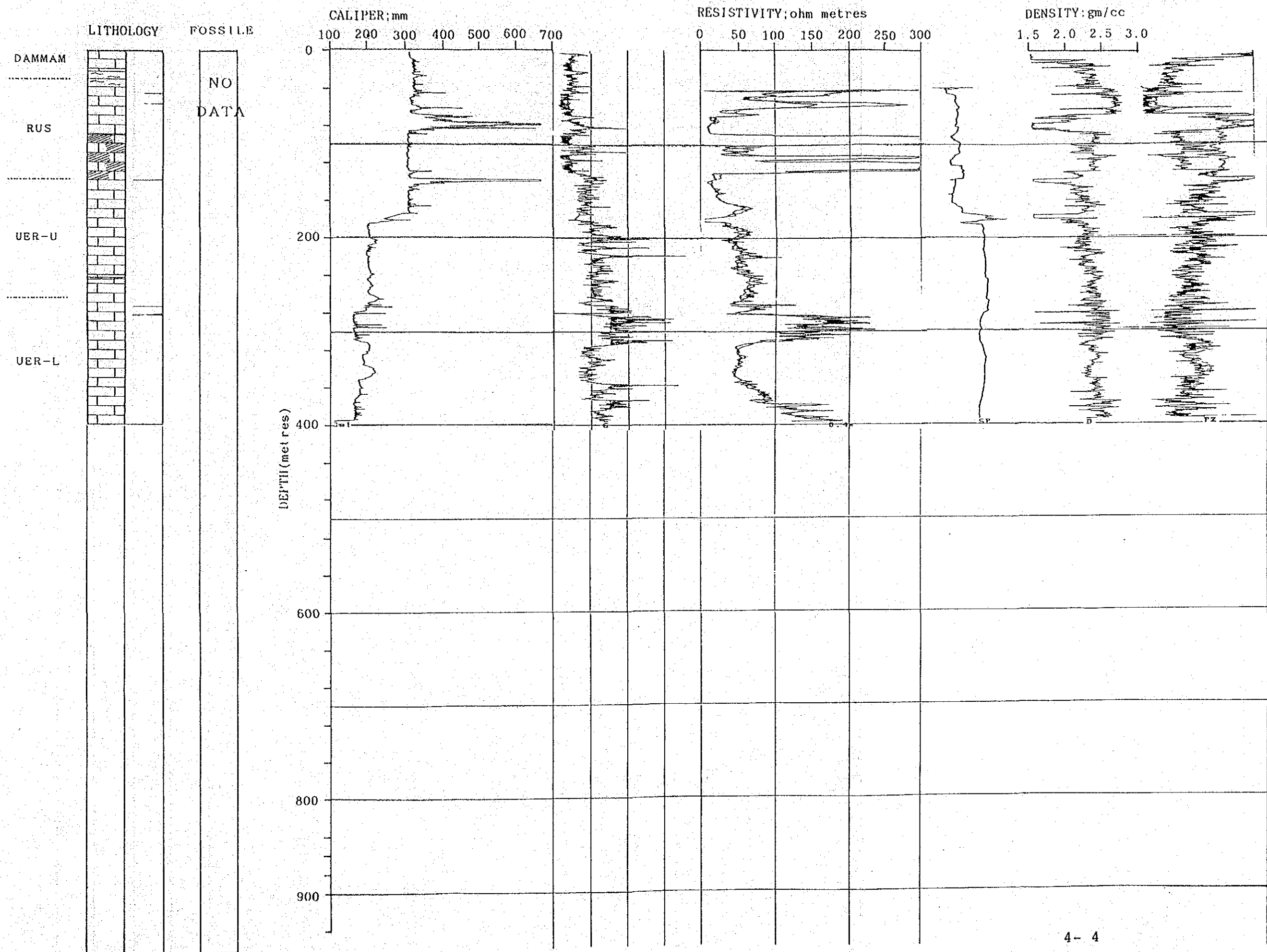


A-4. 1. 3 (1) Composite Bore Hole Log, NJD-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

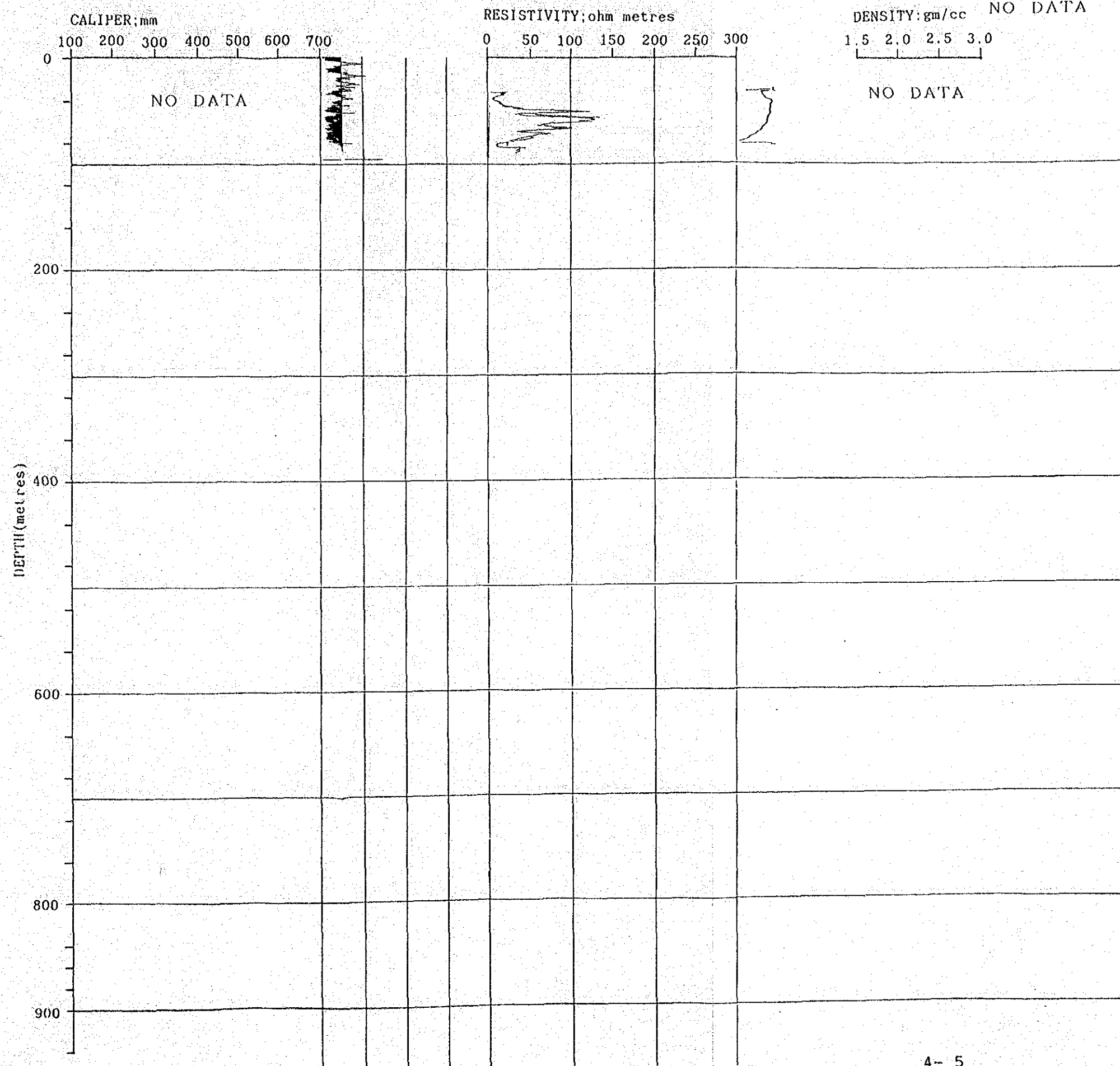
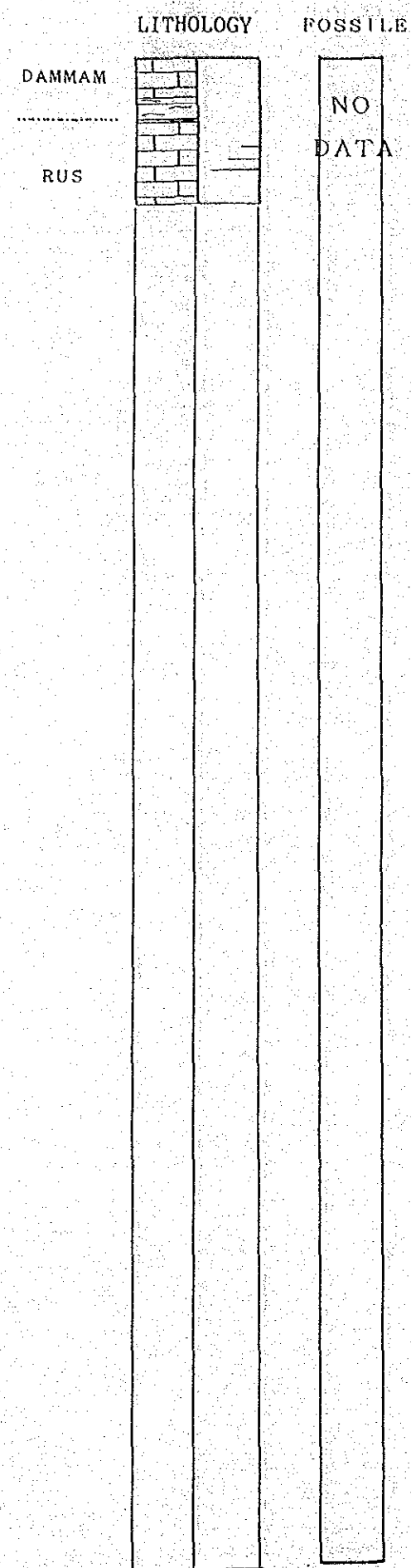
POROSITY; 1st
0 20 40 60



GAMMA/API
0 20 40 60 80

SELF POTENTIAL
250 310 700 800

POROSITY:1st
0 20 40 60



A-4. 1. 3 (3) Composite Bore Hole ZA035301AA

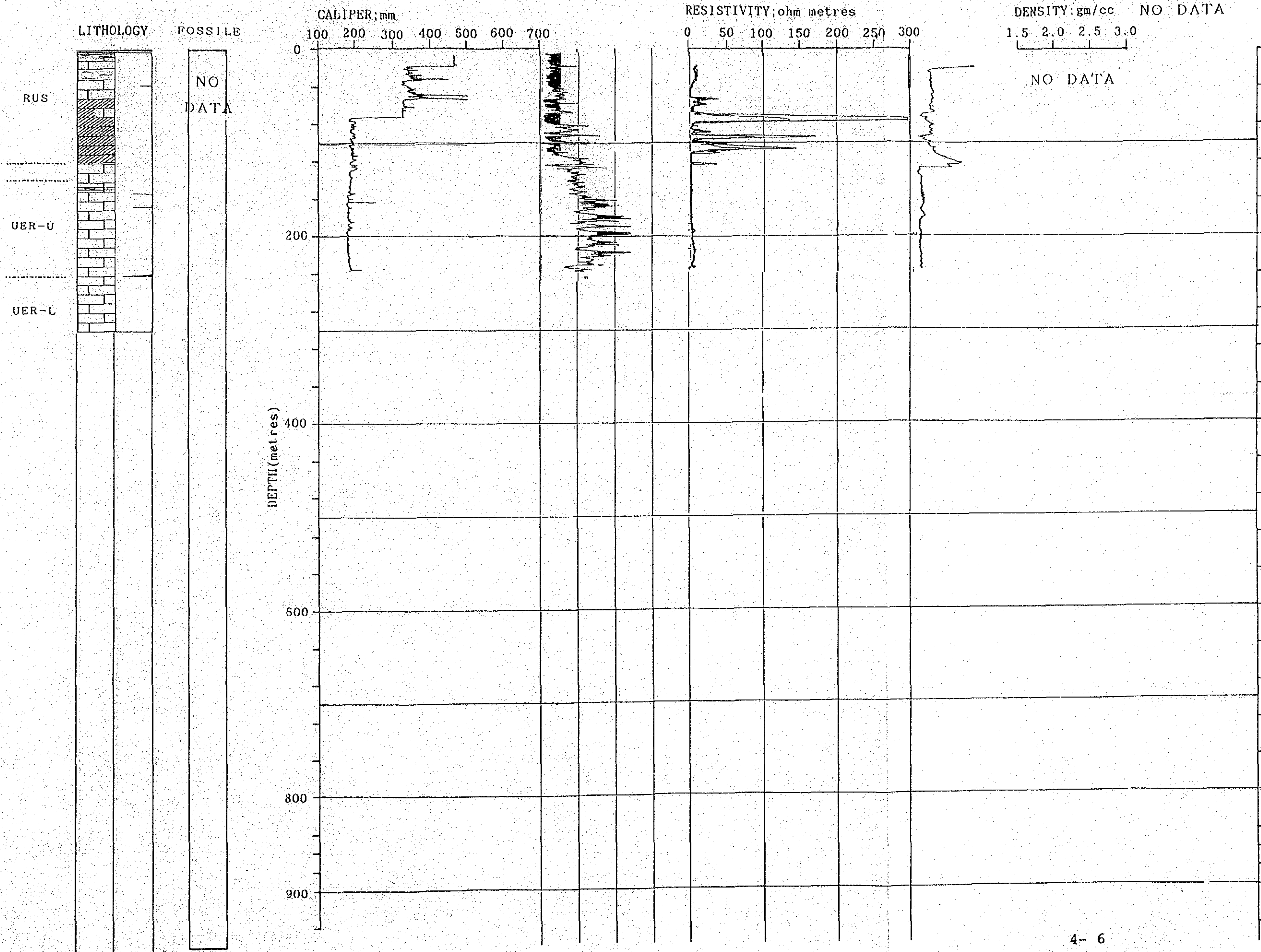
GAMMA/API

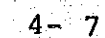
0 20 40 60 80

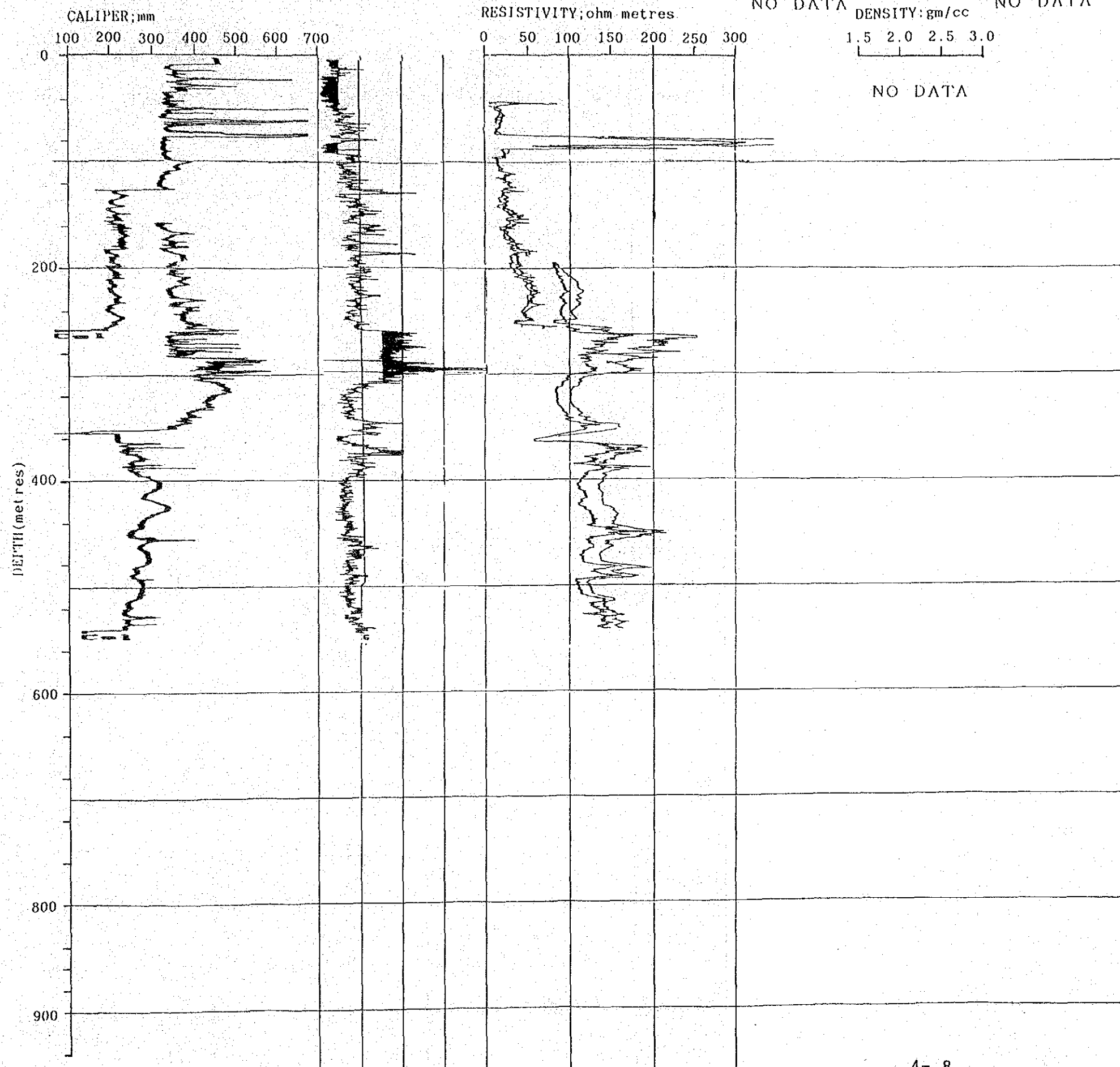
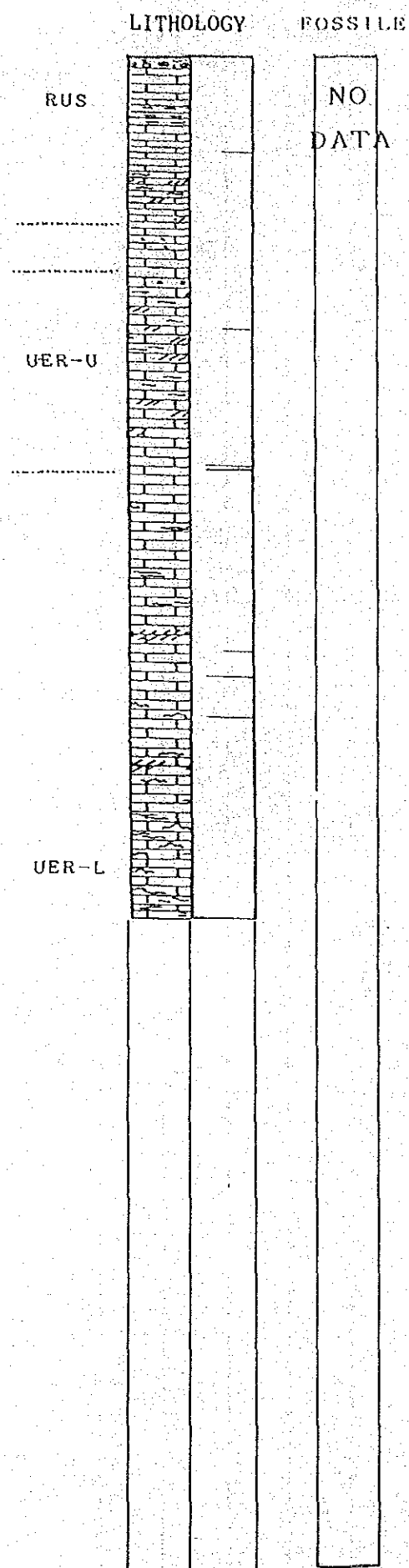
SELF POTENTIAL

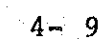
0	50	100	150

POROSITY; 1st









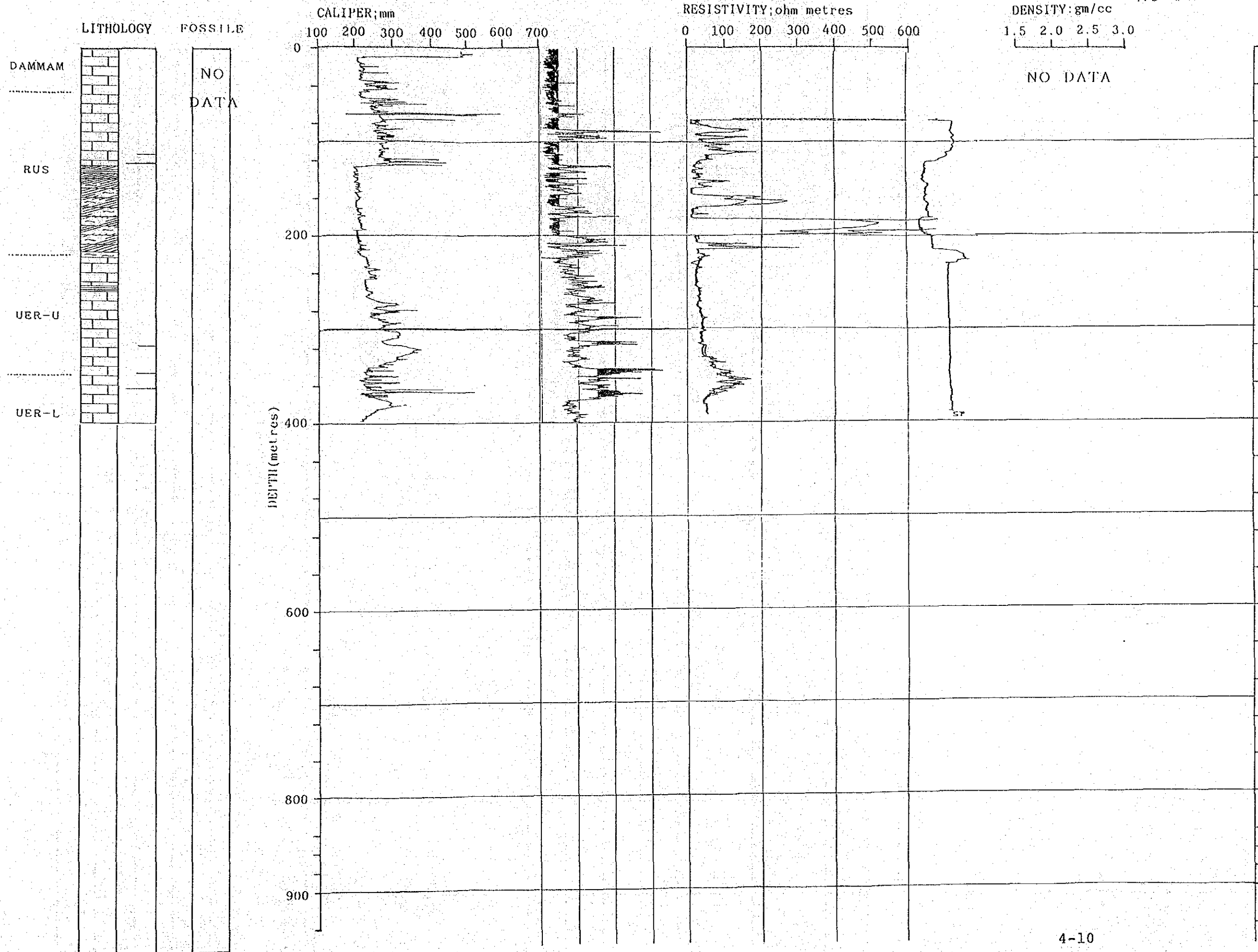
A-4. 1. 3 (7) Composite Bore Hole BF298464AA

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
100 300 500 800

POROSITY; 1st
0 20 40 60

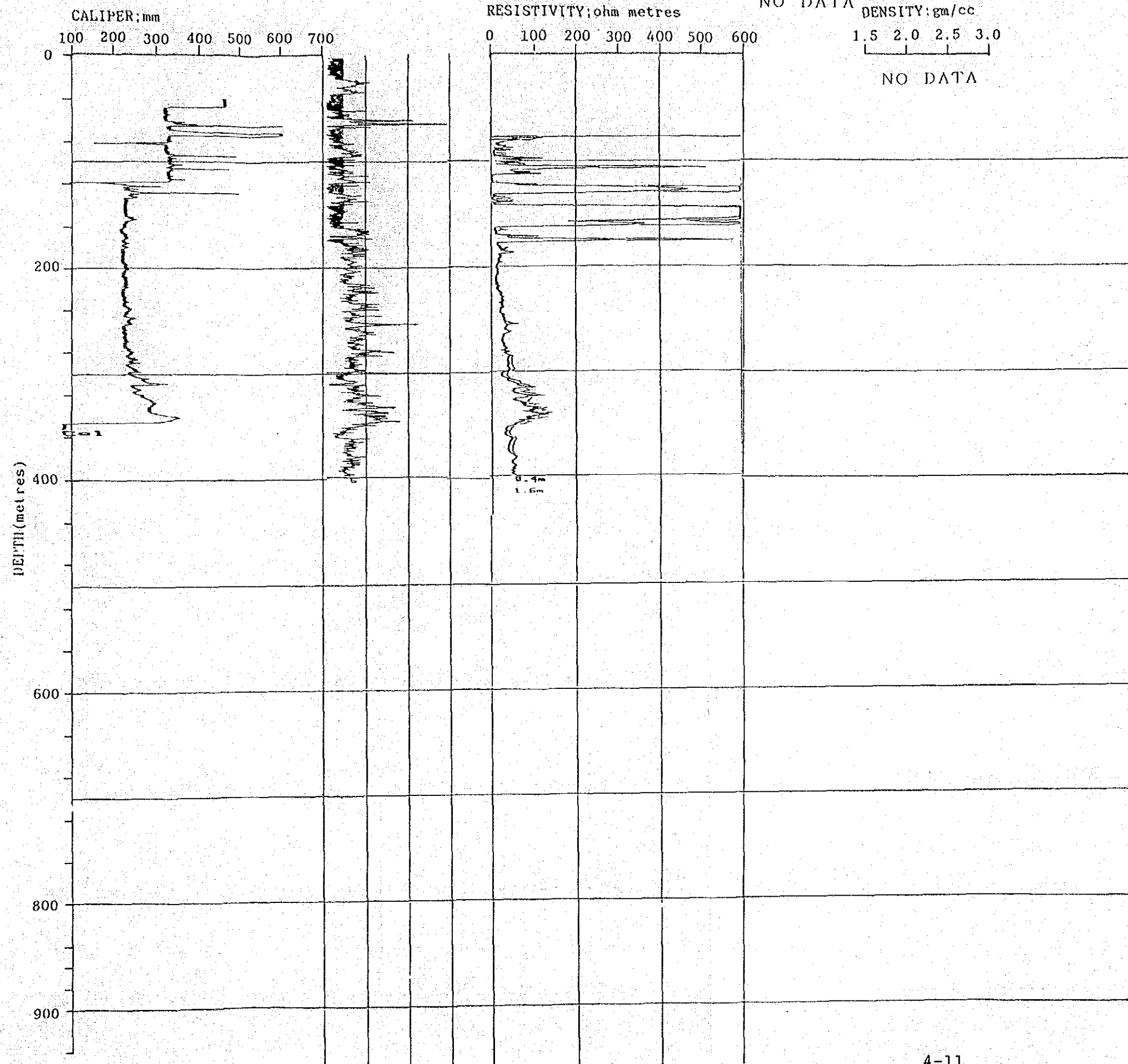
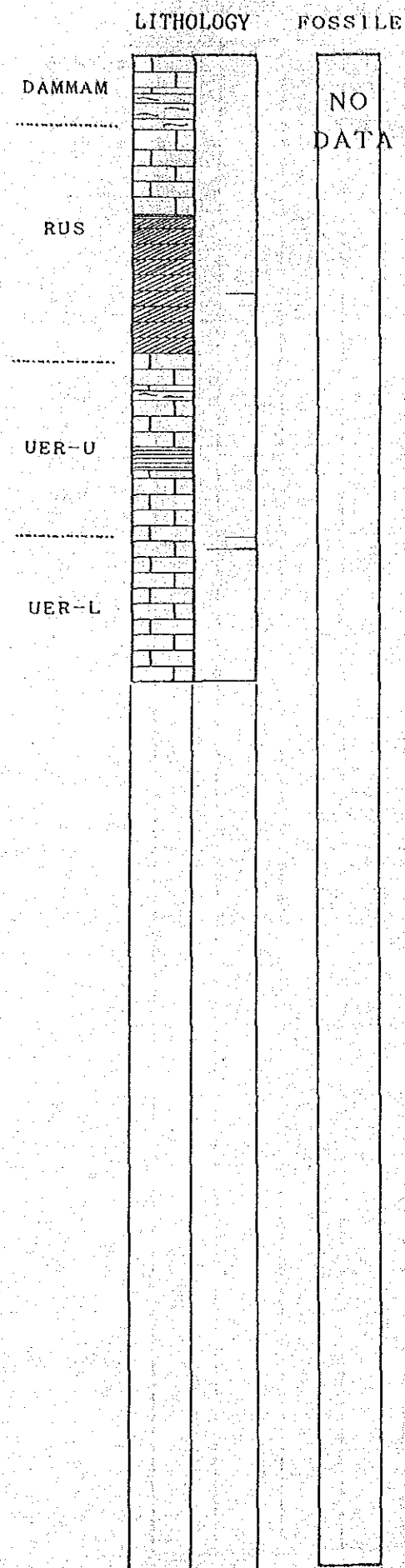
NO DATA

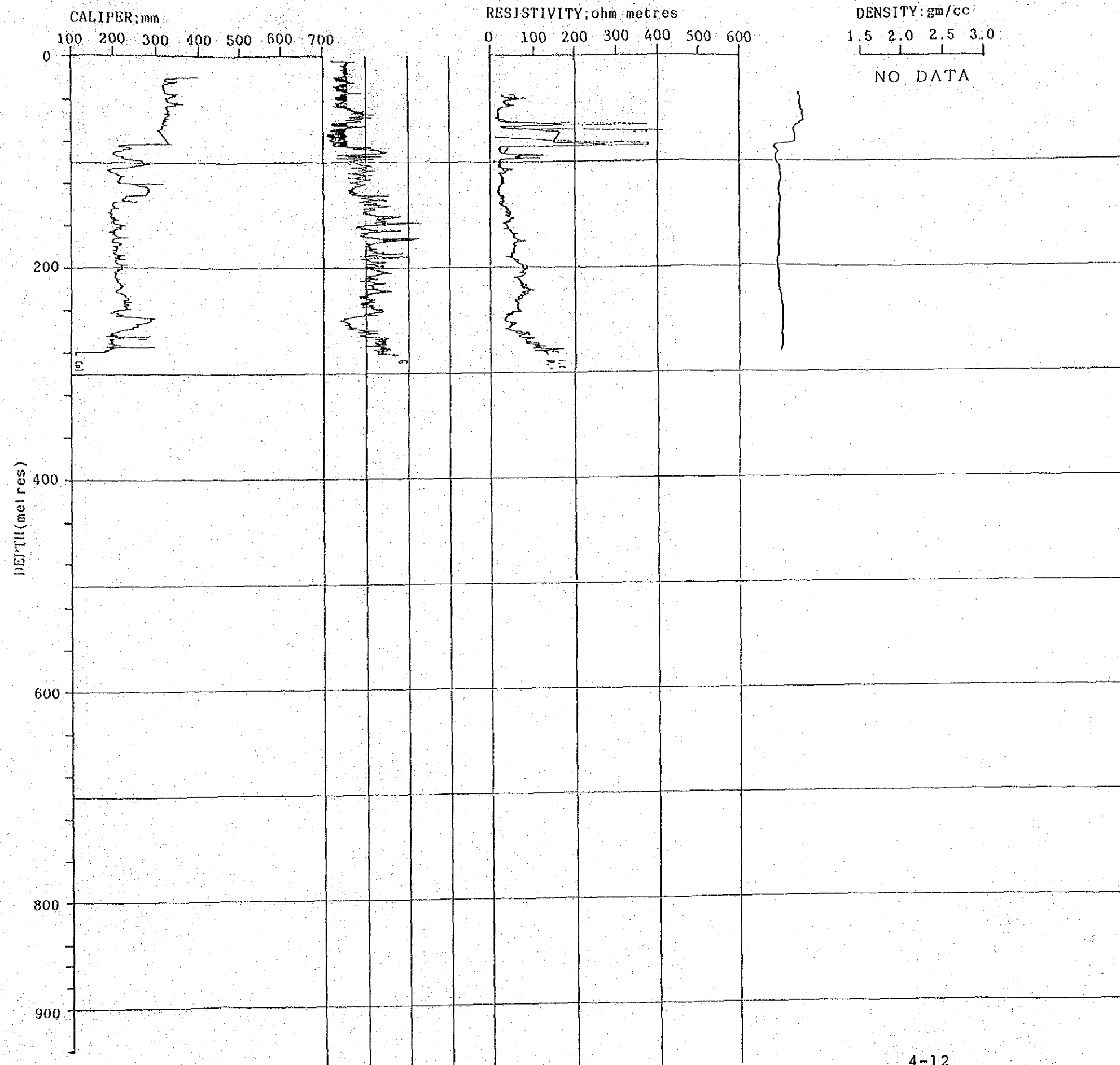


GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY:1st
0 20 40 60



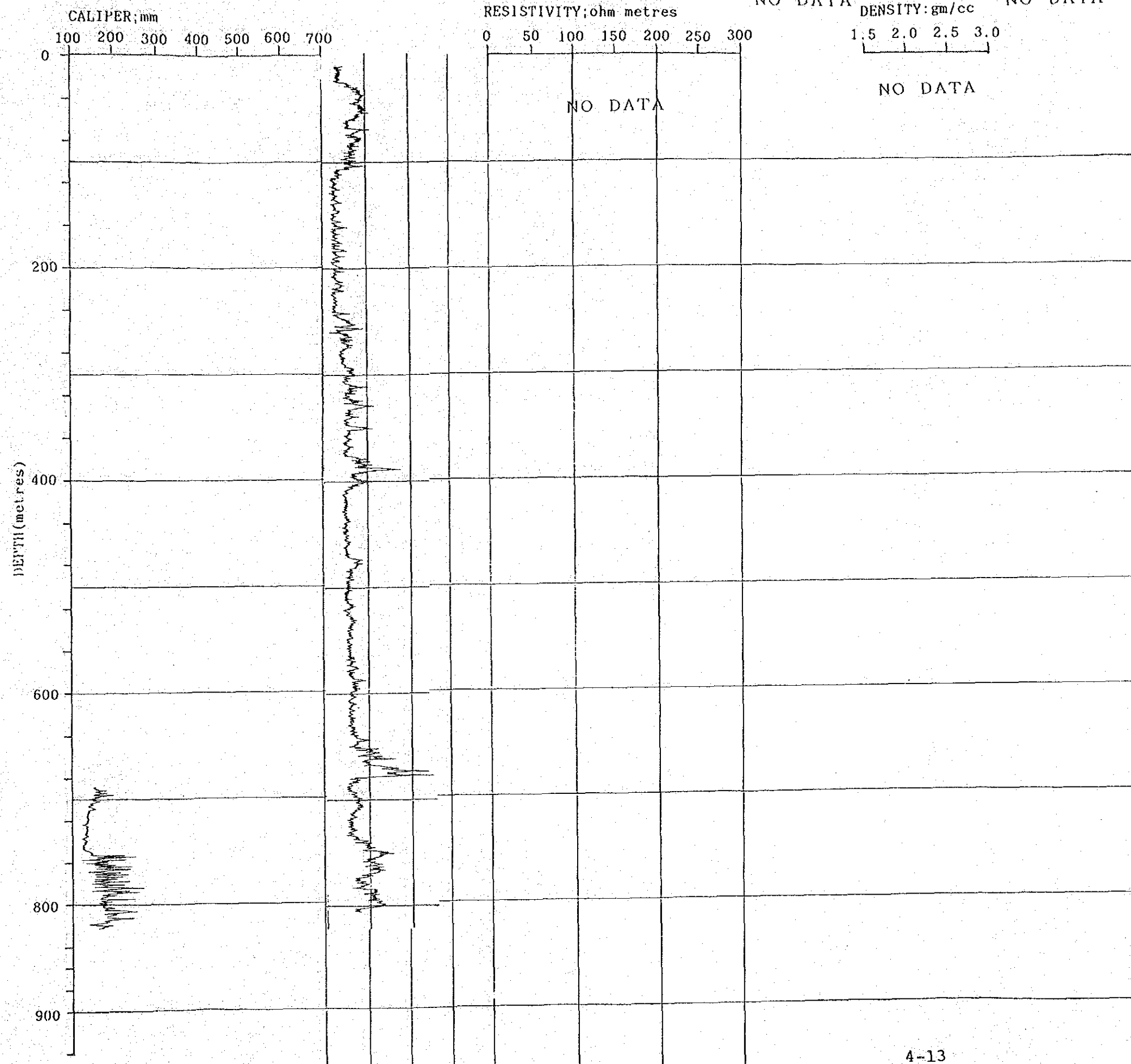
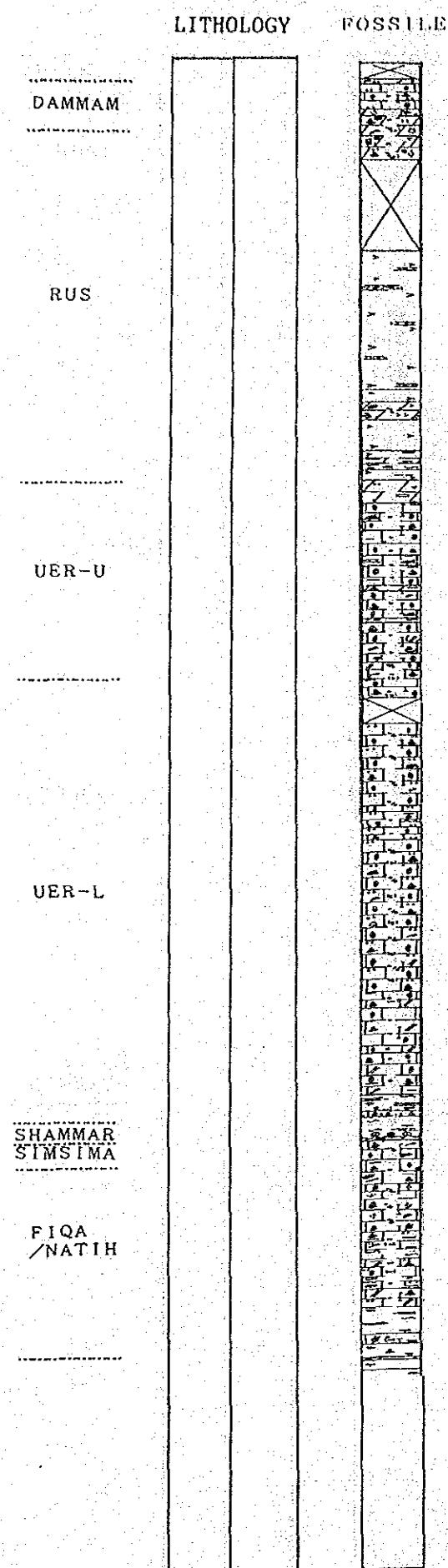


A-4. 1. 3 (10) Composite Bore Hole SHIGAG-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY, 1st
0 20 40 60

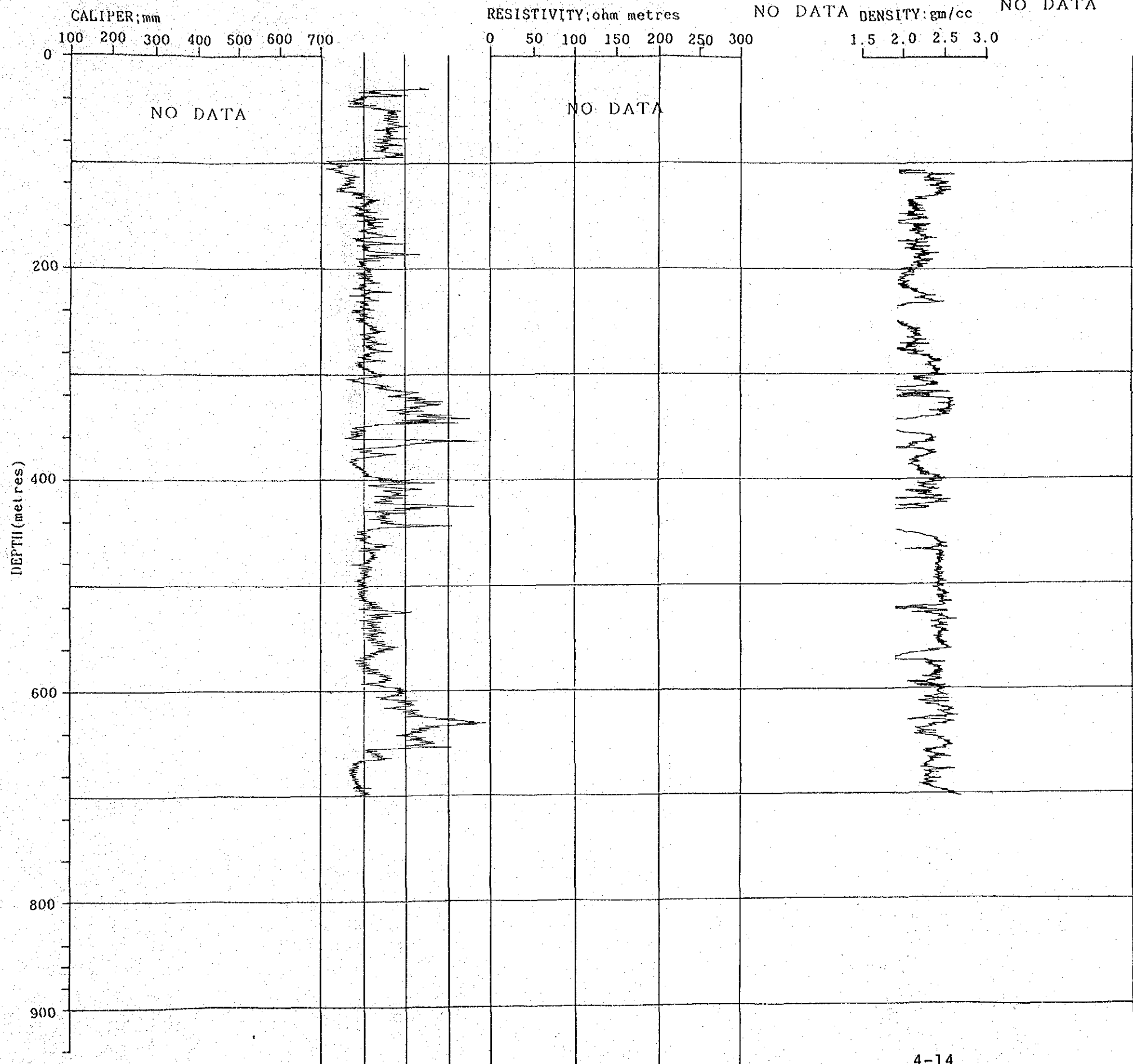
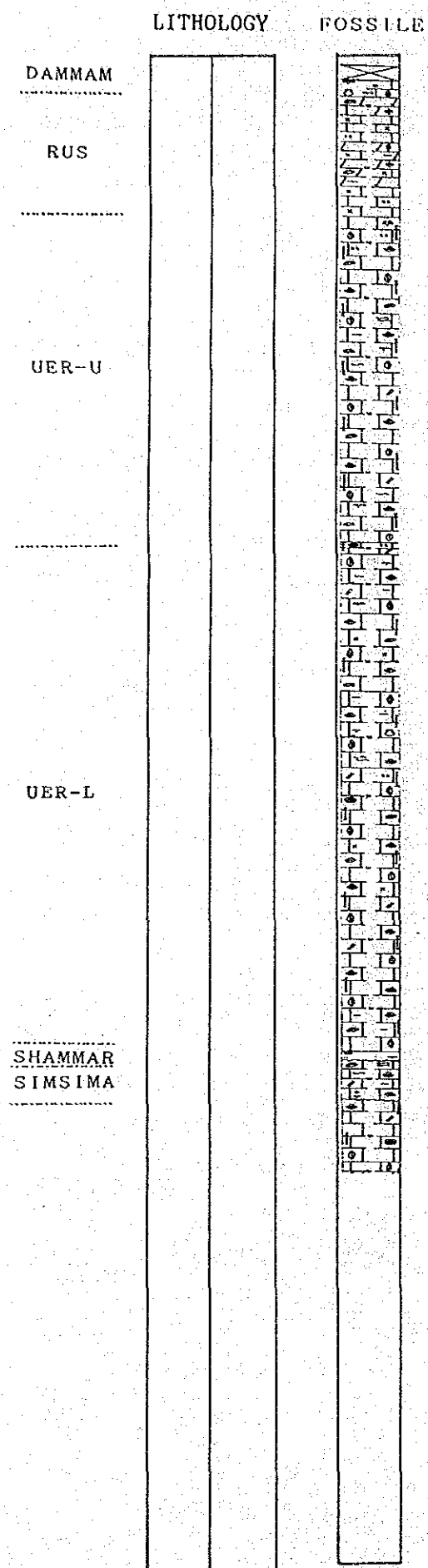


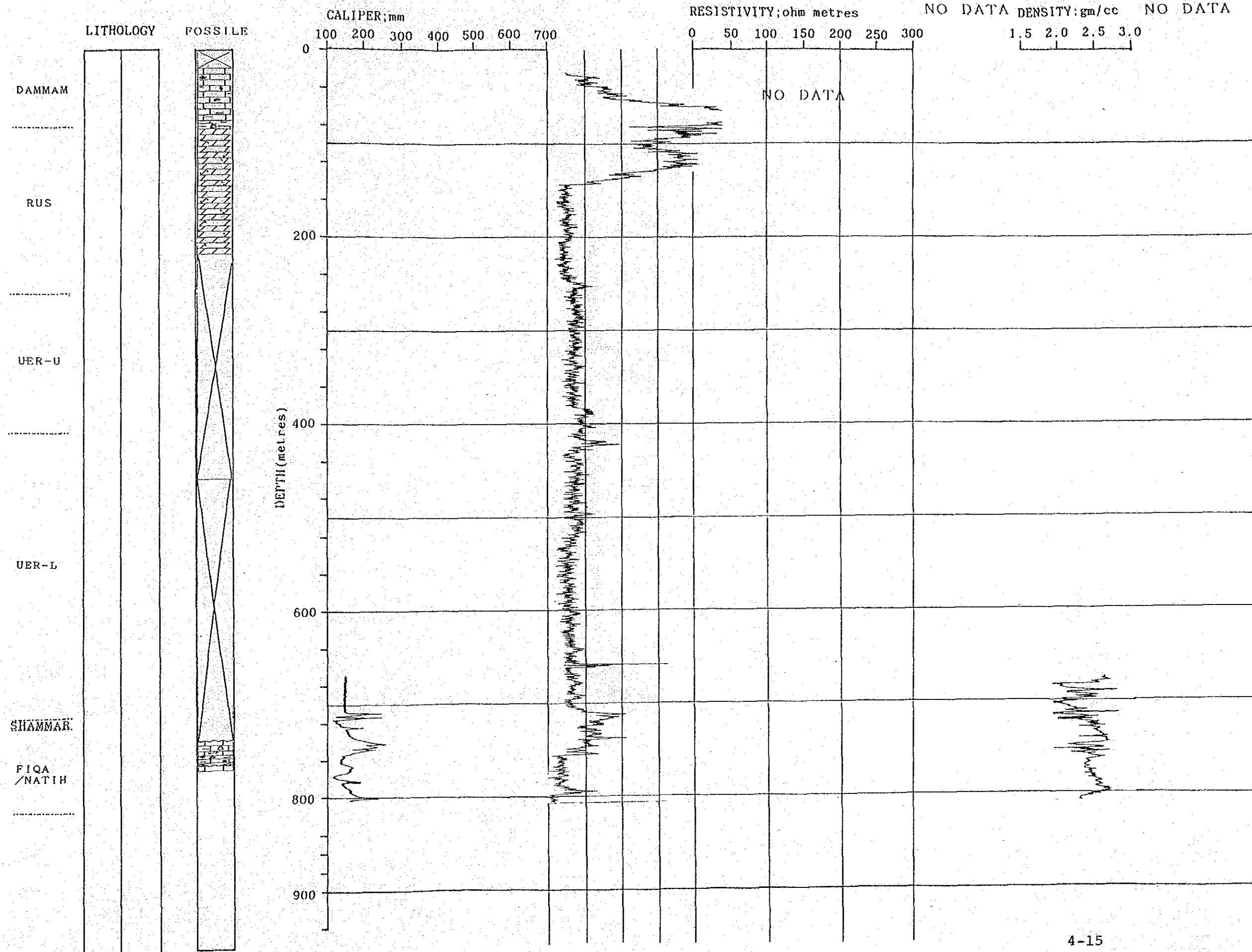
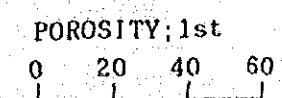
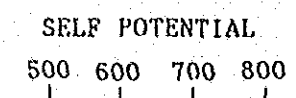
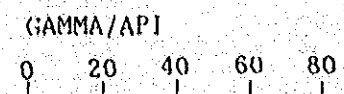
A-4. 1. 3 (11) Composite Bore Hole JAZAL-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY; 1st
0 20 40 60



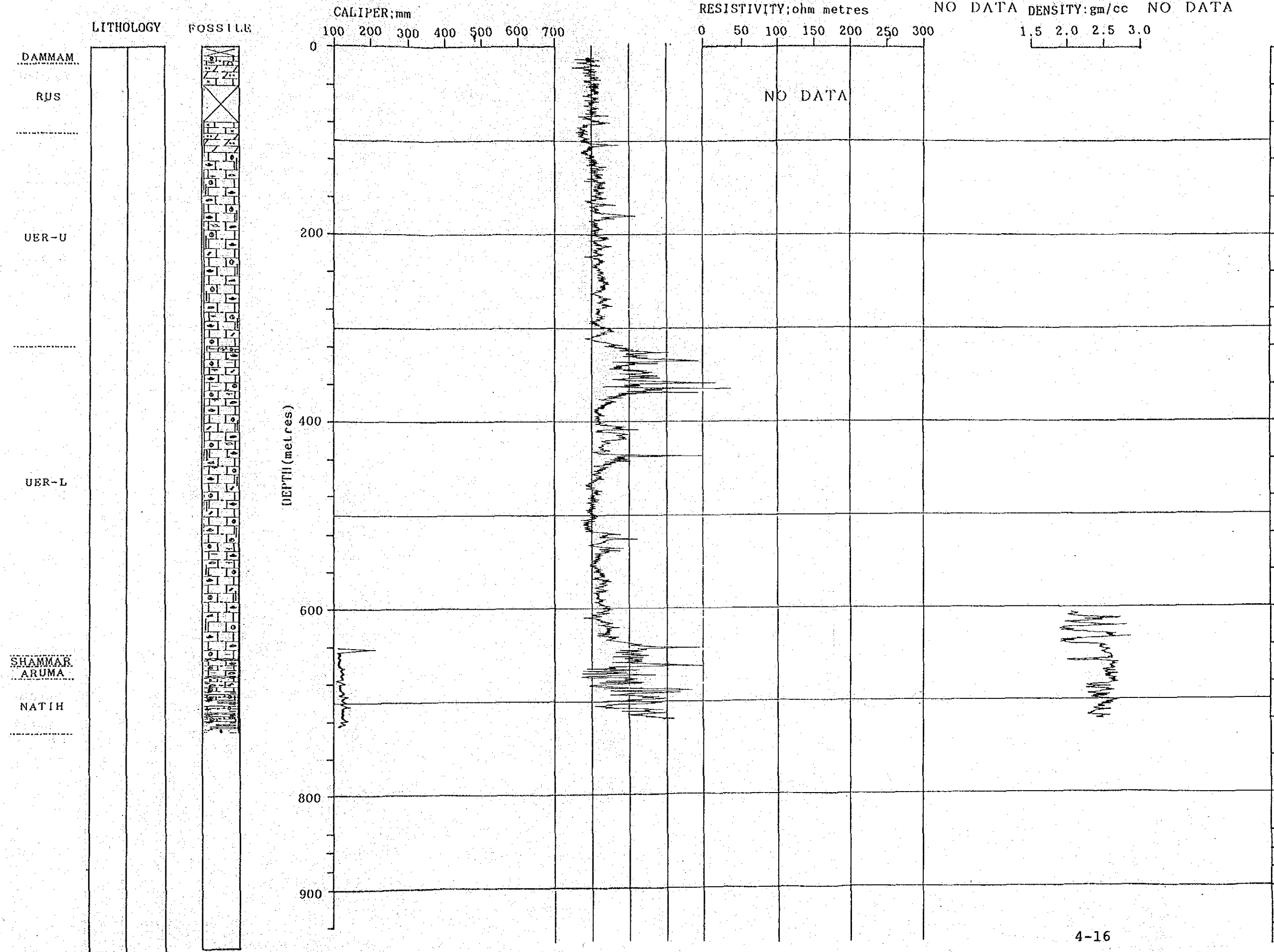


A-4.1.3(13) Composite Bore Hole LUBAN-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY;1st
0 20 40 60

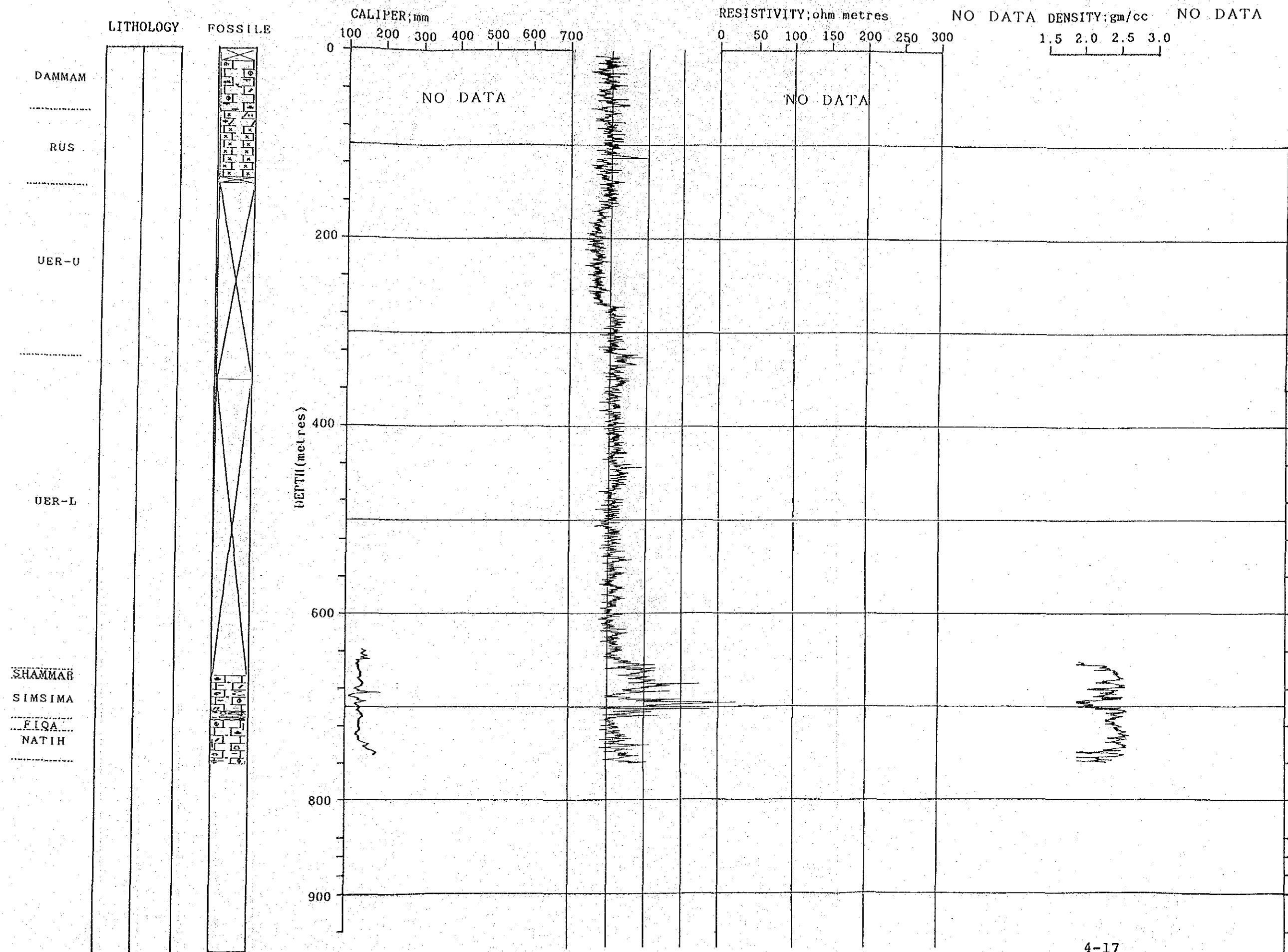


A-4.1.3(14) Composite Bore Hole DHAHABAN-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY, 1st
0 20 40 60

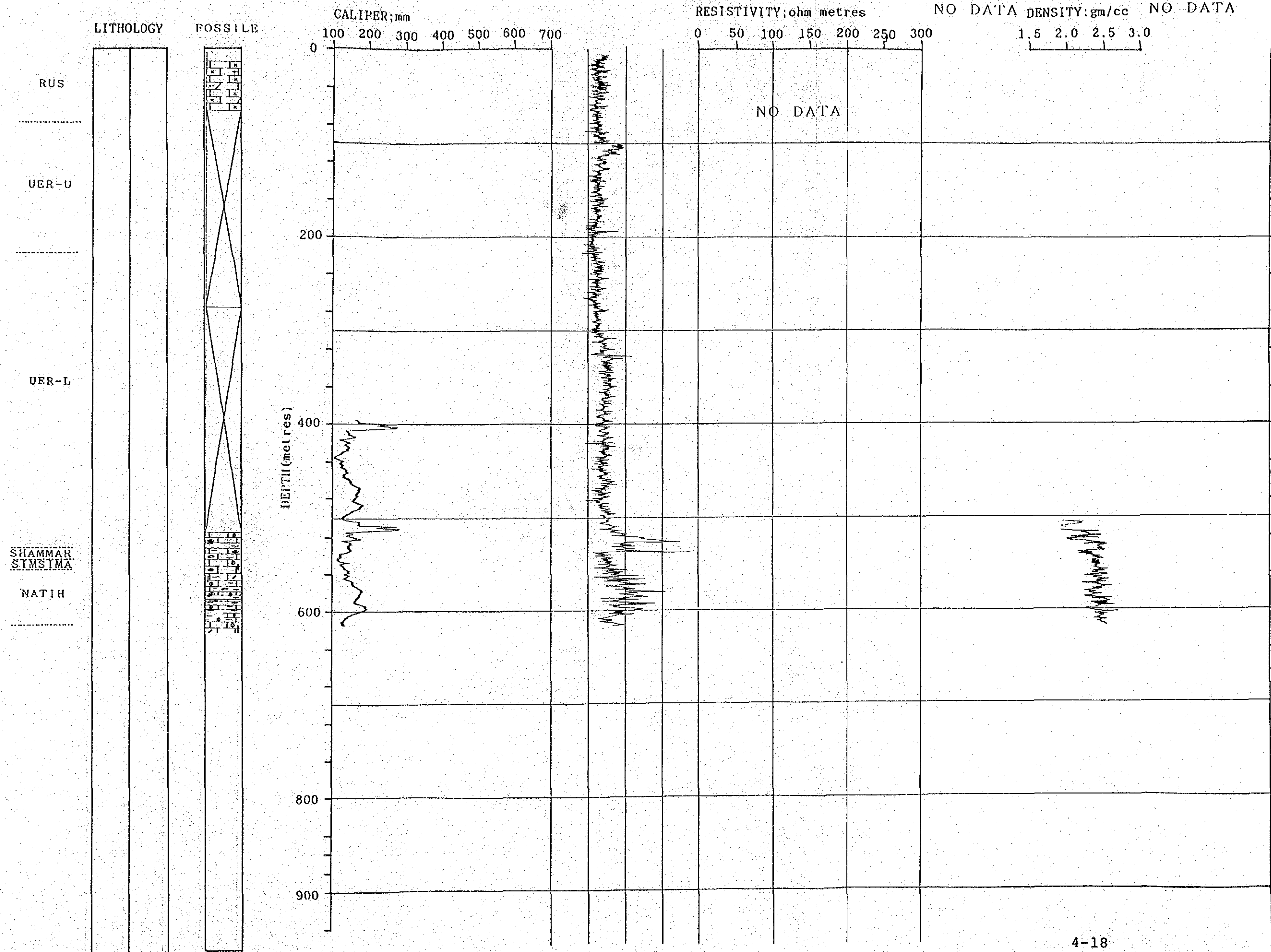


A-4.1.3 (15) Composite Bore Hole DHAHABAN-2

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY;1st
0 20 40 60



A-4.1.3 (16) Composite Bore Hole HUREIDAH-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY: 1st
0 20 40 60

LITHOLOGY

FOSSILE

CALIPER; mm

RESISTIVITY; ohm metres

NO DATA

DENSITY; gm/cc

NO DATA

DEPTH (metres)

RUS

NO
DATA

UER-U

UER-L

SHAMMAR
ARUMA

NATIH

NO DATA

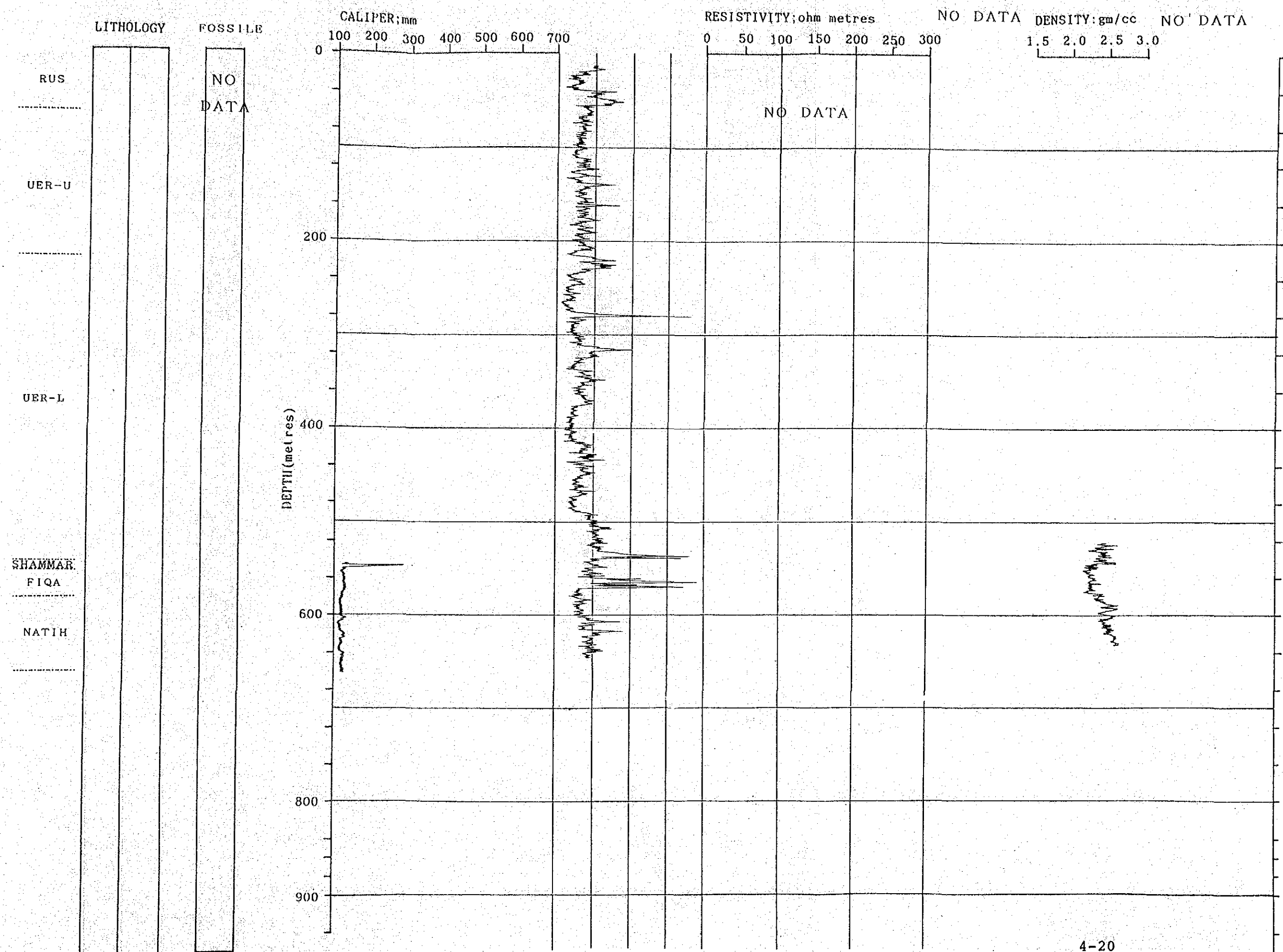
NO DATA

A-4. 1. 3 (17) Composite Bore Hole HUREIDAH-2

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY; 1st
0 20 40 60



A-4.1.3 (18) Composite Bore Hole ANDHUR-1 GAMMA/API

GAMMA/API

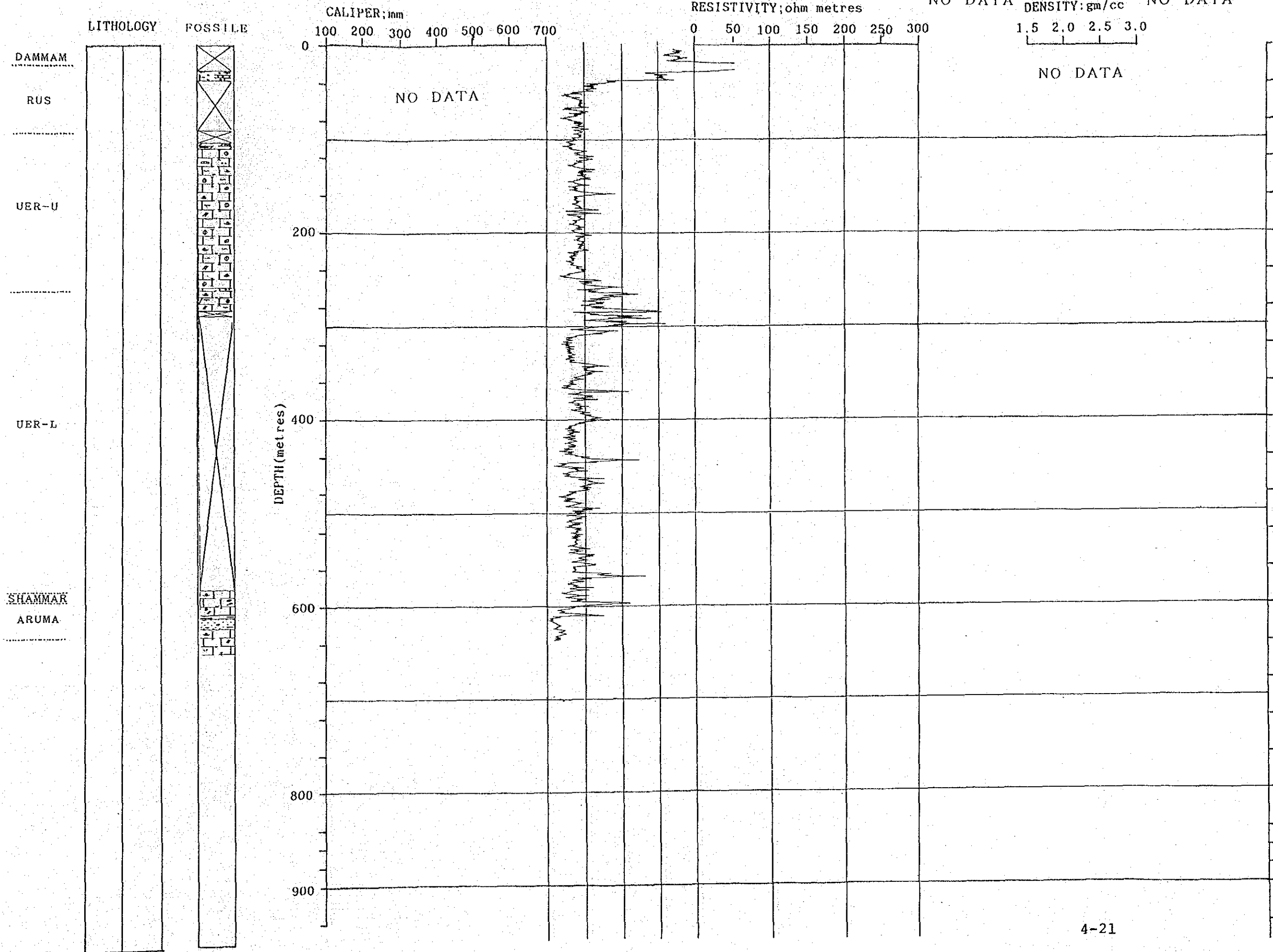
0 20 40 60 80

SELF POTENTIAL

500 600 700 800

POROSITY; 1st

0 20 40 60



A-4.1.3(19) Composite Bore Hole KHAWTAR-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY;1st
0 20 40 60

LITHOLOGY FOSSILE

CALIPER;mm
100 200 300 400 500 600 700

RESISTIVITY;ohm metres
0 50 100 150 200 250 300

DENSITY;gm/cc
1.5 2.0 2.5 3.0

NO DATA

NO DATA

NO DATA

NO DATA

NO DATA

DEPTH(metres)

DAMMAN

RUS

UER-U

UER-L

SHAMMAR

FIQA

0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY;1st
0 20 40 60

LITHOLOGY

FOSSILE

CALIPER;mm

100 200 300 400 500 600 700

RESISTIVITY;ohm metres

0 50 100 150 200 250 300

NO DATA

DENSITY;gm/cc

1.5 2.0 2.5 3.0

NO DATA

NO DATA

UER-U

UER-L

SHAMMAR

NATIH

DEPTH(metres)

600

800

900

A-4. 1. 3 (21) Composite Bore Hole DIMEET-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY;1st
0 20 40 60

LITHOLOGY

FOSSILE

CALIPER;mm
100 200 300 400 500 600 700

RESISTIVITY;ohm metres
0 50 100 150 200 250 300

NO DATA DENSITY;gm/cc NO DATA
1.5 2.0 2.5 3.0

RUS

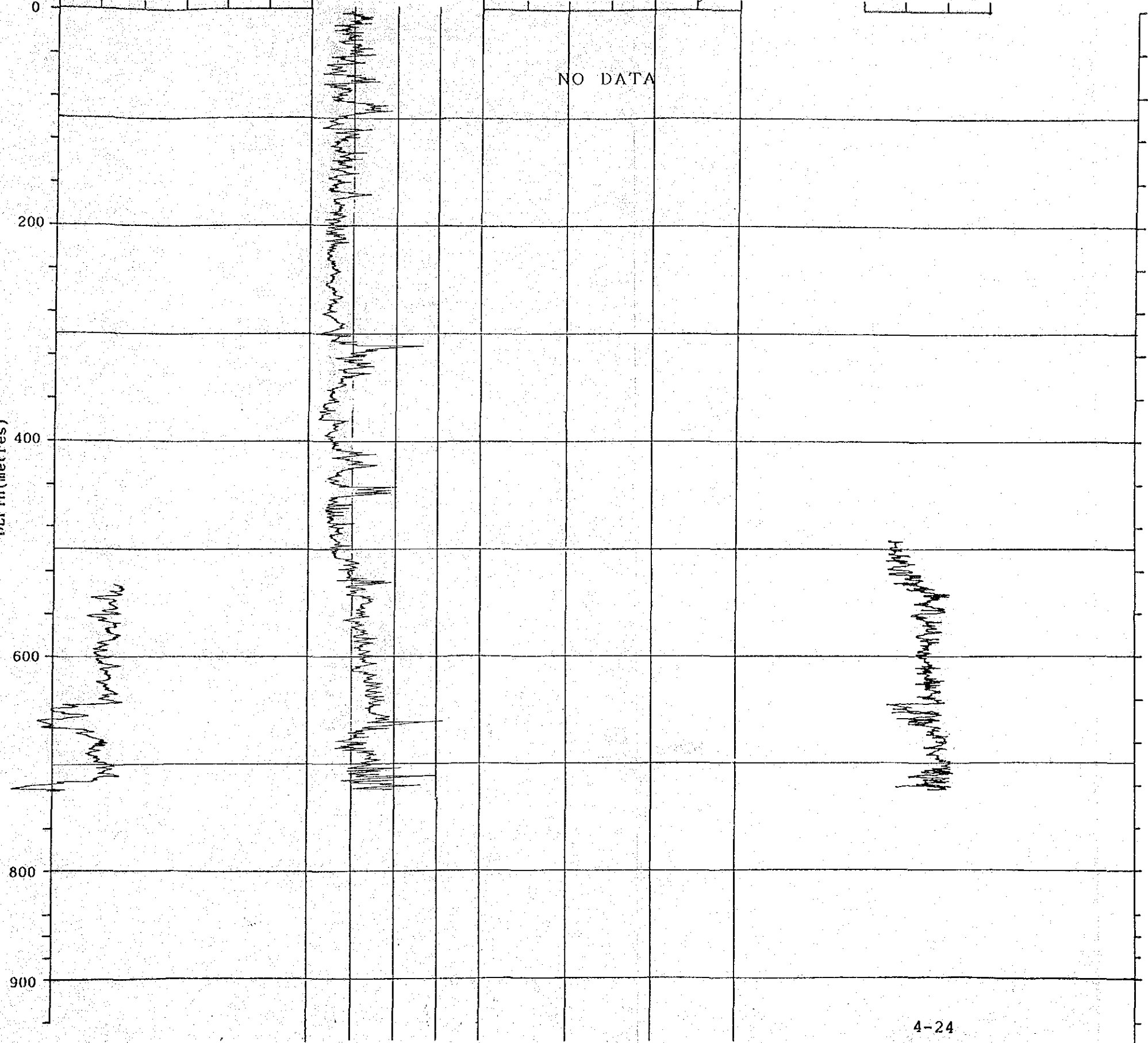
UER-U

UER-L

ARUMA

NATIH

DEPTH (metres)

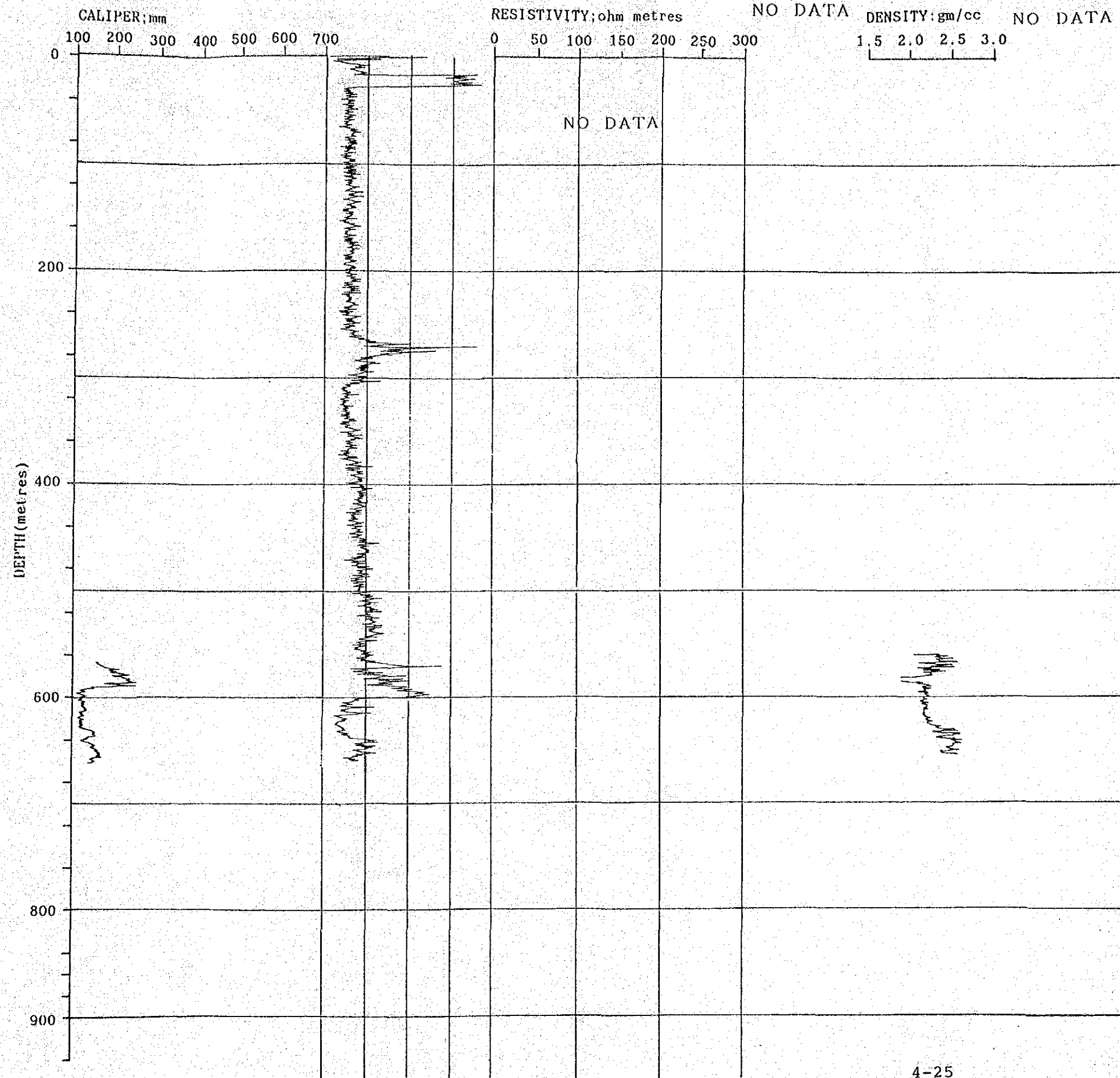
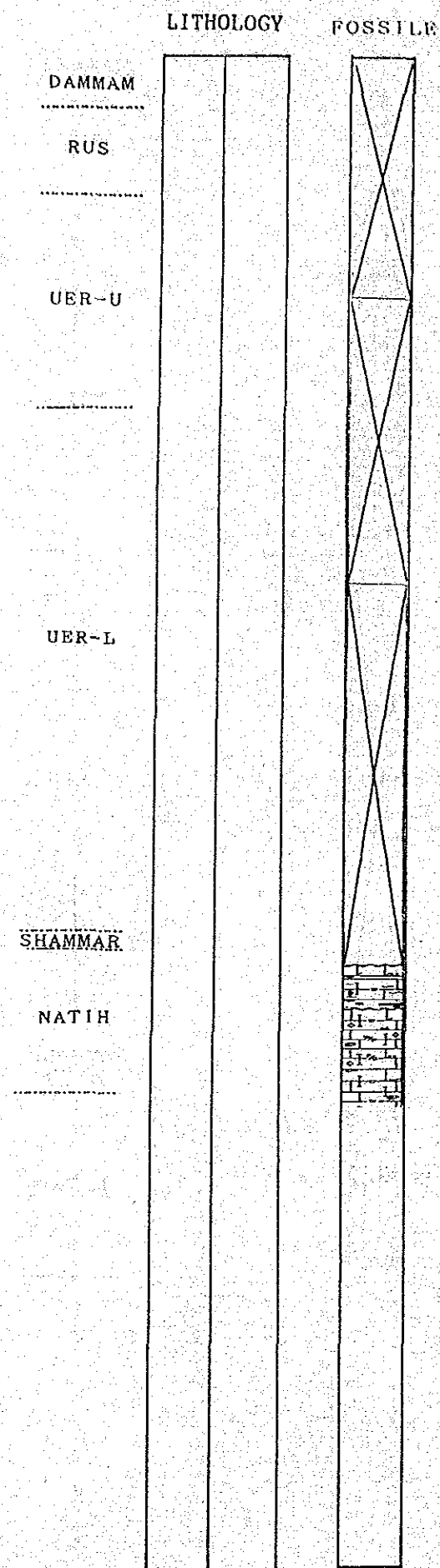


A-4. 1. 3 (22) Composite Bore Hole DURRA-1

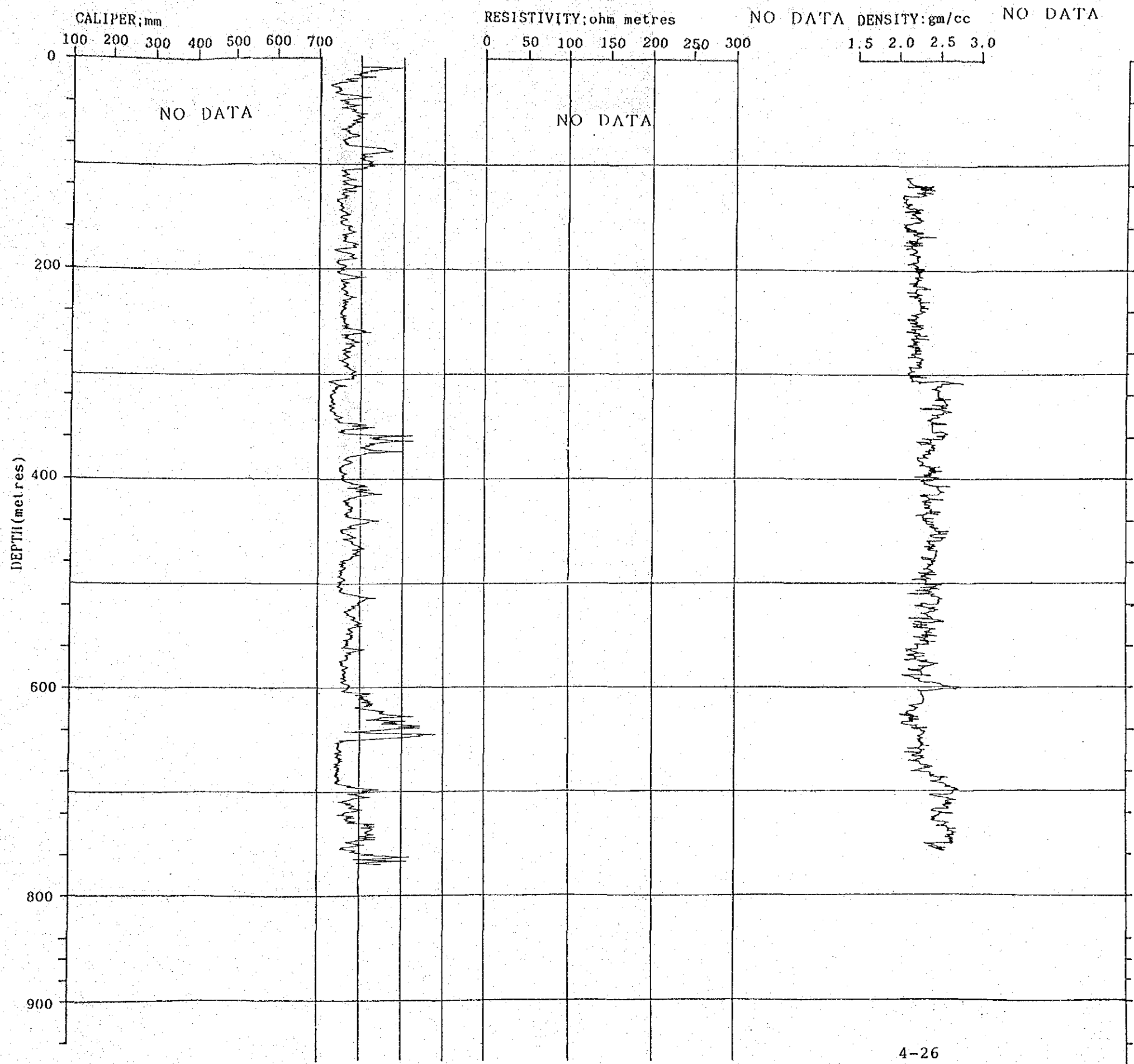
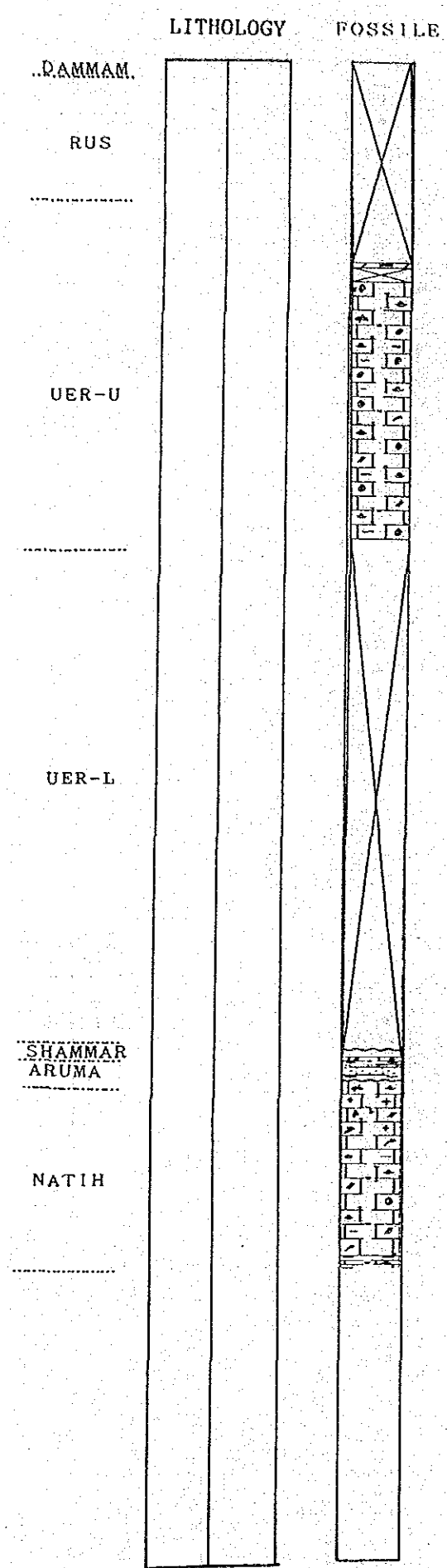
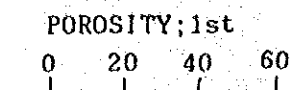
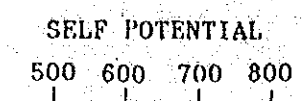
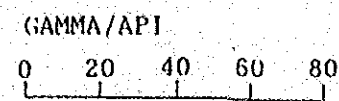
GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY; 1st
0 20 40 60



A-4. 1. 3 (23) Composite Bore Hole BIRBA-1



A horizontal number line with tick marks at 0, 20, 40, 60, and 80.

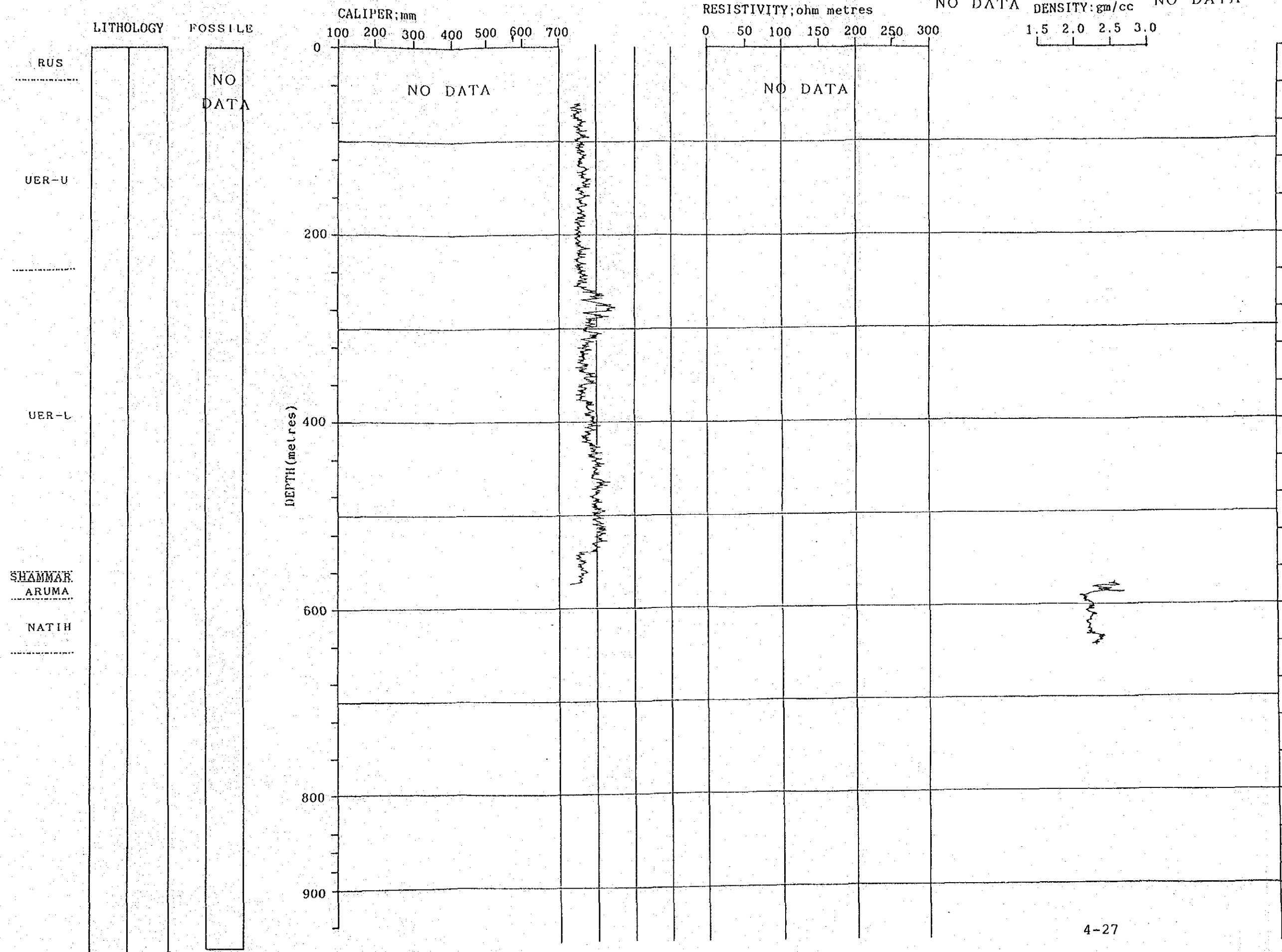
SELF POTENTIAL

500 600 700 800



POROSITY; 1st

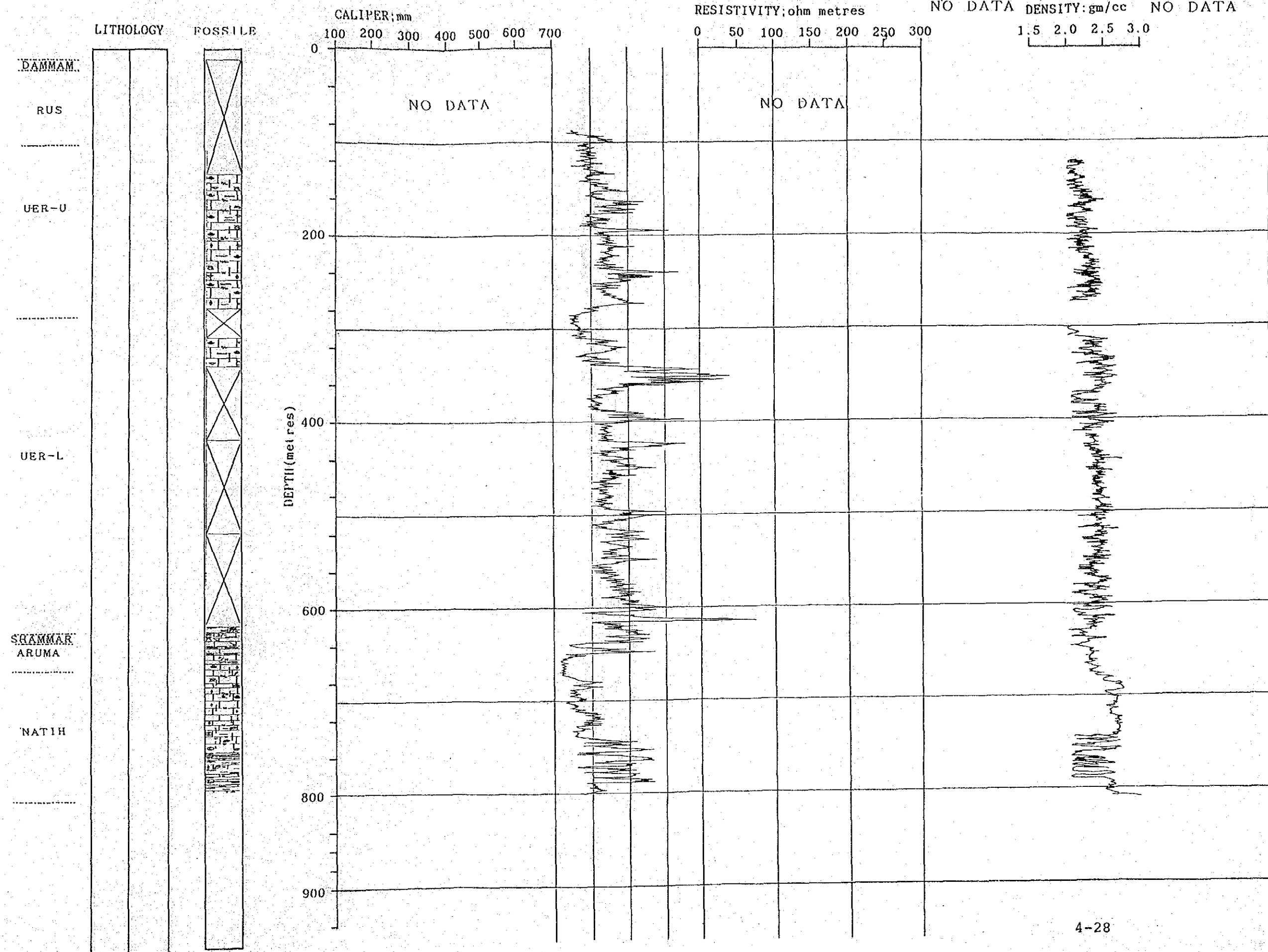
0 20 40 60



0 20 40 60 80

500 600 700 800

0 20 40 60

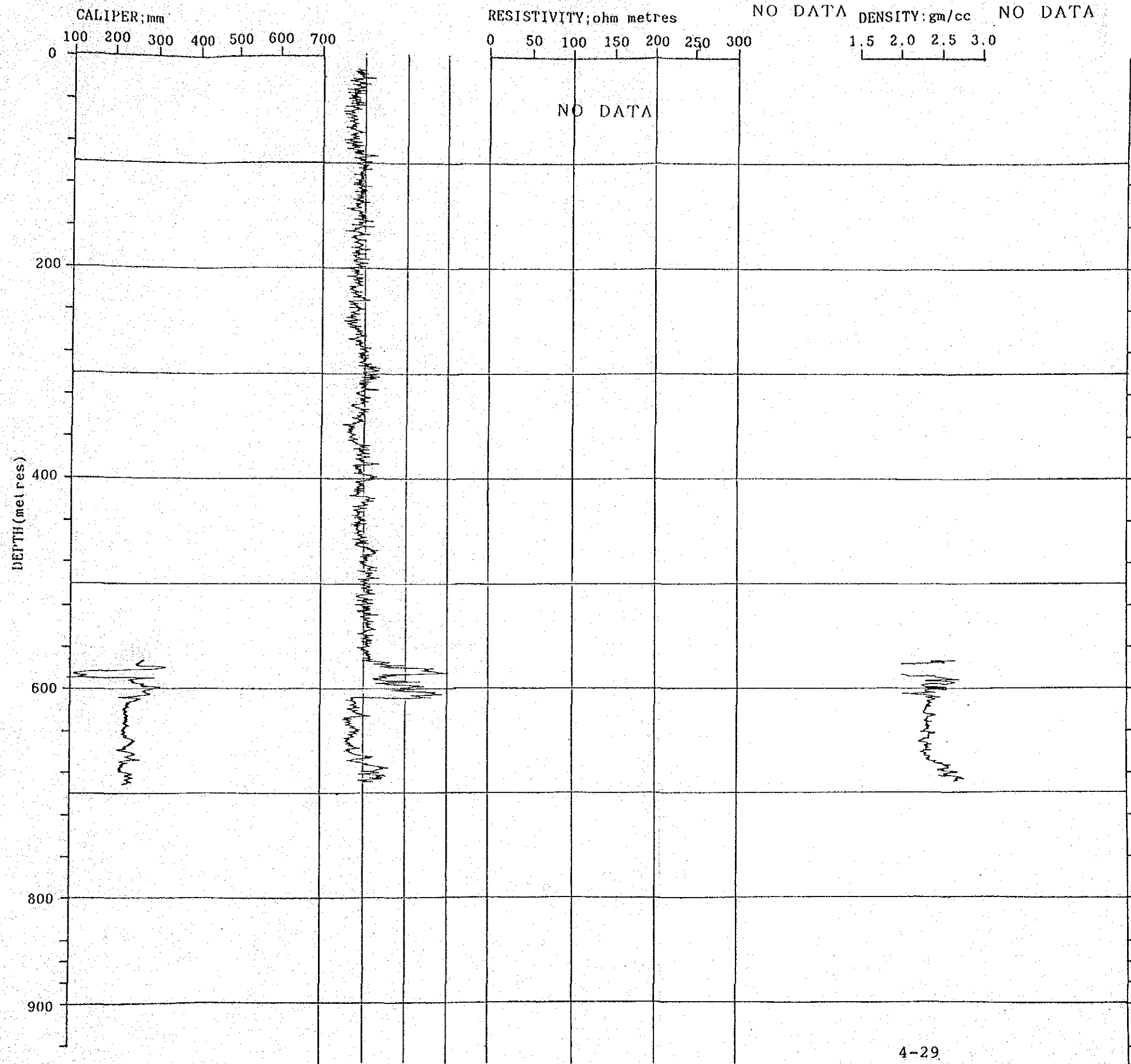
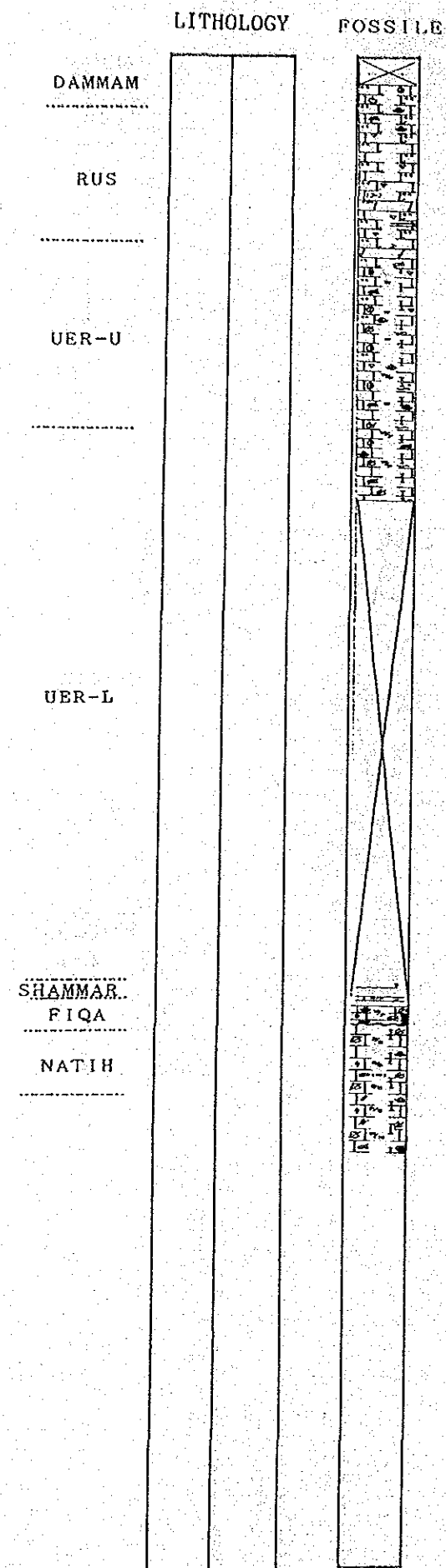


A-4. 1. 3 (26) Composite Bore Hole OMRAAN-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY: 1st
0 20 40 60

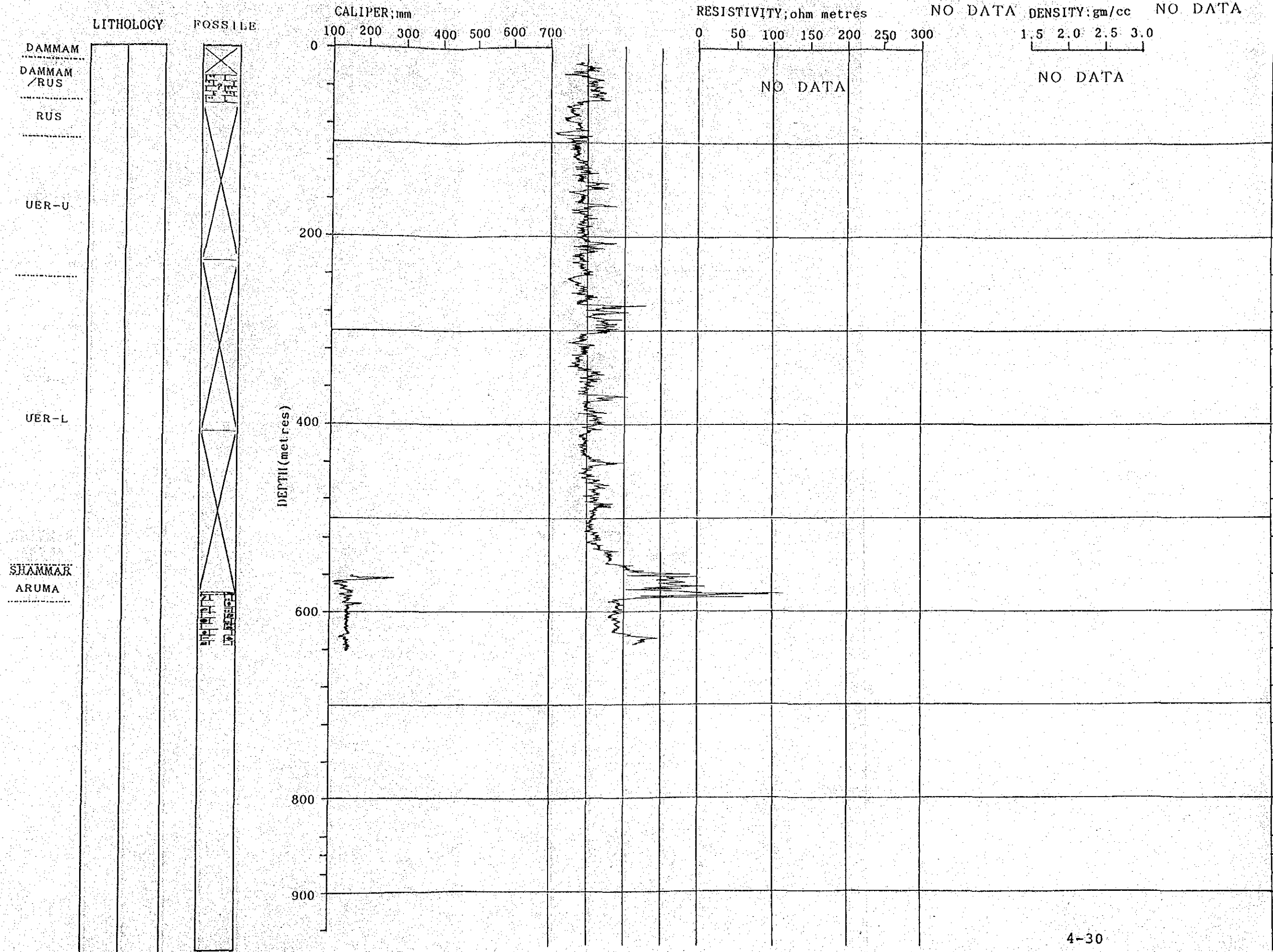


A-4. 1. 3 (27) Composite Bore Hole RANADAH-1

GAMMA/API
0 20 40 60 80

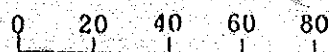
SELF POTENTIAL
500 600 700 800

POROSITY; 1st
0 20 40 60

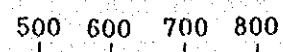


A-4. 1. 3 (28) Composite Bore Hole RANADAH-2

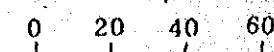
(GAMMA/AP I)



SELF POTENTIAL



POROSITY; 1st



LITHOLOGY

FOSSILE

CALIPER: mm

RESISTIVITY: ohm metres

NO DATA

DENSITY: gm/cc

NO DATA

DAMMAM
/RUS

RUS

VER-U

U E R - L

SHAMMAR.
ARUMA

NATH

NO DATA

NO DATA

DEPTH (metres)

600

800

900

4-31

A-4. 1. 3 (29) Composite Bore Hole WA'AD-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY; 1st
0 20 40 60

LITHOLOGY

FOSSILE

CALIPER; mm
100 200 300 400 500 600 700

RESISTIVITY; ohm metres
0 50 100 150 200 250 300

NO DATA

DENSITY; gm/cc
1.5 2.0 2.5 3.0

NO DATA

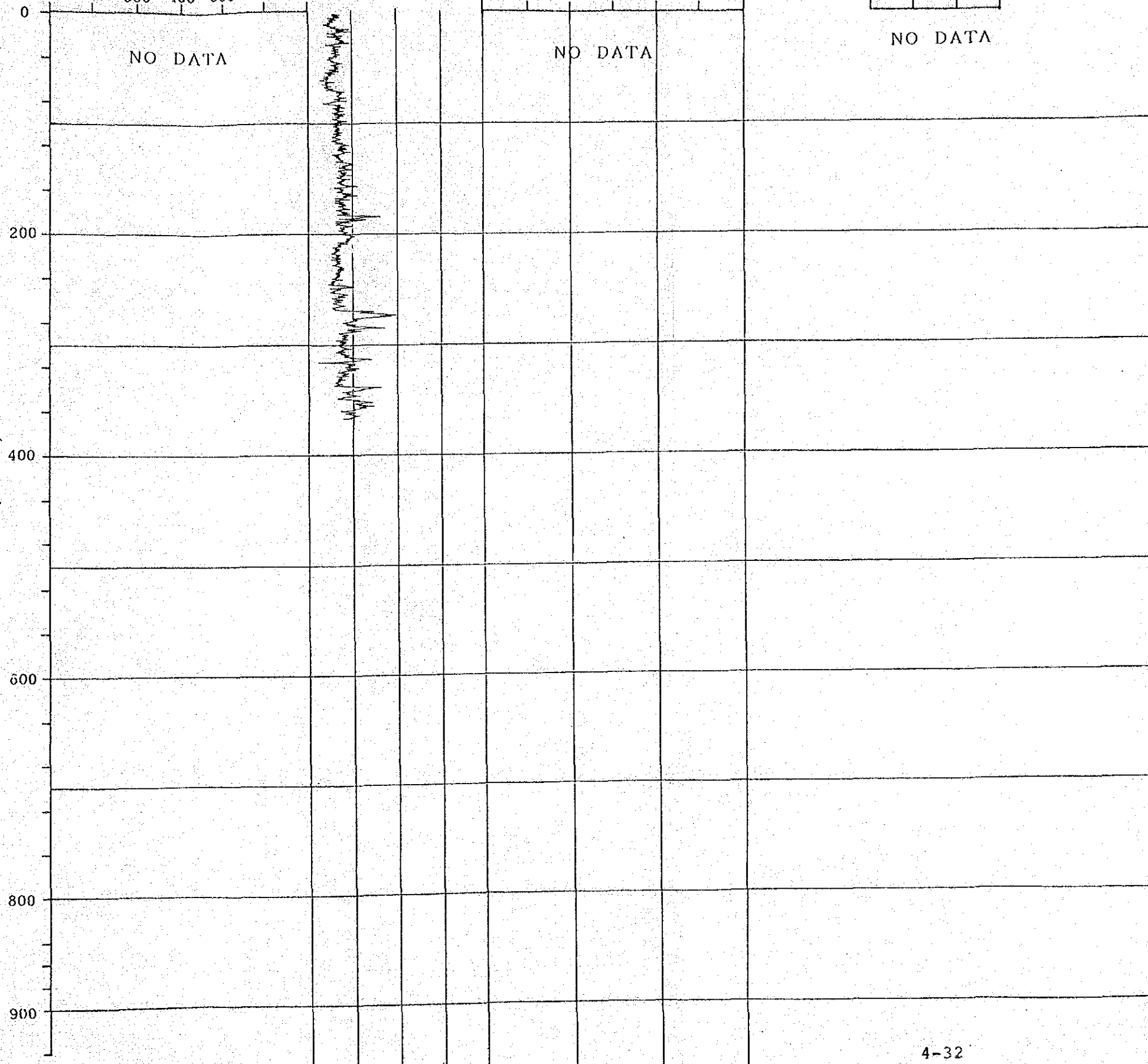
DAMMAM

RUS

UER-U

UER-L

DEPTH (metres)



A-4.1.3 (30) Composite Bore Hole ARBA SOUTH-1

GAMMA/API
0 20 40 60 80

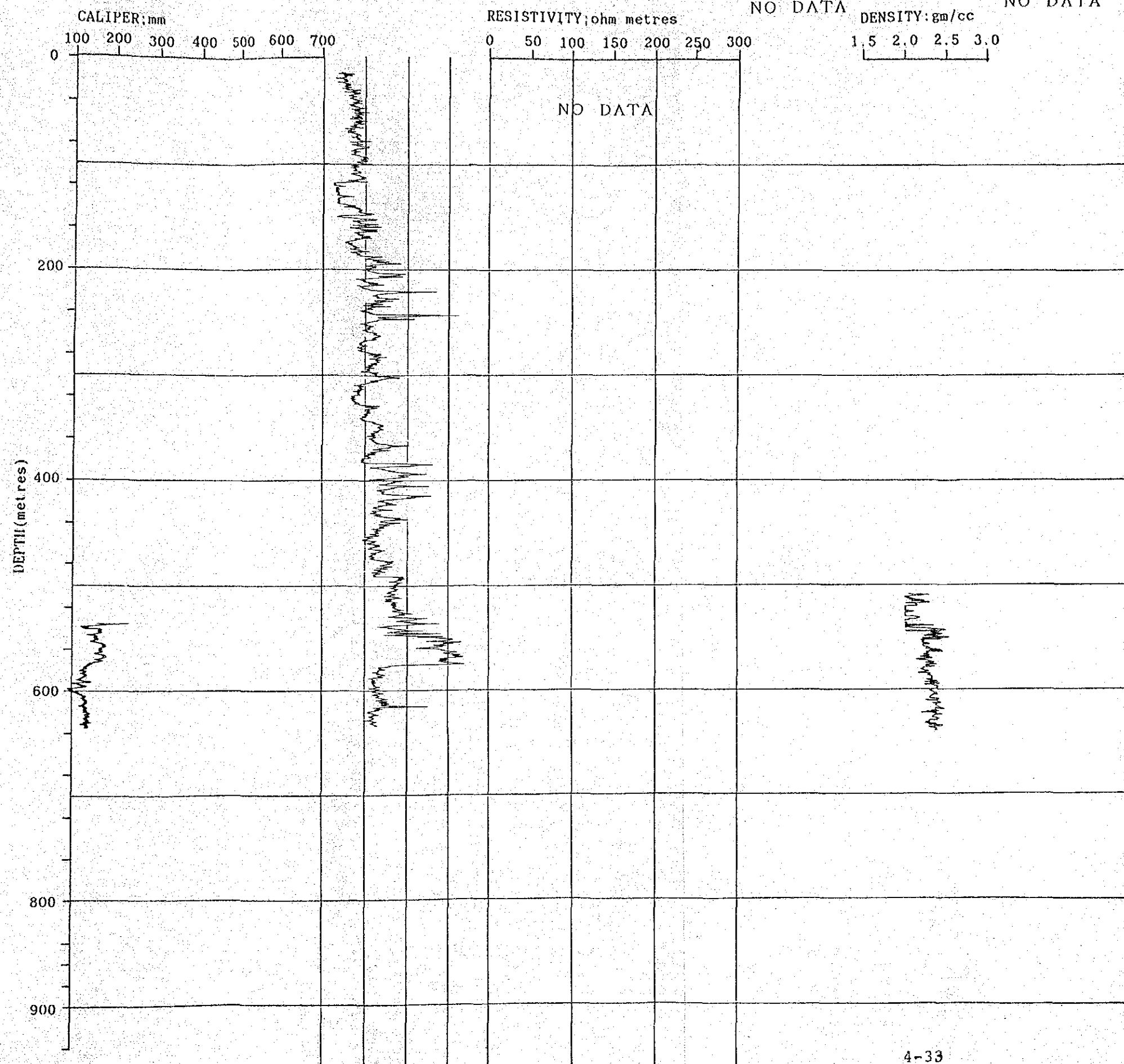
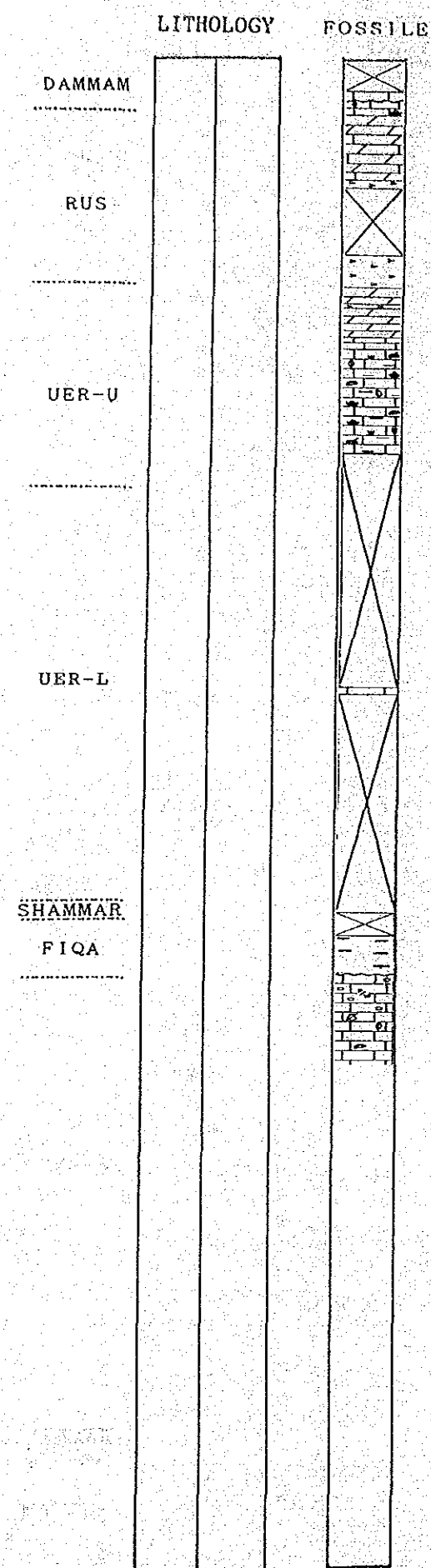
SELF POTENTIAL
500 600 700 800

POROSITY; 1st
0 20 40 60

NO DATA

DENSITY: gm/cc
1.5 2.0 2.5 3.0

NO DATA



A-4.1.3(31) Composite Bore Hole AL DHABI-1

GAMMA/API
0 20 40 60 80

SELF POTENTIAL
500 600 700 800

POROSITY;1st
0 20 40 60

LITHOLOGY FOSSILE

CALIPER;mm
100 200 300 400 500 600 700

RESISTIVITY;ohm metres
0 50 100 150 200 250 300

NO DATA DENSITY;gm/cc NO DATA
1.5 2.0 2.5 3.0

DEPTH(metres)

DAMMAM

NO DATA

RUS

UER-U

UER-L

SHAMMAR
ARUMA

NATIH

NO DATA

A-4.1.4(1)

A-4.1.4(1) Chemical and Isotopic Contents of Nejd Groundwater

Sheet 1-1

Sample I.D.	Sampling Date	E.C. (micro S/cm)	pH	Cation (meq/L)			Anion (meq/L)			S.L. (‰)	δ ¹⁸ O (‰)	δ D (‰)	Tritium (T.U.)	Aquifer Zone	Remarks
Nejd JICA site				Na	K	Ca	Mg	CO ₃	HCO ₃	Cl	SO ₄				
ND-1, 400m	88-2-13 12:00	1550	7.8	5.2	0.2	4.7	6.6	1.8	8.5	8.4	-	-	-	C	* Pumping test
"	88-3-13 16:00	1580	7.9	4.6	0.3	4.6	6.5	2.0	8.0	8.0	-	-	-	"	* "
"	88-3-13 20:00	1680	8.0	8.0	0.3	4.0	5.3	2.0	8.3	7.3	-	-	-	"	* "
ND-2, 46m	88-6-2	2350	7.2	25.5	0.3	3.4	5.6	1.4	24.6	8.8	-	-	0.2 ± 0.3	A	* Drilling discharge
"	88-6-22	2020	7.5	7.4	0.3	6.3	5.5	1.1	10.6	7.8	-	-	0.2 ± 0.3	"	* "
"	90m	5090	7.5	8.8	0.3	10.0	6.0	0.8	9.0	14.8	-	-	-	"	* "
"	88-6-25	4800	7.2	5.4	0.3	19.4	5.6	0.9	14.6	14.8	-	-	0.2 ± 0.3	B	* 72hrs pumping
"	88-8-18	1620	7.4	8.3	0.2	3.8	5.8	1.8	8.3	6.0	-	-	-	C	* 24hrs pumping
ND-3, 350m	88-2-22	1650	7.1	6.5	0.4	3.1	5.5	1.4	8.7	5.4	-	-	-	C	* Drilling
ND-4, 175m	88-9-1	-	-	-	-	-	-	-	-	-	-	-	-	B	* discharge
"	88-10-17	1680	7.5	6.7	0.2	2.8	6.2	1.2	8.5	6.0	-	-	-	C	* 72hrs pumping
"	350m	-	-	-	-	-	-	-	-	-	-	-	7.82 ± 0.86	"	* "
Heilat Al-Rahah															
HR-1 South	87-10-21	2840	7.5	14.5	0.3	7.2	6.1	3.1	14.0	11.1	-	-	-	A	* Hubarak Said dug-well
"	89-2-9	4200	7.4	9.4	0.3	16.0	19.0	3.0	27.3	14.8	-	-	-	"	* "
HR-1 North	88-10-19	1560	7.3	7.6	0.2	2.6	6.4	0.7	9.3	6.8	-	-	-	"	* "
"	89-1-15	1360	7.4	6.3	0.2	2.0	6.4	3.8	6.8	4.4	-	-	-	"	* "
HR-2	87-10-21	3780	7.3	20.7	0.3	8.5	7.9	2.9	22.5	12.1	-	-	-	"	* Salem Suhail dug-well
HR-3	84-7-22	1600	7.3	6.6	0.0	5.1	4.5	4.7	7.6	4.0	-	-	-	"	*** Mohamed Masud dug-well
"	87-10-25	3720	7.5	20.4	0.3	8.4	7.4	3.0	23.6	10.3	-	-	<0.94	"	* "
"	88-10-19	6240	7.3	29.8	0.2	10.2	13.2	1.0	40.3	12.1	-	-	-	"	* "
Dauka															
AF961640AA	85-10-23	1480	7.1	7.2	0.4	5.2	3.6	4.7	6.9	3.0	-	-	1.1 ± 1.2	C	**
"	87-10-26	1530	7.5	6.8	0.4	3.4	5.4	2.2	6.3	8.8	-	-	-	"	* JICA data

*** DCAF, Salalah, data

A-4. 1. 4 (2)

A-4.1.4(2) Chemical and Isotopic Contents of Nejd Groundwater

Sheet 1-2

Sample I.D.	Sampling Date	E.C. (micro S/cm)	pH	Cation (meq/L)				Anion (meq/L)				S.I. (%)	$\delta^{18}O$	δD	$\delta^{13}C$ (‰C)	Tritium (T.U.)	Aquifer Zone	Remarks
				Na	K	Ca	Mg	CO ₃	HCO ₃	Cl	SO ₄							
Wadi Mokharrim BF268460AA	85-12-19	1650	7.0	7.0	0.3	4.0	5.2	4.7	7.1	5.8	-	5.37	-38.9	0.8 ± 0.7	C	##		
"	87-11-4	1700	7.3	8.7	0.3	4.4	6.0	2.5	7.3	9.3	-	-	-	-	"	*		
Shahr YAT15978AA	85-10-24	1370	7.4	6.0	0.3	3.6	4.5	2.9	6.0	2.6	-	4.82	-32.2	0.8 ± 1.0	C	##		
"	87-10-28	1420	7.5	6.7	0.3	3.1	4.9	3.1	6.7	4.9	-	5.1	-30.2	-	"	*		
"	89-1-18	2150	7.3	12.4	0.2	3.9	5.4	6.8	5.9	8.8	-	-	-	-	"	*		
Wadi Dauka North ZA083301AA	85-10-24	1540	7.5	5.4	0.3	5.4	4.4	2.8	6.4	4.8	-	5.17	-35.4	0.8 ± 0.9	C	##		
"	87-10-25	1570	7.4	7.2	0.3	3.9	5.2	2.8	6.5	7.1	-	5.4	-34.3	-	"	*		
"	87-11-21	1570	7.8	7.6	0.3	4.4	6.4	2.7	6.2	9.8	-	-	-	-	"	*		
"	87-11-22	-	-	-	-	-	-	-	-	-	-	-	-	5.39 ± 1.07	-	"	*	
"	88-10-19	-	-	-	-	-	-	-	-	-	-	-	-	8.24 ± 0.71	-	"	*	
Wadi Dauka South ZV099779AA	86-4-10	1450	6.6	-	-	-	-	-	-	-	-	-	5.32	-31.5	0.8 ± 0.7	C	##	
"	87-11-22	1250	7.5	8.3	0.4	1.1	5.0	1.2	8.8	4.7	-	-	-	-	"	*		
Wadi Qutbeet BF410841AA	85-8-21	2050	-	-	-	-	-	-	-	-	-	-	4.91	-32.6	C	##		
KW9 AF920700AA	87-11-22	2980	7.3	7.4	0.4	19.6	11.8	0.9	6.7	31.5	-	-	-	-	C?	*		
KW2 AF808848AA	87-10-26	1850	7.8	10.2	0.4	2.3	4.1	1.3	11.1	4.4	-	-	-	-	C?	*		
KW25 AF872525AA	87-10-26	4090	7.6	24.8	0.3	9.1	7.1	2.3	23.8	15.0	-	-	-	-	C?	*		
Wadi bin Watash YV892605AA	87-10-28	1560	7.1	7.0	0.2	3.8	6.2	4.2	5.6	7.7	-	4.4	-25.1	-	A	*		
Qutbeet Shallow well	87-11-21	2320	7.6	12.4	0.2	6.8	5.4	2.2	12.1	10.2	-	-	-	-	A	*		
Shahr Tube well	87-10-28	1410	7.6	6.3	0.3	4.3	3.3	2.9	6.2	4.7	-	-	-	-	A?	*		
"	89-1-18	1520	7.4	5.7	0.2	4.0	8.1	2.2	6.0	9.8	-	-	-	-	"	*		
Falaj	"	1680	7.4	3.8	0.2	5.0	11.0	2.8	7.0	9.8	-	-	-	-	A	*		
Dug well	"	1590	7.1	4.4	0.1	2.5	8.0	2.8	4.7	5.7	-	-	-	-	A	* Said Musallim		
Wadi JICA site Dug well	89-1-26	2320	7.5	8.0	0.2	3.8	9.4	2.3	7.4	11.7	-	-	-	-	A	*		
Qairoon Hairitti Tube well	87-11-26	660	7.4	2.2	0.0	3.8	2.7	4.4	1.6	2.4	-	-	-	-	-	*		

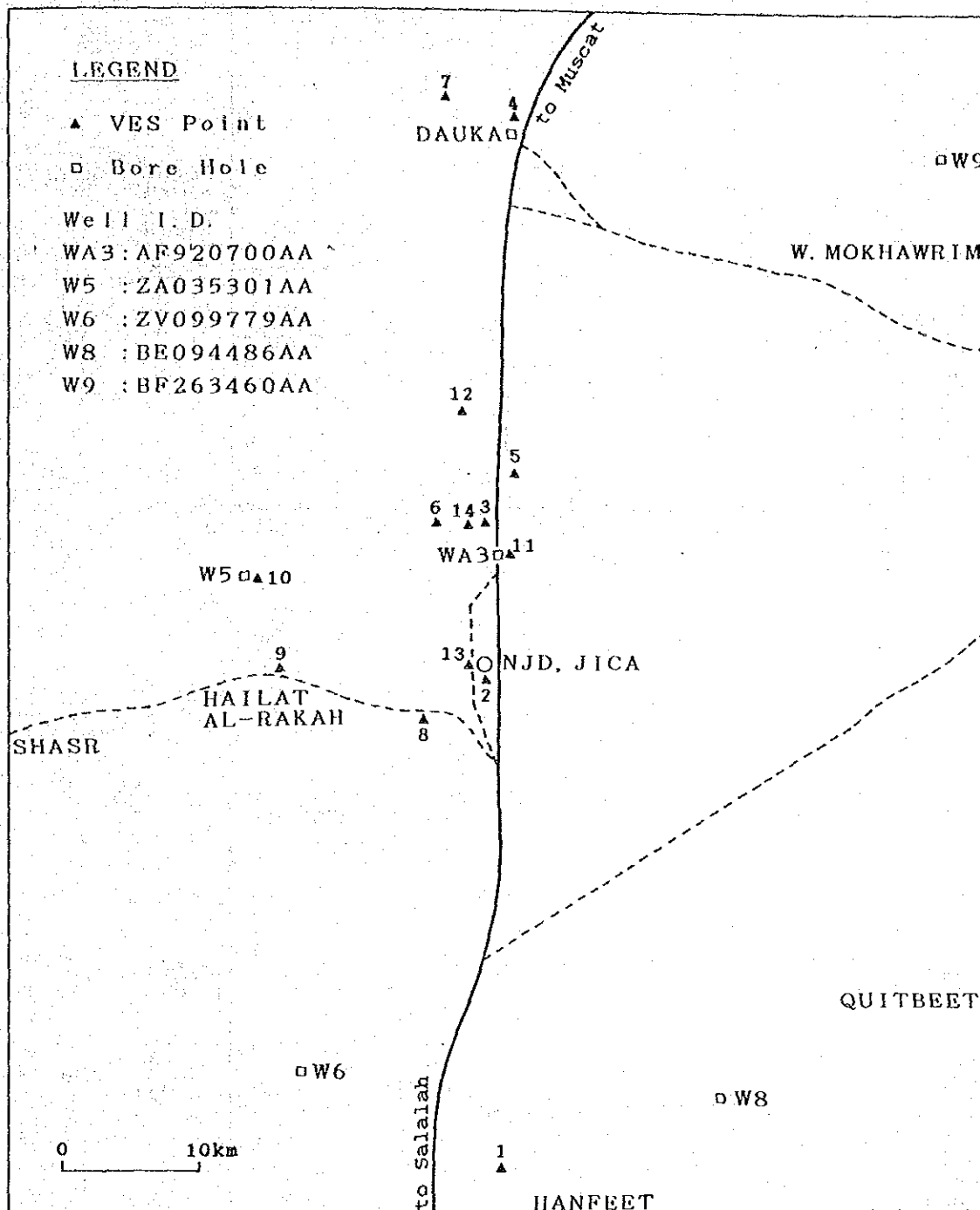
* JICA data ## PAWR data ### DGC. Salinity data

APPENDIX A-4.2

Electrical Prospecting

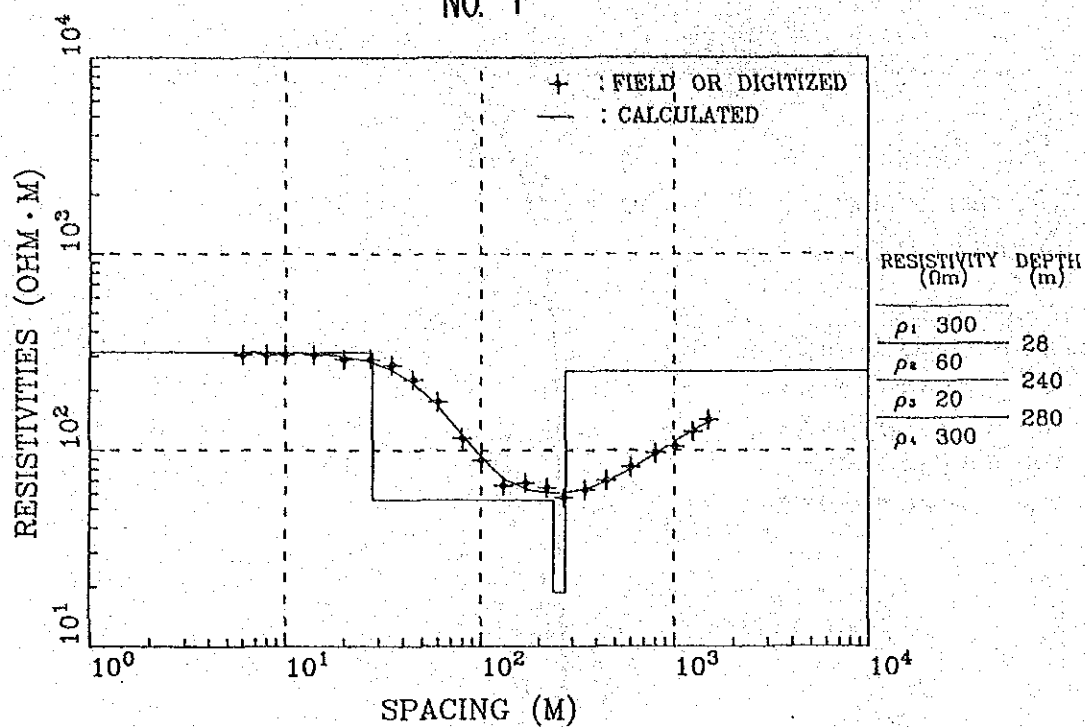
	<u>Page</u>
A-4.2.1 Location of VES Point	4 - 37
A-4.2.2(1)-(7) VES Curve and Analysed Resistivity Structure	4 - 38
A-4.2.3(1)-(7) Original Print-out of VES Data and Analytical Results	4 - 45

A-4. 2. 1 Location of VES Point

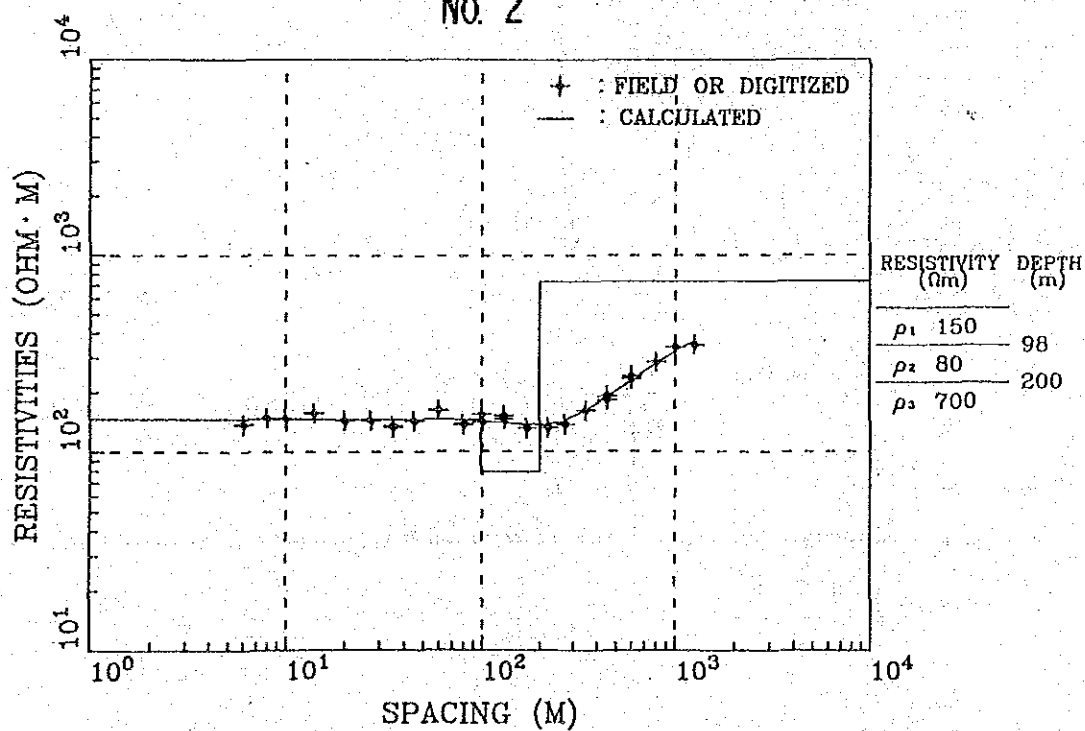


A-4. 2. 2-(1) VES Curve and
Analysed Resistivity Structure

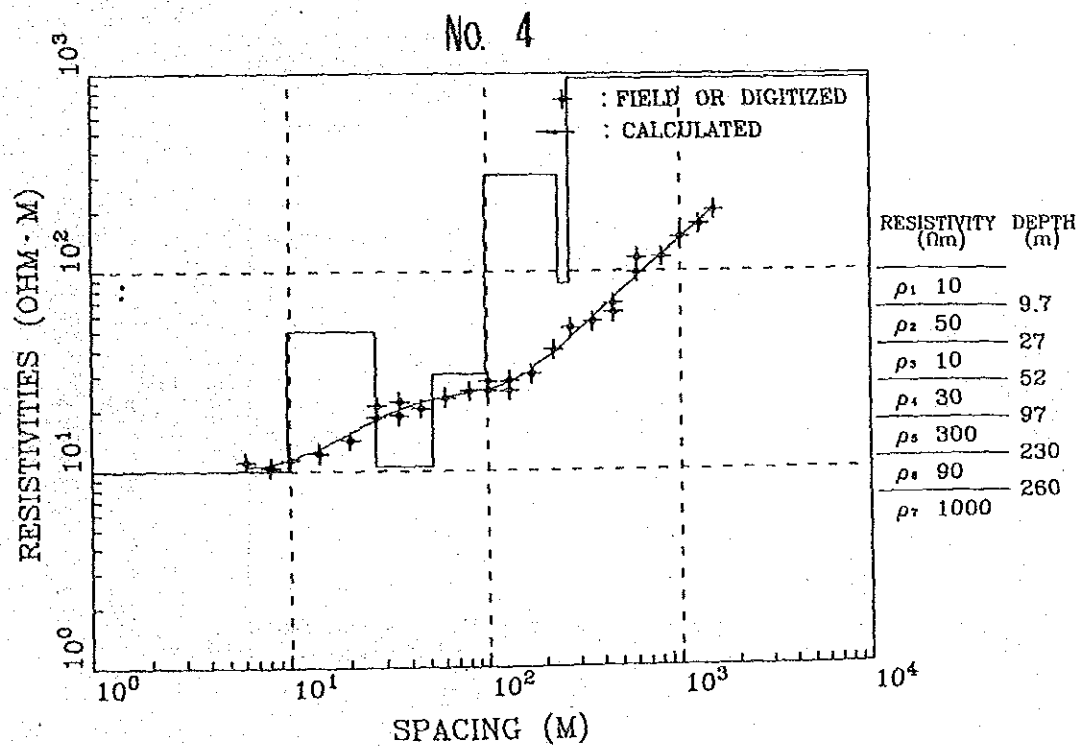
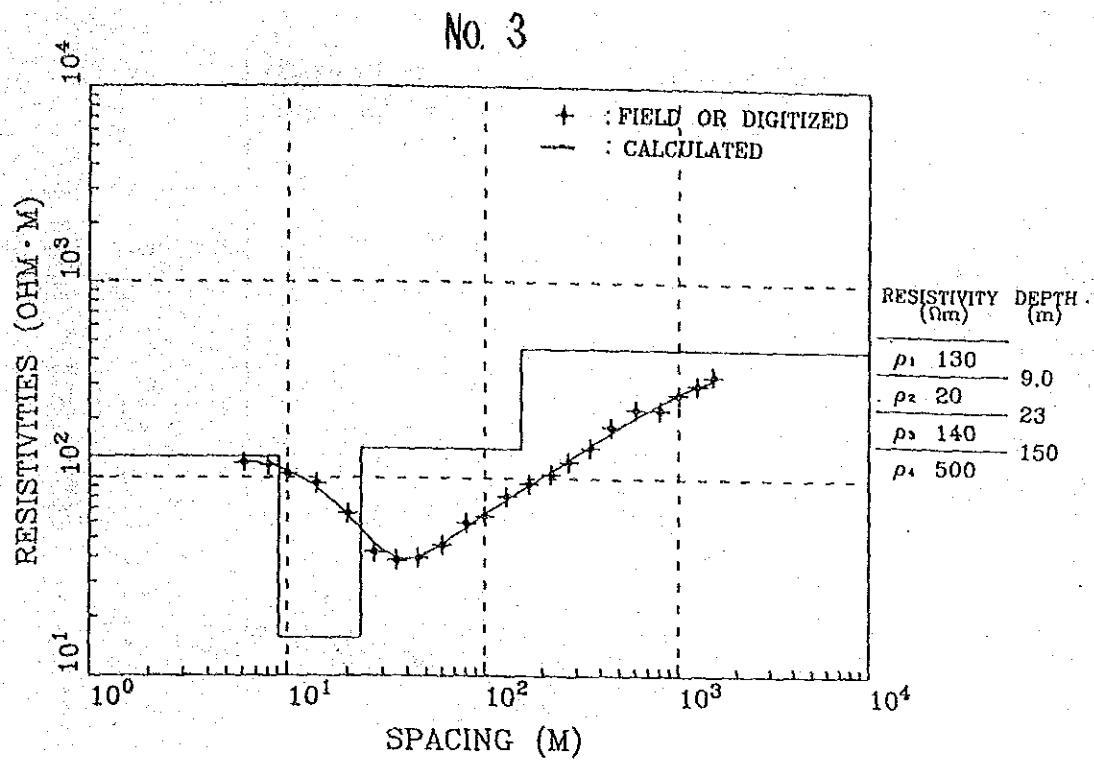
No. 1



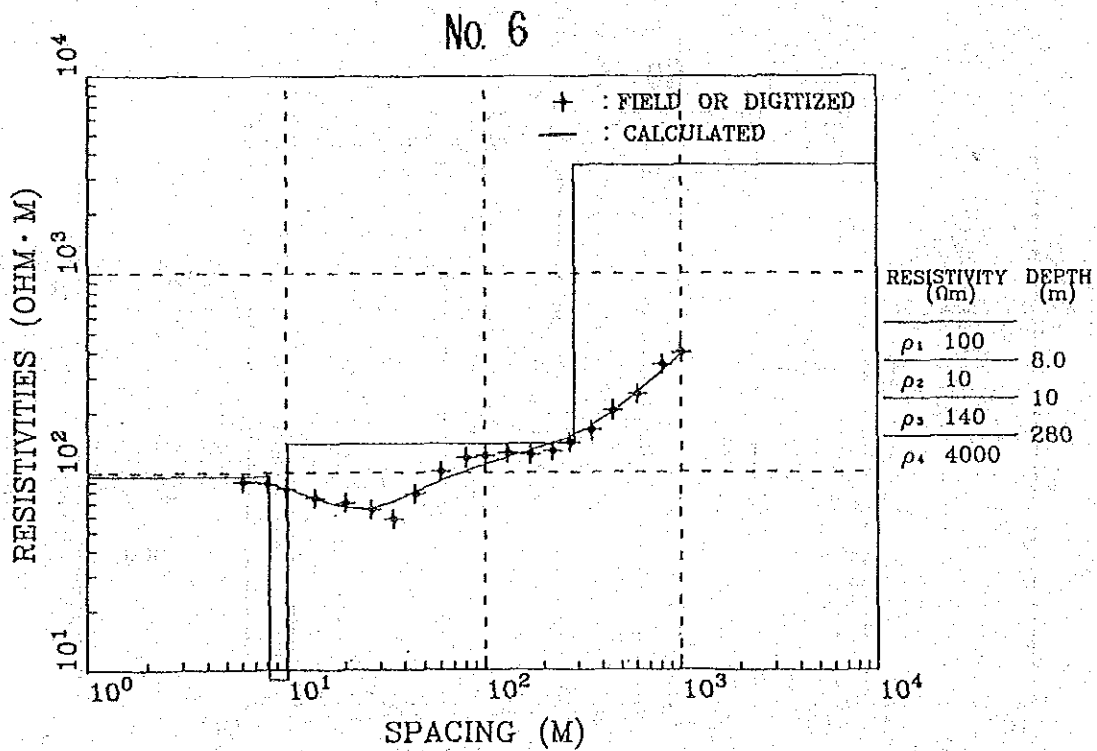
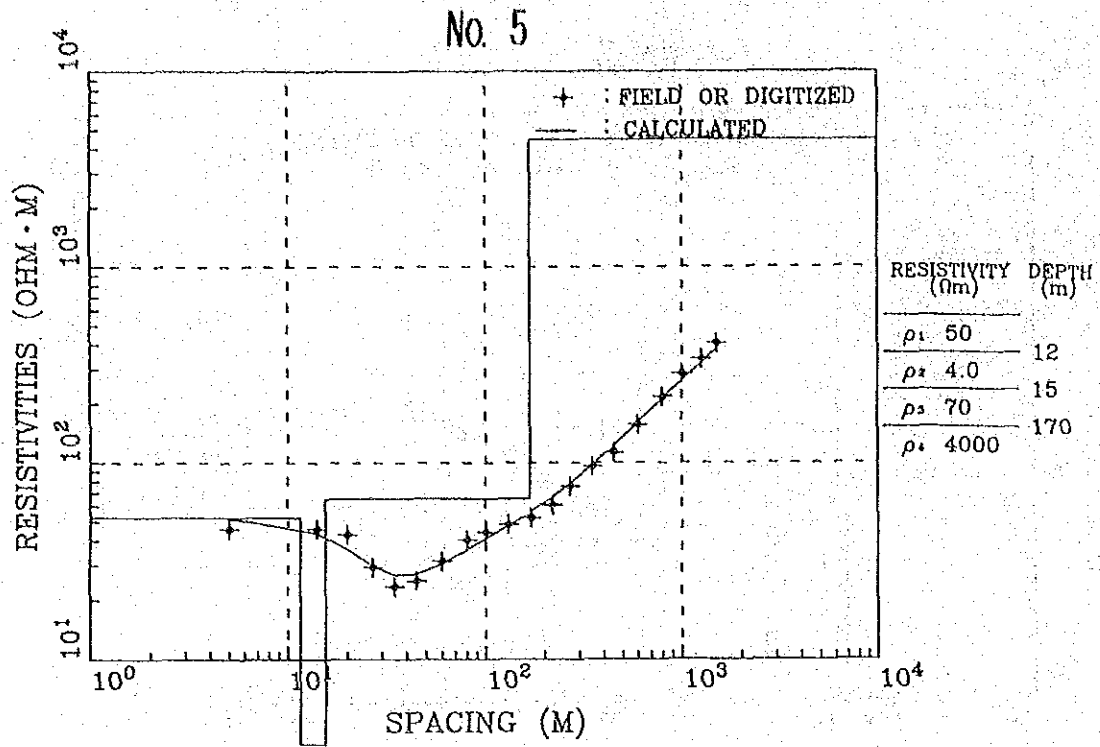
No. 2



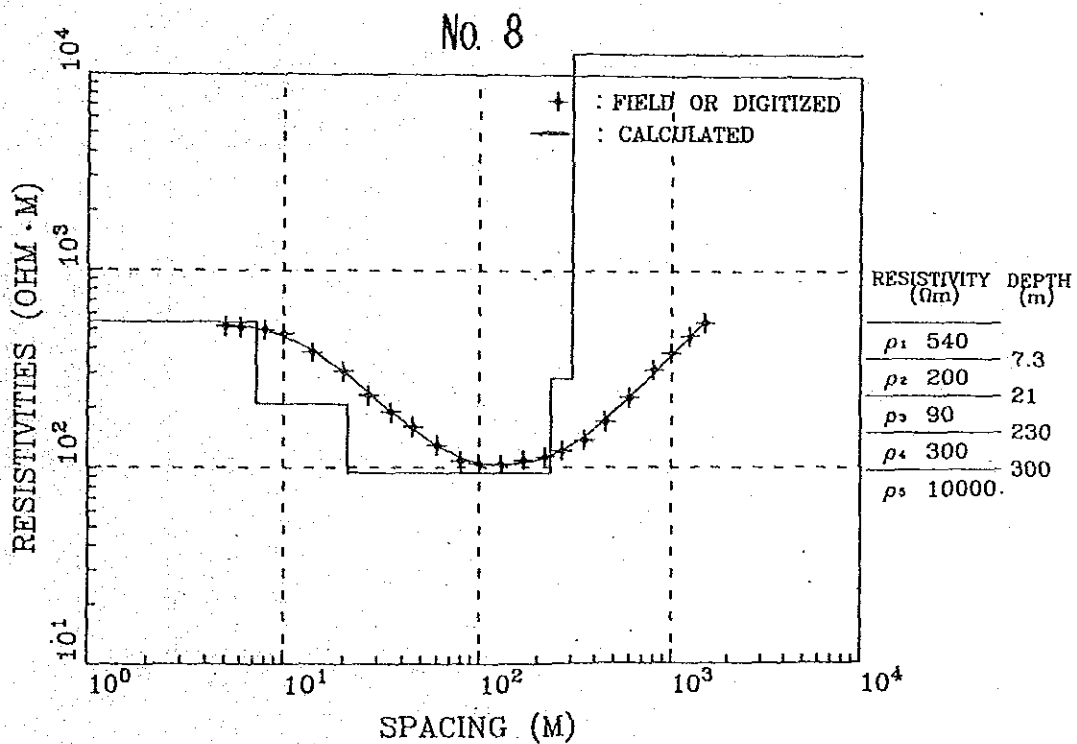
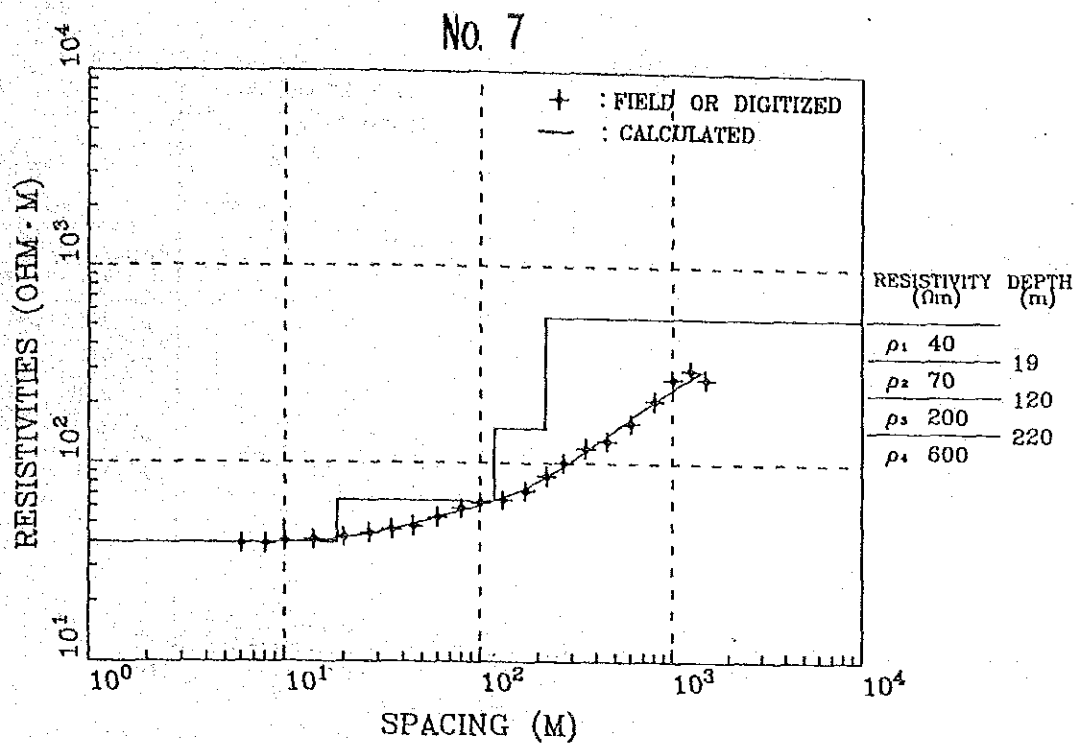
A-4. 2. 2-(2) VES Curve and
Analysed Resistivity Structure



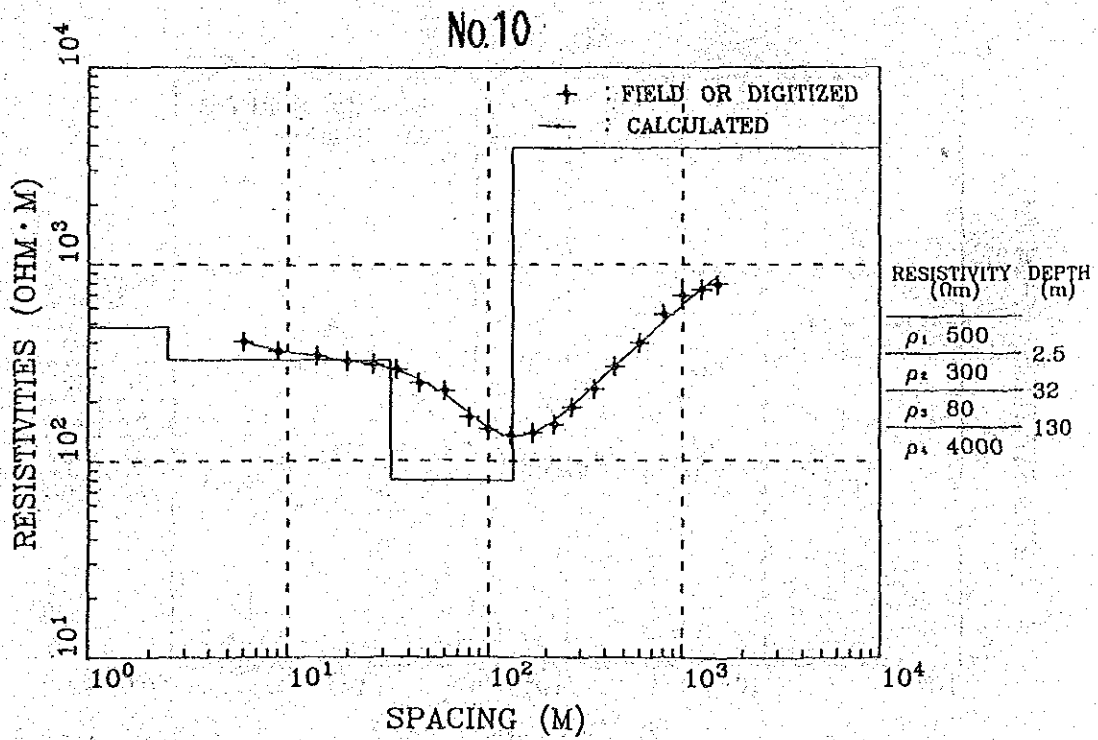
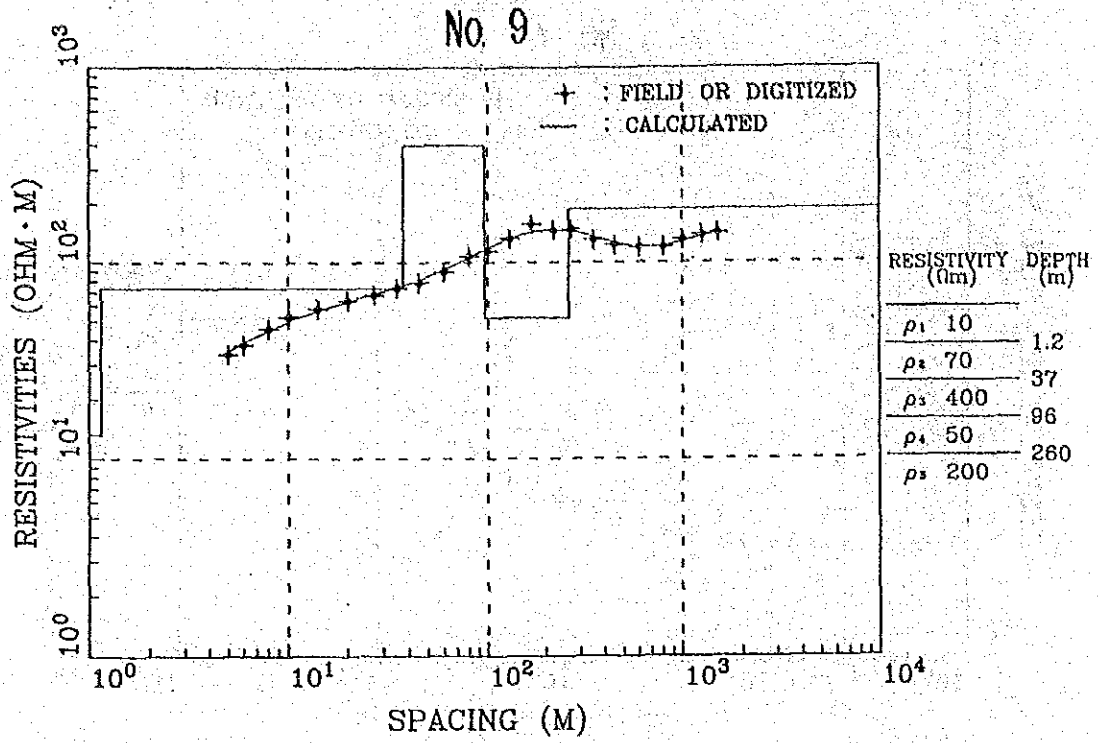
A-4. 2. 2-(3) VES Curve and
Analysed Resistivity Structure



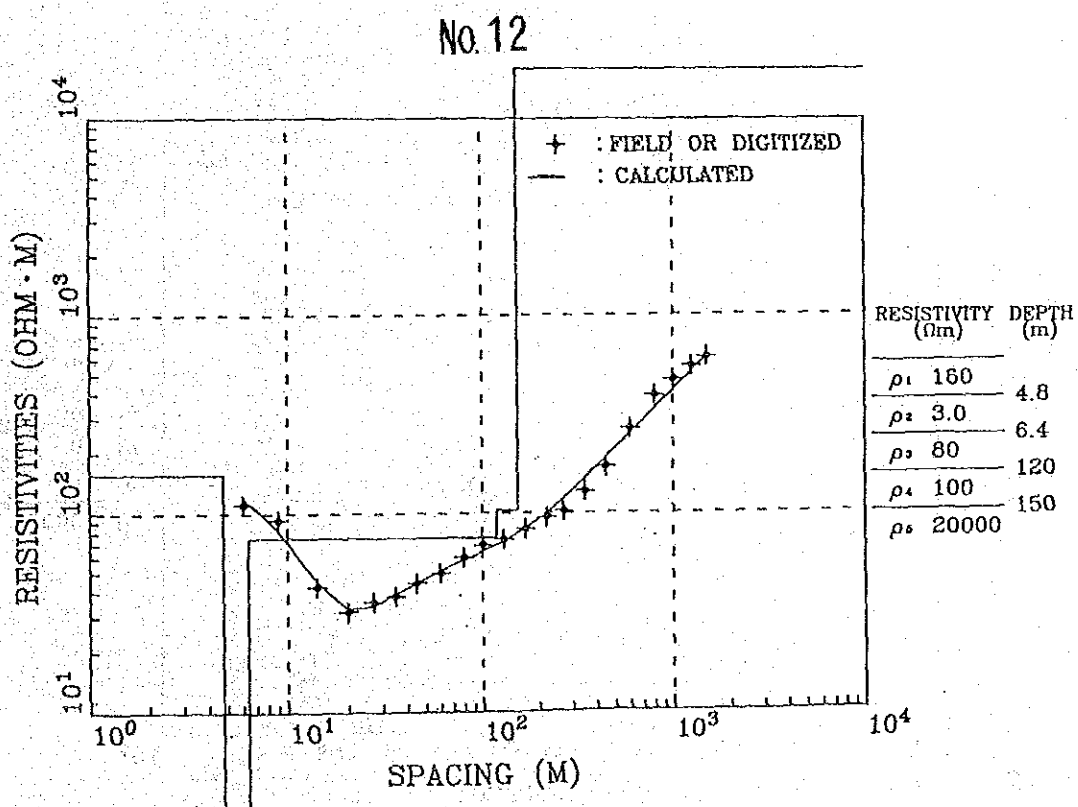
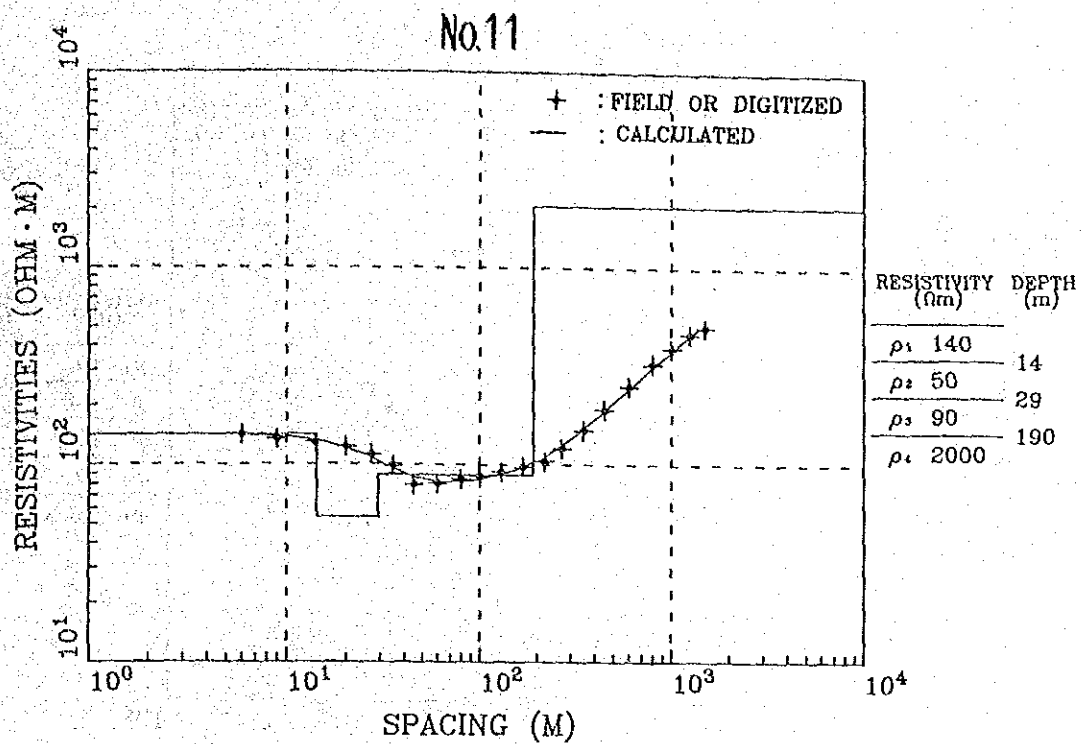
A-4. 2. 2-(4) VES Curve and
Analysed Resistivity Structure



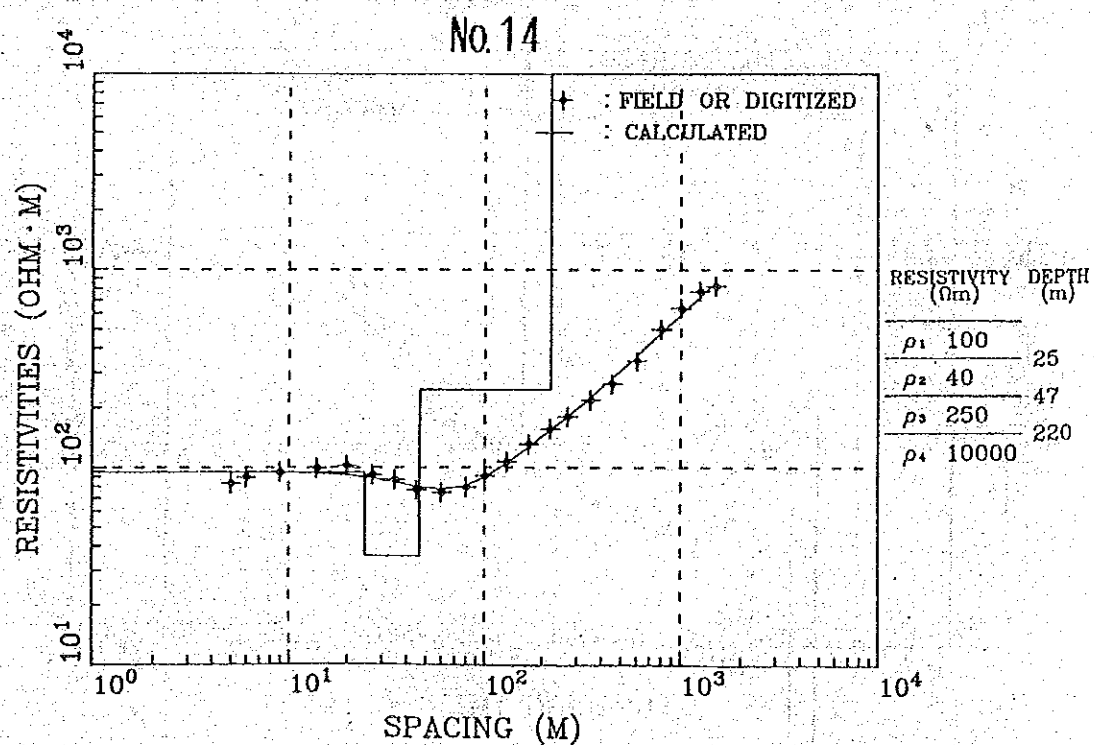
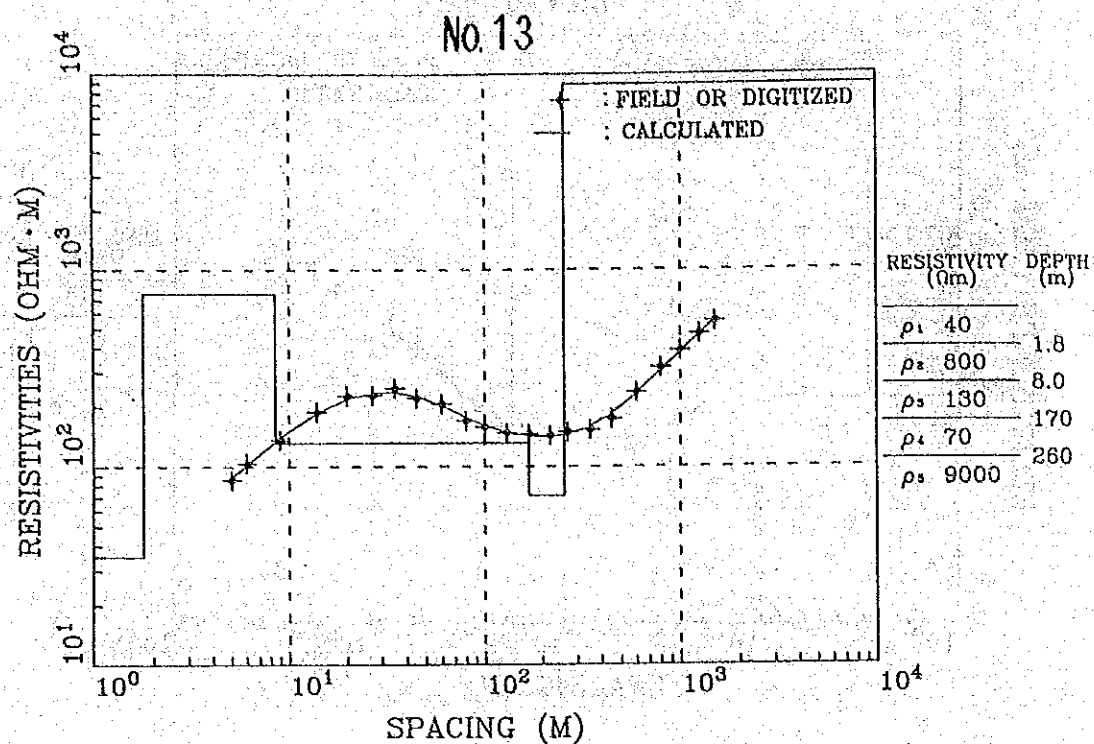
A-4. 2. 2- (5) VES Curve and
Analysed Resistivity Structure



A-4. 2. 2-(6) VES Curve and
Analysed Resistivity Structure



A-4. 2. 2-(7) VES Curve and
Analysed Resistivity Structure



A-4.2.3(1) Original Print-Out of VES Data and Analytical Results, No.1 & No.2

MODEL: 4 LAYERS
RESISTIVITIES:
3.15E+02 5.58E+01 1.98E+01 2.52E+02
THICKNESSES:
2.78E+01 2.12E+02 3.67E+01
SPACING DATA CALC % ERROR
6.00E+00 3.05E+02 3.14E+02 -2.374
8.00E+00 3.05E+02 3.13E+02 -2.668
1.00E+01 3.05E+02 3.12E+02 -2.334
1.40E+01 3.05E+02 3.07E+02 -1.185
2.00E+01 2.90E+02 2.99E+02 -2.992
2.70E+01 2.90E+02 2.81E+02 3.054
3.50E+01 2.71E+02 2.55E+02 6.270
4.50E+01 2.28E+02 2.18E+02 4.372
6.00E+01 1.74E+02 1.65E+02 4.953
8.00E+01 1.15E+02 1.19E+02 -3.453
1.00E+02 8.87E+01 9.14E+01 -2.761
1.30E+02 6.62E+01 7.19E+01 -7.942
1.70E+02 6.83E+01 6.33E+01 7.980
2.20E+02 6.47E+01 6.07E+01 6.552
2.70E+02 5.75E+01 6.09E+01 -5.623
3.50E+02 6.31E+01 6.36E+01 -0.837
4.50E+02 7.03E+01 6.94E+01 1.257
6.00E+02 8.25E+01 8.06E+01 2.366
8.00E+02 9.73E+01 9.42E+01 3.152
1.00E+03 1.05E+02 1.11E+02 -4.821
1.25E+03 1.25E+02 1.26E+02 -0.927
1.50E+03 1.43E+02 1.39E+02 2.683
SCHL ARRAY, 22 DATA POINTS, DATA = NO.1-3
RMS LOG ERROR = 1.82E-02, ANTILOG YIELDS 4.268 %

MODEL: 3 LAYERS
RESISTIVITIES:
1.46E+02 7.92E+01 7.32E+02
THICKNESSES:
9.82E+01 1.31E+02
SPACING DATA CALC % ERROR
6.00E+00 1.37E+02 1.44E+02 -4.233
8.00E+00 1.48E+02 1.44E+02 1.276
1.00E+01 1.47E+02 1.43E+02 0.617
1.40E+01 1.57E+02 1.46E+02 7.473
2.00E+01 1.44E+02 1.46E+02 -1.399
2.70E+01 1.44E+02 1.46E+02 -1.342
2.70E+01 1.45E+02 1.46E+02 -0.657
3.50E+01 1.36E+02 1.46E+02 -6.720
3.50E+01 1.33E+02 1.46E+02 -8.778
4.50E+01 1.43E+02 1.45E+02 -1.704
6.00E+01 1.62E+02 1.45E+02 11.928
8.00E+01 1.37E+02 1.43E+02 -4.396
1.00E+02 1.54E+02 1.41E+02 8.846
1.00E+02 1.41E+02 1.41E+02 -0.342
1.30E+02 1.46E+02 1.37E+02 5.225
1.30E+02 1.52E+02 1.37E+02 9.547
1.70E+02 1.31E+02 1.37E+02 -4.041
2.20E+02 1.32E+02 1.38E+02 -4.222
2.70E+02 1.37E+02 1.44E+02 -4.824
3.50E+02 1.61E+02 1.61E+02 -0.039
4.50E+02 1.91E+02 1.68E+02 1.470
4.50E+02 1.82E+02 1.86E+02 -3.312
6.00E+02 2.34E+02 2.30E+02 1.597
8.00E+02 2.42E+02 2.30E+02 5.071
8.00E+02 2.85E+02 2.81E+02 1.440
1.00E+03 3.40E+02 3.28E+02 4.745
1.25E+03 3.49E+02 3.71E+02 -5.877
SCHL ARRAY, 27 DATA POINTS, DATA = NO.2
RMS LOG ERROR = 2.25E-02, ANTILOG YIELDS 5.2166 %

A-4.2.3(2) Original Print-Out of VES Data and Analytical Results, No.3 & No.4

MODEL: 4 LAYERS

No.3

RESISTIVITIES:

1.28E+02 1.54E+01 1.41E+02 4.55E+02

THICKNESSES:

9.09E+00 1.41E+01 1.31E+02

SPACING DATA CALC % ERROR

6.00E+00 1.19E+02 1.23E+02 -2.717

8.00E+00 1.14E+02 1.14E+02 -0.348

1.00E+01 1.05E+02 1.08E+02 -3.073

1.40E+01 9.40E+01 8.74E+01 4.884

2.00E+01 6.60E+01 6.42E+01 2.834

2.70E+01 4.33E+01 4.34E+01 -3.813

3.50E+01 3.34E+01 3.90E+01 -14.333

4.50E+01 3.75E+01 3.93E+01 -4.033

6.00E+01 4.59E+01 4.63E+01 -0.782

8.00E+01 5.93E+01 5.63E+01 5.071

1.00E+02 6.40E+01 4.55E+02 -11.333

1.50E+02 8.37E+01 7.78E+01 3.767

1.70E+02 9.37E+01 9.22E+01 1.808

2.20E+02 1.05E+02 1.09E+02 -3.217

2.70E+02 1.22E+02 1.24E+02 -1.554

3.50E+02 1.43E+02 1.47E+02 -2.133

4.50E+02 1.84E+02 1.72E+02 6.784

6.00E+02 2.24E+02 2.04E+02 9.771

8.00E+02 2.24E+02 2.42E+02 -7.607

1.00E+03 2.70E+02 2.72E+02 -0.628

1.25E+03 3.01E+02 3.01E+02 0.100

1.50E+03 3.34E+02 3.24E+02 3.245

SCHL ARRAY, 22 DATA POINTS, DATA = NO.3-2/SMOOTHING

RMS LOG ERROR = 1.84E-02, ANTILOG YIELDS 4.3793 %

MODEL: 7 LAYERS

No.4

RESISTIVITIES:

1.00E+01 5.03E+01 1.05E+01 3.07E+01 3.05E+02 8.72E+01 9.46E+02

THICKNESSES:

9.69E+00 1.70E+01 2.49E+01 4.54E+01 1.36E+02 3.16E+01

SPACING DATA CALC % ERROR

6.00E+00 1.11E+01 1.04E+01 6.706

8.00E+00 1.04E+01 1.08E+01 -3.956

1.00E+01 1.14E+01 1.14E+01 -0.179

1.40E+01 1.23E+01 1.30E+01 -5.697

2.00E+01 1.43E+01 1.56E+01 -8.083

2.70E+01 1.94E+01 1.82E+01 1.963

2.70E+01 2.13E+01 1.82E+01 16.788

3.50E+01 2.23E+01 2.05E+01 8.747

3.50E+01 1.90E+01 2.05E+01 -7.346

4.50E+01 2.06E+01 2.23E+01 -7.684

6.00E+01 2.32E+01 2.37E+01 -2.126

8.00E+01 2.52E+01 2.46E+01 2.408

1.00E+02 2.81E+01 2.55E+01 10.054

1.00E+02 2.52E+01 2.55E+01 -1.304

1.30E+02 2.51E+01 2.78E+01 -9.663

1.30E+02 2.82E+01 2.78E+01 1.474

1.70E+02 3.05E+01 3.23E+01 -5.526

2.20E+02 4.04E+01 3.93E+01 3.378

2.70E+02 5.22E+01 4.67E+01 11.744

3.50E+02 5.62E+01 5.84E+01 -4.174

4.50E+02 6.22E+01 7.32E+01 -15.026

4.50E+02 6.93E+01 7.32E+01 -5.326

6.00E+02 9.86E+01 9.43E+01 4.537

6.00E+02 1.17E+02 9.43E+01 34.212

8.00E+02 1.18E+02 1.21E+02 -2.624

1.00E+03 1.48E+02 1.47E+02 0.875

1.25E+03 1.72E+02 1.77E+02 -3.327

1.50E+03 3.02E+02 2.06E+02 -1.560

SCHL ARRAY, 28 DATA POINTS, DATA = NO.4/orig no. 0

RMS LOG ERROR = 3.47E-02, ANTILOG YIELDS 8.3278 %

A-4.2.3(8) Original Print-Out of VES Data and Analytical Results, No.5 & No.6

MODEL: 4 LAYERS
RESISTIVITIES:
THICKNESSES:
SPACING: DATA CALC % ERROR

5.24E+01	3.70E+00	6.55E+01	4.53E+03
1.16E+01	3.88E+00	1.52E+02	
1.00E+00	4.30E+01	5.20E+01	-11.489
1.40E+01	4.63E+01	4.37E+01	5.858
2.00E+01	4.82E+01	3.82E+01	19.891
2.70E+01	2.35E+01	2.99E+01	-1.233
3.50E+01	2.33E+01	3.48E+01	-12.471
4.50E+01	2.61E+01	3.71E+01	-7.489
6.00E+01	3.16E+01	3.07E+01	2.990
8.00E+01	4.35E+01	3.61E+01	12.038
1.00E+02	4.84E+01	4.11E+01	7.974
1.30E+02	5.23E+01	4.78E+01	1.409
1.70E+02	5.23E+01	5.62E+01	-6.992
2.20E+02	5.09E+01	4.69E+01	-8.950
2.70E+02	7.60E+01	7.82E+01	-2.763
3.50E+02	9.57E+01	9.74E+01	-1.792
4.50E+02	1.13E+02	1.23E+02	-7.843
6.00E+02	1.57E+02	1.62E+02	-2.626
8.00E+02	2.18E+02	2.13E+02	2.179
1.00E+03	2.85E+02	2.63E+02	8.365
1.30E+03	3.40E+02	3.25E+02	4.643
1.50E+03	4.09E+02	3.85E+02	6.252

SOIL ARRAY, 20 DATA POINTS, DATA = NO.5/Smoothing
RMS LOG ERROR = 3.48E-02, ANTILOG YIELDS 2.3482 %

MODEL: 4 LAYERS
RESISTIVITIES:
THICKNESSES:
SPACING: DATA CALC % ERROR

9.57E+01	8.92E+00	1.39E+02	3.53E+03
8.21E+00	1.95E+00	2.74E+02	
6.00E+00	9.00E+01	9.18E+01	-1.923
8.00E+00	8.80E+01	8.78E+01	0.255
1.00E+01	8.28E+01	8.30E+01	-0.253
1.40E+01	7.44E+01	7.38E+01	0.842
2.00E+01	7.62E+01	6.63E+01	4.338
2.70E+01	6.52E+01	6.61E+01	-1.350
3.50E+01	5.83E+01	7.17E+01	-18.733
4.50E+01	7.34E+01	9.32E+01	-2.087
6.00E+01	1.01E+02	9.13E+01	10.966
8.00E+01	1.19E+02	1.03E+02	15.641
1.00E+02	1.22E+02	1.11E+02	9.886
1.30E+02	1.25E+02	1.20E+02	4.430
1.70E+02	1.23E+02	1.29E+02	-4.870
2.20E+02	1.23E+02	1.40E+02	-9.683
2.70E+02	1.41E+02	1.51E+02	-6.454
3.50E+02	1.62E+02	1.71E+02	-5.153
4.50E+02	2.04E+02	2.01E+02	1.557
6.00E+02	2.47E+02	2.53E+02	-2.188
8.00E+02	3.50E+02	3.25E+02	7.526
1.00E+03	4.30E+02	3.97E+02	8.786

SOIL ARRAY, 20 DATA POINTS, DATA = NO.6-1/Smoothing
RMS LOG ERROR = 3.31E-02, ANTILOG YIELDS 7.9612 %

A-4.2.3(4) Original Print-Out of VES Data and Analytical Results.No.7 & No.8

MODEL: 4 LAYERS No.7
RESISTIVITIES:
THICKNESSES:
SPACING DATA CALC % ERROR
6.94E+01 6.44E+01 1.50E+02 5.46E+02
1.35E+01 9.90E+01 2.88E+01
6.00E+00 3.90E+01 3.95E+01 -1.262
8.00E+01 3.90E+01 3.95E+01 -1.524
1.00E+01 4.30E+01 3.93E+01 0.581
1.40E+01 4.10E+01 4.03E+01 1.737
2.30E+01 4.20E+01 4.16E+01 1.014
3.70E+01 4.40E+01 4.34E+01 0.945
5.50E+01 4.60E+01 4.61E+01 -0.320
6.50E+01 4.80E+01 4.92E+01 -2.532
6.00E+01 5.00E+01 5.33E+01 -0.484
8.00E+01 5.70E+01 5.74E+01 2.430
1.00E+02 5.80E+01 6.14E+01 2.654
1.30E+02 5.80E+01 6.48E+01 -2.751
1.70E+02 7.24E+01 7.28E+01 -2.953
2.20E+02 8.41E+01 8.53E+01 0.916
2.70E+02 1.01E+02 9.46E+01 9.144
3.50E+02 1.19E+02 1.16E+02 2.978
4.50E+02 1.30E+02 1.39E+02 -5.947
6.00E+02 1.60E+02 1.71E+02 -6.410
8.00E+02 2.10E+02 2.09E+02 0.647
1.00E+03 2.70E+02 2.41E+02 12.060
1.25E+03 3.00E+02 2.75E+02 8.977
1.50E+03 2.70E+02 3.04E+02 -11.254
SCHL ARRAY, 23 DATA POINTS, DATA = NO.7/Smoothing
RMS LOG ERROR = 2.07E-02, ANTILOG YIELDS 4.8613 %

MODEL: 5 LAYERS No.8
RESISTIVITIES:
THICKNESSES:
SPACING DATA CALC % ERROR
5.45E+02 2.08E+02 9.35E+01 2.80E+02 1.29E+04
7.25E+00 1.38E+01 2.13E+02 6.84E+01
5.00E+00 5.20E+02 5.29E+02 -1.781
6.00E+00 5.14E+02 5.19E+02 -1.015
8.00E+00 4.98E+02 4.93E+02 1.145
1.00E+01 4.77E+02 4.60E+02 3.600
1.40E+01 3.84E+02 3.91E+02 -1.671
2.00E+01 3.07E+02 3.04E+02 1.025
2.70E+01 2.31E+02 2.37E+02 -2.537
3.50E+01 1.90E+02 1.90E+02 -0.232
4.50E+01 1.60E+02 1.54E+02 2.613
6.00E+01 1.29E+02 1.28E+02 0.979
8.00E+01 1.07E+02 1.11E+02 -3.646
1.00E+02 1.04E+02 1.05E+02 -1.005
1.30E+02 1.03E+02 1.03E+02 0.408
1.70E+02 1.08E+02 1.05E+02 3.430
2.20E+02 1.13E+02 1.11E+02 1.971
2.70E+02 1.21E+02 1.21E+02 -0.800
3.50E+02 1.37E+02 1.43E+02 -3.614
4.50E+02 1.71E+02 1.74E+02 -2.234
6.00E+02 2.26E+02 2.27E+02 -0.345
8.00E+02 3.11E+02 3.00E+02 3.511
1.00E+03 3.31E+02 3.73E+02 -1.982
1.25E+03 4.44E+02 4.63E+02 0.477
1.50E+03 5.45E+02 5.52E+02 -1.235
SCHL ARRAY, 23 DATA POINTS, DATA = NO.8/Smoothing
RMS LOG ERROR = 5.17E-03, ANTILOG YIELDS 2.1812 %

A-4.2.3(5) Original Print-Out of VES Data and Analytical Results, No.9 & No.10

MODEL: 4 LAYERS
RESISTIVITIES:
1.32E+01 7.37E+01 4.02E+02 5.19E+01 1.88E+02
THICKNESSES:
1.15E+00 3.62E+01 3.88E+01 1.43E+02
SPACING DATA CALC % ERROR
5.00E+00 3.43E+01 3.53E+01 -3.273
6.00E+00 3.80E+01 3.90E+01 -2.573
8.00E+00 4.80E+01 4.52E+01 1.747
1.00E+01 5.30E+01 5.00E+01 6.040
1.40E+01 5.80E+01 5.63E+01 2.068
2.00E+01 6.40E+01 6.35E+01 0.801
2.70E+01 6.90E+01 6.92E+01 -1.441
3.50E+01 7.40E+01 7.44E+01 -0.559
4.50E+01 7.90E+01 8.12E+01 -2.720
6.00E+01 8.00E+01 8.21E+01 -2.230
8.00E+01 1.00E+02 1.07E+02 -1.316
1.00E+02 1.15E+02 1.19E+02 -3.754
1.30E+02 1.23E+02 1.34E+02 -0.737
1.70E+02 1.58E+02 1.45E+02 9.206
2.20E+02 1.47E+02 1.43E+02 -0.750
2.70E+02 1.47E+02 1.45E+02 2.534
3.50E+02 1.21E+02 1.36E+02 -3.861
4.50E+02 1.23E+02 1.26E+02 -2.227
6.00E+02 1.20E+02 1.19E+02 1.140
8.00E+02 1.20E+02 1.21E+02 -0.458
1.00E+03 1.21E+02 1.29E+02 2.450
1.25E+03 1.39E+02 1.37E+02 1.317
1.50E+03 1.42E+02 1.45E+02 -2.145
SOIL ARRAY, 23 DATA POINTS, DATA = NO.9/Smoothing
RMS LOG ERROR = 1.32E-02, ANTILOG YIELD 3.67% %

MODEL: 4 LAYERS
RESISTIVITIES:
4.77E+02 3.26E+02 7.96E+01 3.89E+03
THICKNESSES:
2.48E+00 3.01E+01 1.01E+02
SPACING DATA CALC % ERROR
6.00E+00 4.03E+02 3.99E+02 1.074
9.00E+00 3.61E+02 3.65E+02 -1.012
1.40E+01 3.43E+02 3.39E+02 1.051
2.00E+01 3.23E+02 3.24E+02 -0.426
2.70E+01 3.10E+02 3.09E+02 0.349
3.50E+01 2.93E+02 2.89E+02 1.486
4.50E+01 2.50E+02 2.60E+02 -3.910
6.00E+01 2.27E+02 2.18E+02 4.350
8.00E+01 1.67E+02 1.73E+02 -3.432
1.00E+02 1.45E+02 1.46E+02 -0.699
1.30E+02 1.35E+02 1.31E+02 3.137
1.70E+02 1.38E+02 1.36E+02 1.141
2.20E+02 1.52E+02 1.60E+02 -5.156
2.70E+02 1.87E+02 1.90E+02 -1.627
3.50E+02 2.32E+02 2.42E+02 -4.001
4.50E+02 3.04E+02 3.05E+02 -0.427
6.00E+02 4.01E+02 3.97E+02 0.983
8.00E+02 5.60E+02 5.19E+02 8.893
1.00E+03 6.96E+02 6.25E+02 11.406
1.25E+03 7.47E+02 7.55E+02 -1.012
1.50E+03 7.82E+02 8.74E+02 -9.629
SOIL ARRAY, 21 DATA POINTS, DATA = NO.10/Smoothing
RMS LOG ERROR = 1.91E-02, ANTILOG YIELD 4.9% %

A-4.2.3(6) Original Print-Out of VES Data and Analytical Results, No.11 & No.12

MODEL: 4 LAYERS No.11
RESISTIVITIES:
1.41E+02 5.40E+01 6.85E+01 2.04E+02
THICKNESSES:
1.42E+01 1.51E+01 1.42E+02
SPACING DATA CALC % ERROR
3.00E+00 1.42E+02 1.40E+02 1.212
9.00E+00 1.84E+02 1.88E+02 -3.024
1.40E+01 1.39E+02 1.32E+02 -2.006
2.00E+01 1.28E+02 1.21E+02 -2.047
2.70E+01 1.12E+02 1.07E+02 -4.526
3.50E+01 9.80E+01 9.51E+01 -3.037
4.50E+01 7.91E+01 6.51E+01 -18.257
6.00E+01 6.00E+01 6.13E+01 -1.540
8.00E+01 6.40E+01 6.17E+01 -2.961
1.00E+02 6.80E+01 6.43E+01 -4.350
1.30E+02 9.20E+01 8.94E+01 -2.513
1.70E+02 7.70E+01 9.75E+01 -20.549
2.20E+02 1.04E+02 1.10E+02 -5.511
2.70E+02 1.21E+02 1.25E+02 -3.163
3.50E+02 1.49E+02 1.53E+02 -2.060
4.50E+02 1.91E+02 1.89E+02 1.311
6.00E+02 2.50E+02 2.43E+02 2.767
8.00E+02 3.24E+02 3.13E+02 3.504
1.00E+03 3.90E+02 3.79E+02 3.013
1.25E+03 4.60E+02 4.55E+02 1.074
1.50E+03 5.00E+02 5.26E+02 -4.923
SOIL ARRAY, 21 DATA POINTS, DATA = NO.11/Smoothing
RMS LOG ERROR = 1.54E-02, ANTILOG YIELDS 3.6013 %

MODEL: 5 LAYERS No.12
RESISTIVITIES:
1.54E+02 3.30E+00 7.52E+01 1.03E+02 1.79E+04
THICKNESSES:
4.76E+00 1.50E+00 1.13E+02 3.43E+01
SPACING DATA CALC % ERROR
6.00E+00 1.11E+02 1.20E+02 -7.261
9.00E+00 9.36E+01 8.30E+01 12.735
1.40E+01 4.28E+01 4.50E+01 -4.887
2.00E+01 3.20E+01 3.29E+01 -2.614
2.70E+01 3.58E+01 3.43E+01 4.443
3.50E+01 3.81E+01 3.91E+01 -2.599
4.50E+01 4.47E+01 4.47E+01 0.021
6.00E+01 5.00E+01 5.14E+01 -2.698
8.00E+01 6.01E+01 5.84E+01 2.967
1.00E+02 6.92E+01 6.42E+01 7.706
1.30E+02 7.39E+01 7.25E+01 1.997
1.70E+02 8.29E+01 8.38E+01 -1.101
2.20E+02 9.51E+01 9.98E+01 -4.707
2.70E+02 1.02E+02 1.18E+02 -13.299
3.50E+02 1.23E+02 1.49E+02 -18.917
4.50E+02 1.70E+02 1.39E+02 -18.240
6.00E+02 2.63E+02 2.51E+02 5.467
8.00E+02 3.90E+02 3.33E+02 14.960
1.00E+03 4.70E+02 4.15E+02 13.267
1.25E+03 5.49E+02 5.16E+02 6.428
1.50E+03 6.10E+02 6.11E+02 -0.120
SOIL ARRAY, 21 DATA POINTS, DATA = NO.12/Smoothing
RMS LOG ERROR = 3.51E-02, ANTILOG YIELDS 6.4173 %