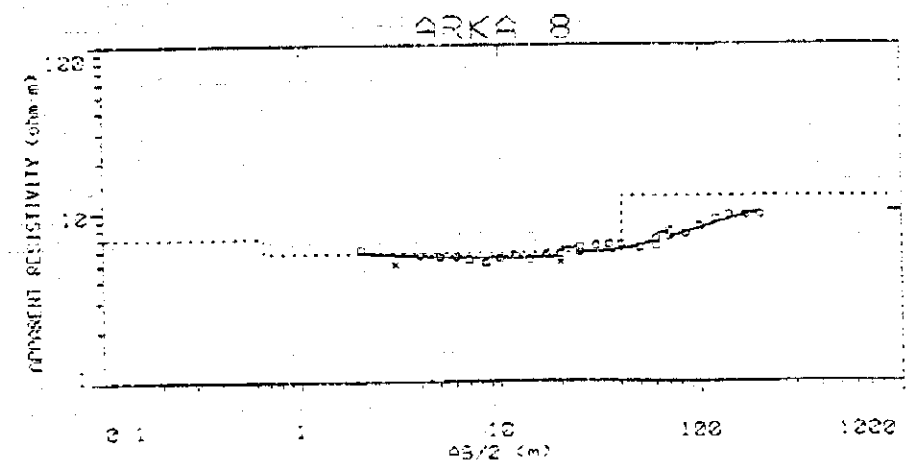

ARKA 2
100
10
1
10
100
AB/2 (m)

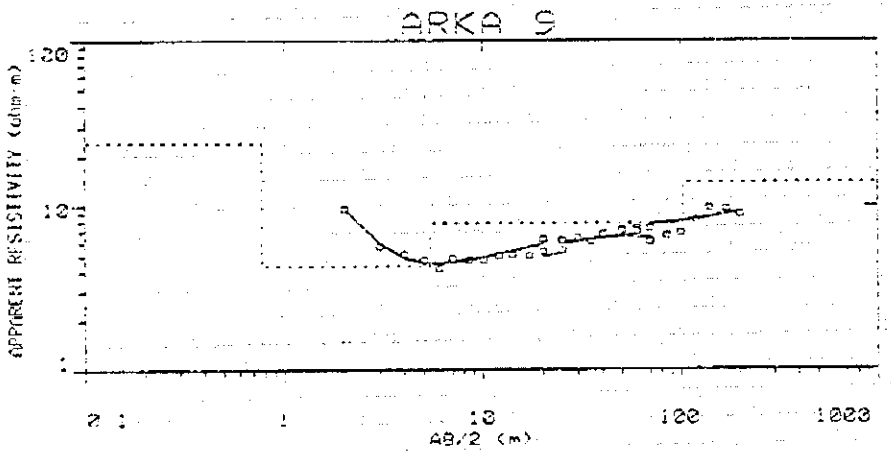

ARKA 4
APPARENT RESISTIVITY (ohm-m)
100
10
1
10
100
AB/2 (m)

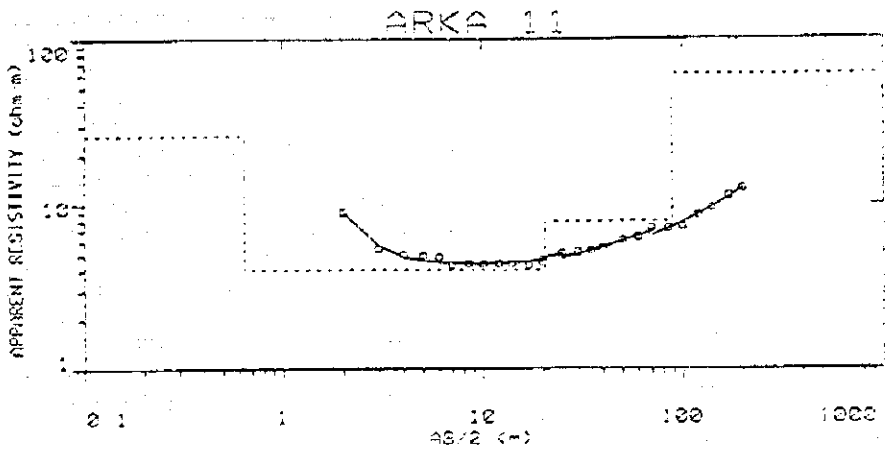

ARKA 5
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

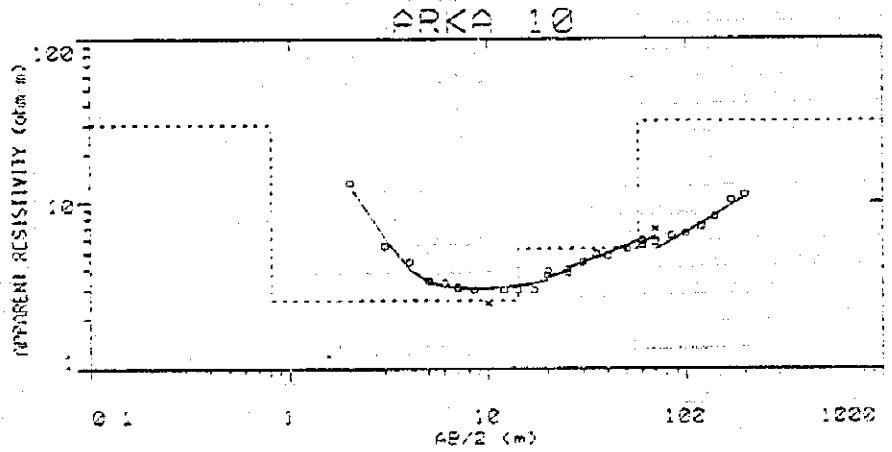

ARKA 7
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

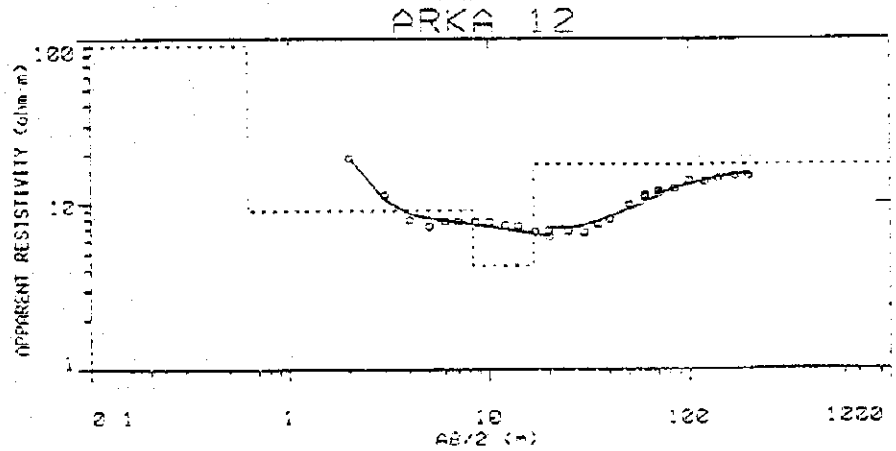

ARKA 6
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

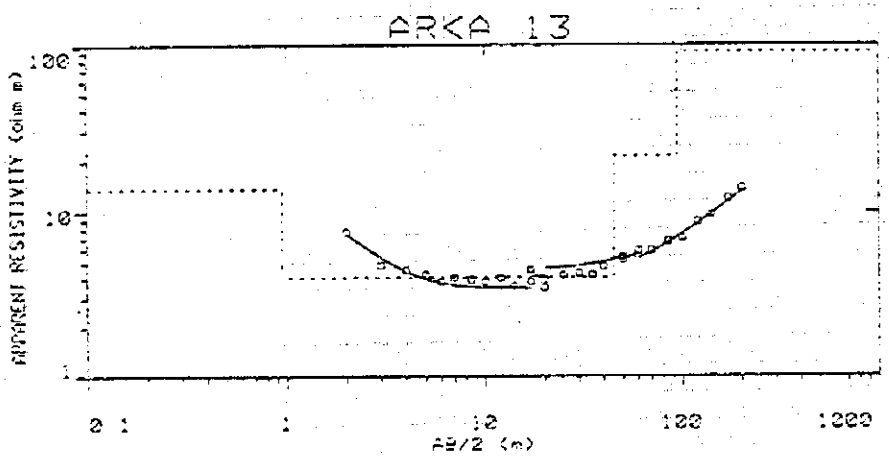

ARKA 8
APPARENT RESISTIVITY (ohm-m)
100
10
0 1
1
10
100
1000
AB/2 (m)

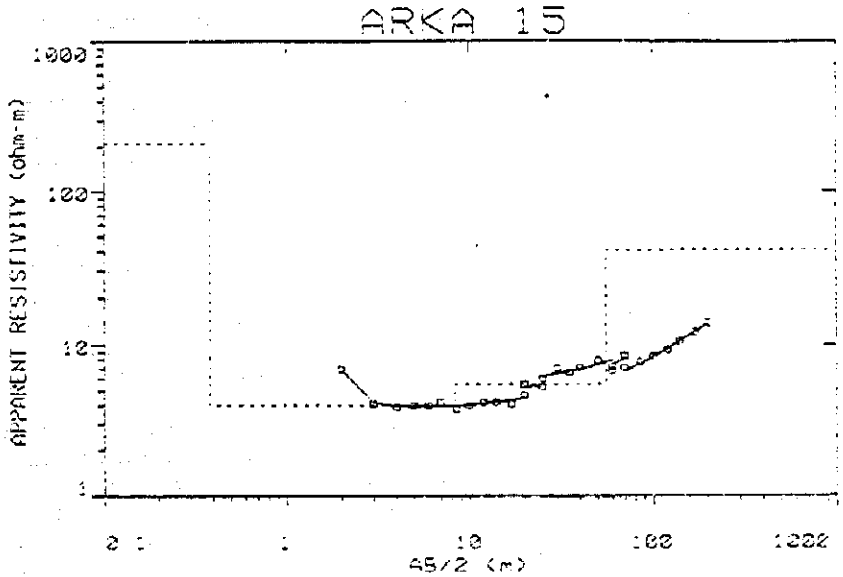

ARKA 9
APPARENT RESISTIVITY (ohm-m)
100
10
1
2 1
1
10
100
1000
AB/2 (m)

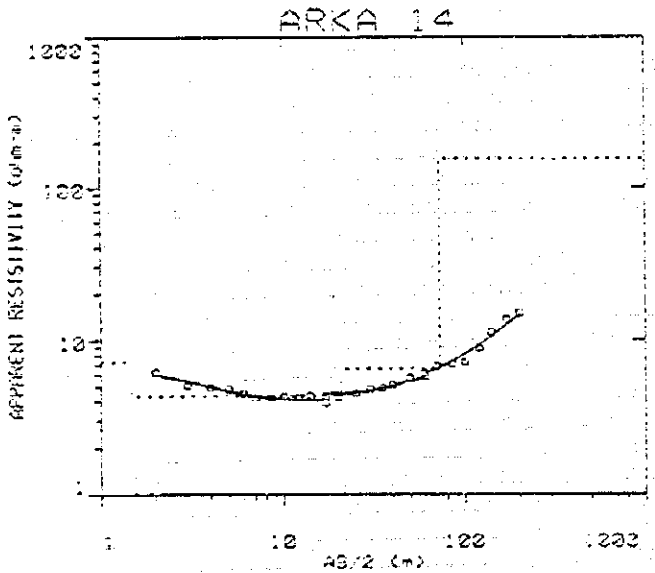

ARKA 11
APPARENT RESISTIVITY (ohm-m)
100
10
1
2 1
1
10
100
1000
AB/2 (m)

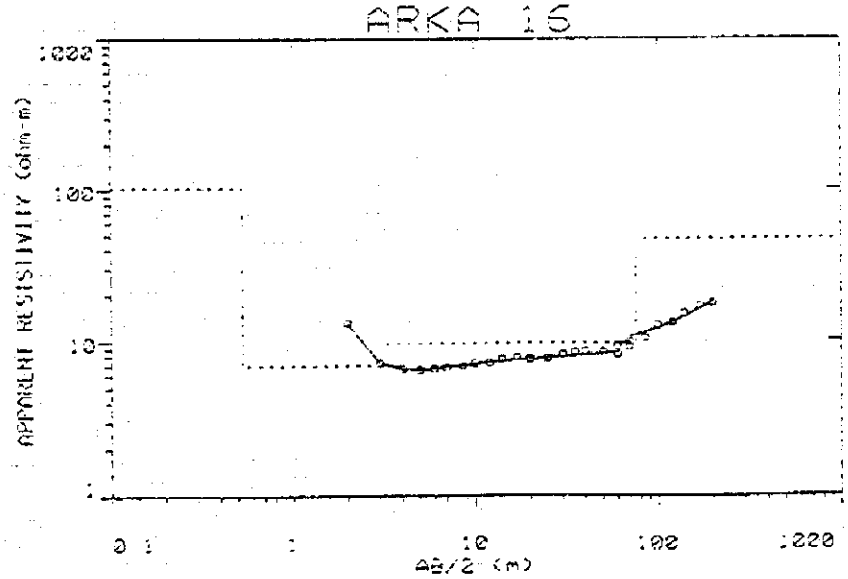

ARKA 10
APPARENT RESISTIVITY (ohm-m)
100
10
1
2 1
1
10
100
1000
AB/2 (m)

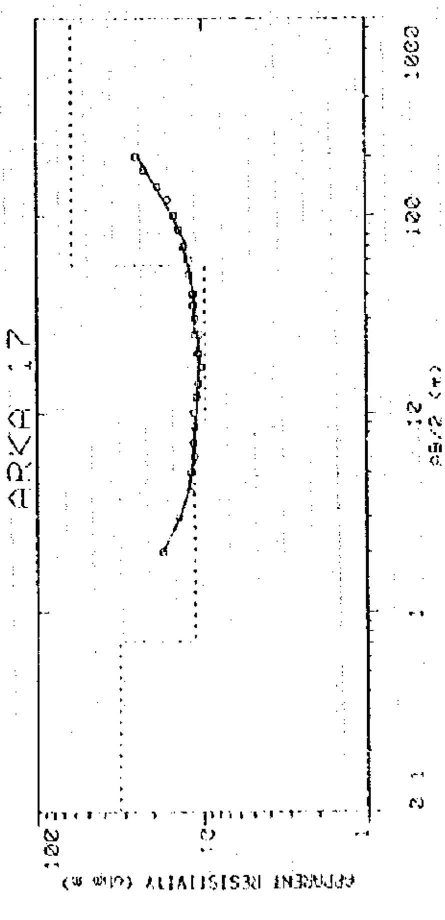

ARKA 12
APPARENT RESISTIVITY (ohm-m)
100
10
1
2 1
1
10
100
1000
AB/2 (m)


ARKA 13
APPARENT RESISTIVITY (ohm-m)
100
10
1
0 1
1
10
100
1000
AB/2 (m)


ARKA 15
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1000
AB/2 (m)


ARKA 14
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)


ARKA 16
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1000
AB/2 (m)


ARKA 17
APPARENT RESISTIVITY (ohm m)

ARKAE 3
APPARENT RESISTIVITY (Ohm-m)
AB/2 (m)

ARKAE 4
APPARENT RESISTIVITY (Ohm-m)
AB/2 (m)

ARKAE 1
APPARENT RESISTIVITY (Ohm-m)
AB/2 (m)

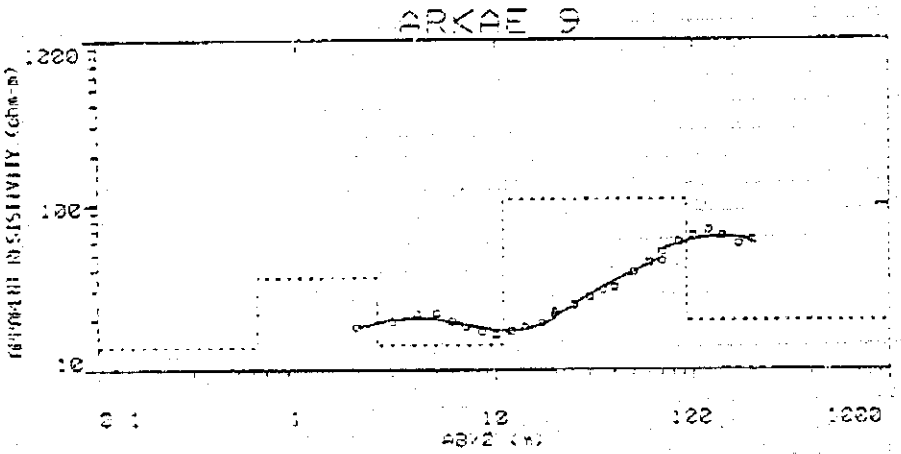
ARKAE 2
APPARENT RESISTIVITY (Ohm-m)
AB/2 (m)

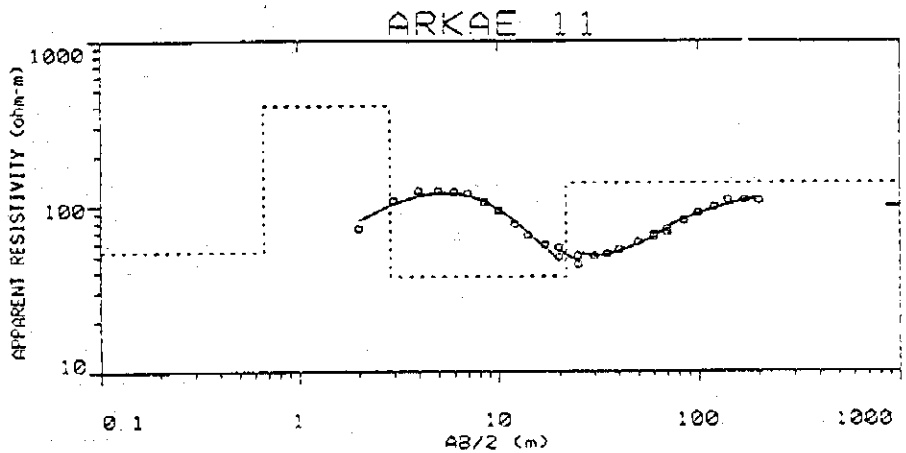
ARRAY 8
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

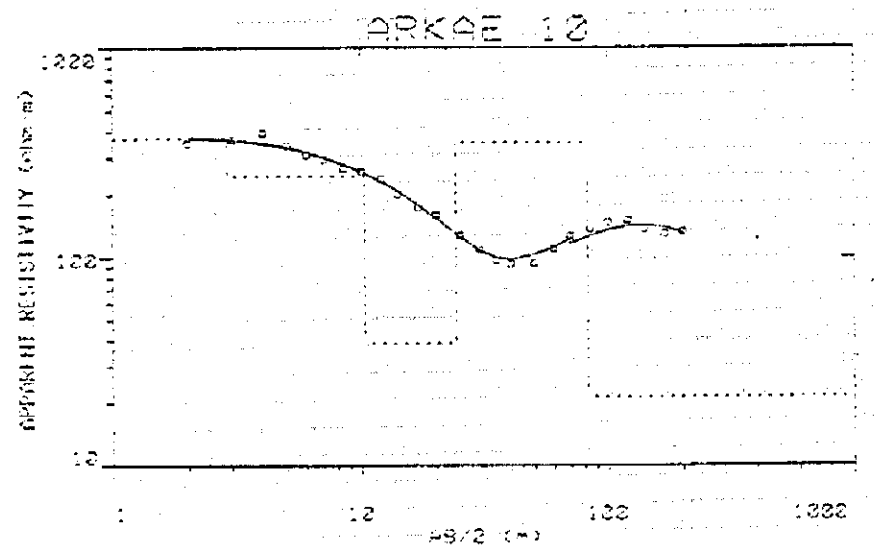
ARRAY 7
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

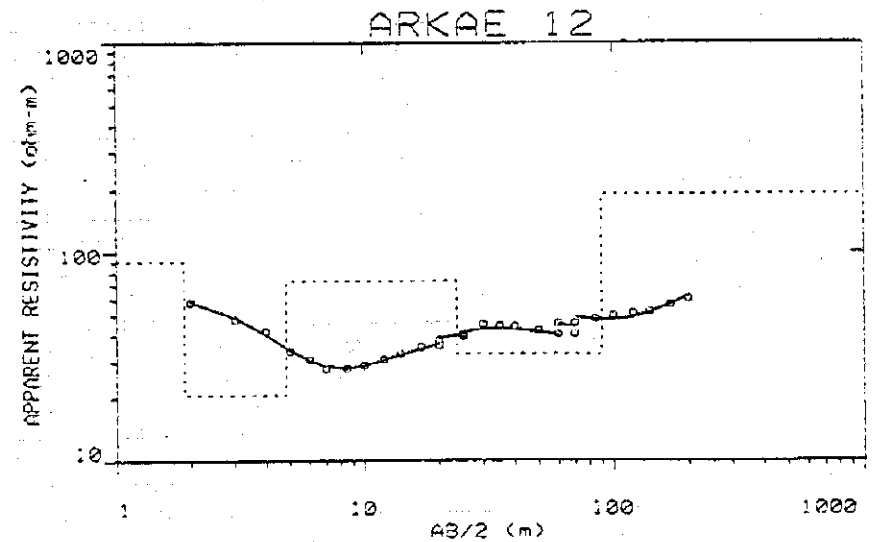
ARRAY 6
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

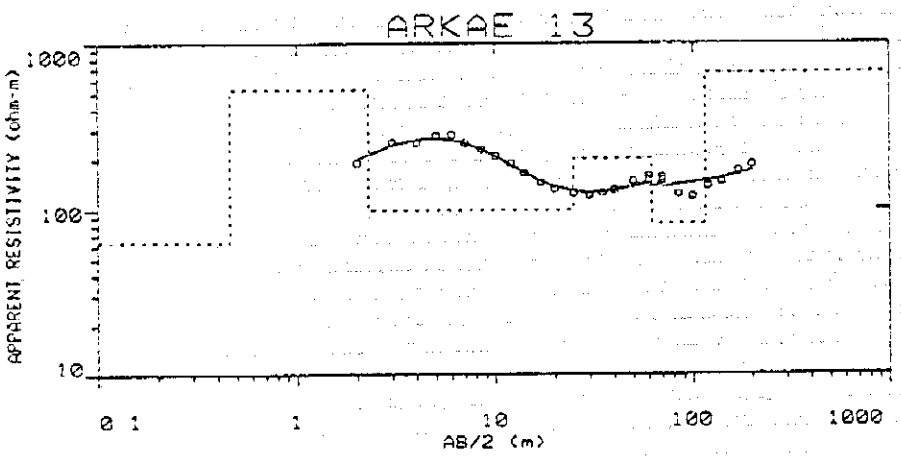
ARRAY 5
APPARENT RESISTIVITY (ohm-m)
AB/2 (m)

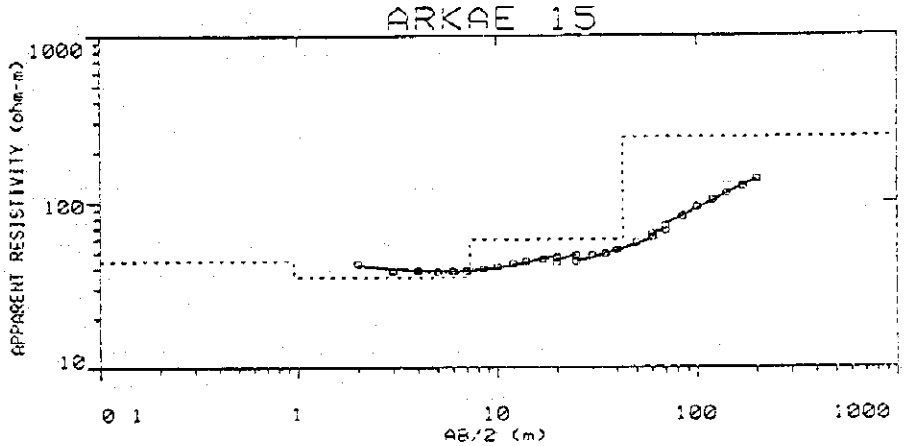

ARKAE 9
APPARENT RESISTIVITY (ohm-m)
200
100
10
0.1
1
10
100
1000
AB/2 (m)

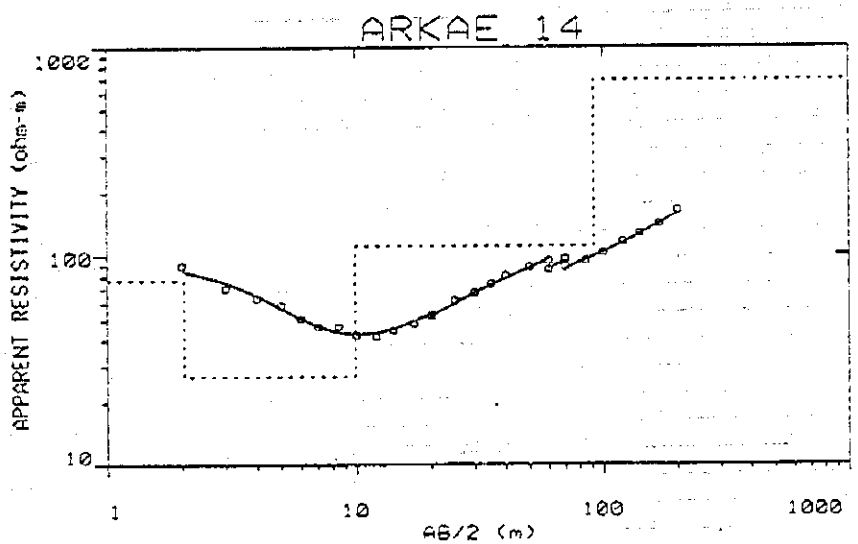

ARKAE 11
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0.1
1
10
100
1000
AB/2 (m)

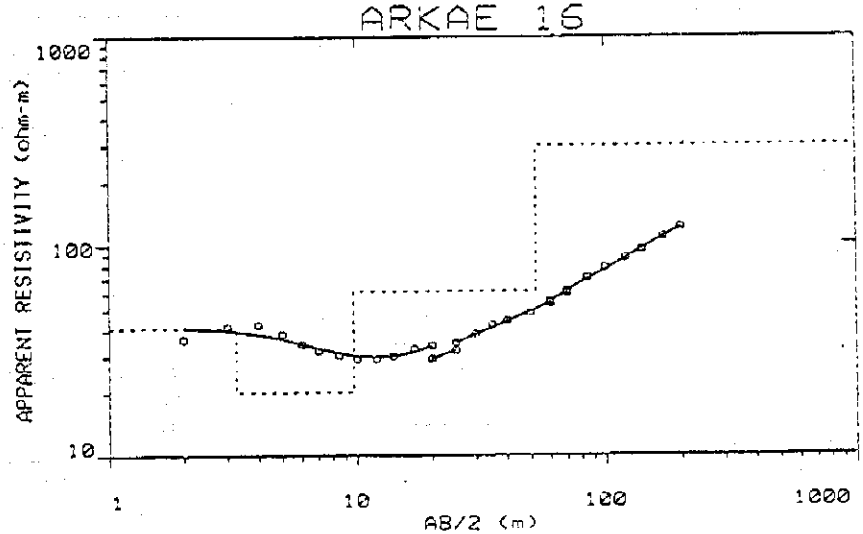

ARKAE 10
APPARENT RESISTIVITY (ohm-m)
200
100
10
1
10
100
1000
AB/2 (m)


ARKAE 12
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)


ARKAE 13
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

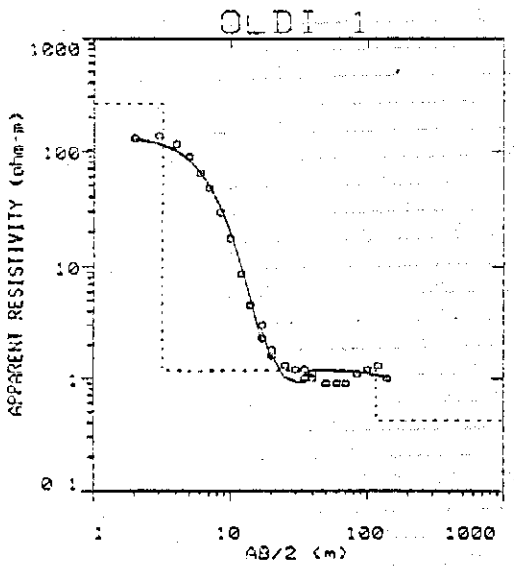

ARKAE 15
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

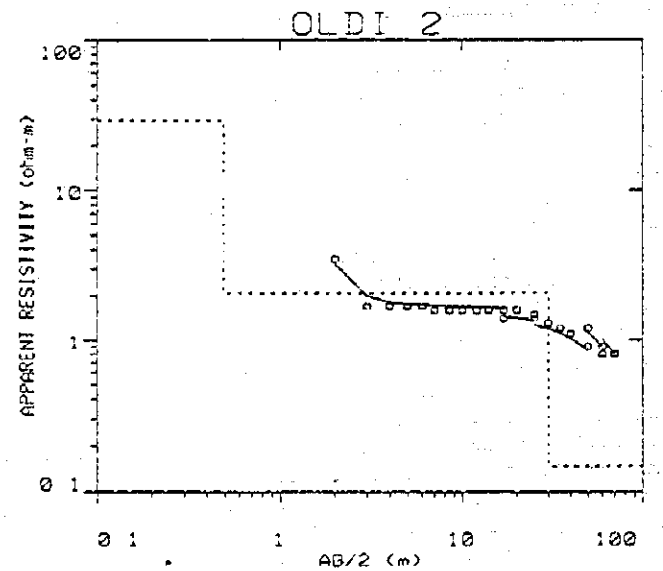

ARKAE 14
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

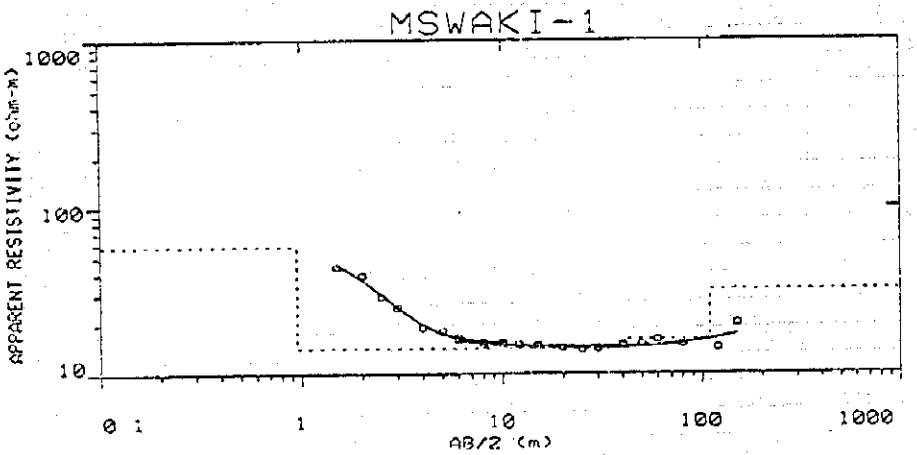

ARKAE 16
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

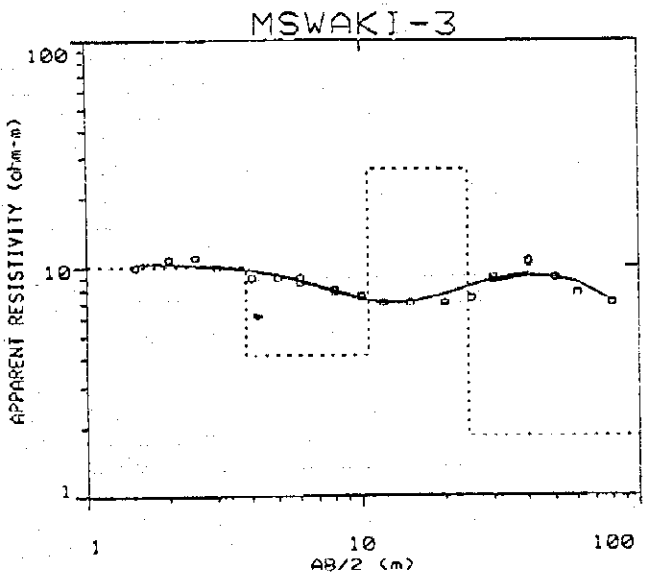
ARKAE 17
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

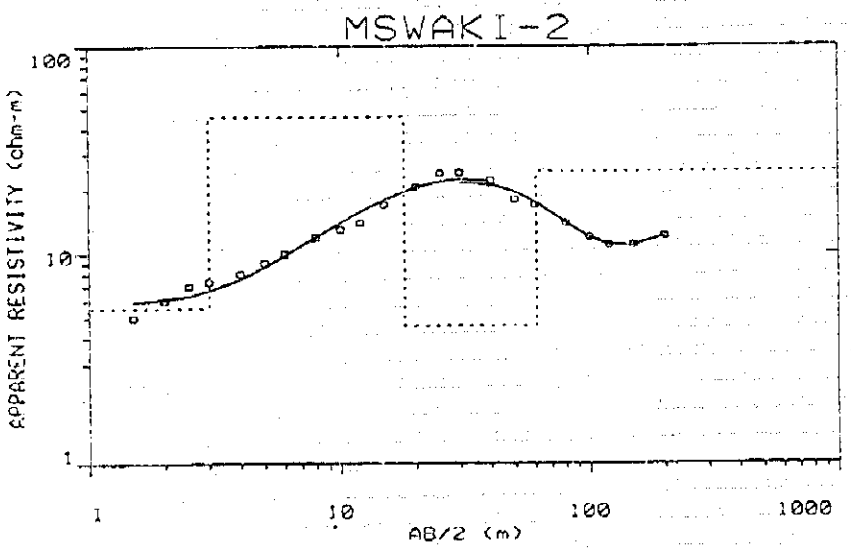
ARKAE 18
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

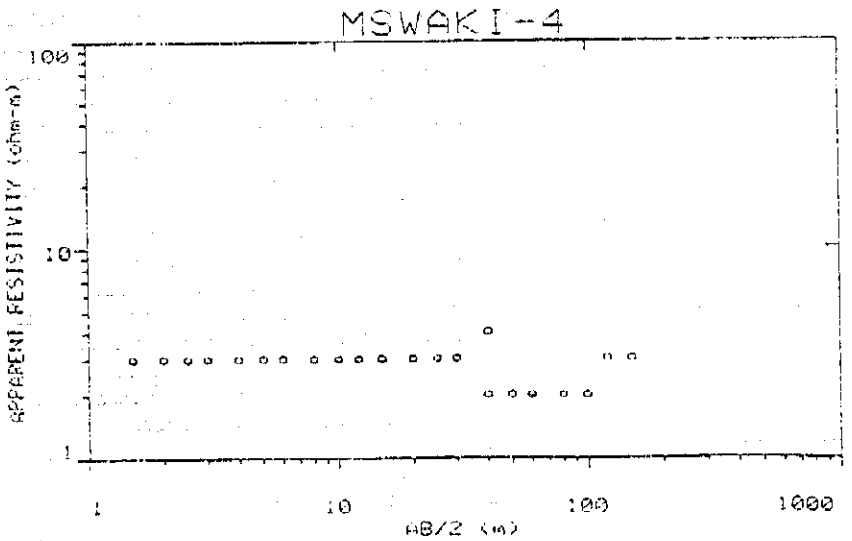

OLDI 1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1000
AB/2 (m)


OLDI 2
APPARENT RESISTIVITY (ohm-m)
100
10
1
0 1
0 1
1
10
100
AB/2 (m)

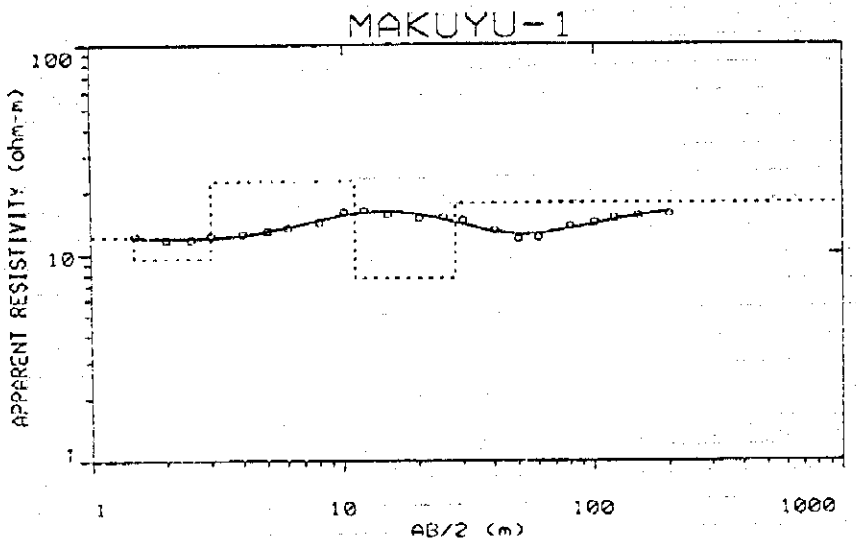

MSWAKI-1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

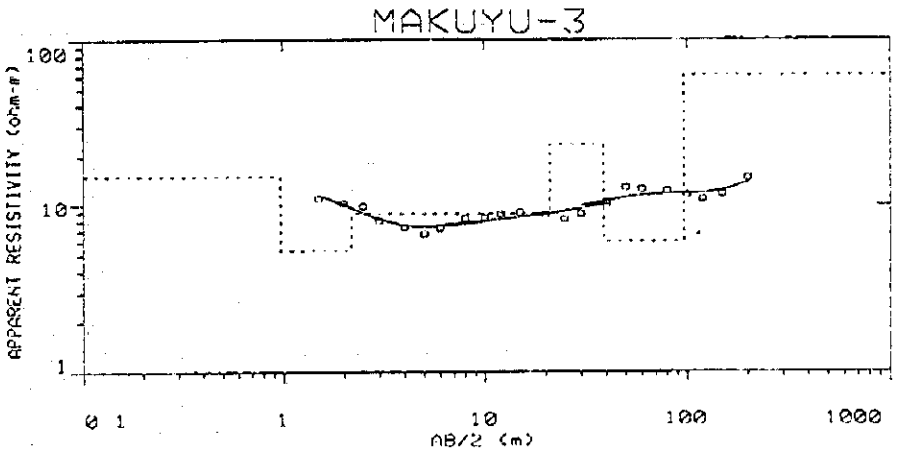

MSWAKI-3
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
AB/2 (m)

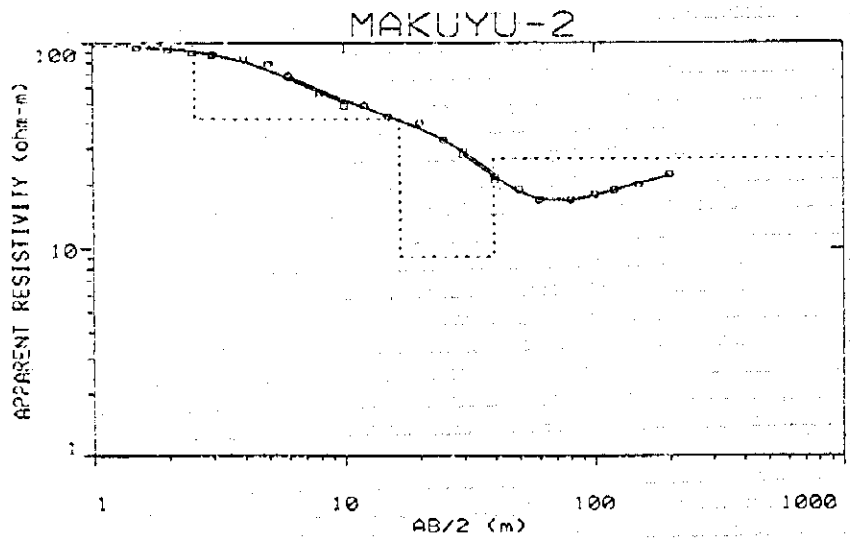

MSWAKI-2
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

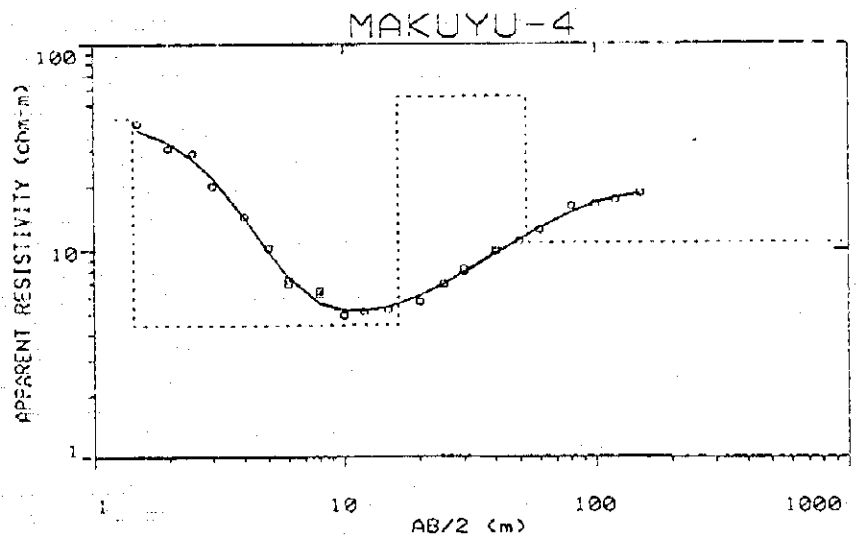

MSWAKI-4
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

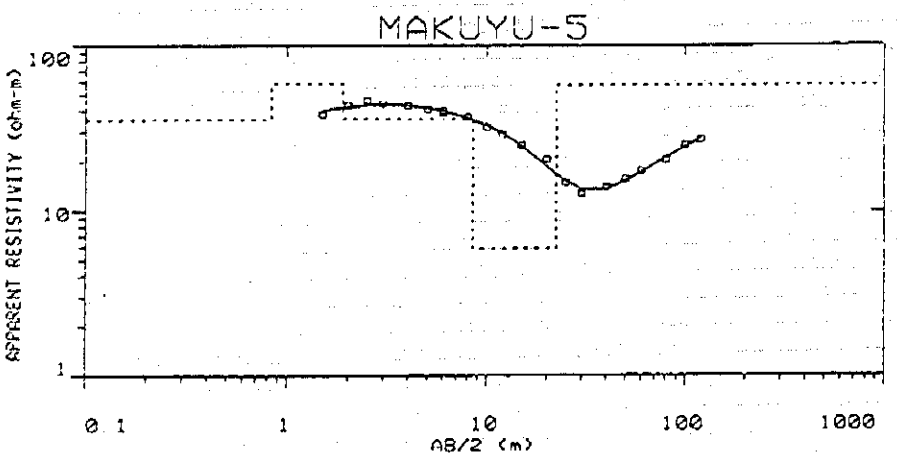
MSWAKT-5
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

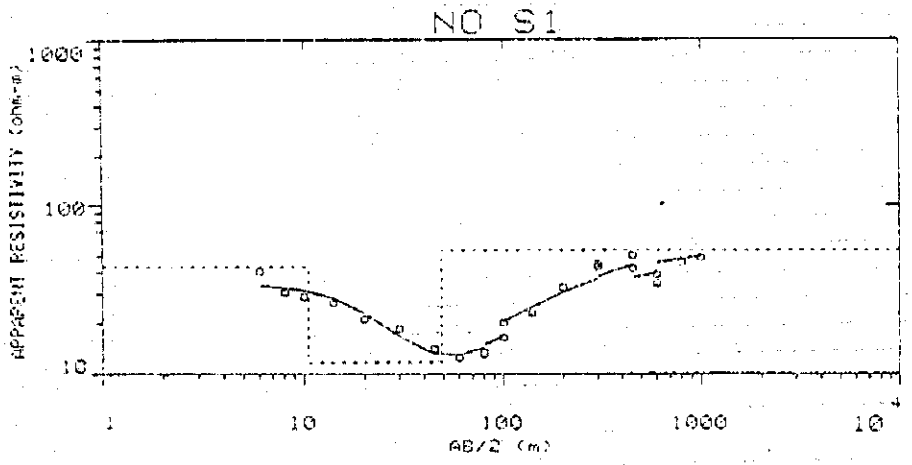

MAKUYU-1
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

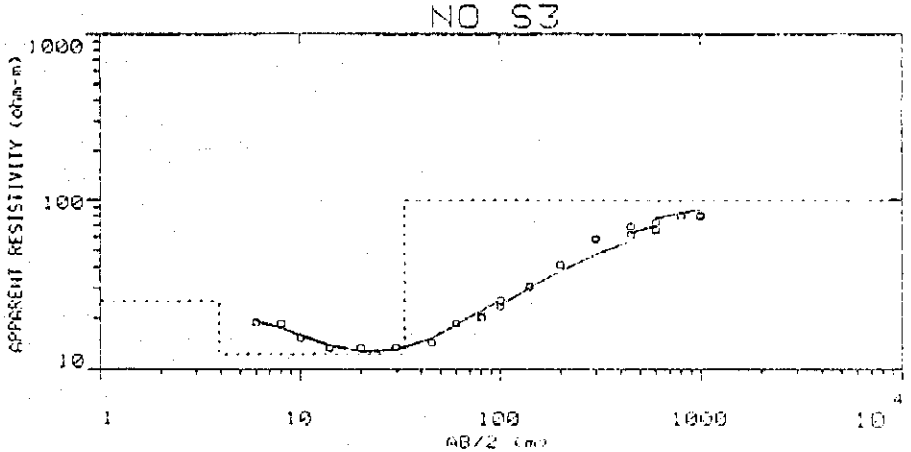

MAKUYU-3
APPARENT RESISTIVITY (ohm-m)
100
10
1
0 1
1
10
100
1000
AB/2 (m)

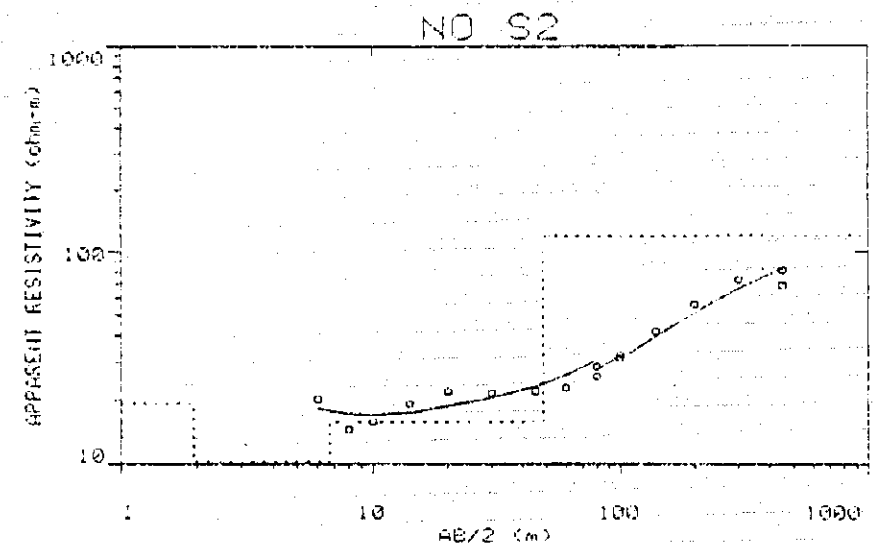

MAKUYU-2
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

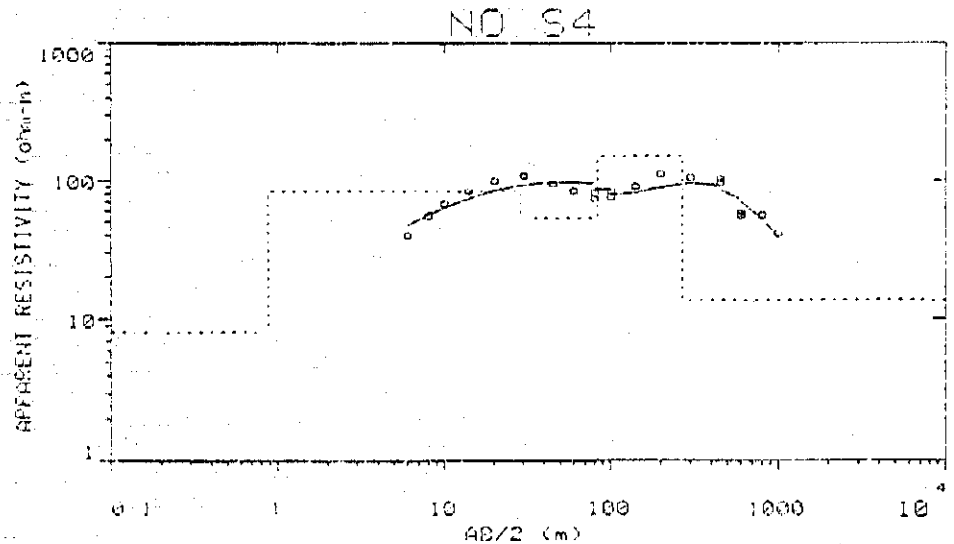

MAKUYU-4
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

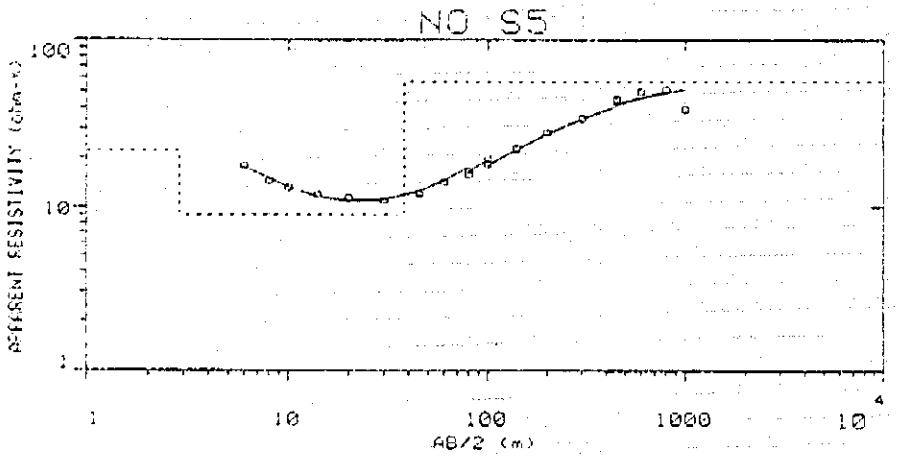

MAKUYU-5
APPARENT RESISTIVITY (Ohm-m)
100
10
1
0.1
1
10
100
1000
AB/2 (m)

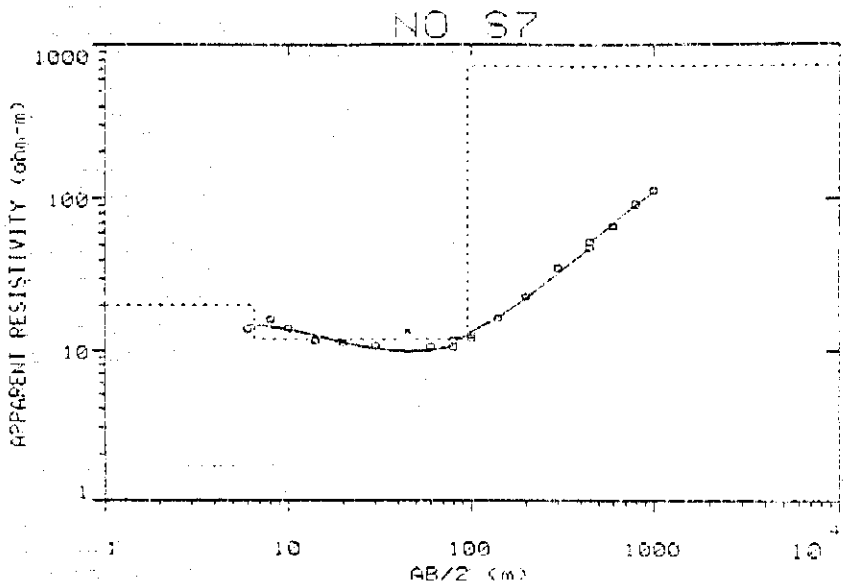

NO S1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
10^4
AB/2 (m)

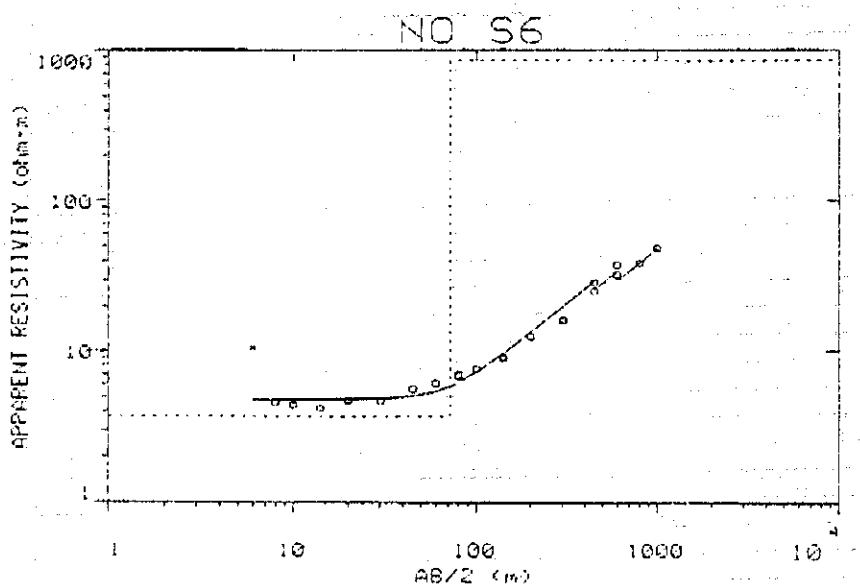

NO S3
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
10^4
AB/2 (m)

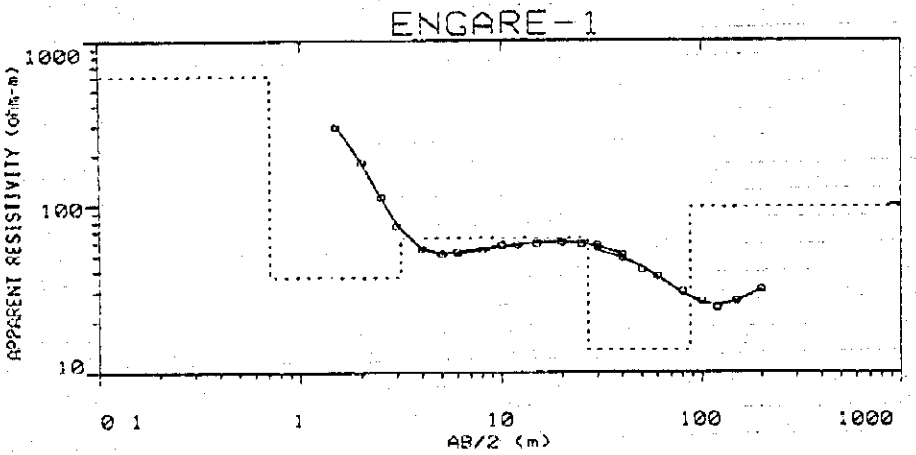

NO S2
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

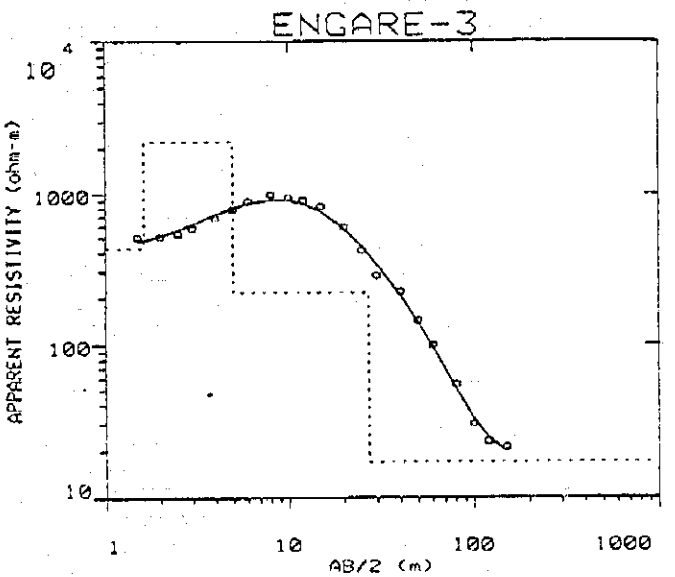

NO S4
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0.1
1
10
100
1000
10^4
AB/2 (m)

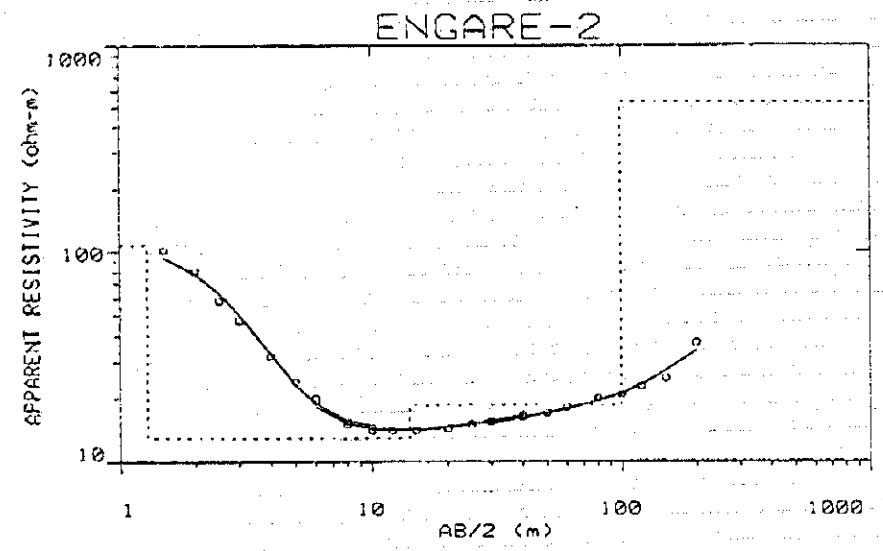

NO S5
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
10^4
AB/2 (m)

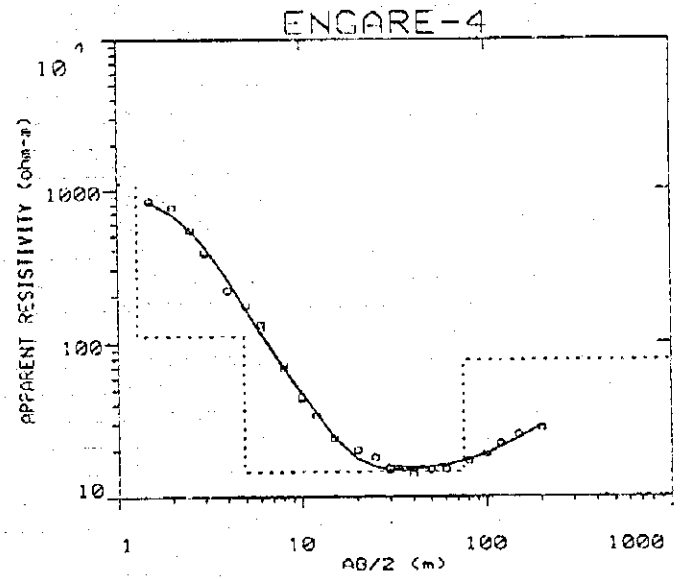

NO S7
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
10^4
AB/2 (m)

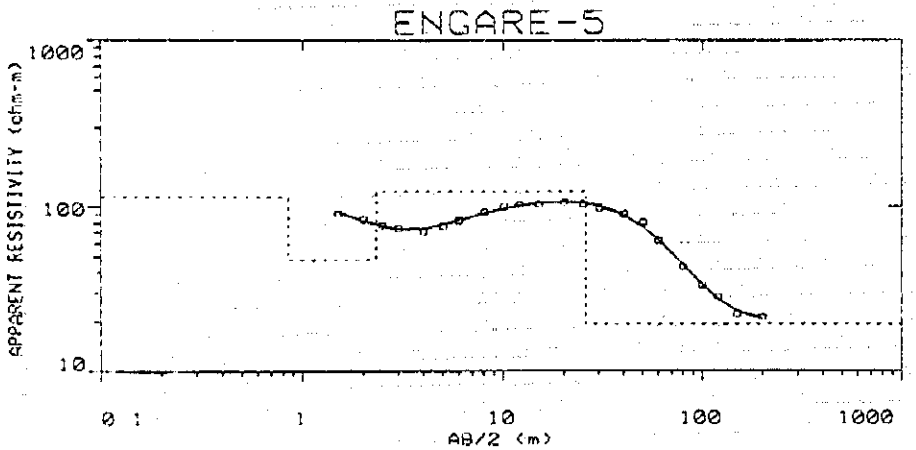

NO S6
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
10^4
AB/2 (m)

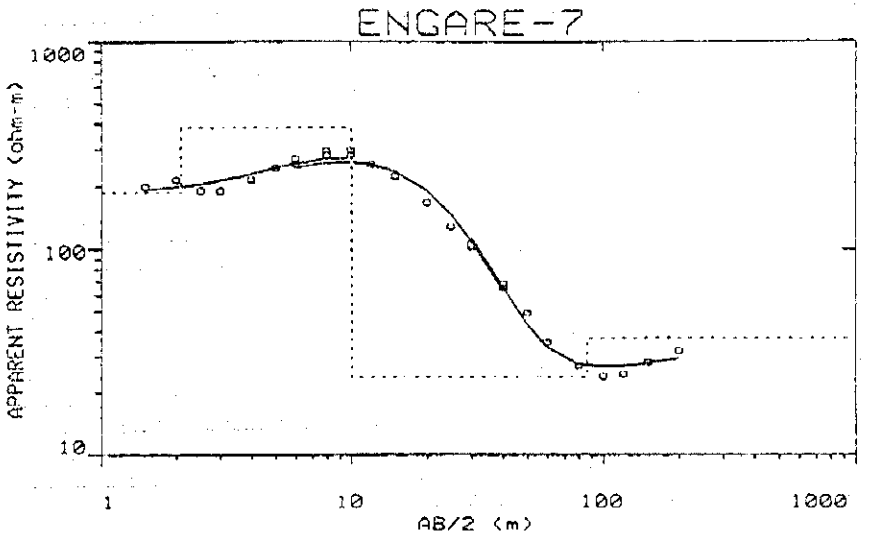

ENGARE-1
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

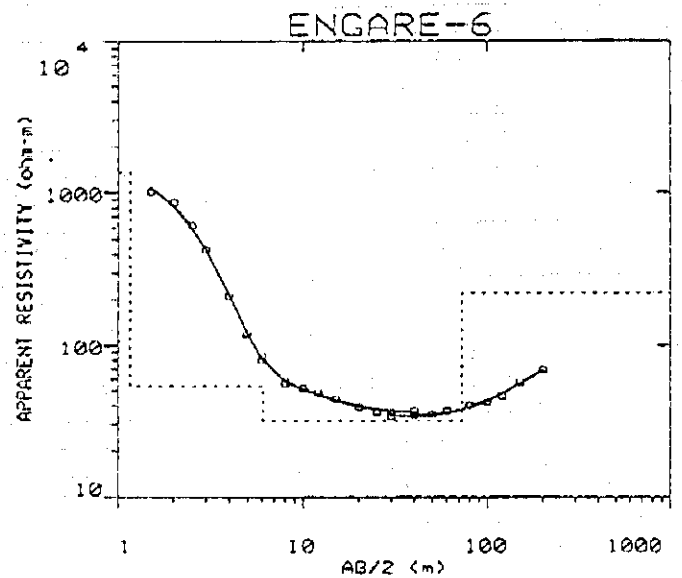

ENGARE-3
APPARENT RESISTIVITY (ohm-m)
10 4
1000
100
10
1
10
100
1000
AB/2 (m)

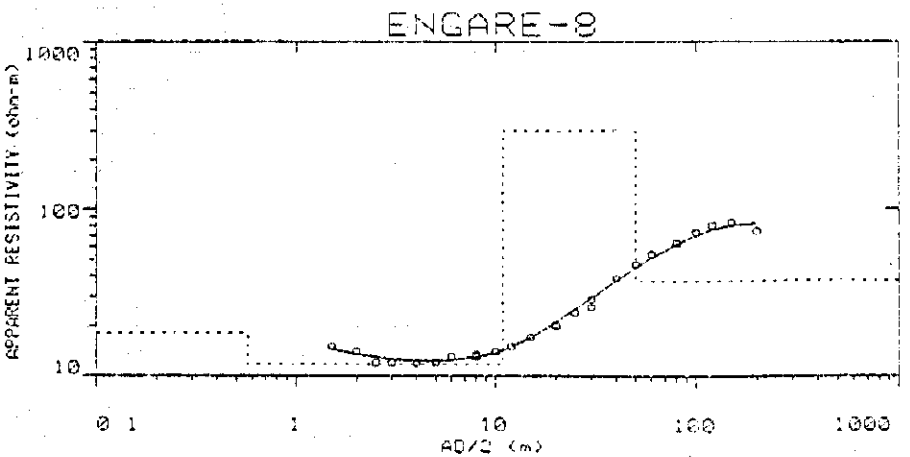

ENGARE-2
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

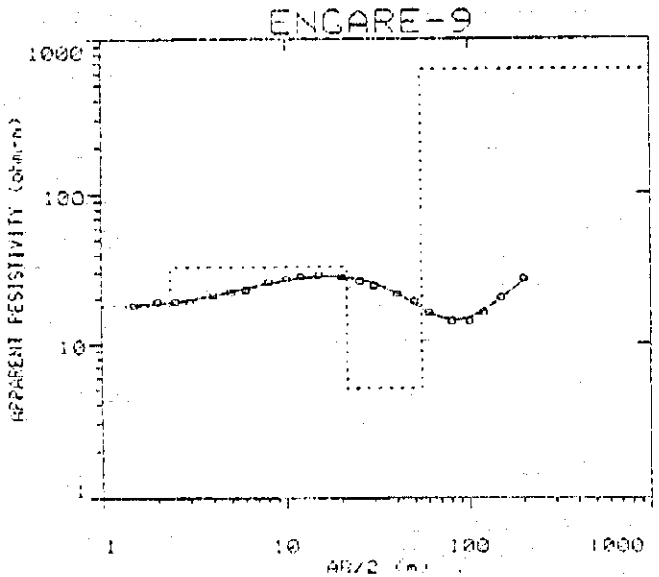

ENGARE-4
APPARENT RESISTIVITY (ohm-m)
10 4
1000
100
10
1
10
100
1000
AB/2 (m)


ENGARE-5
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

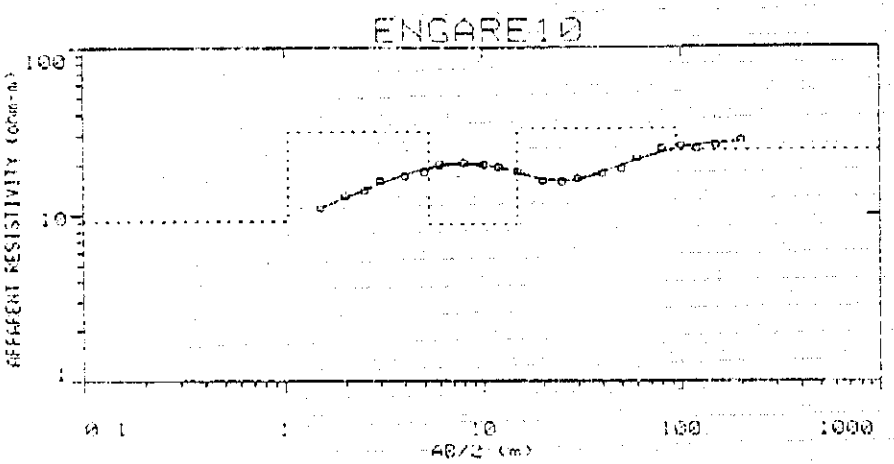

ENGARE-7
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

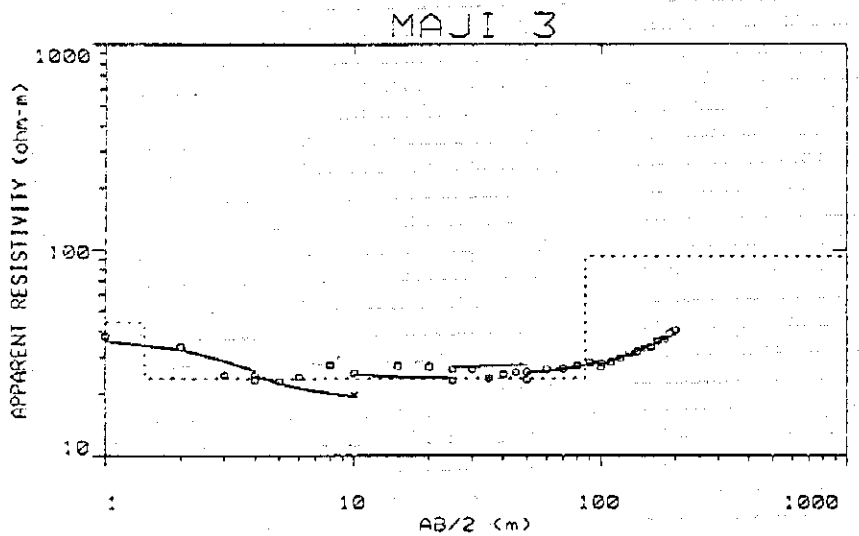

ENGARE-6
APPARENT RESISTIVITY (ohm-m)
10 4
1000
100
10
1
10
100
1000
AB/2 (m)

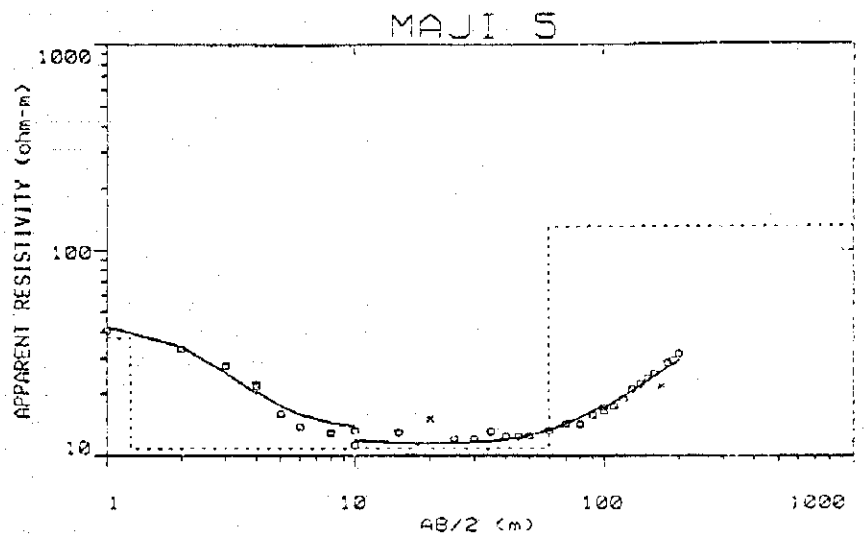

ENGARE-8
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

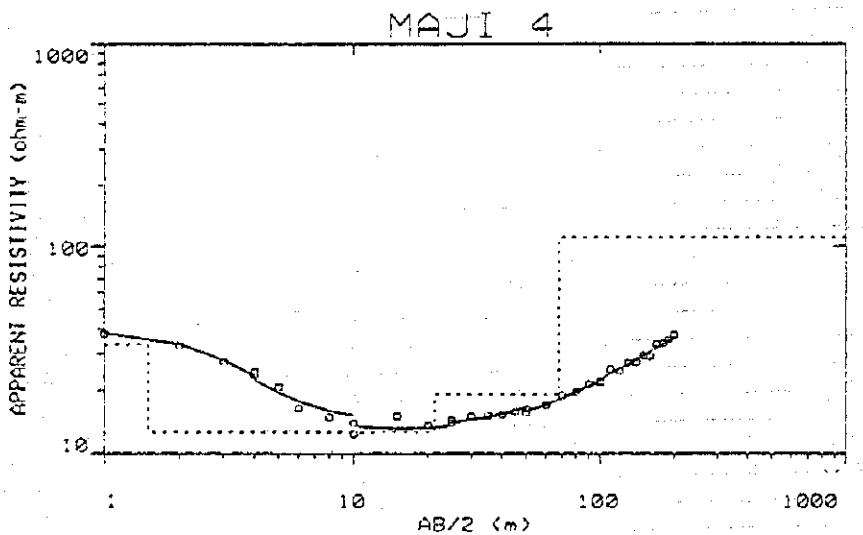

ENGARE-9
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)

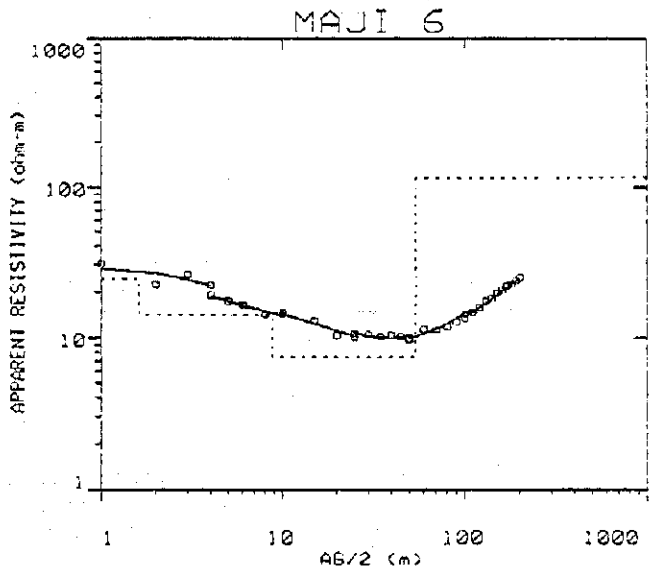
09-2

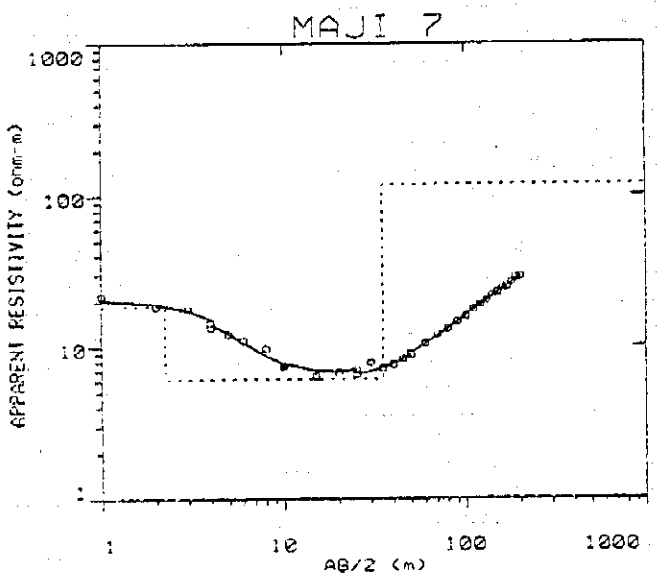

ENGARE10
APPARENT RESISTIVITY (ohm-m)
100
10
1
1
10
100
1000
AB/2 (m)

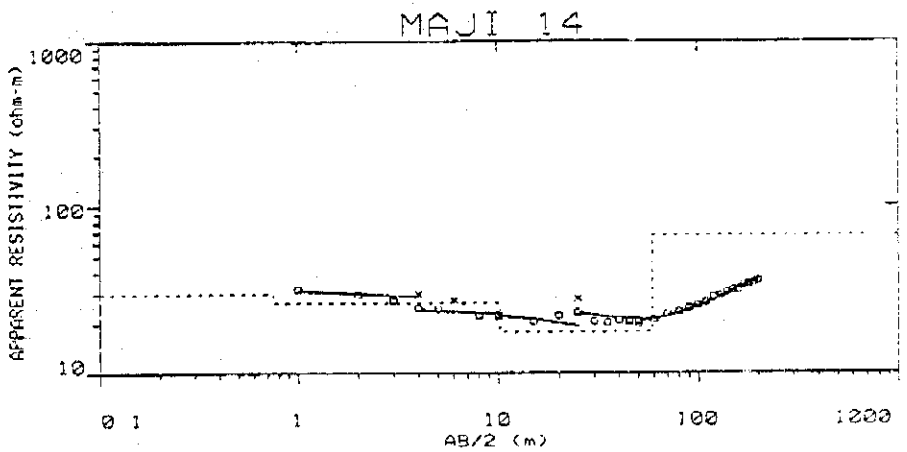

MAJI 3
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)

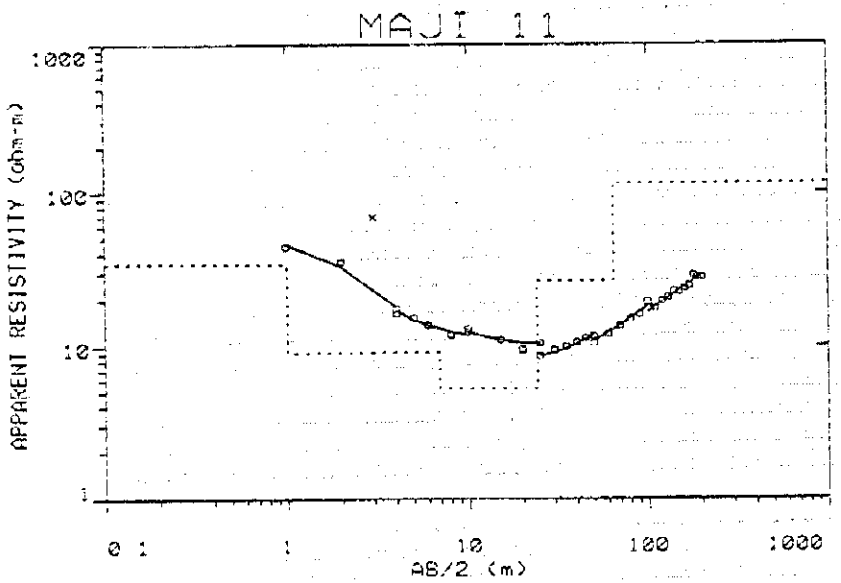

MAJI 5
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)


MAJI 4
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
10
100
1000
AB/2 (m)


MAJI 6
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)


MAJI 7
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
1
10
100
1000
AB/2 (m)


MAJI 14
APPARENT RESISTIVITY (ohm-m)
1000
100
10
0 1
1
10
100
1000
AB/2 (m)

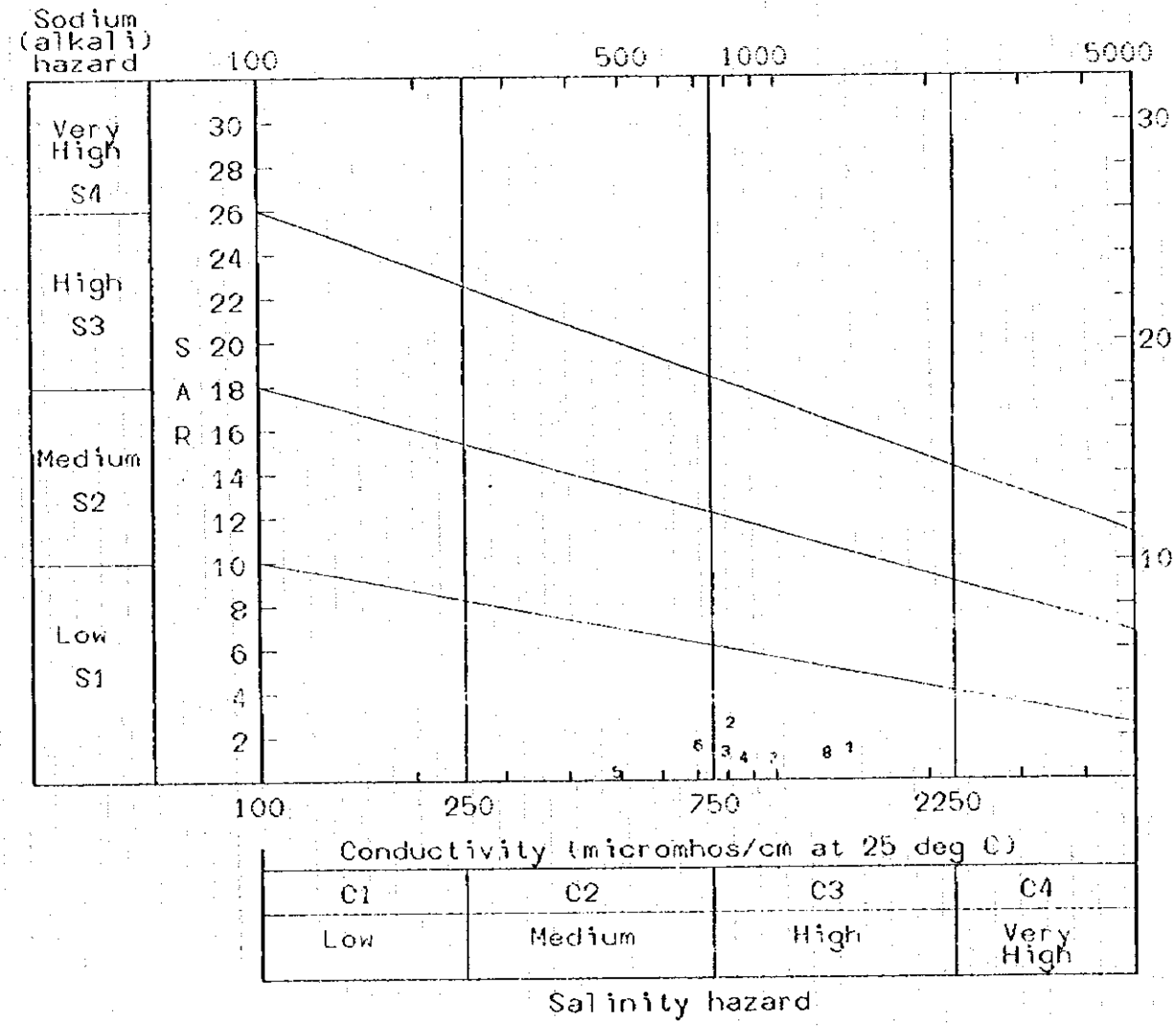

MAJI 11
APPARENT RESISTIVITY (ohm-m)
1000
100
10
1
0 1
1
10
100
1000
AB/2 (m)

3. WATER QUALITY

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Label	Seq.No	Sample Identification
1	1	MSWAKINI BH 110/29
2	2	MAKUYUNI BH 10/52
3	3	EX-3 TUKUSI
4	4	MAKIYUNI BH23/68
5	5	EMAIRETE EX-7
6	6	BURKO BH-2
7	7	SELIAN BH
8	8	BURKA BH-14

MONDULI BOREHOLE
Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

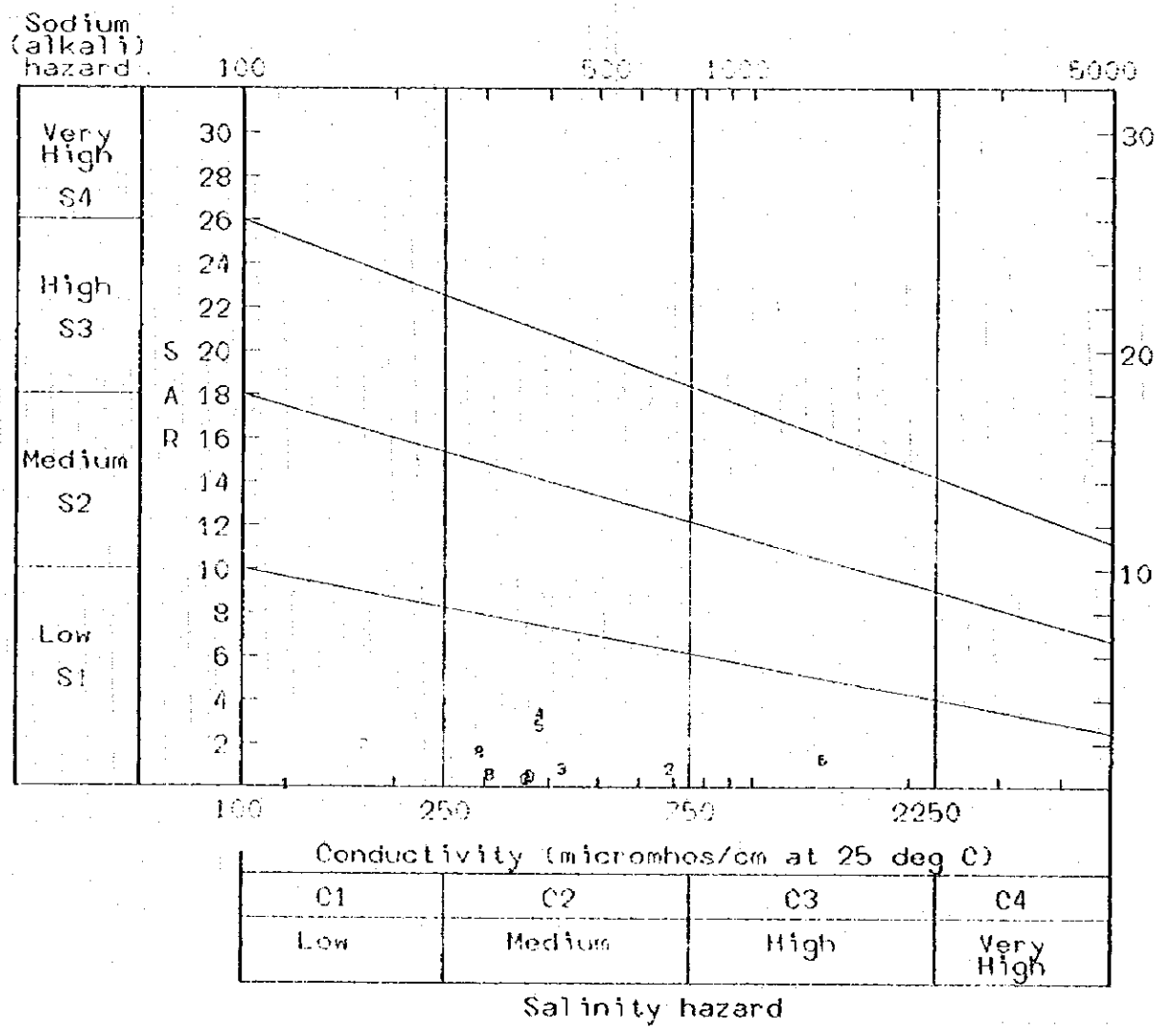


MONDULI BOREHOLE

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Label	Seq.No	Sample Identification
1	1	KILIMANI SPRING
2	2	LOSIMINGOR SPRING
3	3	MONDULI JUU SPRING
4	4	NANJA SWAMP
5	5	LASHAINE DAM
6	6	TUKUSI SPRING
7	7	MERU SPRING
8	8	MAKUYUNI RIVER
9	9	LAKE MANYARA
A	10	KIRURUMO RIVER
B	11	LOLKISALE SPRING
C	12	MTO WA MBU RIVER
D	13	INGULUPANI RIVER

MONDULI SURFACE WATER-1
Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

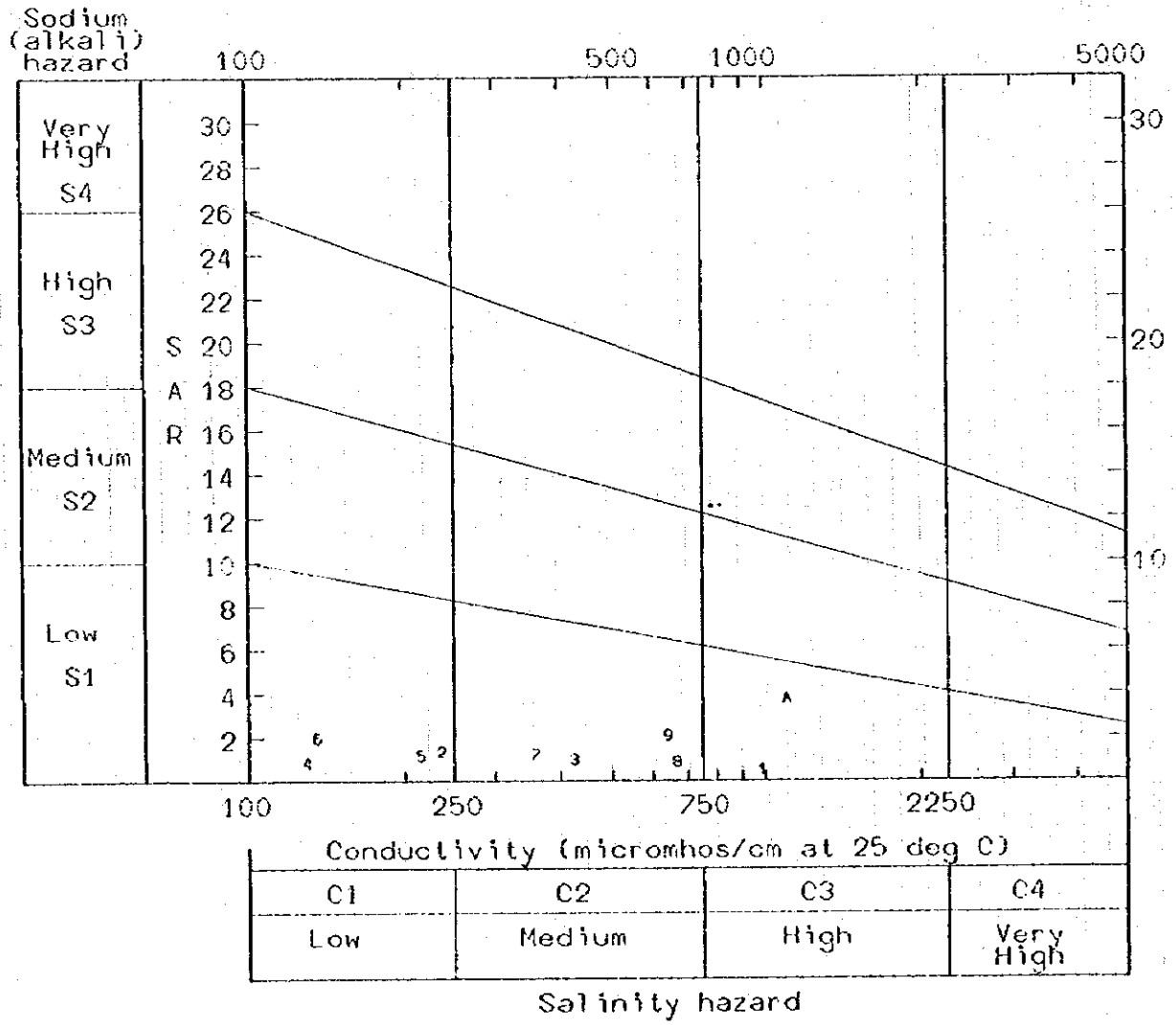


MONDULI SURFACE WATER-1

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Label	Seq.No	Sample Identification
1	1	TUKUSI SR
2	2	ENGUIK SPRING
3	3	LEPURKO DAM
4	4	LENDIKINYA DAM
5	5	EMAOI SPRING
6	6	MFEREJI SR
7	7	MESERANI BWAWANI
8	8	MBUYUNI DAM
9	9	MOITA KILORITI DAM
A	10	OLTUKAI DUG WELL

MONDULI SURFACE WATER-2
Project : MONDULI GROUNDWATER
Organization : JICA/RDD

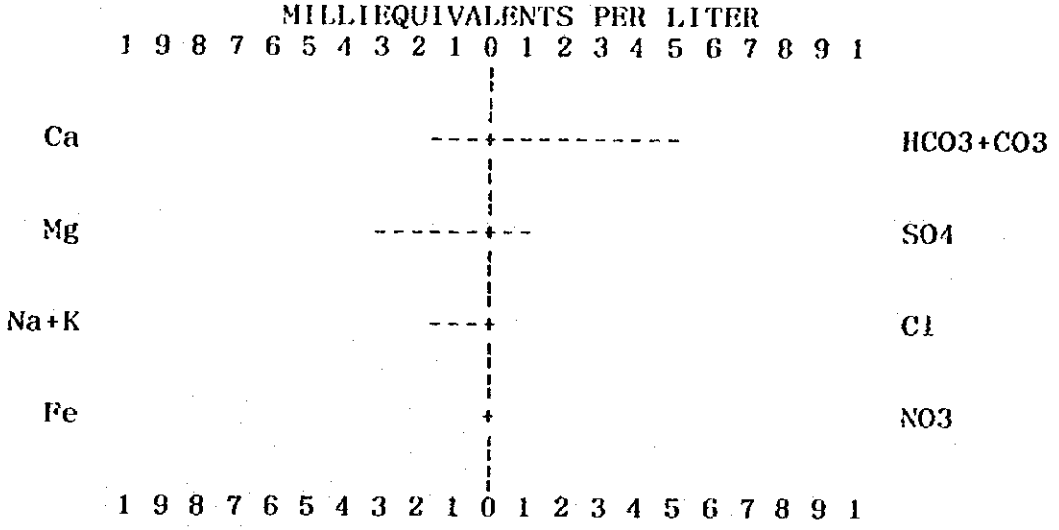


MONDULI SURFACE WATER-2

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : MSWAKINI BH 110/29

TOTAL SCALE = 20 MILLIEQUIVALENTS PER LITER EACH DASH = 1.00



TOTAL DISSOLVED SOLIDS 700. PPM

WATER TYPE ---- MAGNESIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 2.99 Mg= 5.82 Na= 3.04 K= 0.33 Fe= 0.01
HCO3= 10.16 CO3= 0.00 SO4= 2.50 Cl= 0.14 NO3= 0.11

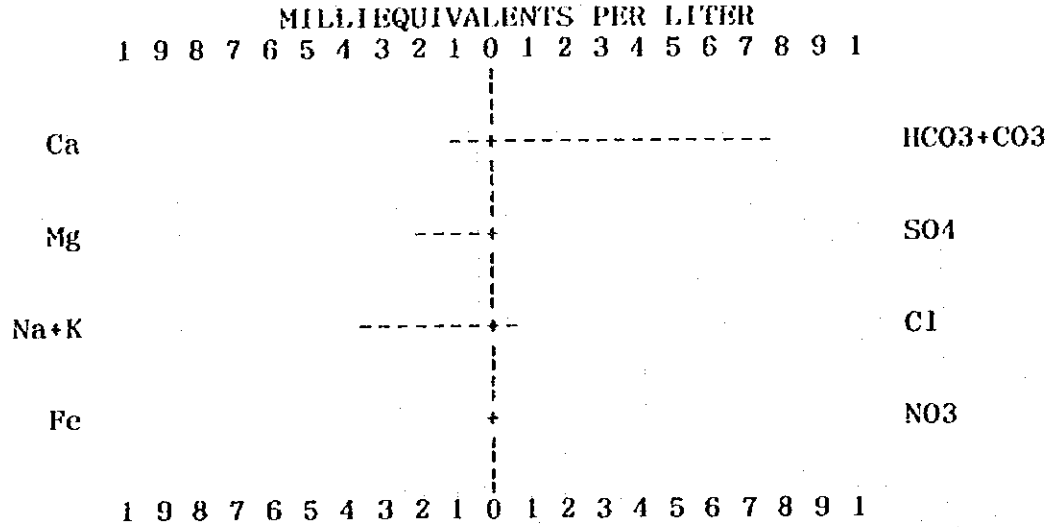
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 60. Mg= 71. Na= 70. K= 13. Fe= 0.10
HCO3=620. CO3= 0. SO4= 120. Cl= 5. NO3= 6.60

Mn = 0.30 ppm
PO4 = 0.60 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 1400.
pH= 7.1
HARDNESS = 440.00
ALKALINITY = 620.00
SODIUM ADSORPTION RATIO (SAR) = 1.45

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : MAKUYUNI BH 10/52

TOTAL SCALE = 10 MILLIEQUIVALENTS PER LITER EACH DASH = 0.50



TOTAL DISSOLVED SOLIDS 407. PPM

WATER TYPE ---- SODIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 1.00 Mg= 1.81 Na= 3.09 K= 0.31 Fe= 0.00
HCO3= 7.38 CO3= 0.00 SO4= 0.02 Cl= 0.42 NO3= 0.20

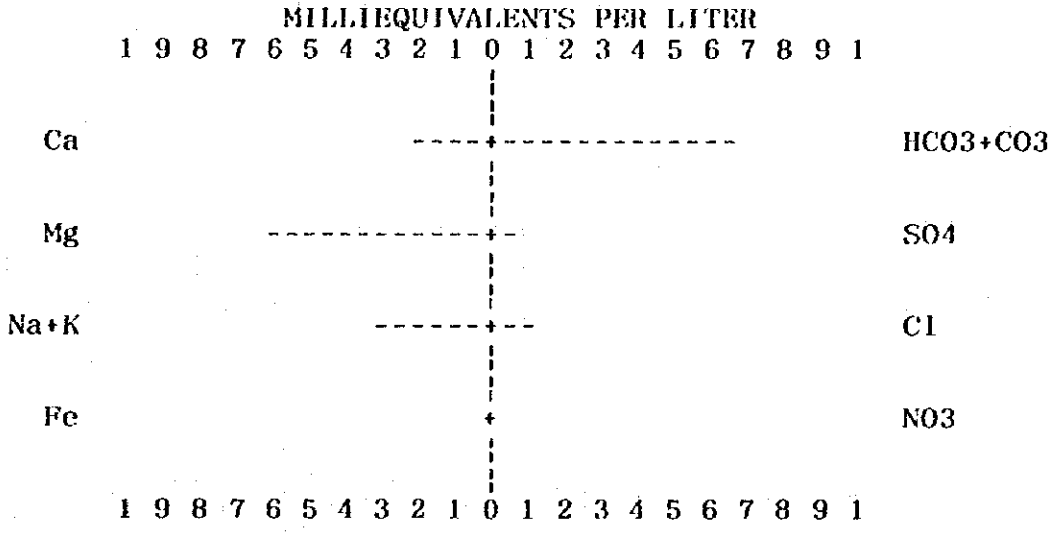
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 20. Mg= 22. Na= 71. K= 12. Fe= 0.00
HCO3=450. CO3= 0. SO4= 1. Cl= 15. NO3= 12.30

Mn = 0.20 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 813.
pH= 7.1
HARDNESS = 140.00
ALKALINITY = 450.00
SODIUM ADSORPTION RATIO (SAR) = 2.61

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : EX-3 TUKUSI

TOTAL SCALE = 10 MILLIEQUIVALENTS PER LITER EACH DASH = 0.50



TOTAL DISSOLVED SOLIDS 398. PPM

WATER TYPE ---- MAGNESIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 2.00 Mg= 6.02 Na= 2.61 K= 0.31 Fe= 0.01
HCO3= 6.72 CO3= 0.00 SO4= 0.71 Cl= 0.85 NO3= 0.10

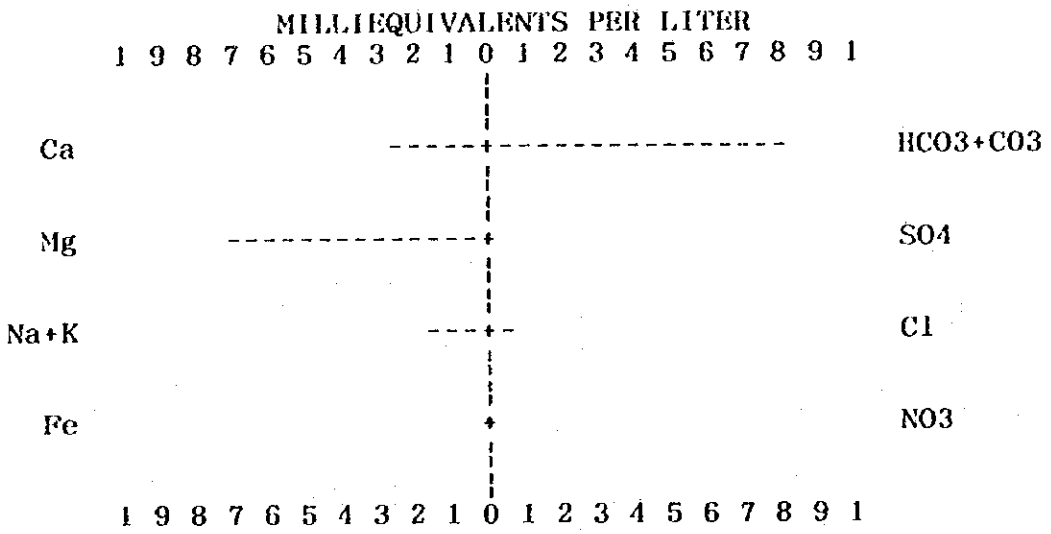
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 40. Mg= 73. Na= 60. K= 12. Fe= 0.10
HCO3=410. CO3= 0. SO4= 34. Cl= 30. NO3= 6.20

Mn = 0.30 ppm
PO4 = 0.10 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 796.
pH= 8.8
HARDNESS = 400.00
ALKALINITY = 410.00
SODIUM ADSORPTION RATIO (SAR) = 1.30

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : EMAIRETE EX-7

TOTAL SCALE = 5 MILLIEQUIVALENTS PER LITER EACH DASH = 0.25



TOTAL DISSOLVED SOLIDS 246. PPM

WATER TYPE ---- MAGNESIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 1.20 Mg= 3.54 Na= 0.57 K= 0.28 Fe= 0.00
HCO3= 3.93 CO3= 0.00 SO4= 0.00 Cl= 0.14 NO3= 0.09

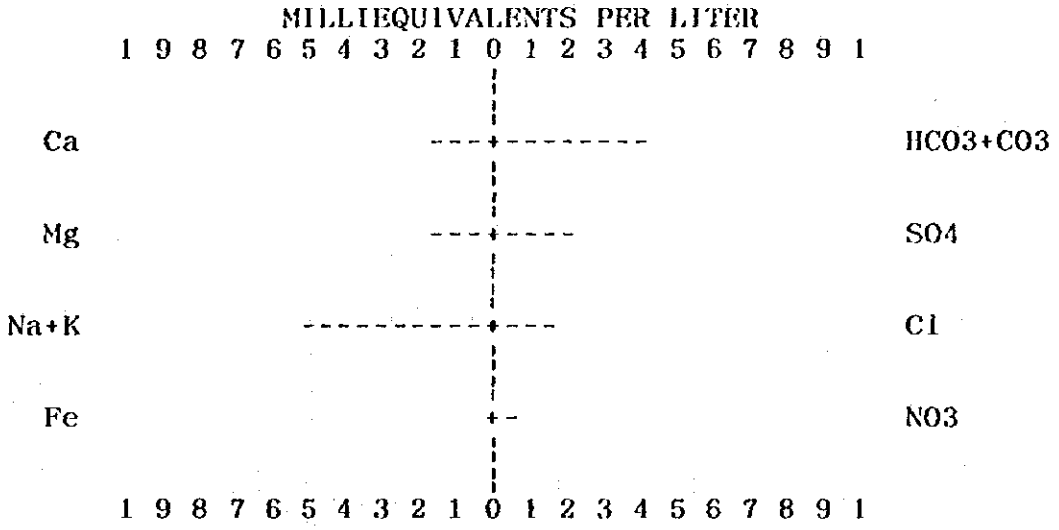
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 24. Mg= 43. Na= 13. K= 11. Fe= 0.00
HCO3=240. CO3= 0. SO4= 0. Cl= 5. NO3= 5.28

PO4 = 0.05 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 491.
pH= 7.6
HARDNESS = 160.00
ALKALINITY = 240.00
SODIUM ADSORPTION RATIO (SAR) = 0.37

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : BURKO BH-2

TOTAL SCALE = 2 MILLIEQUIVALENTS PER LITER EACH DASH = 0.10



TOTAL DISSOLVED SOLIDS 360. PPM

WATER TYPE ---- SODIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 0.30 Mg= 0.30 Na= 0.87 K= 0.18 Fe= 0.02
HCO3= 0.82 CO3= 0.00 SO4= 0.37 Cl= 0.28 NO3= 0.08

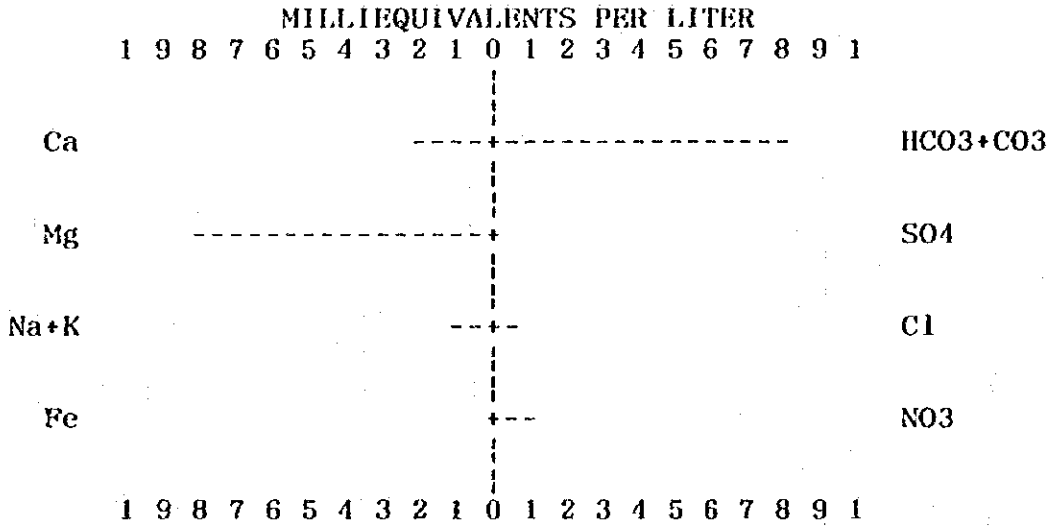
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 6. Mg= 4. Na= 20. K= 7. Fe= 0.44
HCO3= 50. CO3= 0. SO4= 18. Cl= 10. NO3= 4.84

Mn = 0.10 ppm
PO4 = 0.44 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 705.
pH= 7.7
HARDNESS = 30.00
ALKALINITY = 50.00
SODIUM ADSORPTION RATIO (SAR) = 1.59

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : KILIMANI SPRING

TOTAL SCALE = 2 MILLIEQUIVALENTS PER LITER EACH DASH = 0.10



TOTAL DISSOLVED SOLIDS 62. PPM

WATER TYPE ---- MAGNESIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 0.40 Mg= 1.60 Na= 0.13 K= 0.03 Fe= 0.02
HCO3= 1.64 CO3= 0.00 SO4= 0.00 Cl= 0.14 NO3= 0.23

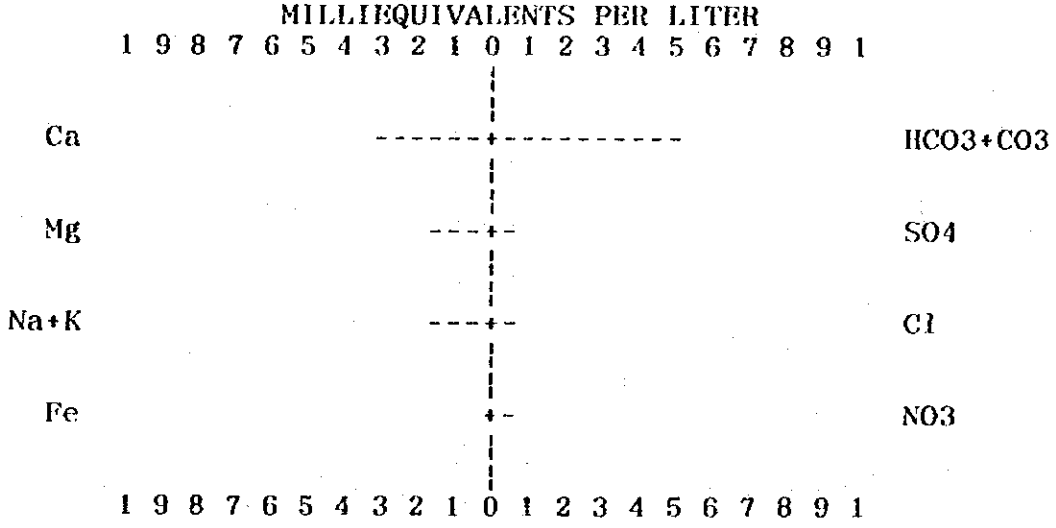
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 8. Mg= 19. Na= 3. K= 1. Fe= 0.30
HCO3=100. CO3= 0. SO4= 0. Cl= 5. NO3= 14.00

Mn = 0.10 ppm
PO4 = 0.50 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 123.
pH= 8.0
HARDNESS = 60.00
ALKALINITY = 100.00
SODIUM ADSORPTION RATIO (SAR) = 0.13

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : LOSIMINGOR SPRING

TOTAL SCALE = 10 MILLIEQUIVALENTS PER LITER EACH DASH = 0.50



TOTAL DISSOLVED SOLIDS 345. PPM

WATER TYPE ---- CALCIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 3.19 Mg= 1.40 Na= 1.30 K= 0.10 Fe= 0.01
HCO3= 5.24 CO3= 0.00 SO4= 0.75 Cl= 0.42 NO3= 0.28

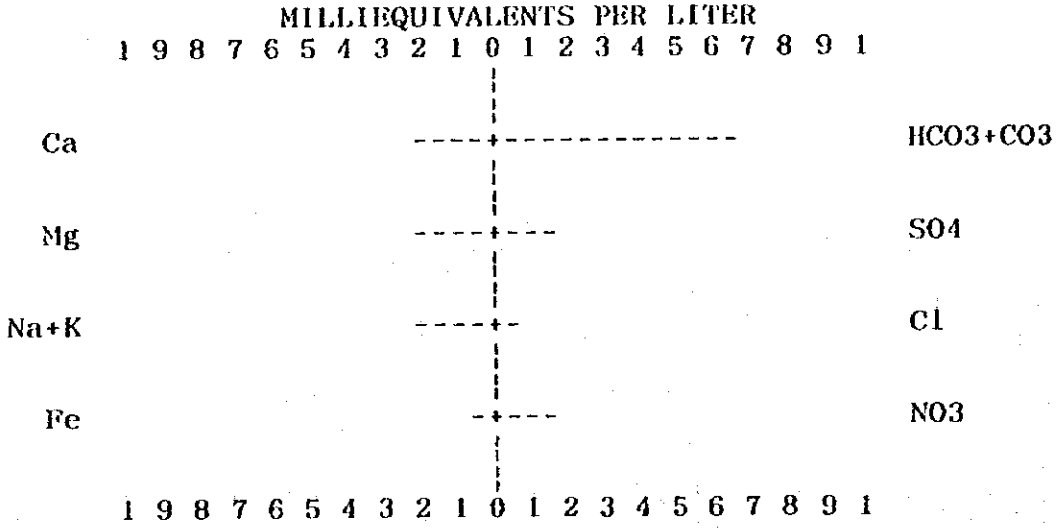
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 64. Mg= 17. Na= 30. K= 4. Fe= 0.20
HCO3=320. CO3= 0. SO4= 36. Cl= 15. NO3= 17.20

Mn = 0.60 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 690.
pH= 7.8
HARDNESS = 230.00
ALKALINITY = 320.00
SODIUM ADSORPTION RATIO (SAR) = 0.86

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : MONDULI JUU SPRING

TOTAL SCALE = 5 MILLIEQUIVALENTS PER LITER EACH DASH = 0.25



TOTAL DISSOLVED SOLIDS 263. PPM

WATER TYPE ---- SODIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 1.00 Mg= 1.00 Na= 0.83 K= 0.28 Fe= 0.31
HCO3= 3.36 CO3= 0.00 SO4= 0.83 Cl= 0.14 NO3= 0.63

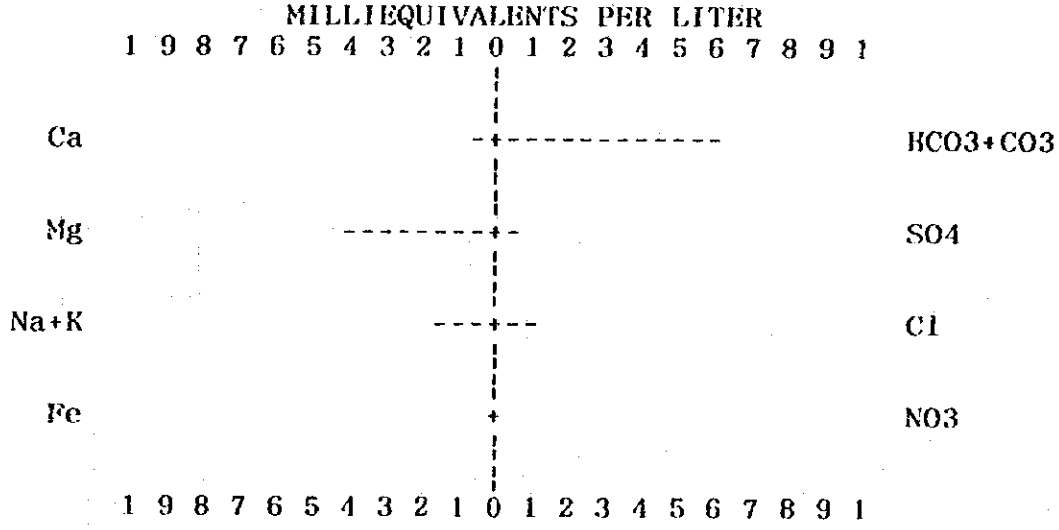
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 20. Mg= 12. Na= 19. K= 11. Fe= 5.70
HCO3=205. CO3= 0. SO4= 40. Cl= 5. NO3= 39.20

Mn =19.00 ppm
PO4 = 3.00 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 425.
pH= 6.8
HARDNESS = 70.00
ALKALINITY = 205.00
SODIUM ADSORPTION RATIO (SAR) = 0.83

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : TUKUSI SPRING

TOTAL SCALE = 20 MILLIEQUIVALENTS PER LITER EACH DASH = 1.00



TOTAL DISSOLVED SOLIDS 687. PPM

WATER TYPE ---- MAGNESIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 1.40 Mg= 8.22 Na= 2.78 K= 0.38 Fe= 0.01
HCO3= 11.96 CO3= 0.00 SO4= 1.08 Cl= 2.26 NO3= 0.09

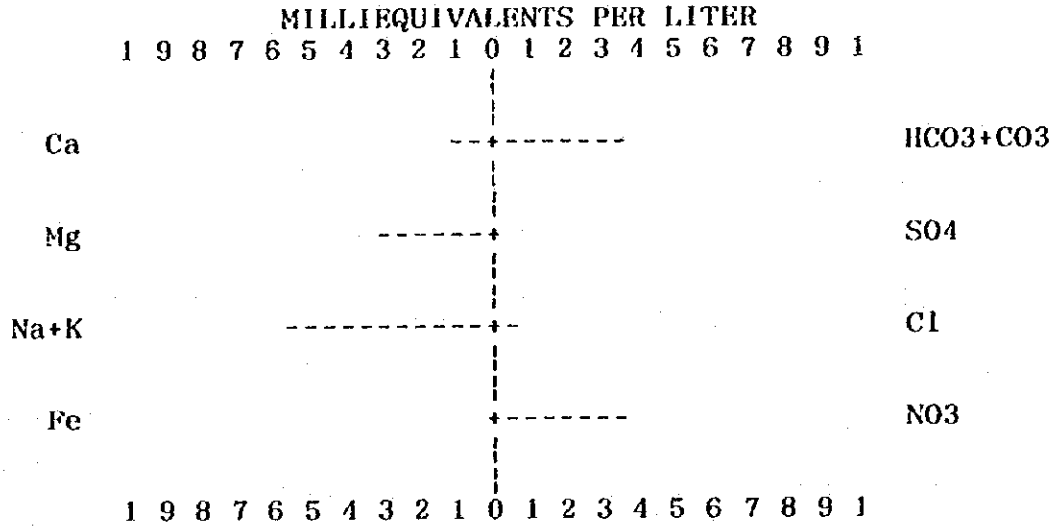
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 28. Mg=100. Na= 64. K= 15. Fe= 0.10
HCO3=730. CO3= 0. SO4= 52. Cl= 80. NO3= 5.70

ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 1374.
pH= 7.7
HARDNESS = 480.00
ALKALINITY = 730.00
SODIUM ADSORPTION RATIO (SAR) = 1.27

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : MAKUYUNI RIVER

TOTAL SCALE = 5 MILLIEQUIVALENTS PER LITER EACH DASH = 0.25



TOTAL DISSOLVED SOLIDS 147. PPM

WATER TYPE ---- SODIUM NITRATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 0.40 Mg= 1.60 Na= 1.61 K= 1.23 Fe= 0.02
HCO3= 1.64 CO3= 0.00 SO4= 0.10 Cl= 0.14 NO3= 1.84

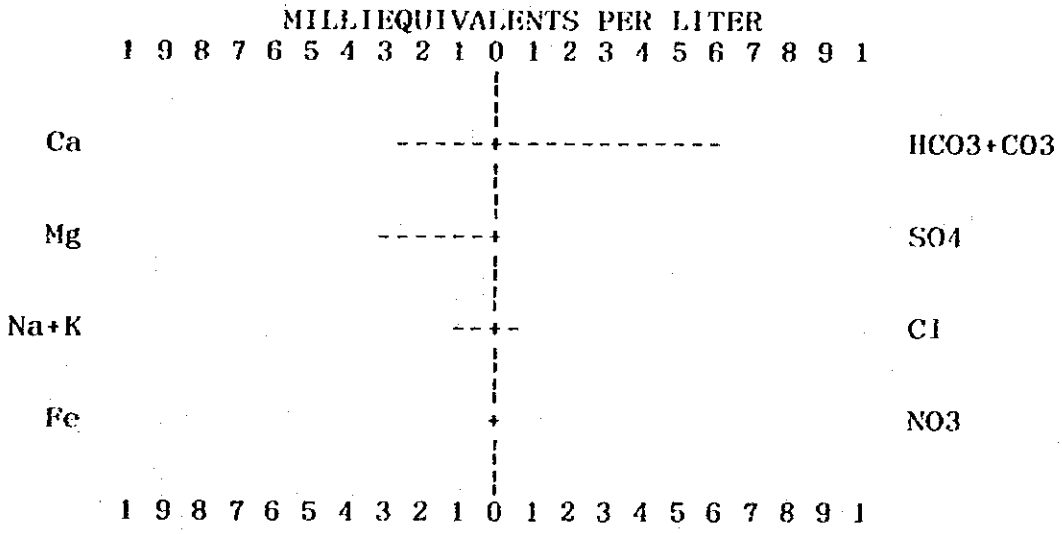
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 8. Mg= 19. Na= 37. K= 48. Fe= 0.30
HCO3=100. CO3= 0. SO4= 5. Cl= 5. NO3=114.00

Mn = 0.10 ppm
PO4 = 1.50 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 294.
pH= 8.9
HARDNESS = 60.00
ALKALINITY = 100.00
SODIUM ADSORPTION RATIO (SAR) = 1.61

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : KIRURUMO RIVER

TOTAL SCALE = 5 MILLIEQUIVALENTS PER LITER EACH DASH = 0.25



TOTAL DISSOLVED SOLIDS 182. PPM

WATER TYPE ---- MAGNESIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 1.22 Mg= 1.46 Na= 0.44 K= 0.08 Fe= 0.01
HCO3= 3.02 CO3= 0.00 SO4= 0.10 Cl= 0.23 NO3= 0.10

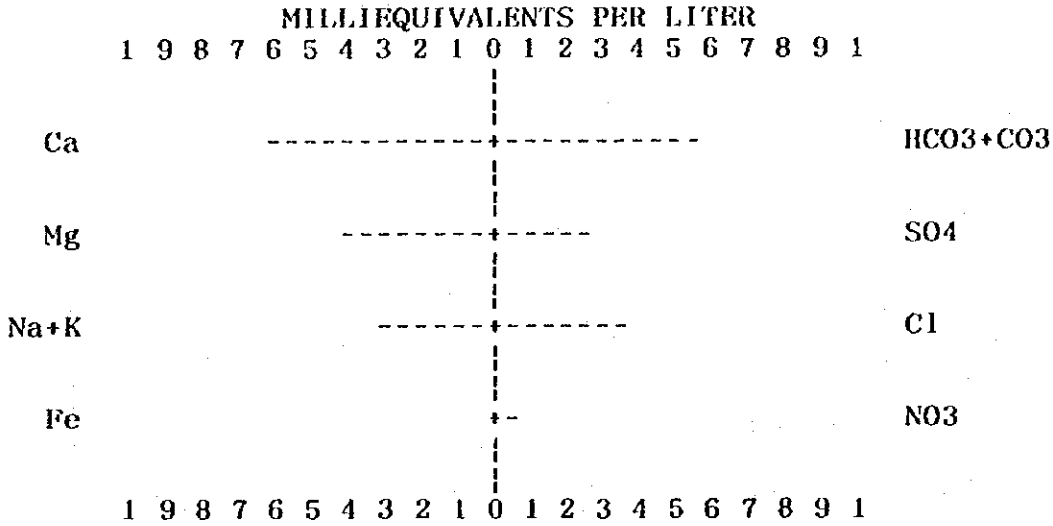
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 24. Mg= 18. Na= 10. K= 3. Fe= 0.10
HCO3=184. CO3= 0. SO4= 5. Cl= 8. NO3= 6.20

Mn = 0.20 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 365.
pH= 8.3
HARDNESS = 480.00
ALKALINITY = 184.00
SODIUM ADSORPTION RATIO (SAR) = 0.38

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : LOLKISALE SPRING

TOTAL SCALE = 2 MILLIEQUIVALENTS PER LITER EACH DASH = 0.10



TOTAL DISSOLVED SOLIDS 154. PPM

WATER TYPE ---- CALCIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 1.20 Mg= 0.81 Na= 0.57 K= 0.05 Fe= 0.00
HCO3= 1.15 CO3= 0.00 SO4= 0.46 Cl= 0.71 NO3= 0.12

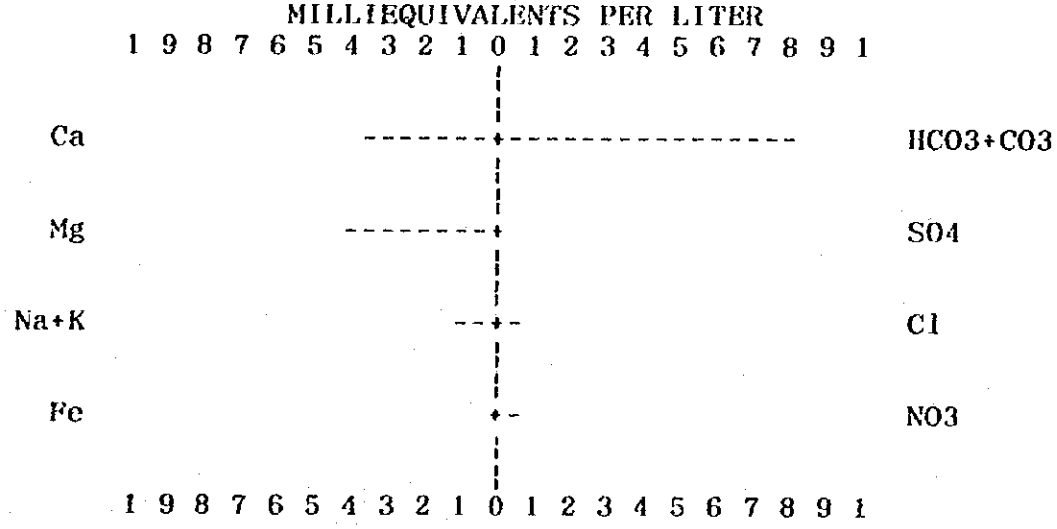
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 24. Mg= 10. Na= 13. K= 2. Fe= 0.05
HCO3= 70. CO3= 0. SO4= 22. Cl= 25. NO3= 7.50

Mn = 0.70 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 308.
pH= 8.4
HARDNESS = 100.00
ALKALINITY = 70.00
SODIUM ADSORPTION RATIO (SAR) = 0.56

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : MTO WA MBU RIVER

TOTAL SCALE = 5 MILLIEQUIVALENTS PER LITER EACH DASH = 0.25



TOTAL DISSOLVED SOLIDS 180. PPM

WATER TYPE ---- MAGNESIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 1.80 Mg= 2.01 Na= 0.48 K= 0.10 Fe= 0.01
HCO3= 3.93 CO3= 0.00 SO4= 0.00 Cl= 0.14 NO3= 0.23

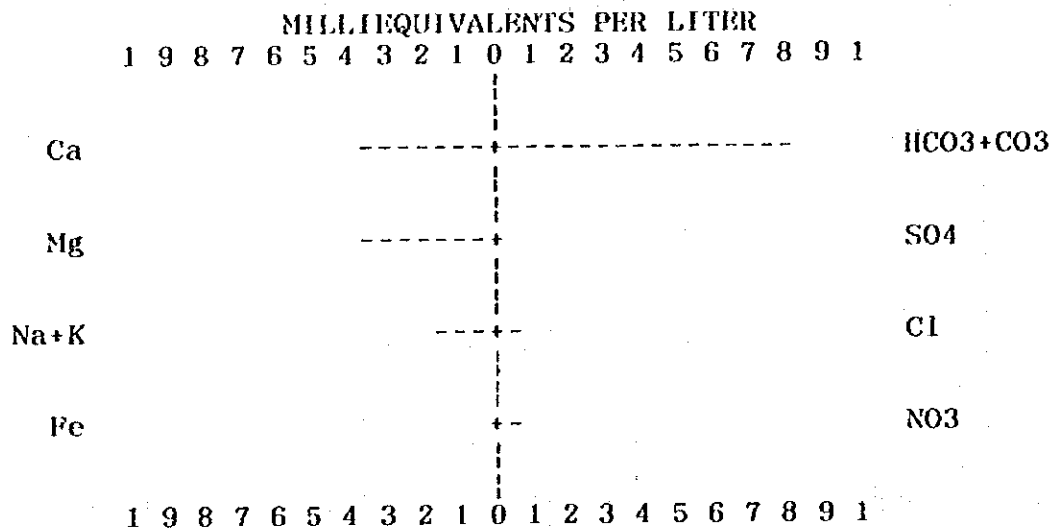
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 36. Mg= 24. Na= 11. K= 4. Fe= 0.10
HCO3=240. CO3= 0. SO4= 0. Cl= 5. NO3= 14.50

Mn = 0.30 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 360.
pH= 7.4
HARDNESS = 190.00
ALKALINITY = 240.00
SODIUM ADSORPTION RATIO (SAR) = 0.35

Project : ARUSHA WATER DEVELOPMENT
Organization : JICA/RDD

Sample : INGULUPANI RIVER

TOTAL SCALE = 5 MILLIEQUIVALENTS PER LITER EACH DASH = 0.25



TOTAL DISSOLVED SOLIDS 189. PPM

WATER TYPE ---- MAGNESIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 1.80 Mg= 1.81 Na= 0.65 K= 0.18 Fe= 0.00
HCO3= 3.93 CO3= 0.00 SO4= 0.00 Cl= 0.14 NO3= 0.23

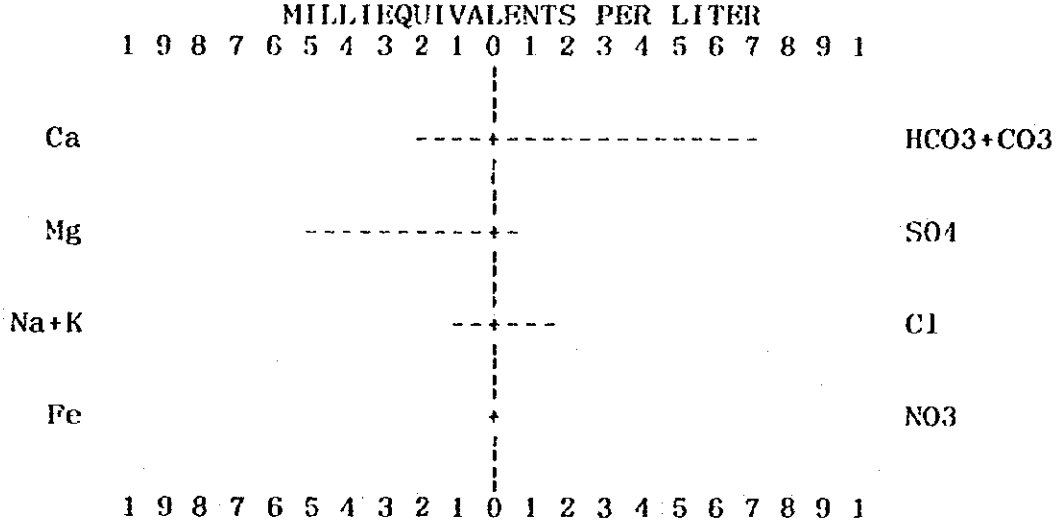
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 36. Mg= 22. Na= 15. K= 7. Fe= 0.00
HCO3=240. CO3= 0. SO4= 0. Cl= 5. NO3= 14.50

ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 369.
pH= 8.2
HARDNESS = 180.00
ALKALINITY = 240.00
SODIUM ADSORPTION RATIO (SAR) = 0.49

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Sample : TUKUSI SR

TOTAL SCALE = 10 MILLIEQUIVALENTS PER LITER EACH DASH = 0.50



TOTAL DISSOLVED SOLIDS 496. PPM

WATER TYPE ---- MAGNESIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 1.80 Mg= 5.22 Na= 0.96 K= 0.13 Fe= 0.00
HCO3= 7.05 CO3= 0.00 SO4= 0.58 Cl= 1.27 NO3= 0.09

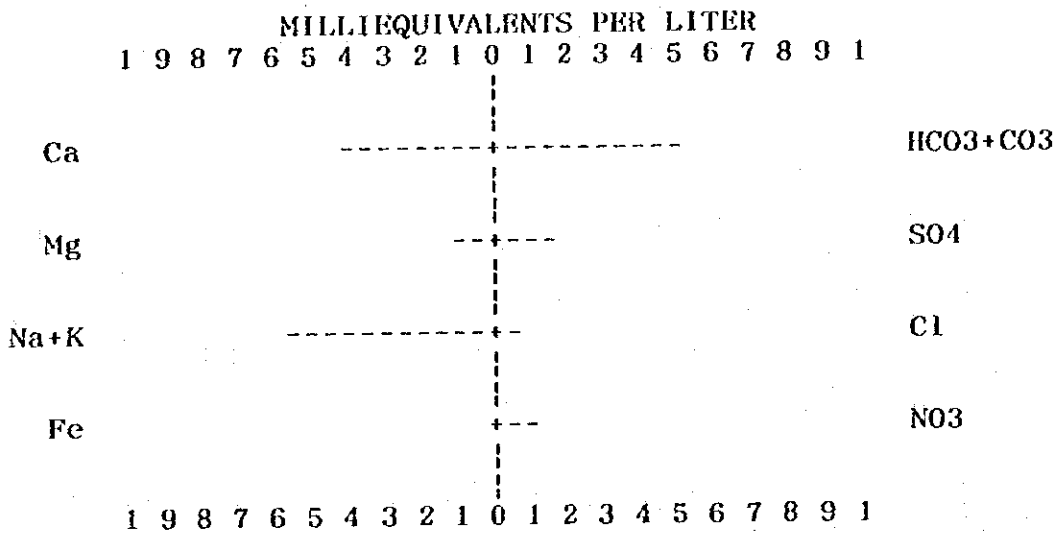
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 36. Mg= 63. Na= 22. K= 5. Fe= 0.04
HCO3=430. CO3= 0. SO4= 28. Cl= 45. NO3= 5.28

PO4 = 0.15 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 991.
pH= 8.1
HARDNESS = 350.00
ALKALINITY = 430.00
SODIUM ADSORPTION RATIO (SAR) = 0.51

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Sample : MESERANI BWAWANI

TOTAL SCALE = 2 MILLIEQUIVALENTS PER LITER EACH DASH = 0.10



TOTAL DISSOLVED SOLIDS 180. PPM

WATER TYPE ---- SODIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 0.80 Mg= 0.20 Na= 0.87 K= 0.20 Fe= 0.03
HCO3= 0.98 CO3= 0.00 SO4= 0.29 Cl= 0.14 NO3= 0.23

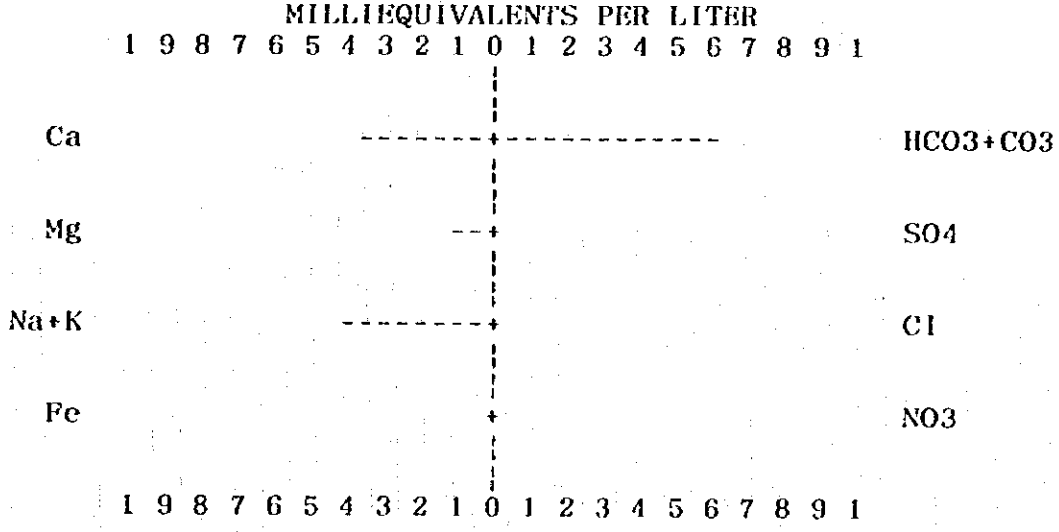
CONSTITUENTS IN MILLIGRAMS PER LITER
Ca= 16. Mg= 2. Na= 20. K= 8. Fe= 0.65
HCO3= 60. CO3= 0. SO4= 14. Cl= 5. NO3= 14.52

Mn = 4.15 ppm
PO4 = 1.35 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 360.
pH= 7.8
HARDNESS = 50.00
ALKALINITY = 60.00
SODIUM ADSORPTION RATIO (SAR) = 1.23

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Sample : OLTUKAI DUG WELL

TOTAL SCALE = 20 MILLIEQUIVALENTS PER LITER EACH DASH = 1.00



TOTAL DISSOLVED SOLIDS 560. PPM

WATER TYPE ---- SODIUM BICARBONATE

CONSTITUENTS IN MILLIEQUIVALENTS PER LITER
Ca= 6.59 Mg= 2.01 Na= 7.83 K= 0.61 Fe= 0.05
HCO3= 12.29 CO3= 0.00 SO4= 0.40 Cl= 0.14 NO3= 0.14

CONSTITUENTS IN MILLIGRAMS PER LITER
Ca=132. Mg= 24. Na= 180. K= 24. Fe= 0.85
HCO3=750. CO3= 0. SO4= 19. Cl= 5. NO3= 8.80

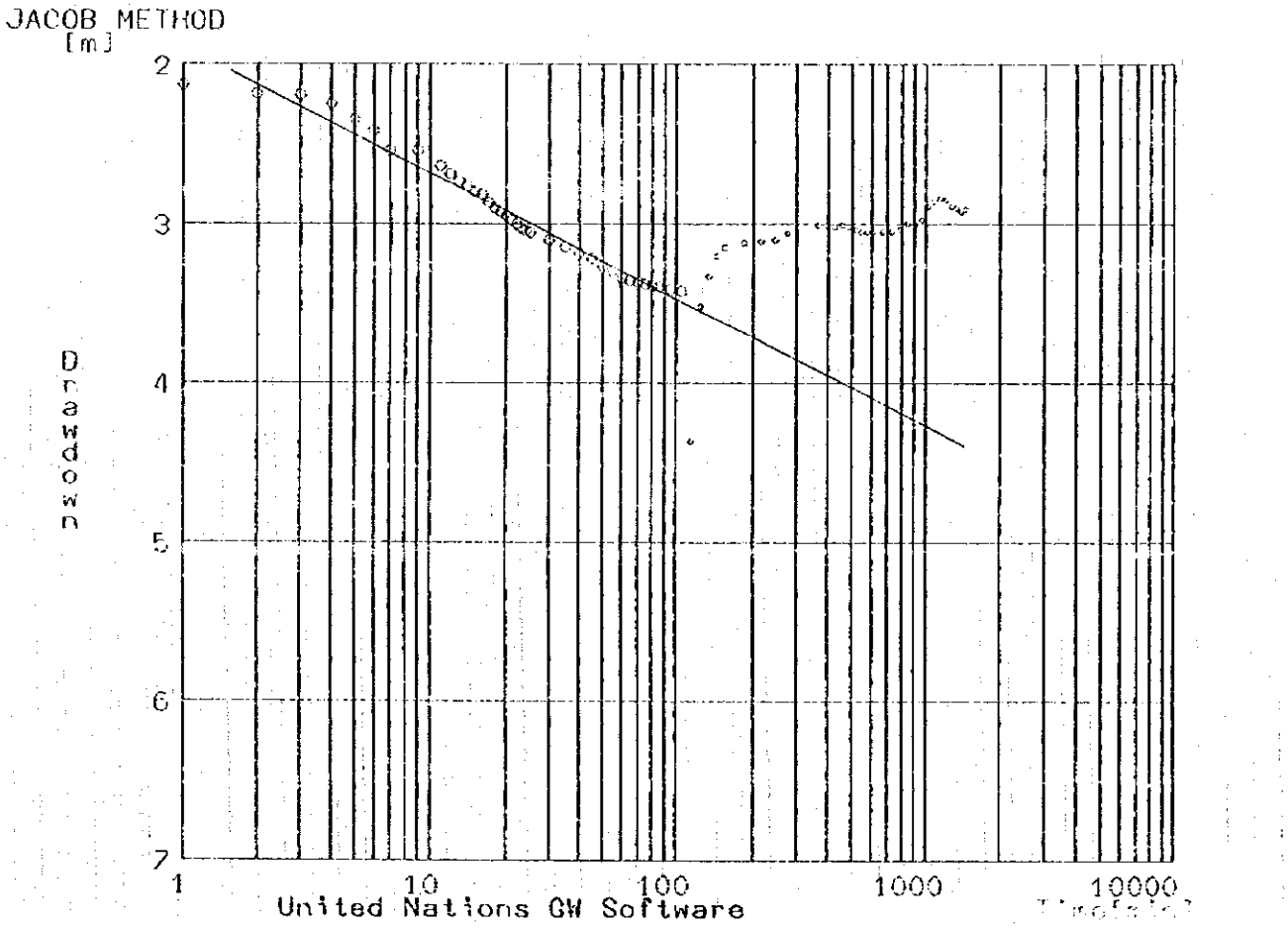
Mn = 6.00 ppm
PO4 = 1.27 ppm
ELECTRICAL CONDUCTIVITY IN MICROMHOS/CM AT 25 C 1103.
pH= 6.9
HARDNESS = 430.00
ALKALINITY = 750.00
SODIUM ADSORPTION RATIO (SAR) = 3.78

4. PUMPING TEST

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Test : EX-7 CONSTANT

Constant Pumping Rate = 29.7 [m3/day]
Distance from Pumping Well = 0.08 [m]
Type of Aquifer = UNCONFINED
Initial Saturated Thickness = 20.00 [m]
Type of Input Data = DRAWDOWN
Well Type = STANDARD



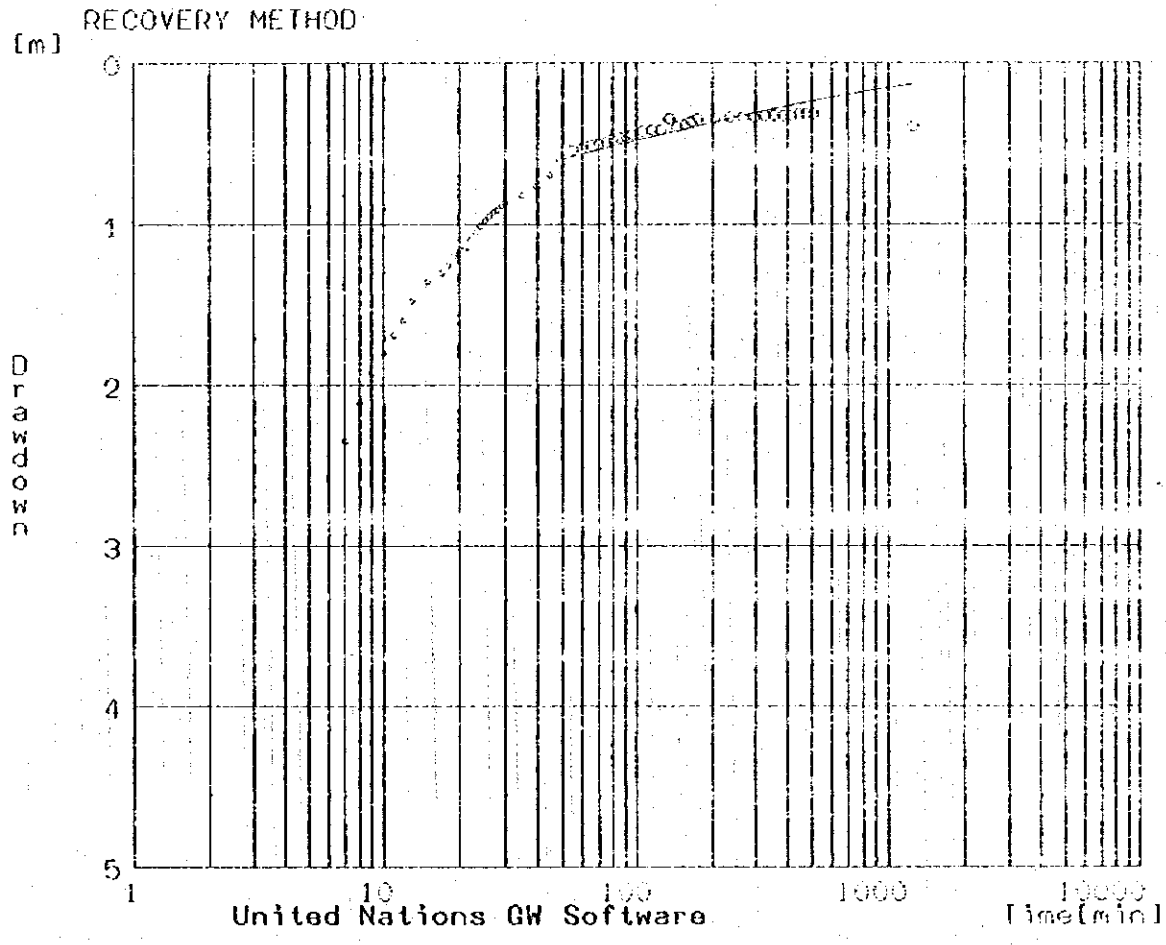
Transmissivity = 6.87424 [m2/day]

Standard Deviation = 0.0649 [m]
A0 = 0.189097E+01
A1 = 0.791978E+00
Number of Points = 37 of 69

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Test : EX-7 REC

Constant Pumping Rate = 29.7 [m3/day]
Distance from Pumping Well = 0.08 [m]
Type of Aquifer = UNCONFINED
Initial Saturated Thickness = 20.00 [m]
Type of Input Data = DRAWDOWN
Well Type = STANDARD



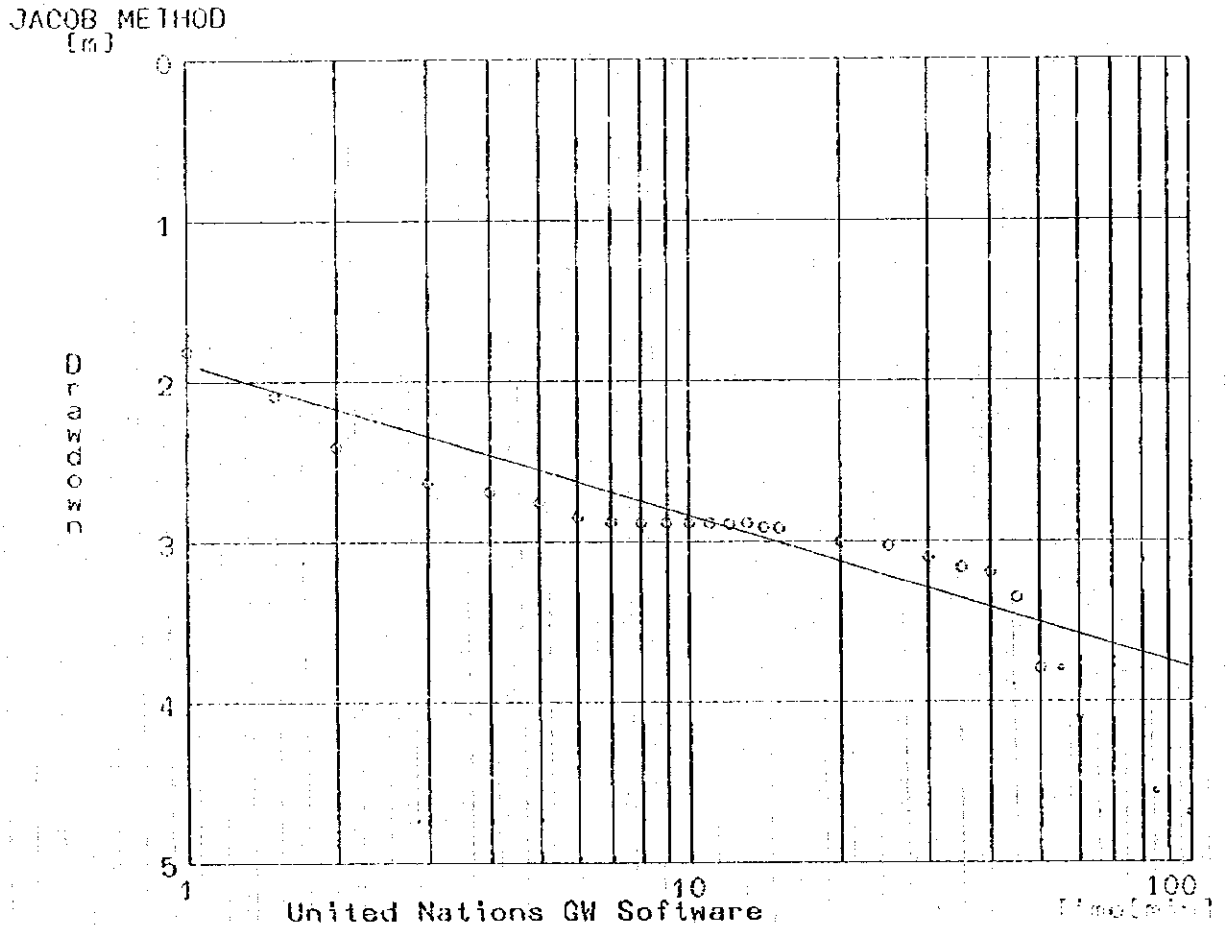
Transmissivity = 13.47150 [m2/day]

Standard Deviation = 0.0646 [m]
A0 = 0.000000E+00
A1 = 0.000000E+00
Number of Points = 30 of 55

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Test : MAKUYUNI 10/52

Constant Pumping Rate = 78.20 [lit/min]
Distance from Pumping Well = 0.10 [m]
Type of Aquifer = UNCONFINED
Initial Saturated Thickness = 10.00 [m]
Type of Input Data = DRAWDOWN
Well Type = STANDARD



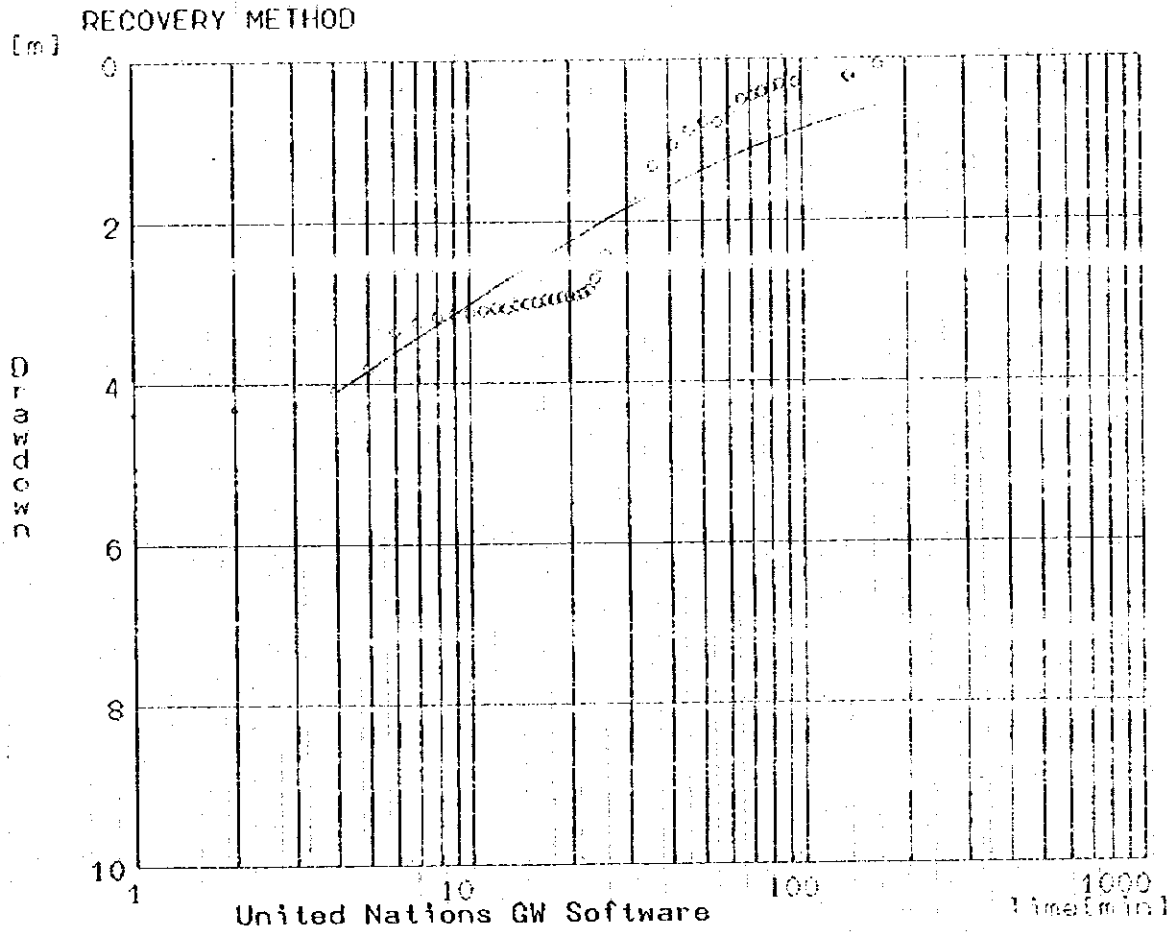
Transmissivity = 22. [m2/day]

Standard Deviation = 0.2110 [m]
A0 = 0.188785E+01
A1 = 0.951019E+00
Number of Points = 24 of 28

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Test : MAKUYUNI-REC

Constant Pumping Rate = 78.20 [lit/min]
Distance from Pumping Well = 0.10 [m]
Type of Aquifer = UNCONFINED
Initial Saturated Thickness = 10.00 [m]
Type of Input Data = DRAWDOWN
Well Type = STANDARD



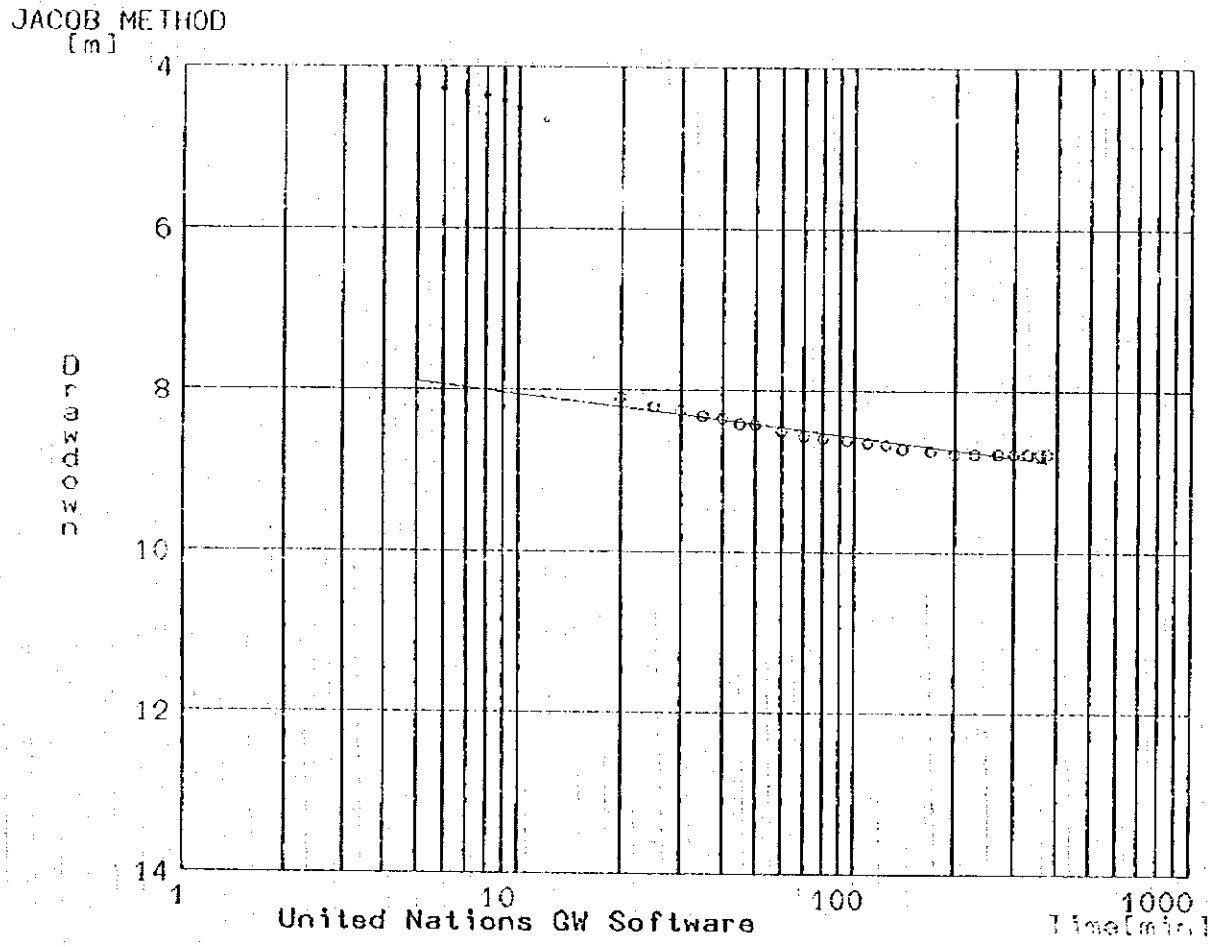
Transmissivity = 7. [m2/day]

Standard Deviation = 0.5019 [m]
A0 = 0.188785E+01
A1 = 0.951019E+00
Number of Points = 38 of 41

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Test : 142/79 KIRANY MISSION

Constant Pumping Rate = 2138.4 [m3/day]
Distance from Pumping Well = 0.08 [m]
Type of Aquifer = UNCONFINED
Initial Saturated Thickness = 29.30 [m]
Type of Input Data = DRAWDOWN
Well Type = STANDARD



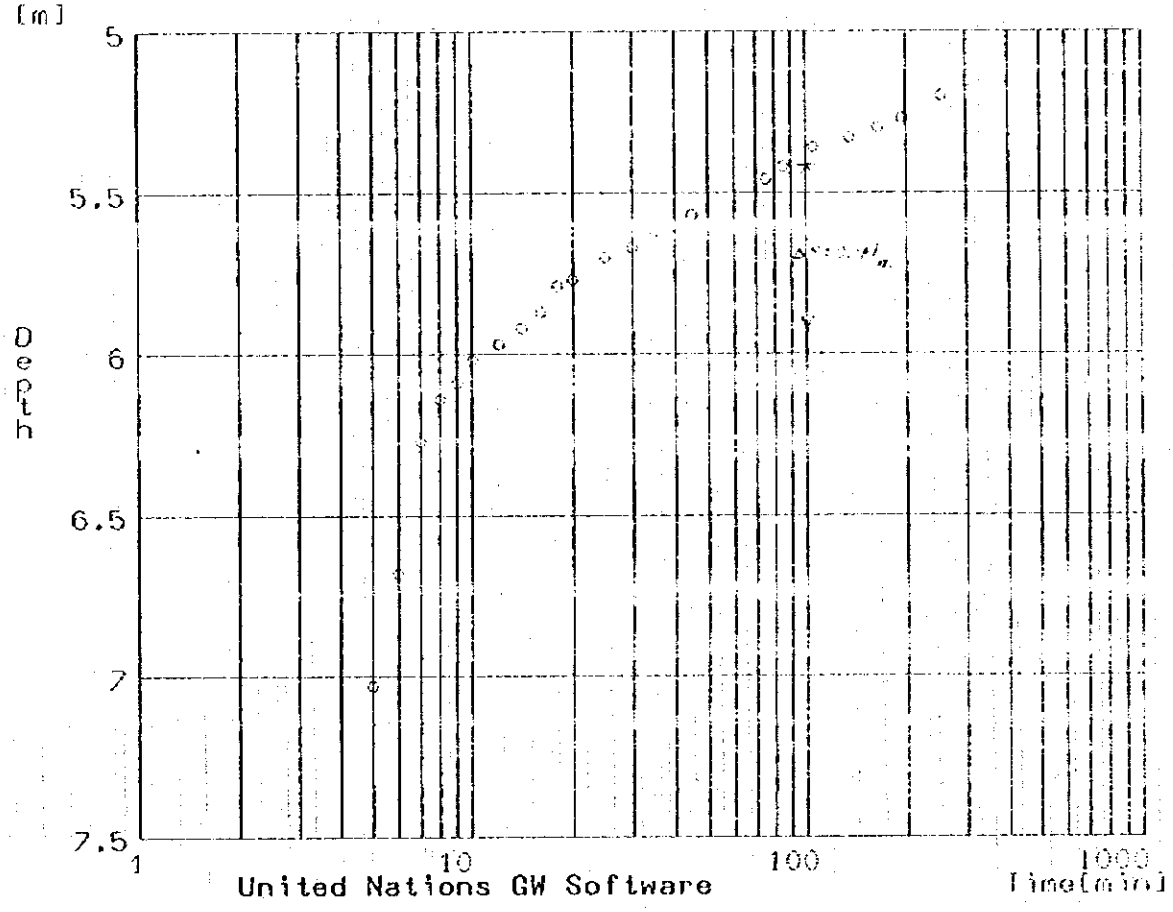
Transmissivity = 752. [m2/day]

Standard Deviation = 0.0570 [m]
A0 = 0.753228E+01
A1 = 0.520620E+00
Number of Points = 22 of 29

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Test : 142/79 RE

Constant Pumping Rate = 2138.4 [m3/day]
Distance from Pumping Well = 0.08 [m]
Type of Aquifer = UNCONFINED
Initial Saturated Thickness = 29.30 [m]
Type of Input Data = DRAWDOWN
Well Type = STANDARD

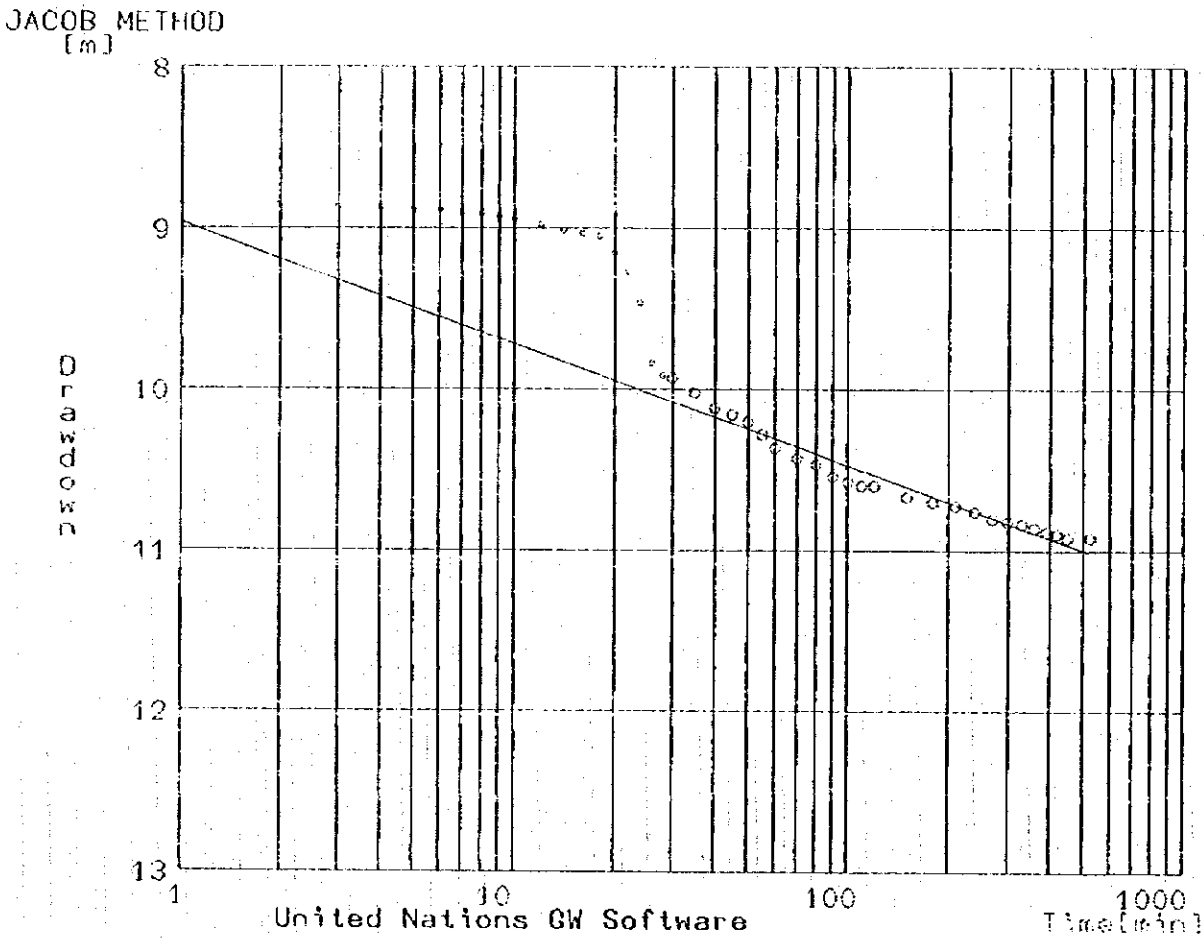


T= 954 m²/day

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Test : 75/86 ESTATE

Constant Pumping Rate = 1110.8 [m3/day]
Distance from Pumping Well = 0.15 [m]
Type of Aquifer = UNCONFINED
Initial Saturated Thickness = 35.00 [m]
Type of Input Data = DRAWDOWN
Well Type = STANDARD



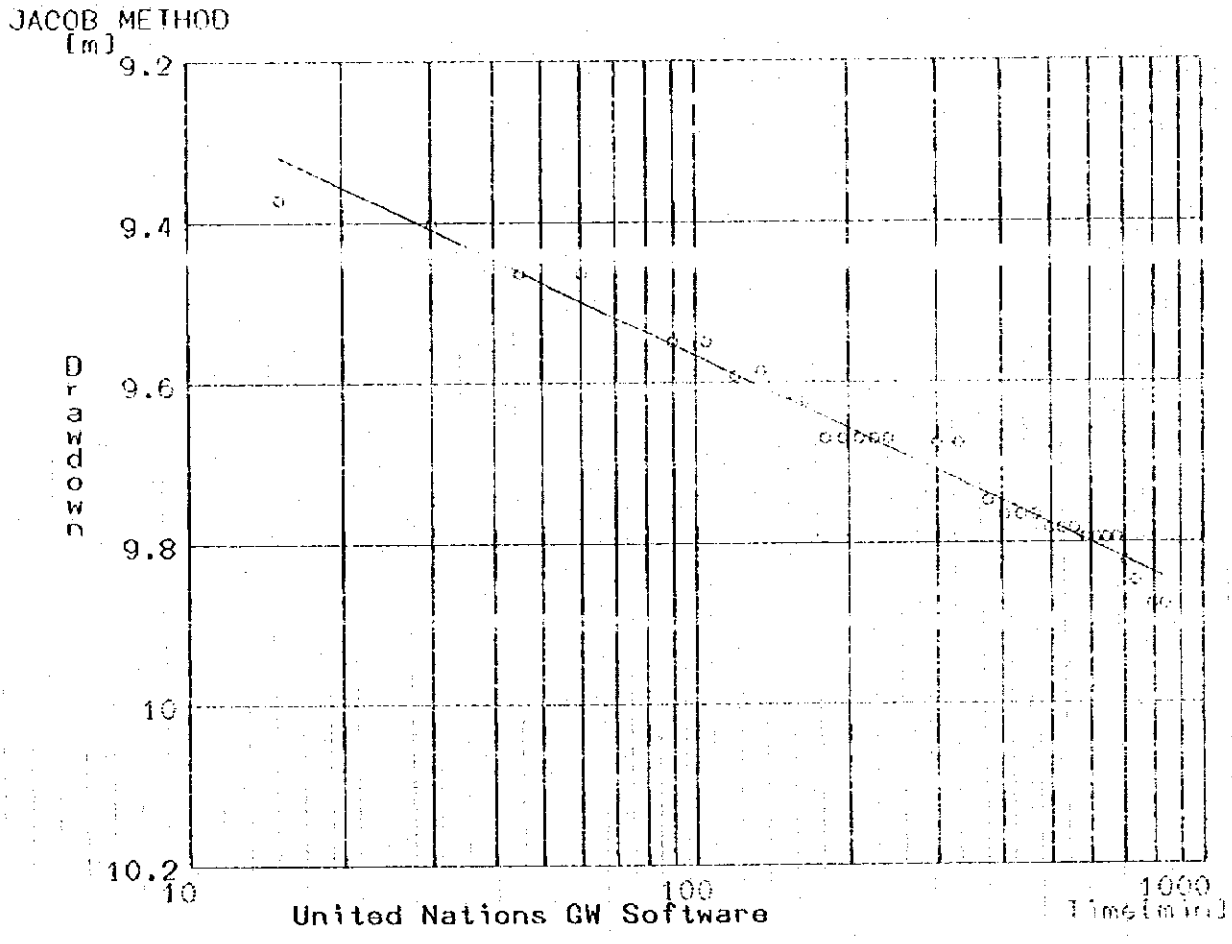
Transmissivity = 270. [m2/day]

Standard Deviation = 0.0661 [m]
A0 = 0.896617E+01
A1 = 0.752914E+00
Number of Points = 25 of 44

Project : MONDULI GROUNDWATER
Organization : JICA/RDD

Test : 96/80 SEED FARM

Constant Pumping Rate = 950.4 [m3/day]
Distance from Pumping Well = 0.10 [m]
Type of Aquifer = UNCONFINED
Initial Saturated Thickness = 30.20 [m]
Type of Input Data = DRAWDOWN
Well Type = STANDARD



Transmissivity = 578. [m2/day]

Standard Deviation = 0.0210 [m]
A0 = 0.896510E+01
A1 = 0.300712E+00
Number of Points = 32 of 32