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DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

Report on coal resource exploration assessment program  
drilling and related activities  
April 1986 to May 1987  
Southern Sind Province, Pakistan:

GEOPHYSICAL LOGS

Open-File Report 88-275-C

Obtained by

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Geoscience Associates, Inc.  
Denver, Colorado  
under contract to  
U.S. Agency for International Development

and

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Pakistan Water and Power Development Authority

Report prepared jointly by the Geological Survey of Pakistan and  
the U.S. Geological Survey under the auspices of the U.S. Agency  
for International Development

This report is preliminary and has not been reviewed for conformity  
with U.S. Geological Survey editorial standards and stratigraphic  
nomenclature.

1988

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## EXPLANATION OF GEOPHYSICAL TRACES

4 PI density measures specific gravity of rocks

Natural gamma ray measures Natural radiation

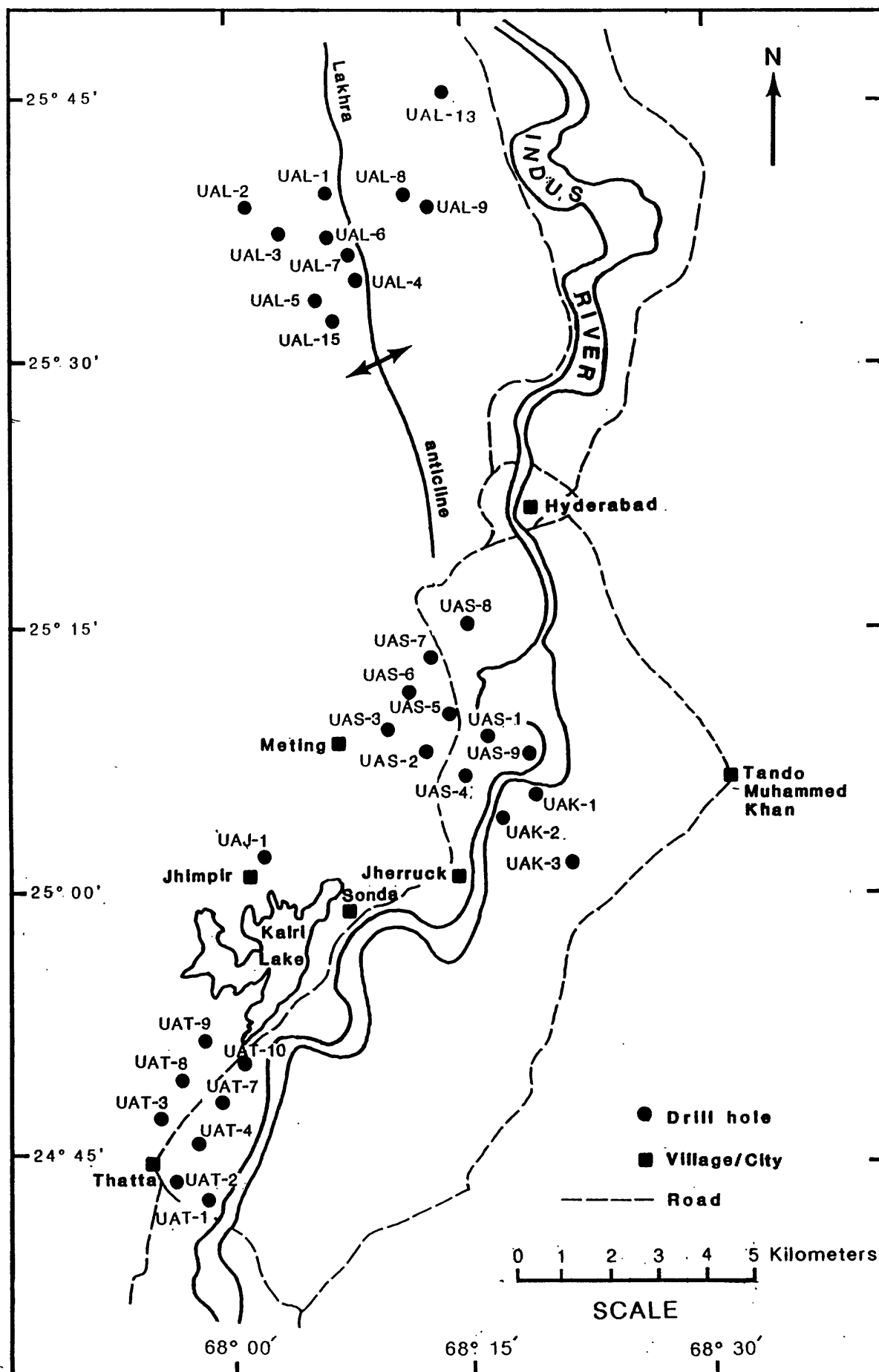
Neutron measures hydrogen concentration (bound water)

Resistivity measures resistance to the flow of electricity

High resolution density is a sensitive measurement of specific gravity

Caliper measures drill hole diameter





**Figure 1.-General location of drill holes**  
*la.*

DRILL HOLE UAL-1

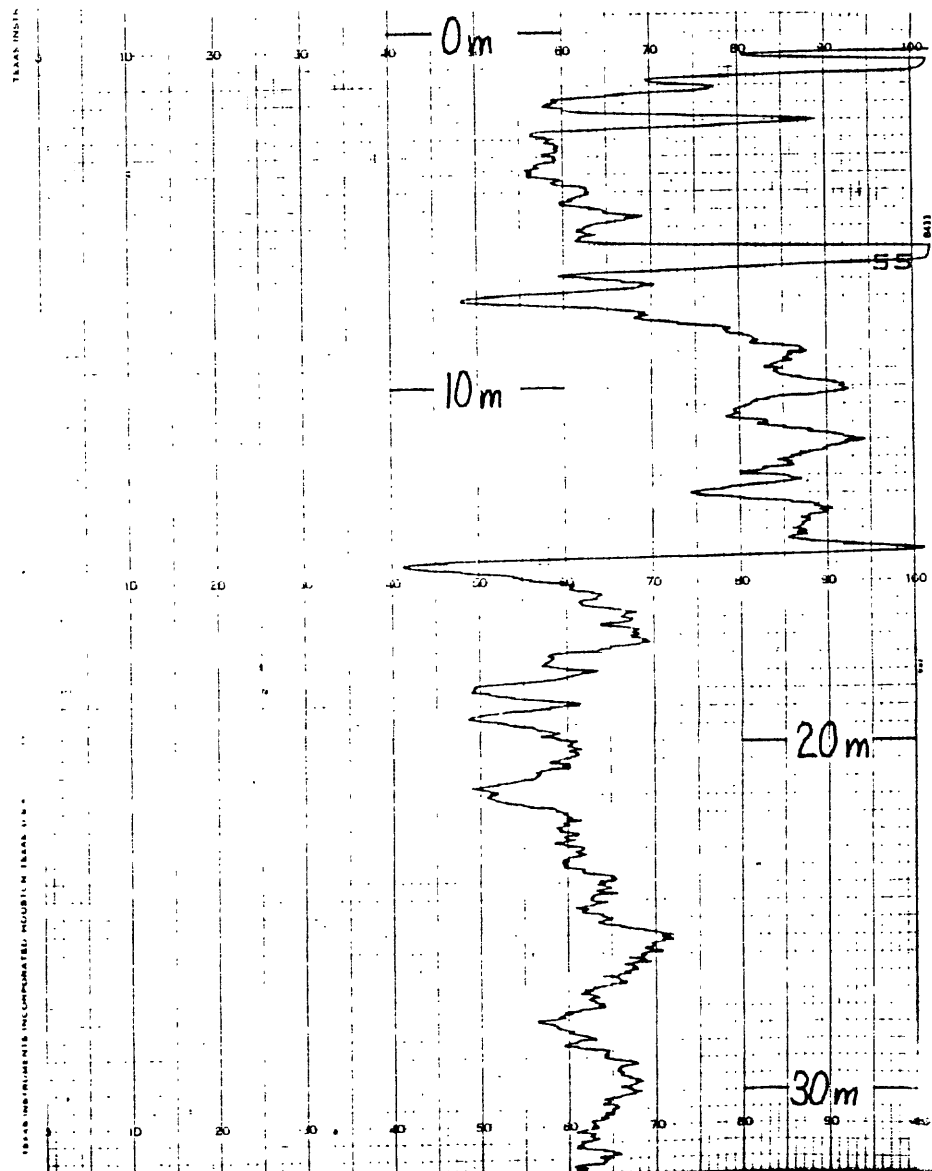


# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAL-1

DATE: April 28, 1986

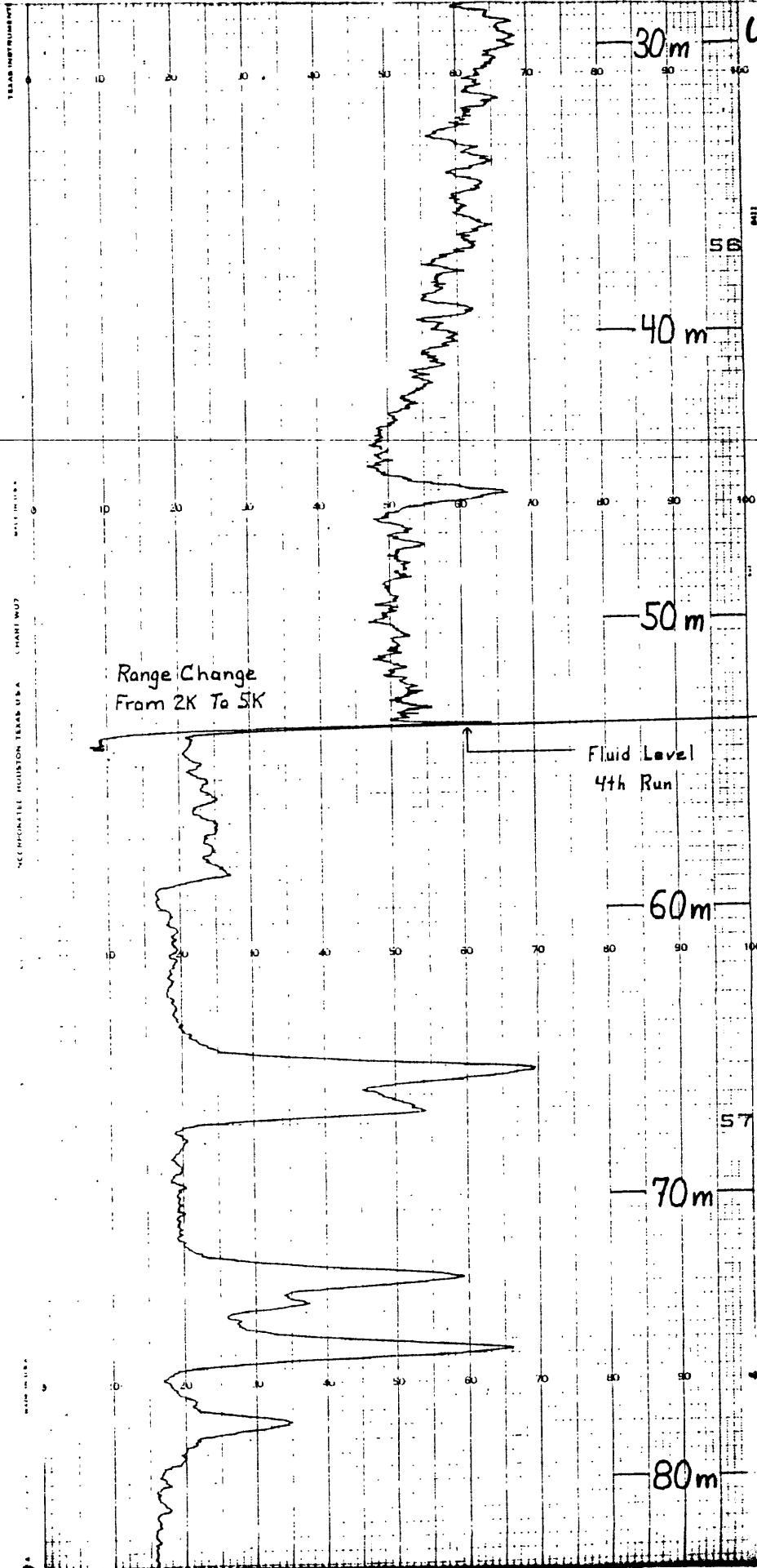
LOCATION				HOLE DATA				CLIENT			
STATE/COUNTRY <u>Sind - Pakistan</u>				DEPTH DRILLED <u>129m</u>				CLIENT <u>U.S.G.S. - G.S.P.</u>			
REGION <u>Lakhr</u>				DEPTH LOGGED <u>125m</u>				GEOLOGIST <u>San Felipe</u>			
PROJECT <u>Coal REAP</u>				COLLAR ELEV				UNIT OPERATOR <u>Davis</u>			
PROSPECT				DIA. <u>115mm</u> FROM <u>0</u> TO <u>TD</u>				UNIT NO. <u>Pl-1 Boulder, Calore</u> OFFICE			
SEC. TWP. RNG.				DIA. FROM TO				ELECTRIC			
TYPE				DIA. FROM TO				TYPE			
LOGGED DEPTH <u>125m</u>				BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>				LOGGED DEPTH			
RANGE (I.S.) <u>2K 5K</u>				FLUID LEVEL <u>53.6m</u>				RESIST			
%STD DEV <u>39 19</u>				CASING DATA				FT. S.P.			
PAPER SPEED <u>1-1</u>				WALL SIZE <u>NONE</u>				SCALE			
LOG SPEED <u>6-1</u>				ID				PAPER SPEED			
BKGND. COUNT <u>60-1</u>				CASED FROM TO				LOG SPEED			
PROBE NO. <u>60-1</u>				CASING TYPE				FINE ADJ.			
SIZE (dia.) <u>13/8</u>				SAMPLE DATA							
K-FACTOR				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>							
DEAD TIME <u>2.0</u>				SAMPLED INTERVAL							
STANDARD				SAMPLE TYPE							
DIGITAL DATA				REMARKS				CALIPER			
PRINT INTERVAL								LOGGED DEPTH			
TIMEBASE								SCALE			
								PAPER SPEED			
								LOG SPEED			
								ARM LENGTH			
								MAX DEF			
DENSITY CALIBRATION								VERTICAL DEV.			
ALUMINUM								DEPTH			
LUCITE								INCLIN.			
								BEARING			



UAL-1

P.4

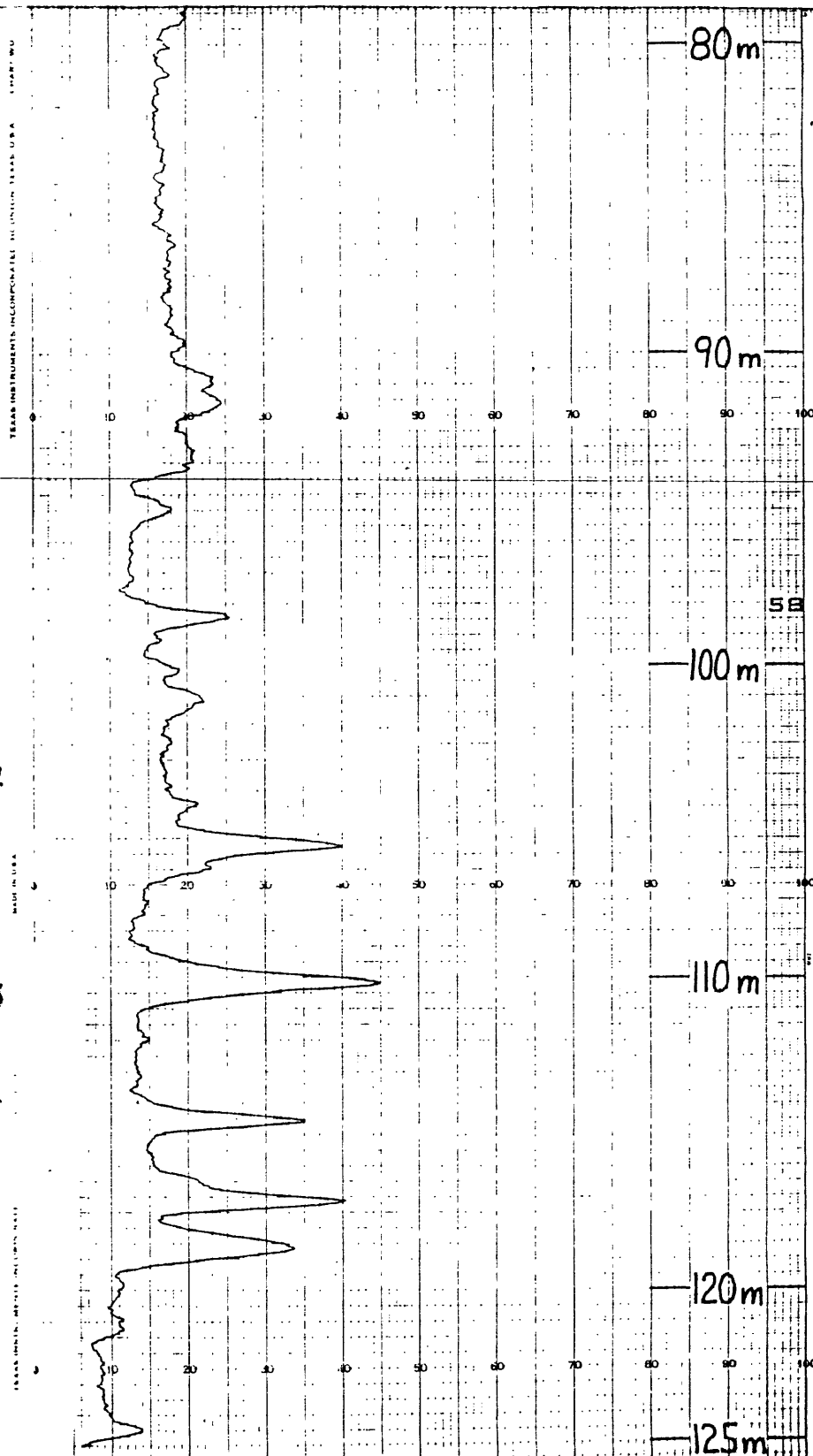
UAL-1



UAL-1

8.5

UAL-1



HPi Density  
200cps/Inch  
3% Std. Dev.

← Zero

Logged Open Hole

UAL-1



# GEOSCIENCE ASSOCIATES

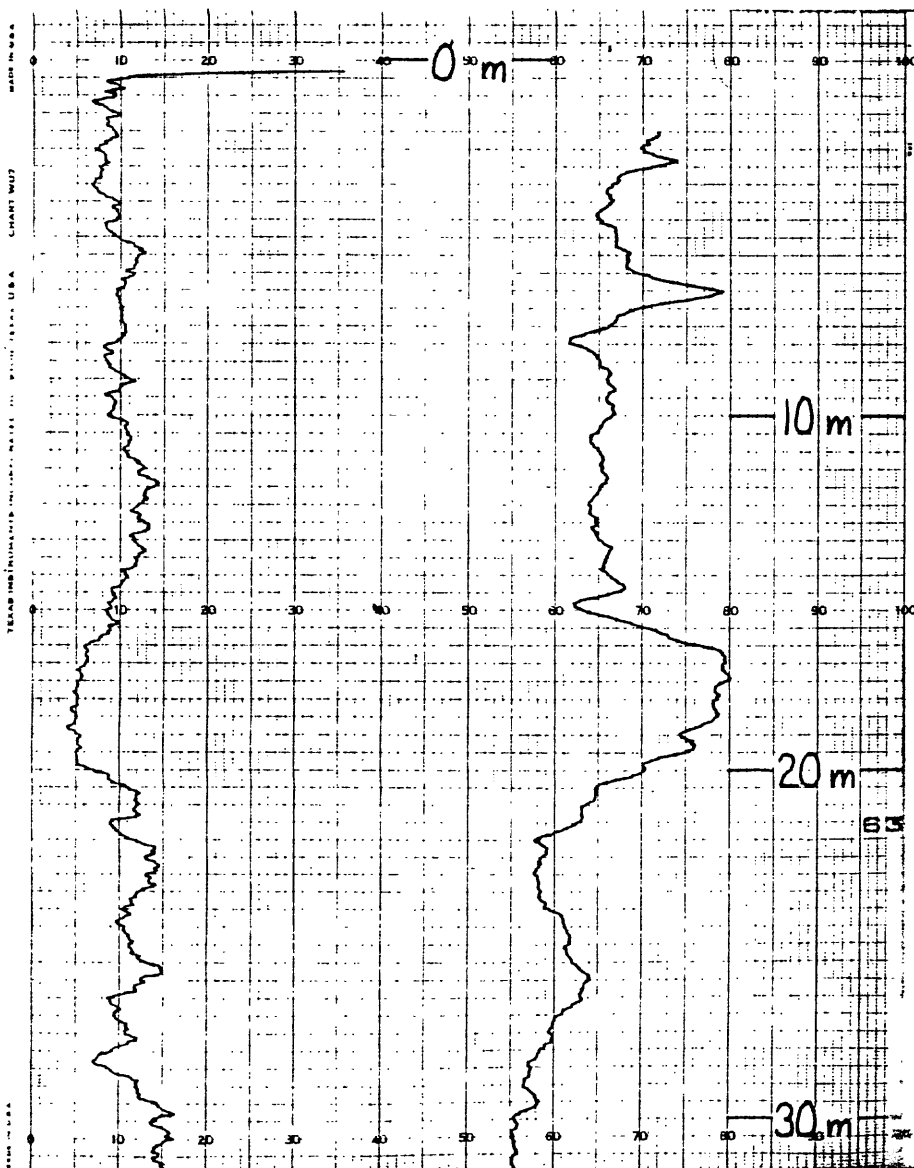
HOLE NUMBER: U.A.L. -1

P.6

UAL-1

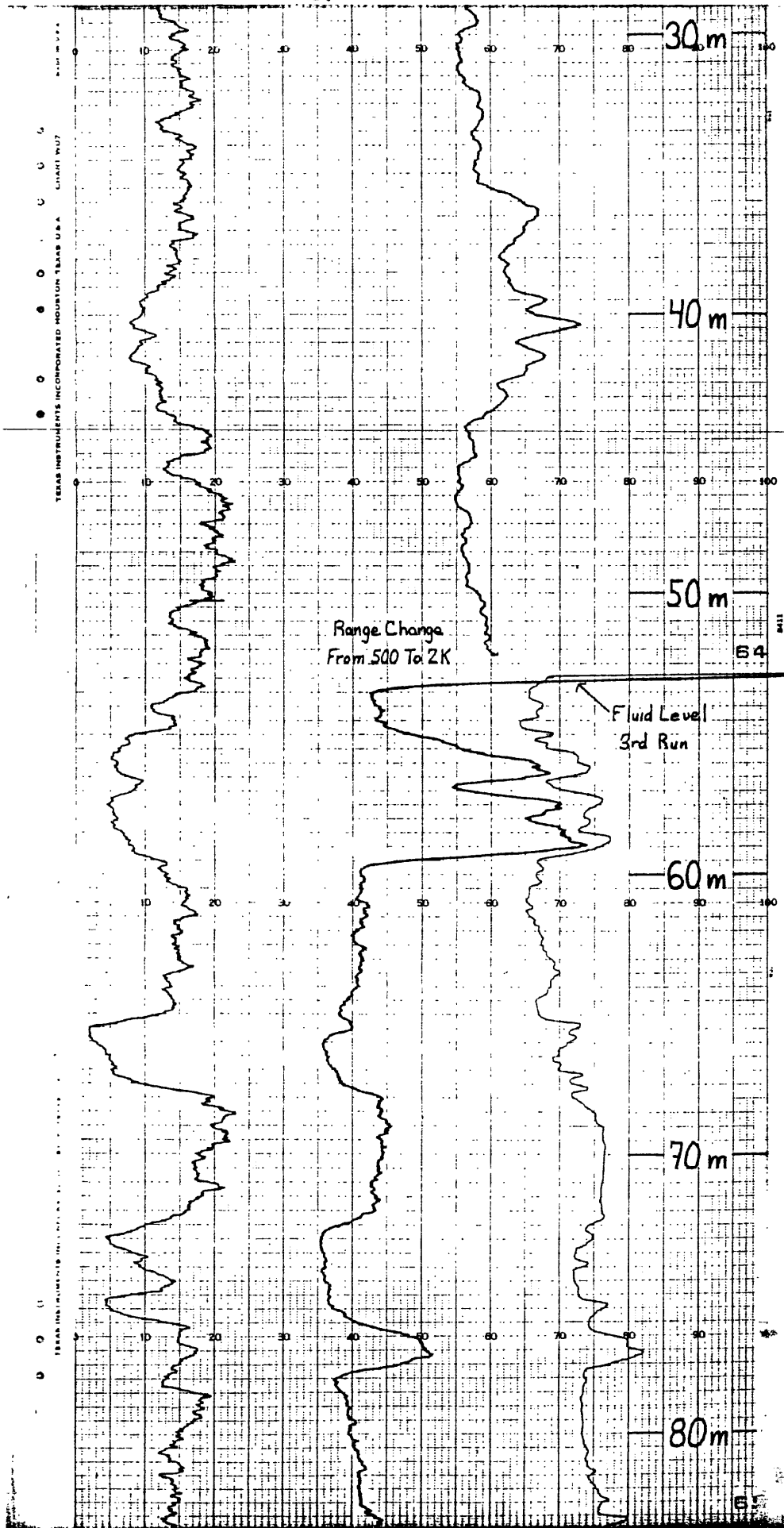
DATE: April 28, 1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	Sind - Pakistan		DEPTH DRILLED:	129m	CLIENT	U.S.G.S. - G.S.P.
REGION	Lakha		DEPTH LOGGED:	126m	GEOLOGIST:	San Felipe
PROJECT	Coal REAP		COLLAR ELEV.			
PROSPECT			DIA.	11.5mm FROM 0 TO T.D.	UNIT OPERATOR	Davis
SEC	TWP.	RNG.	DIA.	FROM TO	UNIT NO.	PI-1 Boulder, Colorado
			DIA.	FROM TO		
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud	ELECTRIC	
LOGGED DEPTH	124m	126m	FLUID LEVEL	53.2 m	TYPE	RESIST
RANGE (I.S.)	200	500-2K	CASING DATA		LOGGED DEPTH	FT.
%STD DEV	10%	3% 3%	WALL SIZE	NONE	SCALE	2
PAPER SPEED	1-1	1-1	I.D.		PAPER SPEED	2
LOG SPEED	G-1	6-1	CASED FROM	TO	LOG SPEED	2
BKGND. COUNT			CASING TYPE		LOG SPEED	2
PROBE NO.	GM-1	GM-1	SAMPLE DATA		FINE ADJ.	
SIZE (dia.)	13/8	13/8	NON-CORED HOLE <input type="checkbox"/>	CORED HOLE <input checked="" type="checkbox"/>		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		
DEAD TIME	20	2.0				
STANDARD						
DIGITAL DATA			REMARKS		CALIPER	
PRINT INTERVAL					LOGGED DEPTH	FT.
TIMEBASE					SCALE	2
					PAPER SPEED	2
					LOG SPEED	2
					ARM LENGTH	IN
					MAX DEF.	IN
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN.	
					BEARING	



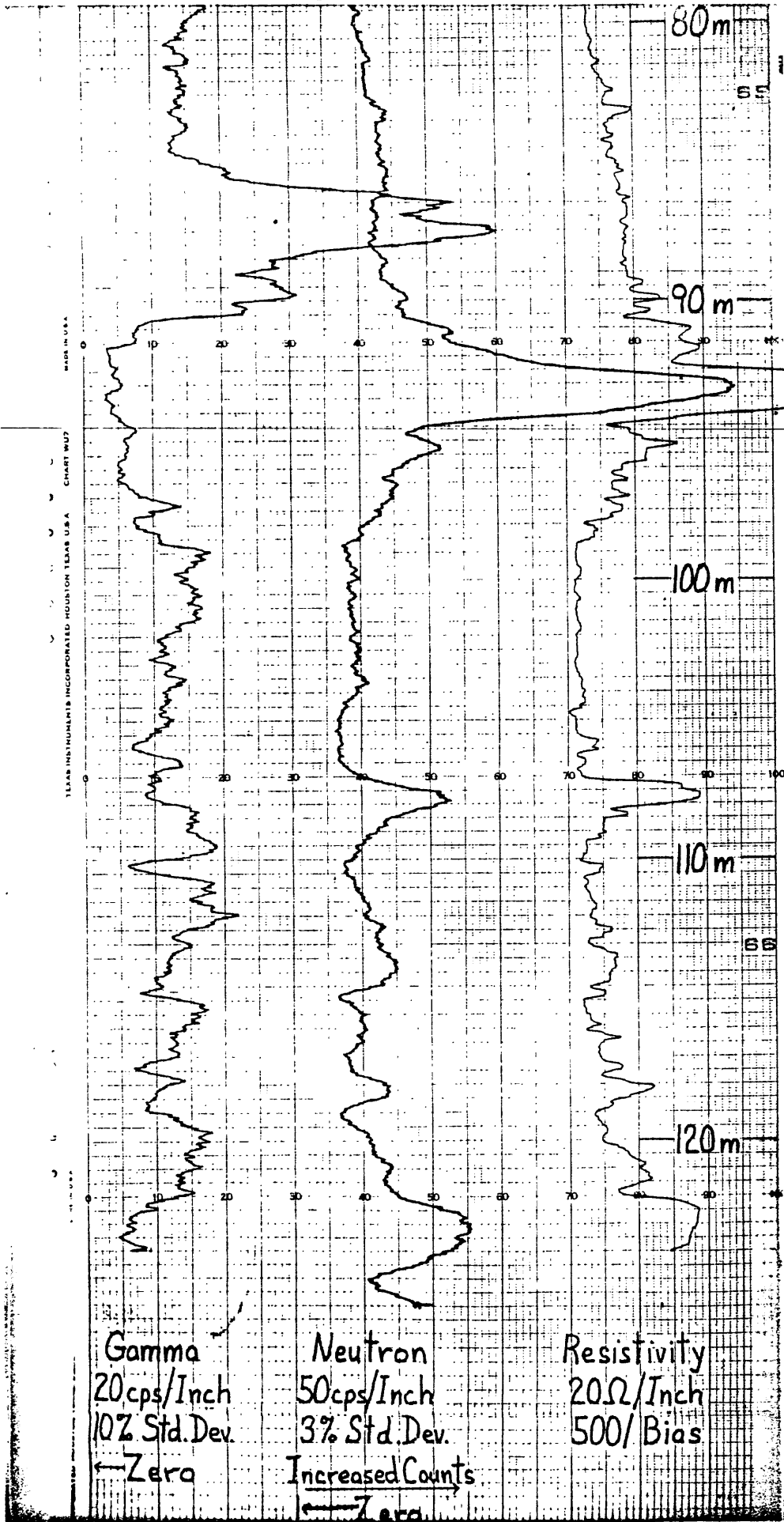
UAL-1

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UAL-1

P.8





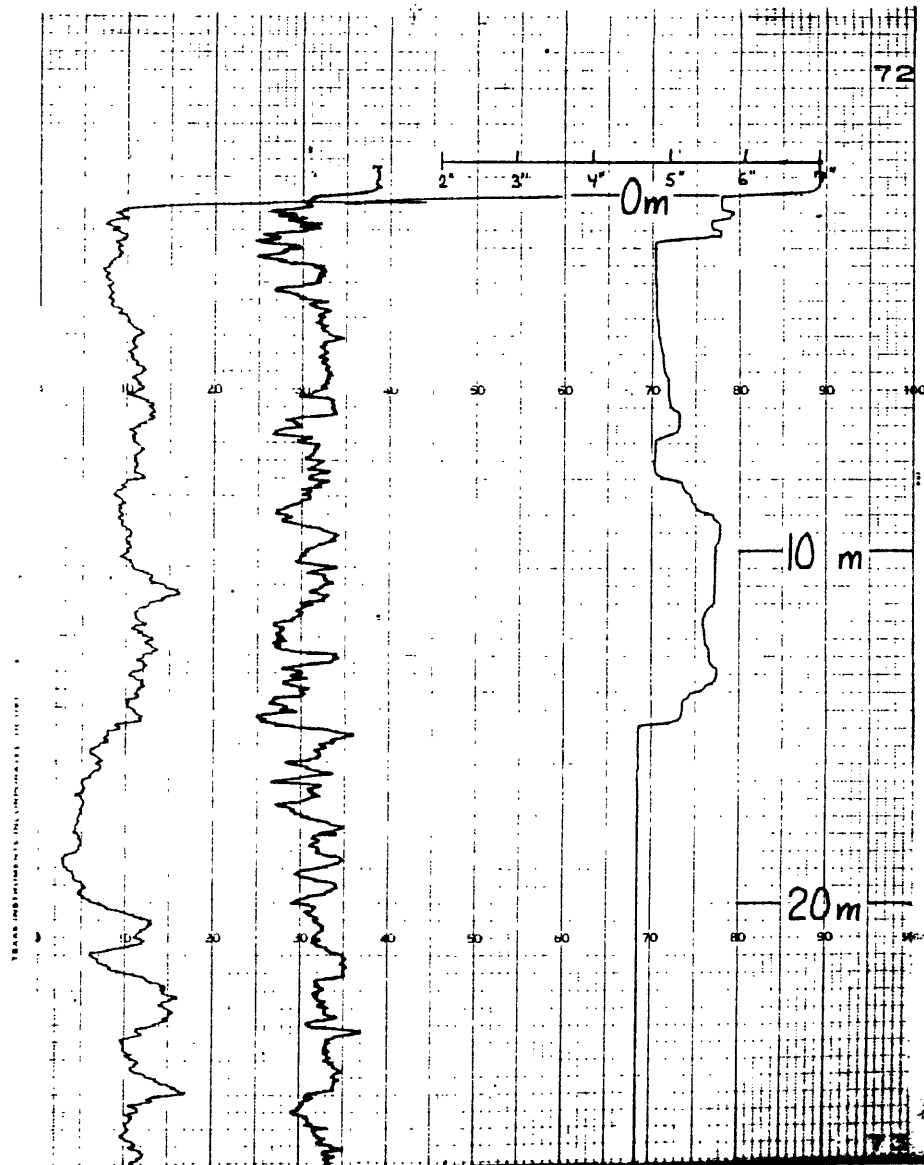


# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAL-1

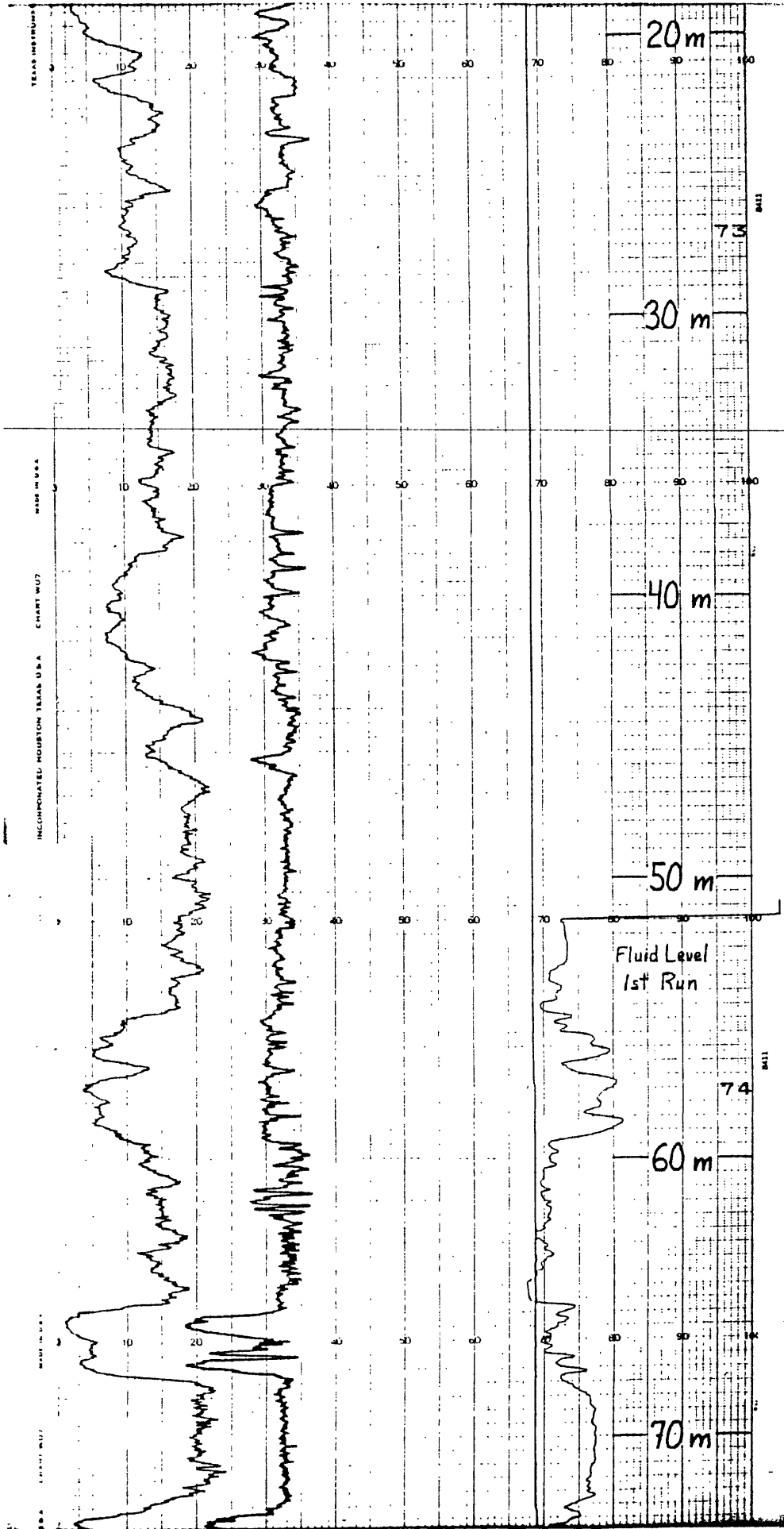
DATE: April 28, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY <u>Sind. Pakistan</u>			DEPTH DRILLED <u>29 m</u>			CLIENT <u>U.S.G.S - G.S.P.</u>		
REGION <u>Lakhta</u>			DEPTH LOGGED <u>25 m</u>			GEOLOGIST <u>an Filipo</u>		
PROJECT <u>Coal REAP</u>			COLLAR ELEV			UNIT OPERATOR <u>Davis</u>		
PROSPECT			DIA. <u>11.5 mm</u> FROM <u>0</u> TO <u>T.D.</u>			UNIT NO. <u>PL-1</u> OFFICE <u>Boiler, Colorado</u>		
SEC.	TWP.	RNG.	DIA. FROM TO			ELECTRIC		
TYPE			BOREHOLE MEDIUM <u>4.0 + Mud</u>			TYPE		
LOGGED DEPTH <u>24 m</u>			FLUID LEVEL <u>51.5 m</u>			LOGGED DEPTH <u>24 m</u>		
RANGE (I.S.) <u>200</u>			CASING DATA			SCALE <u>20</u>		
%STD DEV <u>10%</u>			WALL SIZE <u>NONE</u>			PAPER SPEED <u>1-1</u>		
PAPER SPEED <u>3-1</u>			I.D.			LOG SPEED <u>3-1</u>		
LOG SPEED <u>3-1</u>			CASED FROM TO			FINE ADJ <u>500</u>		
BKGND. COUNT			CASING TYPE			CALIPER		
PROBE NO. <u>HRD-1</u>			SAMPLE DATA			LOGGED DEPTH <u>125</u>		
SIZE (dia.) <u>2"</u>			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			SCALE <u>.85" Deflect - 1" Dia.</u>		
K-FACTOR			SAMPLED INTERVAL			PAPER SPEED <u>1-1</u>		
DEAD TIME <u>2.0</u>			SAMPLE TYPE			LOG SPEED <u>3-1</u>		
STANDARD			REMARKS			ARM LENGTH <u>60"</u>		
DIGITAL DATA						MAX DEF <u>7"</u>		
PRINT INTERVAL						VERTICAL DEV.		
TIMEBASE						DEPTH		
						INCLIN.		
DENSITY CALIBRATION						BEARING		
ALUMINUM								
LUCITE								



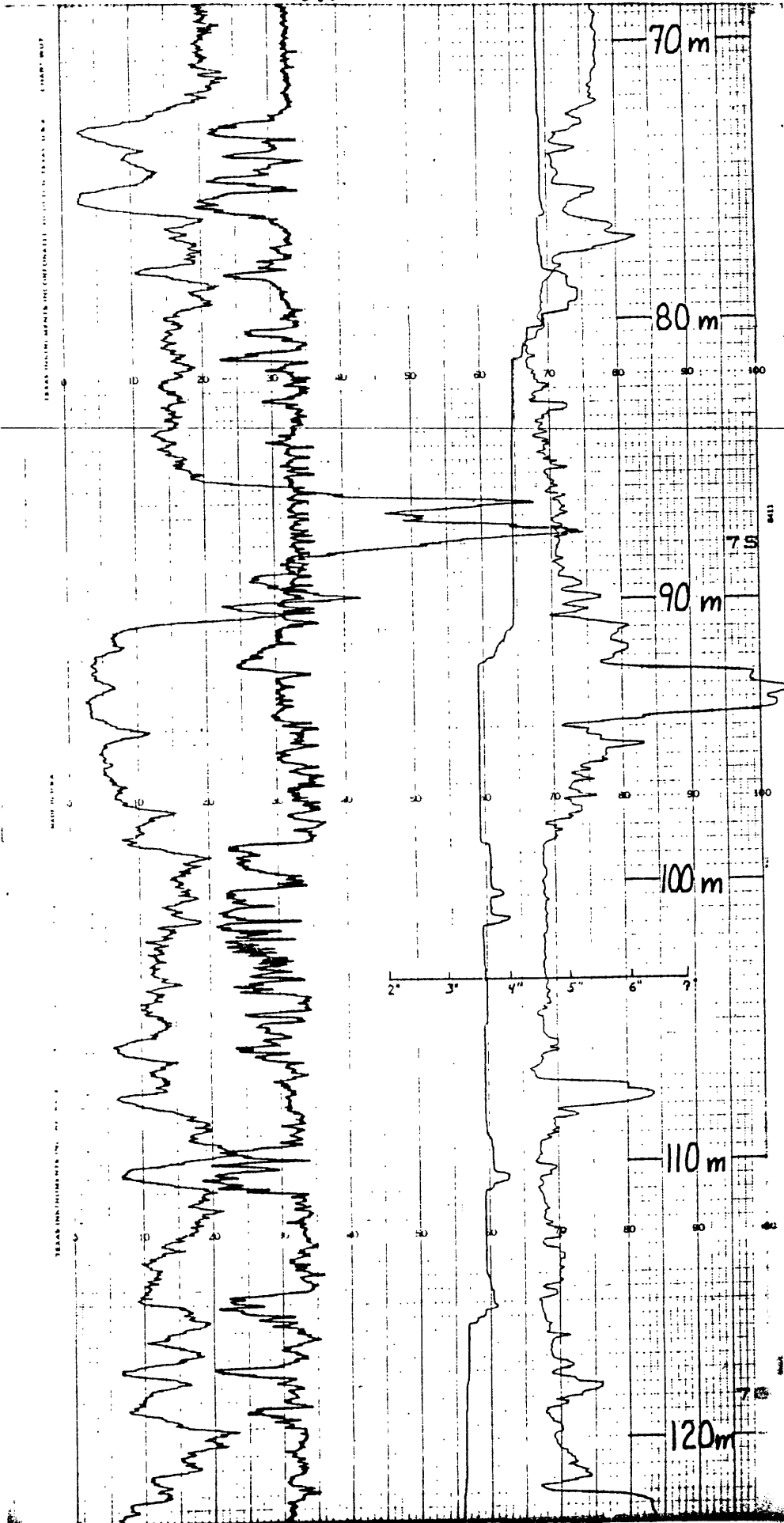
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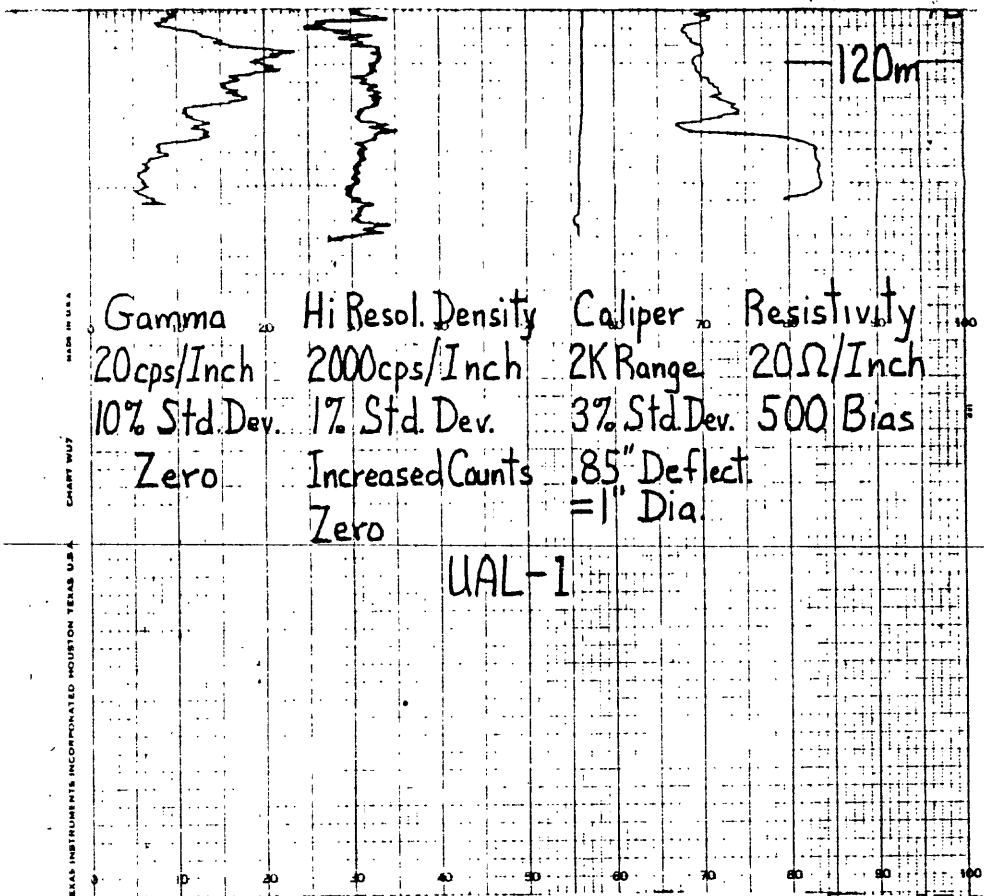
P.10



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P.11







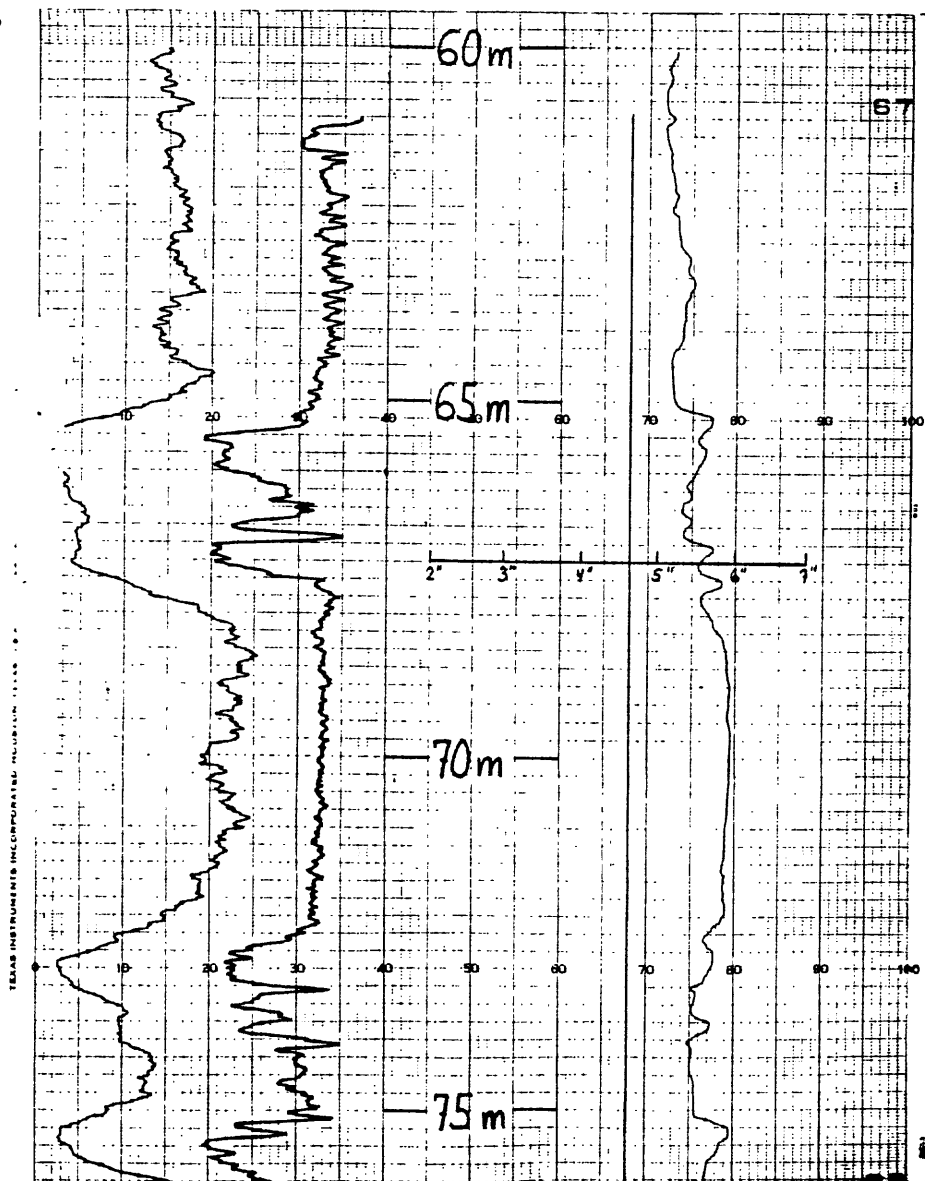
# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAL-1

Expanded Log

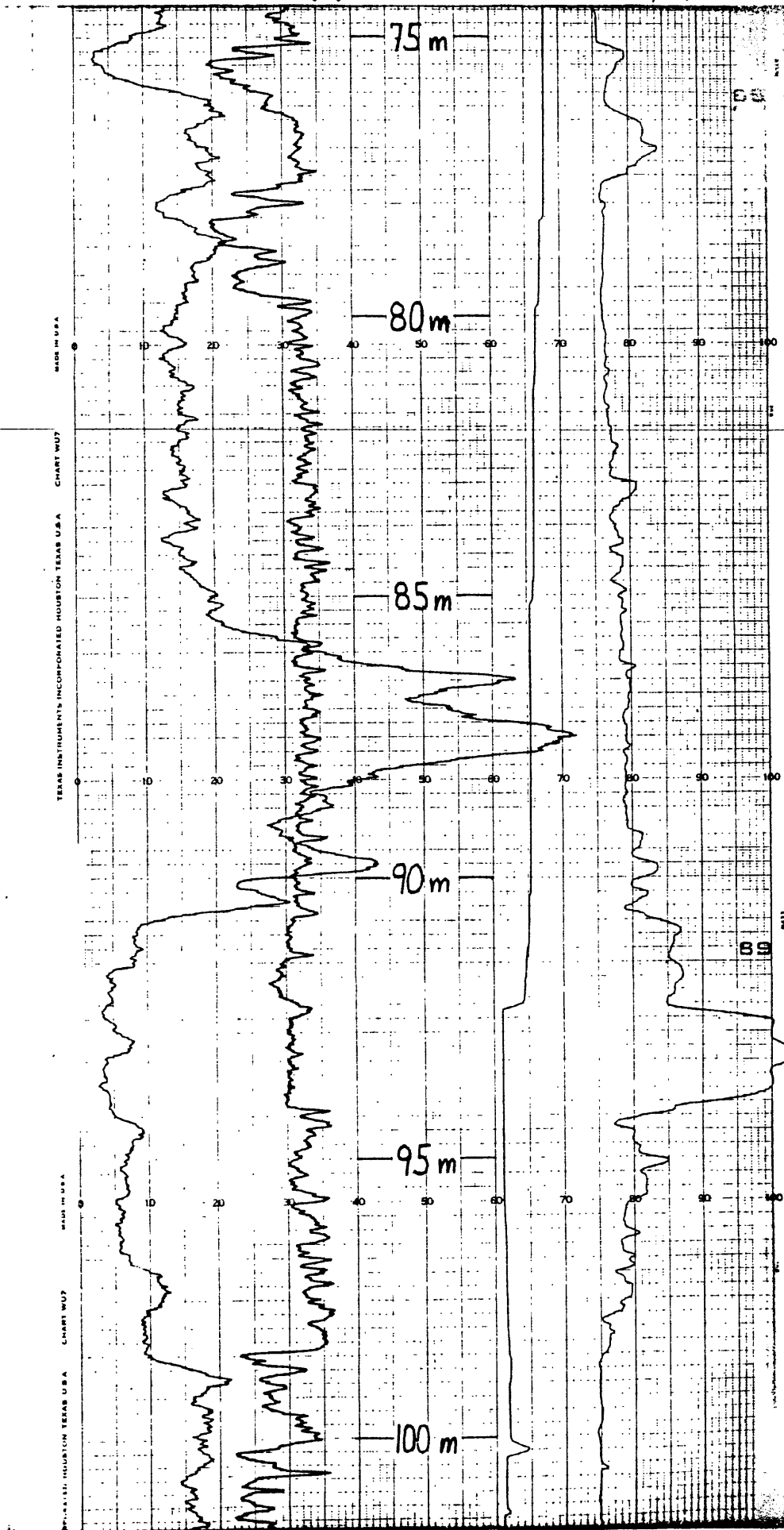
DATE: April 28, 1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY <u>Sind - Pakistan</u>			DEPTH DRILLED: <u>129 m</u>		CLIENT <u>U.S.G.S. - G.S.P.</u>	
REGION <u>Lahore</u>			DEPTH LOGGED: <u>125 m</u>		GEOLOGIST: <u>San Felipe</u>	
PROJECT <u>Coal REAP</u>			COLLAR ELEV.			
PROSPECT			DIA. <u>11.5 mm</u> FROM <u>0</u> TO <u>T.D.</u>		UNIT OPERATOR <u>Davis</u>	
SEC. TWP. RNG.			DIA. FROM TO		UNIT NO. <u>PL-1</u> OFFICE <u>Boulder, Colorado</u>	
			DIA. FROM TO		ELECTRIC	
TYPE GAM <u>HRD</u>			BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>		TYPE RESIST S.P.	
LOGGED DEPTH <u>124</u> <u>125</u>			FLUID LEVEL		LOGGED DEPTH <u>124</u> <u>125</u> <u>FT.</u>	
RANGE (F.S.) <u>200</u> <u>20K</u>			CASING DATA		SCALE <u>20</u> <u>2</u>	
%STD DEV <u>10%</u> <u>1%</u>			WALL SIZE <u>NONE</u>		PAPER SPEED <u>5-1</u> <u>1/2</u>	
PAPER SPEED <u>5-1</u> <u>1/2</u>			I.D.		LOG SPEED <u>3-1</u> <u>1/2</u>	
LOG SPEED <u>3-1</u> <u>1/2</u>			CASED FROM TO		FINE ADJ. <u>500</u>	
BKGND. COUNT			CASING TYPE			
PROBE NO. <u>HRD-1</u> <u>HRD-1</u>			SAMPLE DATA		CALIPER	
SIZE (dia.) <u>2"</u> <u>2"</u>			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>		LOGGED DEPTH <u>125</u> <u>125</u> <u>FT.</u>	
K-FACTOR <u>2.0</u> <u>2.0</u>			SAMPLED INTERVAL SAMPLE TYPE		SCALE <u>85"</u> <u>1" Dia.</u> <u>2"</u>	
DEAD TIME <u>2.0</u> <u>2.0</u>					PAPER SPEED <u>5-1</u> <u>1/2</u>	
STANDARD			REMARKS		LOG SPEED <u>3-1</u> <u>1/2</u>	
DIGITAL DATA					ARM LENGTH <u>60</u> <u>IN</u>	
PRINT INTERVAL					MAX DEF <u>7"</u> <u>IN</u>	
TIMEBASE					VERTICAL DEV.	
DENSITY CALIBRATION					DEPTH	
ALUMINUM					INCLIN	
LUCITE					BEARING	



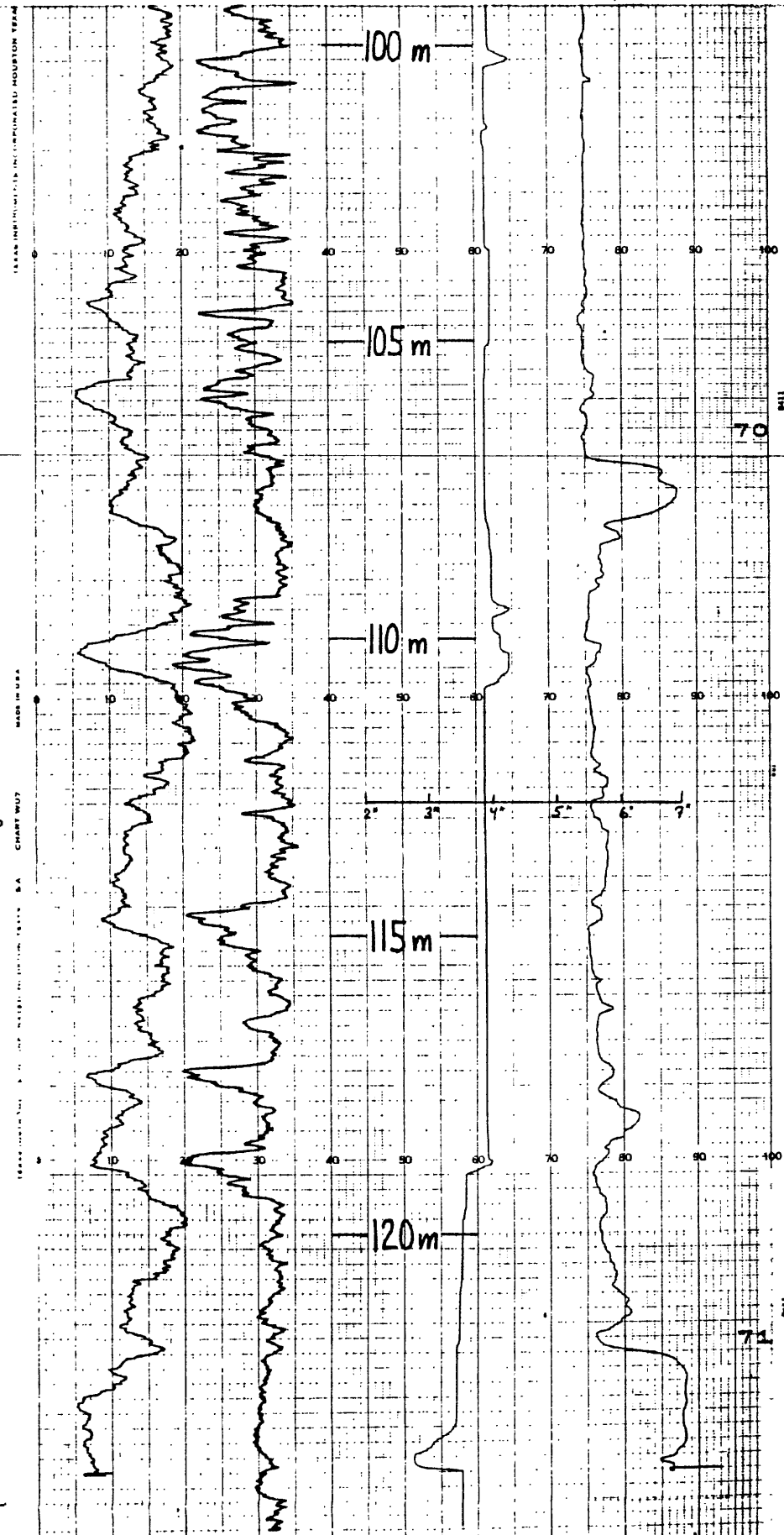
UAL-1

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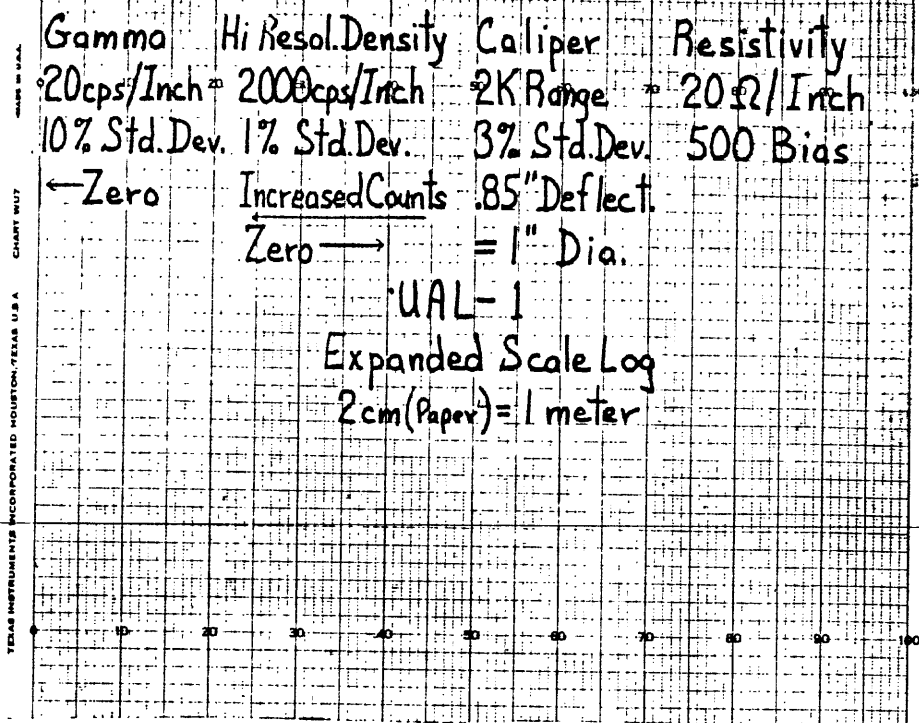


Gamma Hi Resol. Density Caliper Resistivity

20cps/Inch 2000cps/Inch 2K Range 20.0/Inch

UAL-1

R16





DRILL HOLE UAL-2

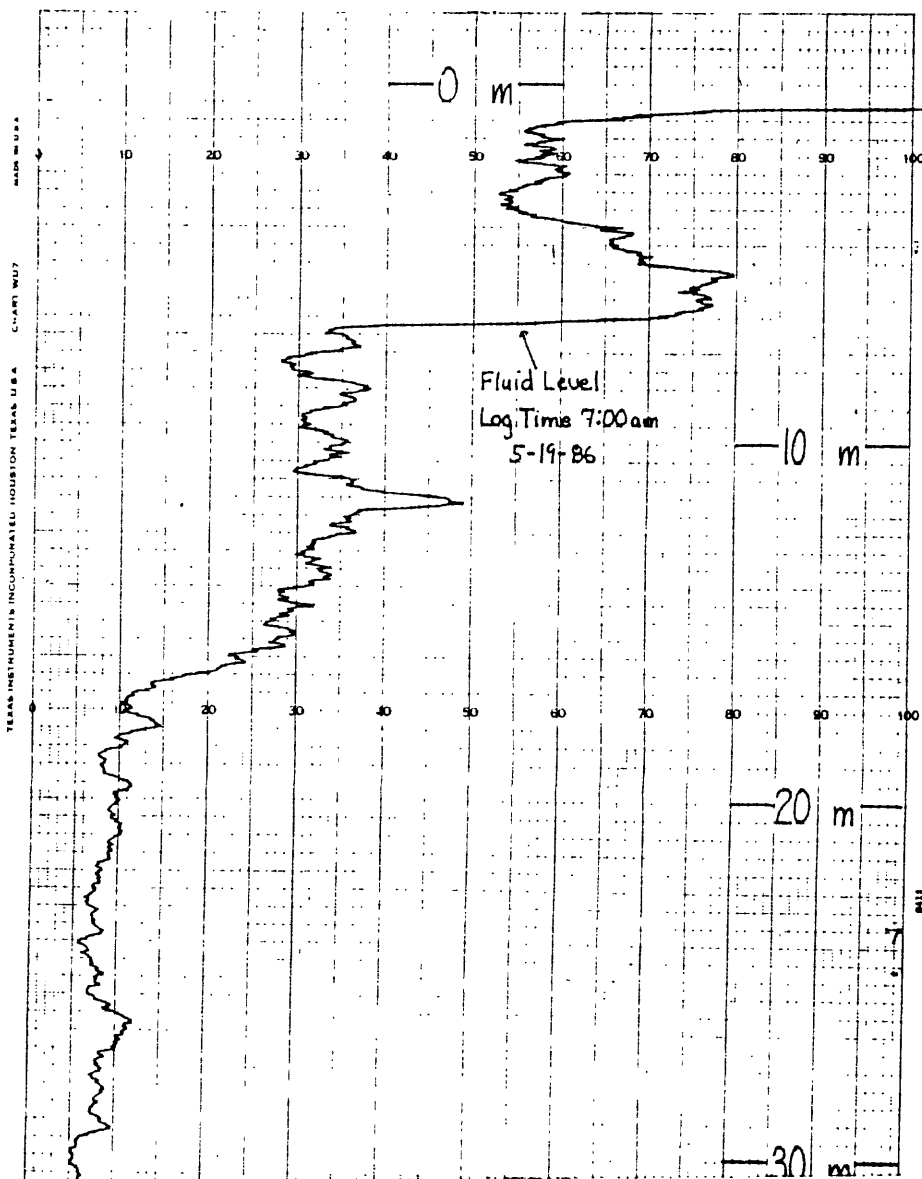


# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAL-2

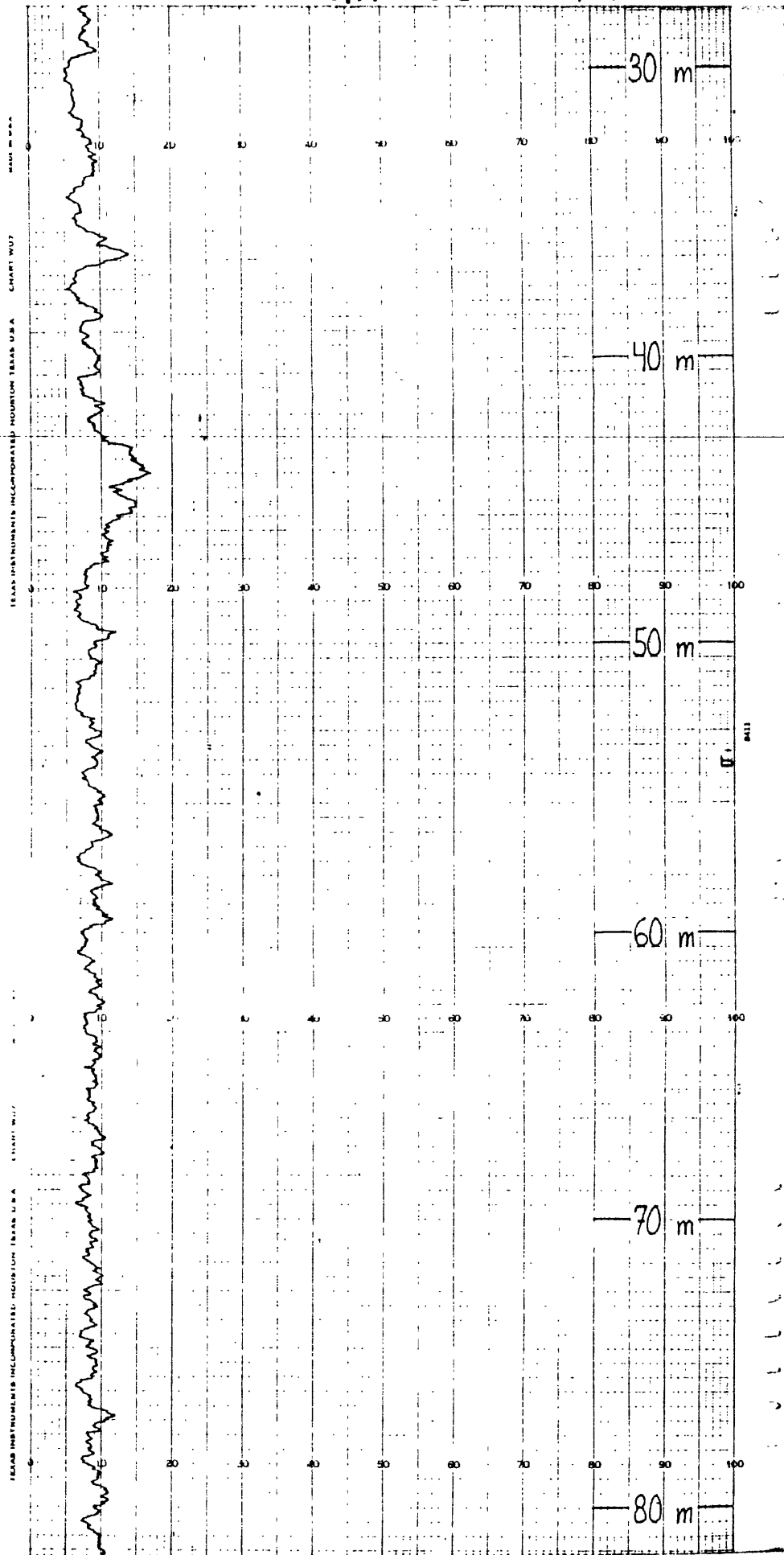
DATE: May 19, 1986

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY <u>Sind Pakistan</u>				DEPTH DRILLED: <u>219.64 m</u>				CLIENT <u>U.S.G.S. - G.S.O.</u>			
REGION <u>Lakhsa</u>				DEPTH LOGGED: <u>218 m</u>				GEOLOGIST: <u>San Felipe</u>			
PROJECT <u>Cool REAP</u>				COLLAR ELEV							
PROSPECT				DIA FROM TO				UNIT OPERATOR <u>Davis</u>			
SEC TWP RNG				DIA FROM TO				UNIT NO OFFICE			
				DIA FROM TO				<u>Pl. Boulder, Colorado</u>			
				BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>				ELECTRIC			
				FLUID LEVEL <u>6.6 m</u>							
TYPE GAM <u>4 Pi Density</u>				CASING DATA				TYPE RESIST S.P.			
LOGGED DEPTH <u>218 m</u>				WALL SIZE <u>See Remarks</u>				LOGGED DEPTH FT. FT.			
RANGE (I.S.) <u>200</u>				I.D.				SCALE			
%STD DEV <u>10%</u>				CASED FROM " TO				PAPER SPEED			
PAPER SPEED <u>1-1</u>				CASING TYPE " "				LOG SPEED			
LOG SPEED <u>6-1</u>								FINE ADJ			
BKGD. COUNT				SAMPLE DATA							
PROBE NO. <u>5D-1</u>				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>							
SIZE (dia.) <u>1 3/8</u>				SAMPLED INTERVAL SAMPLE TYPE							
K-FACTOR											
DEAD TIME <u>2</u>											
STANDARD											
DIGITAL DATA				REMARKS				CALIPER			
PRINT INTERVAL				Casing - Size - Thickness				LOGGED DEPTH FT.			
TIMEBASE				<u>0m To 4.32m 5 1/2" 5/8"</u>				SCALE			
				<u>0m To 99m ID 101.6mm 6.35mm</u>				PAPER SPEED			
				<u>OD 114.3mm</u>				LOG SPEED			
				<u>0m To 159.7m ID 76.1mm 6.05mm</u>				ARM LENGTH			
				<u>OD 88.9mm</u>				MAX DEF			
				<u>Drill Pipe OD 8.9mm 8.55mm</u>				VERTICAL DEV.			
DENSITY CALIBRATION								DEPTH			
ALUMINUM								INCLIN.			
LUCITE								BEARING			



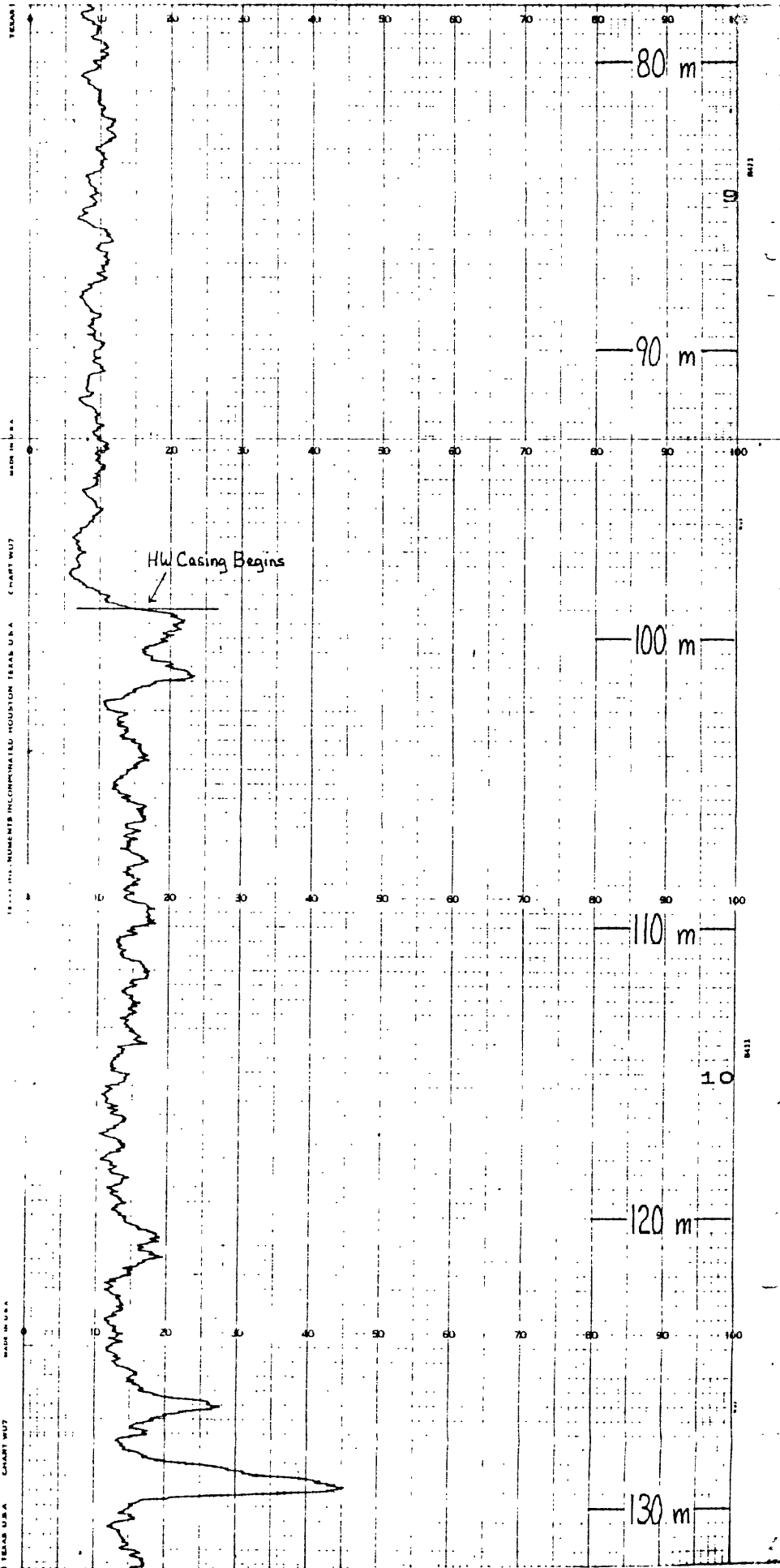
UAL-2

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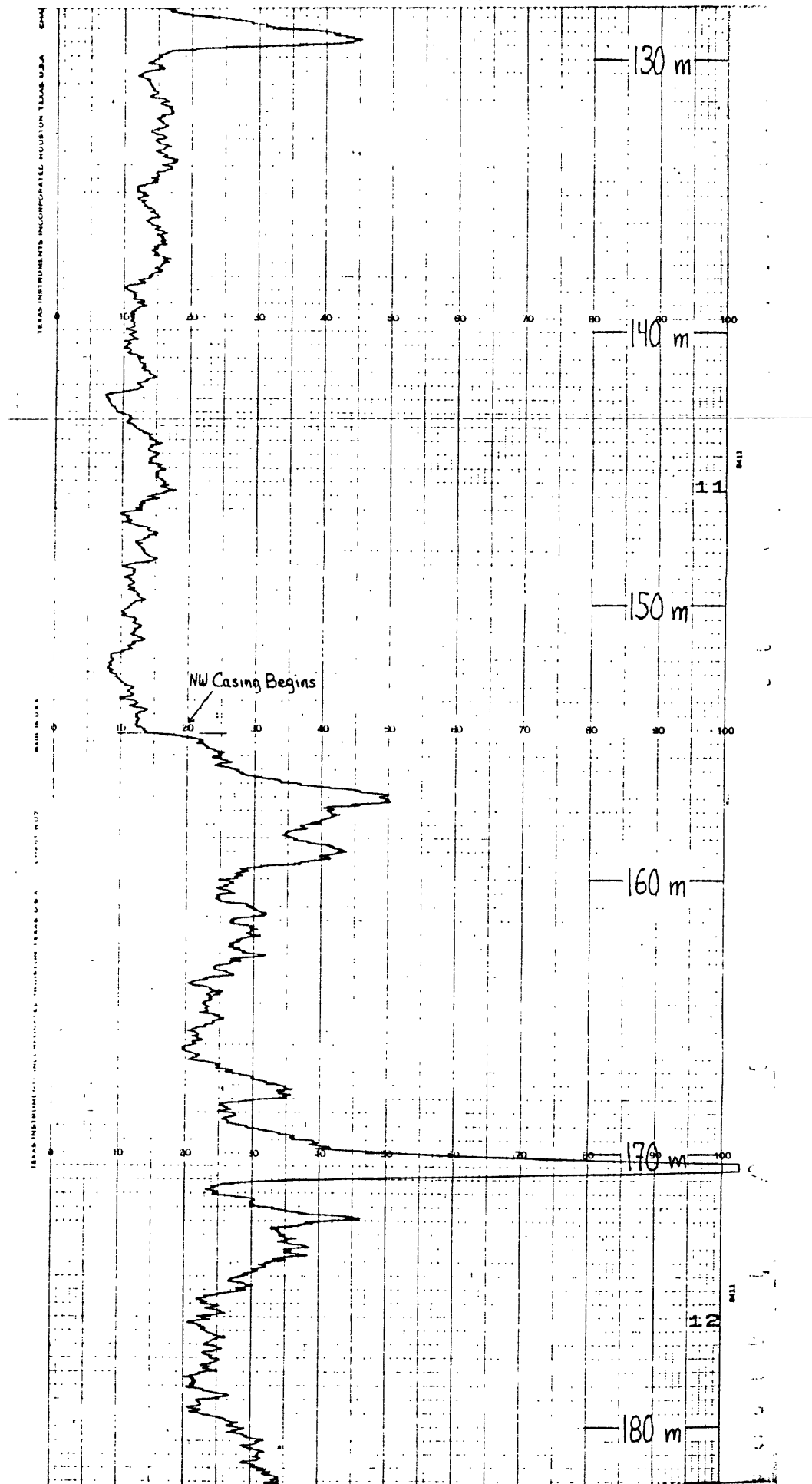


UAL-2

P.20

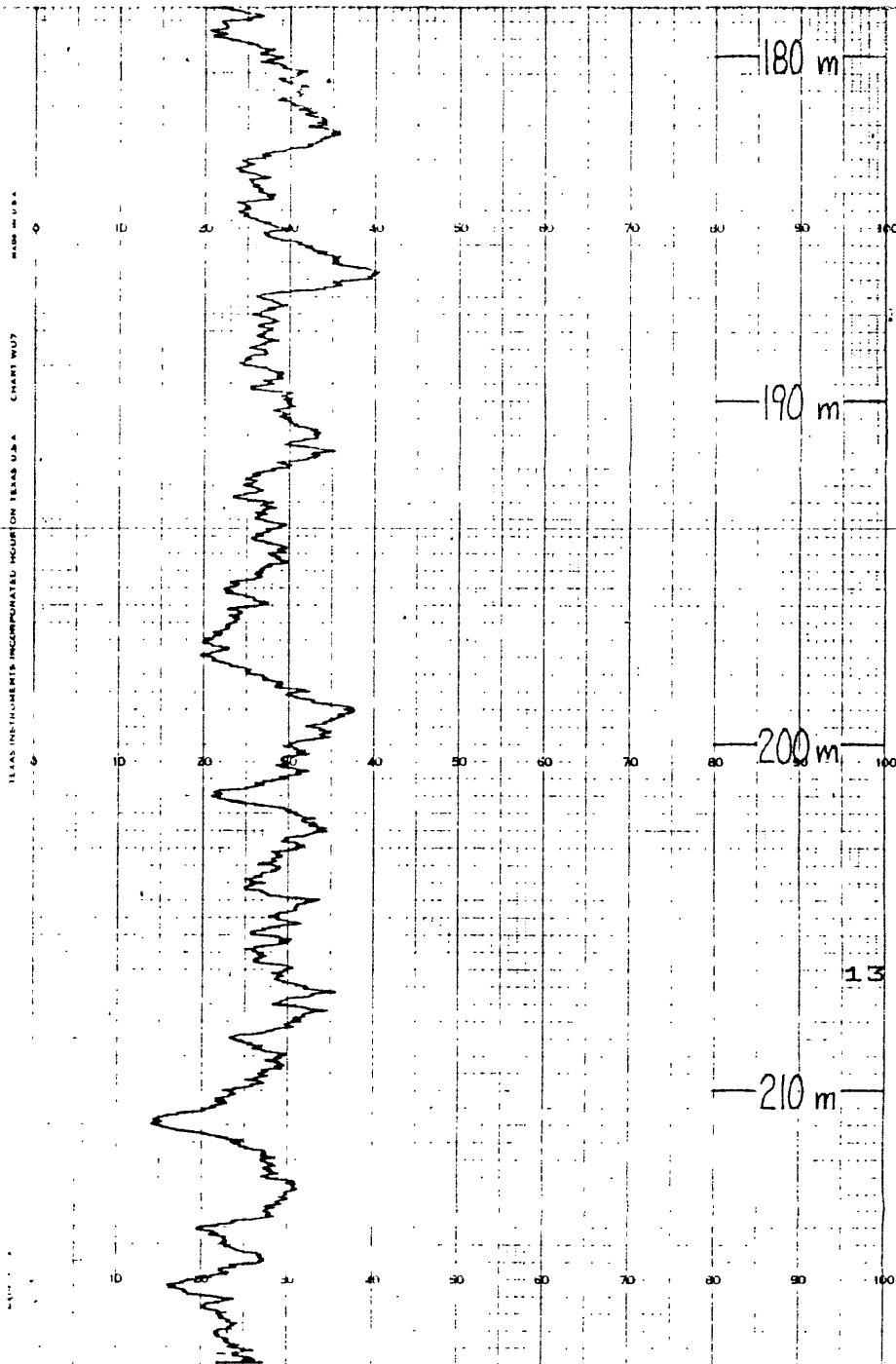


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UAL-2

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4Pi Density

20 cps/Inch

10% Std.Dev.

← Zero

Logged Thru Drill Pipe  
Plus HW & NW Casing  
UAL-2

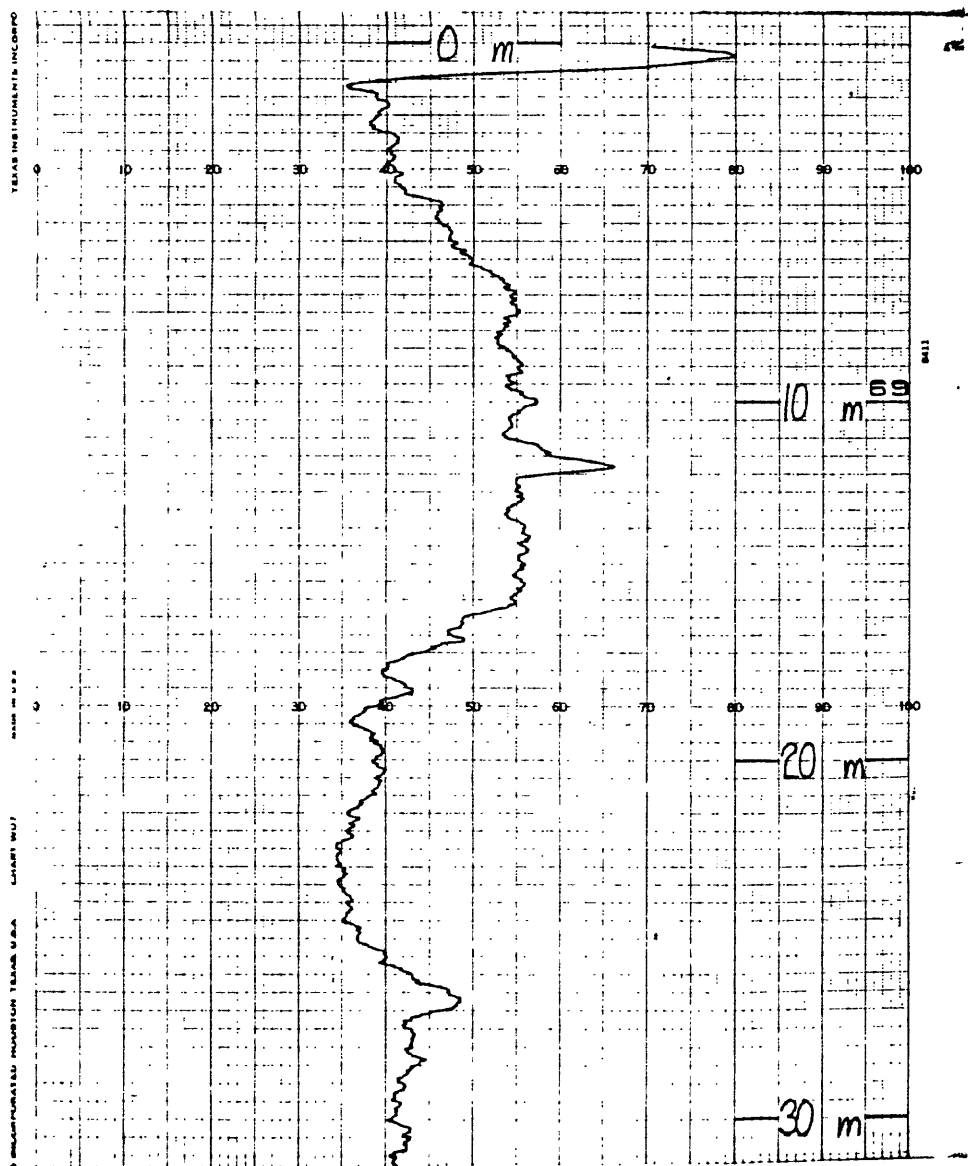


# GEOSCIENCE ASSOCIATES Master

HOLE NUMBER: UAL - 2

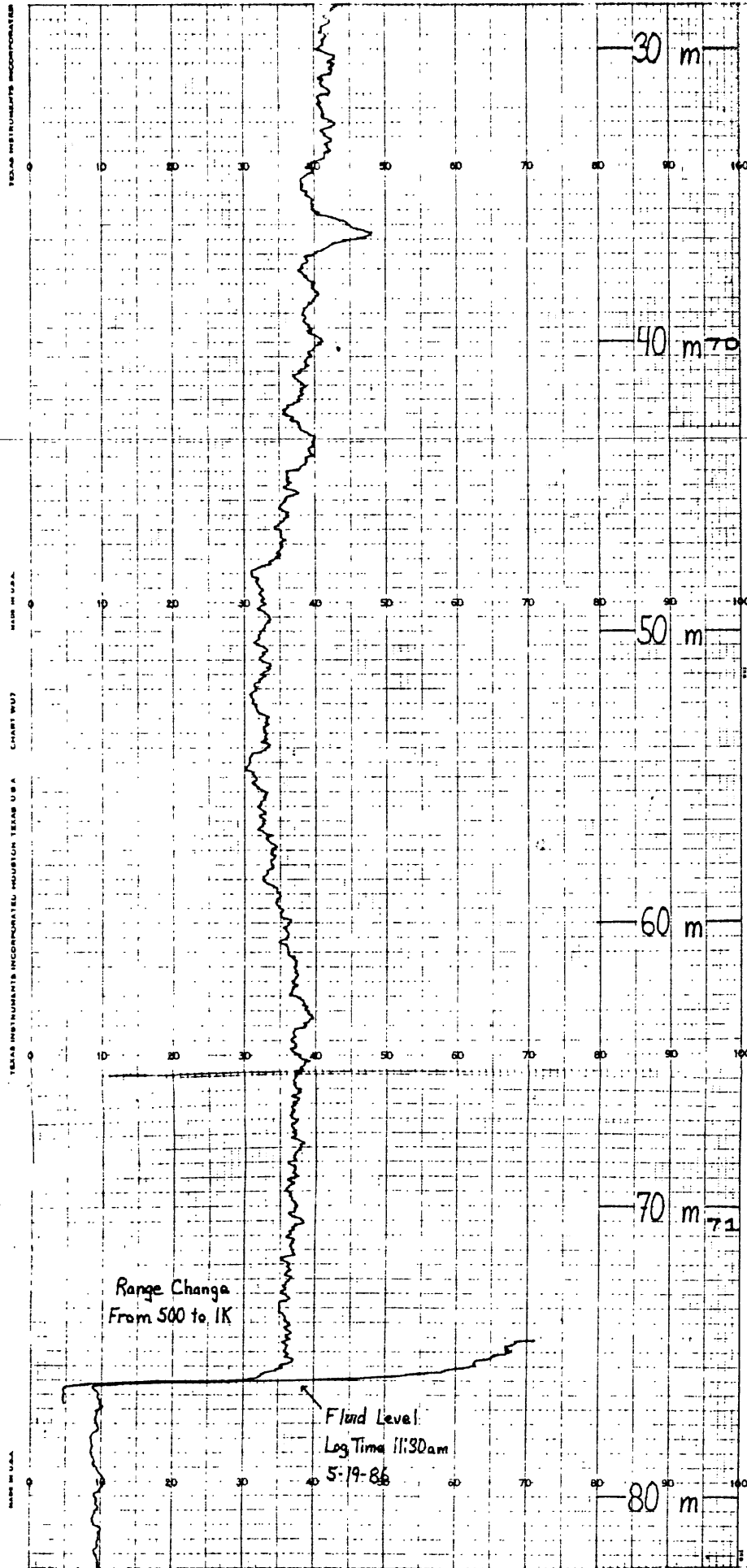
DATE: MAY - 19 - 1986

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY <u>SYND - PAKISTAN</u>				DEPTH DRILLED <u>219.64 m</u>				CLIENT <u>U.S.G.S. / G.S.P</u>			
REGION <u>LAHRA</u>				DEPTH LOGGED: <u>218 m</u>				GEOLOGIST: <u>SAN PHILIPPO</u>			
PROJECT <u>COAL R.E.A.P</u>				COLLAR ELEV							
PROSPECT				DIA. <u>115 mm</u> FROM 0 TO				UNIT OPERATOR <u>DAVIS</u>			
SEC. TWP. RNG.				DIA. FROM TO				UNIT NO. <u>PL-1</u> OFFICE			
				DIA. FROM TO				<u>BOULDER, COLORADO</u> <u>U.S.A</u>			
TYPE				BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>				ELECTRIC			
LOGGED DEPTH <u>218 m</u>				FLUID LEVEL <u>76 m</u>							
RANGE (I.B.) <u>500</u>				CASING DATA							
%STD OEY <u>3%</u>				WALL SIZE <u>See Remarks</u>				TYPE			
PAPER SPEED <u>1-1</u>				I.D. "				LOGGED DEPTH			
LOG SPEED <u>6-1</u>				CASED FROM <u>0 TO 154.7</u>				RESIST			
BKGND. COUNT <u>60-1</u>				CASING TYPE <u>NV</u>				FT. FT.			
PROBE NO. <u>60-1</u>				SAMPLE DATA				SCALE			
SIZE (dia.) <u>1 3/4</u>				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>				PAPER SPEED			
K-FACTOR <u>1.1</u>				SAMPLED INTERVAL				LOG SPEED			
DEAD TIME <u>2.0</u>				SAMPLE TYPE				FINE ADJ.			
STANDARD											
DIGITAL DATA				REMARKS				CALIPER			
PRINT INTERVAL				Casing - Size - Thickness				LOGGED DEPTH			
TIMEBASE				0 m to 4.32 m 3 3/4" 1/2"				SCALE			
				0 m to 99 m ID 101.6 mm 6.35 mm				PAPER SPEED			
				OD 114.3 mm				LOG SPEED			
DENSITY CALIBRATION				0 m to 154.7 m ID 76.2 mm 6.05 mm				ARM LENGTH			
ALUMINUM				OD 88.9 mm				MAX DEF			
LUCITE								VERTICAL DEV.			
								DEPTH			
								INCLIN.			
								BEARING			



UAL-2

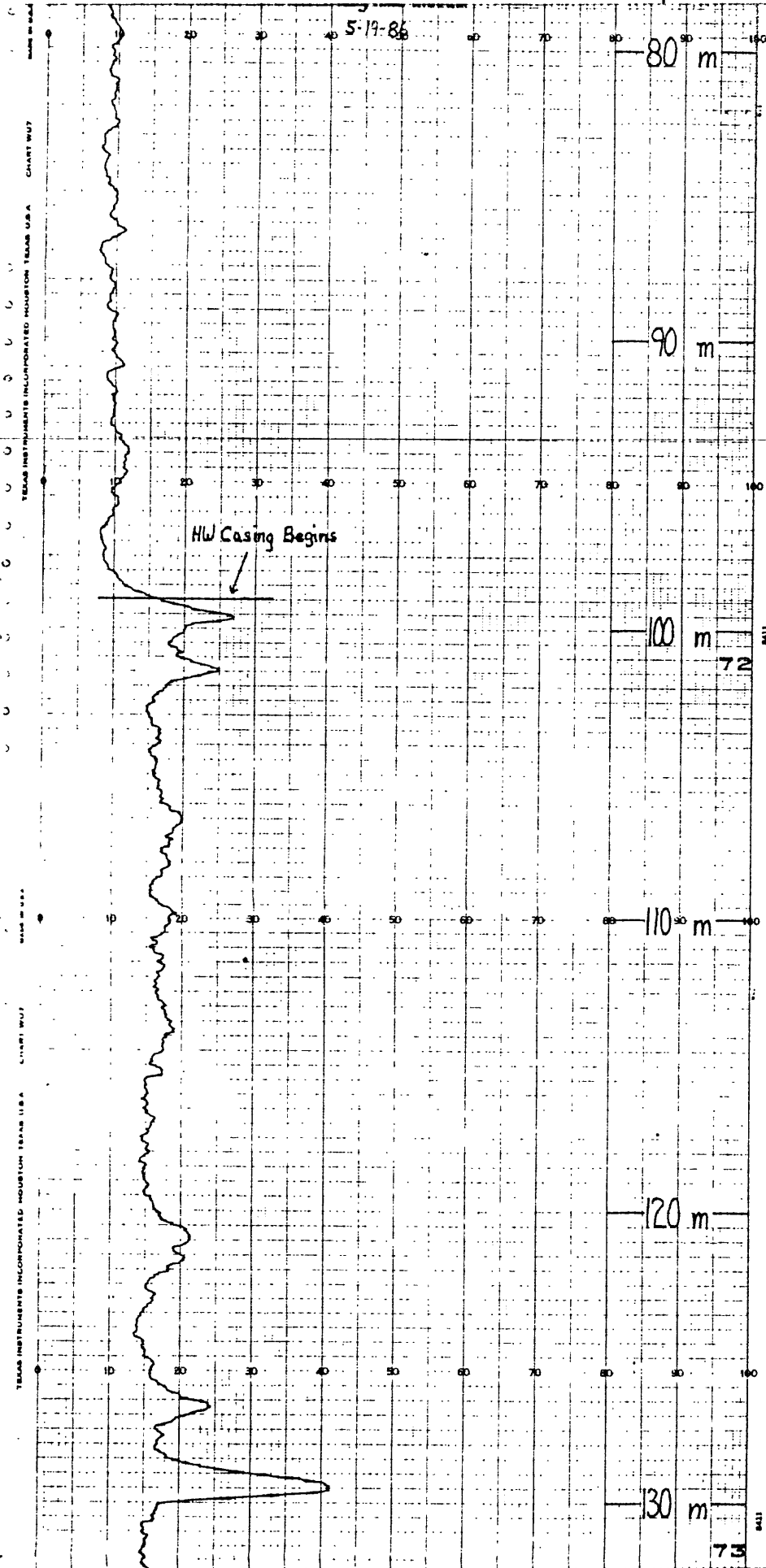
P.24





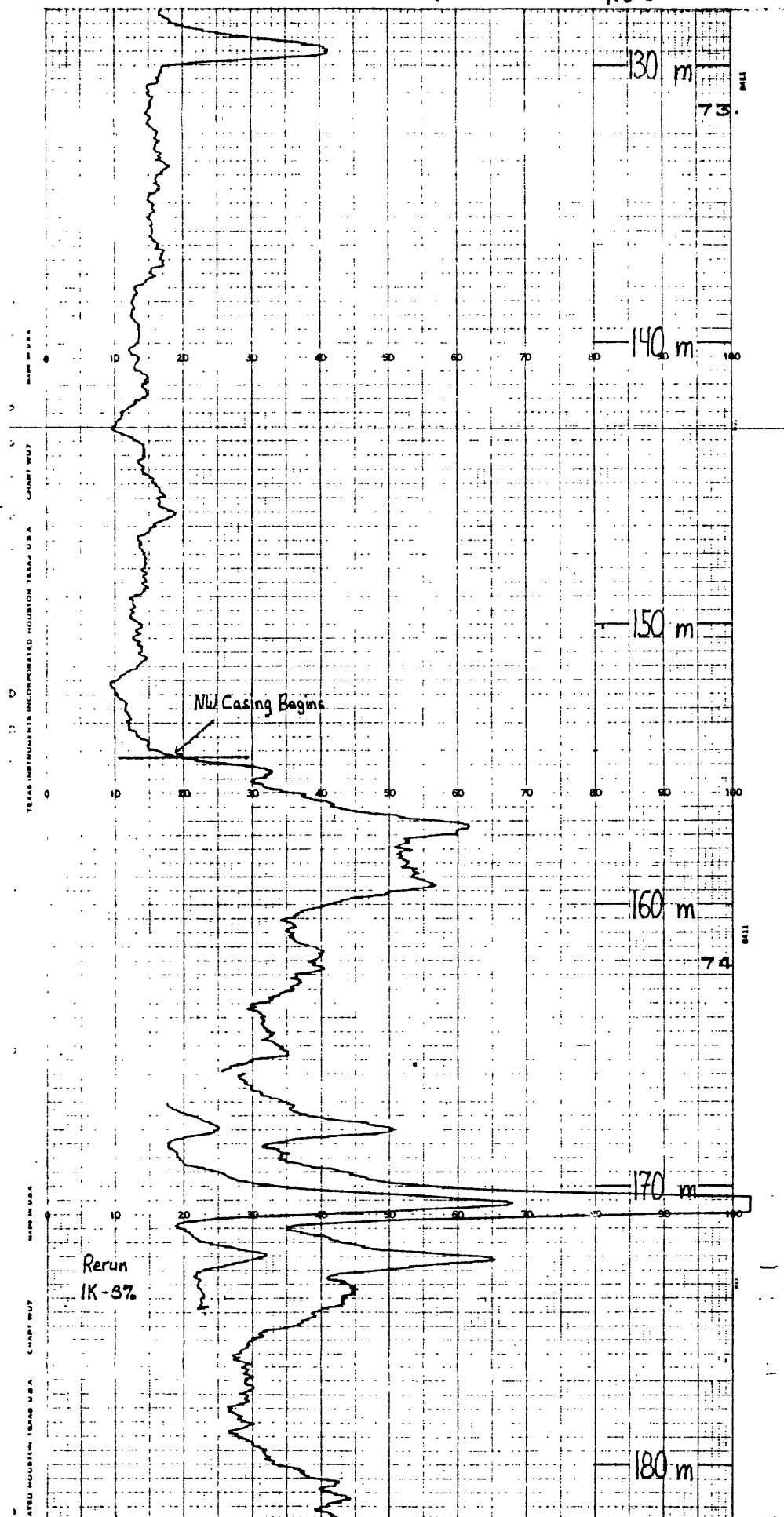
UAL-2

P.25

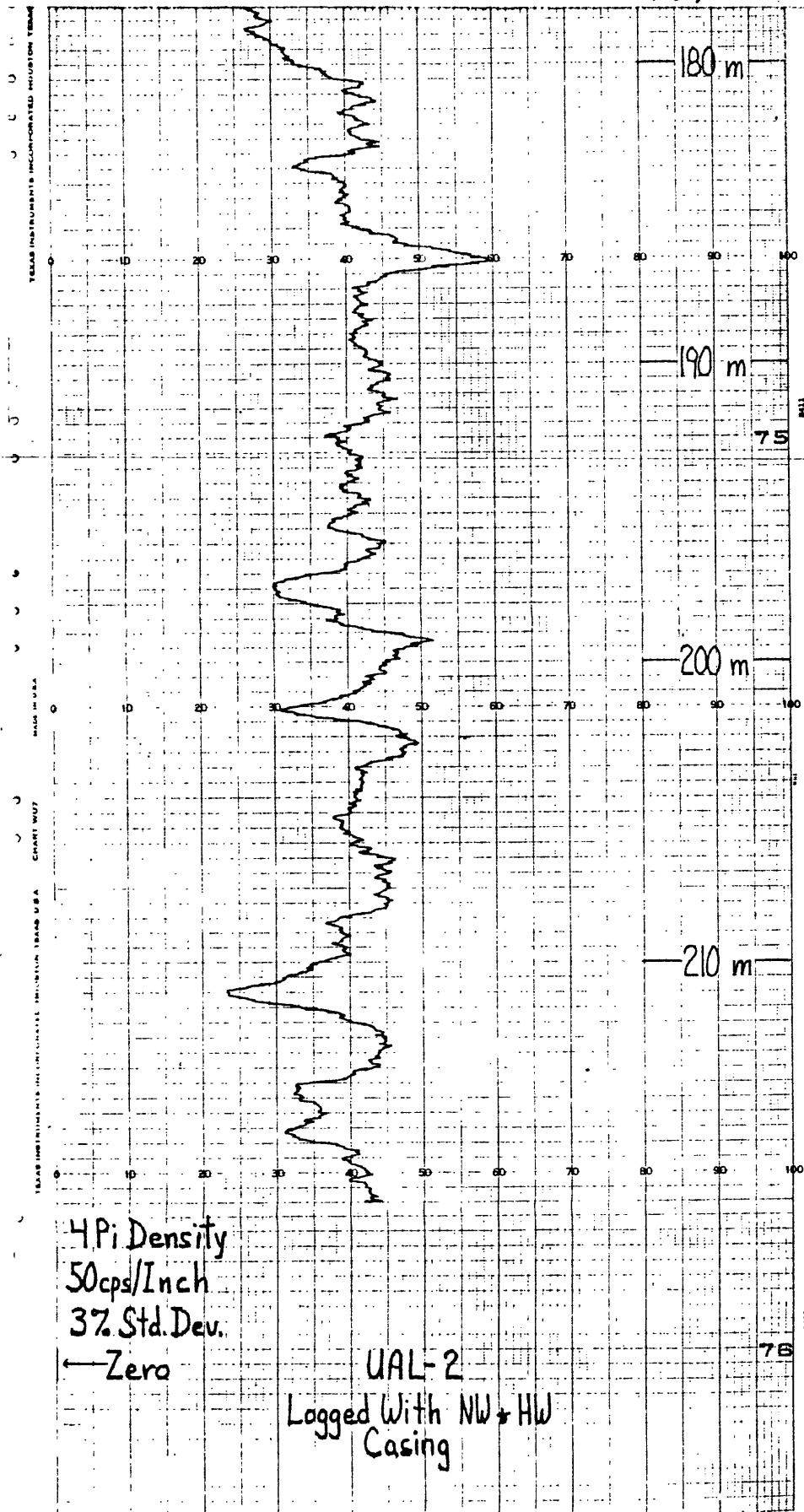


UAL-2

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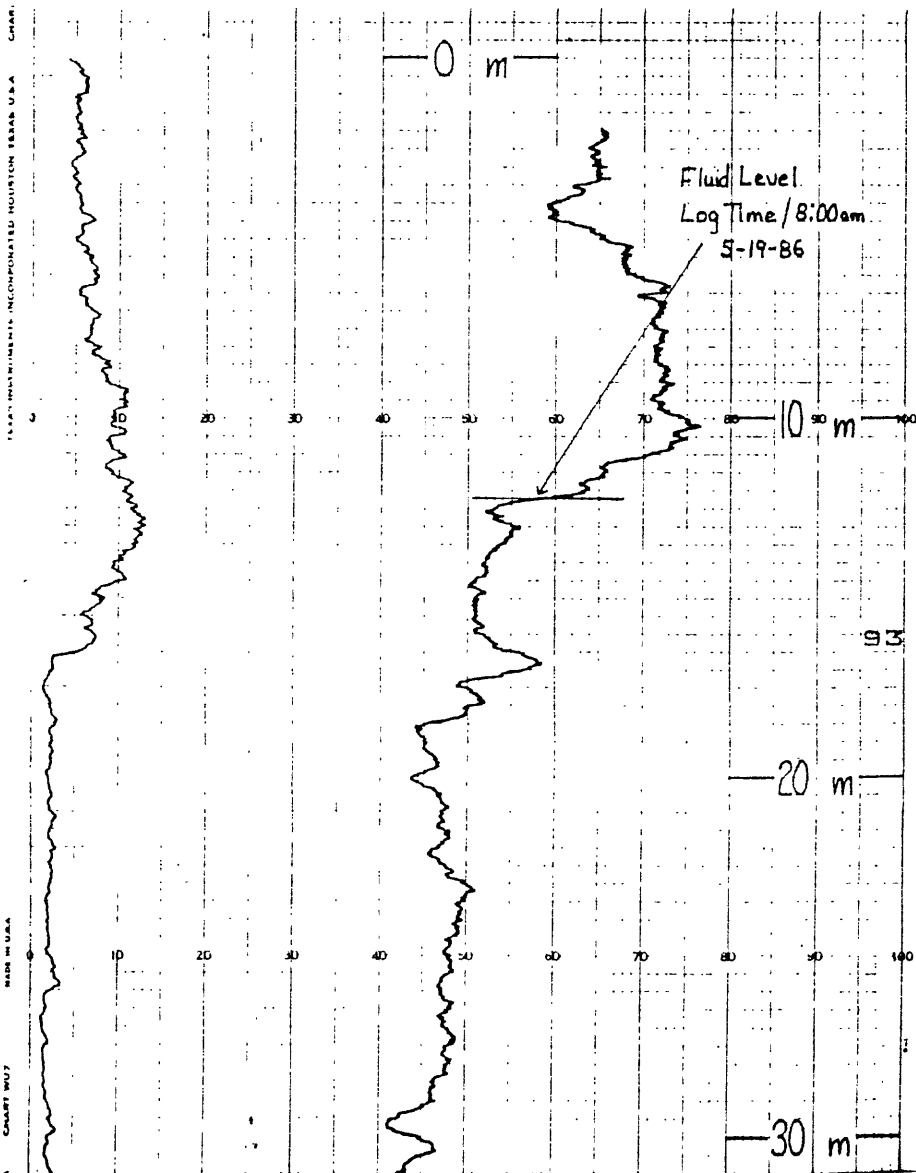


# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAL-2

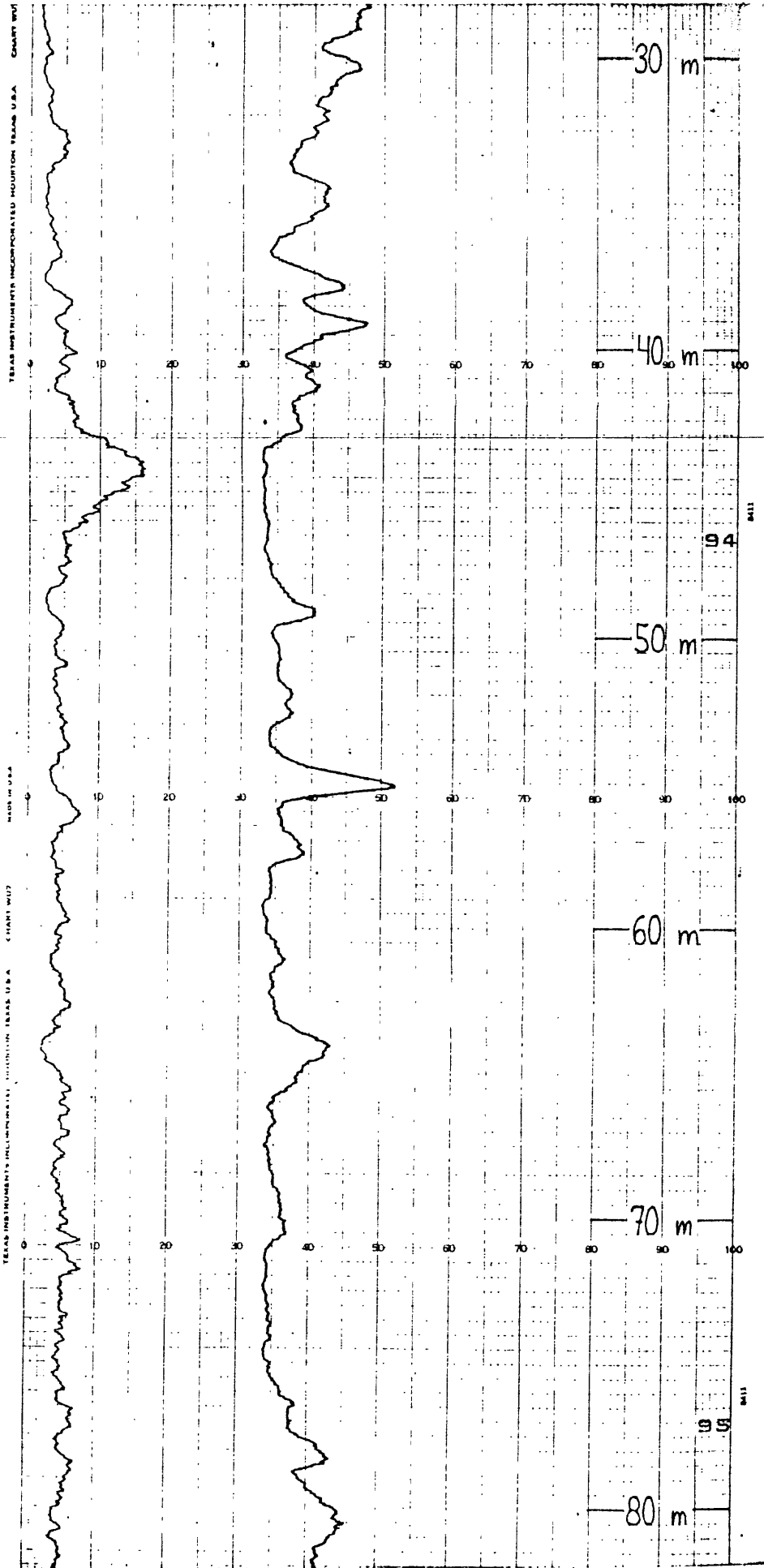
DATE: May 19, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sind Pakistan		DEPTH DRILLED	219.64m		CLIENT	U.S.G.S. - U.G.S.P.	
REGION	Lakhta		DEPTH LOGGED	218m		GEOLOGIST	San Felipe	
PROJECT	Coal REAP		COLLAR ELEV.			UNIT OPERATOR	Davis	
PROSPECT			DIA. FROM TO			UNIT NO.	Pl-1	
SEC	TWP	RNG	DIA. FROM TO			OFFICE	Boulder, Colorado	
			DIA. FROM TO			ELECTRIC		
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH	216m	218m	FLUID LEVEL	12.2m		LOGGED DEPTH	FT	FT
RANGE (I.S.)	200	500	WALL SIZE	See Remarks		SCALE		
%STD DEV	10%	13%	ID			PAPER SPEED		
PAPER SPEED	1-1	1-1	CASED FROM TO			LOG SPEED		
LOG SPEED	6-1	6-1	CASING TYPE			FINE ADJ.		
BKGND. COUNT			SAMPLE DATA			CALIPER		
PROBE NO	64-1		NON-CORED HOLE	<input type="checkbox"/>		LOGGED DEPTH	FT	
SIZE (dia.)	1 3/4		CORED HOLE	<input checked="" type="checkbox"/>		SCALE		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		PAPER SPEED		
DEAD TIME	2		REMARKS			LOG SPEED		
STANDARD			Casing - Size - Thickness			ARM LENGTH	IN	
DIGITAL DATA			0m To 4.32m 5 1/2" 1/2"			MAX DEF	IN	
PRINT INTERVAL			0m To 99m ID 101.6mm 6.35mm			VERTICAL DEV.		
TIMEBASE			OD 114.3mm			DEPTH		
DENSITY CALIBRATION			0m To 159.7m ID 76.1mm 6.05mm			INCLIN		
ALUMINUM			OD 82.9mm			BEARING		
LUCITE			Drill Pipe OD 1.99" 5.15mm					



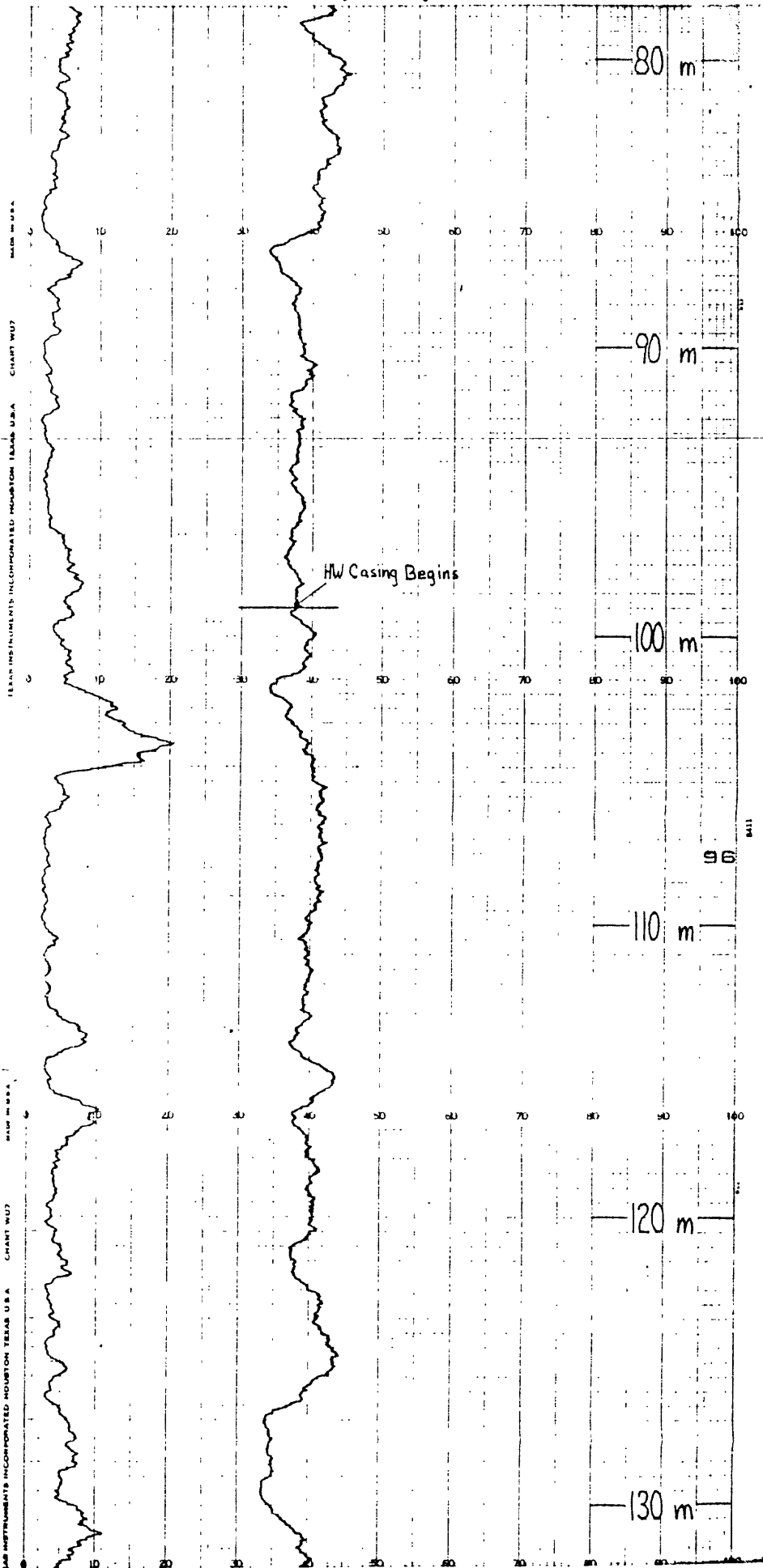
UAL-2

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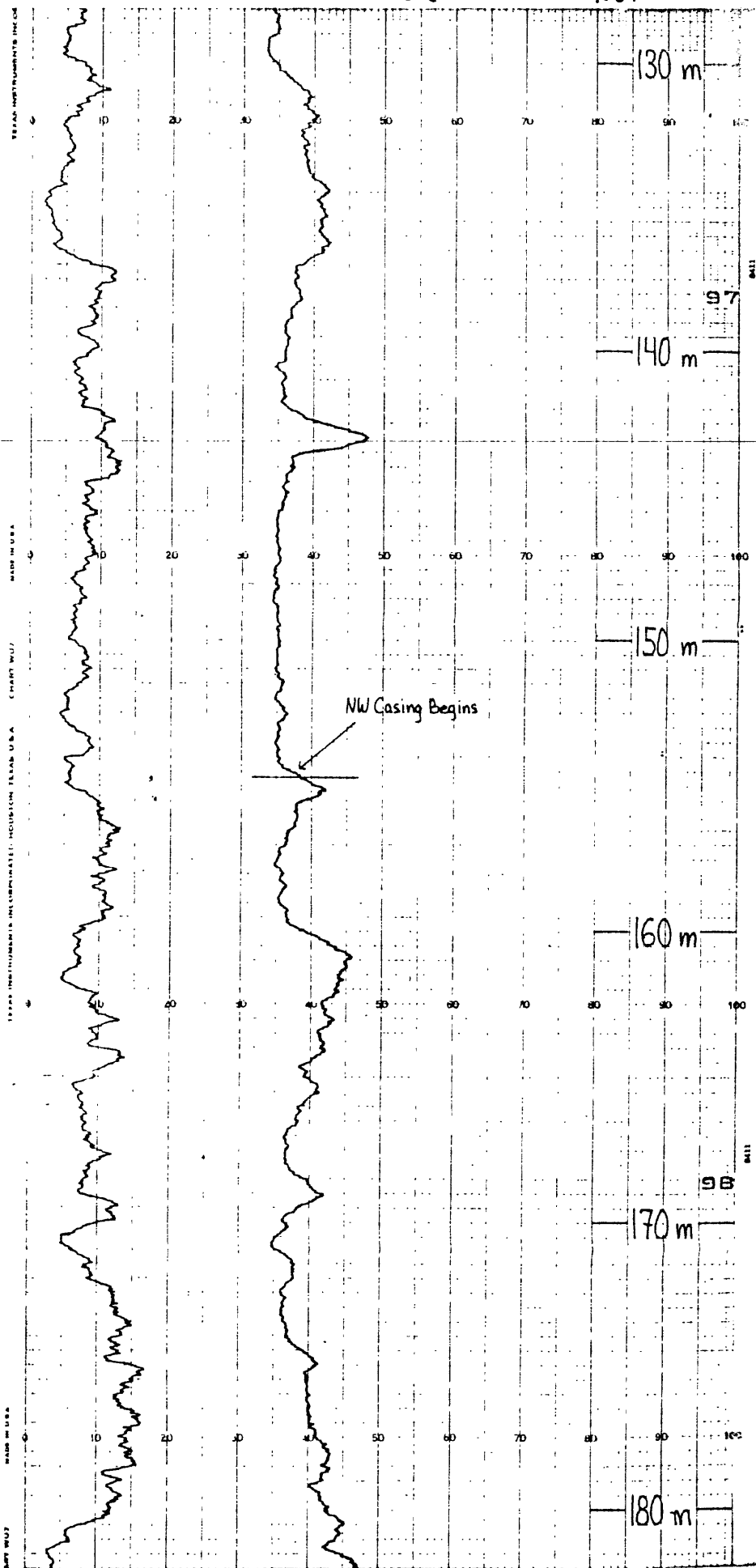
UAL-2

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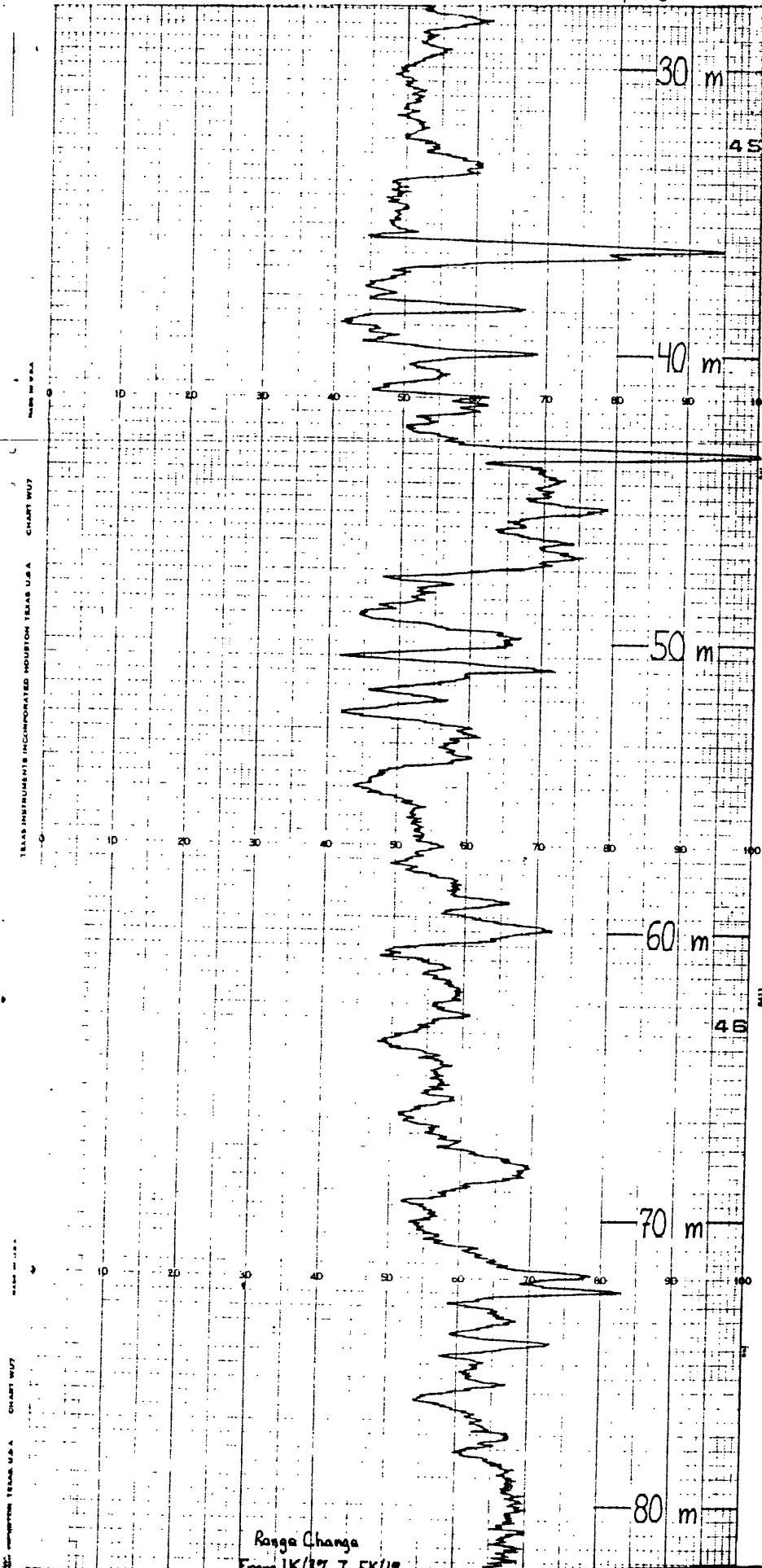






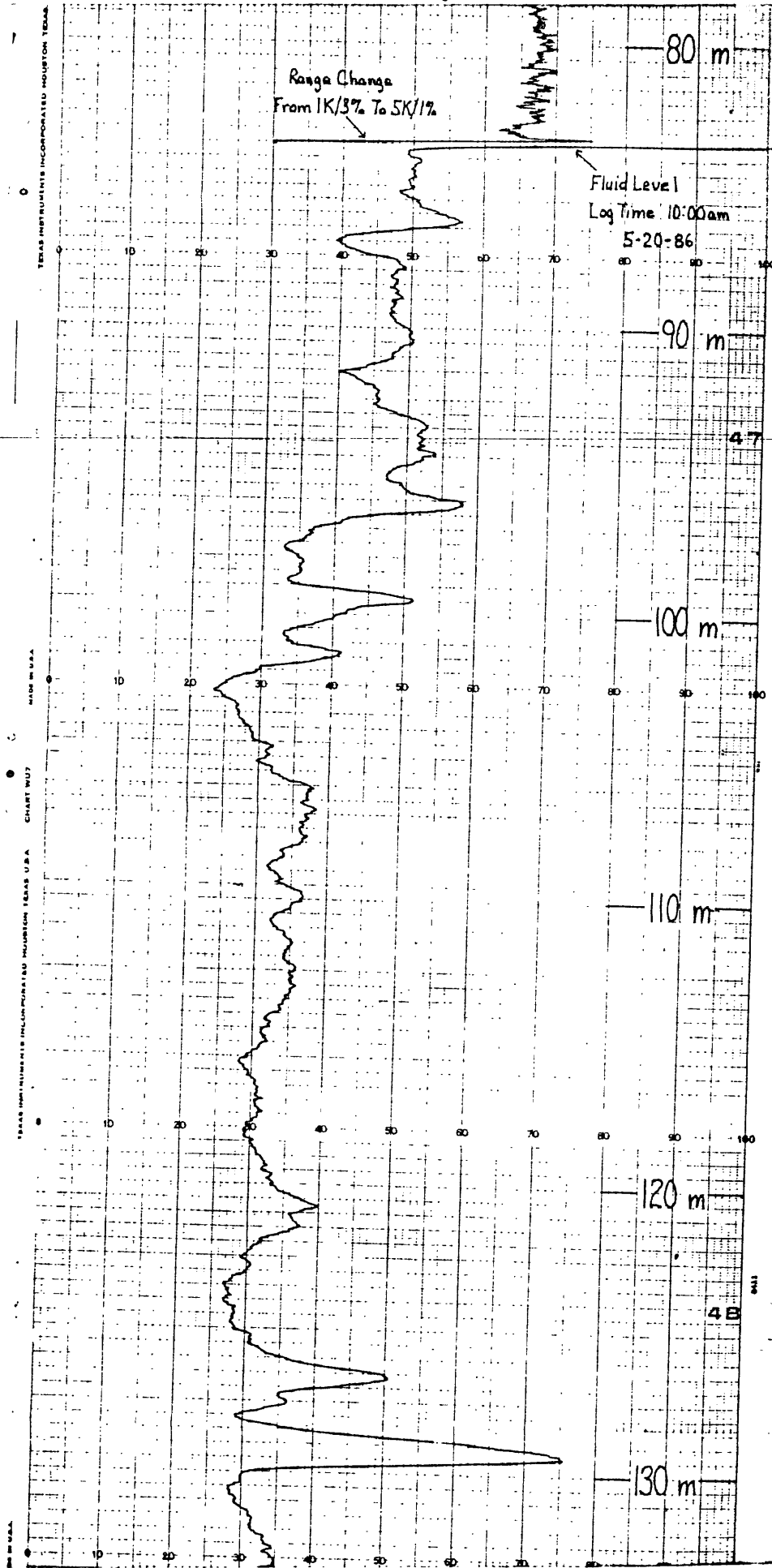
UAL-2

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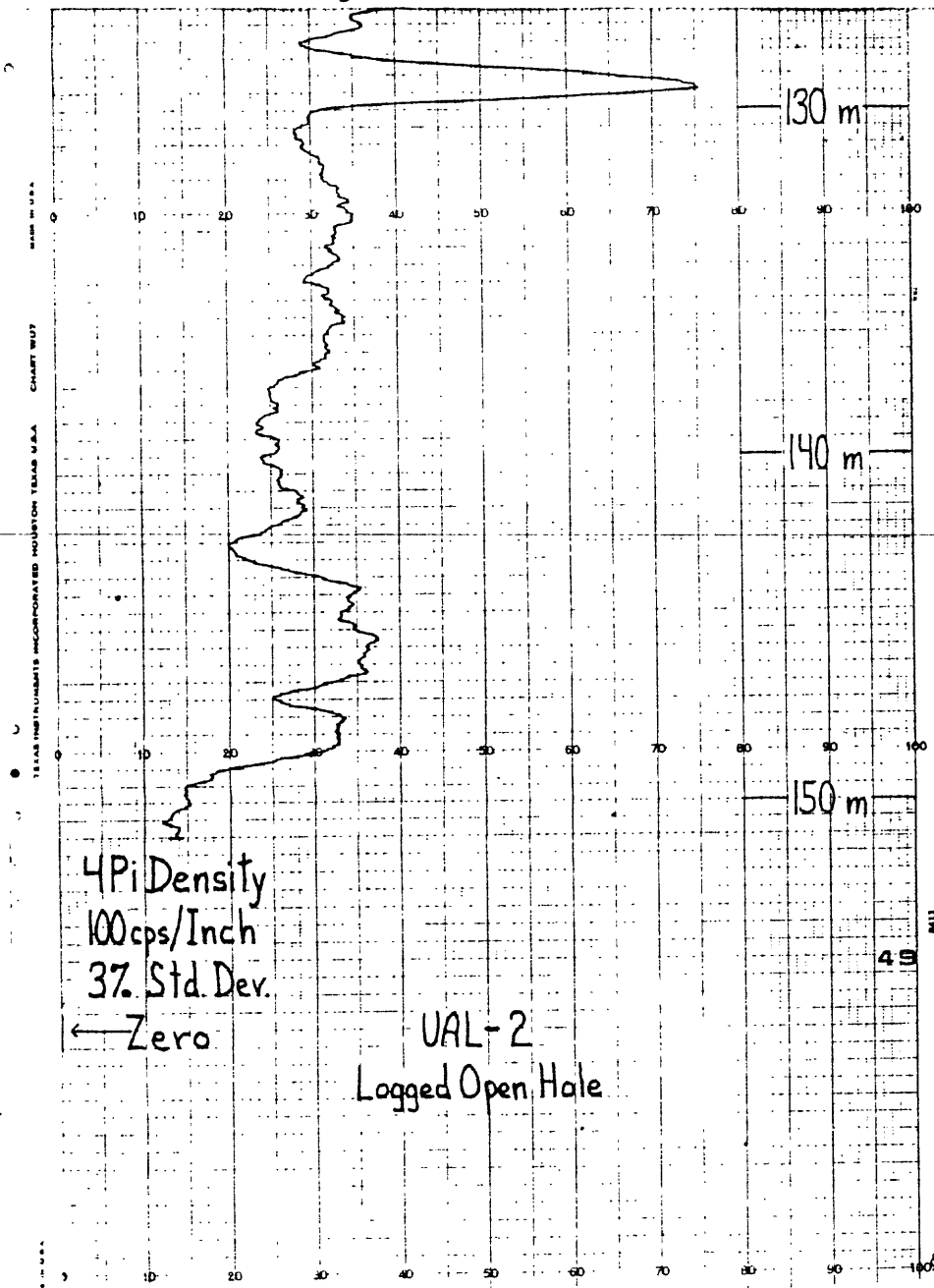
UAL-2

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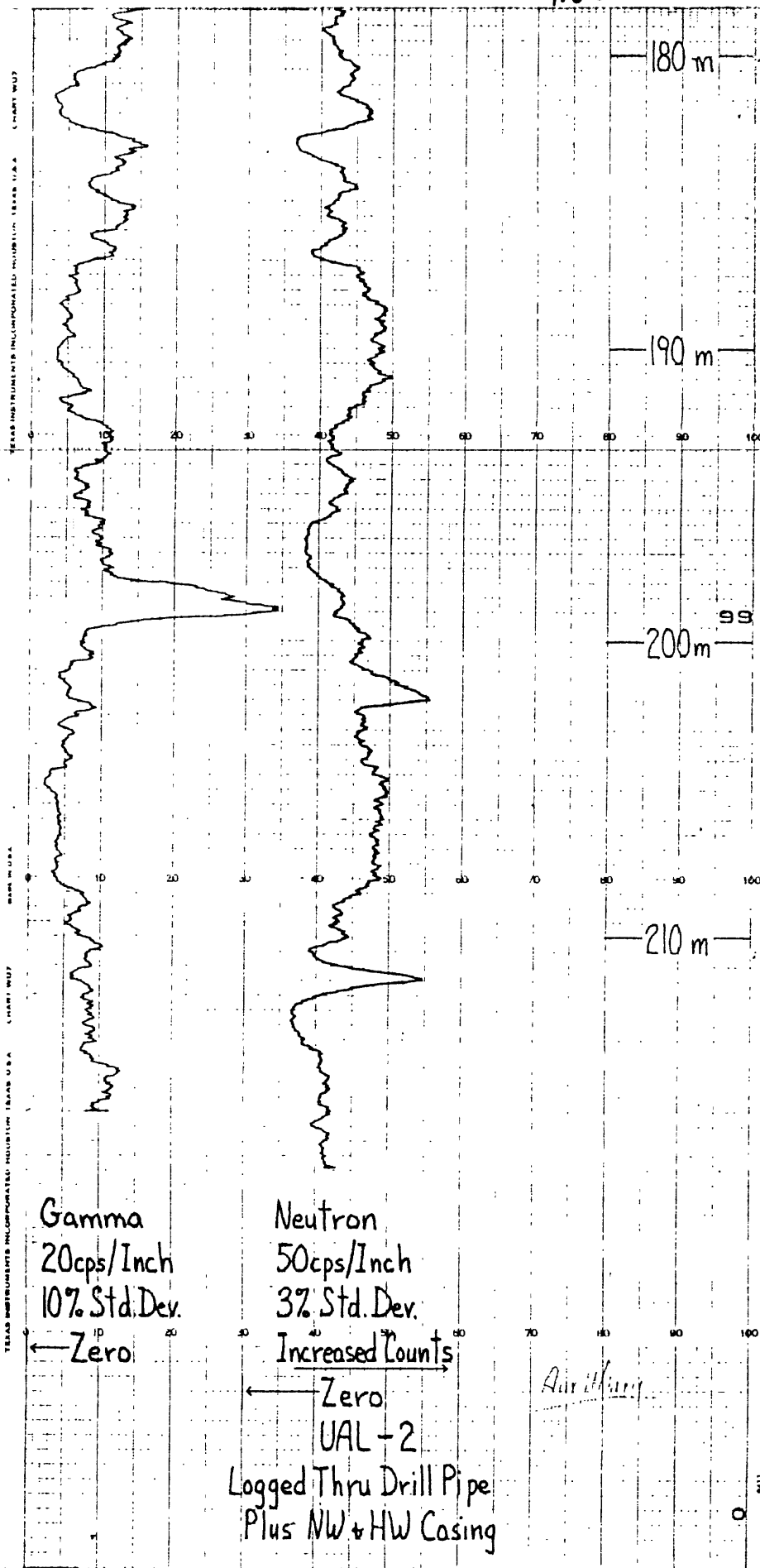
UAL-2

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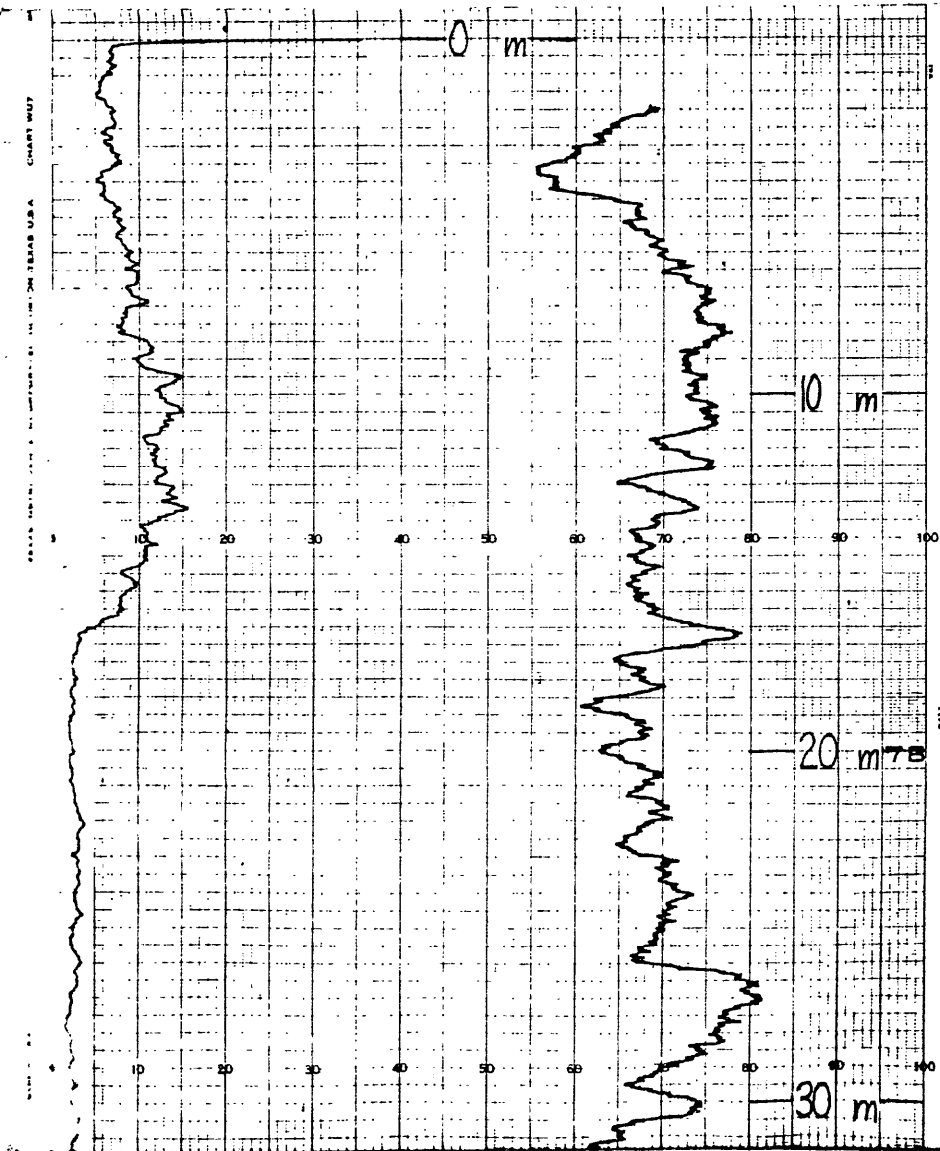
P.37



# GEOSCIENCE ASSOCIATES Master

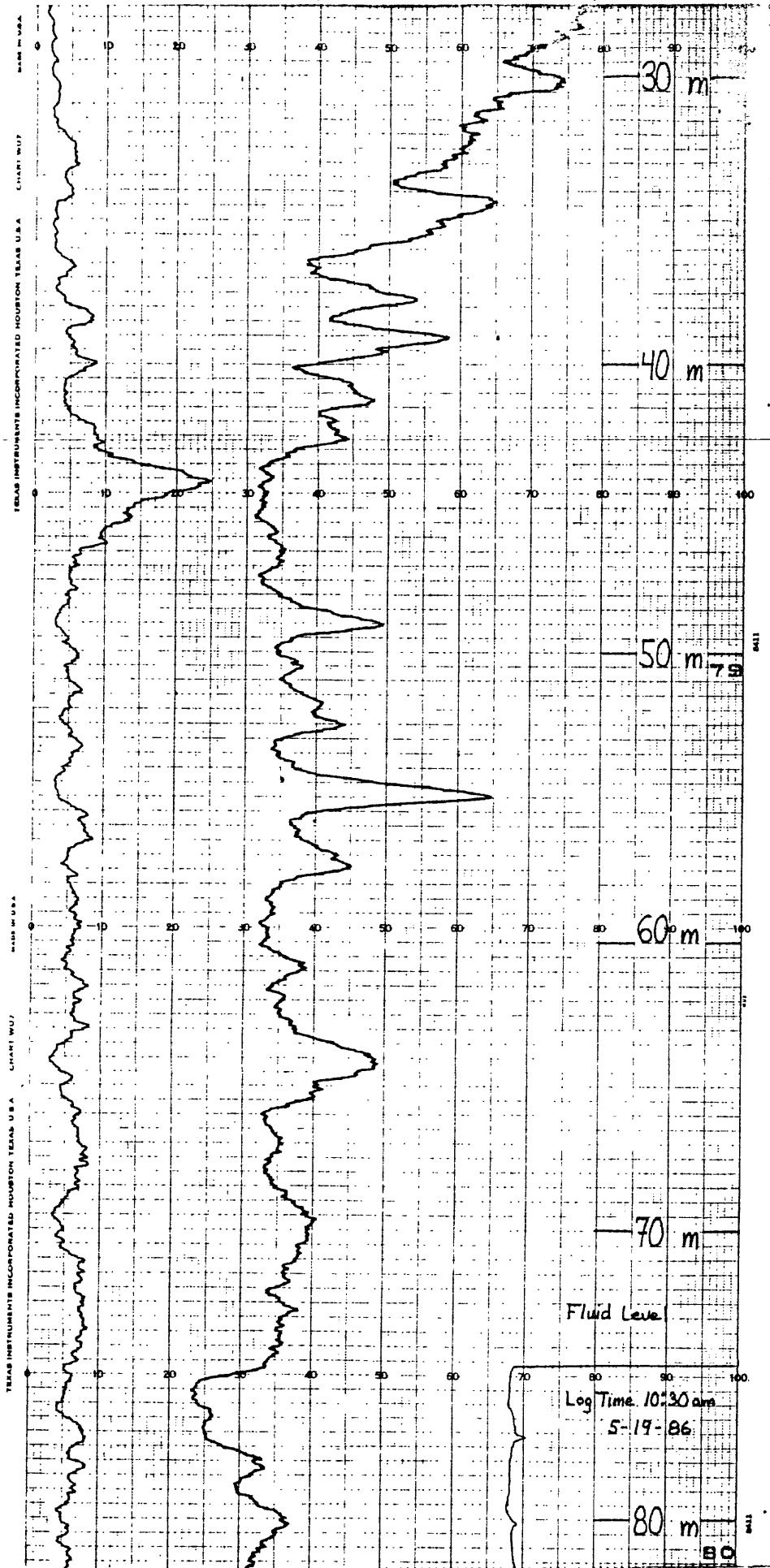
HOLE NUMBER: UAL - 2DATE: MAY - 19 - 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	<u>Sind Pakistan</u>		DEPTH DRILLED:	<u>219.64 m</u>		CLIENT	<u>U.S.G.S / G.S.P.</u>	
REGION	<u>Lahore</u>		DEPTH LOGGED:	<u>219 m</u>		GEOLOGIST:	<u>San Felipe</u>	
PROJECT	<u>Coal R.F.A.P.</u>		COLLAR ELEV.			UNIT OPERATOR <u>Davis</u>		
PROSPECT			DIA. FROM TO			UNIT NO. <u>PL-1</u> OFFICE <u>U.S.A.</u>		
SEC.	TWP.	RNG.	DIA. FROM TO			Boulder <u>Colorado</u>		
			DIA. FROM TO			ELECTRIC		
TYPE	GAM	Neutron	BOREHOLE MEDIUM <u>4.0 + Mud</u>			TYPE	RESIST	S.P.
LOGGED DEPTH	<u>217 m</u>	<u>219 m</u>	FLUID LEVEL <u>74.6 m</u>			LOGGED DEPTH	<u>217 m</u>	FT
RANGE (I.S.)	<u>200</u>	<u>500</u>	CASING DATA			SCALE	<u>20</u>	<u>2</u>
%STD DEV	<u>10%</u>	<u>3%</u>	WALL SIZE <u>See Remarks</u>			PAPER SPEED	<u>1-1</u>	<u>1/2</u>
PAPER SPEED	<u>1-1</u>	<u>1-1</u>	I.D. " "			LOG SPEED	<u>6-1</u>	<u>1/2</u>
LOG SPEED	<u>6-1</u>	<u>6-1</u>	CASED FROM TO			FINE ADJ.	<u>Subbia</u>	
BKGND. COUNT			CASING TYPE <u>Steel</u>			CALIPER		
PROBE NO.	<u>GN-1</u>	<u>GN-1</u>	SAMPLE DATA			LOGGED DEPTH		FT
SIZE (dia.)	<u>1 3/8"</u>	<u>1 3/8"</u>	NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			SCALE		
K-FACTOR			SAMPLED INTERVAL			PAPER SPEED		
DEAD TIME	<u>2</u>	<u>2</u>	SAMPLE TYPE			LOG SPEED		
STANDARD			REMARKS			ARM LENGTH		IN
DIGITAL DATA			Casing - Size - Thickness			MAX DEF.		IN
PRINT INTERVAL			<u>0m to 4.32m 5 1/2" 1/2"</u>			VERTICAL DEV.		
TIMEBASE			<u>0m to 99m ID 10.6mm 6.35mm</u>			DEPTH		
DENSITY CALIBRATION			<u>0m to 1547m ID 7.6mm 6.05mm</u>			INCLIN		
ALUMINUM			<u>0m to 1547m ID 7.6mm 6.05mm</u>			BEARING		
LUCITE								



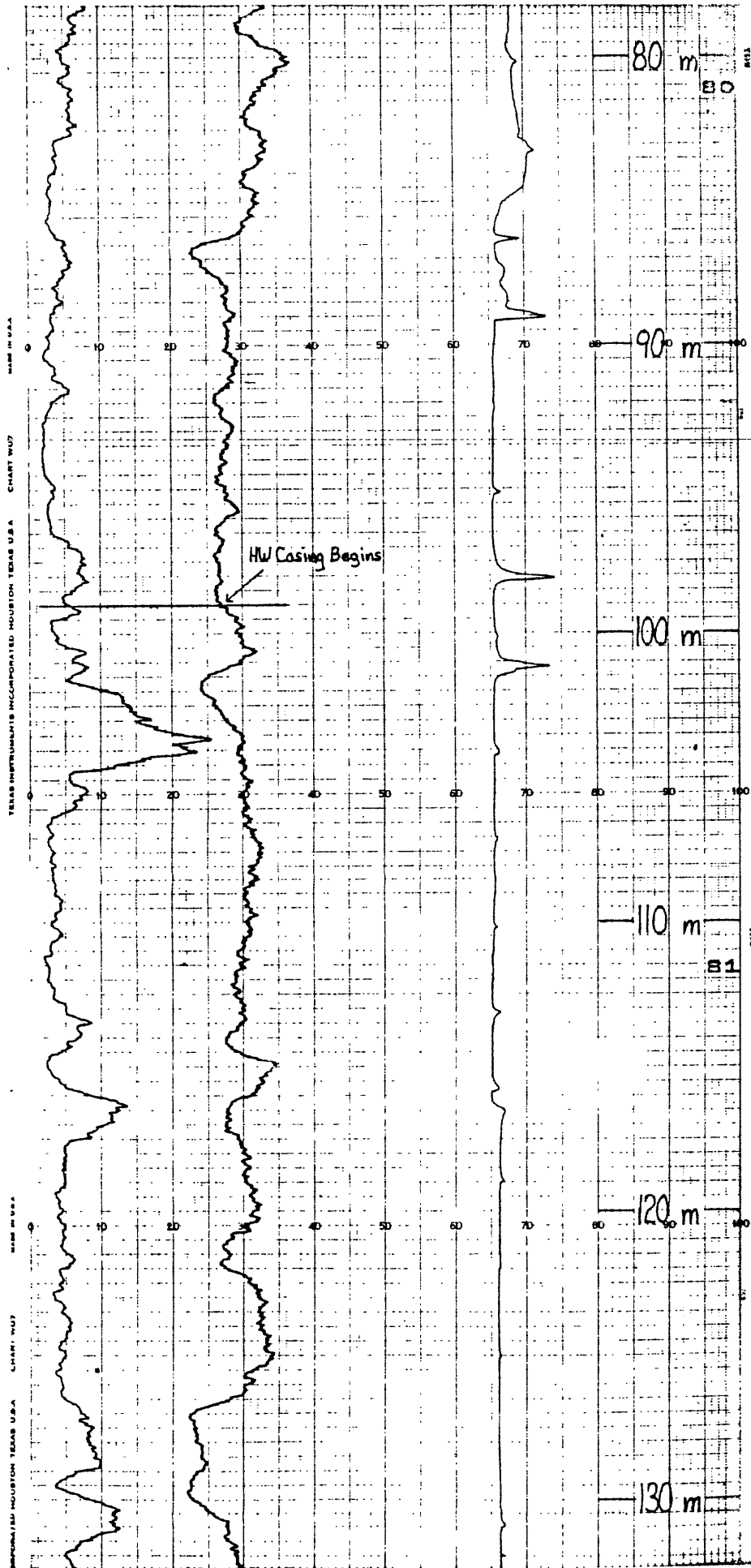
UAL-2

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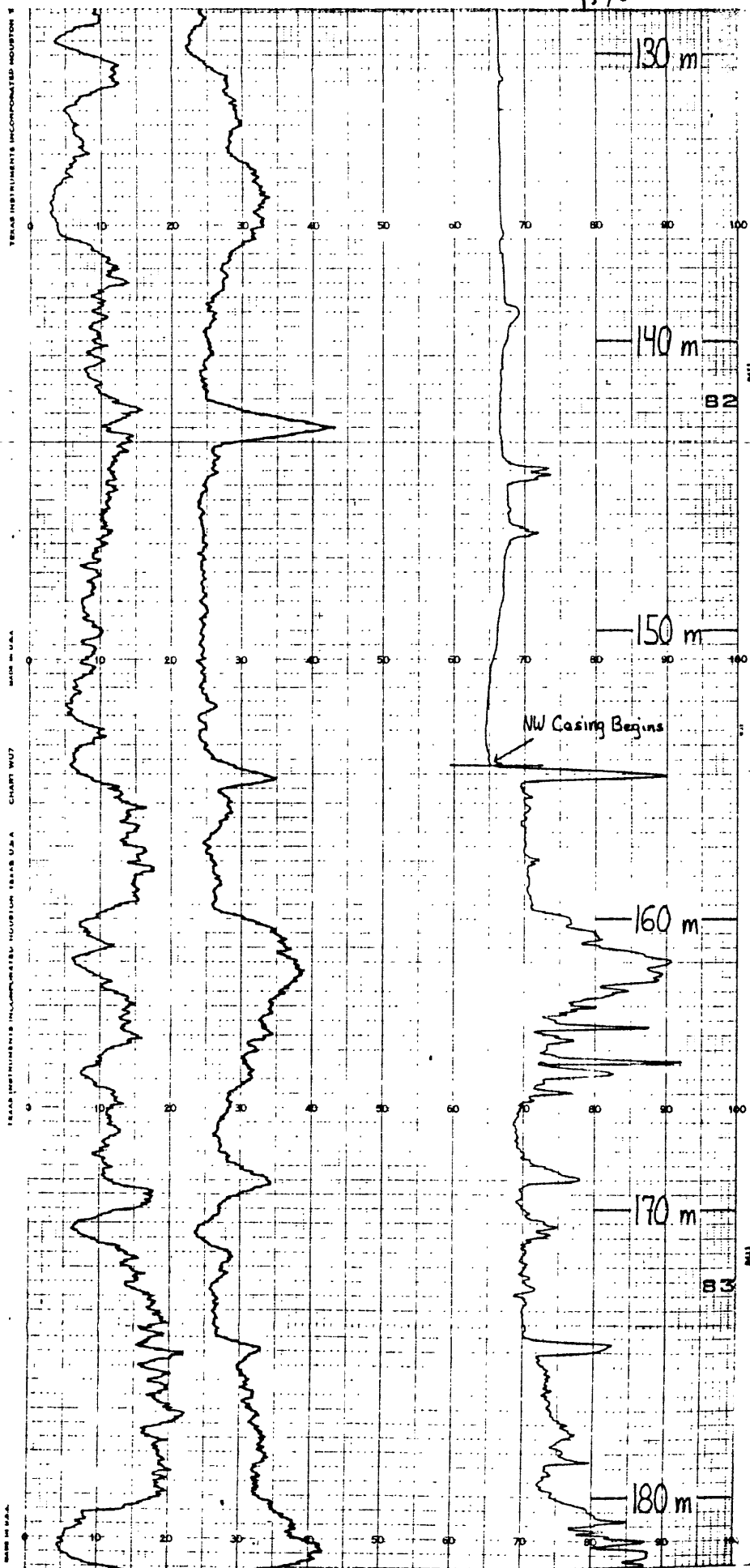


UAL-2

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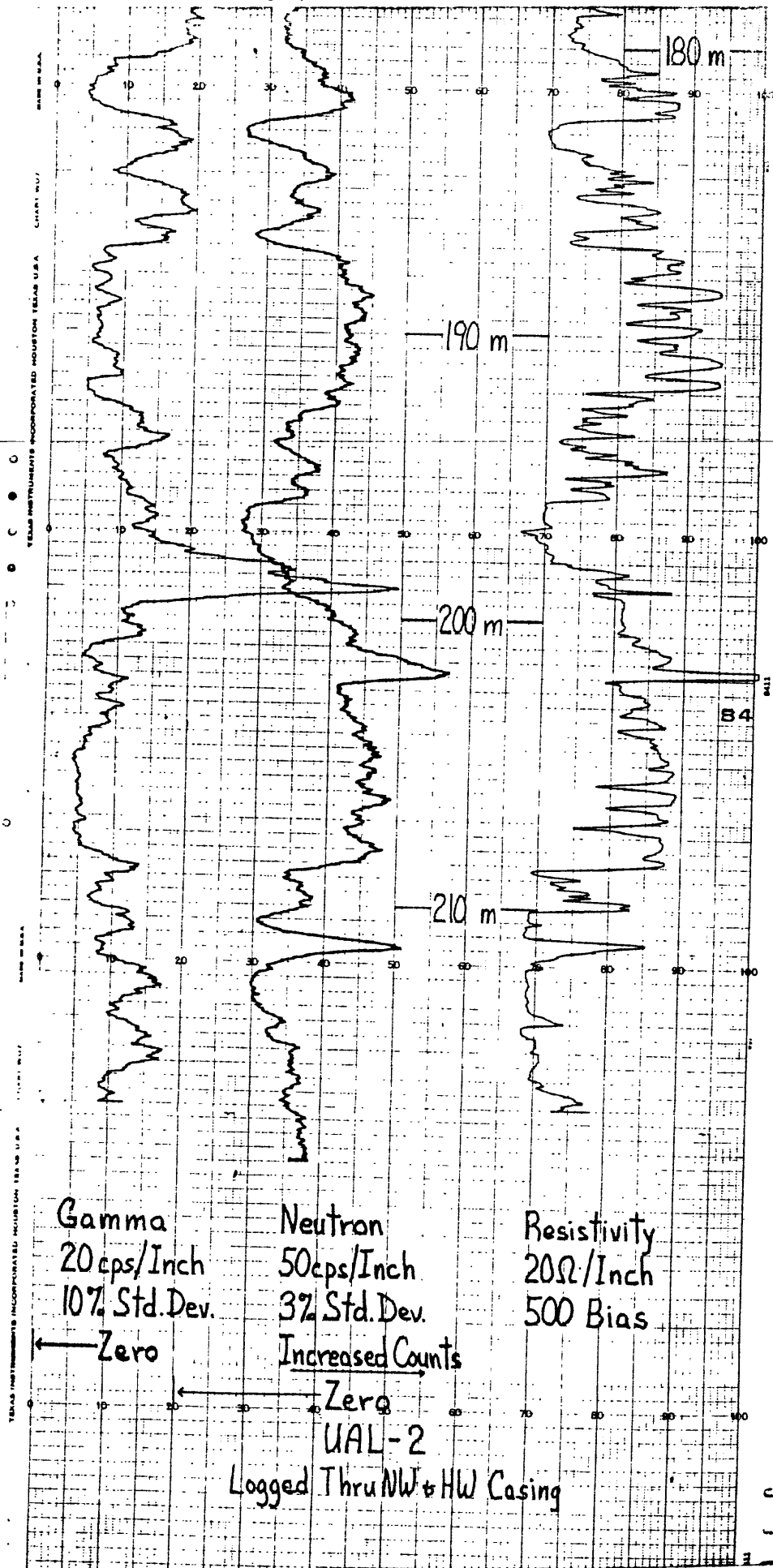
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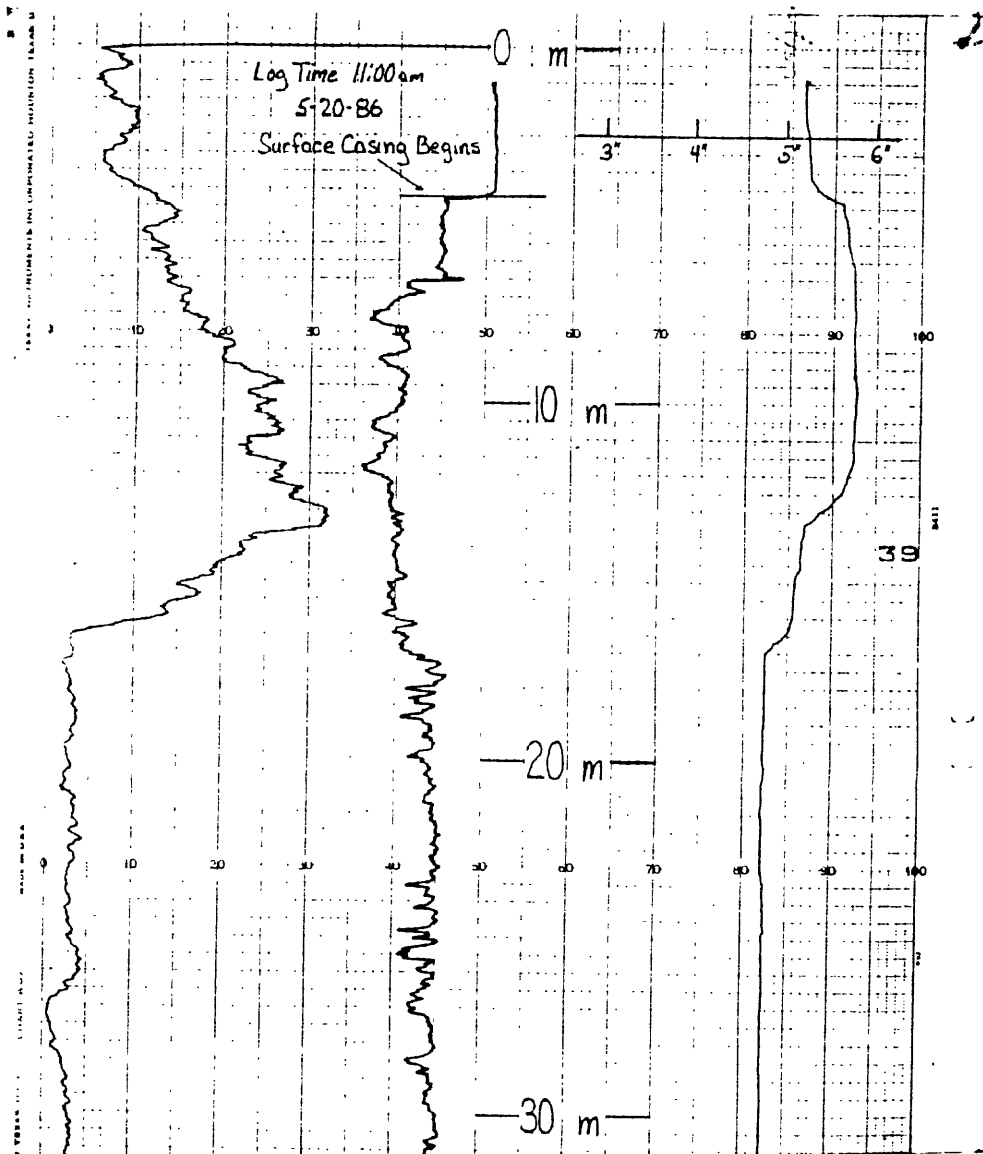


# GEOSCIENCE ASSOCIATES Master

HOLE NUMBER: UAL-2

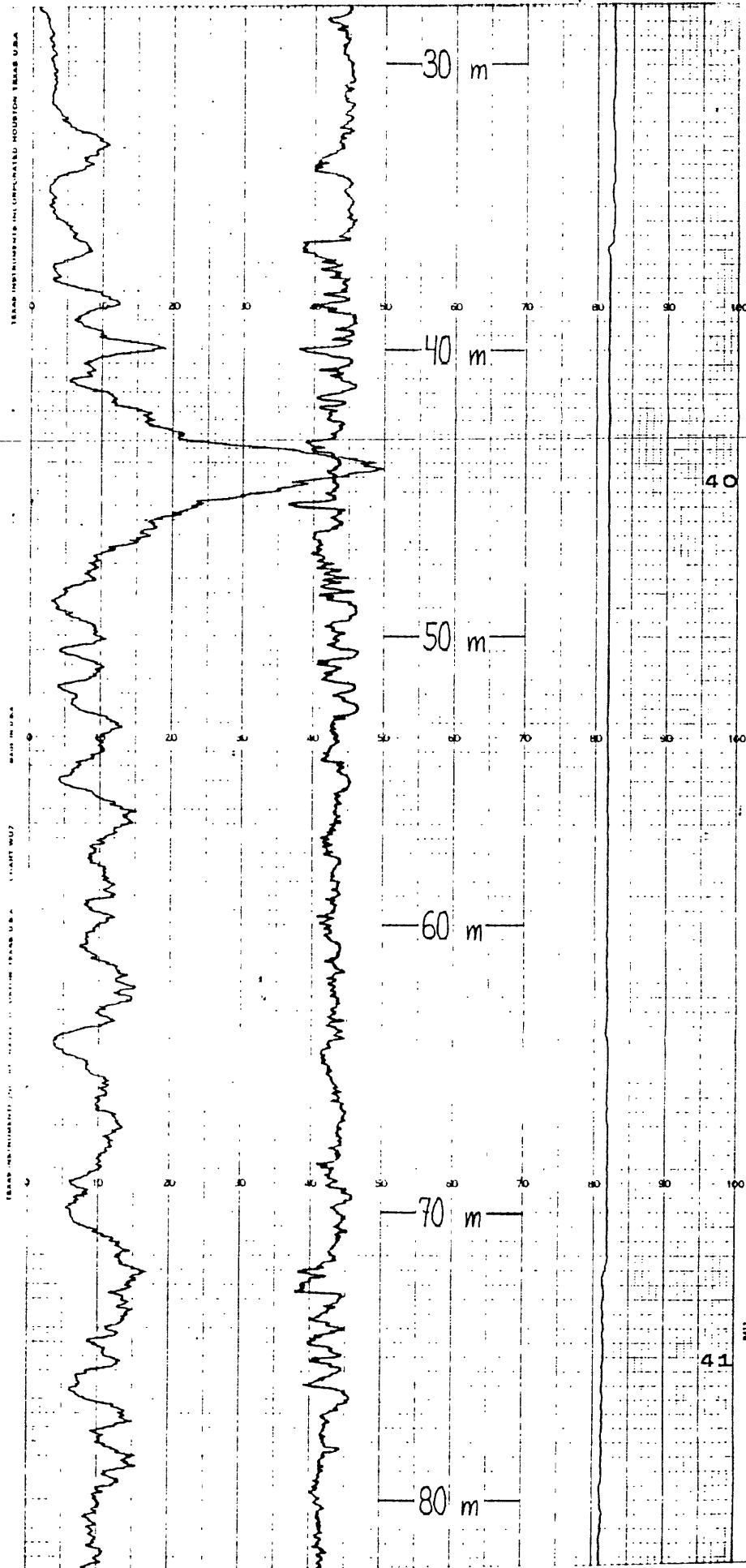
DATE: May - 20 - 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY <u>Sind. Pakistan</u>			DEPTH DRILLED <u>219.64 m</u>			CLIENT <u>USGS / G.S.P</u>		
REGION <u>Lahora</u>			DEPTH LOGGED <u>150 m</u>			GEOLOGIST <u>Jan. Felipe</u>		
PROJECT <u>Coal REAR</u>			COLLAR ELEV			UNIT OPERATOR <u>Davis</u>		
PROSPECT			DIA FROM TO			UNIT NO <u>51-1</u> OFFICE		
SEC TWP RNG			DIA FROM TO			1000000 <u>Saintago</u> <u>USA</u>		
TYPE			BOREHOLE MEDIUM			ELECTRIC		
LOGGED DEPTH <u>150 m</u>			FLUID LEVEL			TYPE		
RANGE II S.I. <u>200</u>			CASING DATA			LOGGED DEPTH		
STD DEV <u>10%</u>			WALL SIZE			RESIST FT		
PAPER SPEED <u>1-1</u>			I.D.			SCALE		
LOG SPEED			CASED FROM <u>0 TO 4.6 m</u>			PAPER SPEED		
BKGND COUNT			CASING TYPE			LOG SPEED		
PROBE NO <u>HND-1</u>			SAMPLE DATA			FINE ADJ		
SIZE (dia.) <u>2"</u>			NON-CORED HOLE			LOGGED DEPTH <u>150 m</u>		
K-FACTOR <u>2</u>			CORED HOLE			SCALE <u>1 deflection = 0.1 dia</u>		
DEAD TIME <u>2</u>			SAMPLED INTERVAL			PAPER SPEED <u>1-1</u>		
STANDARD			SAMPLE TYPE			LOG SPEED		
DIGITAL DATA			REMARKS			ARM LENGTH <u>30"</u>		
PRINT INTERVAL						MAX DEF <u>9"</u>		
TIMEBASE						VERTICAL DEV.		
DENSITY CALIBRATION						DEPTH		
ALUMINUM <u>200</u>						INCLIN		
LUCITE <u>4800</u>						BEARING		
CPS								



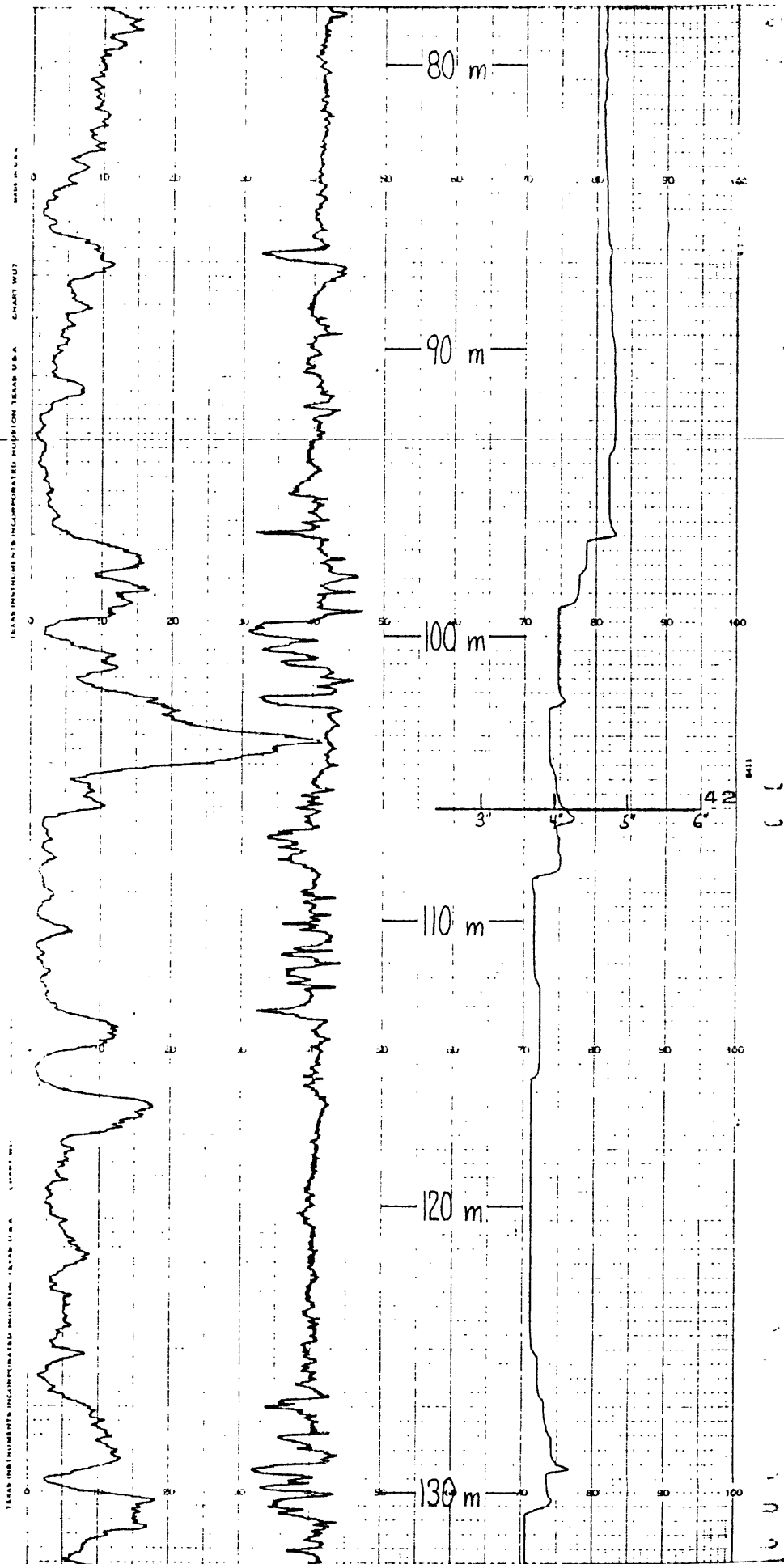
UAL-2

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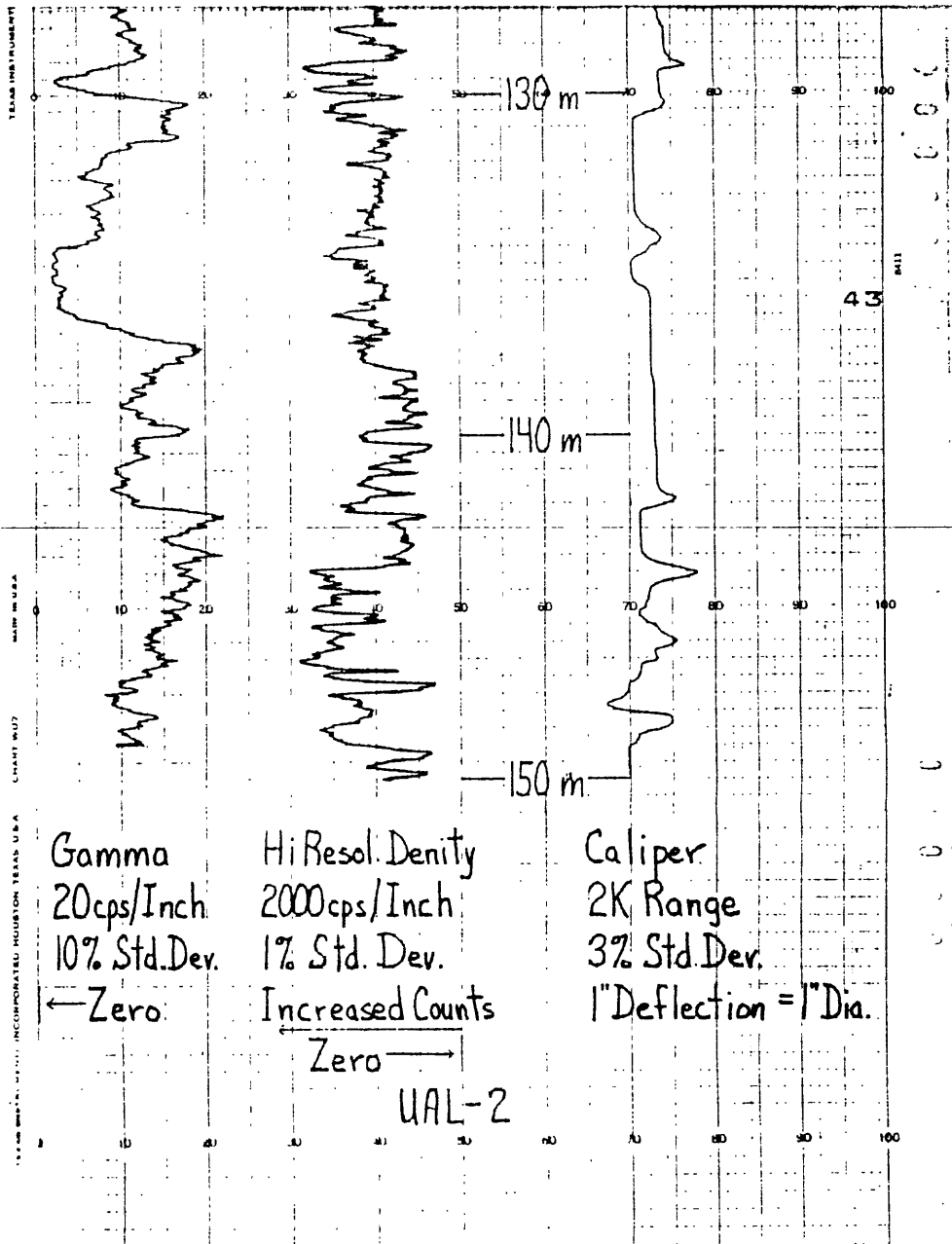
UAL-2

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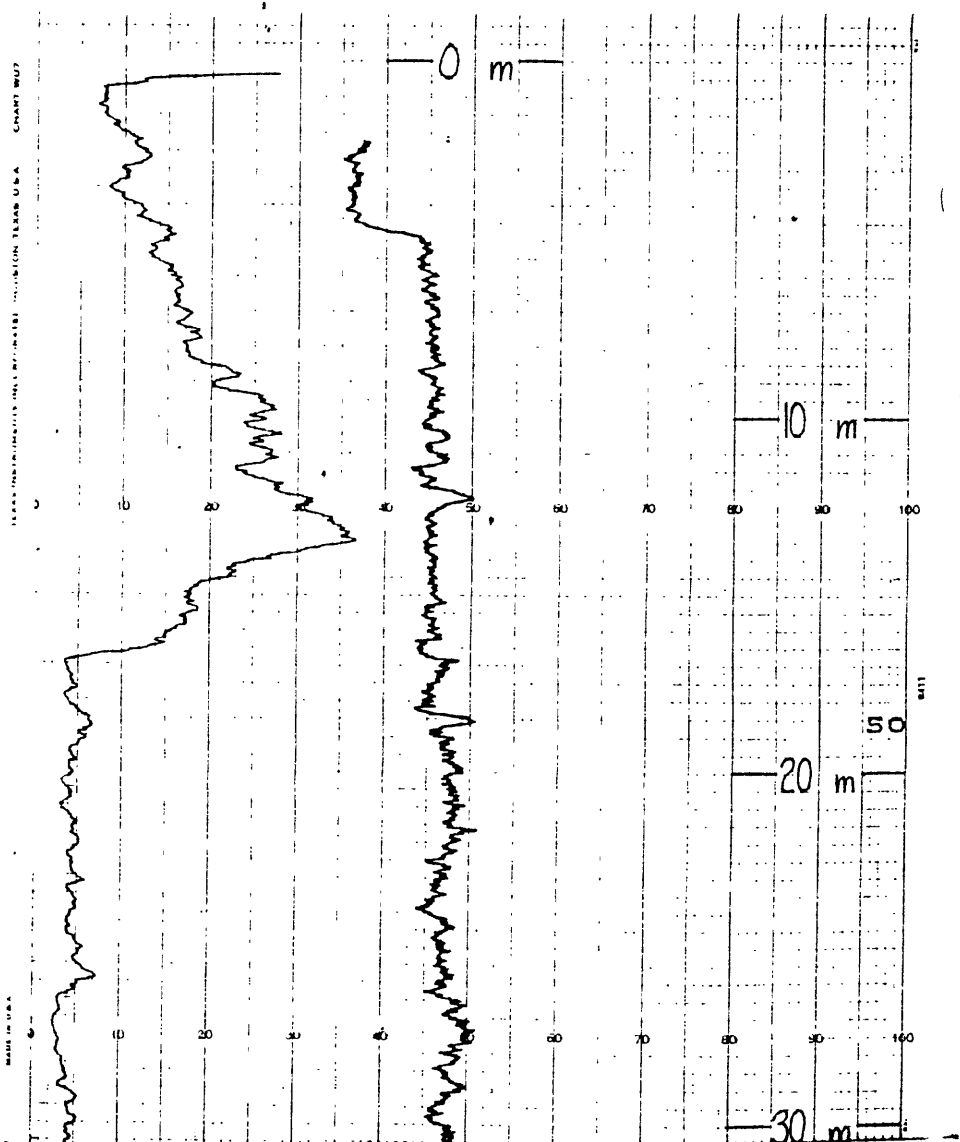
# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAL-2

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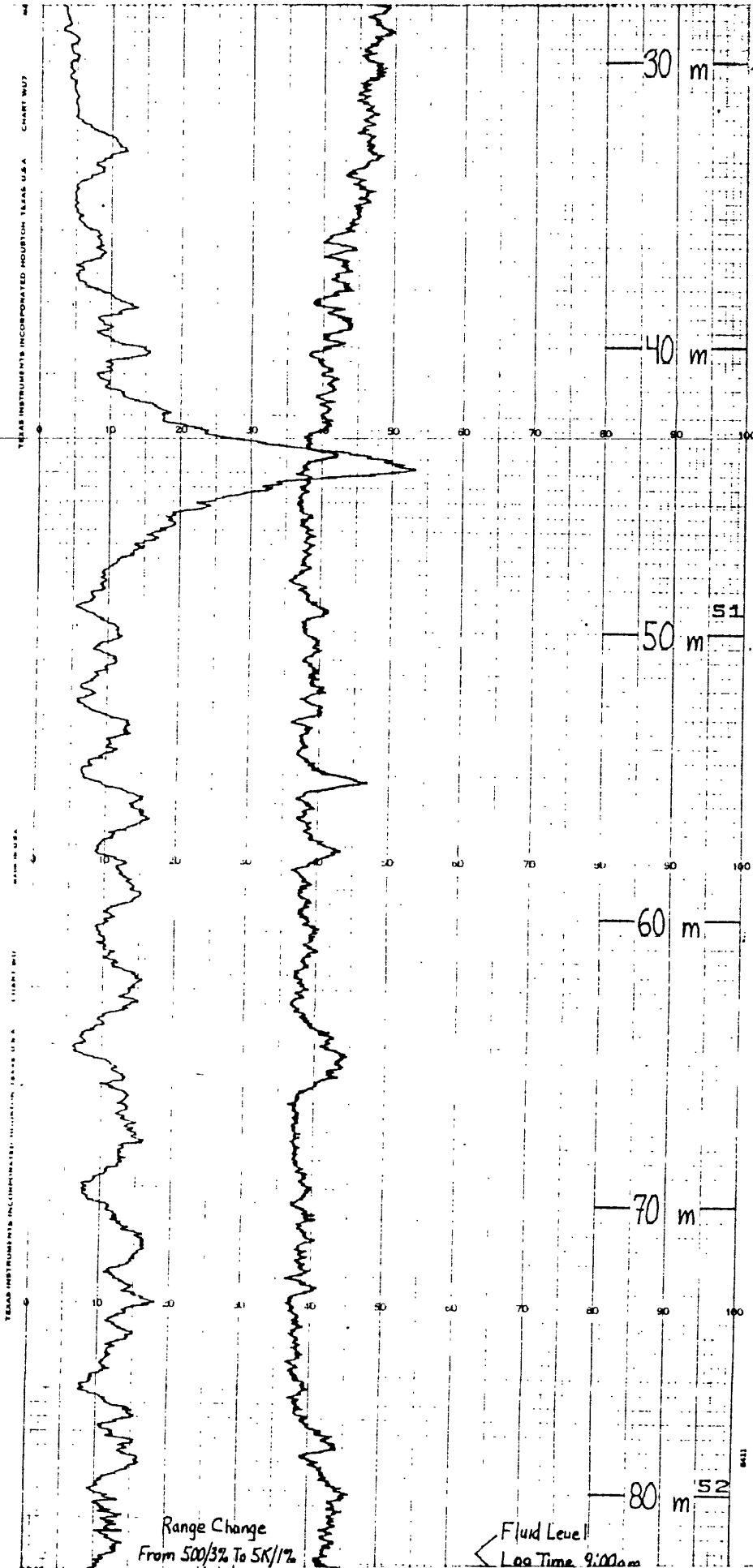
DATE: May 20, 1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY Sind Pakistan			DEPTH DRILLED	219.24m	CLIENT U.S.G.S. - G.S.P.	
REGION Baluch			DEPTH LOGGED	152m	GEOLOGIST San Felipe	
PROJECT Coal REAP			COLLAR ELEV		UNIT OPERATOR Davis	
PROSPECT			DIA FROM TO		UNIT NO OFFICE	
SEC TWP RNG			DIA FROM TO		PL-1 Boulder, Colorado	
TYPE GAM Neutron			BOREHOLE MEDIUM H <sub>2</sub> O + Mud		ELECTRIC	
LOGGED DEPTH	150m	152m	FLUID LEVEL 84m		TYPE	RESIST S.P.
RANGE (ft)	200	500 SK	CASING DATA		LOGGED DEPTH	150 m. FT
+STD DEV	10%	3% 12%	WALL SIZE NONE		SCALE	
PAPER SPEED	1:1	1:1	ID		PAPER SPEED	
LOG SPEED	6-1	6-1	CASED FROM TO		LOG SPEED	
BKGD COUNT			CASING TYPE		FINE ADJ.	
PROBE NO	64-1		SAMPLE DATA			
SIZE (dia)	13/8		NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			
K-FACTOR			SAMPLED INTERVAL SAMPLE TYPE			
DEAD TIME	2		REMARKS			
STANDARD						
DIGITAL DATA					CALIPER	
PRINT INTERVAL					LOGGED DEPTH FT	
TIMEBASE					SCALE	
					PAPER SPEED	
					LOG SPEED	
					ARM LENGTH IN	
					MAX DEF. IN	
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN	
					BEARING	



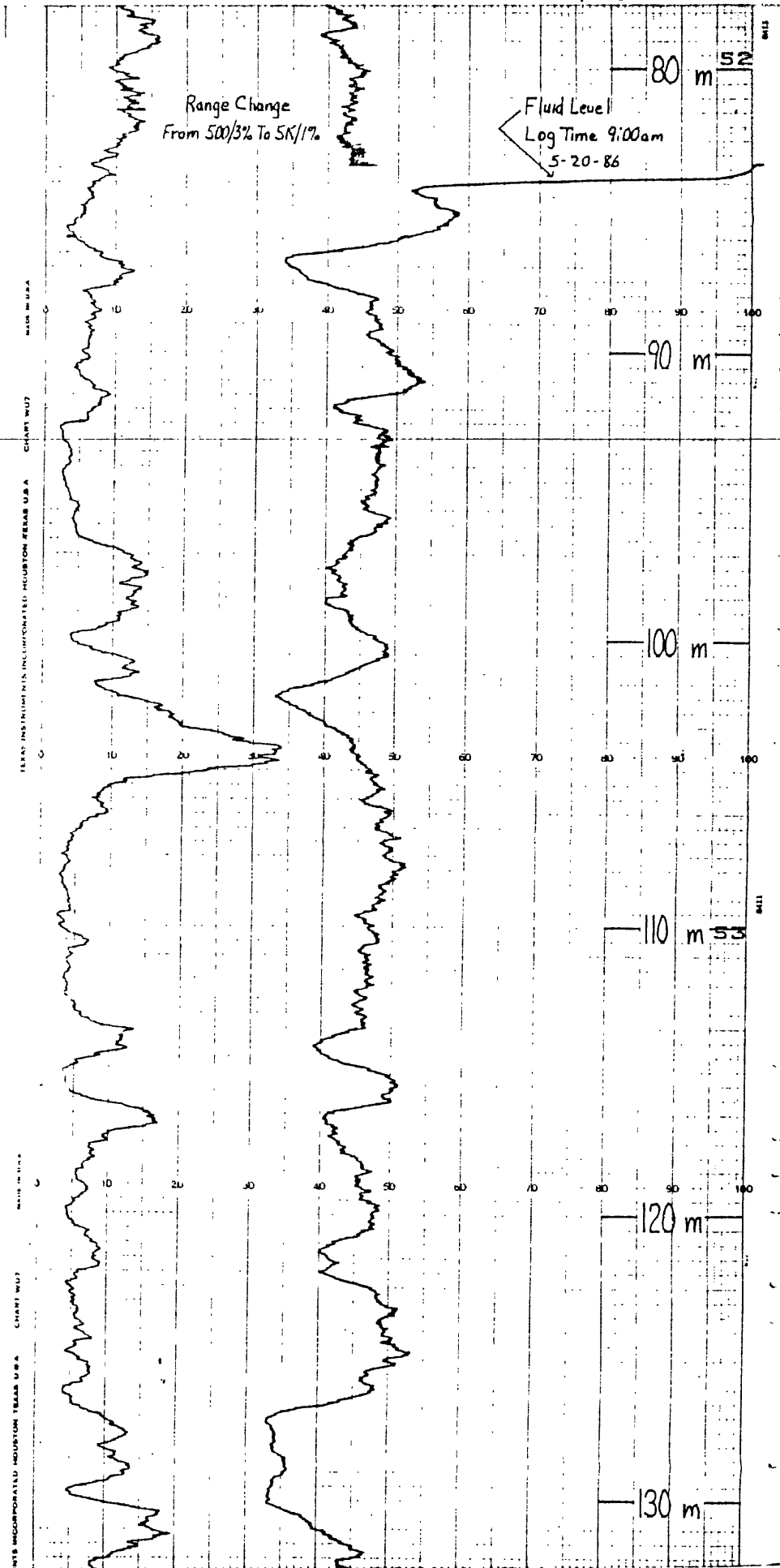
UAL-2

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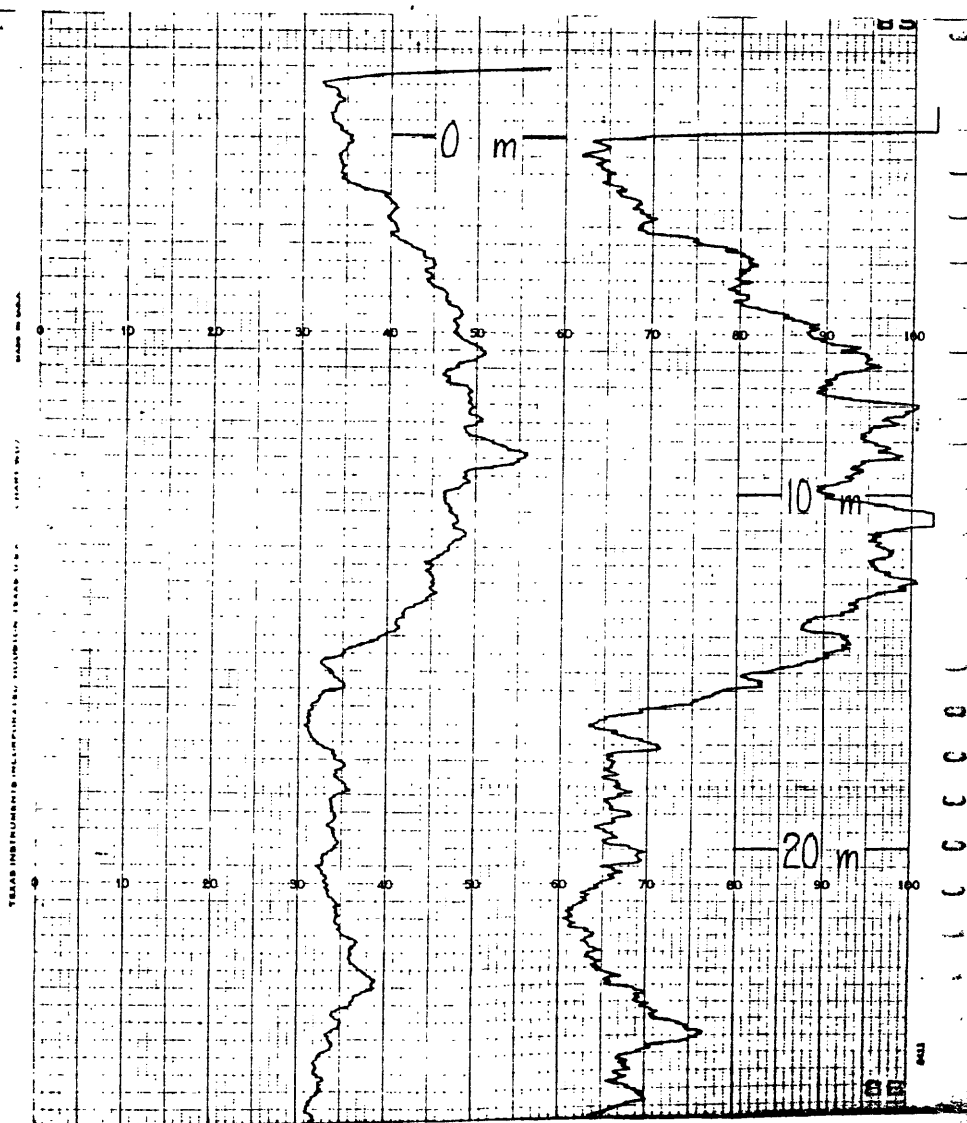
# GEOSCIENCE ASSOCIATES

HOLE NUMBER: U.A.L-2

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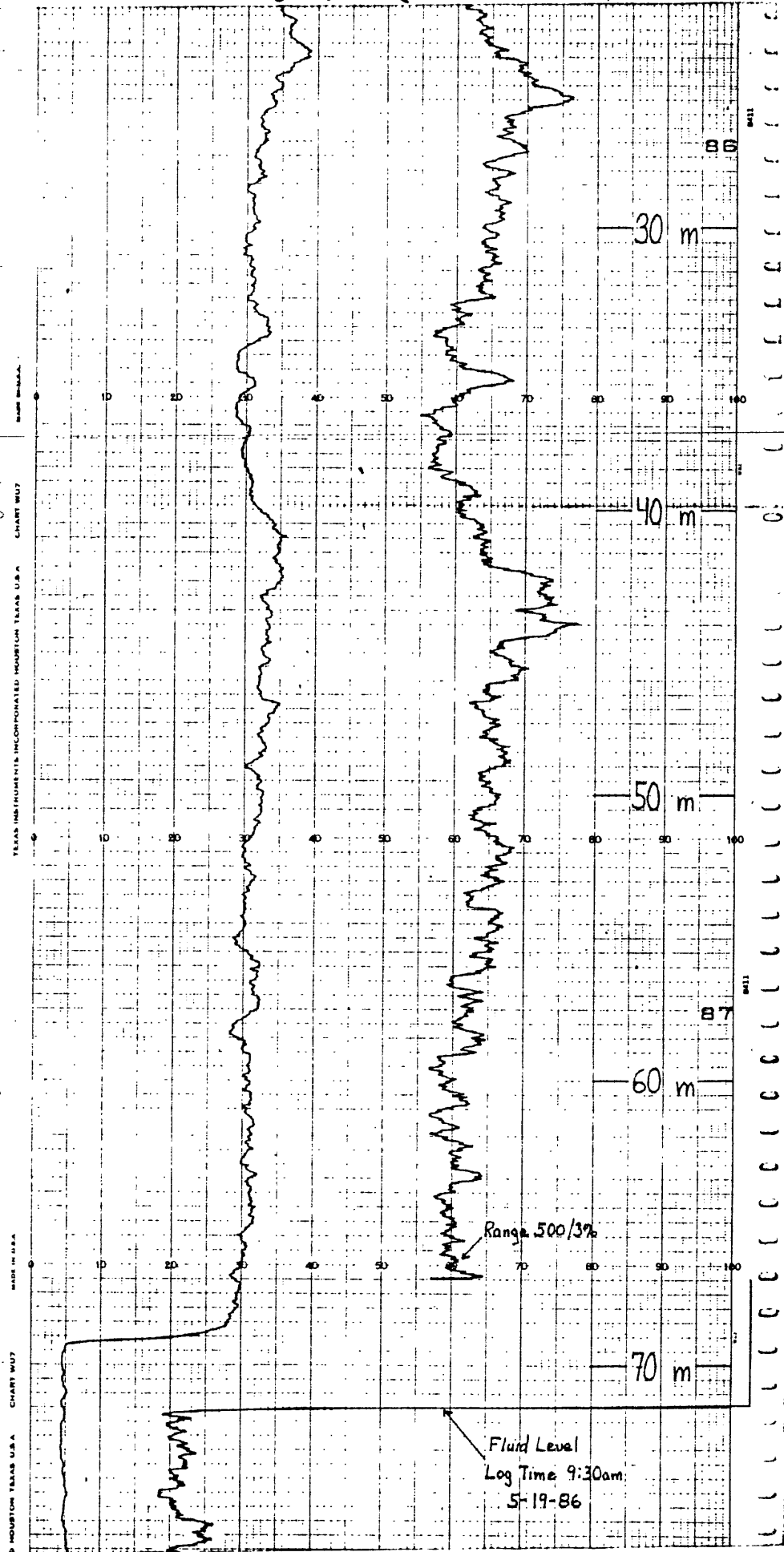
DATE: May 19, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind. Pakistan		DEPTH DRILLED:	219.64 m		CLIENT	U.S.G.S. - G.S.P.	
REGION	Lahore		DEPTH LOGGED:	174 m		GEOLOGIST:	San Felipe	
PROJECT	Coal REAP		COLLAR ELEV					
PROSPECT			DIA.	FROM	TO			
BEC.	TWP	RNG	DIA.	FROM	TO			
			DIA.	FROM	TO			
TYPE	QAM	40	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		UNIT OPERATOR		
LOGGED DEPTH	174 m		FLUID LEVEL	3.5 m		Davis		
RANGE (f.s.)	1K 500 200		CASING DATA			UNIT NO.		
%STD DEV	3% 3% 10%		WALL SIZE			P-1		
PAPER SPEED	1-1		I.D.			OFFICE		
LOG SPEED	6-1		CASED FROM			Boulder, Colorado		
BKGND. COUNT			CASING TYPE			ELECTRIC		
PROBE NO.	60-1		SAMPLE DATA					
SIZE (dia.)	1 1/4"		NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>					
K-FACTOR			SAMPLED INTERVAL					
DEAD TIME	2		SAMPLE TYPE					
STANDARD			REMARKS					
DIGITAL DATA			Coating - Size - Thickness					
PRINT INTERVAL			0m To 4.32m 5 1/2" 7 1/2"					
TIMEBASE			0m To 49m 16 10 1/2" 6 1/2" 15mm					
			00 114.3mm					
DENSITY CALIBRATION			0m To 154.7m 16 7 1/2" 6.05mm					
ALUMINUM			00 88.9mm					
LUCITE								
			CALIPER					
			LOGGED DEPTH			FT.		
			SCALE			2"		
			PAPER SPEED			2"		
			LOG SPEED			2"		
			ARM LENGTH			IN		
			MAX DEF			IN		
			VERTICAL DEV.					
			DEPTH					
			INCLIN.					
			BEARING					



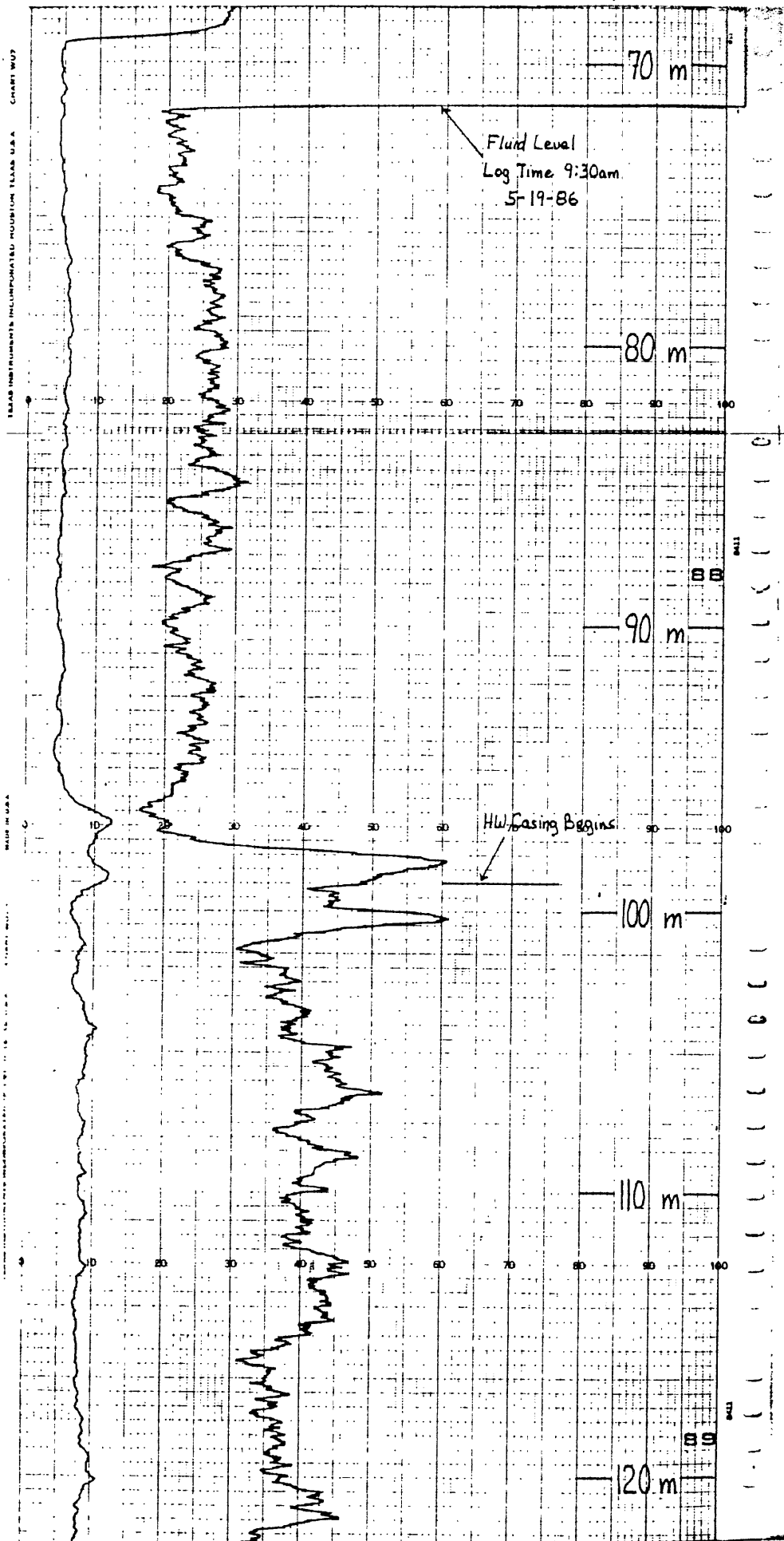
UAL-2

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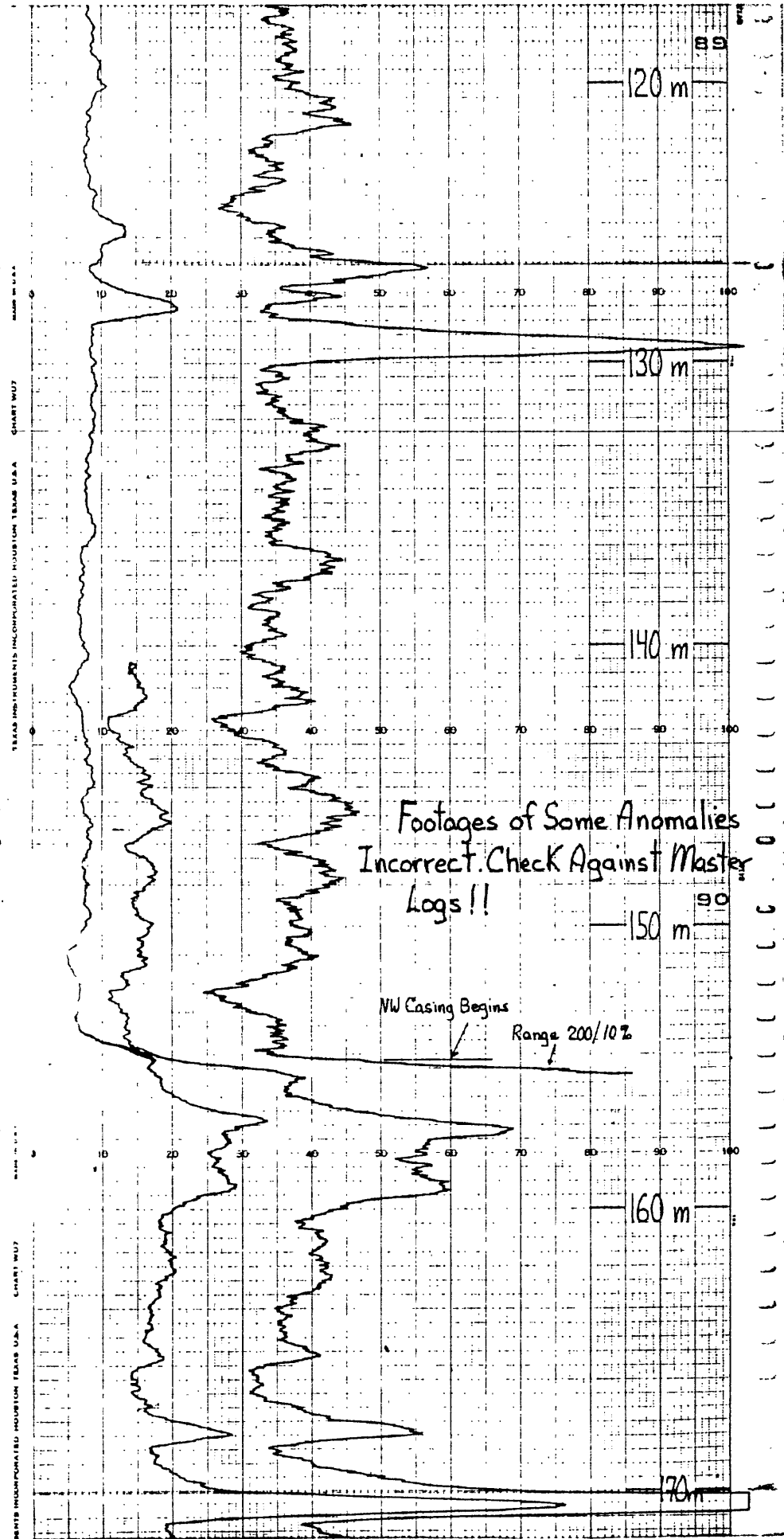
UAL-2

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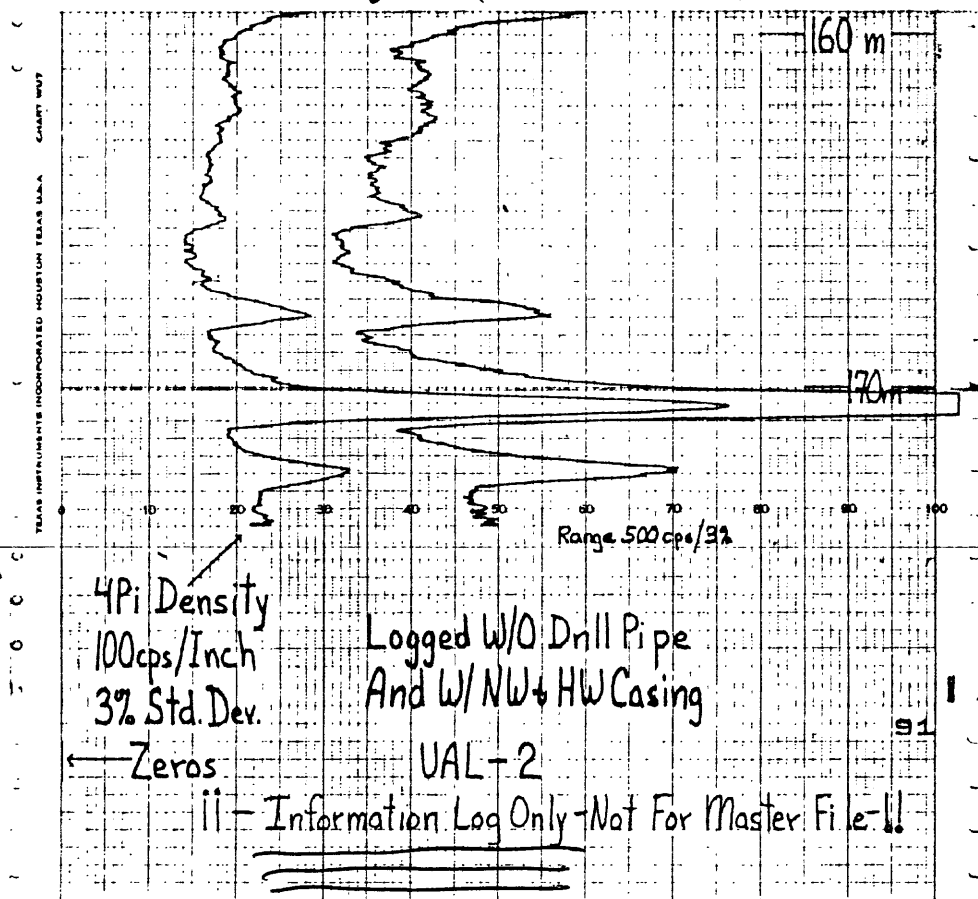
UAL-2

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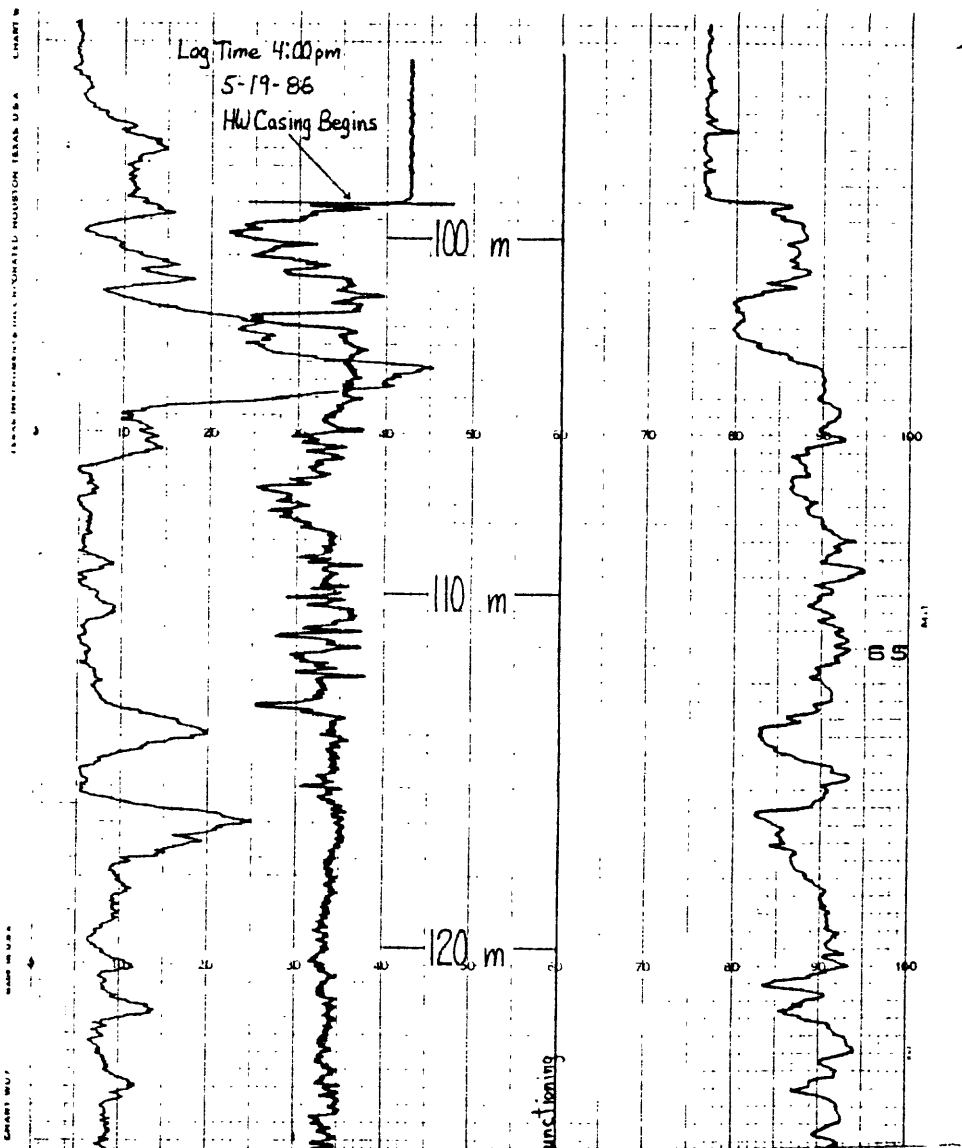


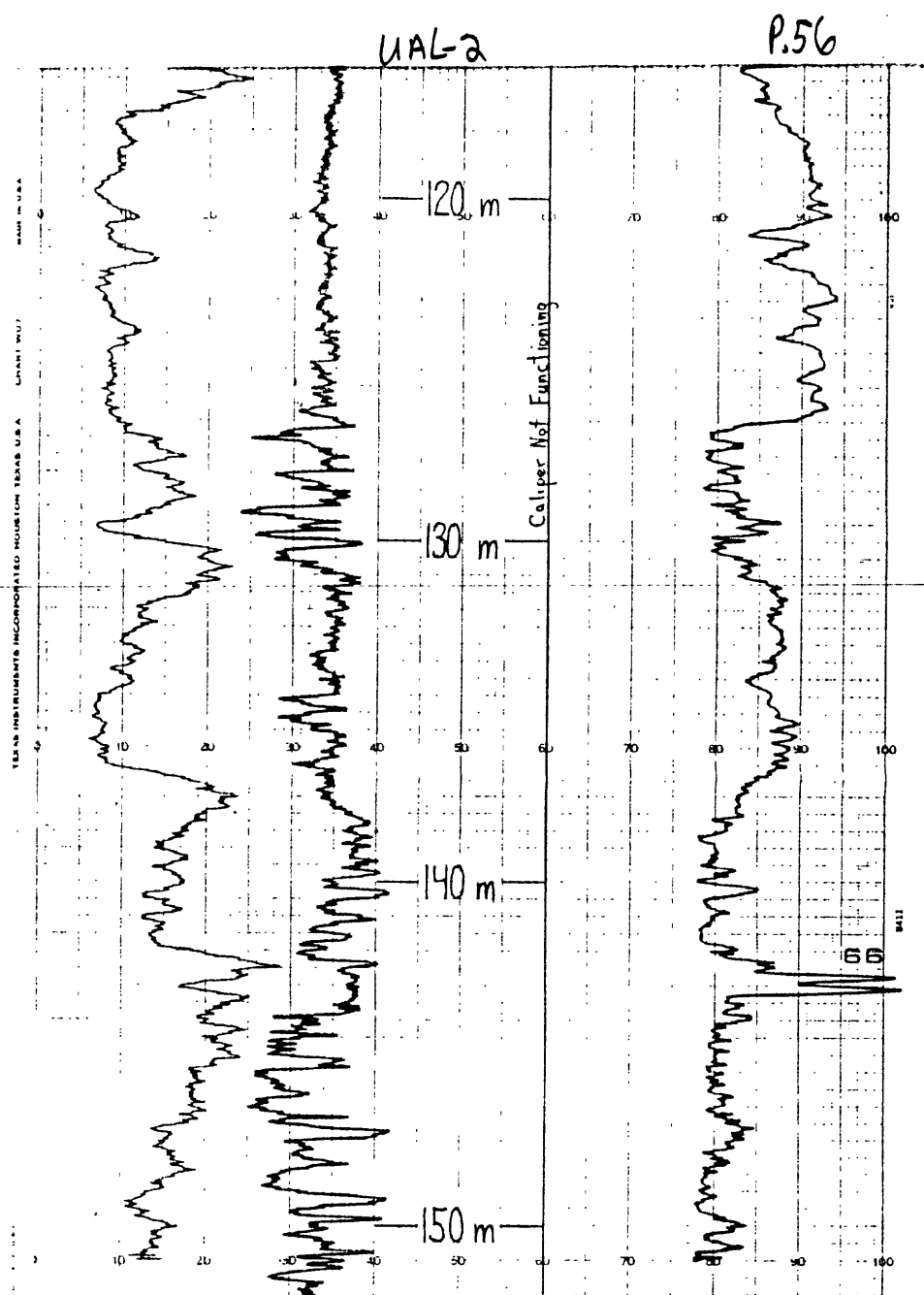
# GEOSCIENCE ASSOCIATES Master

HOLE NUMBER: UAL-2

DATE: MAY-19-1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	SINDH PAKISTAN		DEPTH DRILLED	219.64 m	CLIENT	USGS / G.S.P.
REGION	LAKHSA		DEPTH LOGGED	150 m	GEOLOGIST	SAN FILIPO
PROJECT	COAL REAP		COLLAR ELEV			
PROSPECT			DIA	FROM TO	UNIT OPERATOR	DAVIS
SEC	TWP	RNG	DIA	FROM TO	UNIT NO	PL-1
			DIA	FROM TO	OFFICE	3041 DER
					COLORADO	U.S.A.
TYPE	GAM	HRD	BOREHOLE MEDIUM	Mud + Mud	ELECTRIC	
LOGGED DEPTH	149 m	150 m	FLUID LEVEL	74.6 m	TYPE	RESIST
RANGE (I & J)	200	200	CASING DATA		LOGGED DEPTH	151 m
STD DEV	10.7	1.2	WALL SIZE		SCALE	2.0
PAPER SPEED	1-1	1-1	I.D.		PAPER SPEED	1-1
LOG SPEED			CASED FROM	0 TO 99 m	LOG SPEED	1-1
BKGND COUNT			CASING TYPE	HW	FINE ADJ.	500 5ms
PROBE NO.	HRD-1	HRD-2	SAMPLE DATA		CALIPER	
SIZE (dia)	1"	2"	NON-CORED HOLE	<input checked="" type="checkbox"/>	LOGGED DEPTH	150 m
K-FACTOR			CORED HOLE	<input type="checkbox"/>	SCALE	
DEAD TIME	2.0	2.0	SAMPLED INTERVAL		PAPER SPEED	1-1
STANDARD			SAMPLE TYPE		LOG SPEED	
DIGITAL DATA			REMARKS		ARM LENGTH	30"
PRINT INTERVAL					MAX DEF	9"
TIMEBASE					VERTICAL DEV.	
DENSITY CALIBRATION					DEPTH	
ALUMINUM	700				INCLIN.	
LUCITE	1800				BEARING	
	eps.					





Gamma  
20cps/Inch  
10% Std.Dev.

←Zero

Hi Resol Density  
2000cps/Inch  
1% Std.Dev.

Increased Counts

Zero →

UAL-2

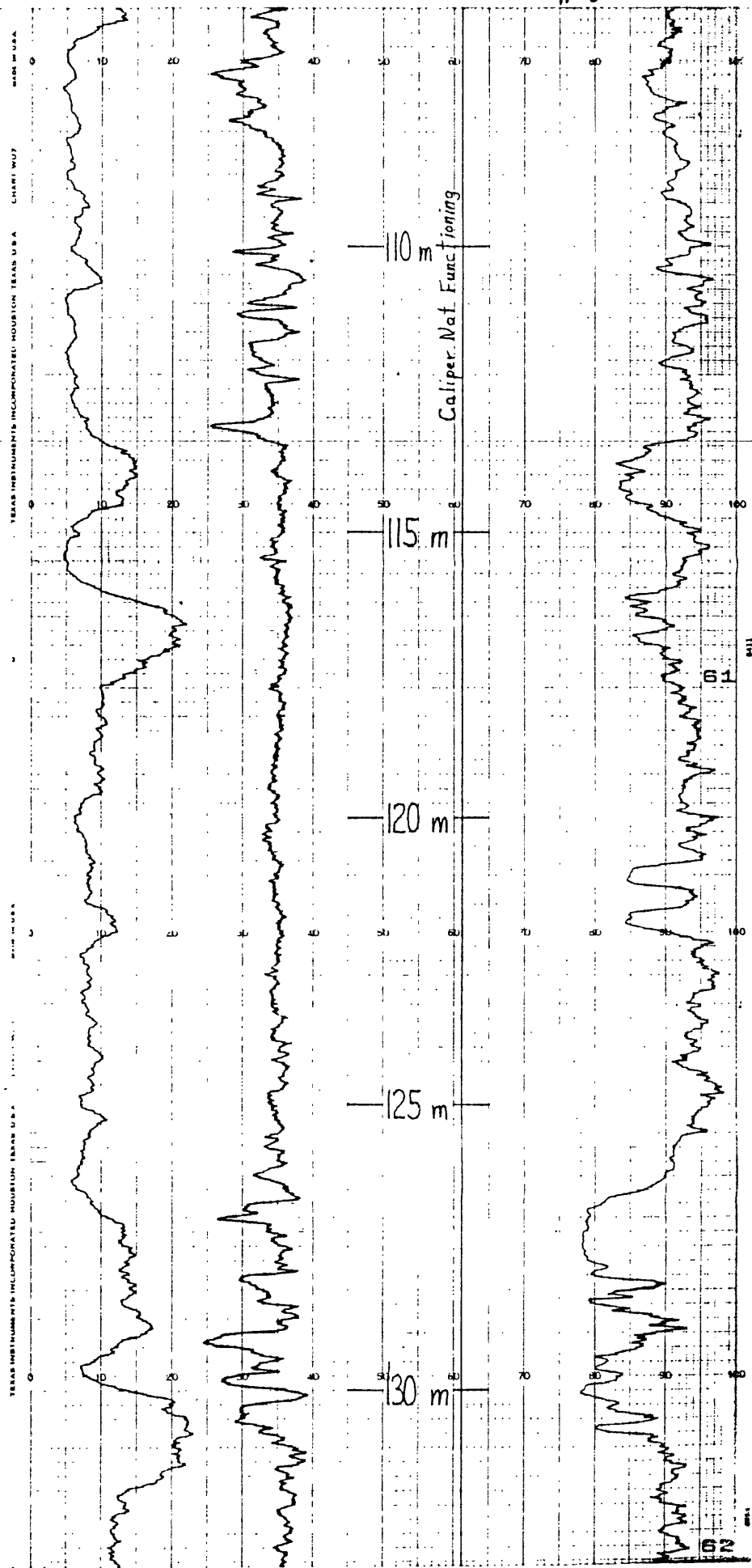
Caliper  
Not Functioning

Resistivity  
20Ω/Inch  
500 Bias





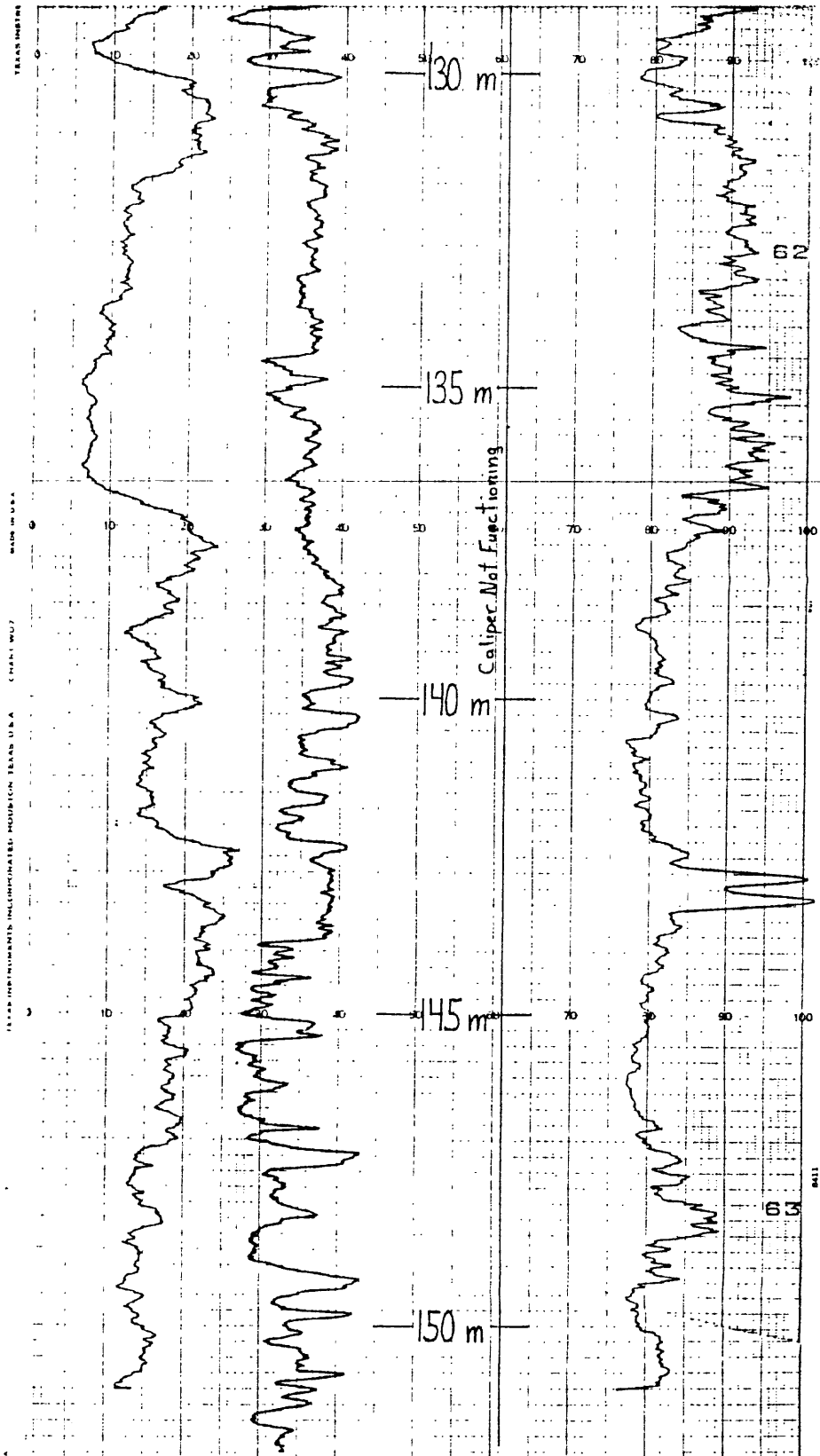
A58



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Gamma

20 cps/Inch

10% Std.Dev.

←Zero

Hi Resol. Density

2000 cps/Inch

1% Std.Dev.

Increased Counts

Zero →

Caliper

Not Functioning

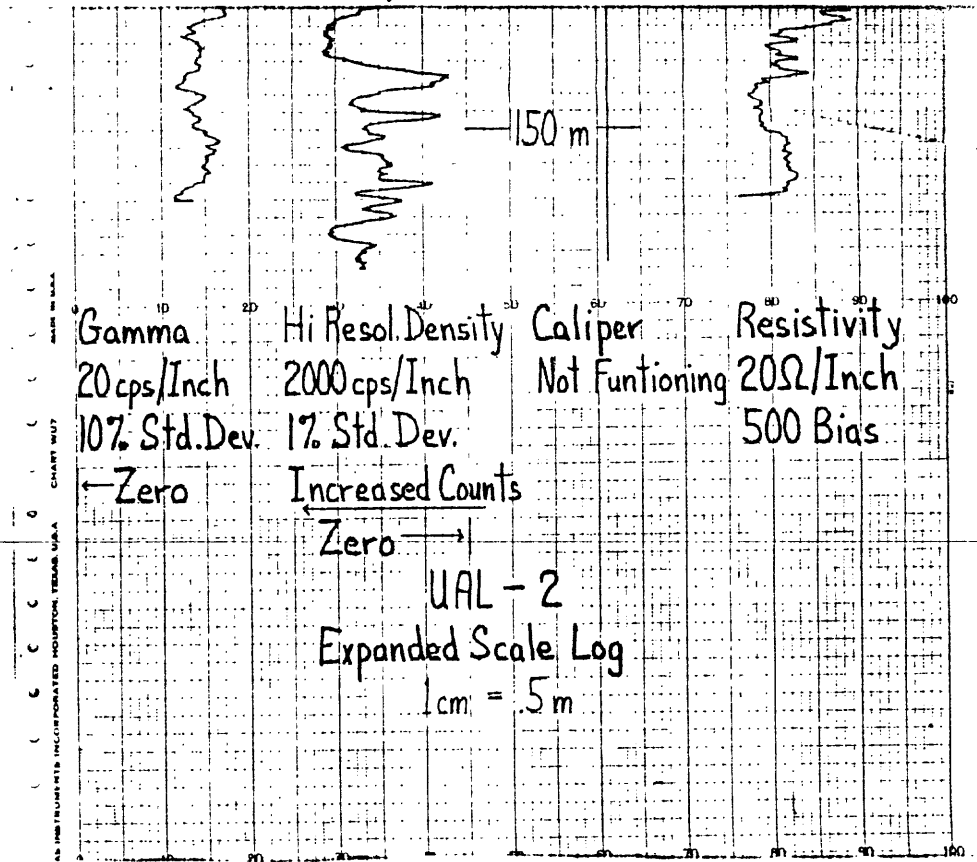
Resistivity

20Ω/Inch

500 Bias

UAL-2

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DRILL HOLE UAL-3

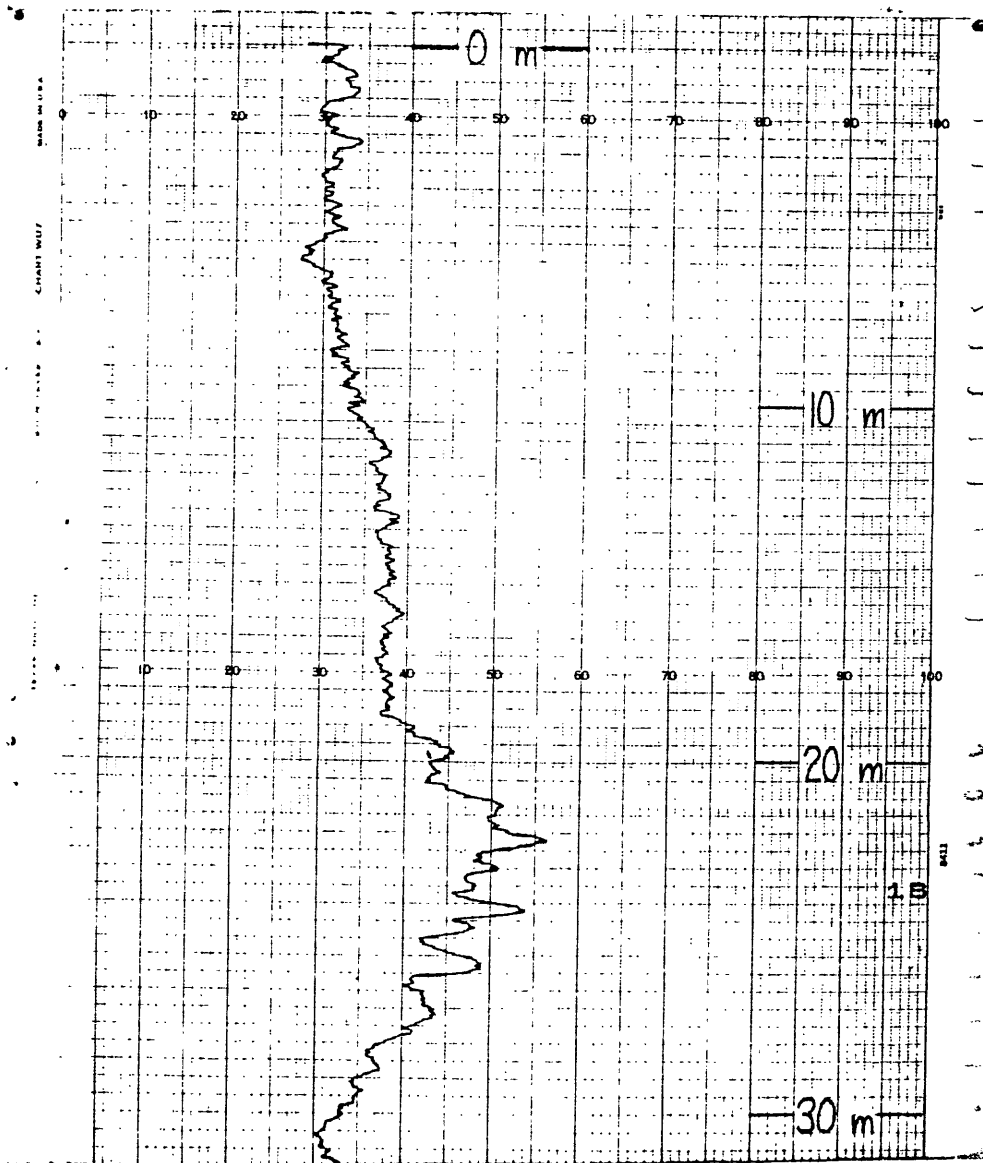


# GEOSCIENCE ASSOCIATES<sup>Master</sup>

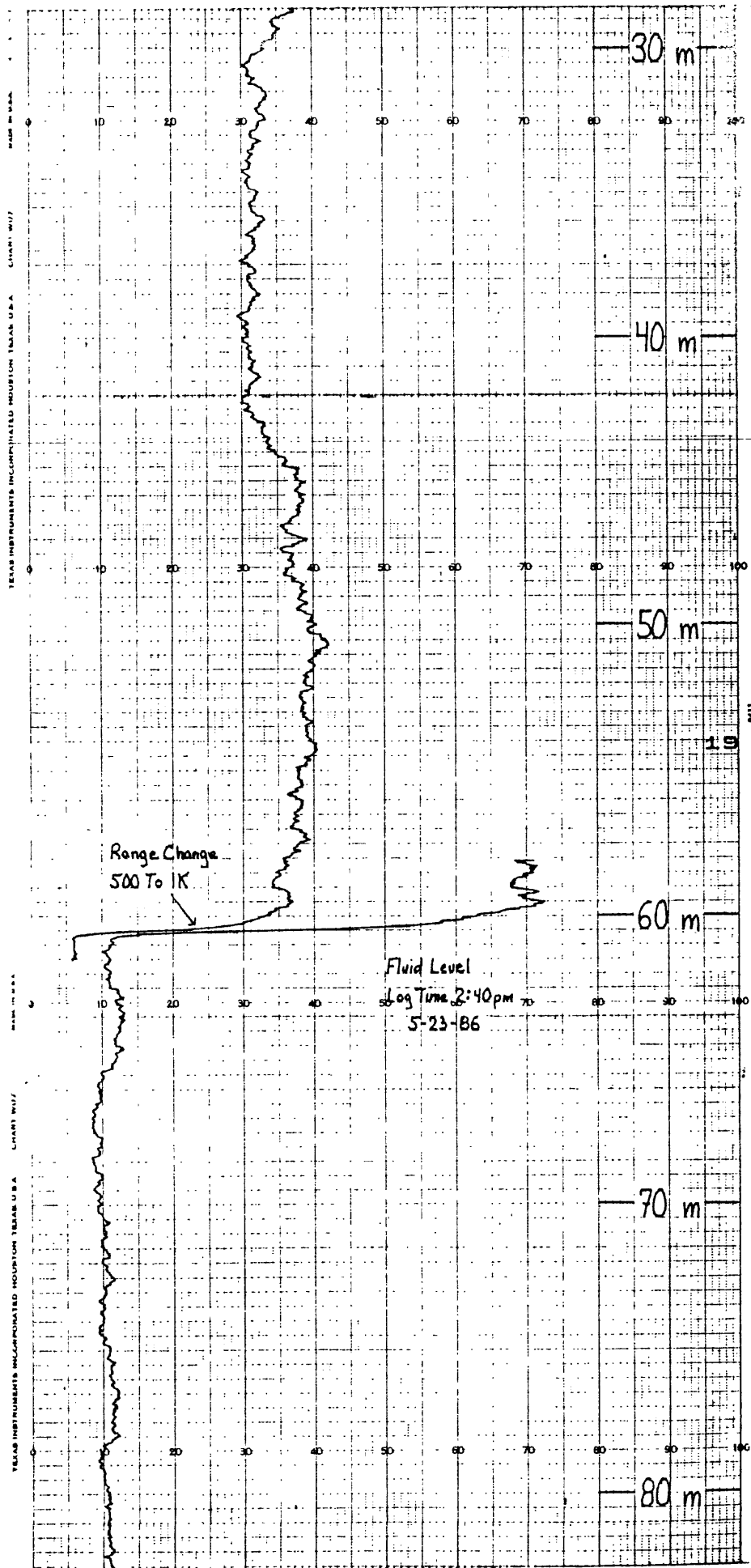
HOLE NUMBER: **UAL-3**

DATE: **May 23, 1986**

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY <b>Sind Pakistan</b>			DEPTH DRILLED: <b>263.16 m</b>			CLIENT <b>USGS - G.S.P.</b>		
REGION <b>Lakhr</b>			DEPTH LOGGED: <b>259 m</b>			GEOLOGIST: <b>San Filipo</b>		
PROJECT <b>Coal REAP</b>			COLLAR ELEV					
PROSPECT			DIA FROM TO			UNIT OPERATOR <b>Davis</b>		
SEC TWP. RND			DIA FROM TO			UNIT NO OFFICE		
			DIA FROM TO			<b>PL-1 Boulder, Colorado</b>		
TYPE			BOREHOLE MEDIUM <b>H<sub>2</sub>O + Mud</b>			ELECTRIC		
LOGGED DEPTH <b>259m</b>			FLUID LEVEL <b>60.5m</b>			TYPE RESIST S.P.		
RANGE (ft.) <b>500 IK</b>			CASING DATA			LOGGED DEPTH FT. FT.		
%STD DEV <b>3% 3%</b>			WALL SIZE <b>See Remarks</b>			SCALE		
PAPER SPEED <b>1-1</b>			ID			PAPER SPEED		
LOG SPEED <b>6-1</b>			CASED FROM " TO			LOG SPEED		
BKGND. COUNT			CASING TYPE <b>Steel Flush Joint</b>			FINE ADJ.		
PROBE NO.			SAMPLE DATA					
SIZE (dia.) <b>13/8</b>			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>					
K-FACTOR			SAMPLED INTERVAL					
DEAD TIME <b>2</b>			SAMPLE TYPE					
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL			Casing - Size - Thickness			LOGGED DEPTH FT.		
TIMEBASE			0m to 44m 5 1/2" 1/2"			SCALE		
			0m to 88.7m ID 101.6 mm 6.35mm			PAPER SPEED		
			OD 114.3 mm			LOG SPEED		
DENSITY CALIBRATION			0m to 222m ID 76.8 mm 6.05mm			ARM LENGTH IN		
ALUMINUM			OD 89.9 mm			MAX DEF. IN		
LUCITE						VERTICAL DEV.		
						DEPTH		
						INCLIN.		
						BEARING		



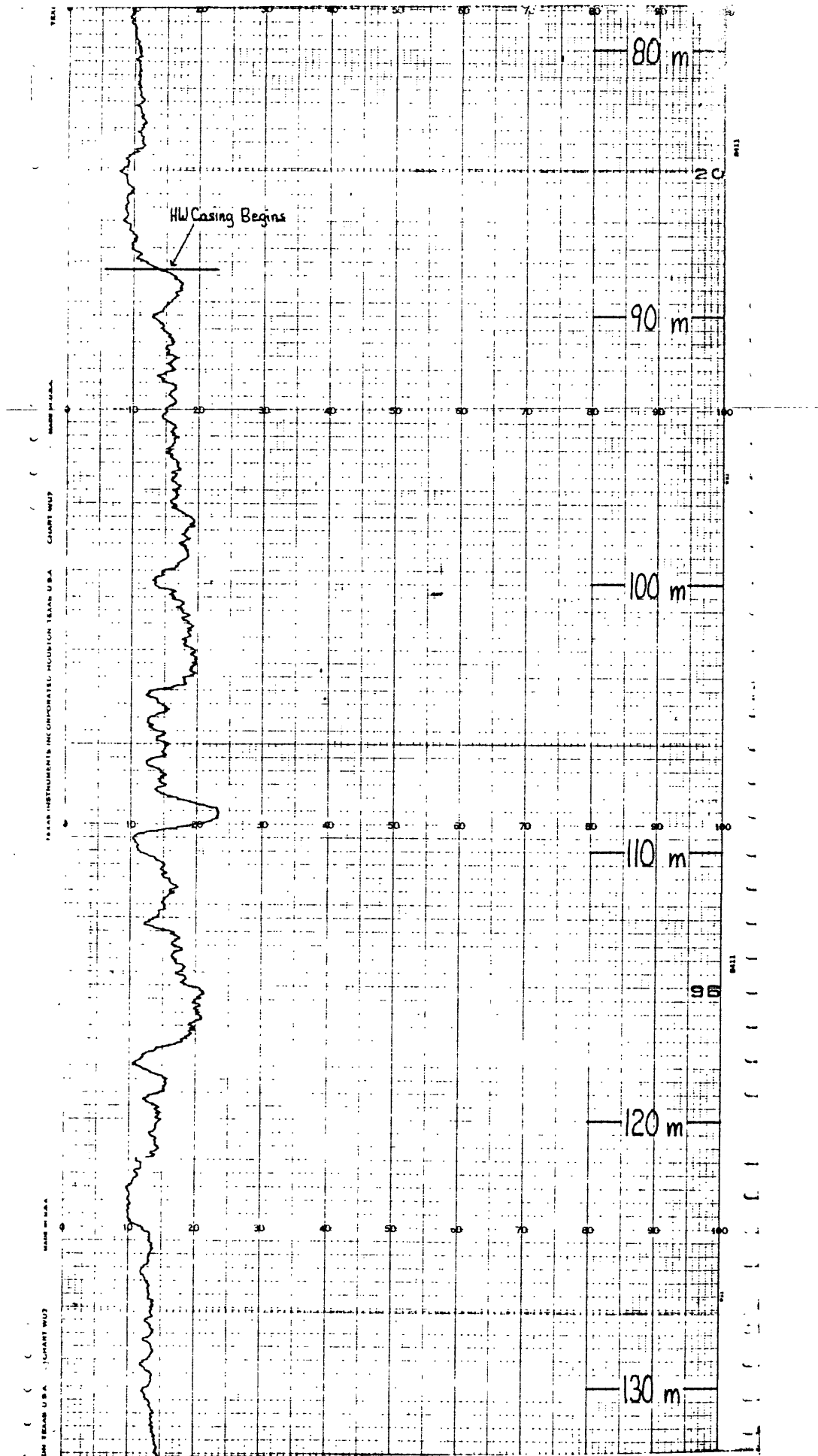
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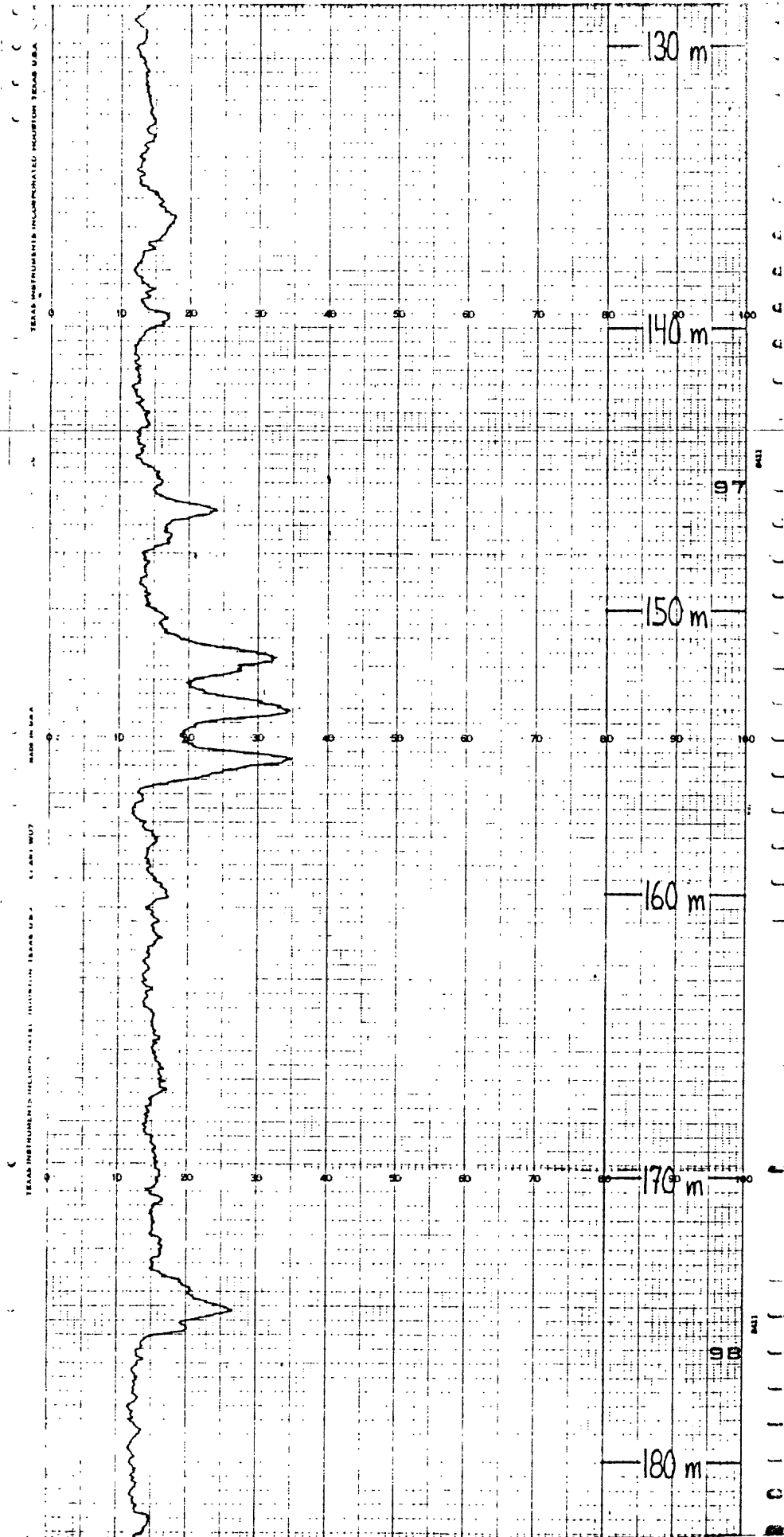
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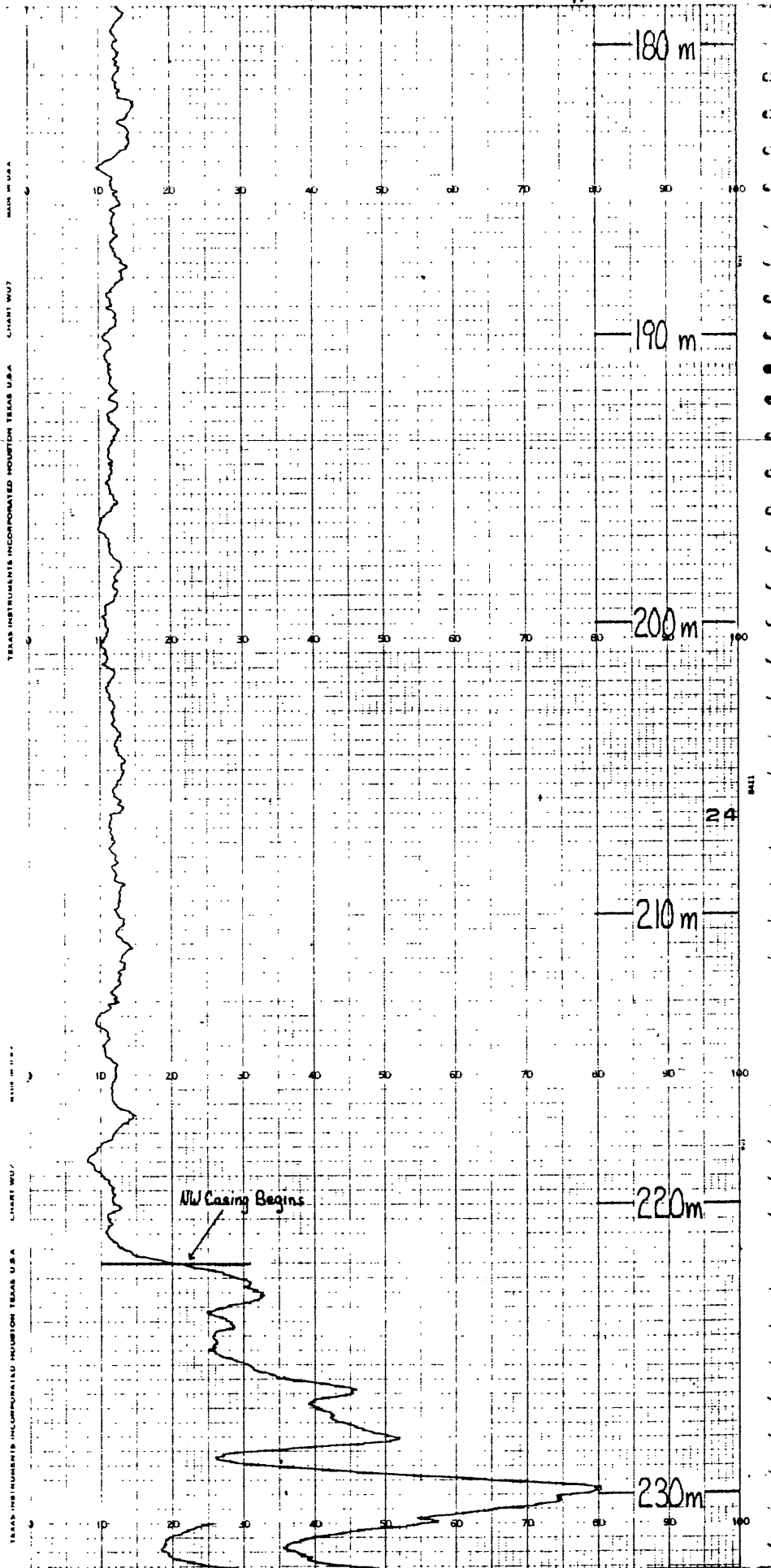
UAL-3

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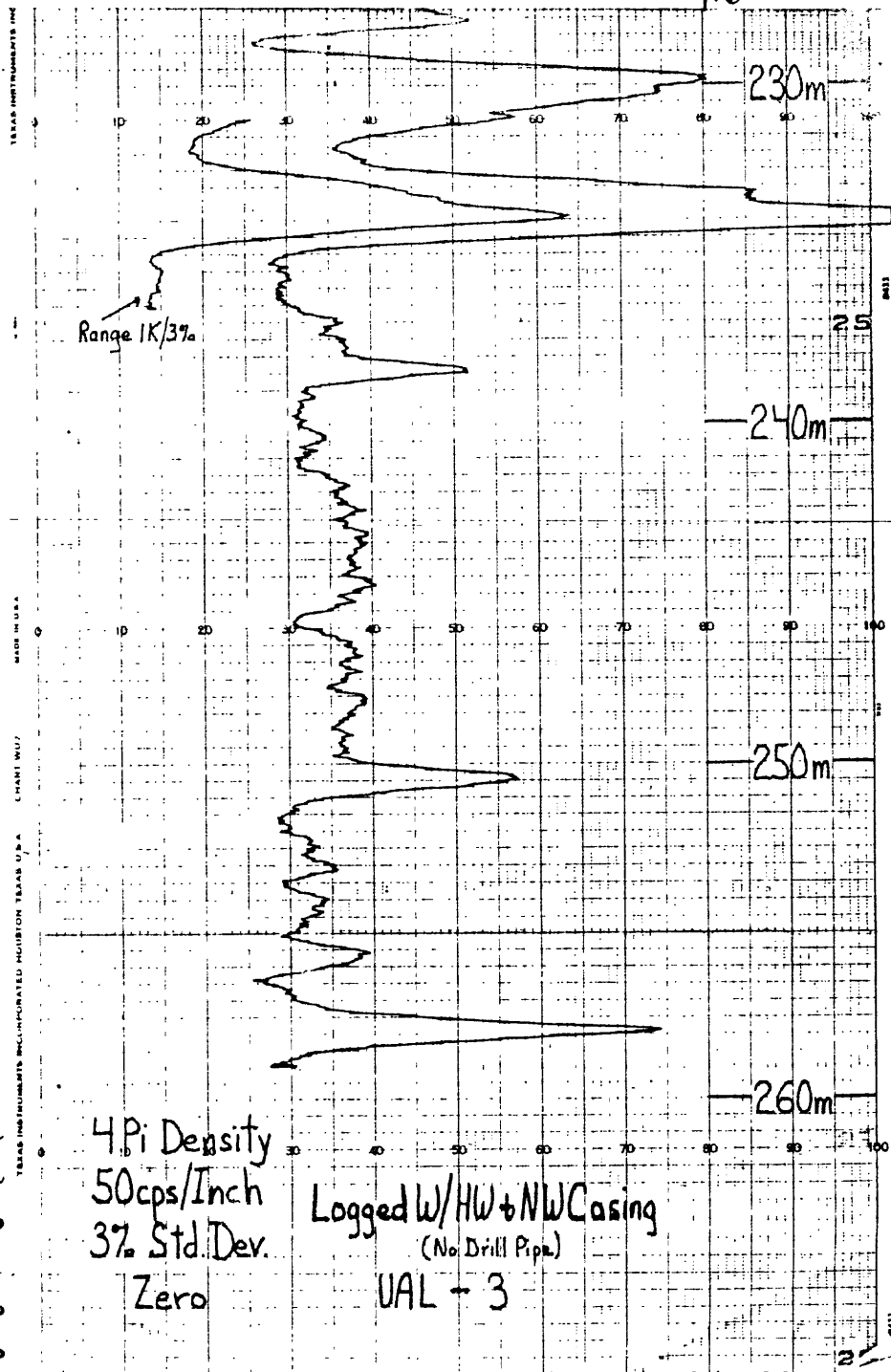
UAL-3

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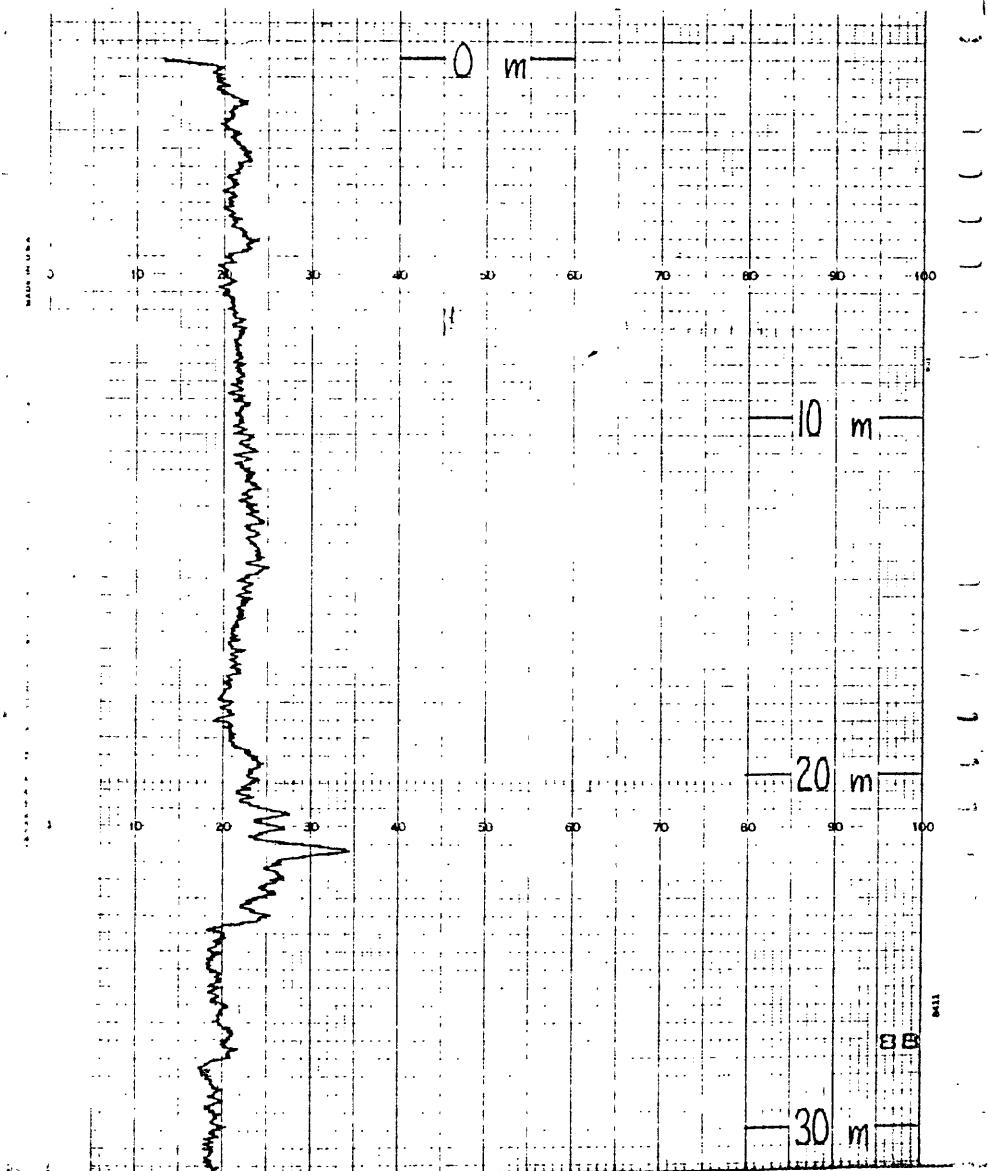
# GEOSCIENCE ASSOCIATES

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HOLE NUMBER: UAL-3

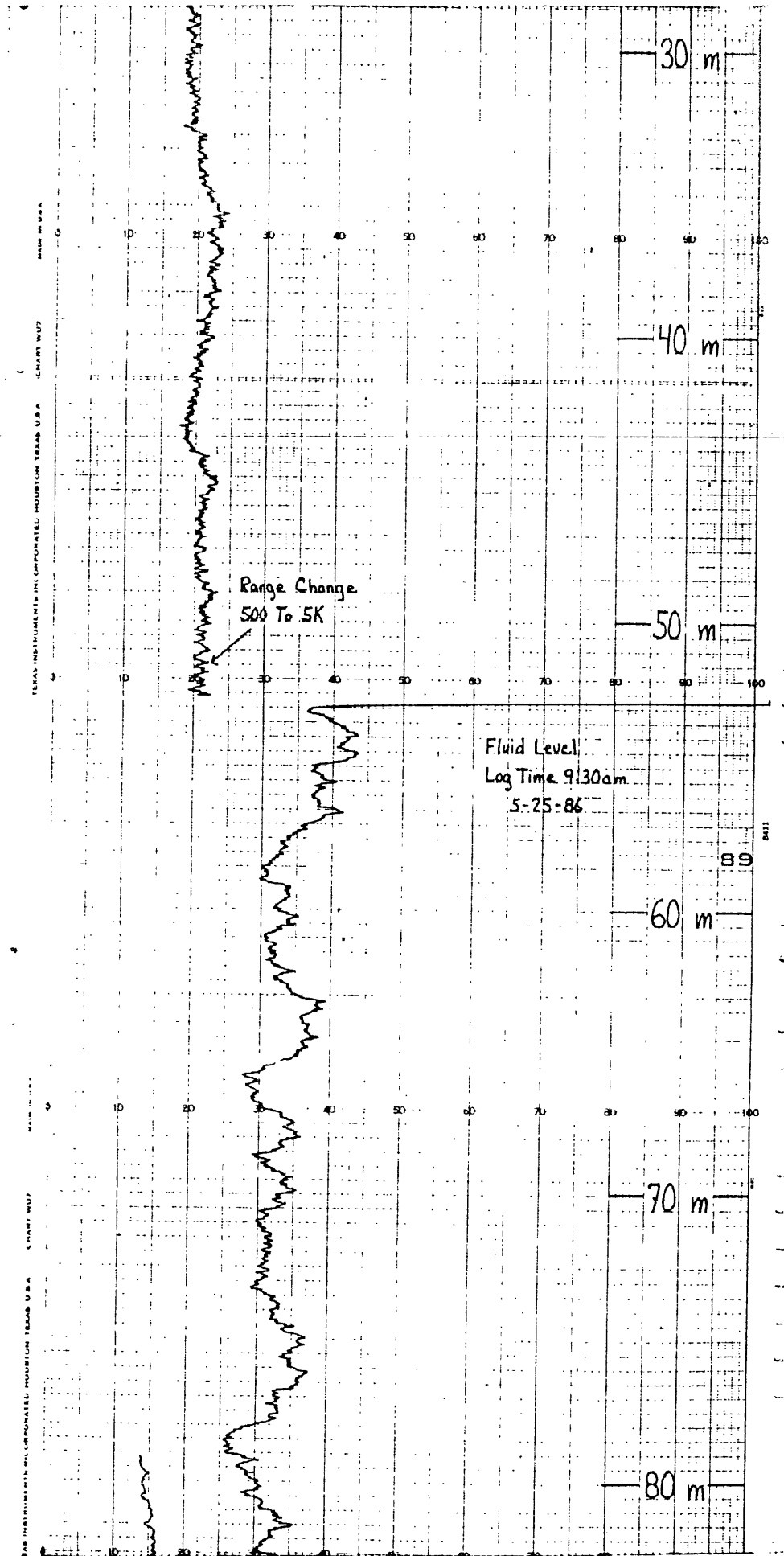
DATE: May 25, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh Pakistan		DEPTH DRILLED	263.16 m		CLIENT	U.S.G.S. - G.S.P.	
REGION	Lakha		DEPTH LOGGED	179 m		GEOLOGIST	San Felipe	
PROJECT	Coal REAP		COLLAR ELEV					
PROSPECT			DIA	FROM	TO			
BEC	TWP	RNG	DIA	FROM	TO			
			DIA	FROM	TO			
TYPE	OAM	4P Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		UNIT OPERATOR Davis		
LOGGED DEPTH	179 m		FLUID LEVEL	52.8 m		UNIT NO.	Pl-1	
RANGE (1-8)	18		CASING DATA			OFFICE	Boulder, Colorado	
STD DEV	372		WALL SIZE	See Remarks		ELECTRIC		
PAPER SPEED	1-1		ID			TYPE	RESIST	S.P.
LOG SPEED	6-1		CASED FROM	" TO		LOGGED DEPTH	FT	
BKND COUNT			CASING TYPE			SCALE		
PROBE NO	60-1		SAMPLE DATA			PAPER SPEED		
SIZE (dia)	1 3/8		NON-CORED HOLE	<input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>		LOG SPEED		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		FINE ADJ		
DEAD TIME	2							
STANDARD								
DIGITAL DATA			REMARKS					
PRINT INTERVAL			Casing - Size - Thickness					
TIMEBASE			0m to 44m 5 1/2" 1/2"					
			0m to 88.14m ID 70.6 mm 6.35 mm					
			0.2.119 mm					
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								
			CALIPER					
			LOGGED DEPTH FT					
			SCALE					
			PAPER SPEED					
			LOG SPEED					
			ARM LENGTH IN					
			MAX DEF. IN					
			VERTICAL DEV.					
			DEPTH					
			INCLIN					
			BEARING					



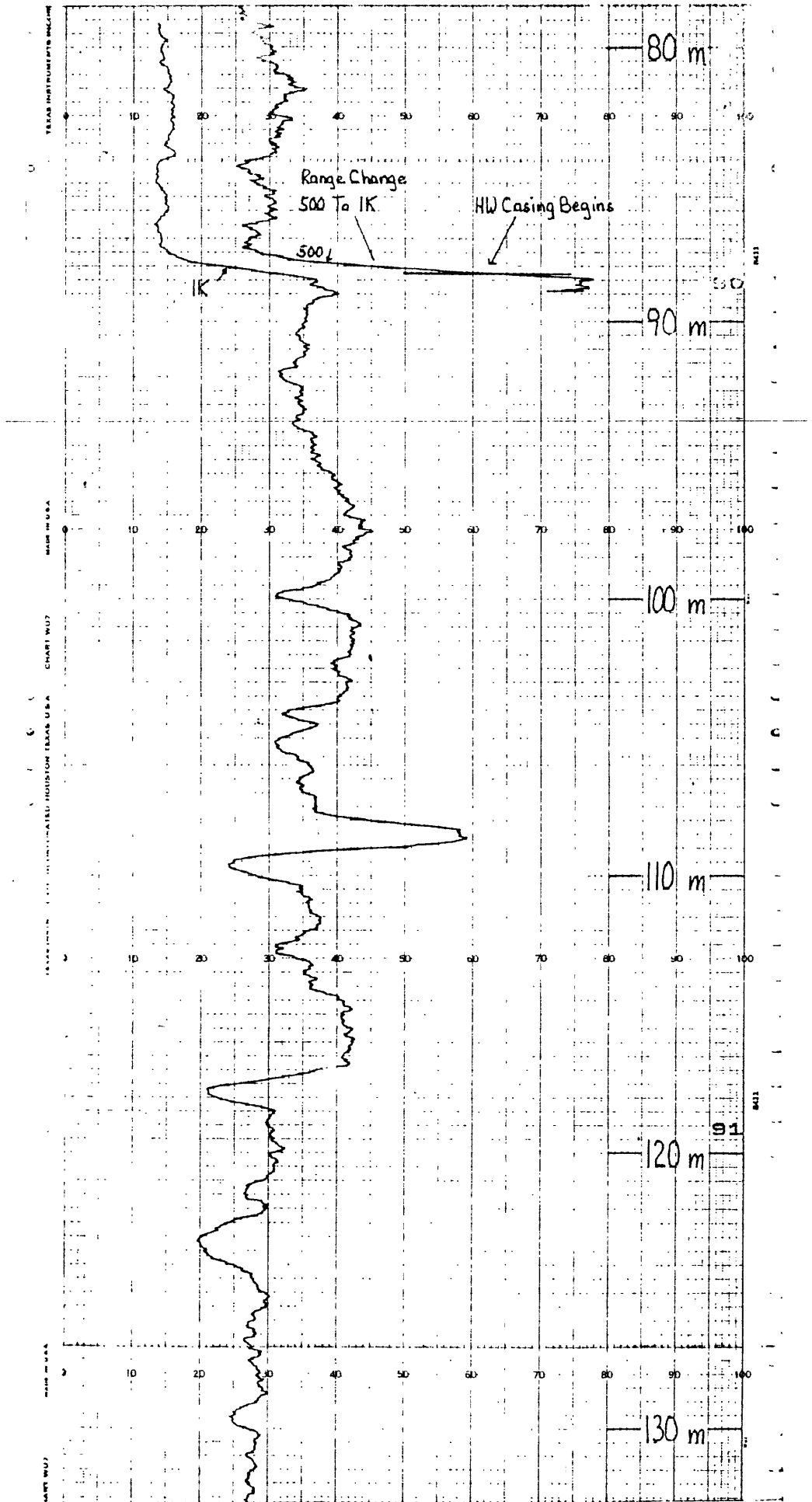
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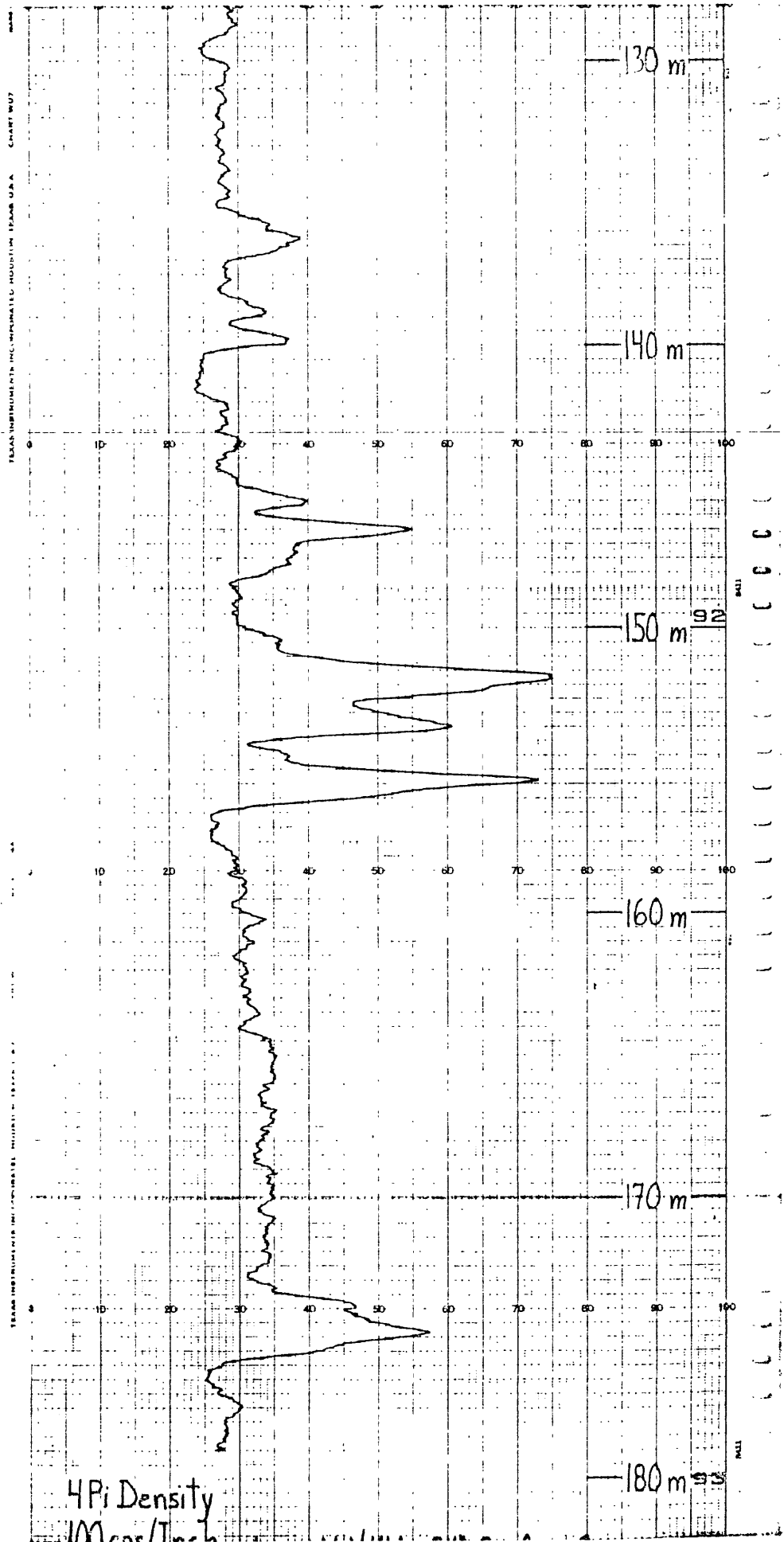
UAL-3

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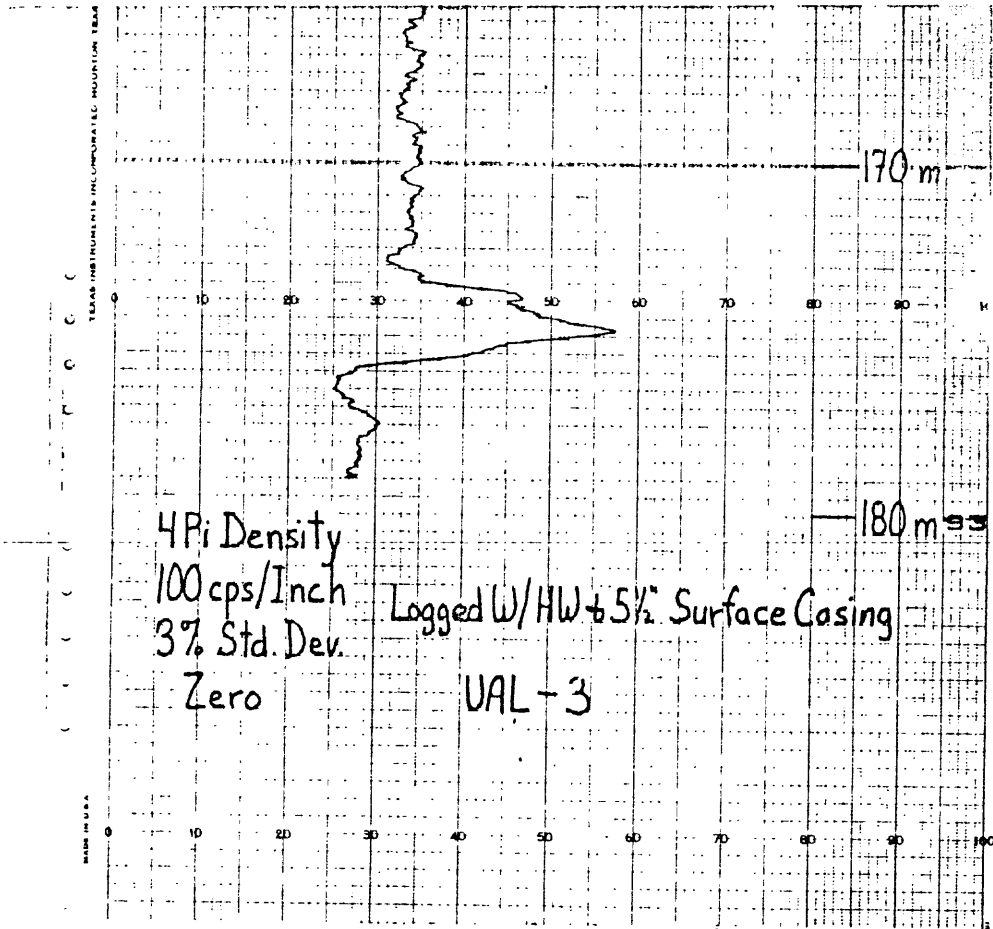
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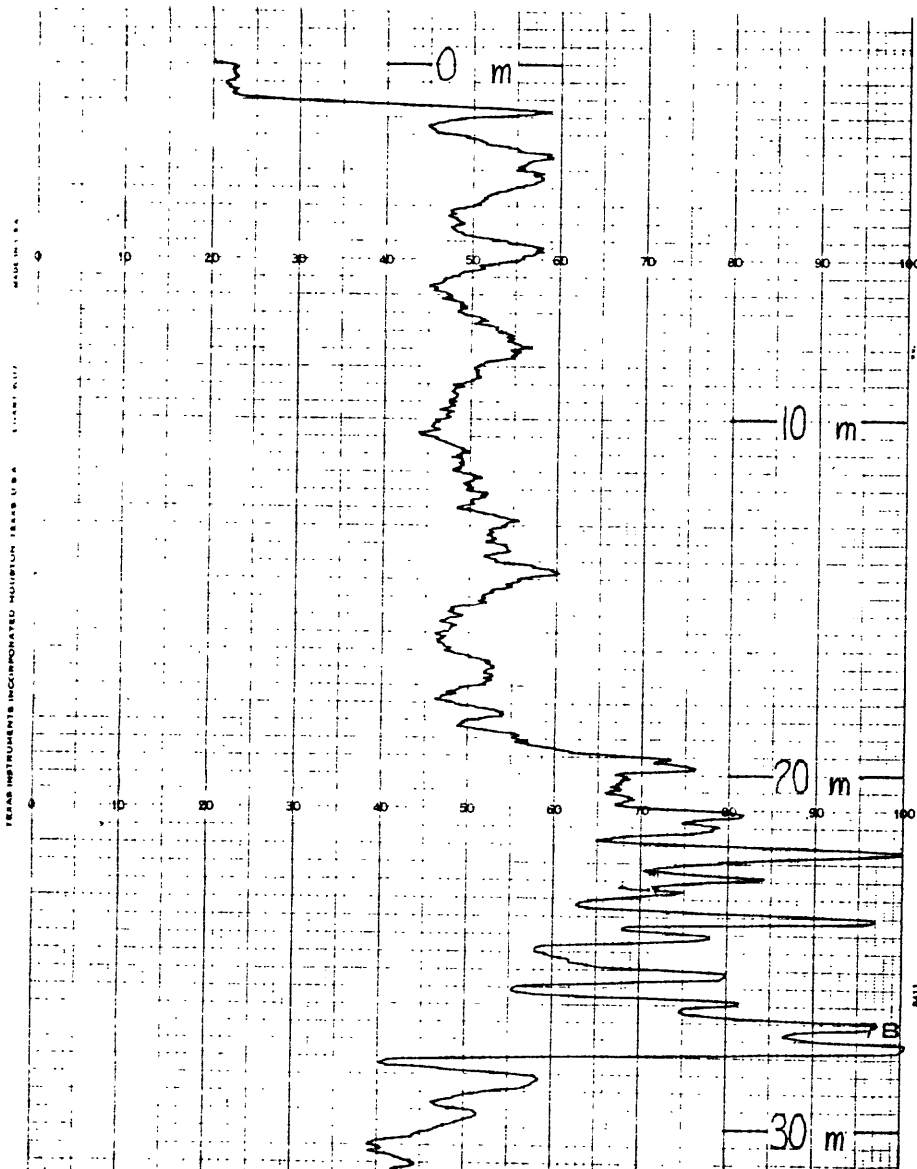
# GEOSCIENCE ASSOCIATES

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HOLE NUMBER: UAL-3

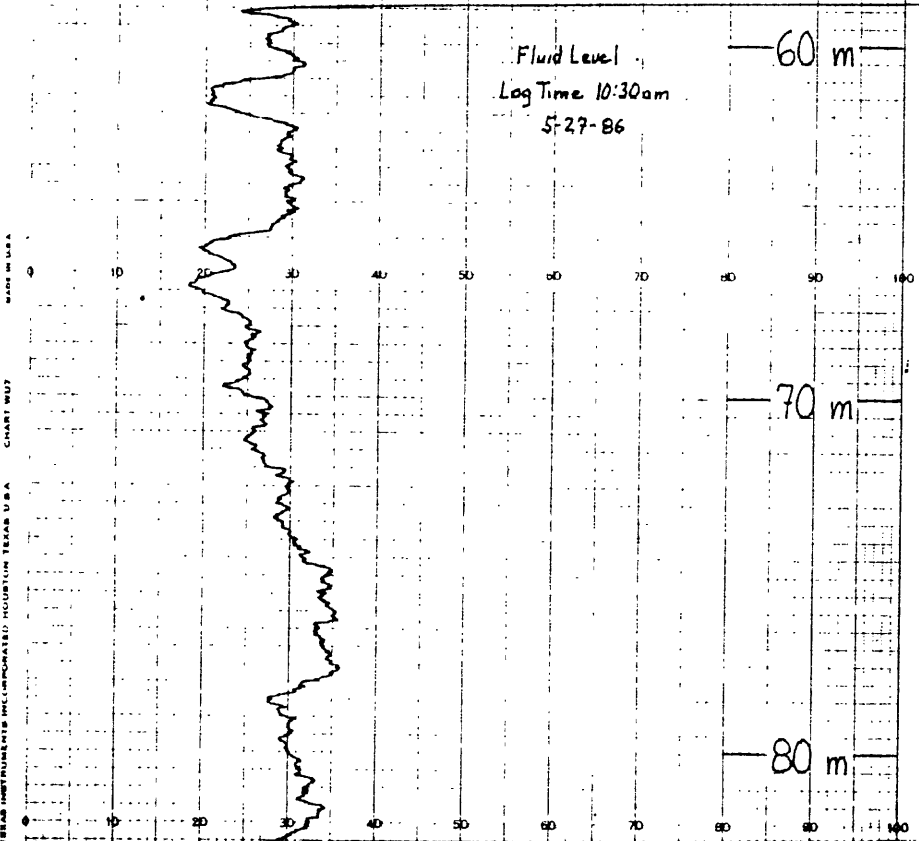
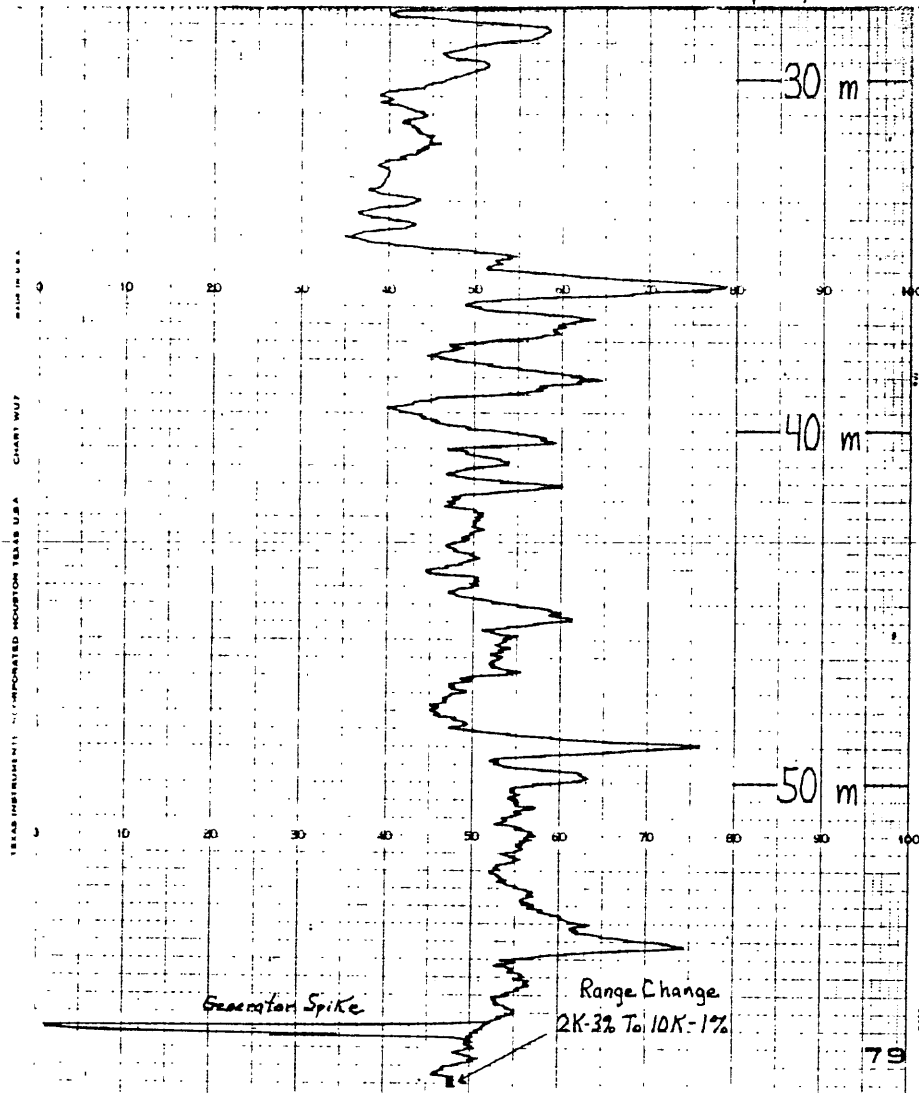
DATE: May 27, 1986

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY <u>Sindh Pakistan</u>				DEPTH DRILLED: <u>263.16m</u>				CLIENT <u>U.S.G.S. - G.S.P.</u>			
REGION <u>Lakhta</u>				DEPTH LOGGED: <u>105m</u>				GEOLOGIST <u>San Felipe</u>			
PROJECT <u>Coal REAP</u>				COLLAR ELEV							
PROSPECT											
SEC TWP RNG.				DIA FROM TO				UNIT OPERATOR <u>Davis</u>			
				DIA FROM TO				UNIT NO OFFICE			
				DIA FROM TO				<u>Pl-1 Boulder, Colorado</u>			
TYPE GAM <u>4Pi Density</u>				BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>				ELECTRIC			
LOGGED DEPTH <u>105m</u>				FLUID LEVEL <u>58.9m</u>				TYPE RESIST S.P.			
RANGE (I.A.) <u>2K 10K</u>				CASING DATA				LOGGED DEPTH FT. FT.			
%STD DEV <u>39% 1%</u>				WALL SIZE <u>None</u>				SCALE			
PAPER SPEED <u>1-1</u>				I.D.				PAPER SPEED			
LOG SPEED <u>6-1</u>				CASED FROM TO				LOG SPEED			
BKGD. COUNT				CASING TYPE				FINE ADJ.			
PROBE NO. <u>SD-1</u>				SAMPLE DATA							
SIZE (dia.) <u>1 3/8</u>				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>							
K-FACTOR				SAMPLED INTERVAL SAMPLE TYPE							
DEAD TIME <u>2</u>											
STANDARD											
DIGITAL DATA				REMARKS				CALIPER			
PRINT INTERVAL								LOGGED DEPTH FT.			
TIMEBASE								SCALE			
								PAPER SPEED			
								LOG SPEED			
								ARM LENGTH IN			
								MAX DEF IN			
DENSITY CALIBRATION								VERTICAL DEV.			
ALUMINUM								DEPTH			
LUCITE								INCLIN			
								BEARING			

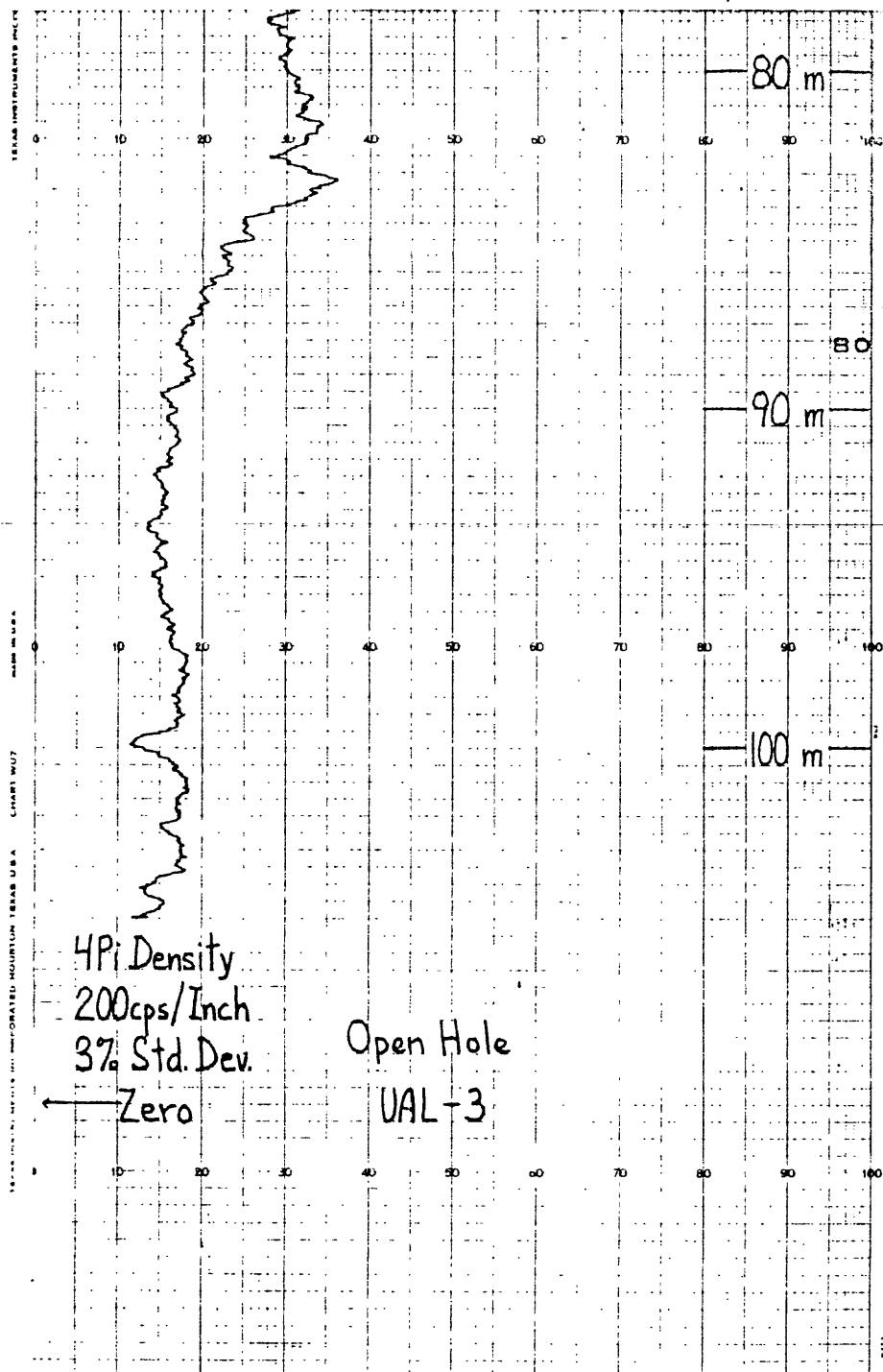


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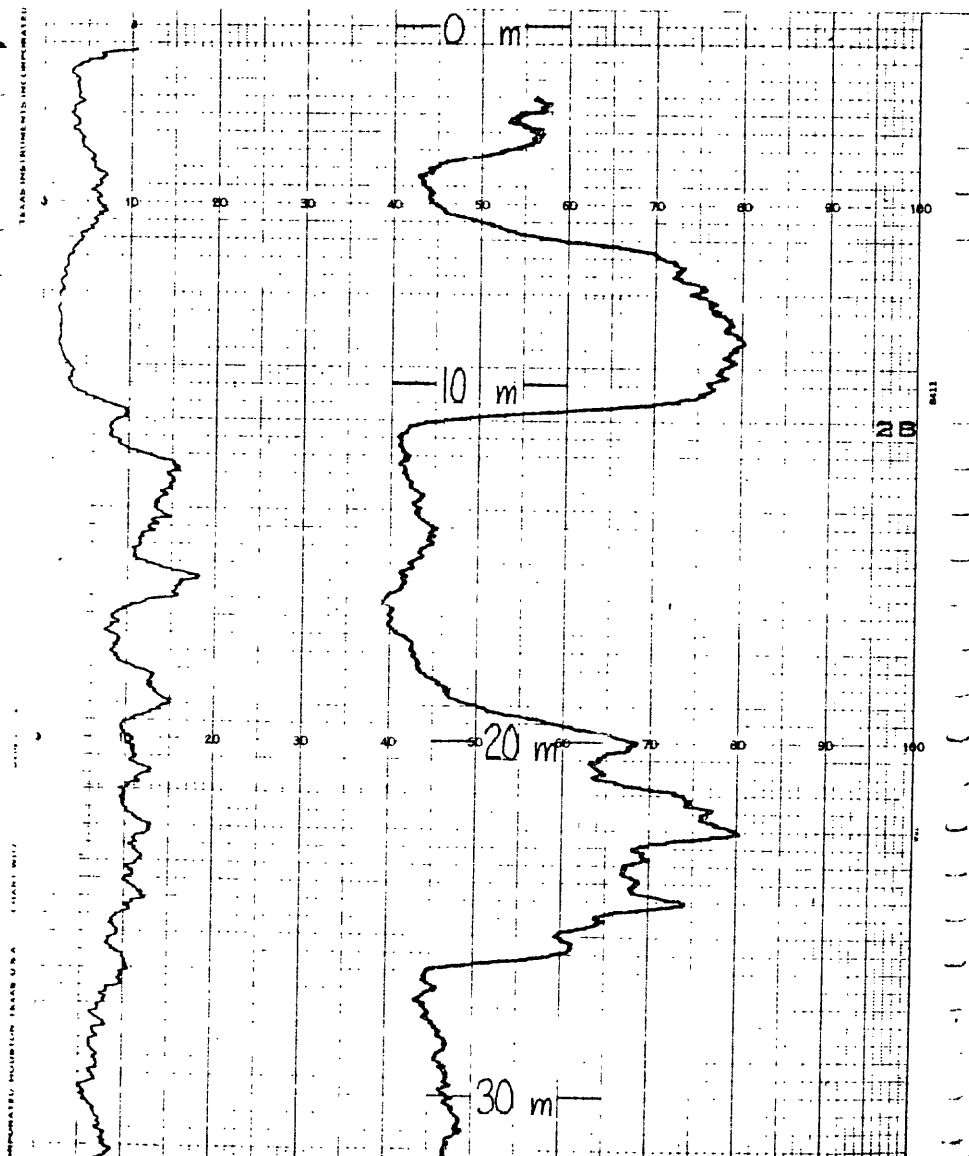
# GEOSCIENCE ASSOCIATES *Master*

HOLE NUMBER: **CHL-3**

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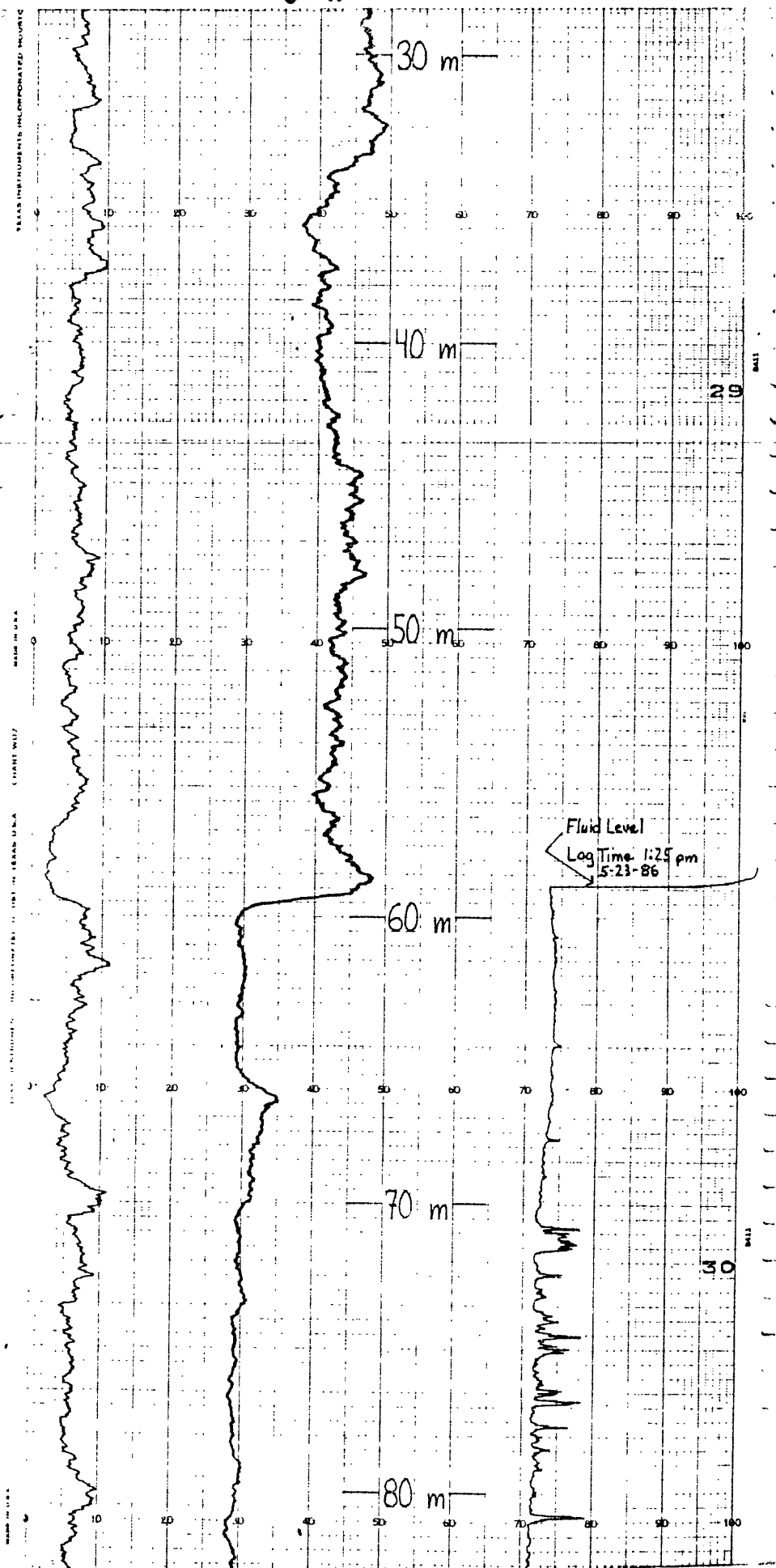
DATE: *May 23, 1986*

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	<i>Sindh Pakistan</i>		DEPTH DRILLED	<i>263.16 m</i>		CLIENT	<i>U.S.G.S. - G.S.P.</i>	
REGION	<i>Larkana</i>		DEPTH LOGGED	<i>262 m</i>		GEOLOGIST	<i>San Felipe</i>	
PROJECT	<i>Coral REAP</i>		COLLAR ELEV					
PROSPECT			DIA.	FROM	TO			
SEC	TWP.	RNG.	DIA.	FROM	TO			
			DIA.	FROM	TO			
TYPE	GAM	<i>Neutron</i>	BOREHOLE MEDIUM	<i>H<sub>2</sub>O + Mud</i>		UNIT OPERATOR	<i>Davis</i>	
LOGGED DEPTH	<i>260 m</i>	<i>263 m</i>	FLUID LEVEL	<i>59.3 m</i>		UNIT NO.	<i>PA-1</i>	
RANGE (I.S.I.)	<i>200</i>	<i>500</i>	CASING DATA			OFFICE	<i>Boulder, Colorado</i>	
%STD DEV	<i>10%</i>	<i>3%</i>	WALL SIZE	<i>See Remarks</i>		ELECTRIC		
PAPER SPEED	<i>1-1</i>	<i>1-1</i>	ID			TYPE	RESIST	S.P.
LOG SPEED	<i>6-1</i>	<i>6-1</i>	CASED FROM			LOGGED DEPTH	<i>260 m</i>	
BKGD. COUNT			CASING TYPE			SCALE	<i>20</i>	
PROBE NO	<i>68-1</i>		SAMPLE DATA			PAPER SPEED	<i>1-1</i>	
SIZE (dia.)	<i>1 3/8</i>		NON-CORED HOLE	<input type="checkbox"/>	CORED HOLE	LOG SPEED	<i>6-1</i>	
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		FINE ADJ	<i>500</i>	
DEAD TIME	<i>2</i>		REMARKS			CALIPER		
STANDARD			<i>Casing - Size - Thick</i>			LOGGED DEPTH		FT
DIGITAL DATA			<i>0 m to 44 m 5 1/2" 4 1/2"</i>			SCALE		
PRINT INTERVAL			<i>0 m to 22.2 m ID 101.6 mm 7.35 mm OD 114.3 mm</i>			PAPER SPEED		
TIMEBASE			<i>0 m to 22.2 m ID 76.1 mm 6.06 mm OD 88.9 mm</i>			LOG SPEED		
DENSITY CALIBRATION						ARM LENGTH		IN
ALUMINUM						MAX DEF.		IN
LUCITE						VERTICAL DEV.		
						DEPTH		
						INCLIN		
						BEARING		



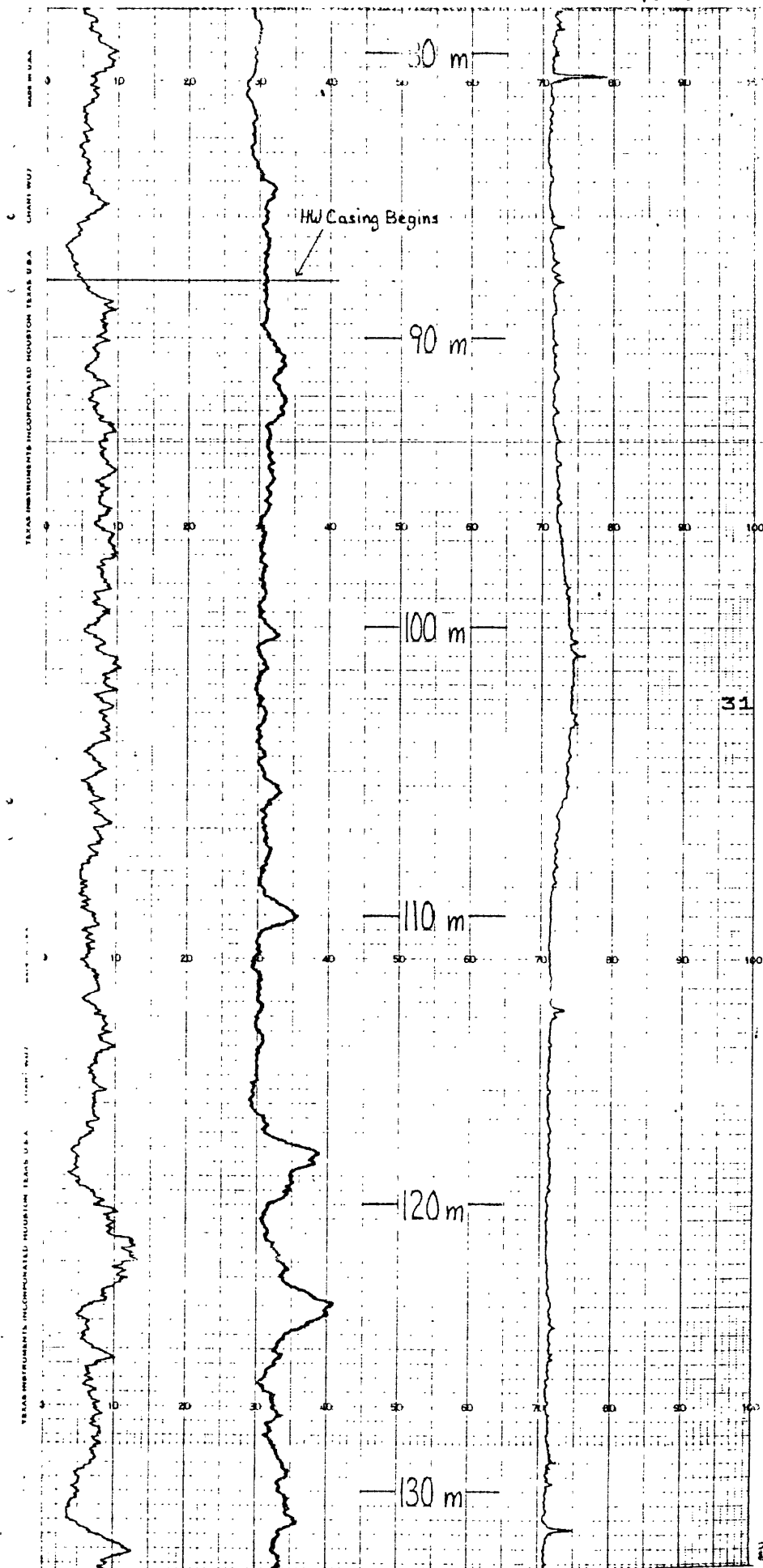
UAL-3

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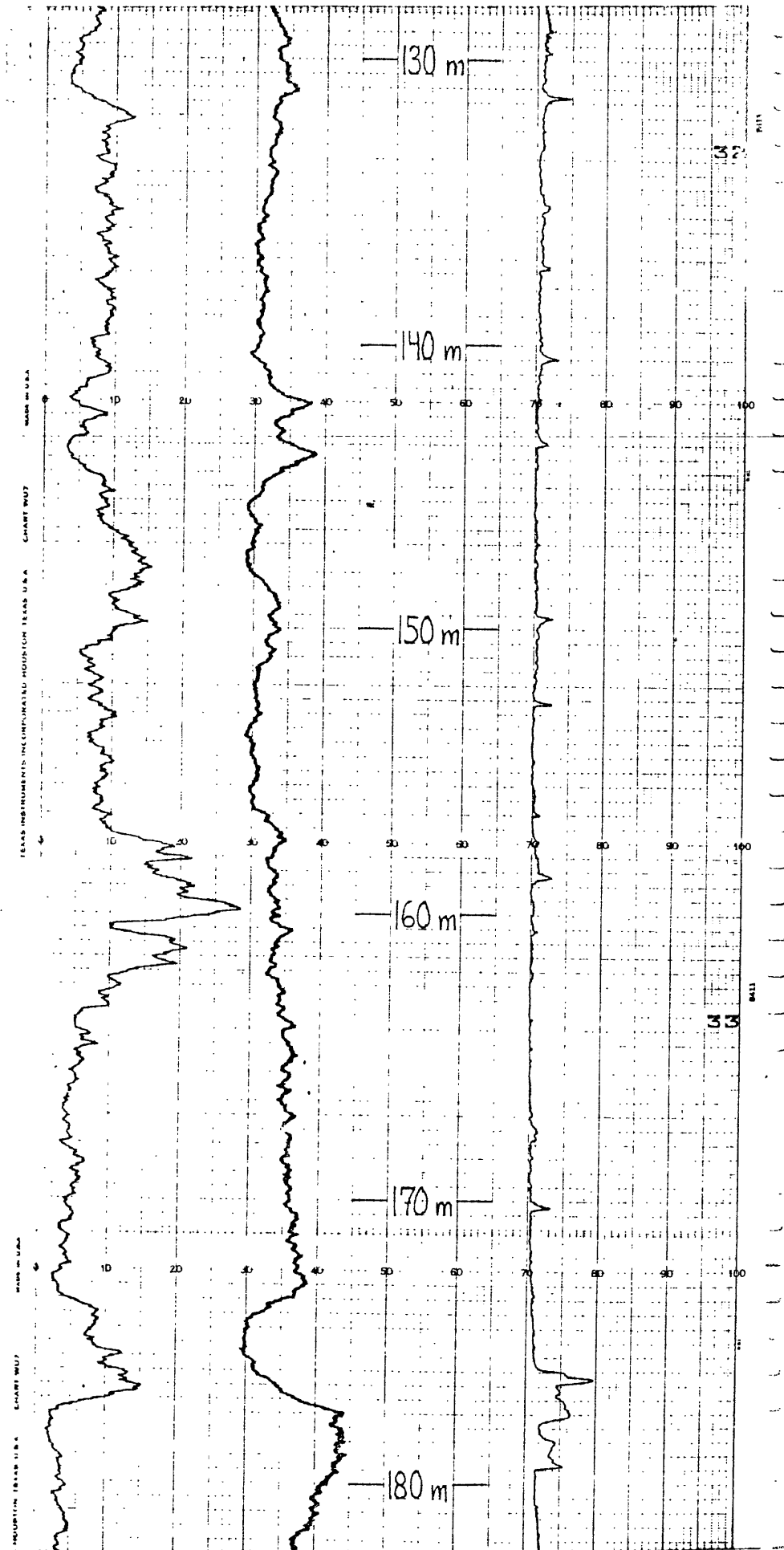
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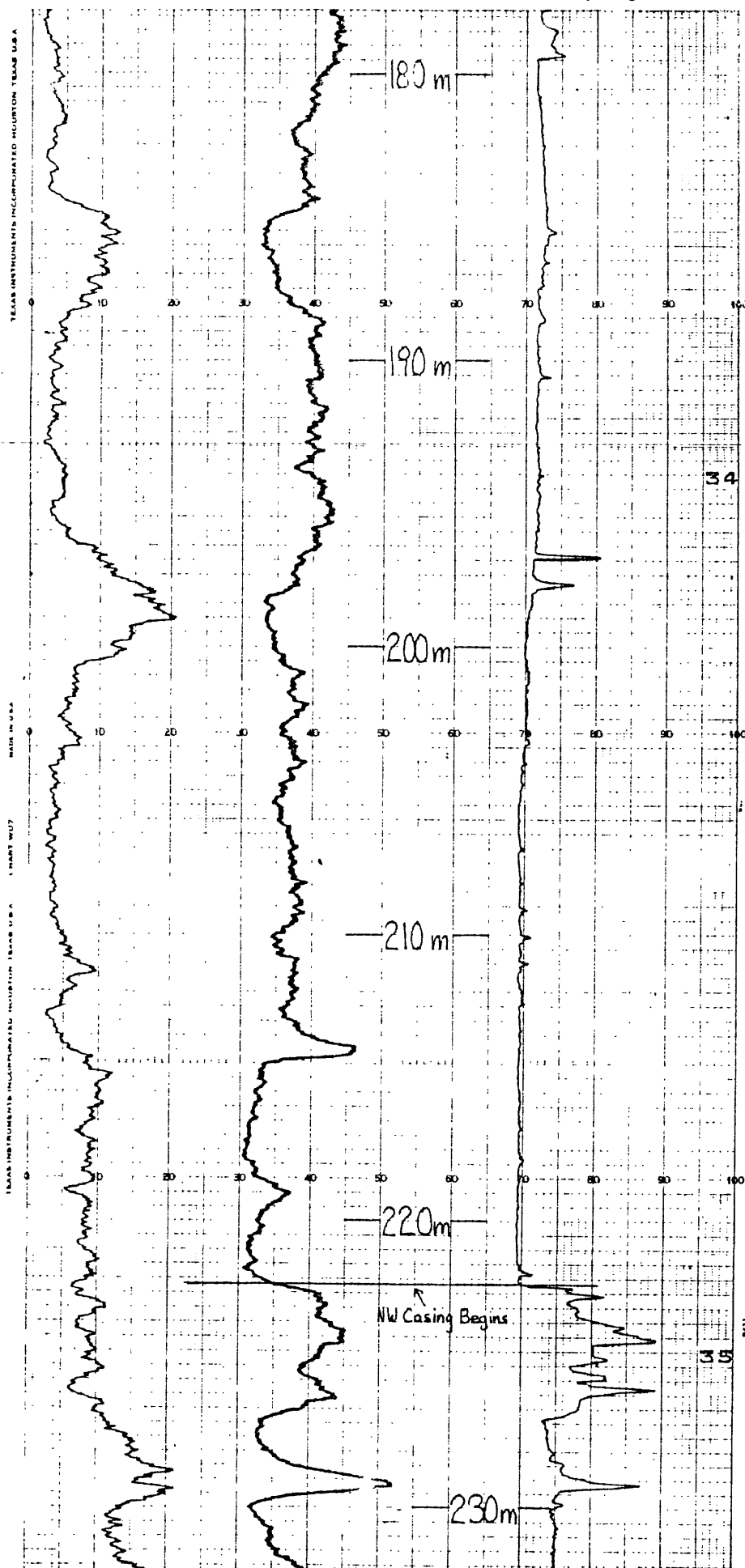
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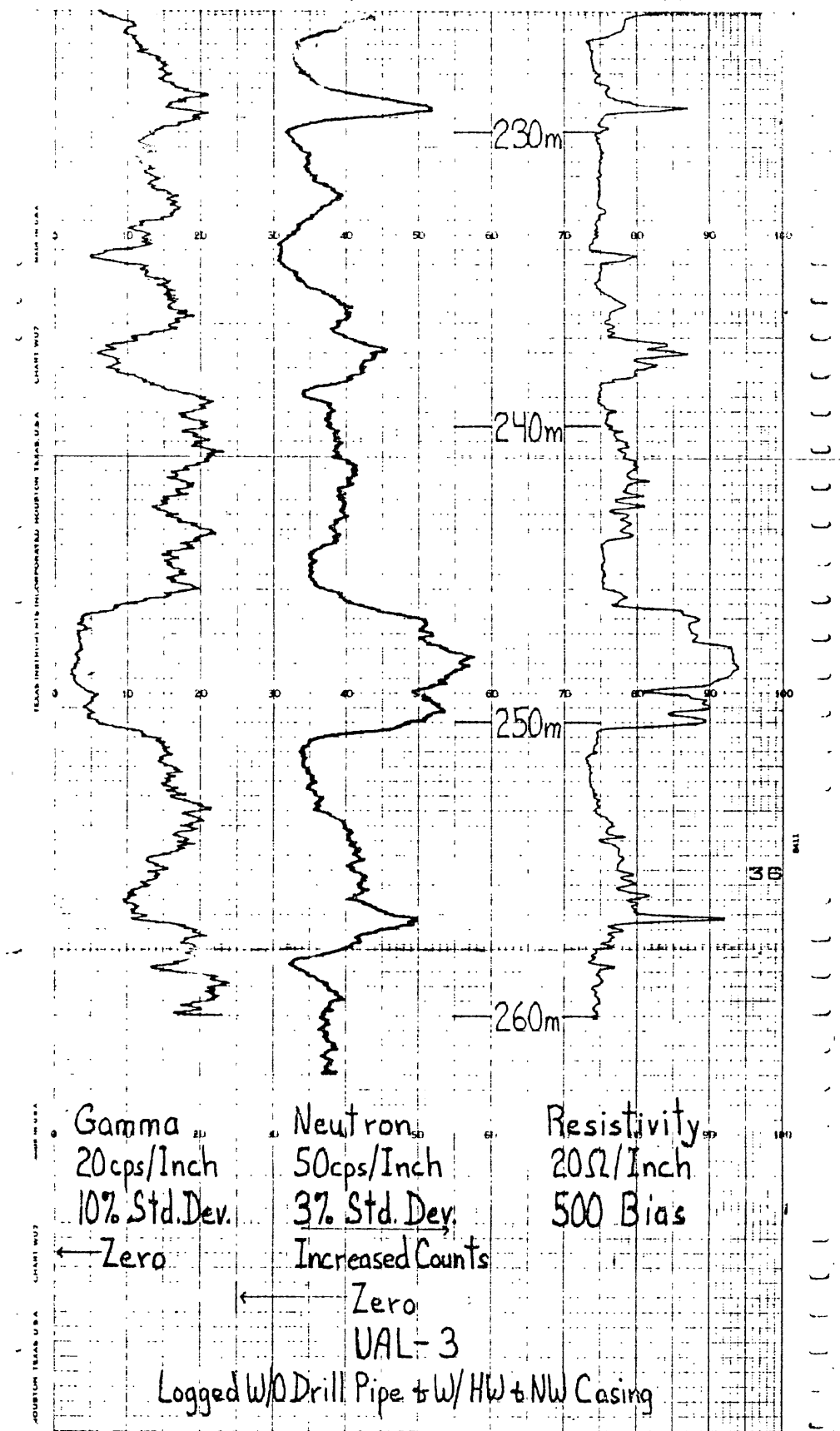
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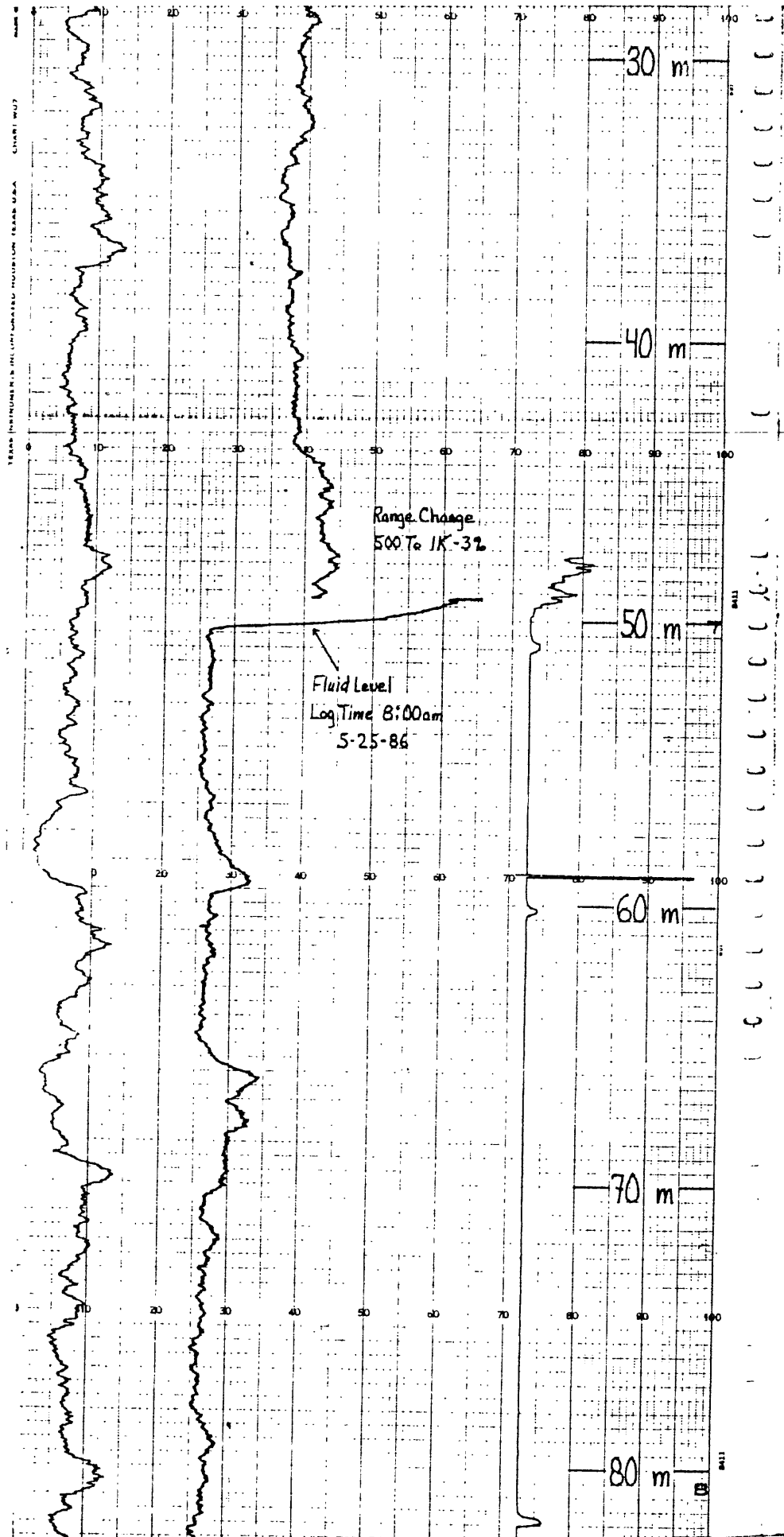


DATE: May 25, 1986

The figure consists of three vertically stacked panels sharing a common x-axis representing time in hours, ranging from 0 to 100. The top panel displays water level in meters (0 to 10 m), showing a steady rise from approximately 2.5 m at 0 hours to about 8.5 m at 100 hours. The middle panel shows temperature in degrees Celsius (0 to 30), with a thermocline developing between 10 and 20 meters depth. The bottom panel shows salinity in practical salinity units (0 to 30), with a halocline developing between 10 and 20 meters depth. The temperature and salinity profiles are highly correlated, indicating a salt wedge intrusion.

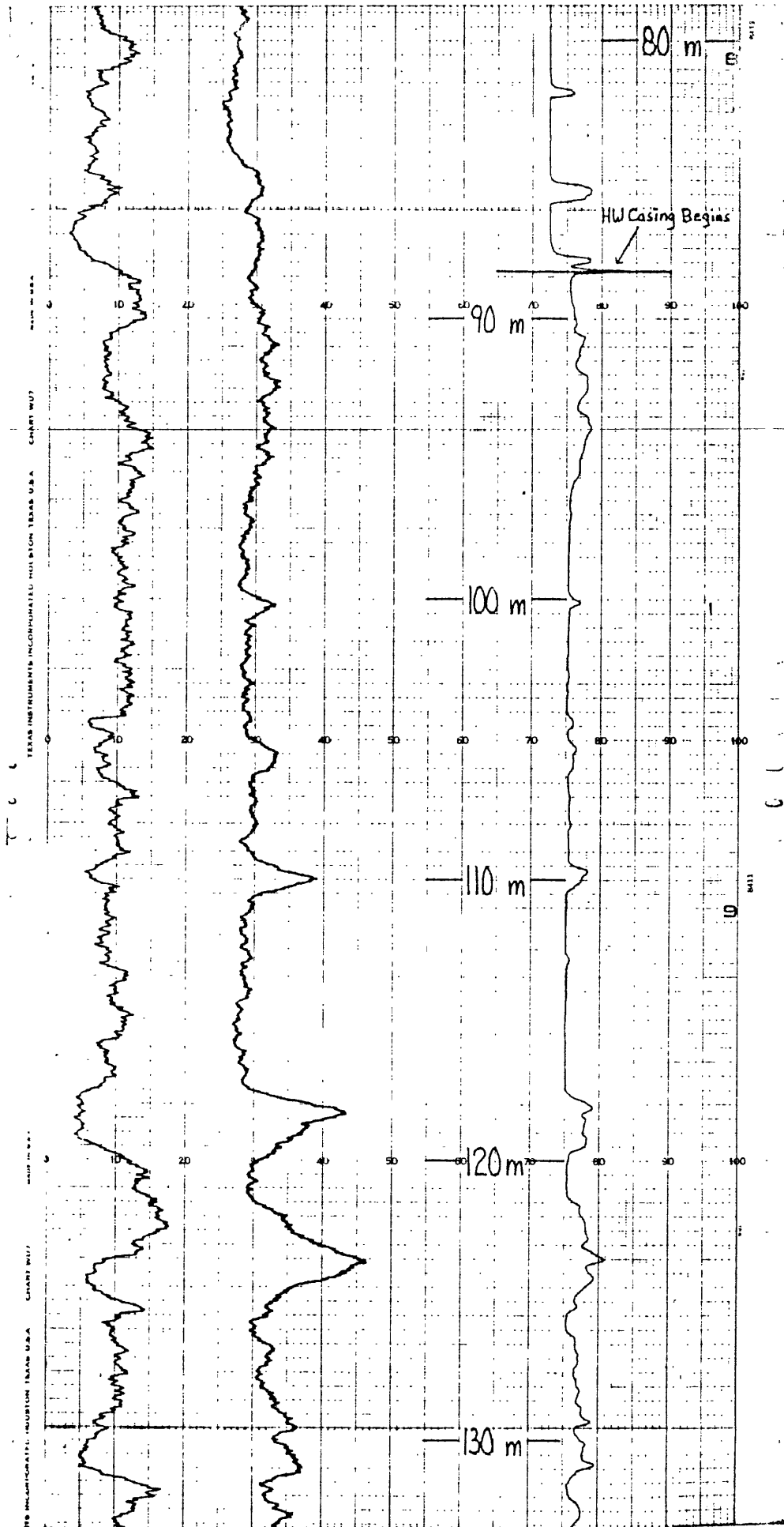
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0.83



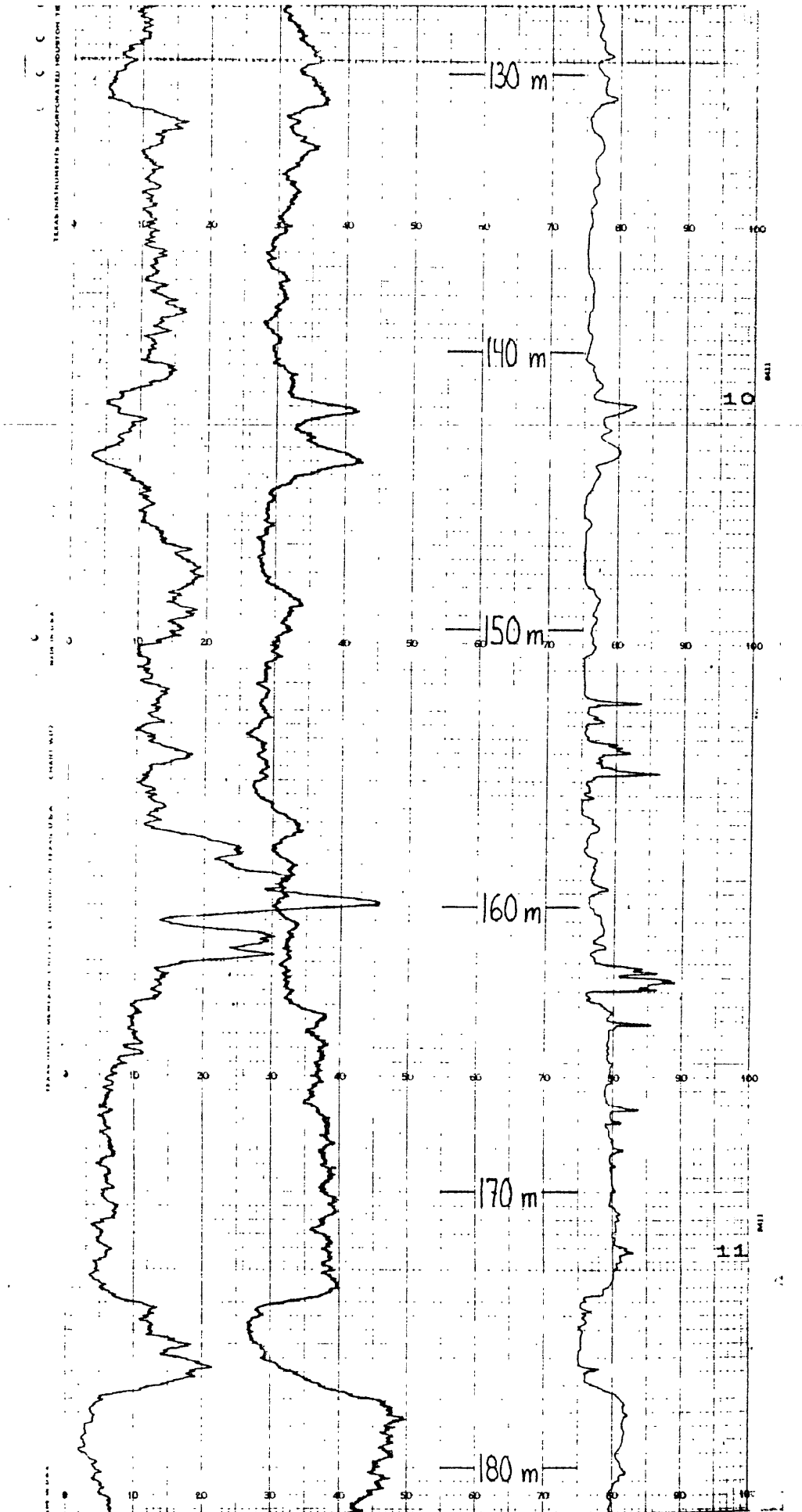
UAL-3

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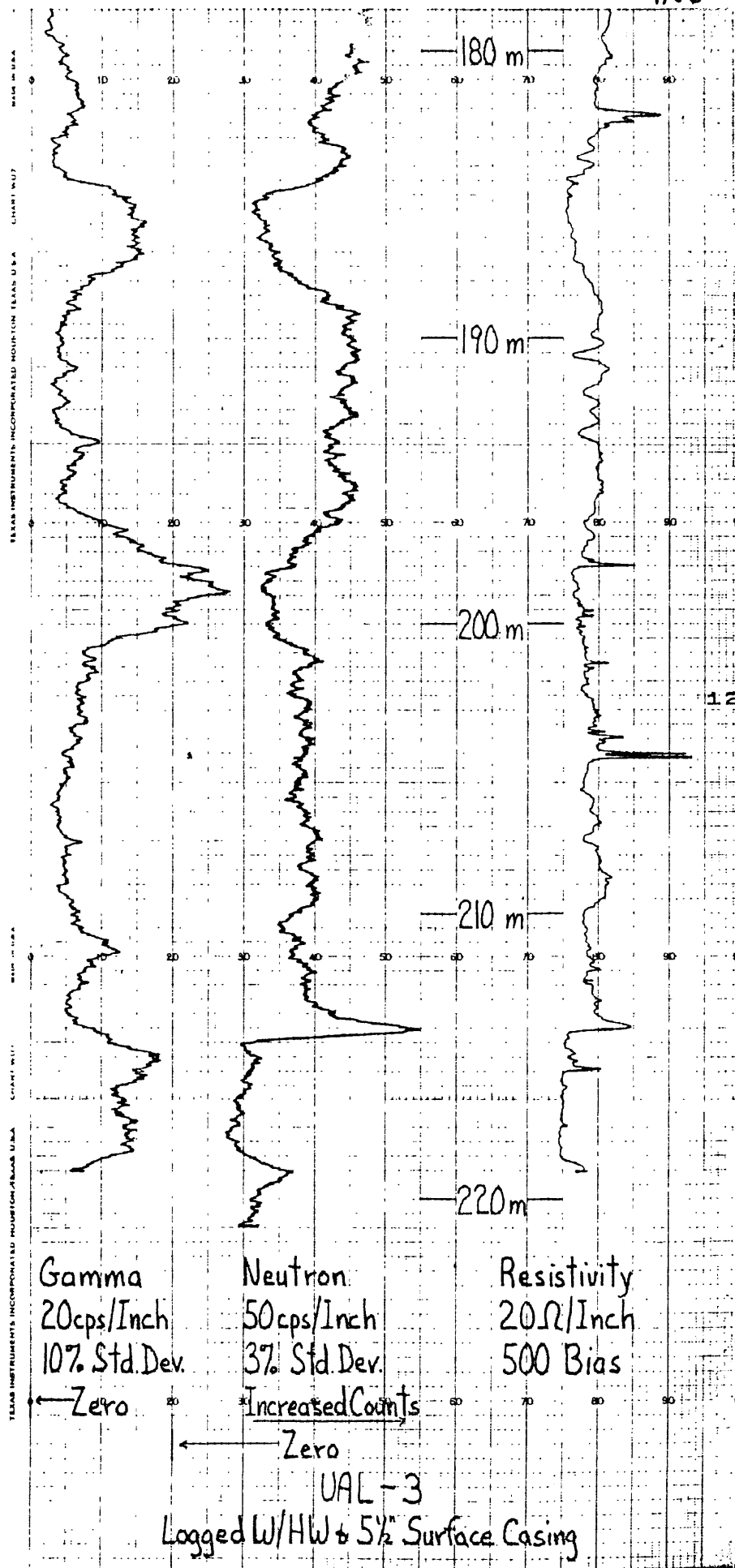


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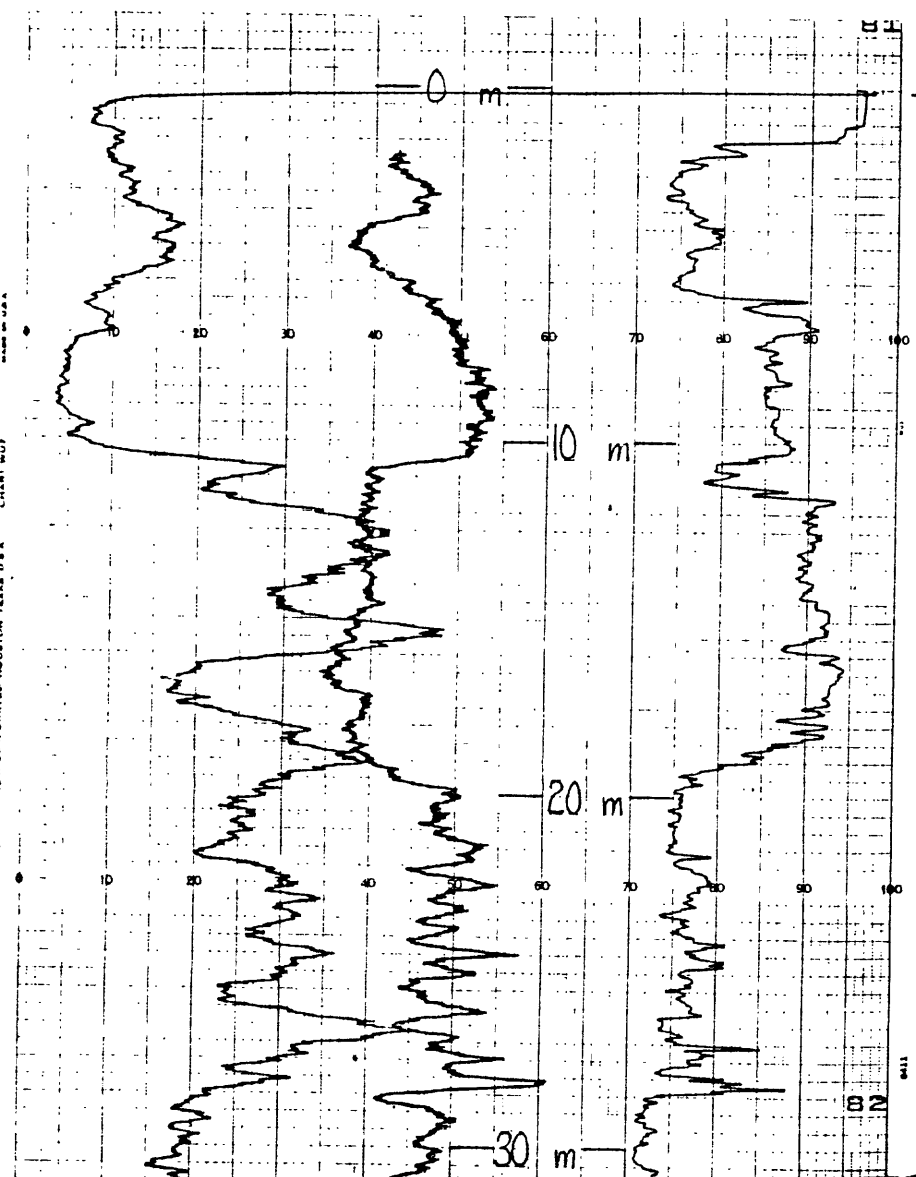
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HOLE NUMBER: UA-3

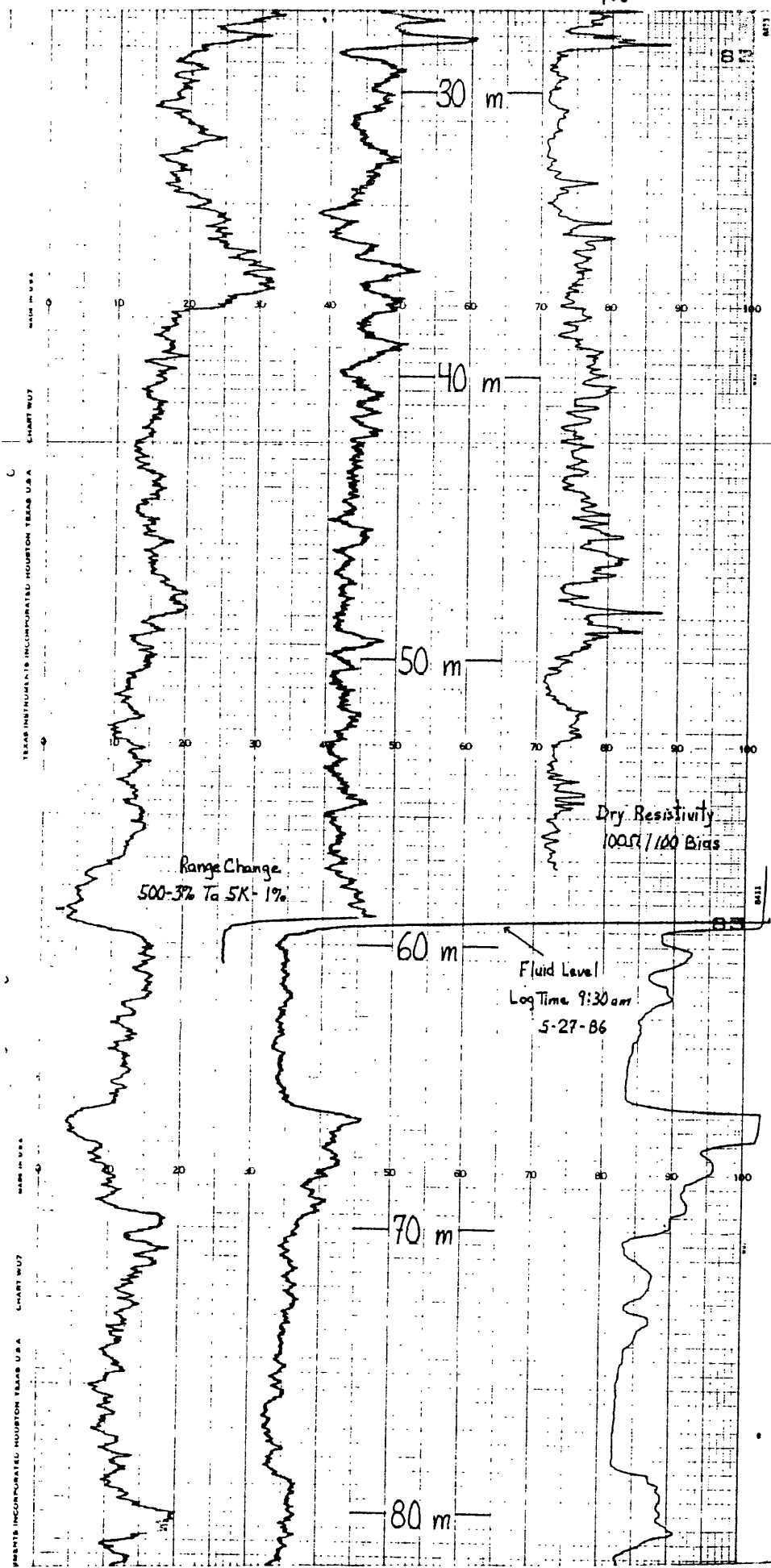
DATE: May 27, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY <u>Sind Pakistan</u>			DEPTH DRILLED: <u>263.16 m</u>			CLIENT <u>U.S.G.S. - G.S.P.</u>		
REGION <u>Larkana</u>			DEPTH LOGGED: <u>109 m</u>			GEOLOGIST <u>San Felipe</u>		
PROJECT <u>Coal REAP</u>			COLLAR ELEV.					
PROSPECT			DIA. FROM TO			UNIT OPERATOR <u>Davis</u>		
SEC. TWP. RNG.			DIA. FROM TO			UNIT NO. OFFICE		
			DIA. FROM TO			<u>Pl-1 Boulder, Colorado</u>		
TYPE <u>GAM</u>			BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>			ELECTRIC		
LOGGED DEPTH <u>105 m</u>			FLUID LEVEL <u>59.2 m</u>			TYPE RESIST S.P.		
RANGE (F.S.) <u>200</u>			CASING DATA			LOGGED DEPTH <u>105 m</u> FT.		
%STD DEV <u>10%</u>			WALL SIZE <u>None</u>			SCALE <u>10</u> mm		
PAPER SPEED <u>1-1</u>			I.D.			PAPER SPEED <u>1-1</u> mm		
LOG SPEED <u>6-1</u>			CASED FROM TO			LOG SPEED <u>6-1</u> mm		
BKGND. COUNT			CASING TYPE			FINE ADJ. <u>1000</u>		
PROBE NO. <u>64-1</u>			SAMPLE DATA			CALIPER		
SIZE (dia) <u>1 7/8</u>			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			LOGGED DEPTH FT.		
K-FACTOR			SAMPLED INTERVAL SAMPLE TYPE			SCALE		
DEAD TIME <u>2</u>						PAPER SPEED		
STANDARD						LOG SPEED		
DIGITAL DATA			REMARKS			ARM LENGTH IN		
PRINT INTERVAL						MAX DEF. IN		
TIMEBASE						VERTICAL DEV.		
						DEPTH		
DENSITY CALIBRATION						INCLIN.		
ALUMINUM						BEARING		
LUCITE								



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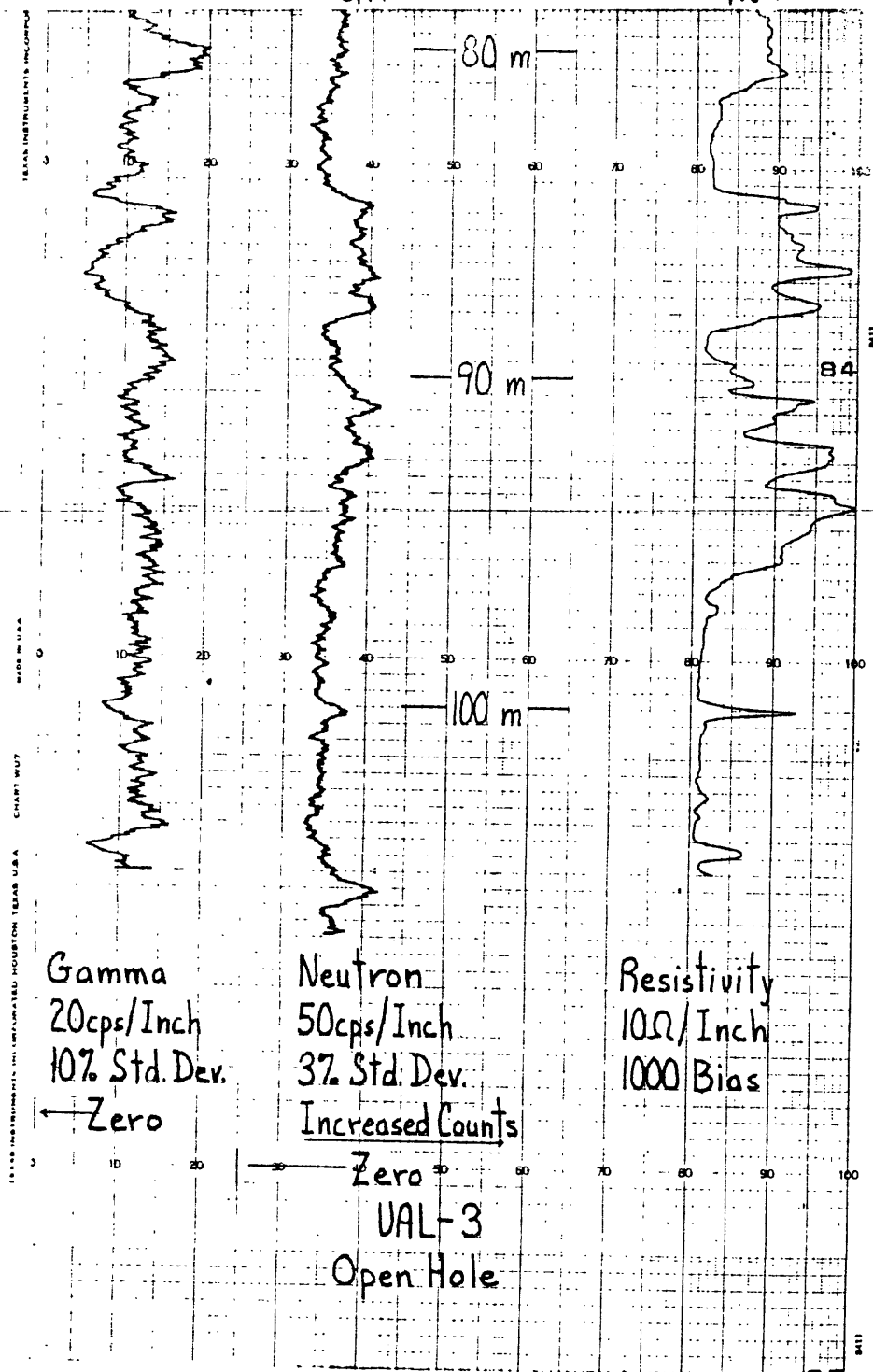
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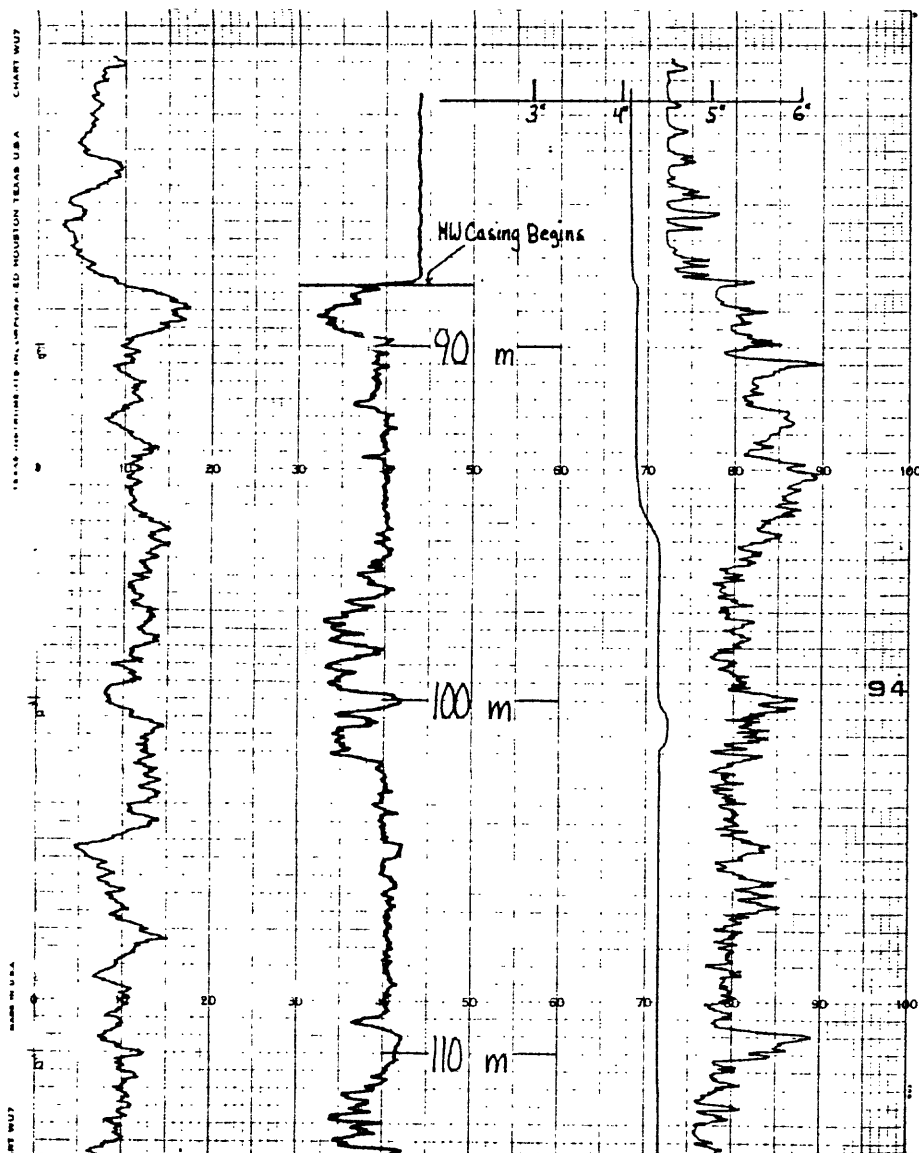
**GEOSCIENCE ASSOCIATES** *master*

HOLE NUMBER: UAL-3

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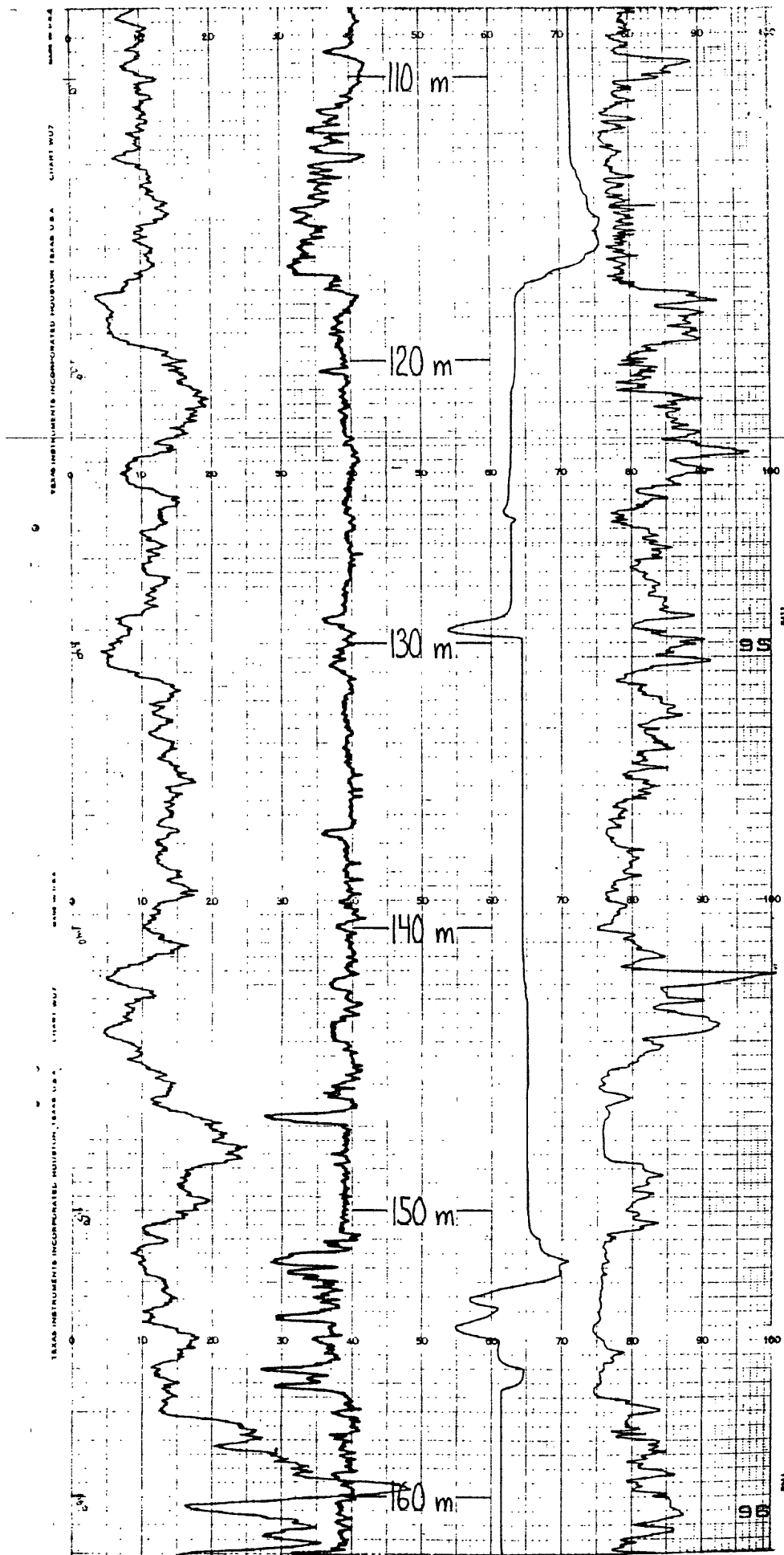
DATE: May 25, 1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY <u>Sind Pakistan</u>			DEPTH DRILLED <u>263.16 m</u>		CLIENT <u>U.S.G.S. - G.S.P.</u>	
REGION <u>Lakhta</u>			DEPTH LOGGED <u>180 m</u>		GEOLOGIST <u>San Felipe</u>	
PROJECT <u>CORREAP</u>			COLLAR ELEV.			
PROSPECT			DIA. FROM TO			
SEC. TWP. RNG.			DIA. FROM TO			
			DIA. FROM TO			
			BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>		UNIT OPERATOR <u>Davis</u>	
			FLUID LEVEL		UNIT NO OFFICE	
					<u>PL-1 Banker, Colorado</u>	
			<b>CASING DATA</b>		<b>ELECTRIC</b>	
TYPE	GAM	HRD			TYPE	RESIST
LOGGED DEPTH	<u>179m</u>	<u>180m</u>			LOGGED DEPTH	<u>179 m.</u>
RANGE (F.B.)	<u>200</u>	<u>20K</u>			SCALE	<u>10</u>
%STD DEV	<u>10%</u>	<u>1%</u>			PAPER SPEED	<u>1-1</u>
PAPER SPEED	<u>1-1</u>	<u>1-1</u>			LOG SPEED	<u>3-1</u>
LOG SPEED	<u>3-1</u>	<u>3-1</u>			FINE ADJ	<u>500</u>
BKGD. COUNT						
PROBE NO.	<u>HRD-1</u>					
SIZE (dia.)	<u>2"</u>					
K-FACTOR						
DEAD TIME	<u>2</u>					
STANDARD						
<b>DIGITAL DATA</b>			<b>REMARKS</b>		<b>CALIPER</b>	
PRINT INTERVAL					LOGGED DEPTH <u>180</u>	
TIMEBASE					SCALE <u>1" Deflection = 1" Dia.</u>	
					PAPER SPEED <u>1-1</u>	
					LOG SPEED <u>3-1</u>	
					ARM LENGTH <u>60</u>	
					MAX DEF <u>7"</u>	
<b>DENSITY CALIBRATION</b>					<b>VERTICAL DEV.</b>	
ALUMINUM	<u>700</u>				DEPTH	
LUCITE	<u>4800</u>				INCLIN	
					BEARING	



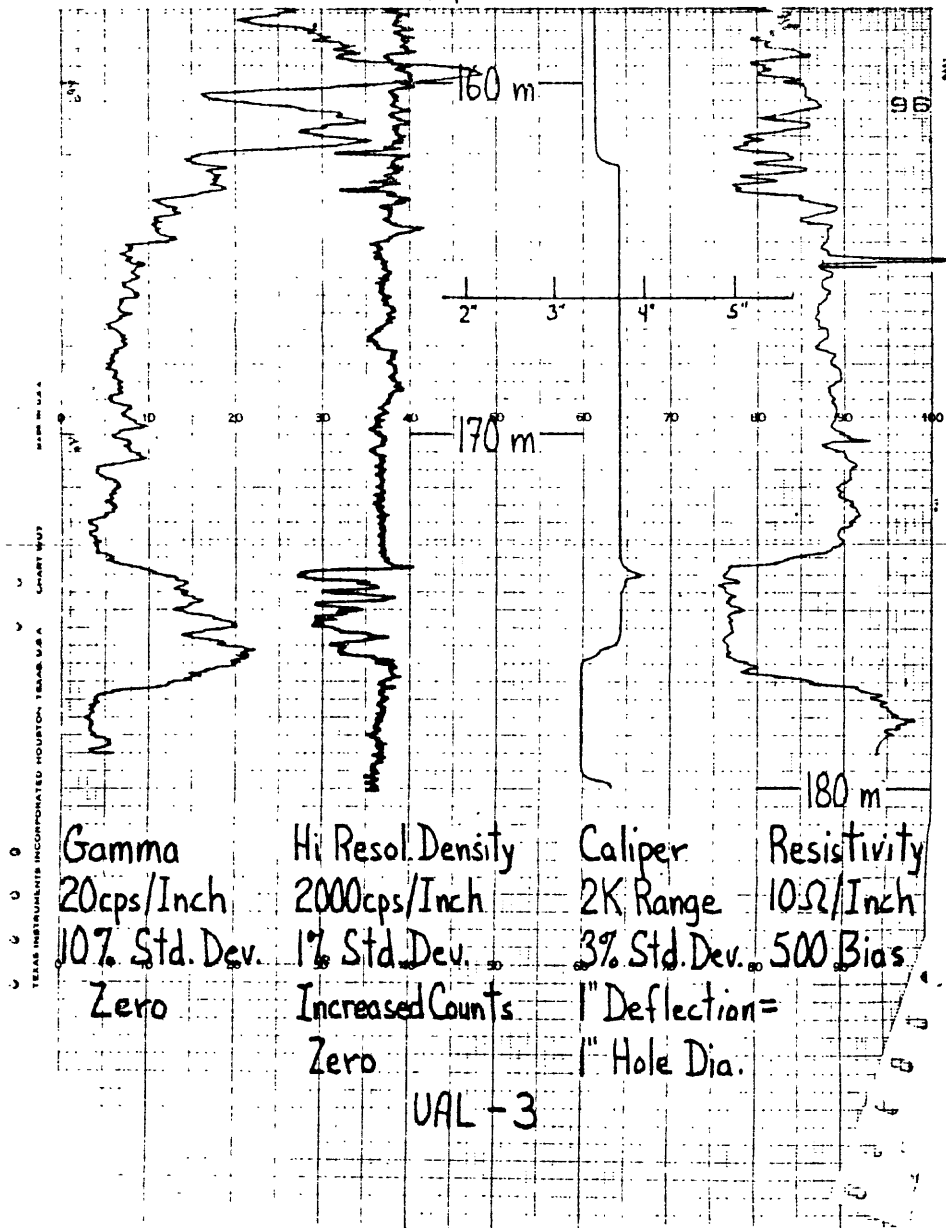
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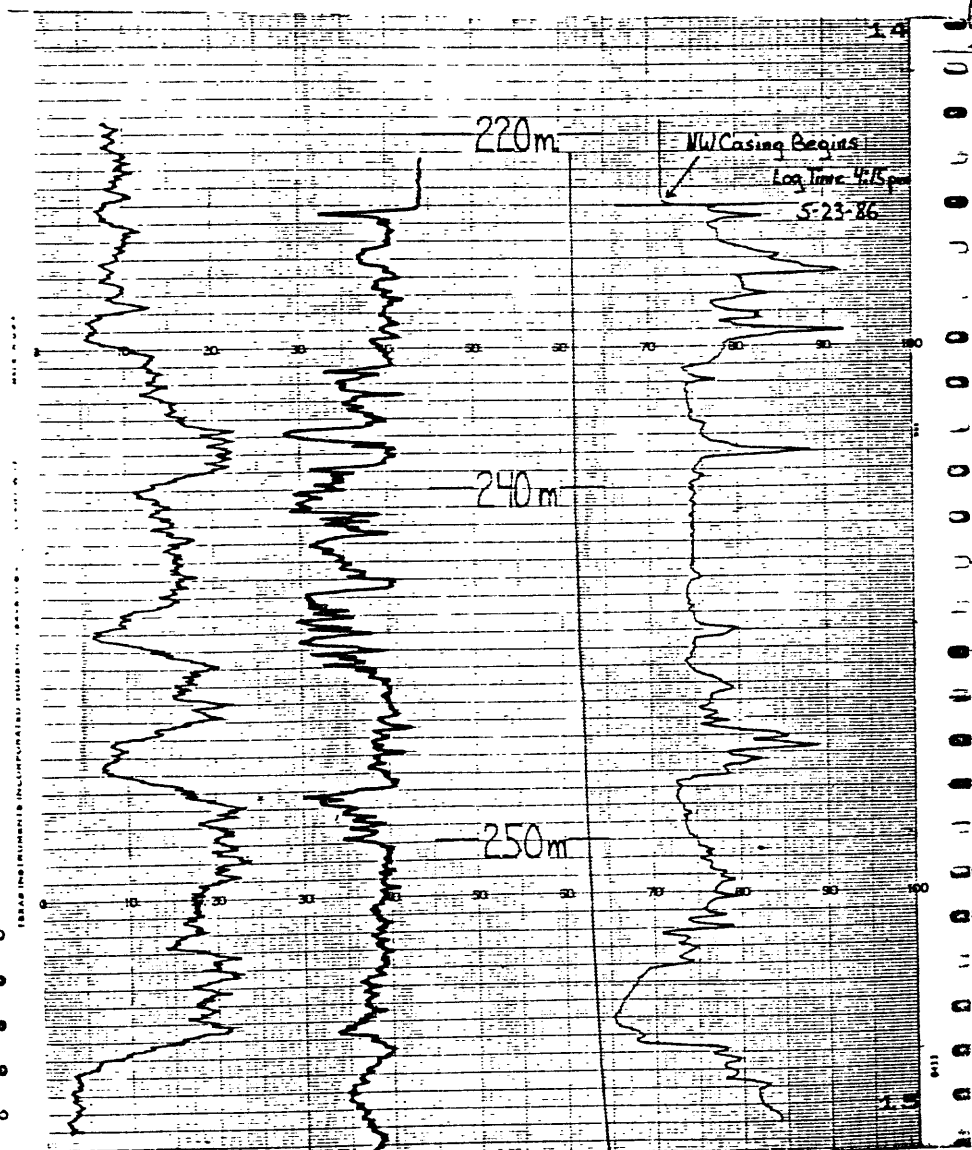


GEOSCIENCE ASSOCIATES *Master*

HOLE NUMBER: UAL-3

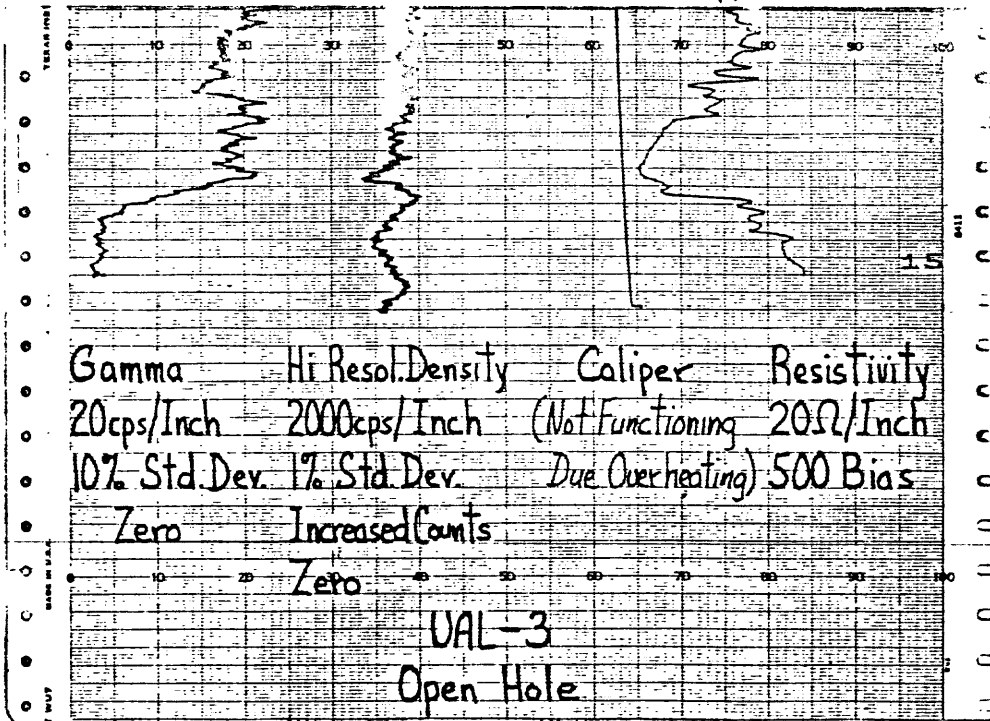
DATE: May 23, 1986

LOCATION		HOLE DATA		CLIENT	
STATE/COUNTY	Sindh Pakistan	DEPTH DRILLED	262.6 m	CLIENT	U.S.G.S. - G.S.P.
REGION	Lakarra	DEPTH LOGGED	259 m	GEOLOGIST	San Felipe
PROJECT	Can Reef	COLLAR ELEV			
PROSPECT		DIA	FROM TO	UNIT OPERATOR	Davis
SEC.	TWP RNG.	DIA.	FROM TO	UNIT NO	OFFICE
		DIA.	FROM TO		201 Boulder Colorado
TYPE	SAM 4001	BOREHOLE MEDIUM	420 - Mud	ELECTRIC	
LOGGED DEPTH	257 m 259 m	FLUID LEVEL		TYPE	RESIST S.P.
RANGE (ft.)	200 200	CASING DATA		LOGGED DEPTH	252 m
ASTD DEV	19 19	WALL SIZE	1/2 in	SCALE	20
PAPER SPEED	1 1	D		PAPER SPEED	1 1
LOG SPEED	3-1 3-1	CASED FROM	TO	LOG SPEED	3-1
BKGND. COUNT		CASING TYPE		FINE ADJ	500
PROBE NO.	4001	SAMPLE DATA			
SIZE (dia.)	2"	NON-CORED HOLE	<input type="checkbox"/> CORED HOLE	CALIPER	
K-FACTOR		SAMPLED INTERVAL	SAMPLE TYPE	LOGGED DEPTH	None
DEAD TIME	2	REMARKS		SCALE	
STANDARD				PAPER SPEED	
DIGITAL DATA				LOG SPEED	
PRINT INTERVAL				ARM LENGTH	
TIMEBASE				MAX DEF	
DENSITY CALIBRATION				VERTICAL DEV.	
ALUMINUM	900			DEPTH	
LUCITE	4700			NCLIN	
	cps			BEARING	



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DRILL HOLE UAL-4

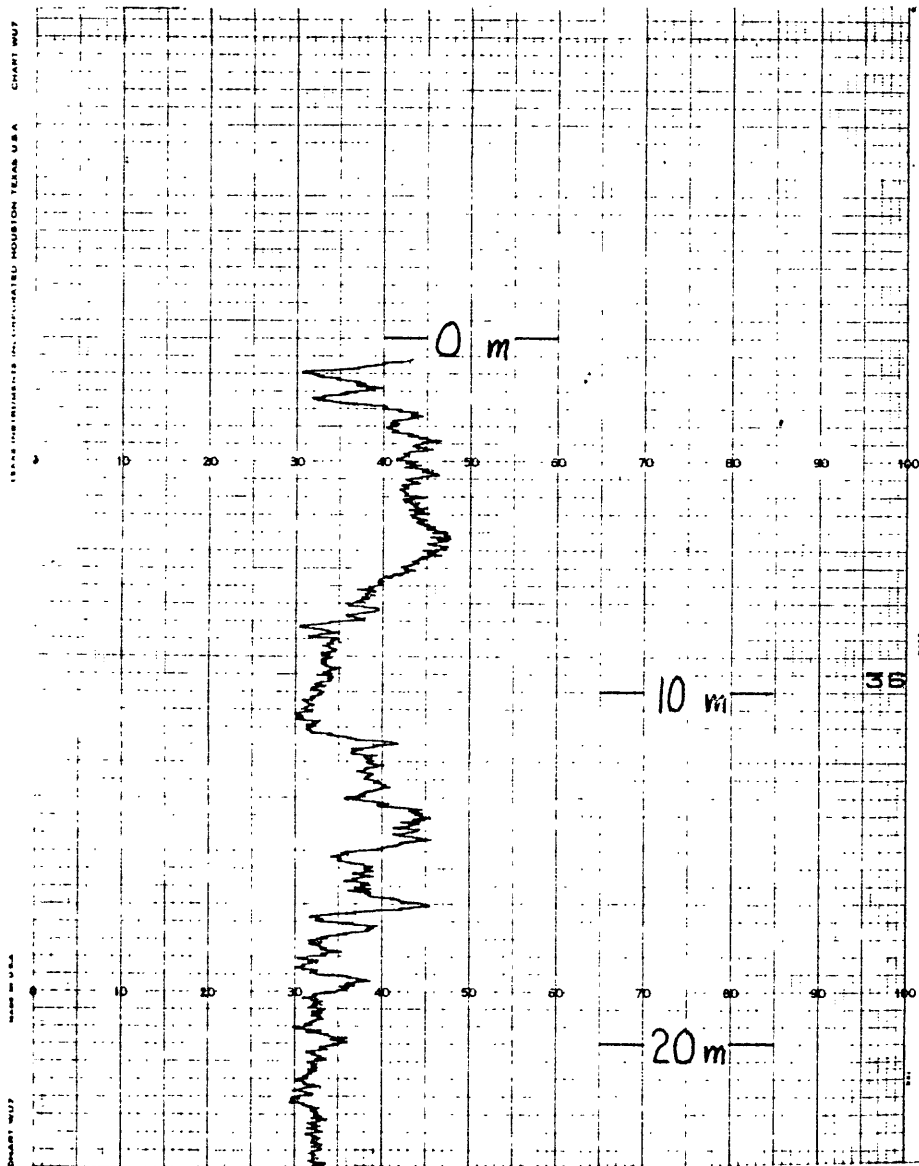


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HOLE NUMBER: UAL-4

DATE: 15<sup>th</sup> October 1986

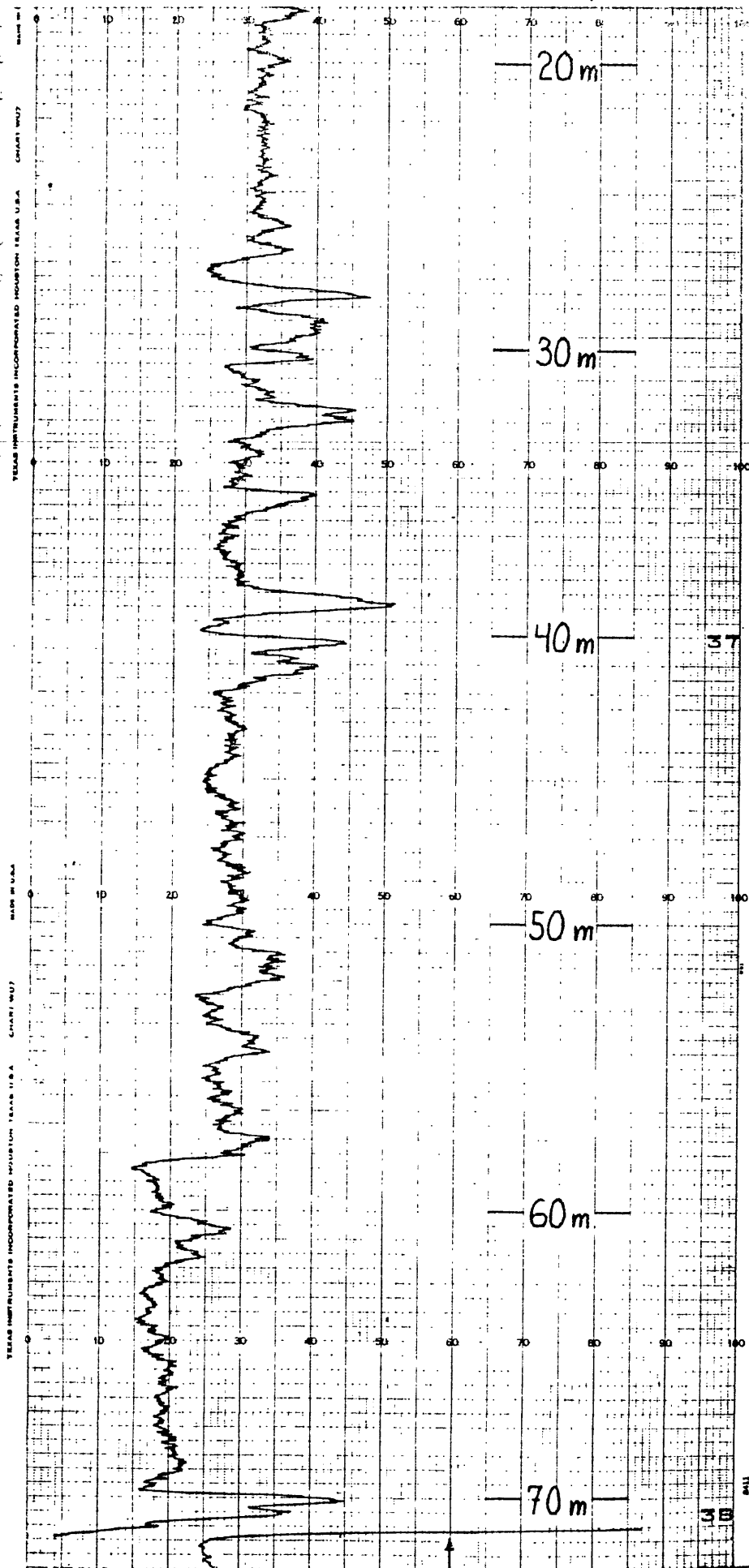
LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY <u>Sindh - Pakistan</u>				DEPTH DRILLED: <u>148 m</u>				CLIENT <u>G.S.P. - U.S.G.S.</u>			
REGION <u>Lahore</u>				DEPTH LOGGED: <u>89.5 m</u>				GEOLOGIST:			
PROJECT <u>COAL REAP</u>				COLLAR ELEV							
PROSPECT				DIA. <u>See</u> FROM TO				UNIT OPERATOR <u>Mujazib - Davis</u>			
SEC. TWP. RNG.				DIA. <u>Caliper</u> FROM TO				UNIT NO. <u>PL-1</u> OFFICE			
				DIA. <u>Log</u> FROM TO				<u>Boulder, Colorado USA</u>			
TYPE <u>GAM 4P Density</u>				BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>				ELECTRIC			
LOGGED DEPTH <u>89.5 m</u>				FLUID LEVEL <u>71.2 m</u>				TYPE			
RANGE (I.S.) <u>1K 10K</u>				CASING DATA				LOGGED DEPTH			
%STD DEV <u>32</u>				WALL SIZE				RESIST			
PAPER SPEED <u>1-1</u>				I.D. <u>None</u>				SCALE			
LOG SPEED <u>6-1</u>				CASED FROM TO				PAPER SPEED			
BKGND. COUNT				CASING TYPE				LOG SPEED			
PROBE NO. <u>GD-1</u>				SAMPLE DATA				FINE ADJ.			
SIZE (dis) <u>13A</u>				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>							
K-FACTOR				SAMPLED INTERVAL							
DEAD TIME <u>2.0</u>				SAMPLE TYPE							
STANDARD											
DIGITAL DATA				REMARKS				CALIPER			
PRINT INTERVAL								LOGGED DEPTH			
TIMEBASE								SCALE			
								PAPER SPEED			
								LOG SPEED			
								ARM LENGTH			
								MAX DEF.			
DENSITY CALIBRATION								VERTICAL DEV.			
ALUMINUM								DEPTH			
LUCITE								INCLIN			
								BEARING			





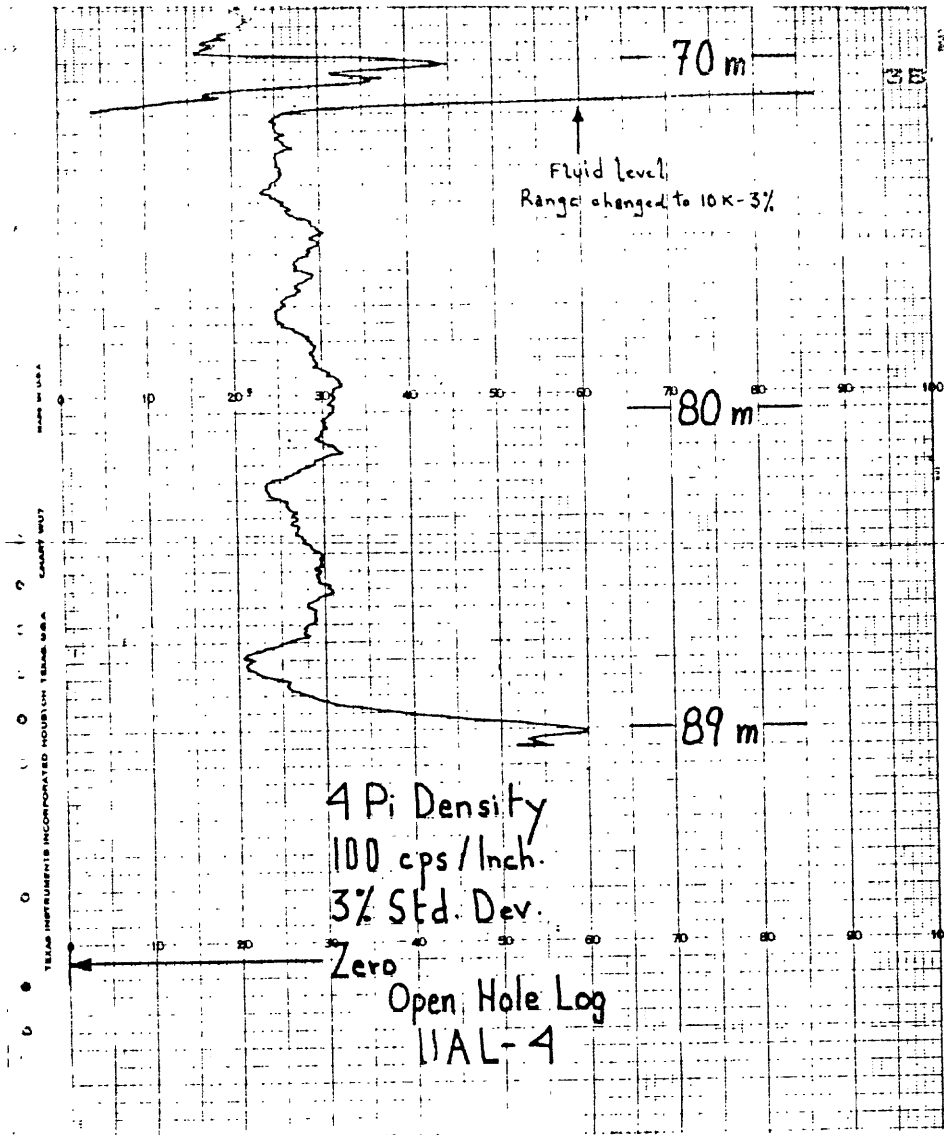
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# GEOSCIENCE ASSOCIATES

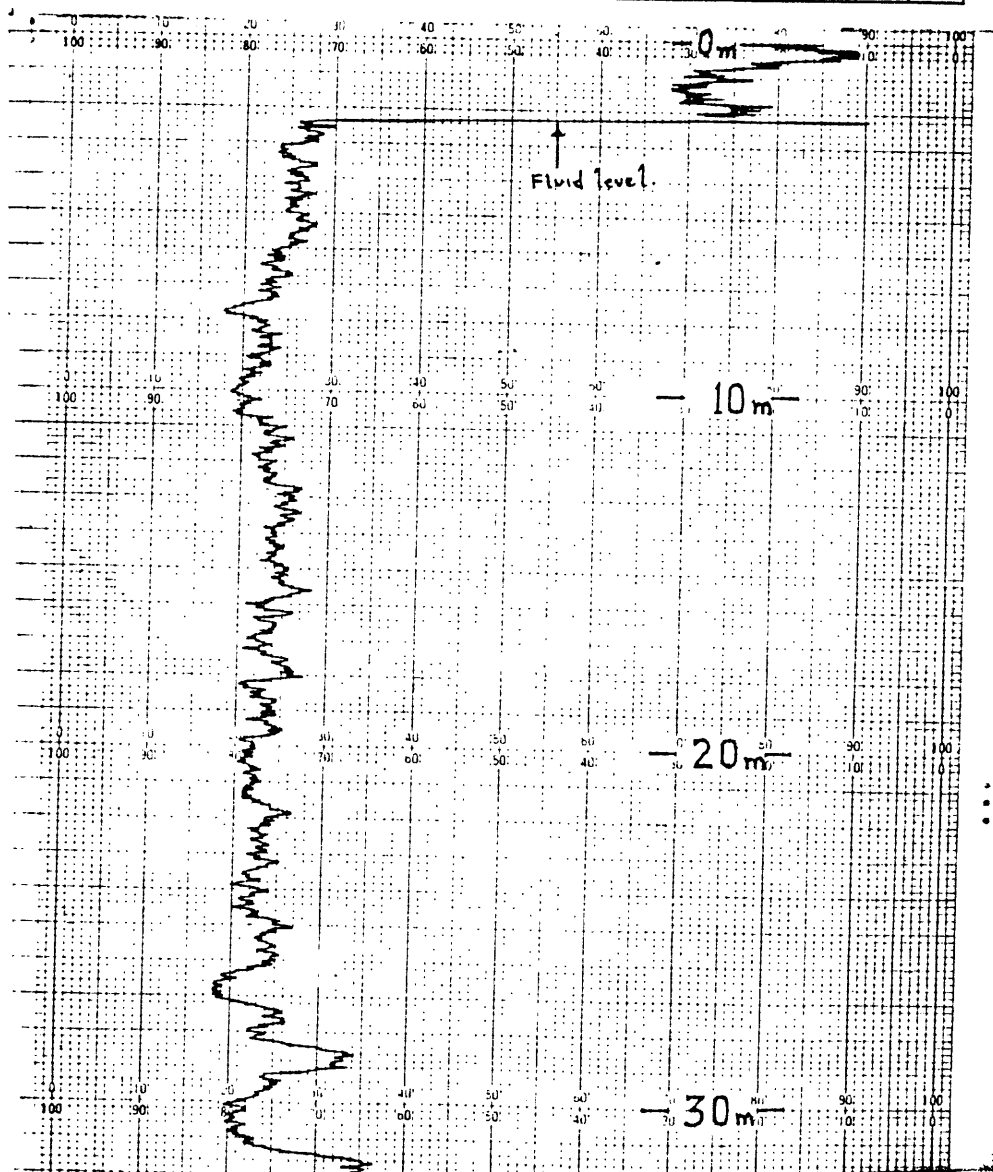
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HOLE NUMBER:

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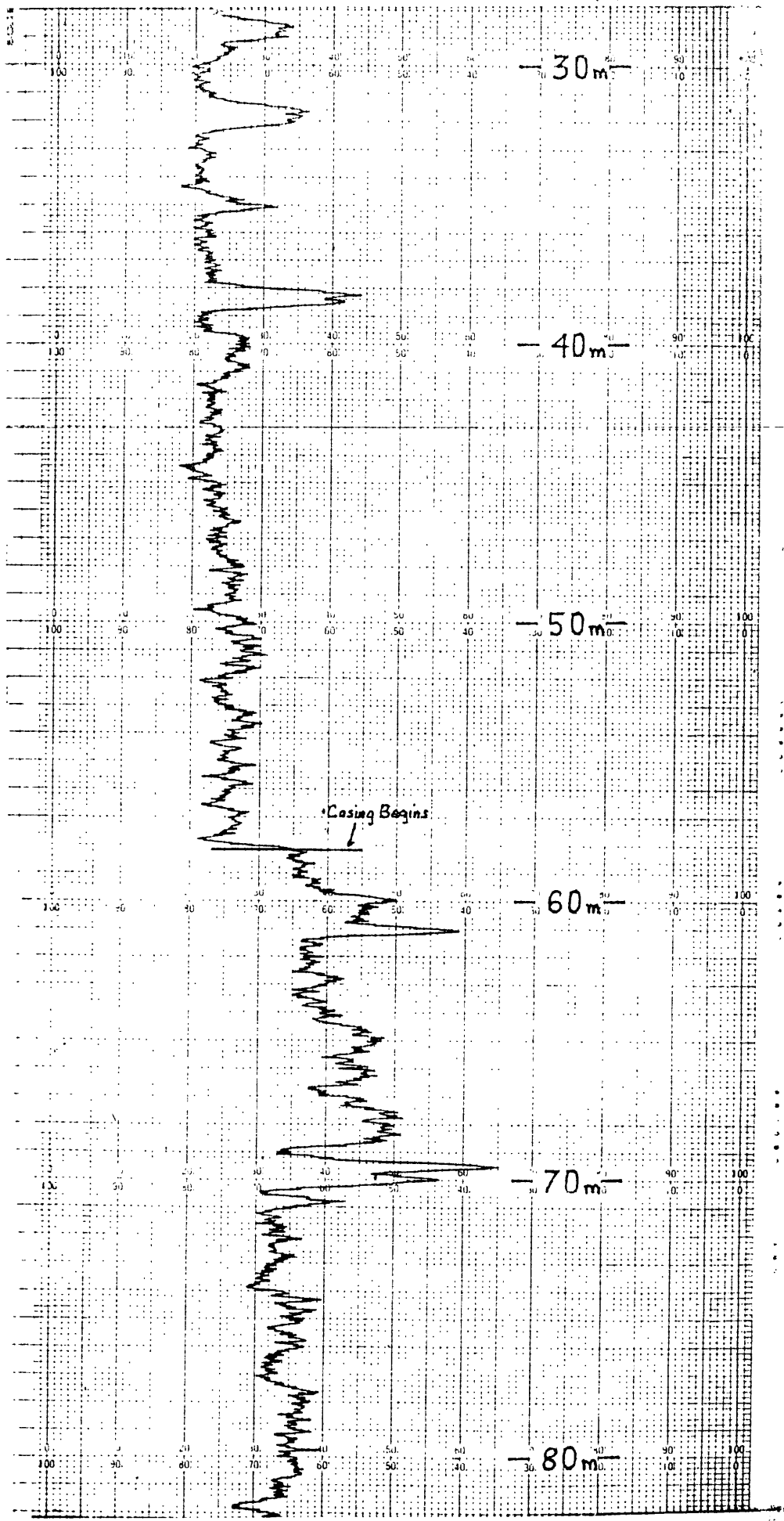
DATE: 12<sup>th</sup> OCTOBER, 1966

LOCATION		HOLE DATA		CLIENT	
STATE/COUNTY	SIND PAKISTAN	DEPTH DRILLED	148 m	CLIENT	G.S.P. - U.S.G.S.
REGION	LAKHRA	DEPTH LOGGED	144 m	GEOLOGIST	
PROJECT	COAL REAP	COLLAR ELEV			
PHYSICAL		DIA	See FROM TO		
SEC	14H 1111	DIA	Capillary FROM TO		
		DIA	Log FROM TO		
TYPE	GAM 4 PI Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.		
LOGGED DEPTH	144 m	FLUID LEVEL	2.7 m		
RANGE (ft)	2 K				
% STD DEV	3%	CASING DATA			
PAPER SPEED	1-1	WALL SIZE	1/4"		
LOG SPEED	6-1	ID	4"		
BKGND COUNT		CASED FROM	0 to 582 m		
PROBE NO	60-1	CASING TYPE	Steel		
SIZE (dia)	1 3/8"	SAMPLE DATA			
K-FACTOR		NON-CORED HOLE	CORED HOLE		
DEAD TIME	2	SAMPLED INTERVAL	SAMPLE TYPE		
STANDARD					
DIGITAL DATA		REMARKS		CALIPER	
PRINT INTERVAL		Logged through drill pipe I.D. = 3" O.D. = 3 1/2"		LOGGED DEPTH	FT
TIMEBASE				SCALE	FT
				PAPER SPEED	FT
DENSITY CALIBRATION				LOG SPEED	FT
ALUMINUM				ARM LENGTH	IN
LUCITE				MAX DEF	IN
				VERTICAL DEV.	
				DEPTH	
				INCLIN	
				BEARING	



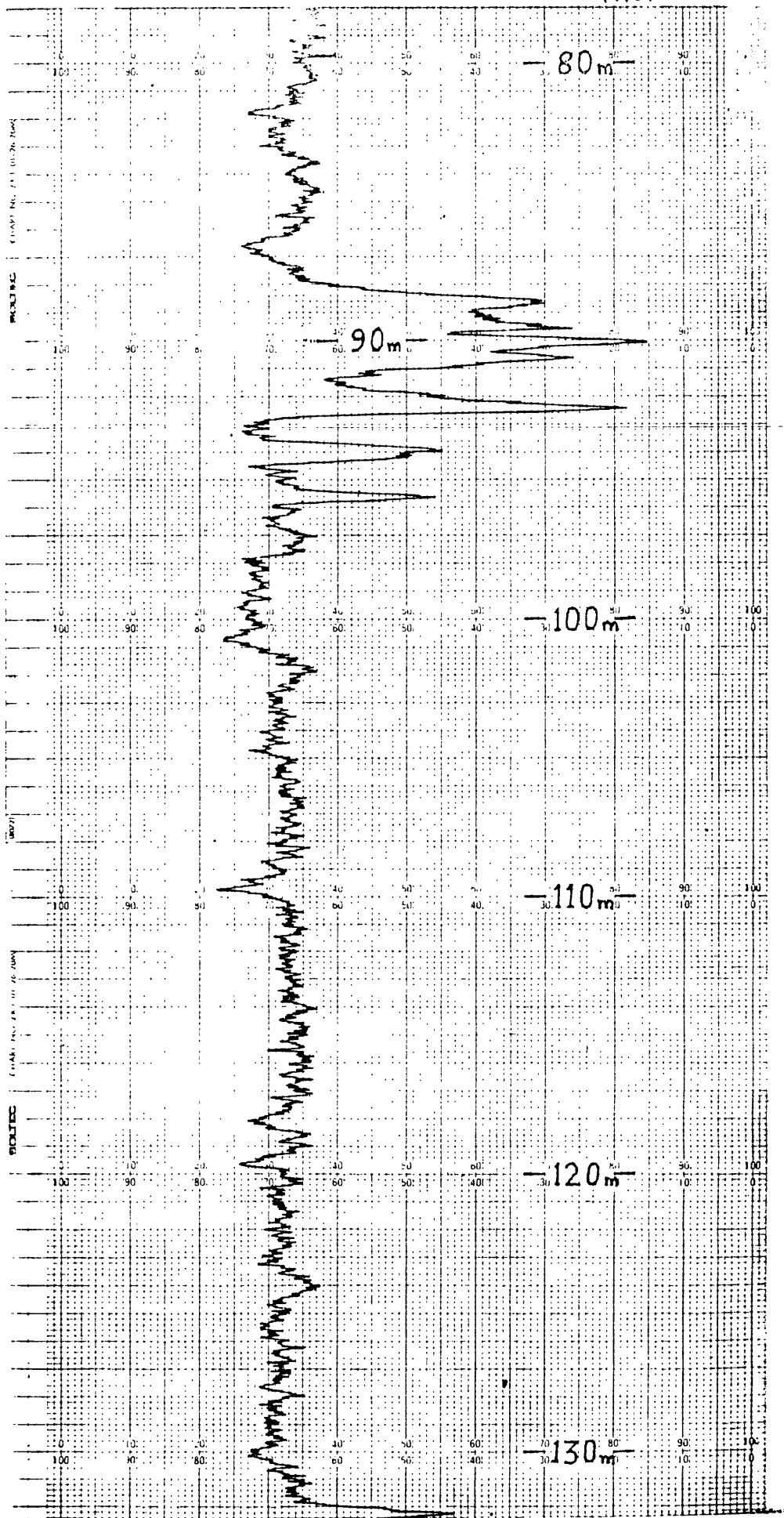
UAL-4

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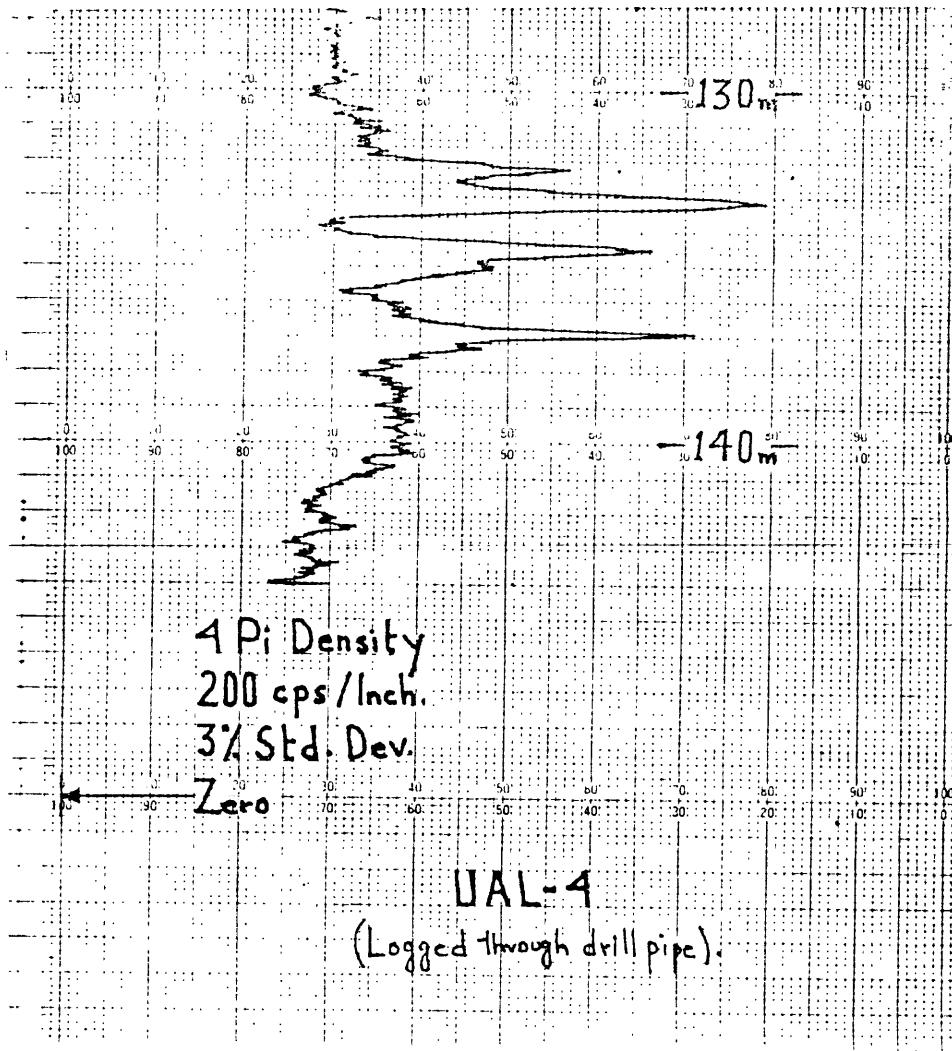
UAL-4

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# GEOSCIENCE ASSOCIATES

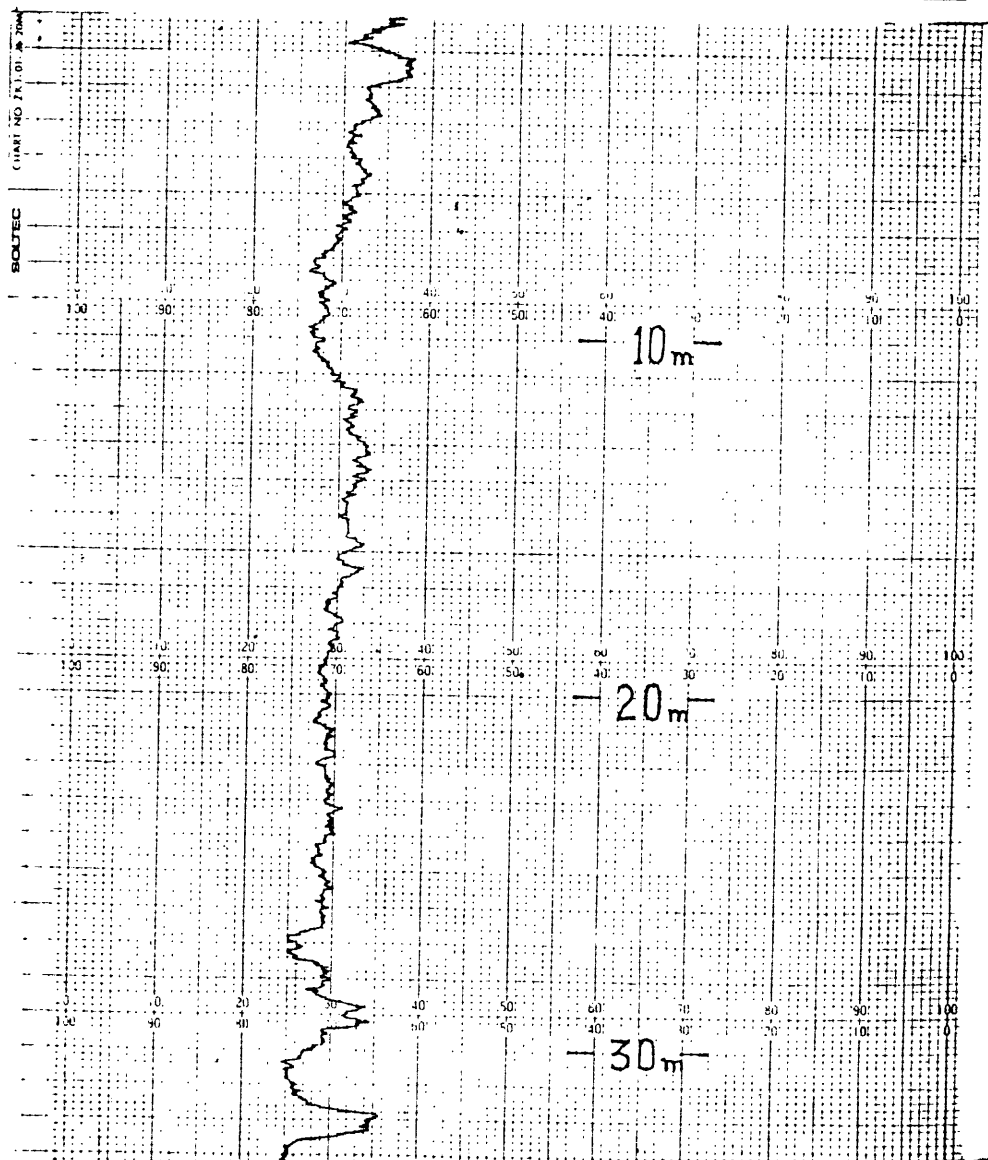
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HOLE NUMBER:

UAL-4

DATE: 12th OCTOBER, 1986

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY Sindh, PAKISTAN				DEPTH DRILLED 48m				CLIENT G.S.P. - U.S.G.S.			
REGION LAKHBA				DEPTH LOGGED 141m				GEOLOGIST			
PROJECT COAL REAP				COLLAR ELEV				UNIT OPERATOR MEHTAB / MUJIB			
PROSPECT				DIA 5cc FROM TO				UNIT NO PL-2 OFFICE			
SEC TWP RNG				DIA Caliper FROM TO				BOULDER COLORADO U.S.A.			
				DIA 103 FROM TO				ELECTRIC			
TYPE				BOREHOLE MEDIUM H <sub>2</sub> O + Mud				FLUID LEVEL			
LOGGED DEPTH				WALL SIZE 1 1/4"				LOGGED DEPTH FT			
RANGE (ft)				I.D. 4"				SCALE			
STD DEV				CASED FROM 0m TO 58.2				PAPER SPEED			
PAPER SPEED				Casing Type				LOG SPEED			
LOG SPEED				SAMPLE DATA				ARM LENGTH			
BKGND COUNT				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>				MAX DEF			
PROBE NO				SAMPLED INTERVAL				VERTICAL DEV.			
SIZE (dia.)				SAMPLE TYPE				DEPTH			
K-FACTOR								INCLIN			
DEAD TIME								BEARING			
STANDARD											
DIGITAL DATA				REMARKS							
PRINT INTERVAL				Logged Open Hole w/ Casing							
TIMEBASE											
DENSITY CALIBRATION											
ALUMINUM											
LUCITE											

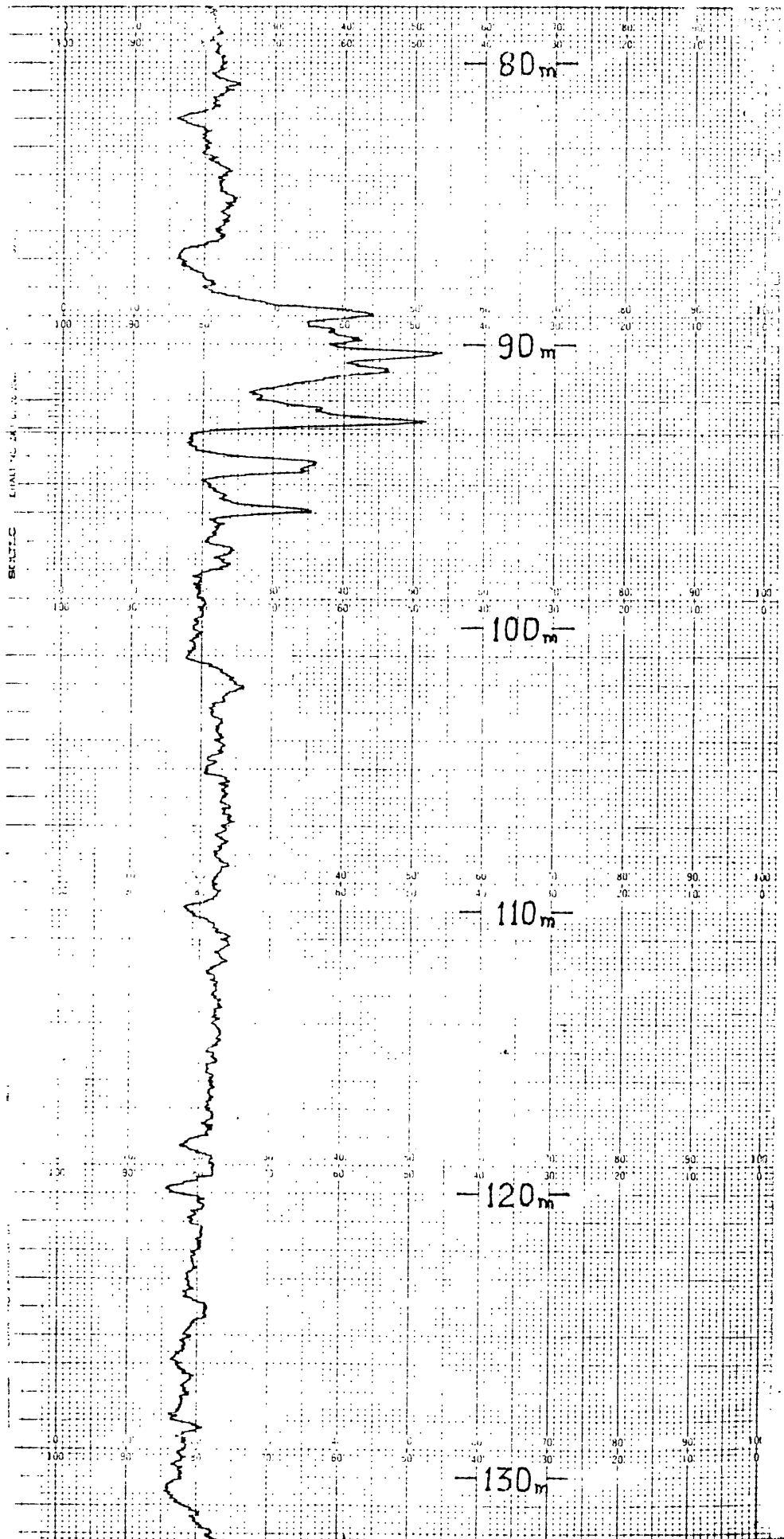






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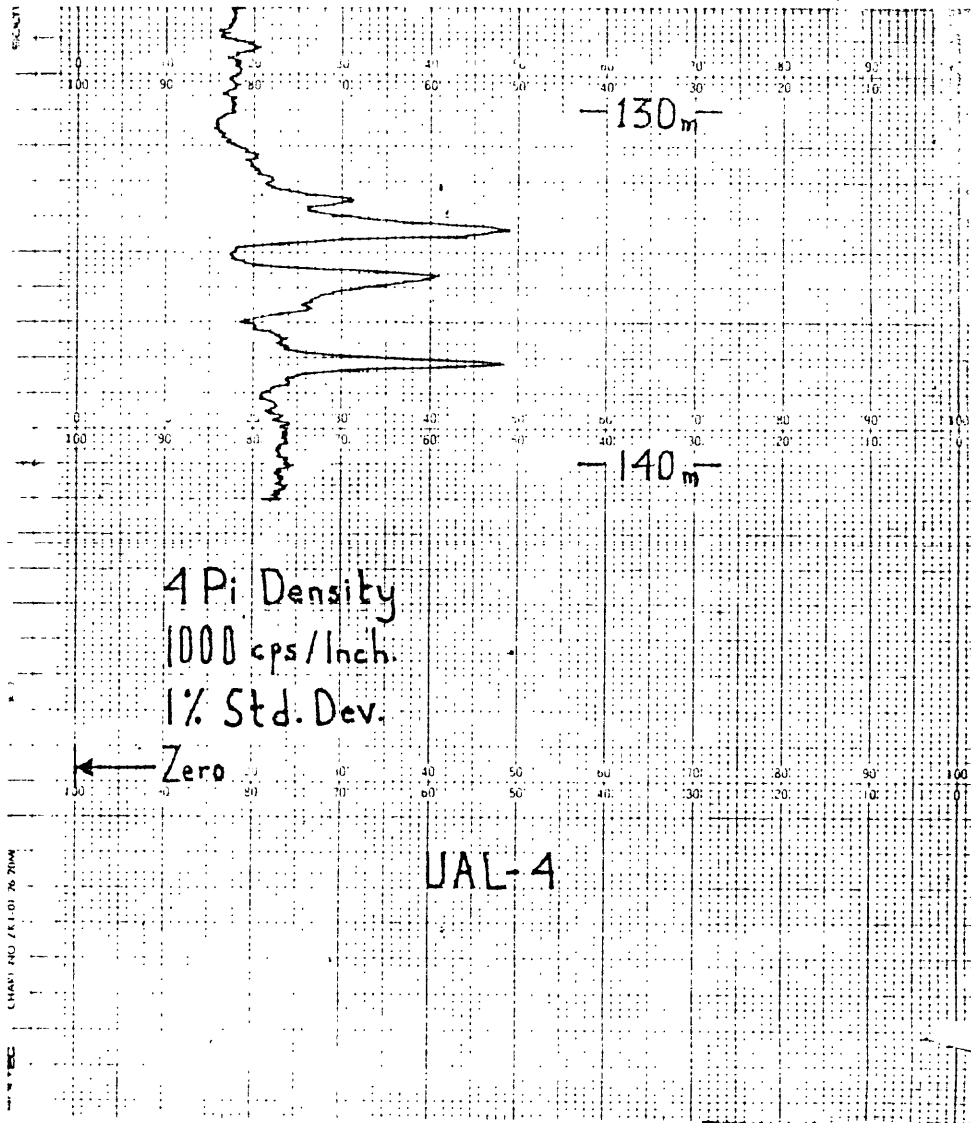
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# GEOSCIENCE ASSOCIATES

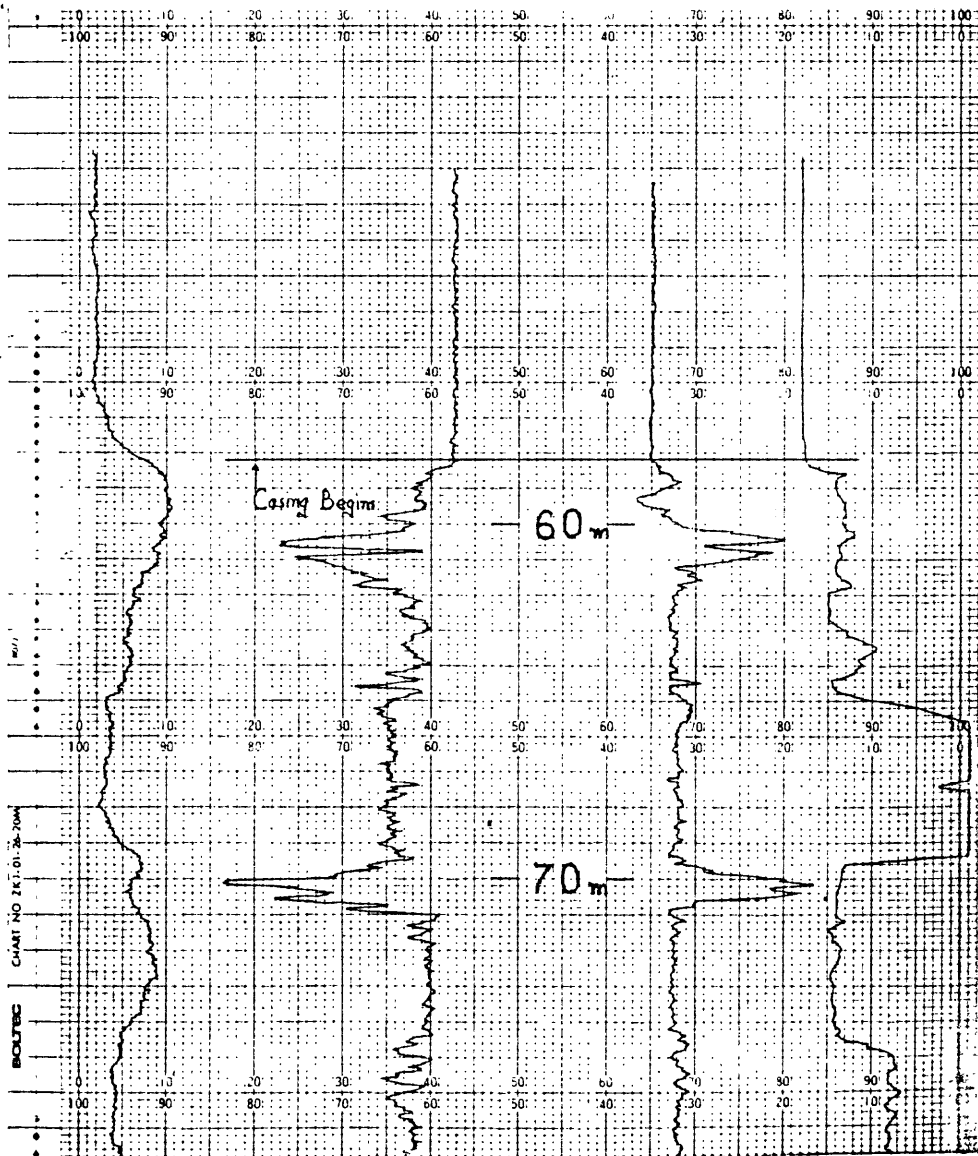
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HOLE NUMBER:

UAL-4

DATE: 12<sup>th</sup> OCTOBER, 1986.

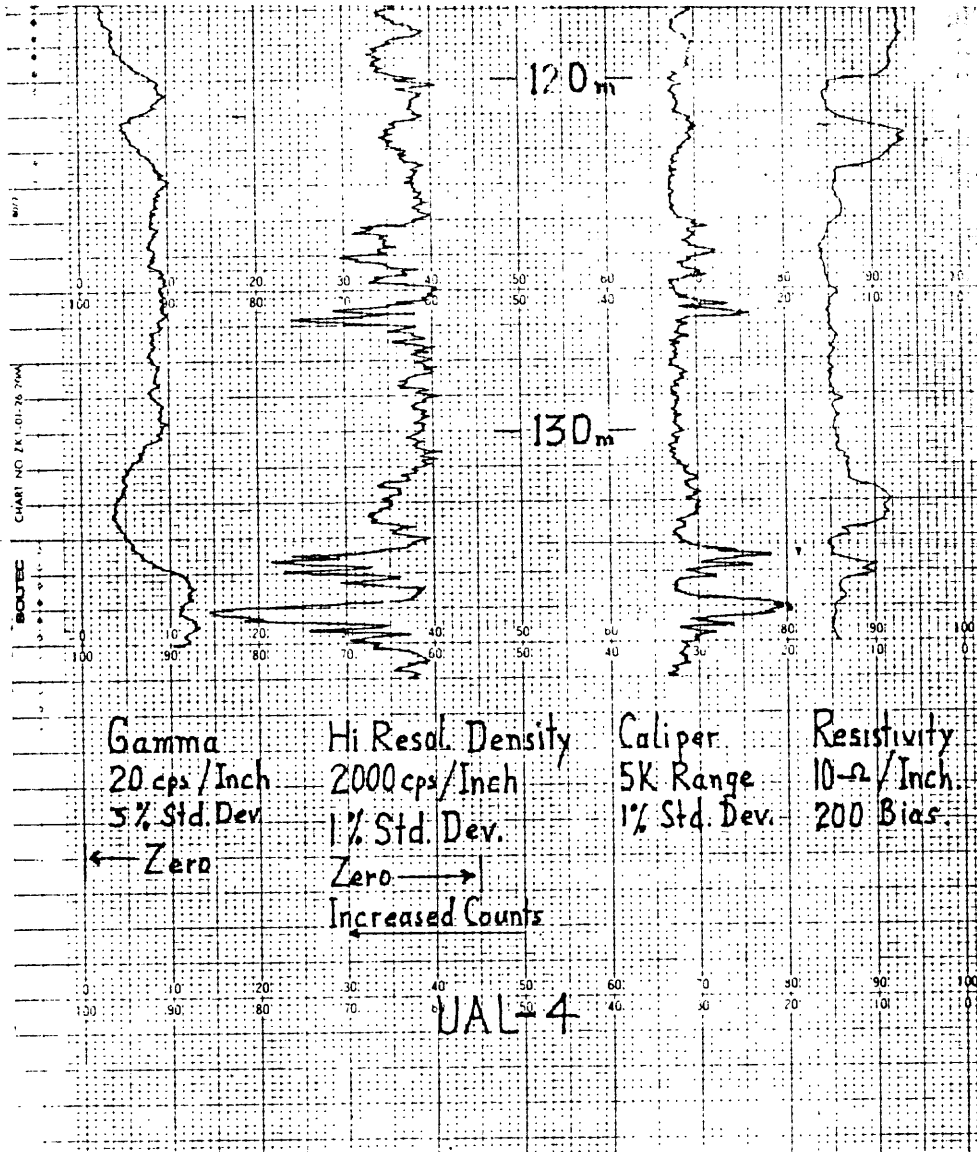
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh, Pakistan		DEPTH DRILLED:	148 m		CLIENT	G.S.P. - U.S.G.S	
REGION	Lakhta		DEPTH LOGGED:	137 m		GEOLOGIST:		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	Mujeeb/Mahab	
PROSPECT			DIA. See	FROM	TO	UNIT NO	Boulder OFFICE	
SEC.	TWP.	RNG	DIA. Caliper	FROM	TO	PL-2	Colorado U.S.A	
			DIA. Log	FROM	TO	ELECTRIC		
TYPE	GAM	HRD	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S P
LOGGED DEPTH	136 m	137 m	FLUID LEVEL			LOGGED DEPTH	136 m	FT
RANGE (F.S.)	200	20 K	CASING DATA			SCALE	10	IN
%STD DEV	3%	1%	WALL SIZE			PAPER SPEED	1-1	IN
PAPER SPEED	1-1	1-1	I.D.	None		LOG SPEED	3-1	IN
LOG SPEED	3-1	3-1	CASED FROM	TO		FINE ADJ.	200 Bk	
BKGND. COUNT			CASING TYPE			CALIPER		
PROBE NO.	WAB-1	WAB-1	SAMPLE DATA			LOGGED DEPTH	137	IN
SIZE (dia.)	2"	2"	NON-CORED HOLE <input type="checkbox"/>	CORED HOLE <input type="checkbox"/>		SCALE	1" def. = 2" Dia.	
K-FACTOR	...	...	SAMPLED INTERVAL	SAMPLE TYPE		PAPER SPEED	1-1	IN
DEAD TIME	2	2	REMARKS			LOG SPEED	3-1	IN
STANDARD						ARM LENGTH	30"	IN
DIGITAL DATA						MAX DEF	7"	IN
PRINT INTERVAL						VERTICAL DEV.		
TIMEBASE						DEPTH		
DENSITY CALIBRATION						INCLIN		
ALUMINUM						BBARI	7	
LUCITE								





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# GEOSCIENCE ASSOCIATES

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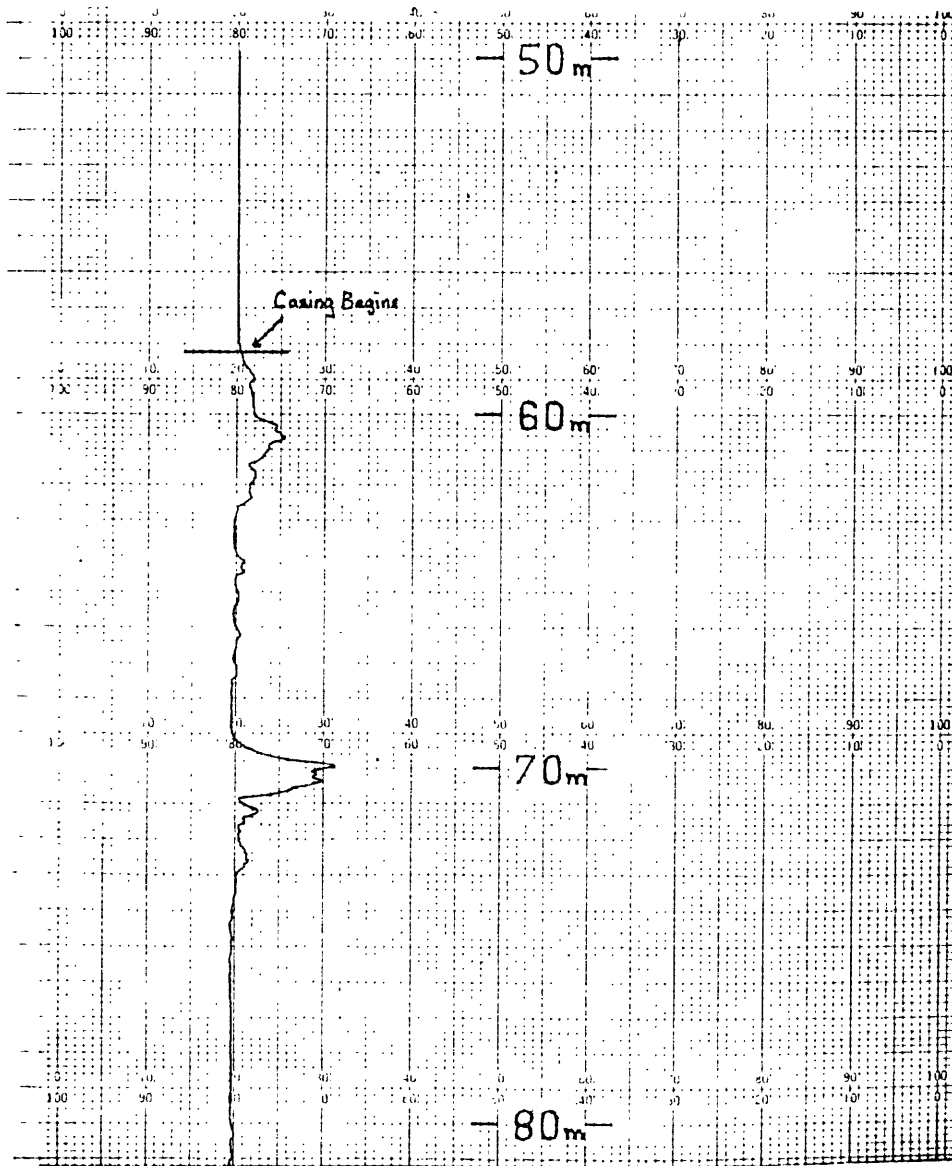
HOLE NUMBER:

UAL-4

DATE:

12<sup>th</sup> OCTOBER, 1986

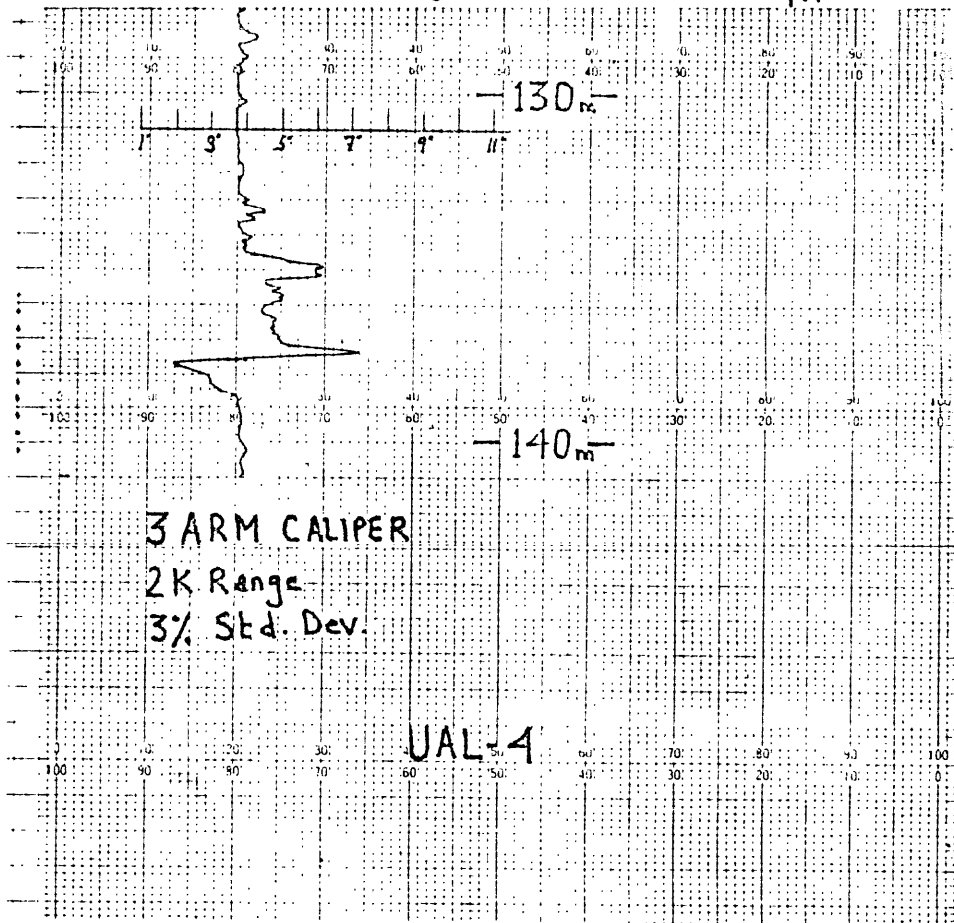
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	SINDH PAKISTAN		DEPTH DRILLED	148m		CLIENT	G.S.P. - U.S.G.S	
REGION	LAKHRA		DEPTH LOGGED	141m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	MENTAB/MUJIB	
PROSPECT			DIA	Sec	FROM TO	UNIT NO	PL-2	OFFICE
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER, COLORADO, U.S.A.		
			DIA	1.5	FROM TO	ELECTRIC		
TYPE	GAM		BOREHOLE MEDIUM	H2O Mod				
LOGGED DEPTH			FLUID LEVEL					
RANGE (1-5)			CASING DATA					
%STD DEV			WALL SIZE	1/4"				
PAPER SPEED			I.D.	1"				
LOG SPEED			CASED FROM	0.1582m				
BKGND COUNT			CASING TYPE					
PROBE NO			SAMPLE DATA					
SIZE (dia)			NON-CORED HOLE	CORED HOLE <input checked="" type="checkbox"/>				
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME			REMARKS					
STANDARD			3 Arm Caliper					
DIGITAL DATA								
PRINT INTERVAL								
TIMEBASE								
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								





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# GEOSCIENCE ASSOCIATES

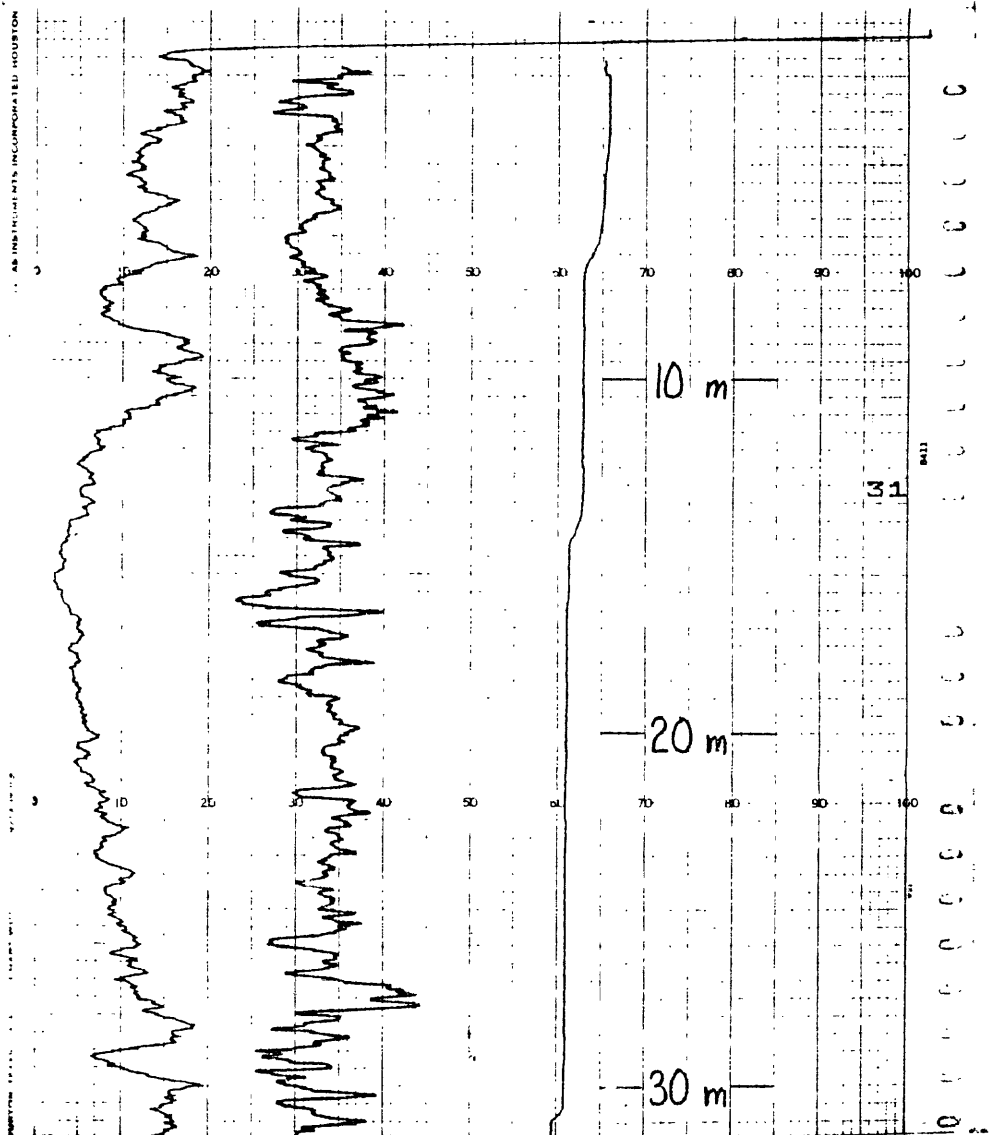
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HOLE NUMBER:

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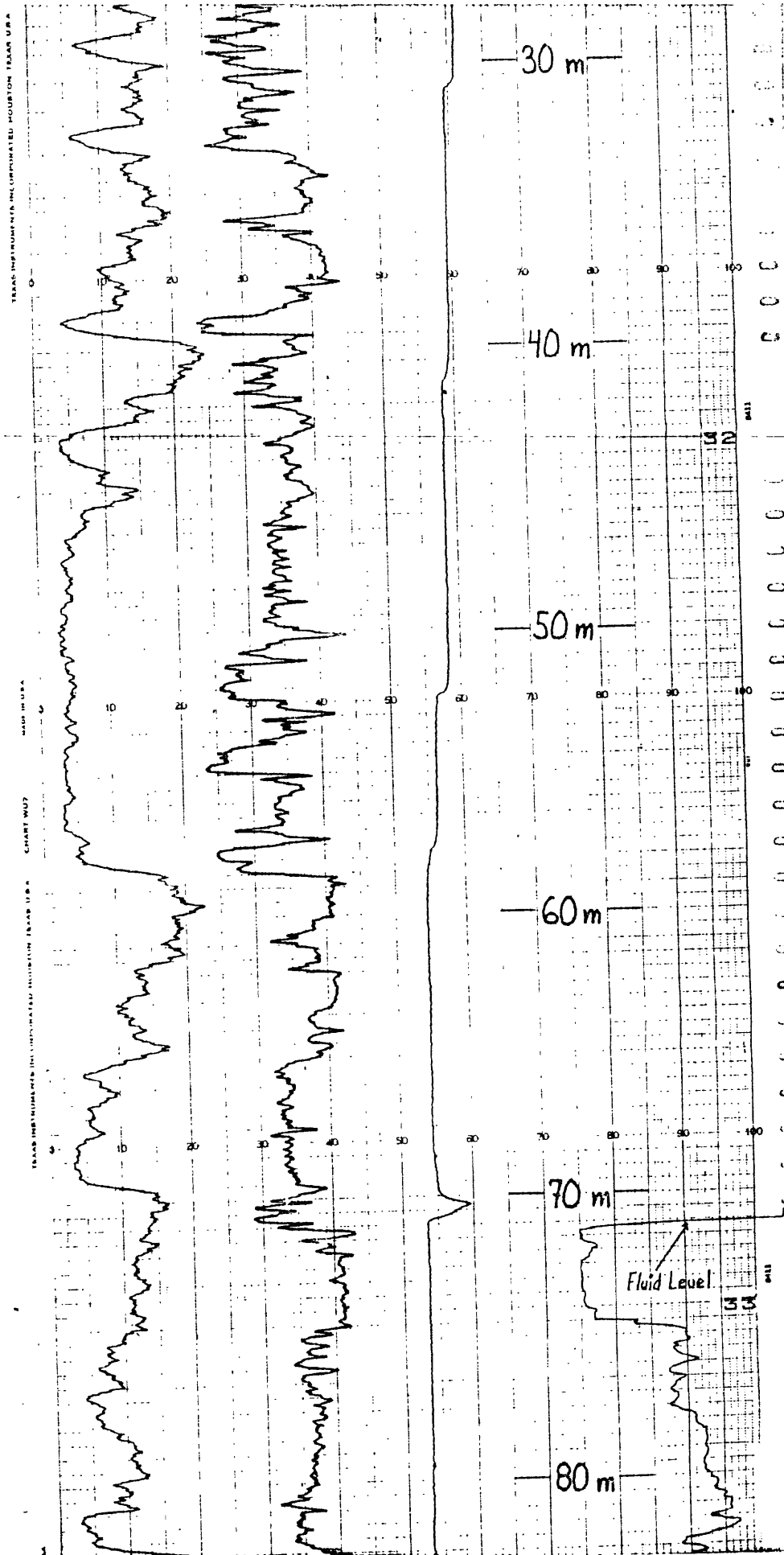
DATE: 15th OCTOBER, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind	Pakistan	DEPTH DRILLED	148 m		CLIENT	G.S.P. - U.S.G.S	
REGION	LAKHYA		DEPTH LOGGED	89 m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	MOJIB/MEHTAB	
PROSPECT			DIA	Sec	FROM TO	UNIT NO	PL-1	OFFICE
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER	COLORADO	U.S.A
			DIA	2.0	FROM TO			
			BOREHOLE MEDIUM	H <sub>2</sub> O + Mud				
			FLUID LEVEL					
			CASING DATA			ELECTRIC		
TYPE	GAM	HRD	WALL SIZE			TYPE	RESIST	S.P.
LOGGED DEPTH	88 m	89 m	ID			LOGGED DEPTH	88 m	FT
RANGE	200	100	CASED FROM		TO	SCALE	10	
%STD DEV	10%	1%	CASING TYPE			PAPER SPEED	1-1	
PAPER SPEED	1-1	1-1				LOG SPEED	3-1	
LOG SPEED	3-1	3-1				FINE ADJ	700	Scale
BKGD. COUNT			SAMPLE DATA					
PROBE NO.	HRD-1	HRD-1	NON-CORED HOLE	<input type="checkbox"/>	CORED HOLE	<input checked="" type="checkbox"/>		
SIZE (in)	2"	2"	SAMPLED INTERVAL		SAMPLE TYPE			
K-FACTOR			REMARKS					
DEAD TIME	2	2						
STANDARD								
DIGITAL DATA								
PRINT INTERVAL								
TIMEBASE								
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								



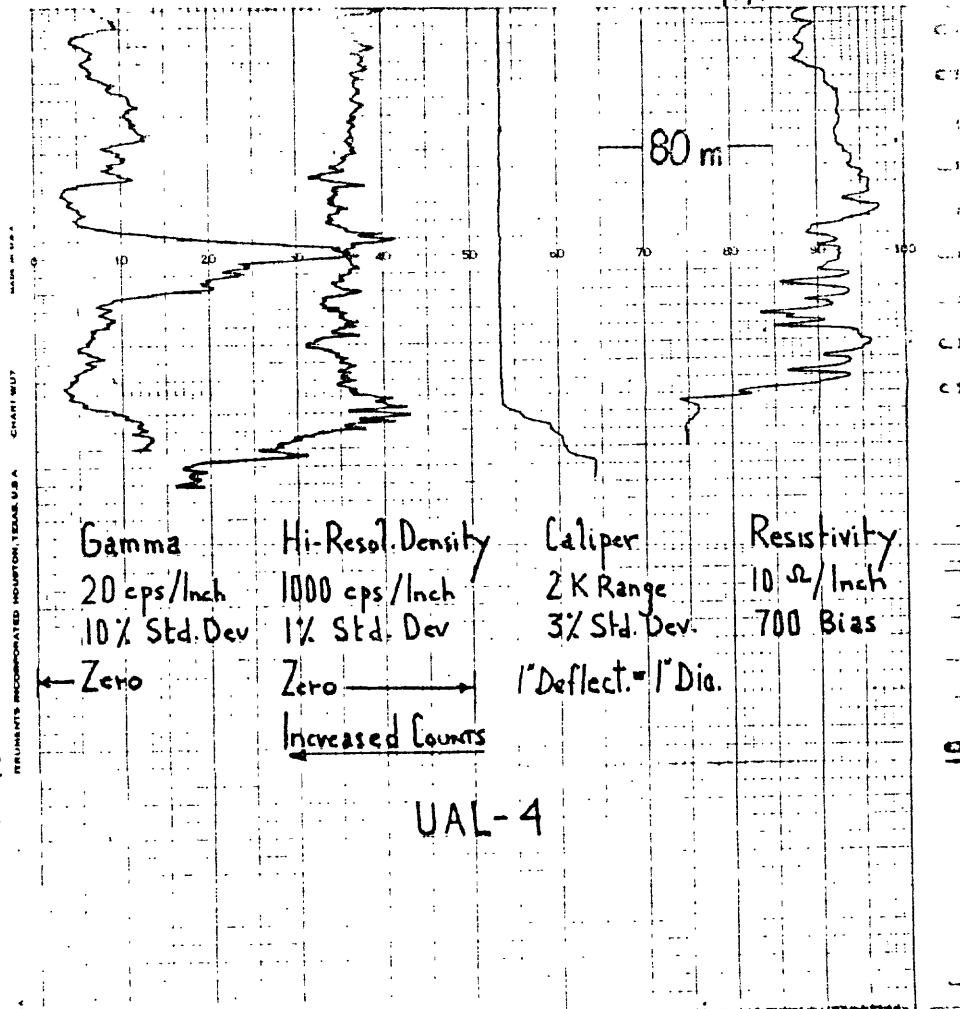
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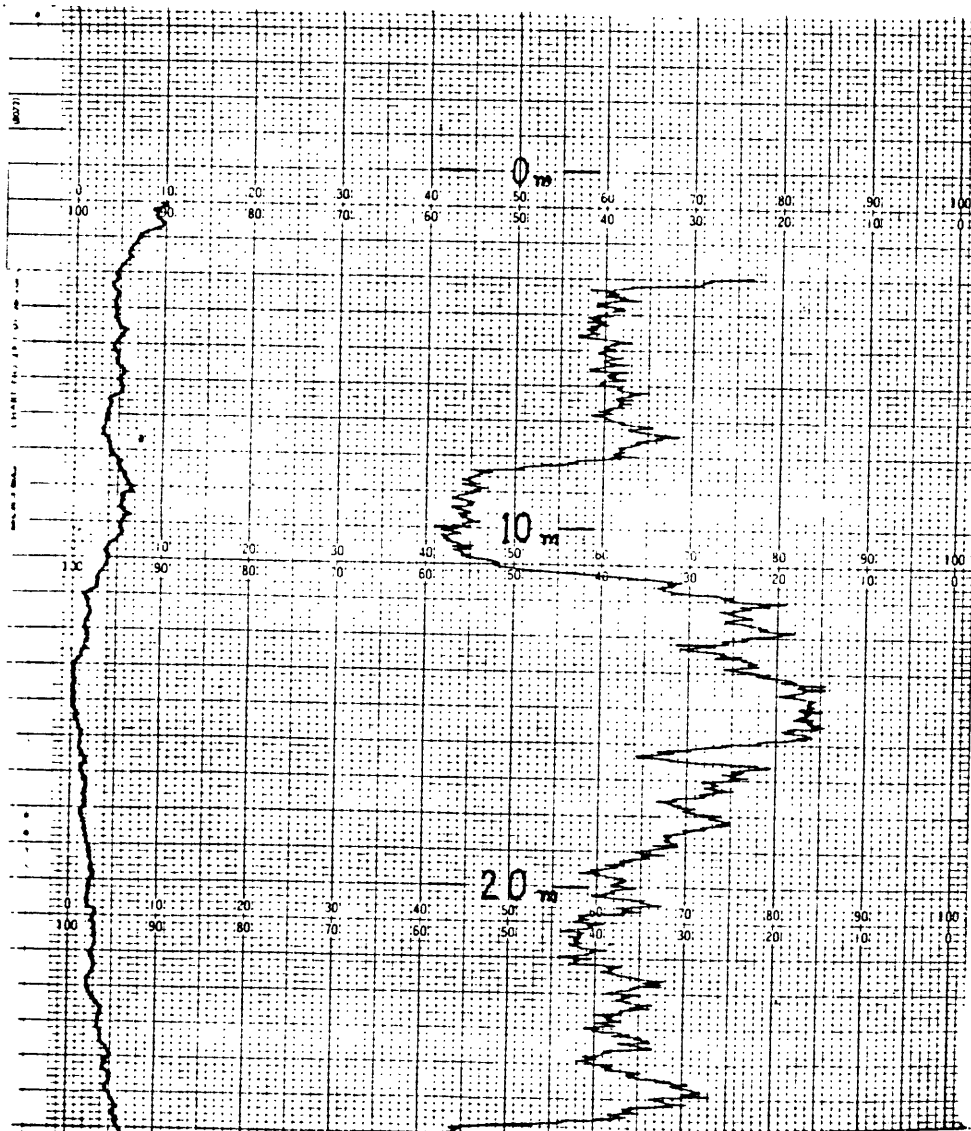
# GEOSCIENCE ASSOCIATES

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HOLE NUMBER: UAL-4

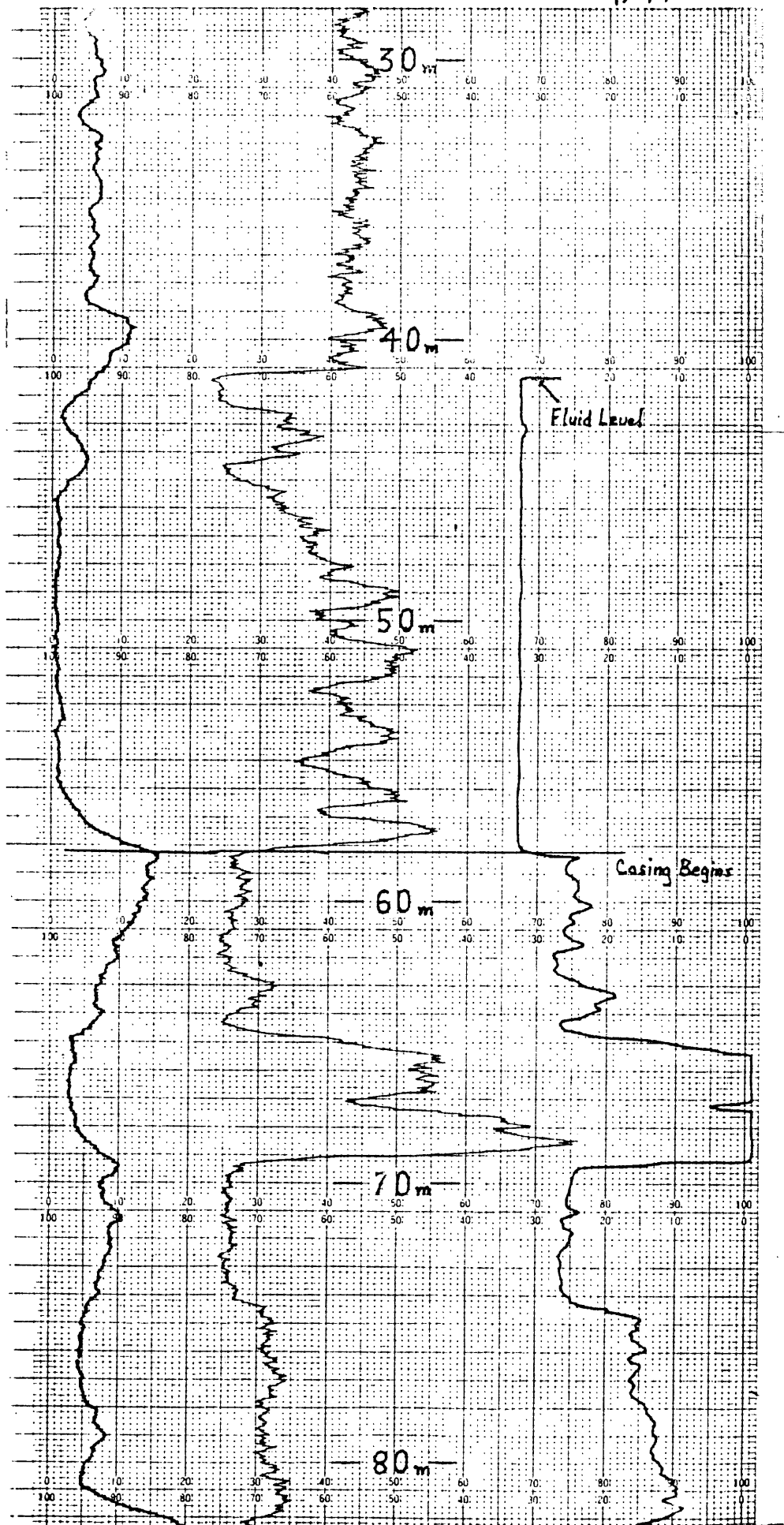
DATE: 12<sup>th</sup> October 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind - Pakistan		DEPTH DRILLED:	148 m.		CLIENT	G.S.P. - U.S.G.S.	
REGION	Lokhra		DEPTH LOGGED:	142 m		GEOLOGIST		
PROJECT	COAL BEAR		COIL NAME/EV			UNIT OPERATOR	Mehrab - Mujahid	
PROSPECT			DIA 811	FROM	TO	UNIT NO	PL-2 OFFICE	
SEC	IWP	RNG.	DIA. Caliper	FROM	TO	Boulder, Colorado U.S.A.		
			DIA. Log	FROM	TO	ELECTRIC		
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH	140 m	142 m	FLUID LEVEL	47.2 m		LOGGED DEPTH	140 m	FT
RANGE (I.S.)	200	2K	CASING DATA			SCALE	10	FT
%STD DEV	3%	3%	WALL SIZE	1/4"		PAPER SPEED	1-1	cm
PAPER SPEED	1-1	1-1	I.D.	4"		LOG SPEED	6-1	cm
LOG SPEED	6-1	6-1	CASED FROM	58.2 m	TO 0 m	FINE ADJ	300	Bits
SKGND. COUNT			CASING TYPE	Steel				
PROBE NO.	64-2	64-3	SAMPLE DATA					
SIZE (dia.)	13/4"	13/4"	NON-CORED HOLE	<input type="checkbox"/>		CALIPER		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		LOGGED DEPTH	FT.	
DEAD TIME	2	2	REMARKS			SCALE		
STANDARD						PAPER SPEED		
DIGITAL DATA						LOG SPEED		
PRINT INTERVAL						ARM LENGTH	IN	
TIMEBASE						MAX DEF	IN	
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN		
						BEARING		



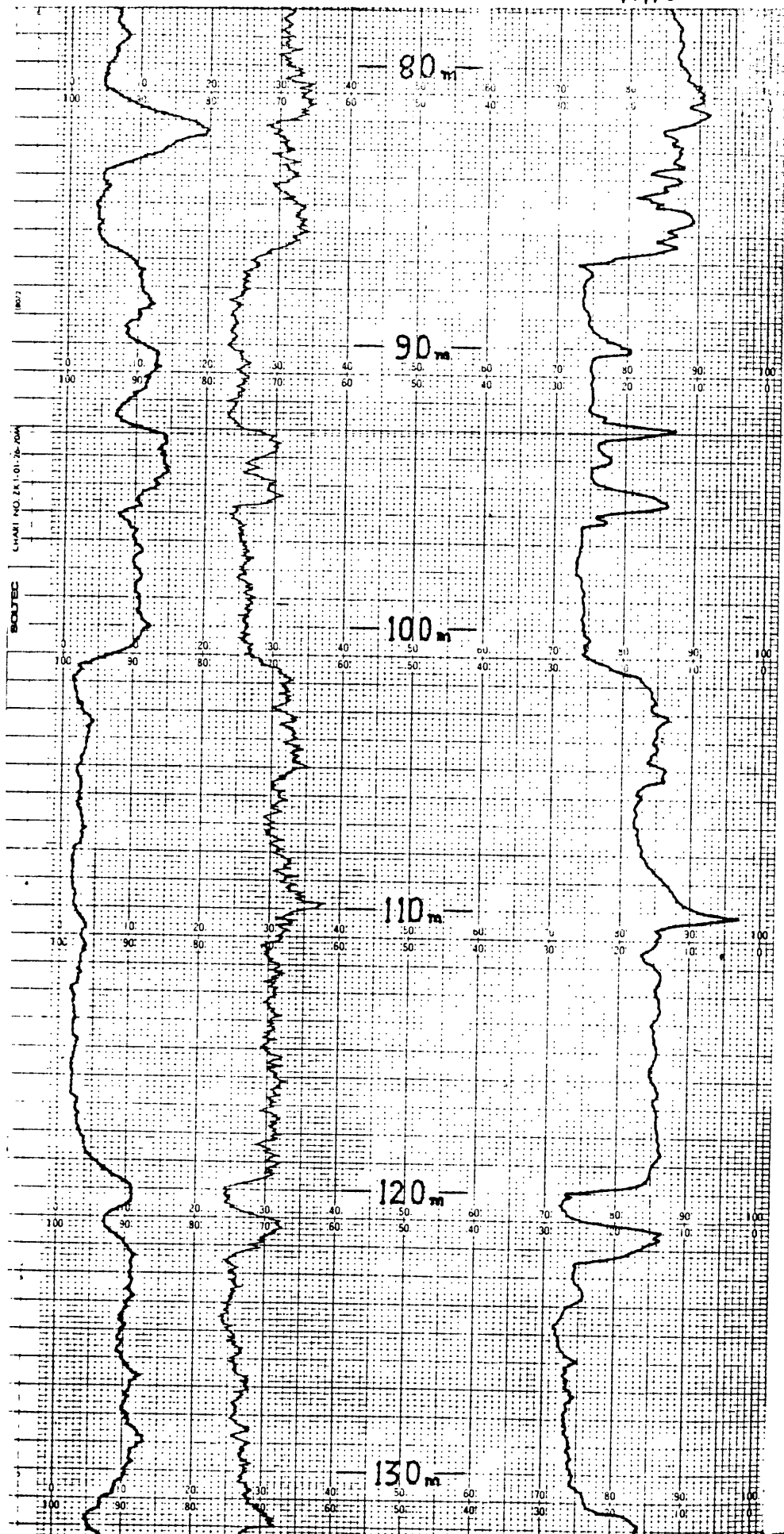
UAL-4

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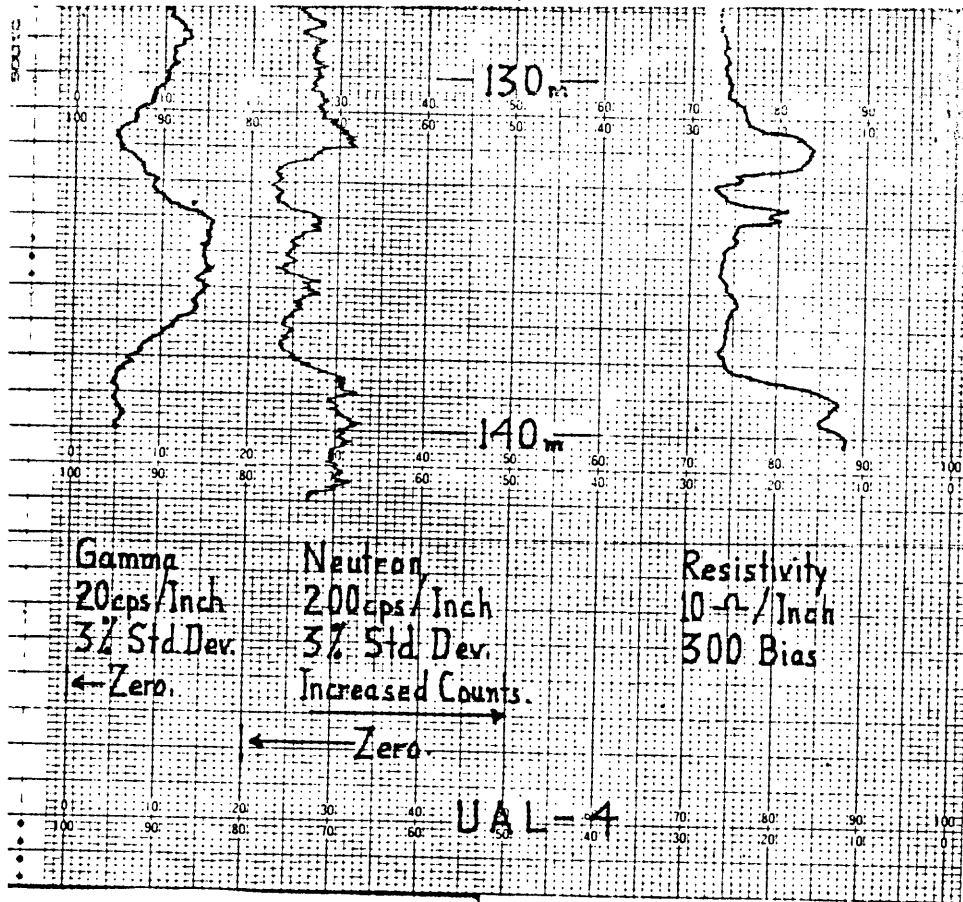
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DRILL HOLE UAL-5





# GEOSCIENCE ASSOCIATES

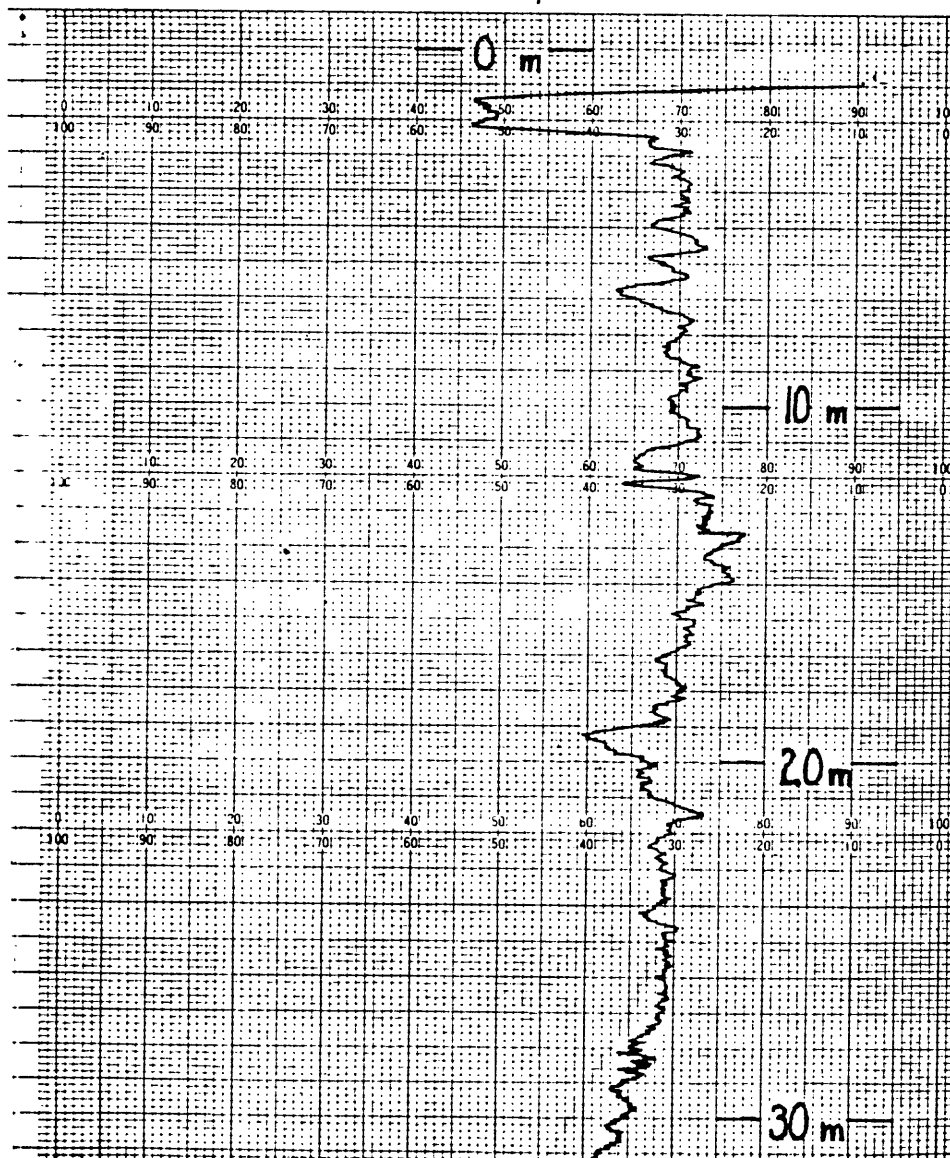
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HOLE NUMBER:

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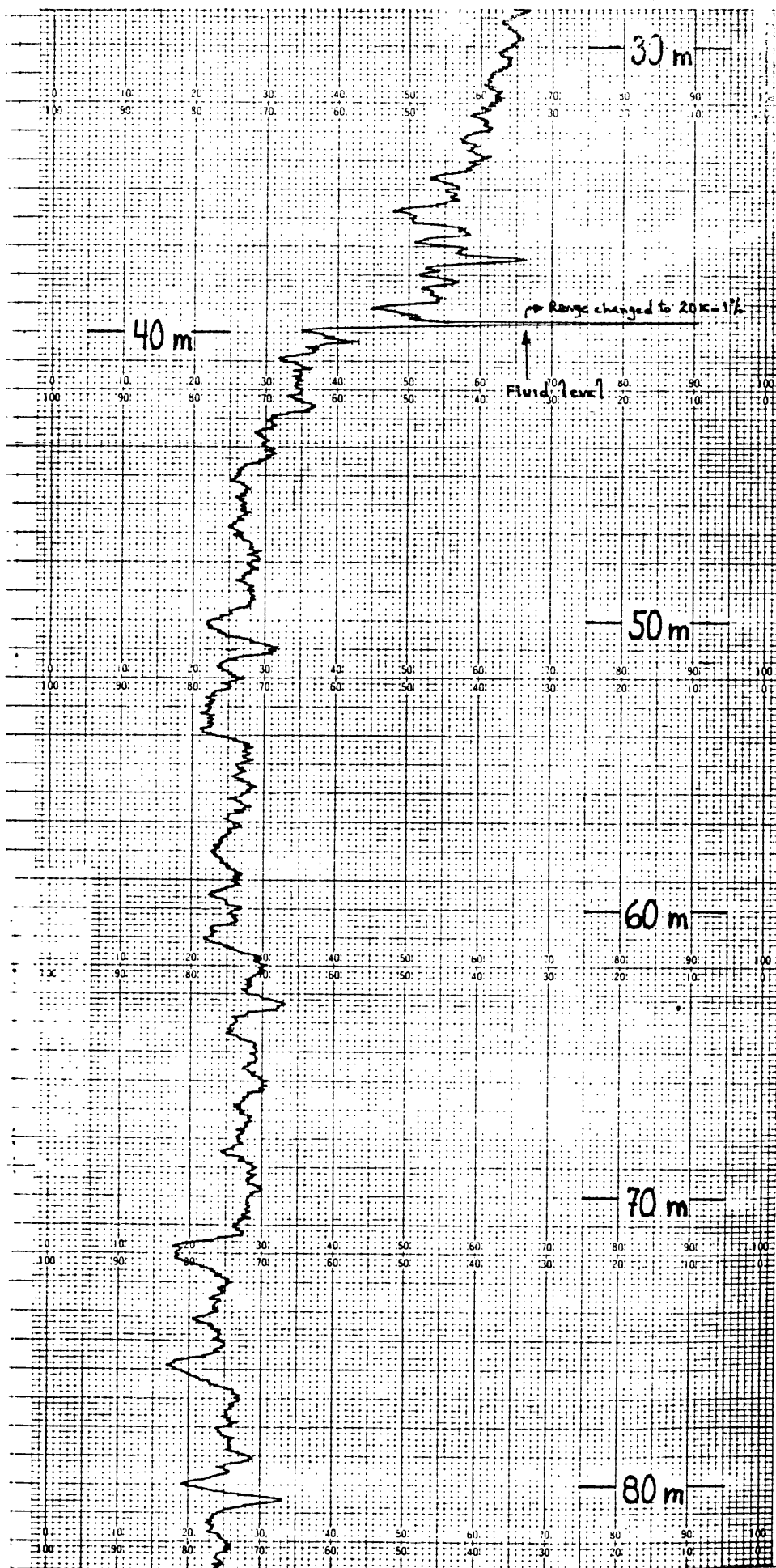
DATE: 15<sup>th</sup> OCTOBER, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY <u>Sind, PAKISTAN</u>			DEPTH DRILLED: <u>134.5 m</u>			CLIENT <u>G.S.P. - U.S.G.S.</u>		
REGION <u>LAKHRA</u>			DEPTH LOGGED: <u>126 m</u>			GEOLOGIST:		
PROJECT <u>COAL REAP</u>			COLLAR ELEV					
PROSPECT			DIA. <u>Sec</u> FROM TO			UNIT OPERATOR <u>MENTAB/MUTIB</u>		
SEC TWP RNG.			DIA. <u>Caliper</u> FROM TO			UNIT NO. <u>PL-2</u> OFFICE		
			DIA. <u>Log</u> FROM TO			<u>BOULDER, COLORADO, U.S.A.</u>		
TYPE			BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>			ELECTRIC		
LOGGED DEPTH			FLUID LEVEL <u>39 m</u>			TYPE		
RANGE (f.s.)			CASING DATA			LOGGED DEPTH		
STD DEV			WALL SIZE			RESIST		
PAPER SPEED			I.D.			SCALE		
LOG SPEED			CASED FROM TO			PAPER SPEED		
BKGD. COUNT			CASING TYPE			LOG SPEED		
PROBE NO.			SAMPLE DATA			FINE ADJ.		
SIZE (dia.)			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>					
K-FACTOR			SAMPLED INTERVAL			CALIPER		
DEAD TIME			SAMPLE TYPE			LOGGED DEPTH		
STANDARD						SCALE		
DIGITAL DATA			REMARKS			PAPER SPEED		
PRINT INTERVAL						LOG SPEED		
TIMEBASE						ARM LENGTH		
						MAX DEF.		
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN.		
						BEARING		



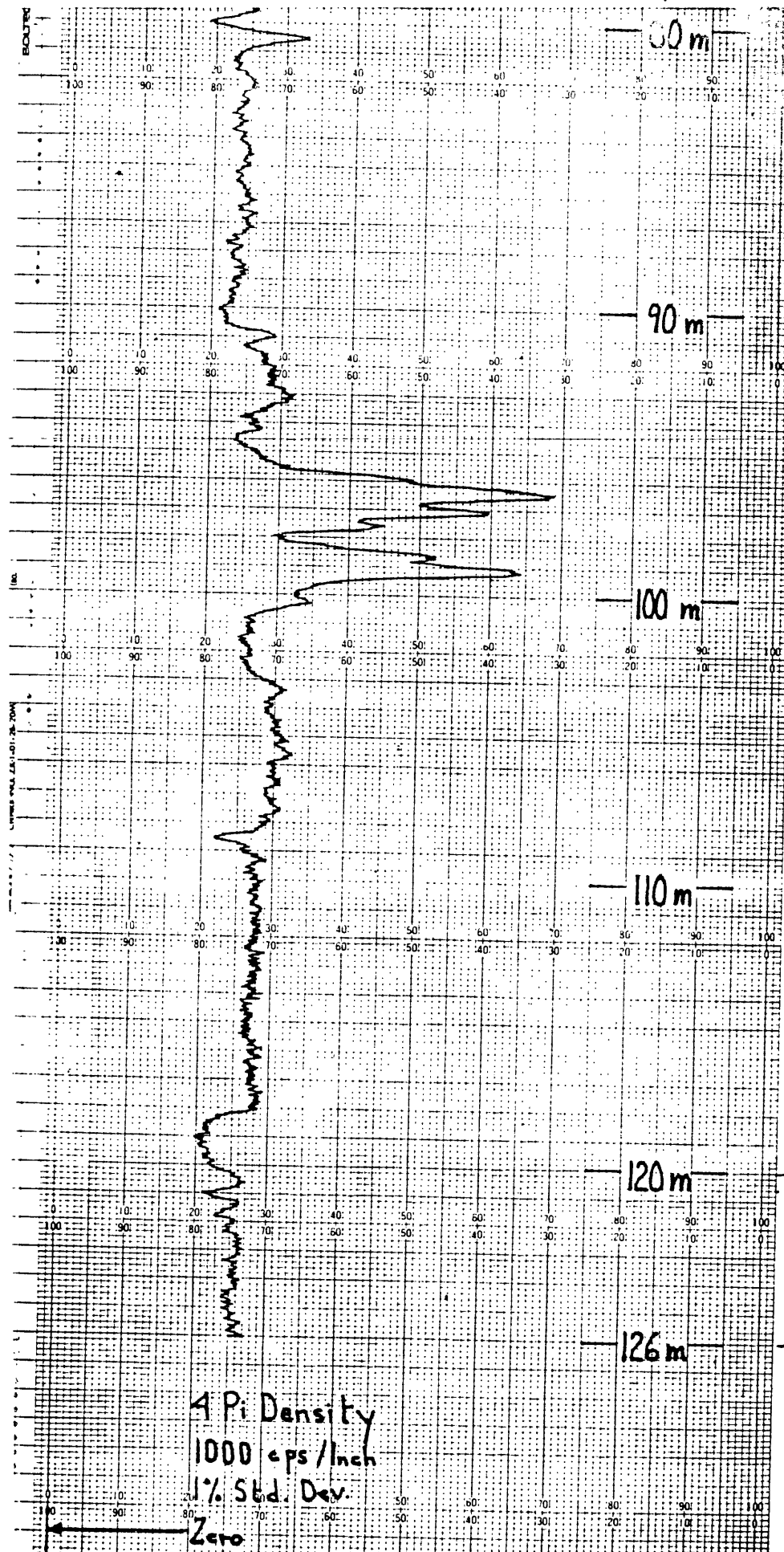
UAL-5

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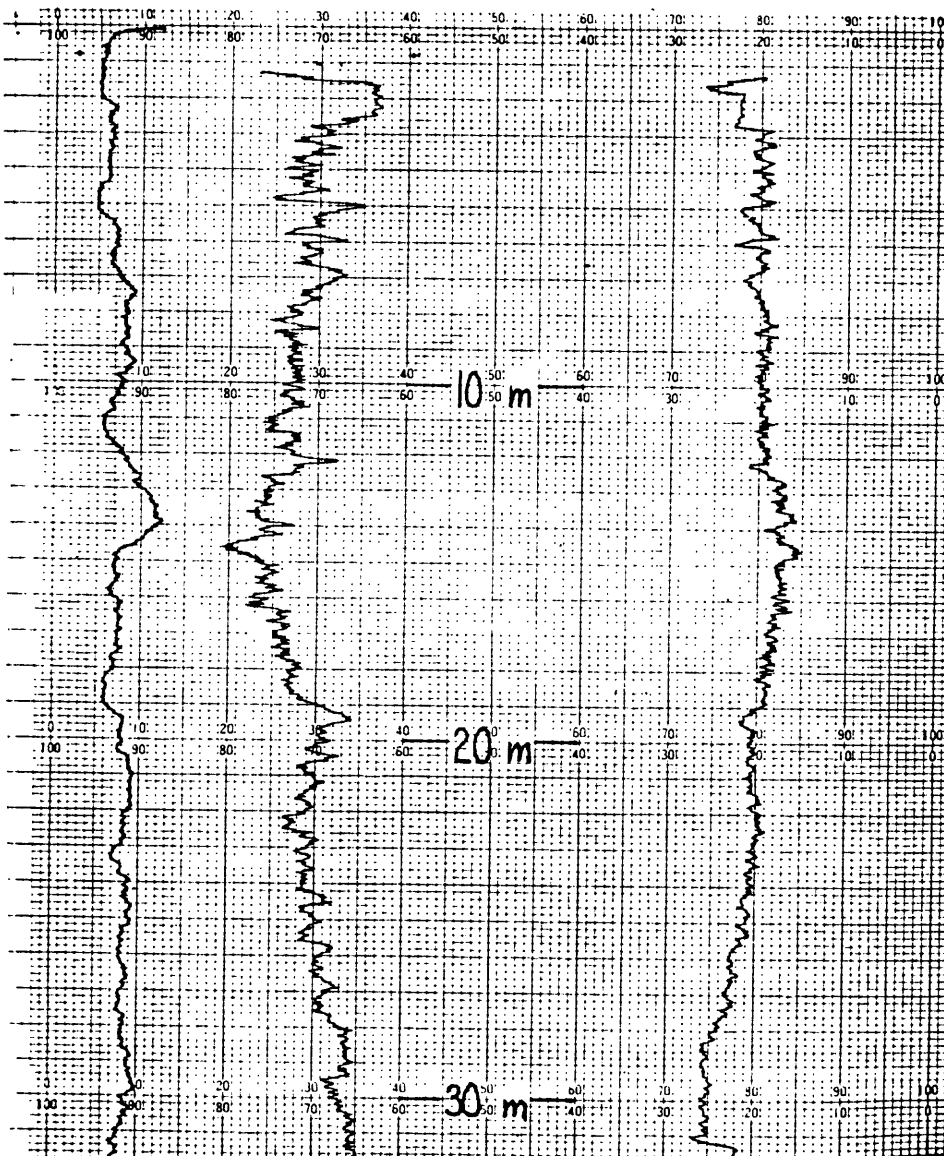




HOLE NUMBER:

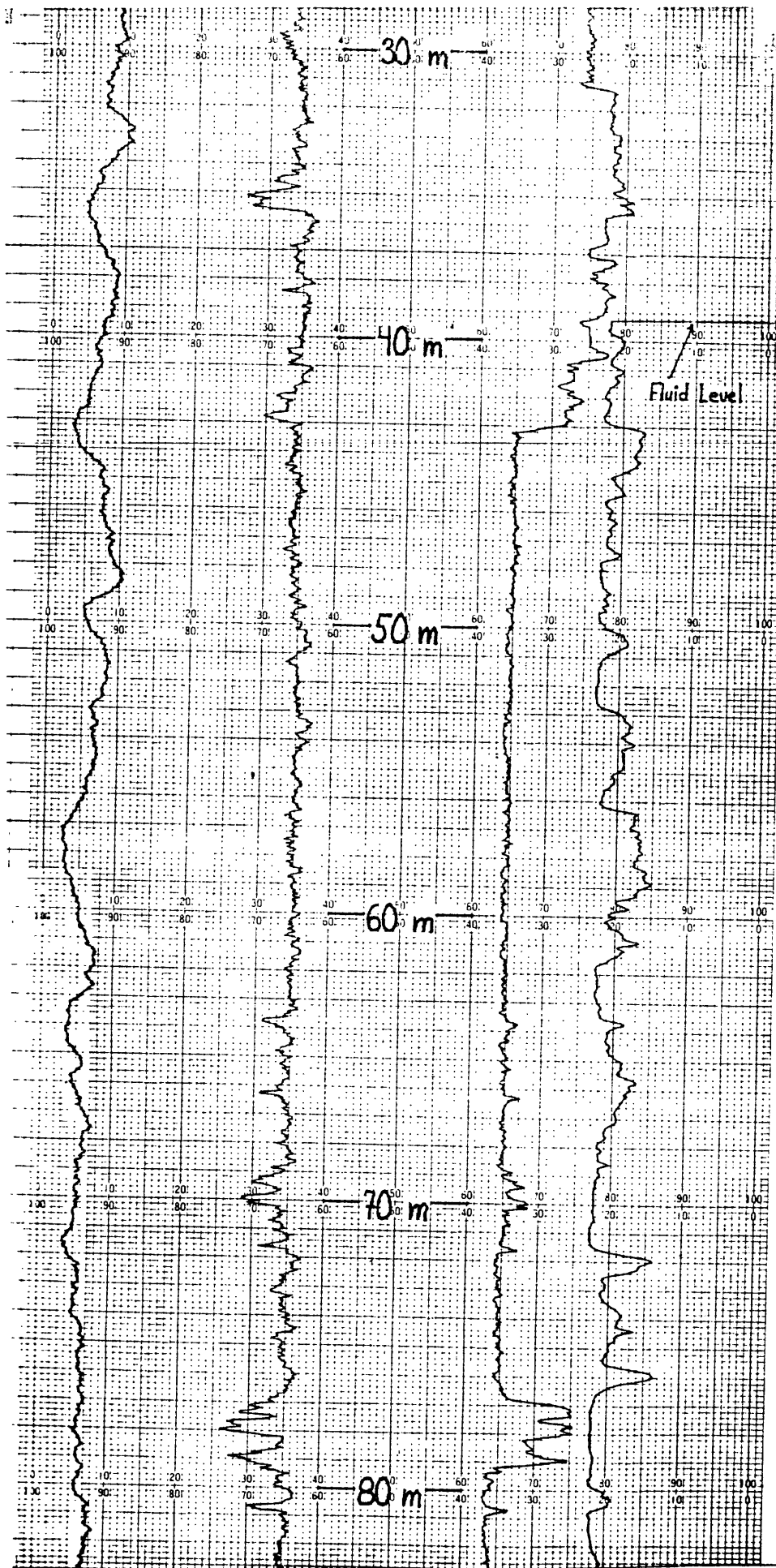
DATE: 15<sup>th</sup> OCTOBER, 1986

<b>LOCATION</b>			<b>HOLE DATA</b>			<b>CLIENT</b>		
STATE/COUNTY Sindh PAKISTAN			DEPTH DRILLED 134.5 m			CLIENT G.S.P.-U.S.G.S.		
REGION LAKHRA			DEPTH LOGGED 128 m			GEOLOGIST		
PROJECT COAL REAP			COLLAR ELEV					
PROSPECT			DIA. See FROM TO			UNIT OPERATOR MEHTAB MUJIB		
SEC TWP RNG			DIA Caliper FROM TO			UNIT NO PL-2 OFFICE		
			DIA 1.2 FROM TO			BOULDER COLORADO U.S.A.		
			BOREHOLE MEDIUM H <sub>2</sub> O + Mud			<b>ELECTRIC</b>		
<b>TYPE</b>			<b>FLUID LEVEL</b>			<b>TYPE</b>		
LOGGED DEPTH 127m 128m						RESIST		
RANGE (ft.) 200 20K			<b>CASING DATA</b>			SCALE 127m		
%STD DEV 5% 1%			WALL SIZE			SCALE 10		
PAPER SPEED 1-1 1-1			I.D.			PAPER SPEED 1-1		
LOG SPEED 3-1 3-1			CASED FROM TO			LOG SPEED 3-1		
BKND COUNT			CASING TYPE			FINE ADJ 200 BARS		
PROBE NO HRD-1 HRD-1			<b>SAMPLE DATA</b>			<b>CALIPER</b>		
SIZE (dia.) 2" 2"			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			LOGGED DEPTH 128 m		
K-FACTOR			SAMPLED INTERVAL SAMPLE TYPE			SCALE 1" Dia. = 2" Dia.		
DEAD TIME 2 2						PAPER SPEED 1-1		
STANDARD						LOG SPEED 3-1		
						ARM LENGTH 30"		
						MAX DEF. 7'		
<b>DIGITAL DATA</b>			<b>REMARKS</b>			<b>VERTICAL DEV.</b>		
PRINT INTERVAL						DEPTH		
TIMEBASE						INCLIN.		
						BEARING		
<b>DENSITY CALIBRATION</b>								
ALUMINUM								
LUCITE								



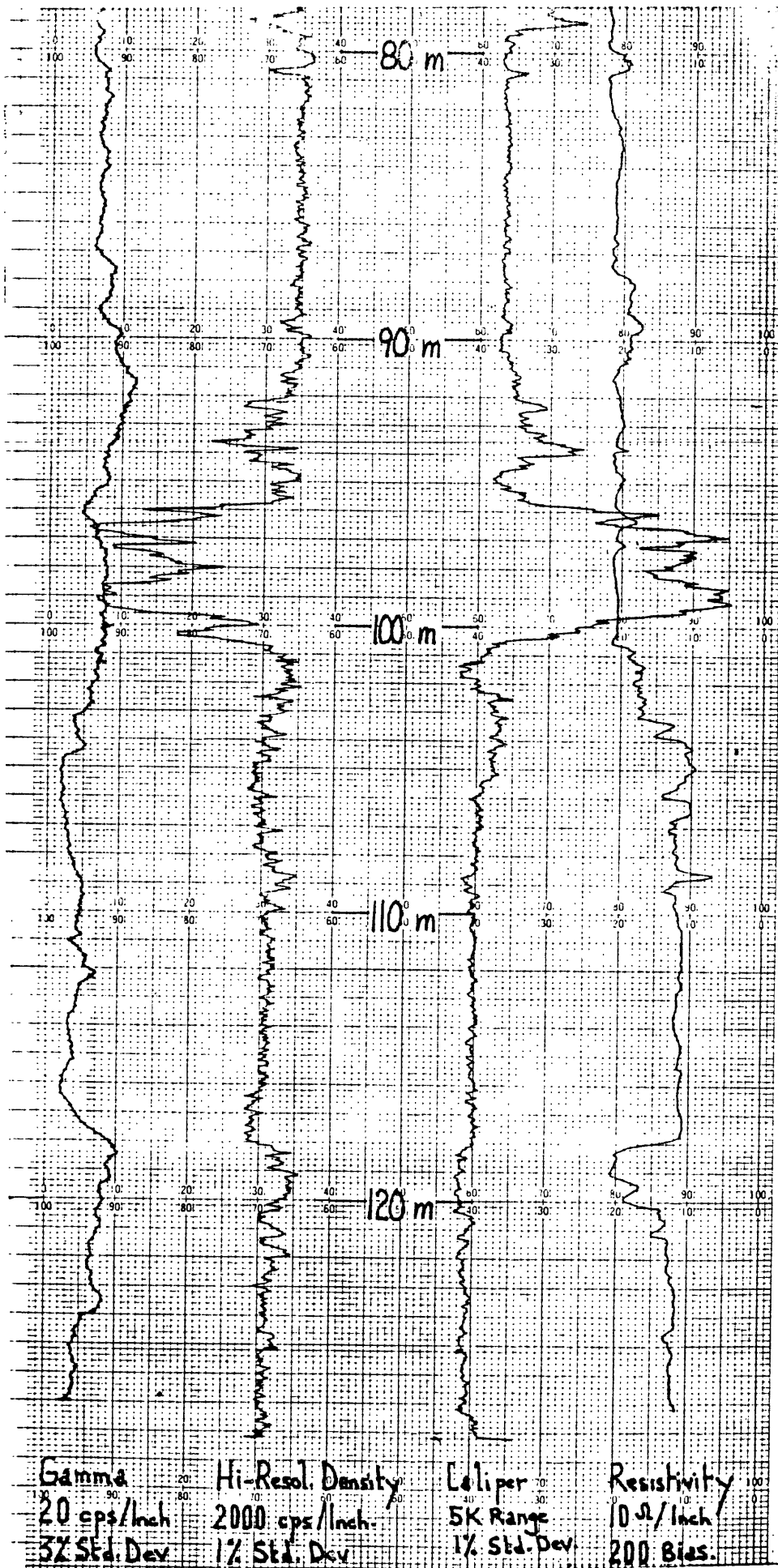
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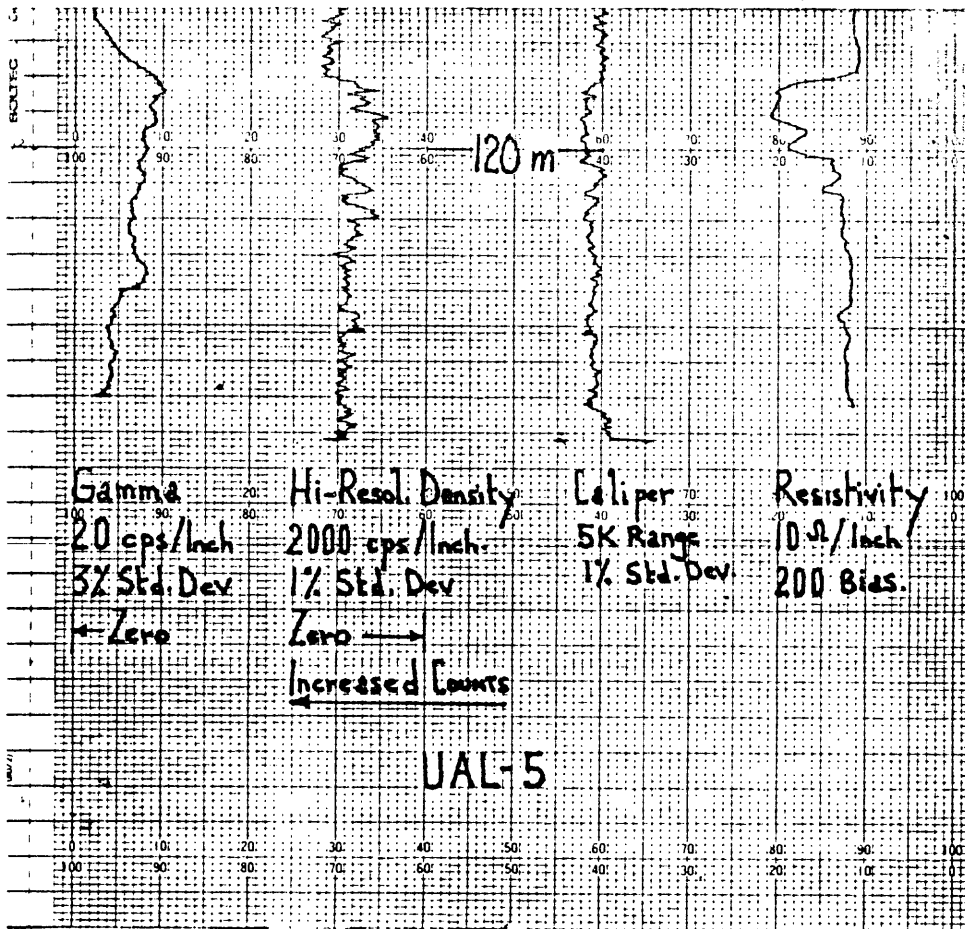
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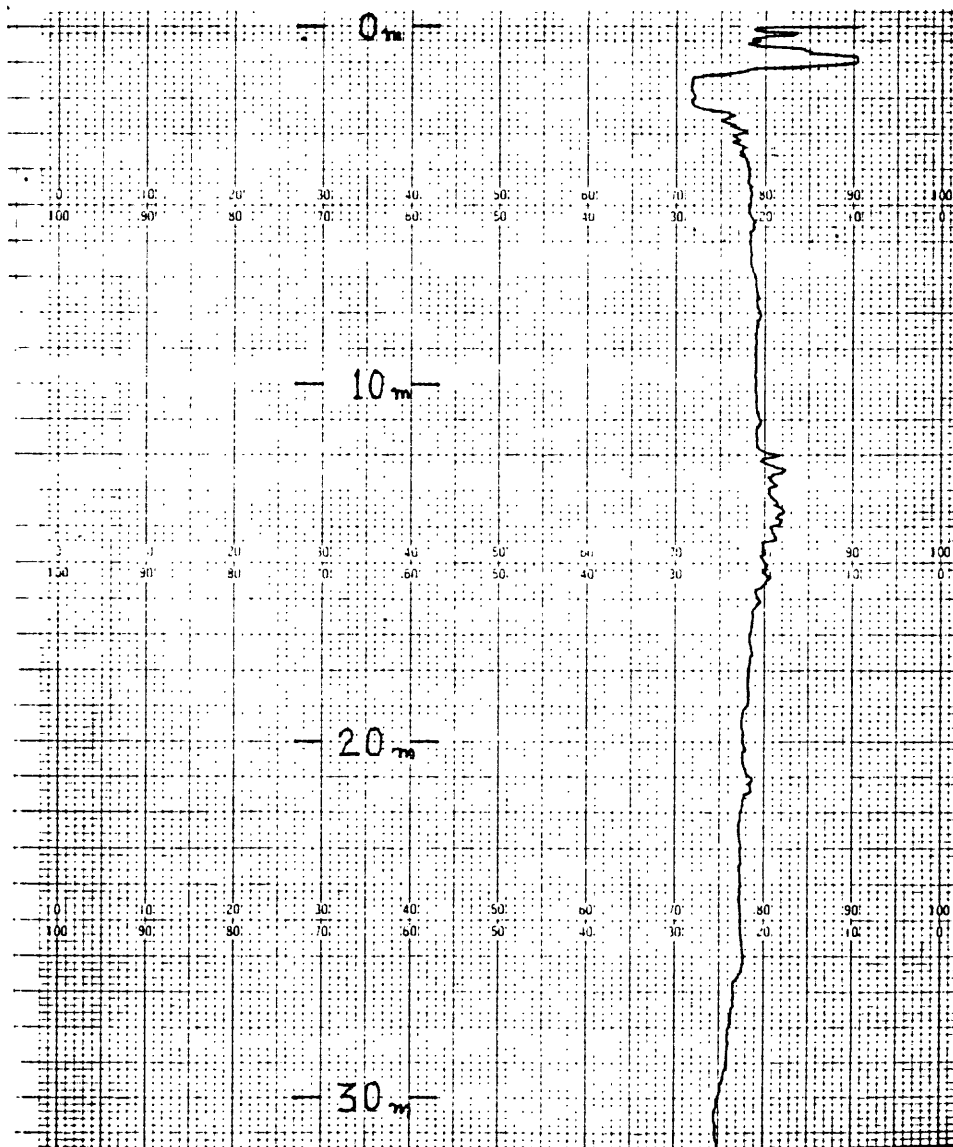




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HOLE NUMBER: UAL-5

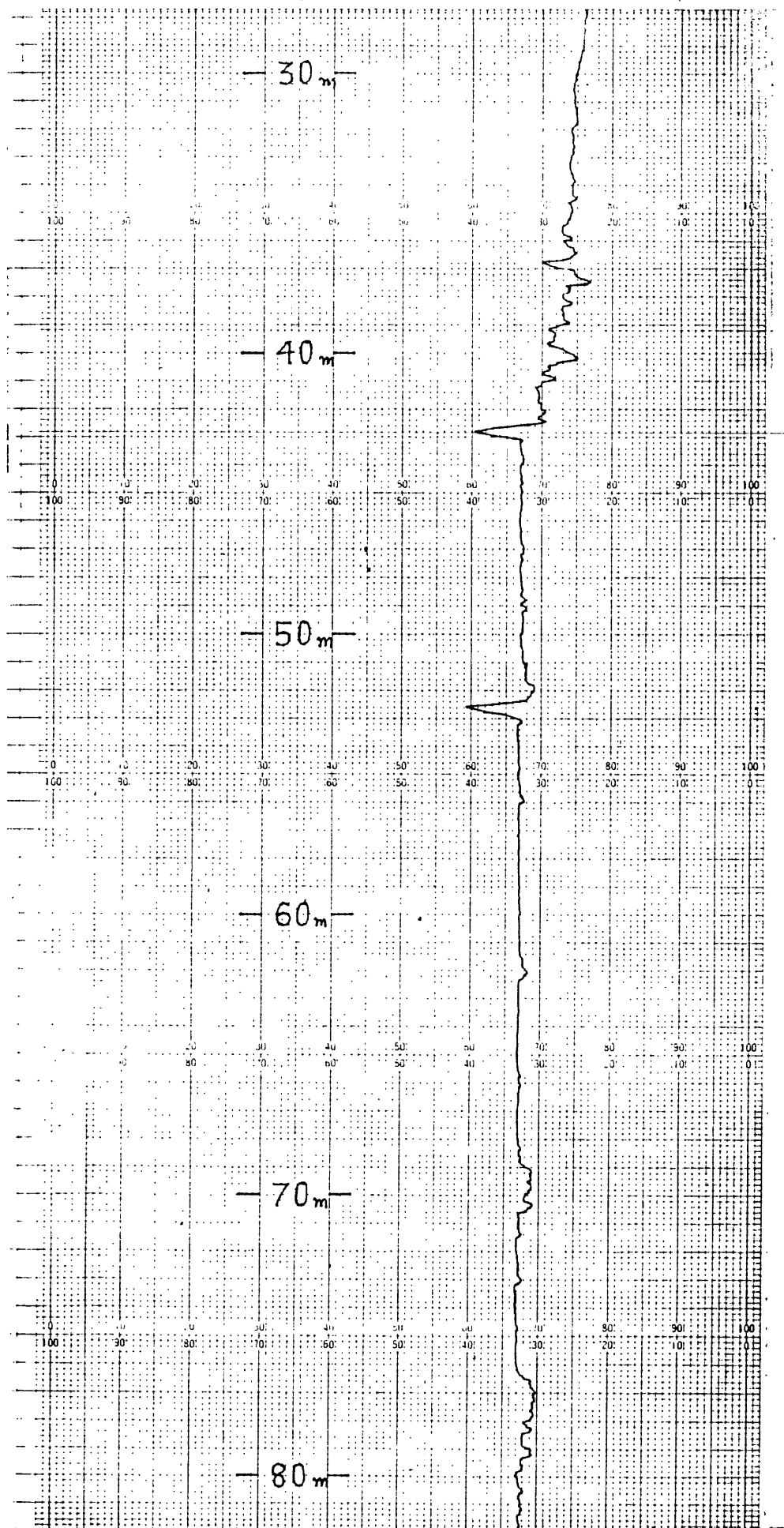
DATE: 15<sup>th</sup> OCTOBER, 1986

[illegible]



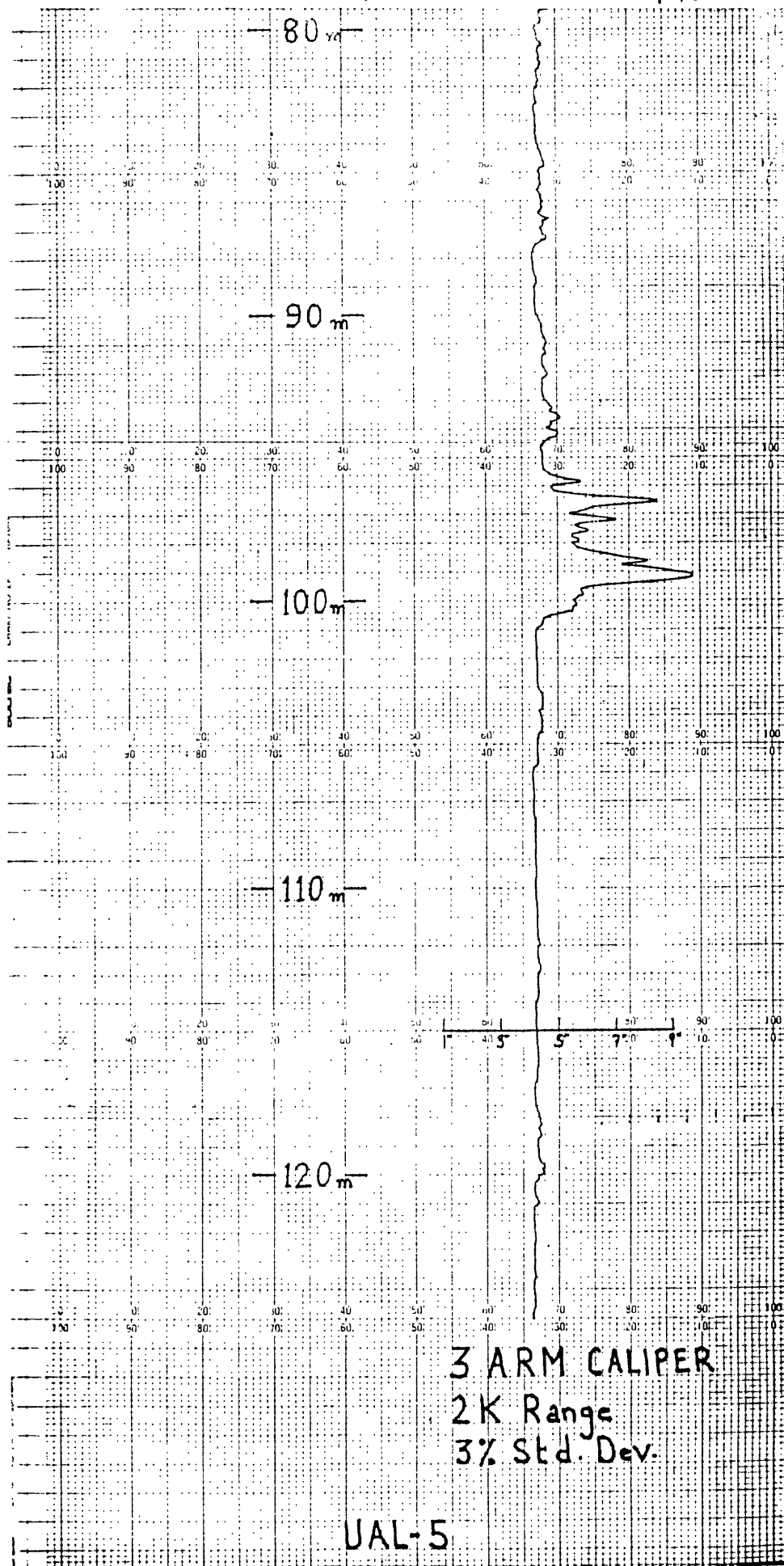
UAL-5

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# GEOSCIENCE ASSOCIATES

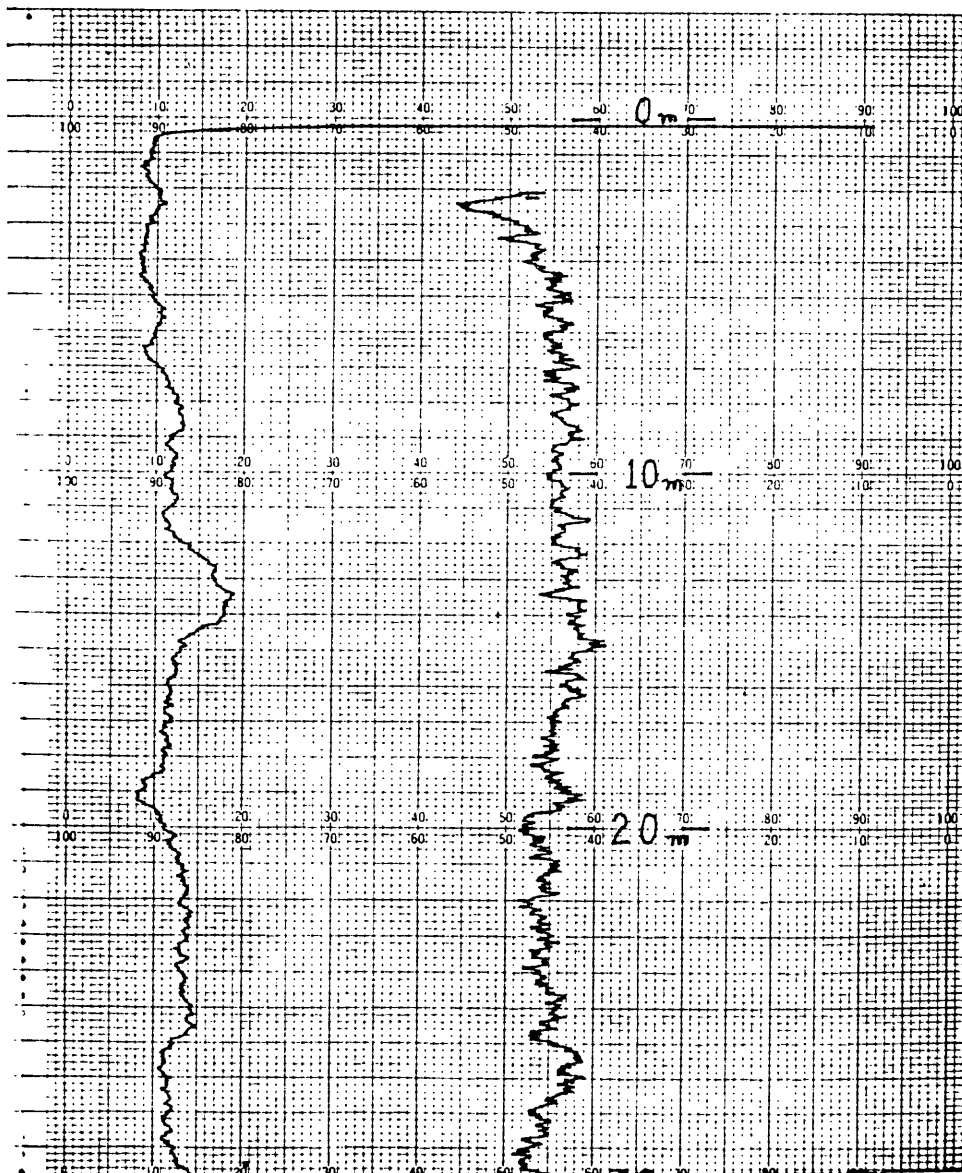
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HOLE NUMBER:

UAL-5

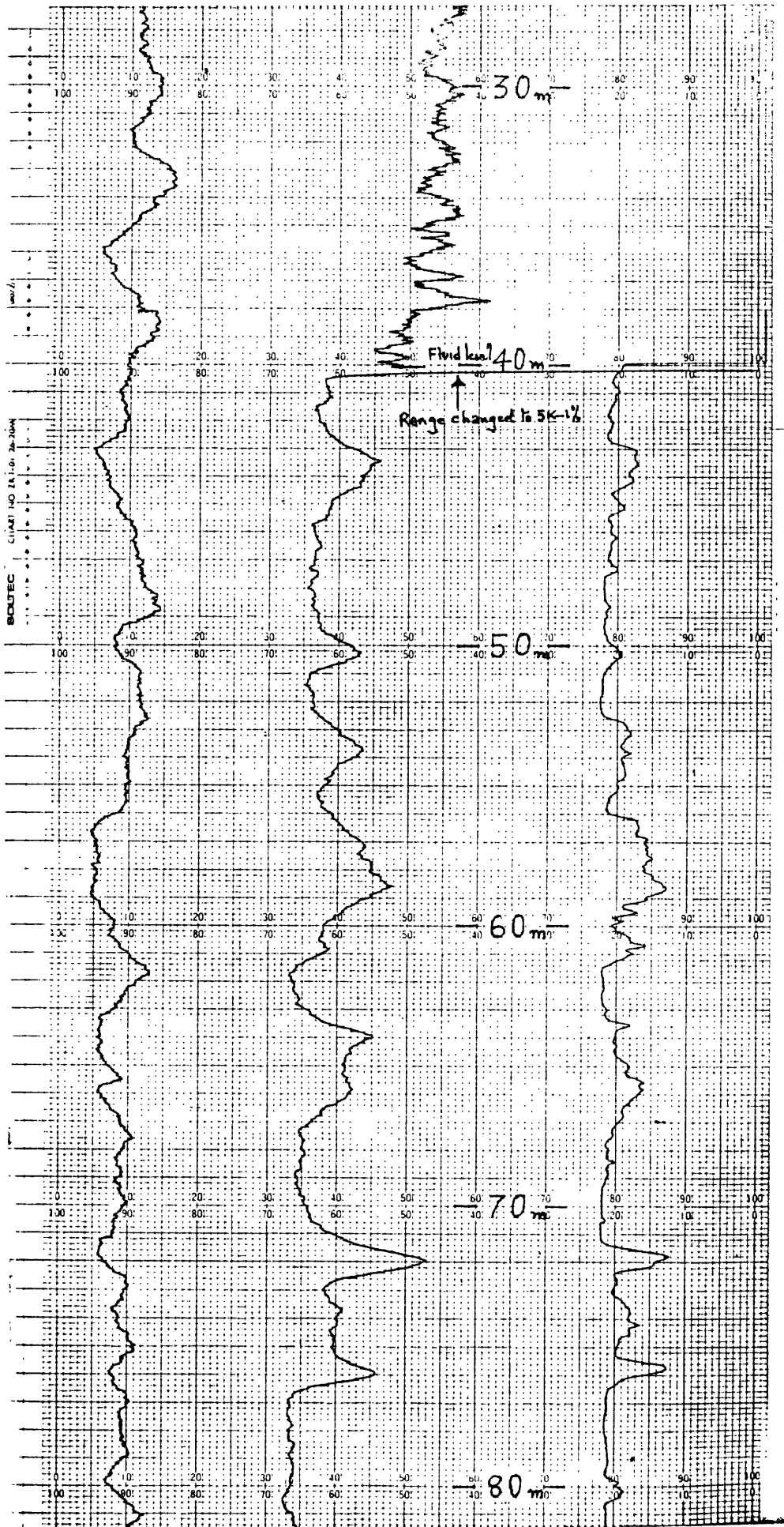
DATE: 15th OCTOBER, 1986

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTRY <b>Sindh, PAKISTAN</b>				DEPTH DRILLED <b>134.5m</b>				CLIENT <b>G.S.P. - U.S.G.S.</b>			
REGION <b>LAKHRA</b>				DEPTH LOGGED <b>127m</b>				GEOLOGIST			
PROJECT <b>COAL REAP</b>				COLLAR ELEV							
PROSPECT				DIA <b>5cc</b> FROM TO				UNIT OPERATOR <b>MEHTAB / MUJIB</b>			
SEC TWP RNG.				DIA <b>Caliper</b> FROM TO				UNIT NO <b>PL-2</b> OFFICE			
				DIA <b>Log</b> FROM TO				BOULDER <b>ESLORADO</b> U.S.A.			
				BOREHOLE MEDIUM <b>H<sub>2</sub>O + Mud.</b>				ELECTRIC			
TYPE <b>GAM</b> <b>Newton</b>				FLUID LEVEL <b>40.5m</b>				TYPE RESIST S.P.			
LOGGED DEPTH <b>125m</b> <b>127m</b>				CASING DATA				LOGGED DEPTH <b>125m</b> <b>FT</b>			
RANGE (I.S.) <b>200</b> <b>500+5K</b>				WALL SIZE				SCALE <b>10</b> <b>3</b>			
%STD DEV <b>3%</b> <b>1/2-1/2</b>				I.D.				PAPER SPEED <b>1-1</b> <b>2</b>			
PAPER SPEED <b>1-1</b> <b>1-1</b>				CASED FROM TO				LOG SPEED <b>6-1</b> <b>2</b>			
LOG SPEED <b>6-1</b> <b>6-1</b>				CASING TYPE				FINE ADJ <b>200 Bias</b>			
BKGD COUNT				SAMPLE DATA				CALIPER			
PROBE NO. <b>6N-1</b> <b>6N-1</b>				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>				LOGGED DEPTH <b>FT</b>			
SIZE (dia.) <b>13/8"</b> <b>13/8"</b>				SAMPLED INTERVAL SAMPLE TYPE				SCALE			
K-FACTOR <b>1.5</b> <b>1.5</b>				REMARKS				PAPER SPEED			
DEAD TIME <b>2</b> <b>2</b>								LOG SPEED			
STANDARD <b>2</b> <b>2</b>								ARM LENGTH <b>IN</b>			
DIGITAL DATA								MAX DEF <b>IN</b>			
PRINT INTERVAL								VERTICAL DEV.			
TIMEBASE								DEPTH			
								INCLIN			
DENSITY CALIBRATION								BEARING			
ALUMINUM											
LUCITE											



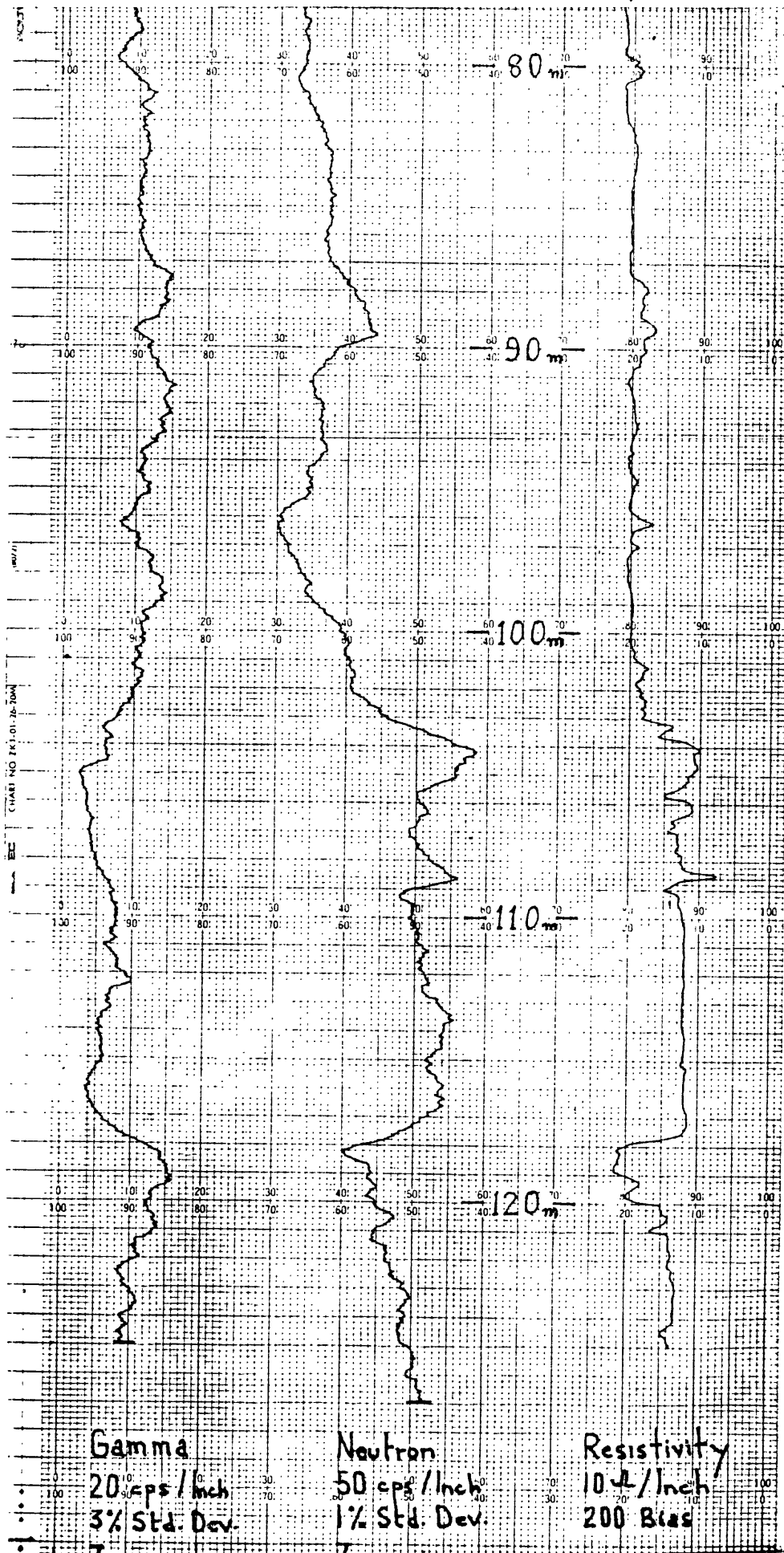
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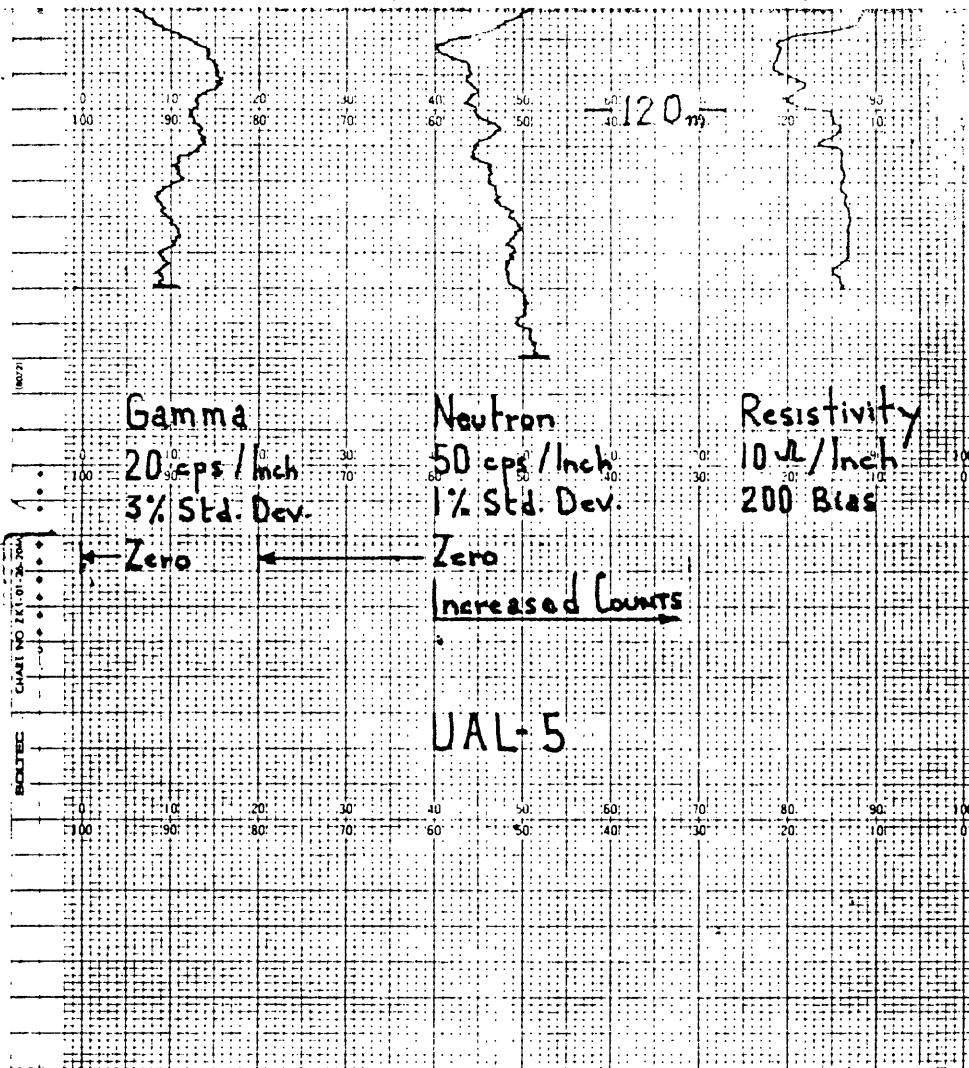
Gamma  
20 cps/inch  
3% Std. Dev.

Neutron  
50 cps/inch  
1% Std. Dev.

Resistivity  
10 Ω/inch  
200 Bias

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DRILL HOLE UAL-6



# GEOSCIENCE ASSOCIATES

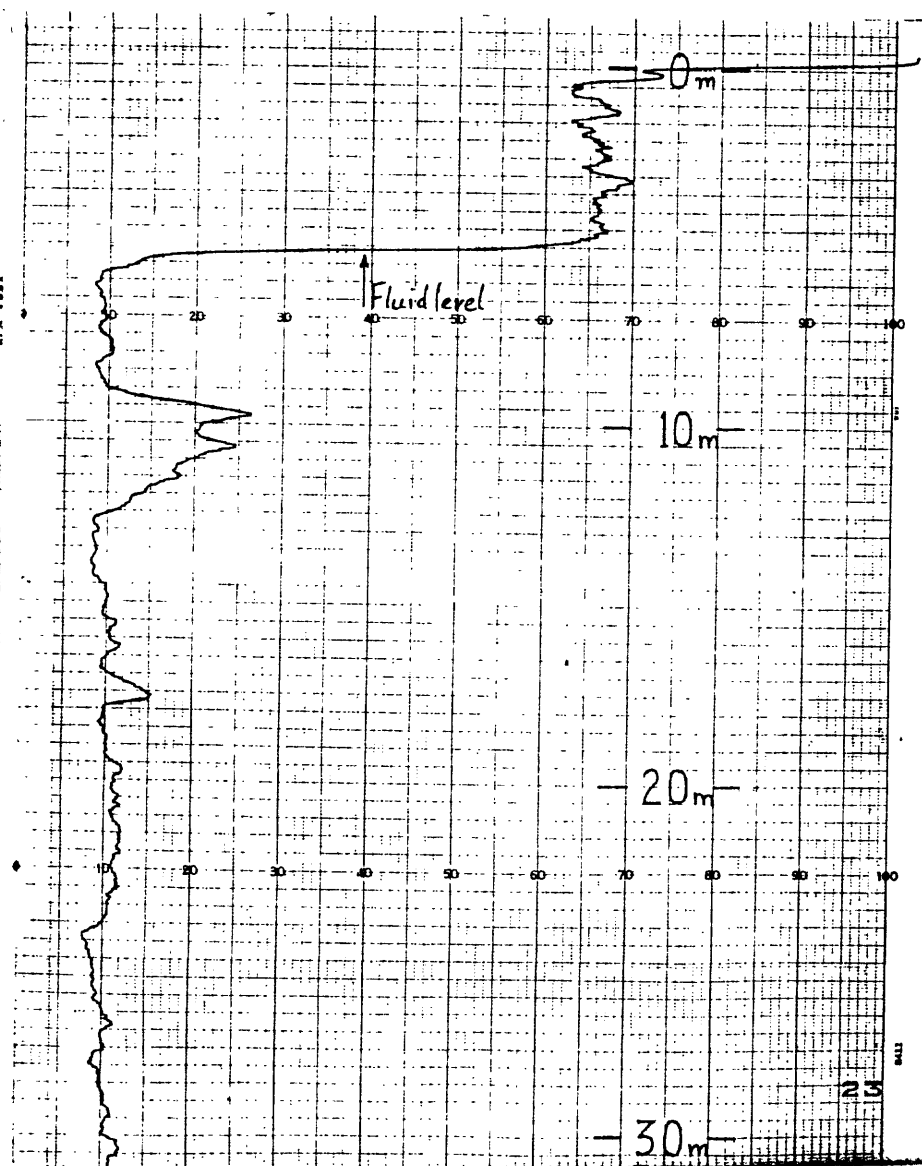
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HOLE NUMBER:

UAL-6

DATE: 23<sup>rd</sup> OCTOBER, 1986.

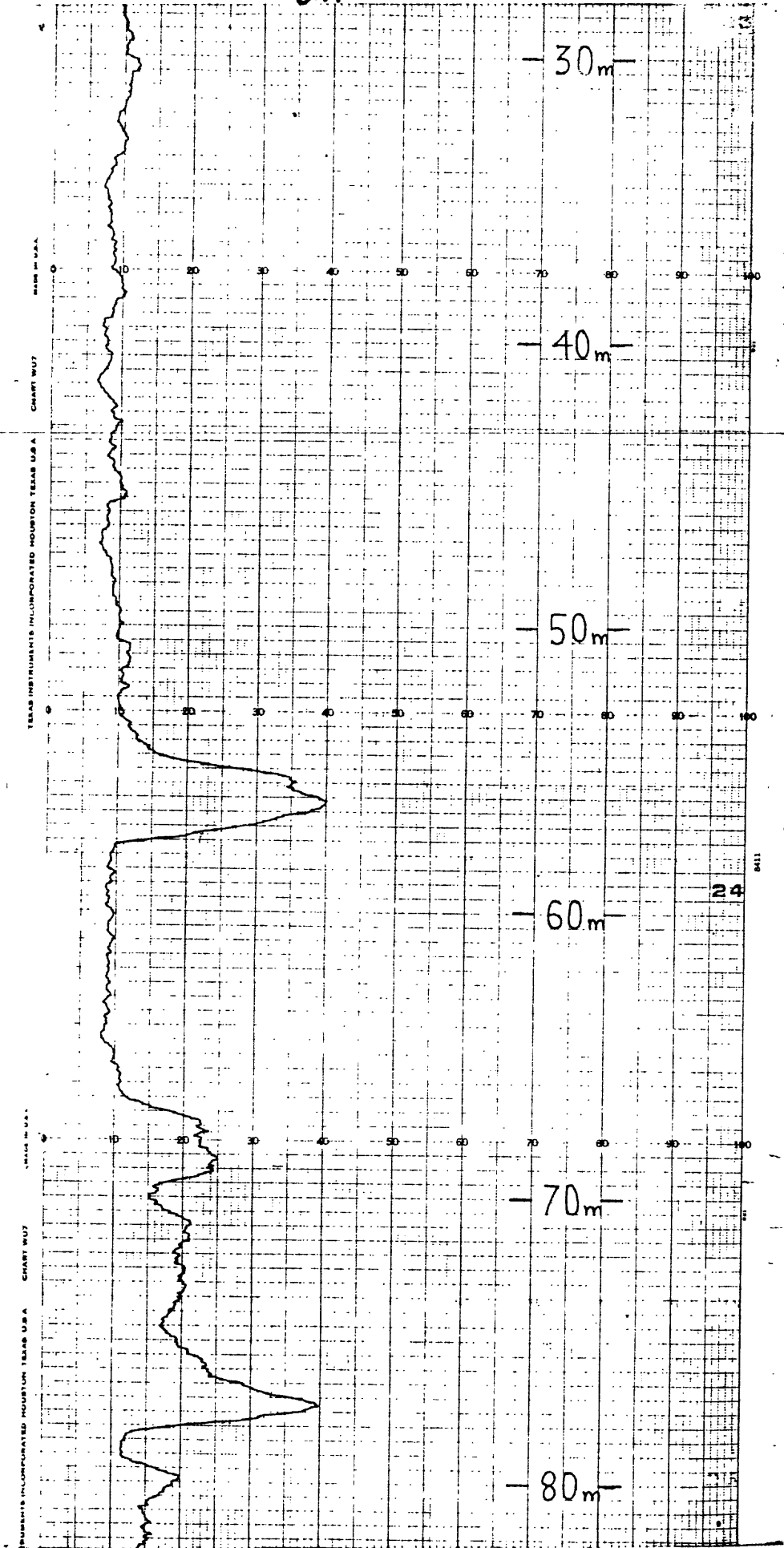
LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	Sindh, Pakistan		DEPTH DRILLED:	200.8 m	CLIENT	G.S.P. - U.S.G.S
REGION	Lakha		DEPTH LOGGED:	200 m	GEOLOGIST:	
PROJECT	Coal REAP		COLLAR ELEV		UNIT OPERATOR	Mujeeb / Melhot
PROSPECT			DIA See FROM TO		UNIT NO.	Boulder OFFICE
SEC.	TWP.	RNG	DIA Caliper FROM TO		PL-1	Colorado U.S.A.
			DIA Log FROM TO		ELECTRIC	
TYPE	GAM	4 Pi Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud	TYPE	RESIST
LOGGED DEPTH		200	FLUID LEVEL	5.7 m	LOGGED DEPTH	FT.
RANGE (ft.)		500	CASING DATA		SCALE	FT.
%STD DEV		3%	WALL SIZE	1/4"	PAPER SPEED	
PAPER SPEED		1-1	I.D.	4"	LOG SPEED	
LOG SPEED		6-1	CASED FROM	0 TO 67 m	LOG SPEED	
BKGND. COUNT			CASING TYPE		FINE ADJ.	
PROBE NO.		63-1	SAMPLE DATA		CALIPER	
SIZE (dia.)		1 3/8	NON-CORED HOLE <input type="checkbox"/>	CORED HOLE <input checked="" type="checkbox"/>	LOGGED DEPTH	FT.
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE	SCALE	
DEAD TIME		2			PAPER SPEED	
STANDARD					LOG SPEED	
DIGITAL DATA			REMARKS		ARM LENGTH	IN
PRINT INTERVAL			logged thru drill pipe		MAX DEF.	IN
TIMEBASE			I.D. = 3"		VERTICAL DEV.	
DENSITY CALIBRATION			O.D. = 3 1/2"		DEPTH	
ALUMINUM					INCLIN	
LUCITE					BEARING	



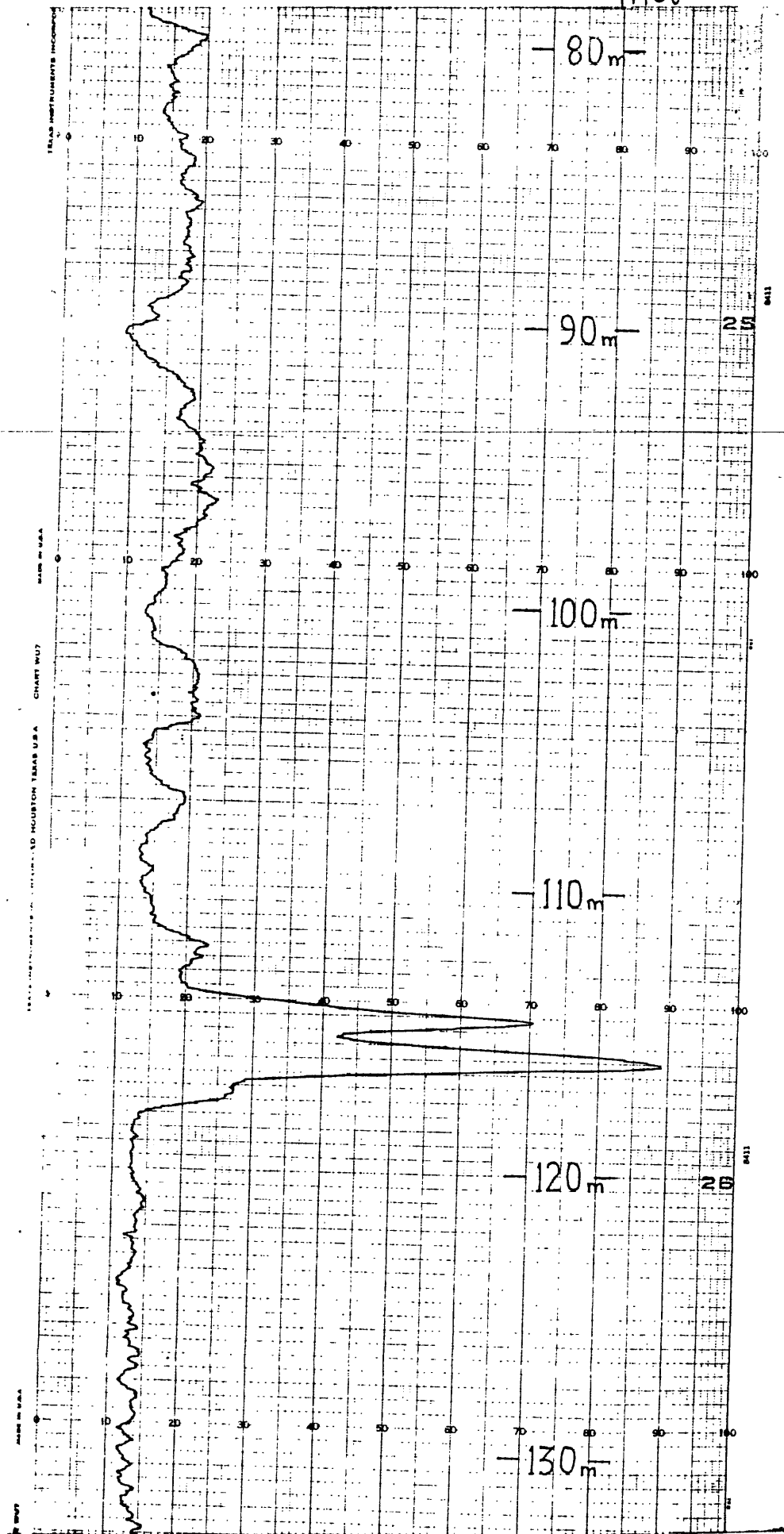


UAL-6

B137

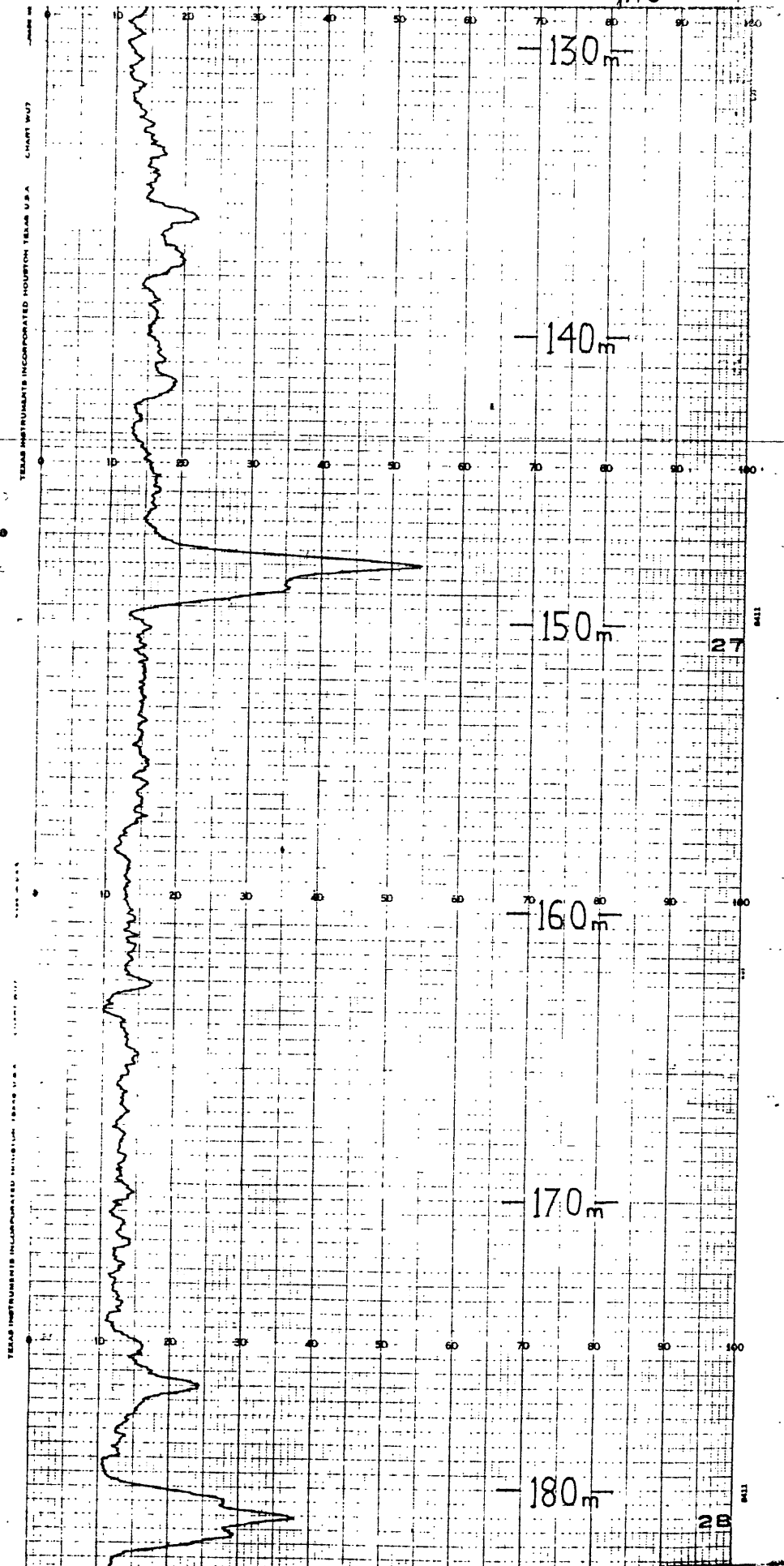


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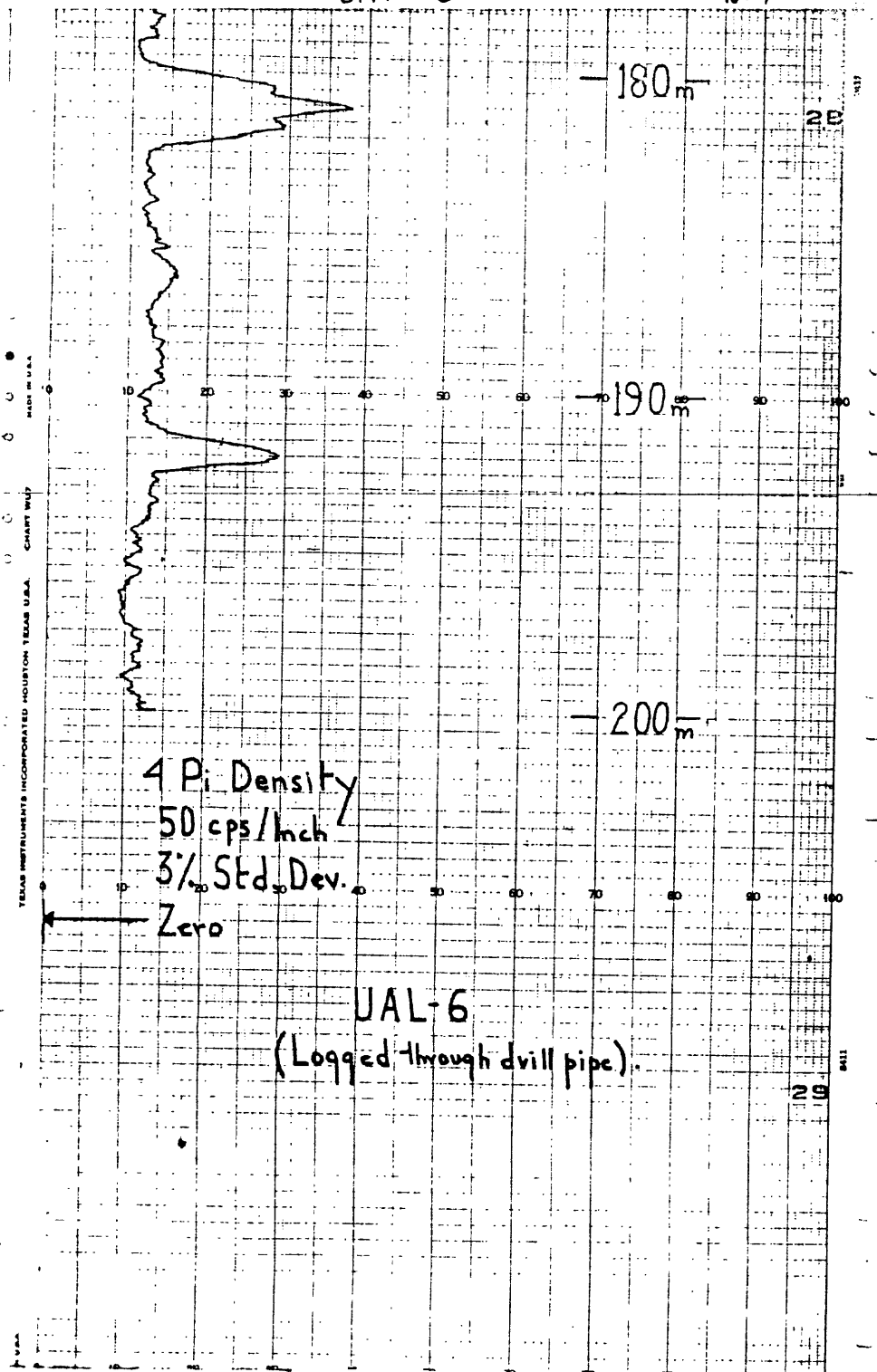
UAL-6

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B140





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DATE: 23rd OCTOBER, 1986

Gamma Ray

Neutron Porosity

Acoustic Velocity

Casing Begins

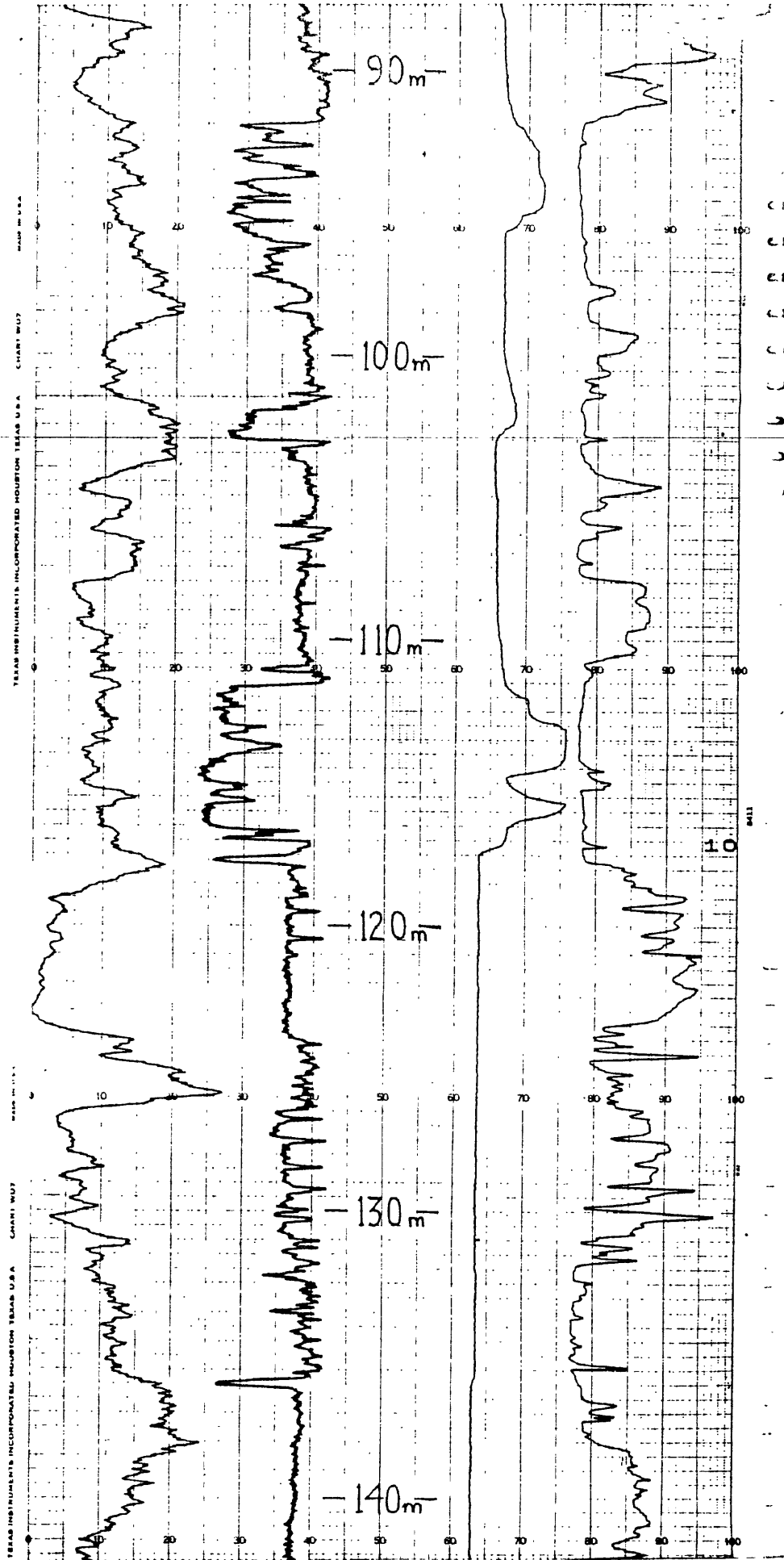
70m

80m

90m

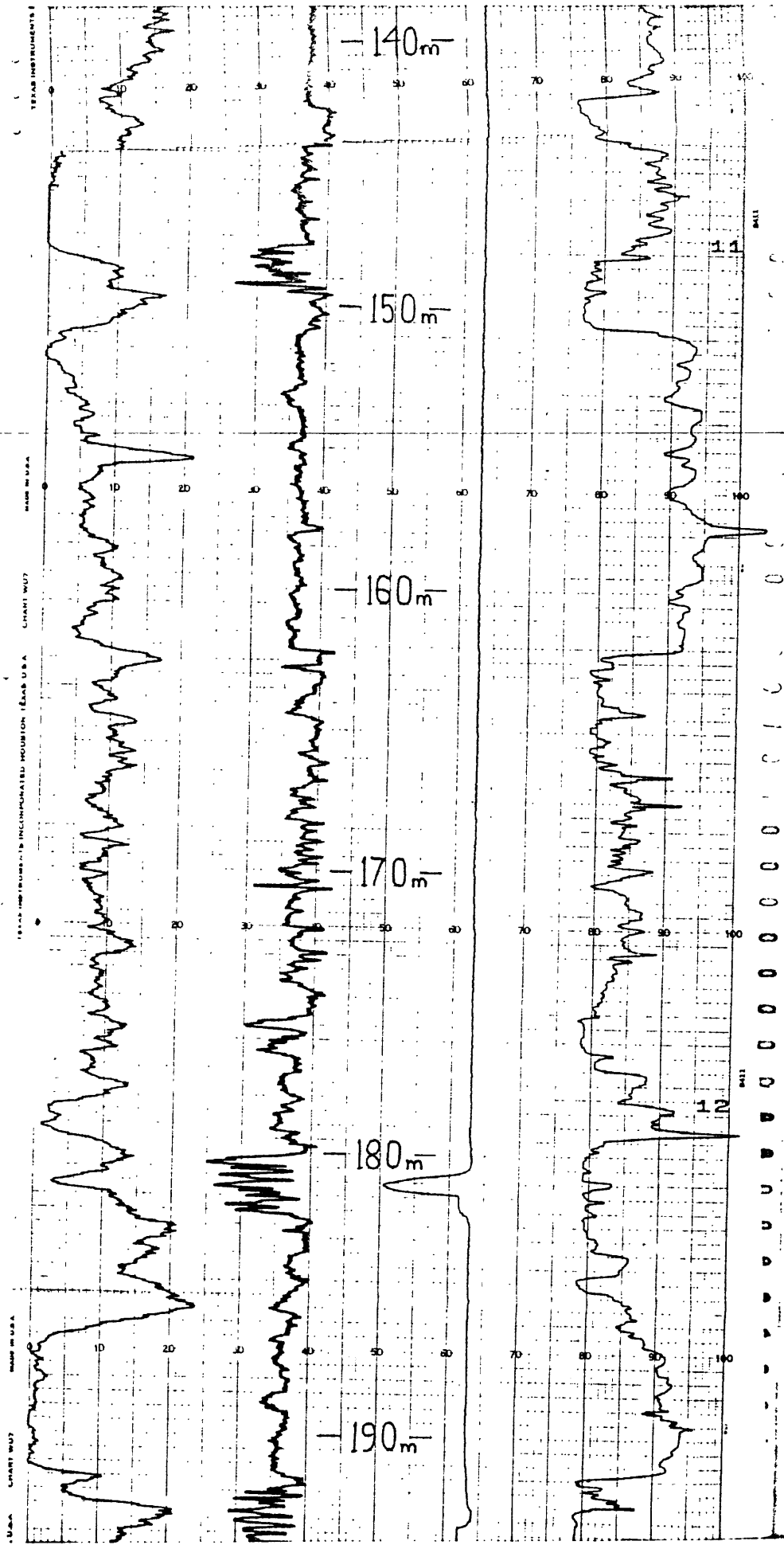
UAL-6

R142



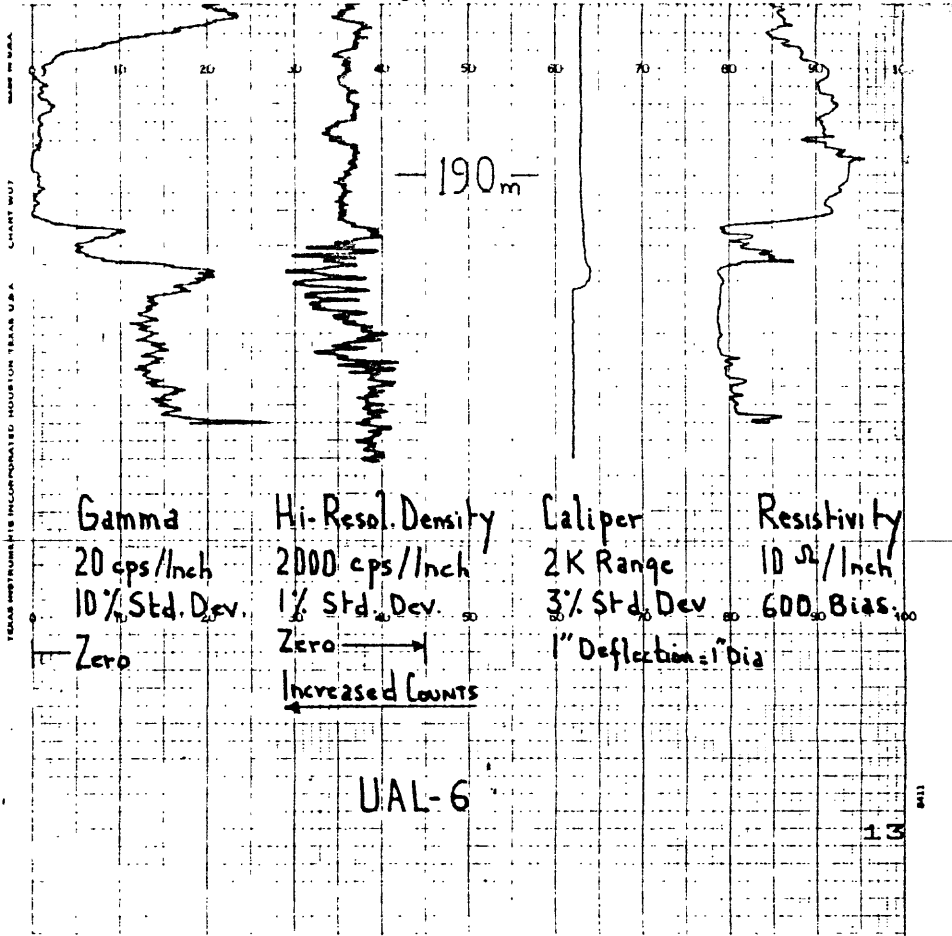
UAL-6

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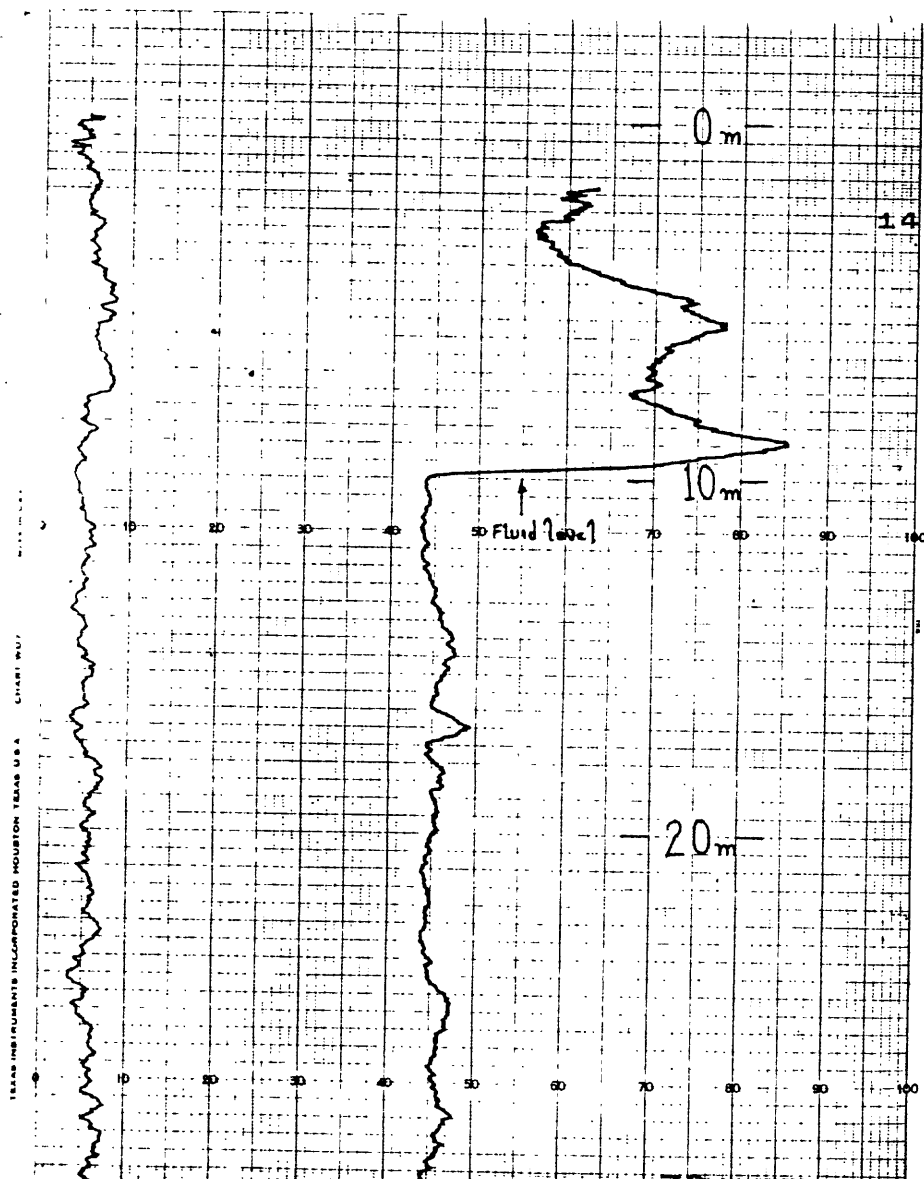
# GEOSCIENCE ASSOCIATES R145

HOLE NUMBER:

UAL-6

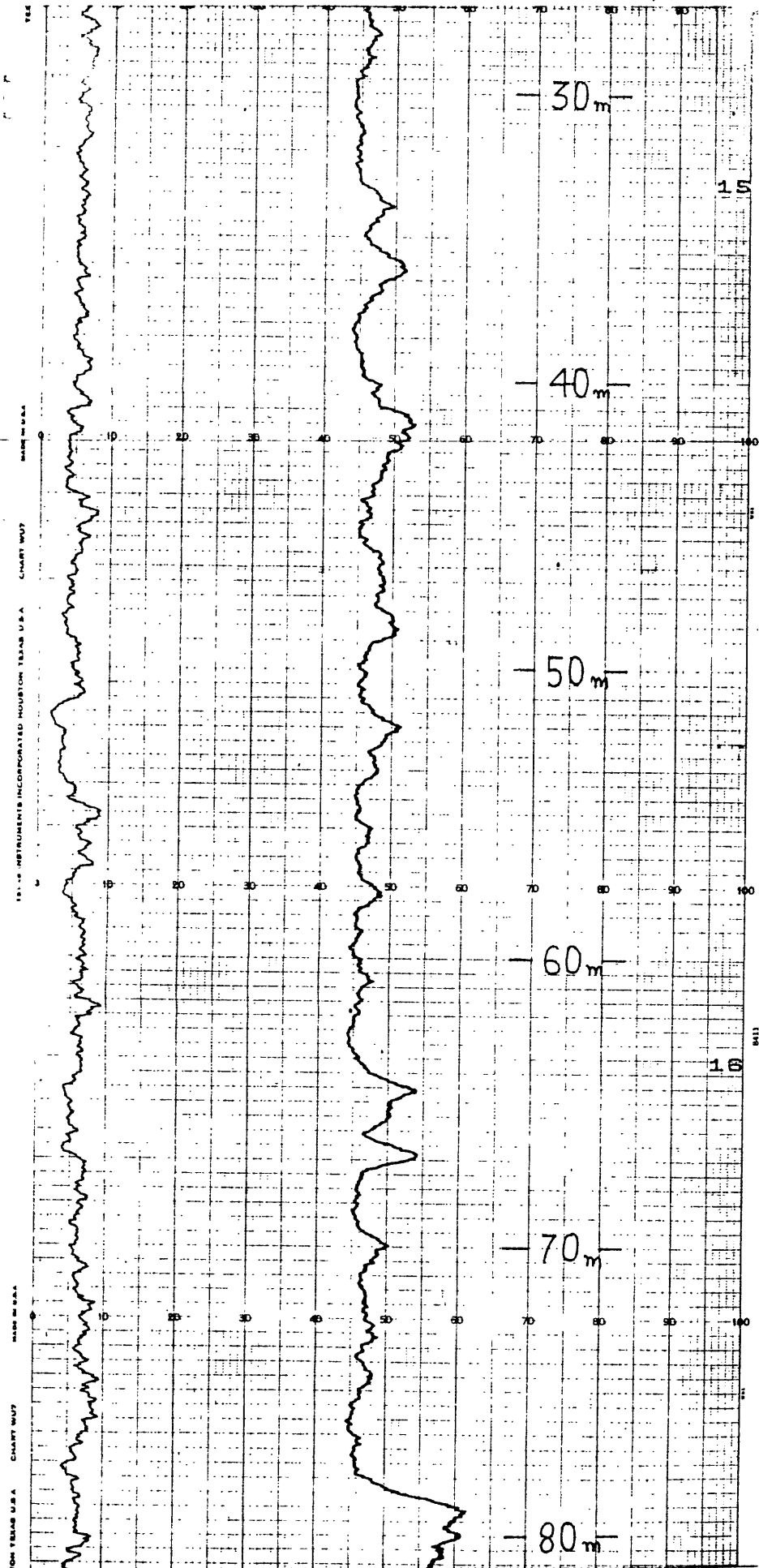
DATE: 23rd OCTOBER, 1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sind. PAKISTAN		DEPTH DRILLED:	200.8m	CLIENT	G.S.P. - U.S.G.S.
REGION	LAKHRA.		DEPTH LOGGED:	200m	GEOLOGIST	
PROJECT	COAL REAP.		COLLAR ELEV		UNIT OPERATOR	MEHTAB / MUJIB
PROSPECT			DIA. Sec FROM TO		UNIT NO	PL-1
SEC	TWP	RNG.	DIA. Caliper FROM TO		OFFICE	BOULDER COLORADO U.S.A.
			DIA. log FROM TO		ELECTRIC	
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.	TYPE	RESIST
LOGGED DEPTH	198m	200m	FLUID LEVEL	10m	LOGGED DEPTH	FT.
RANGE (I.S.)	200	500	CASING DATA		SCALE	FT.
%STD DEV	10%	3%	WALL SIZE	1/4"	PAPER SPEED	
PAPER SPEED	1-1	1-1	I.D.	4"	LOG SPEED	
LOG SPEED	6-1	6-1	CASED FROM	0 TO 67m	FINE ADJ	
BKGND. COUNT			CASING TYPE		CALIPER	
PROBE NO.	6N-1	6N-1	SAMPLE DATA		LOGGED DEPTH	FT.
SIZE (dia)	1 3/8"	1 3/8"	NON-CORED HOLE <input type="checkbox"/>	CORED HOLE <input checked="" type="checkbox"/>	SCALE	
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE	PAPER SPEED	
DEAD TIME	2	2	REMARKS		LOG SPEED	
STANDARD			Logged through drill pipe I.D. = 3" O.D. = 3 1/2"		ARM LENGTH	IN
DIGITAL DATA					MAX DEF	IN
PRINT INTERVAL					VERTICAL DEV.	
TIMEBASE					DEPTH	
DENSITY CALIBRATION					INCLIN.	
ALUMINUM					BEARING	
LUCITE						



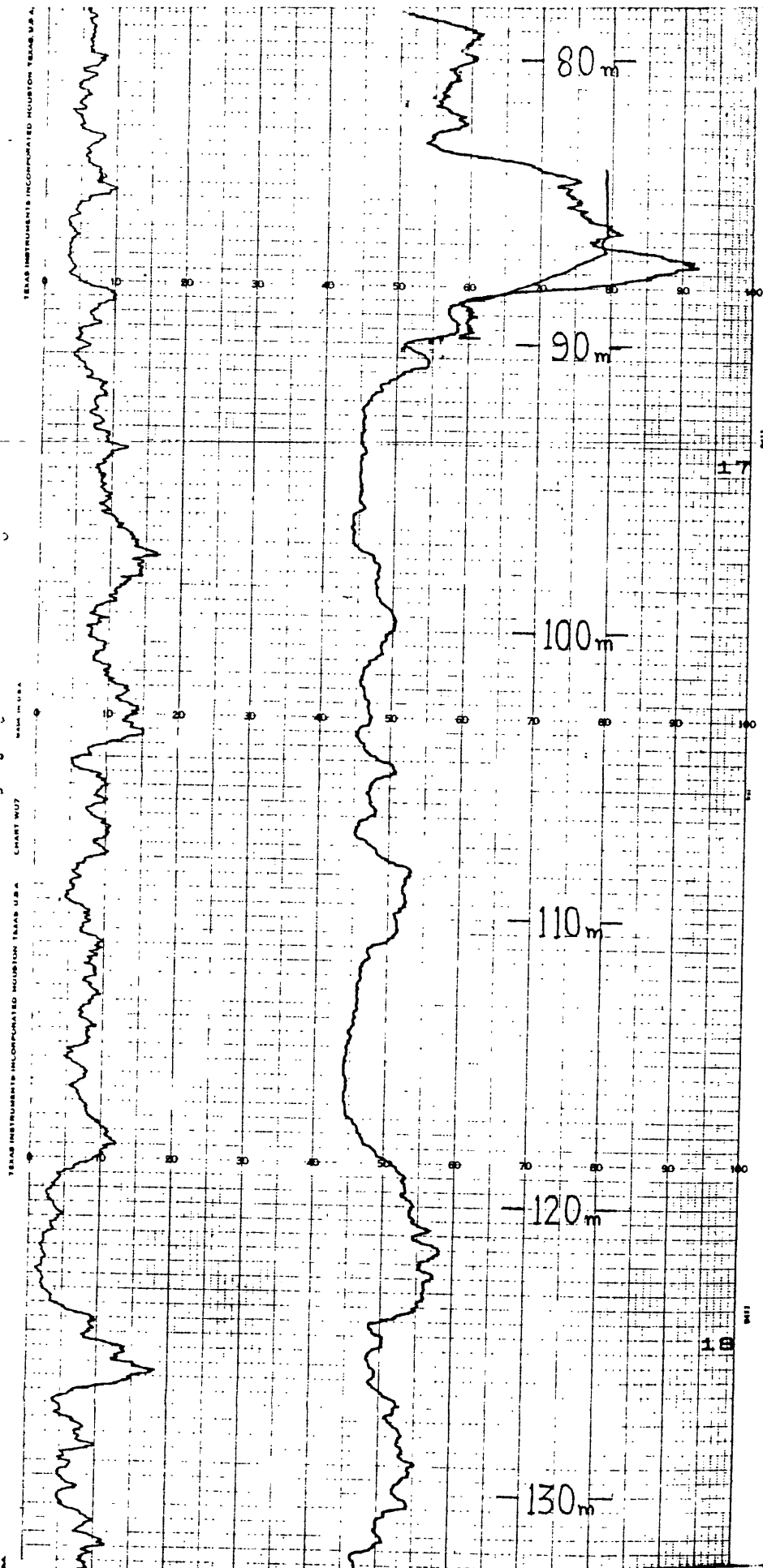
UAL-6

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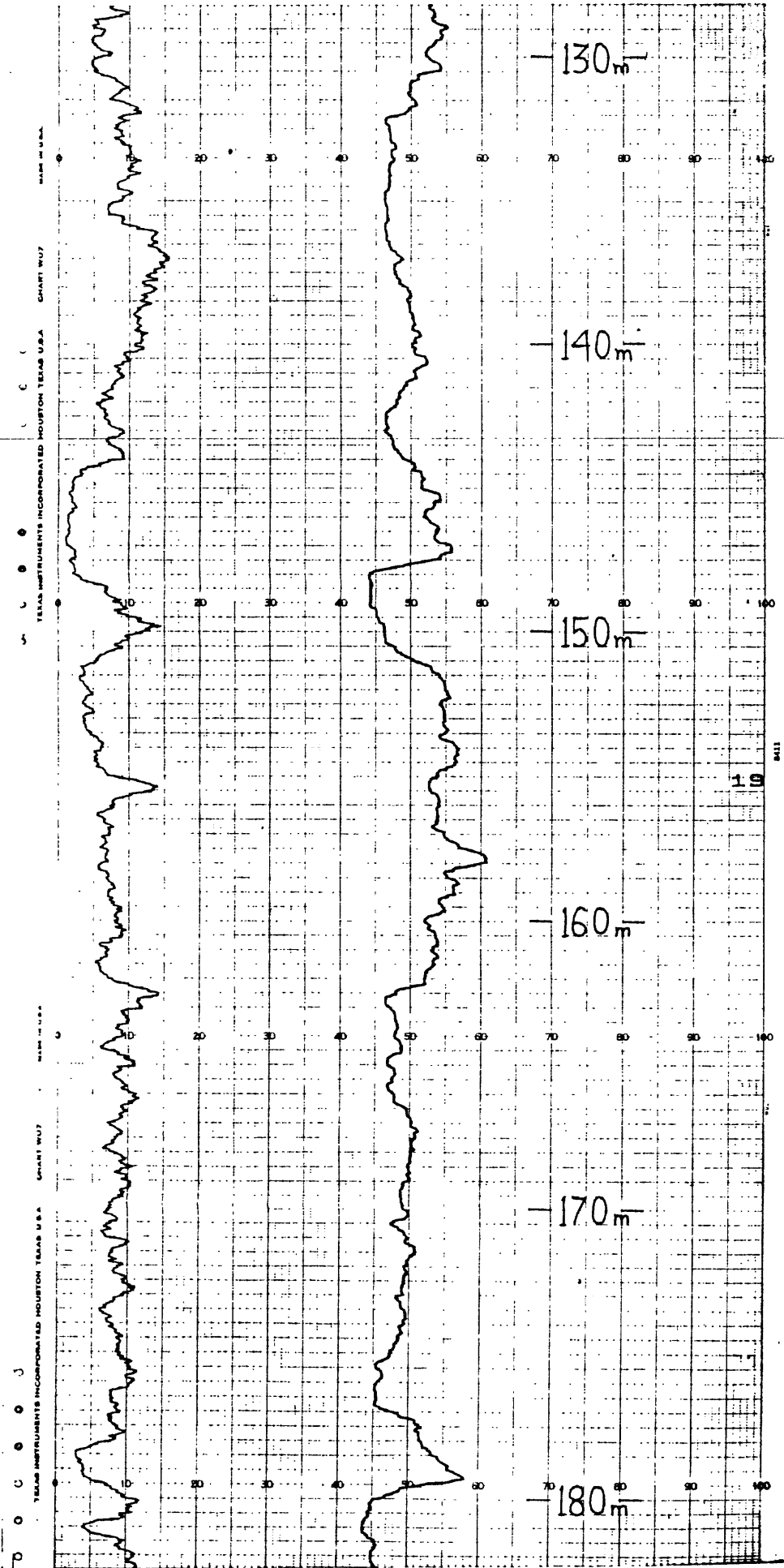
UAL-6

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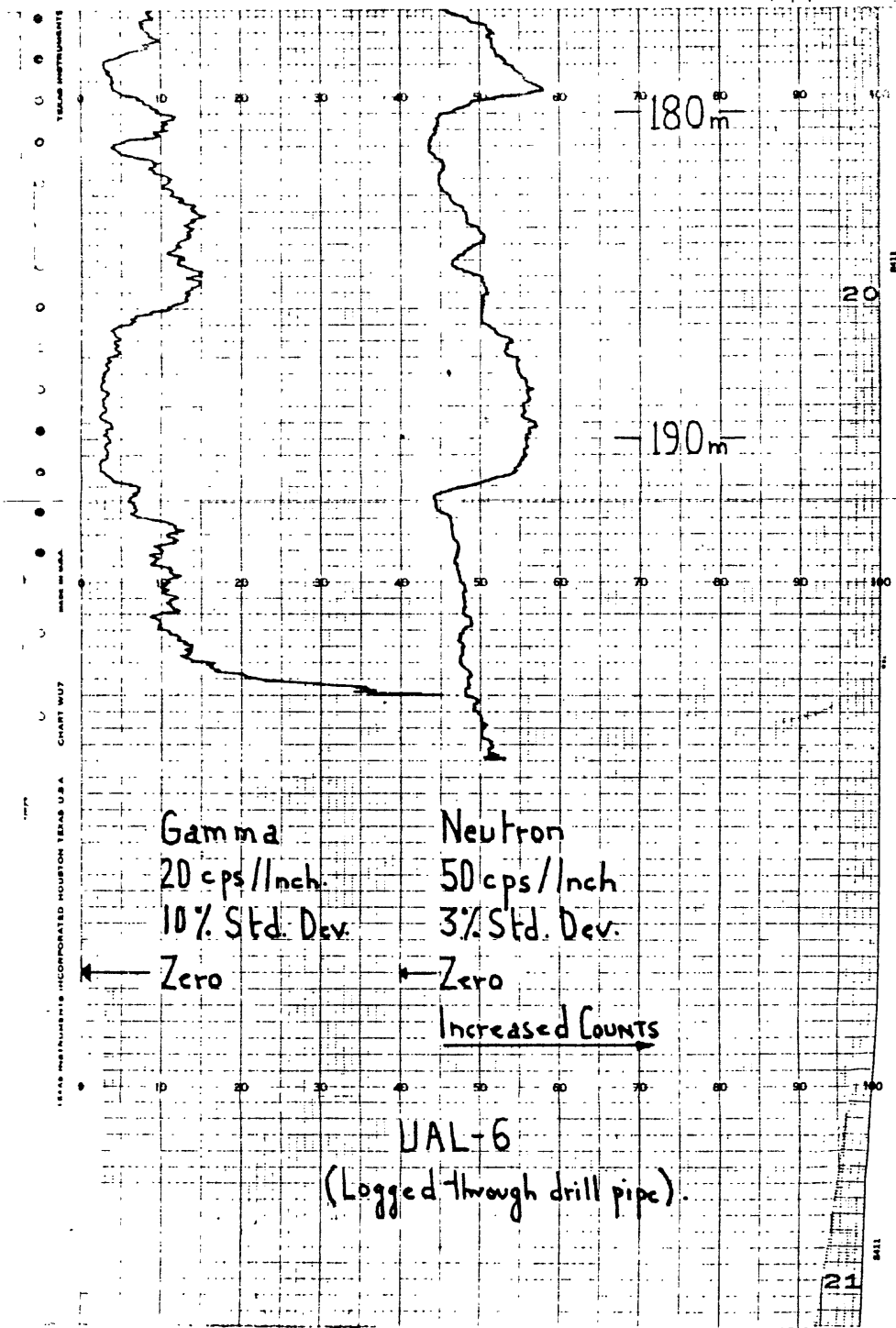
UAL-6

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DRILL HOLE UAL-8



# GEOSCIENCE ASSOCIATES

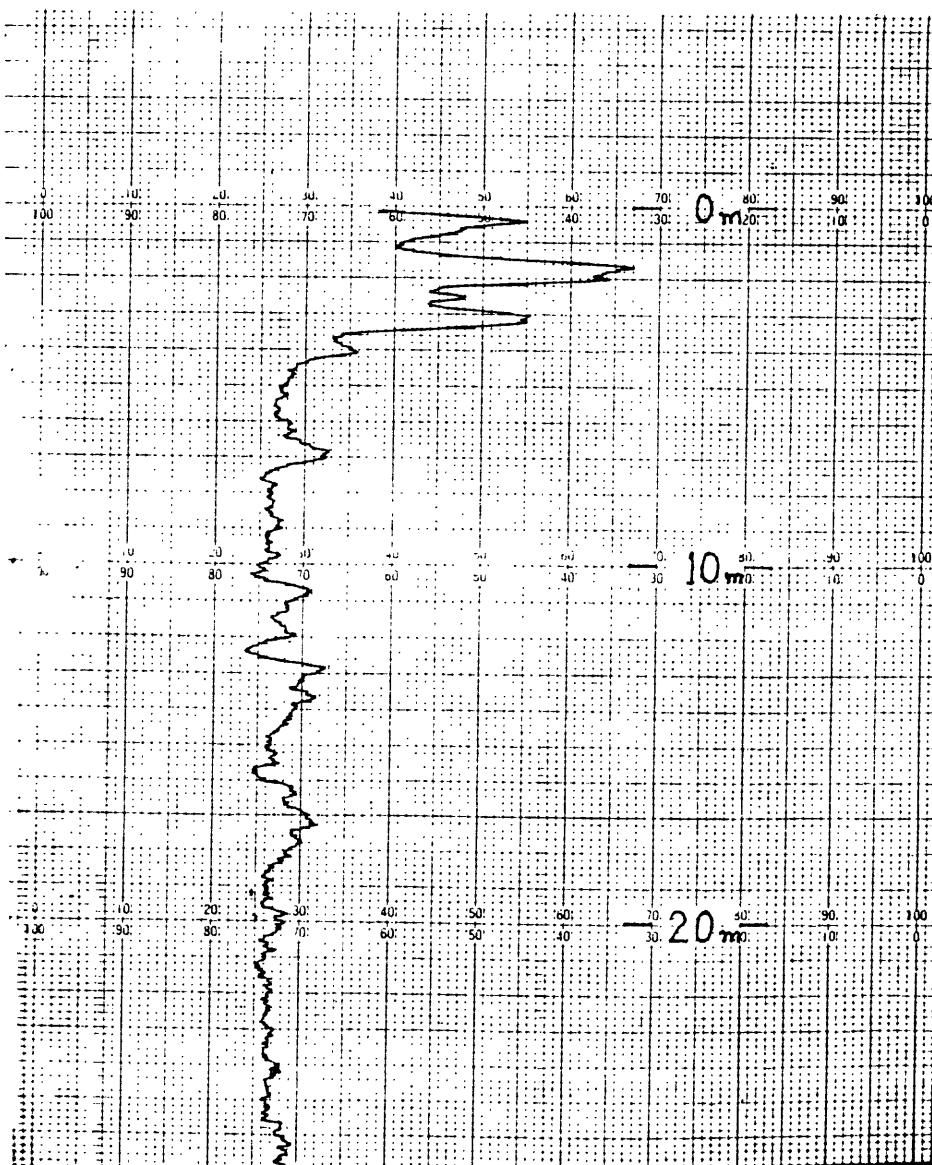
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HOLE NUMBER:

UAL-8

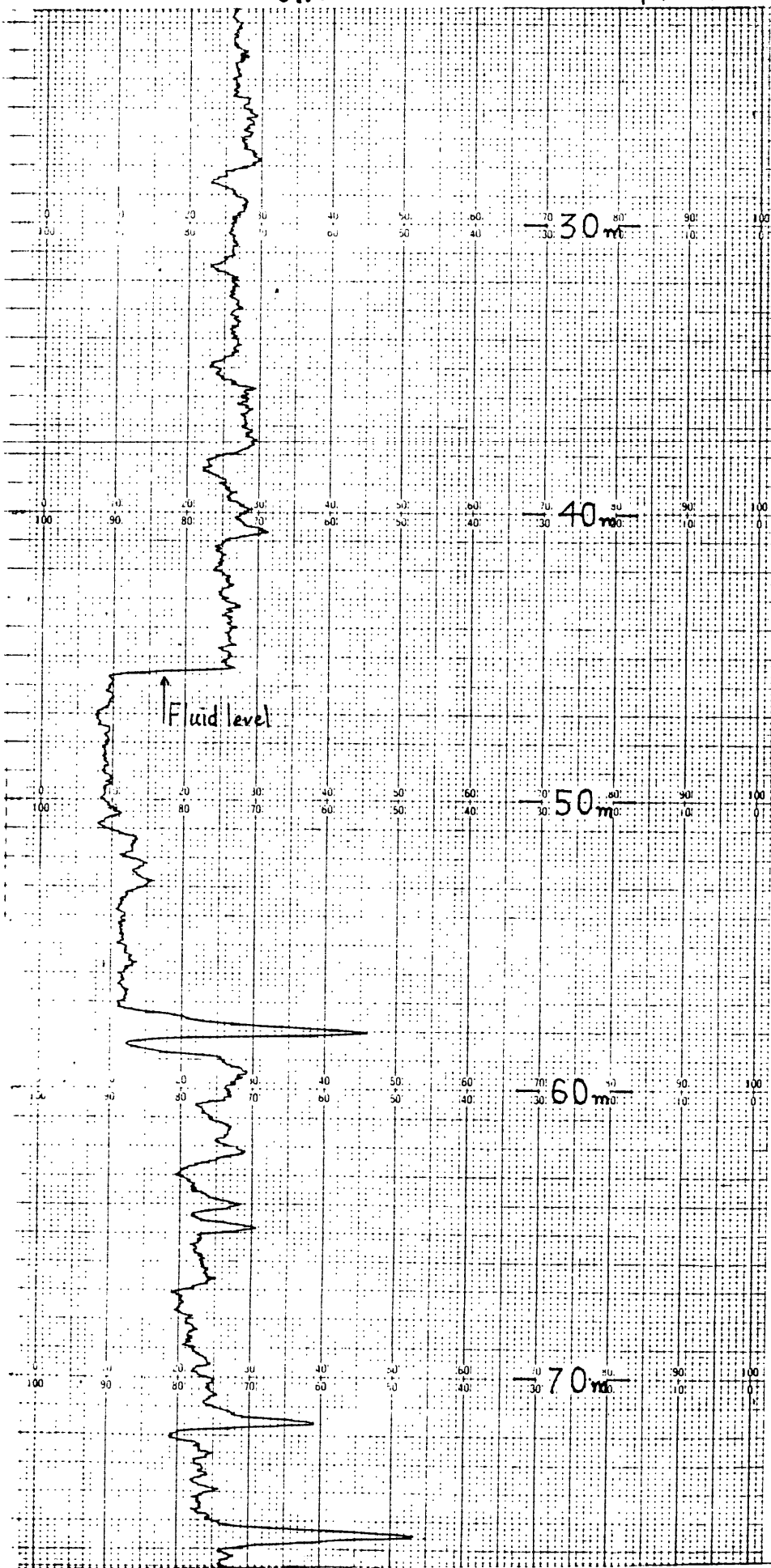
DATE: 23rd October, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind	PAKISTAN	DEPTH DRILLED	171.7 m		CLIENT	G.S.P. - U.S.G.S.	
REGION	LAKHRA		DEPTH LOGGED	169 m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV					
PROSPECT			DIA	See	FROM TO	UNIT OPERATOR	MUJIB/MENTAB	
SEC	TWP	RNG	DIA	Caliber	FROM TO	UNIT NO	PL-2	OFFICE
			DIA	log	FROM TO	BOULDER COLORADO	U.S.A.	
TYPE	GAM	4 P Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		ELECTRIC		
LOGGED DEPTH		169 m	FLUID LEVEL	45.6 m		TYPE	RESIST	S P
RANGE (ft)		10K	CASING DATA			LOGGED DEPTH	FT	FT
STD DEV		1%	WALL SIZE			SCALE		
PAPER SPEED		1-1	ID			PAPER SPEED		
LOG SPEED		6-1	CASED FROM		TO	LOG SPEED		
BKGD. COUNT			CASING TYPE			FINE ADJ		
PROBE NO		60-1	SAMPLE DATA			CALIPER		
SIZE (dia)		13/8"	NON-CORED HOLE		CORED HOLE	LOGGED DEPTH	FT	
K-FACTOR			SAMPLED INTERVAL		SAMPLE TYPE	SCALE		
DEAD TIME		2	REMARKS			PAPER SPEED		
STANDARD			Open Hole			LOG SPEED		
DIGITAL DATA								
PRINT INTERVAL								
TIMEBASE								
DENSITY CALIBRATION						ARM LENGTH	IN	
ALUMINUM						MAX DEF	IN	
LUCITE						VERTICAL DEV.		
						DEPTH		
						INCLIN		
						BEARING		



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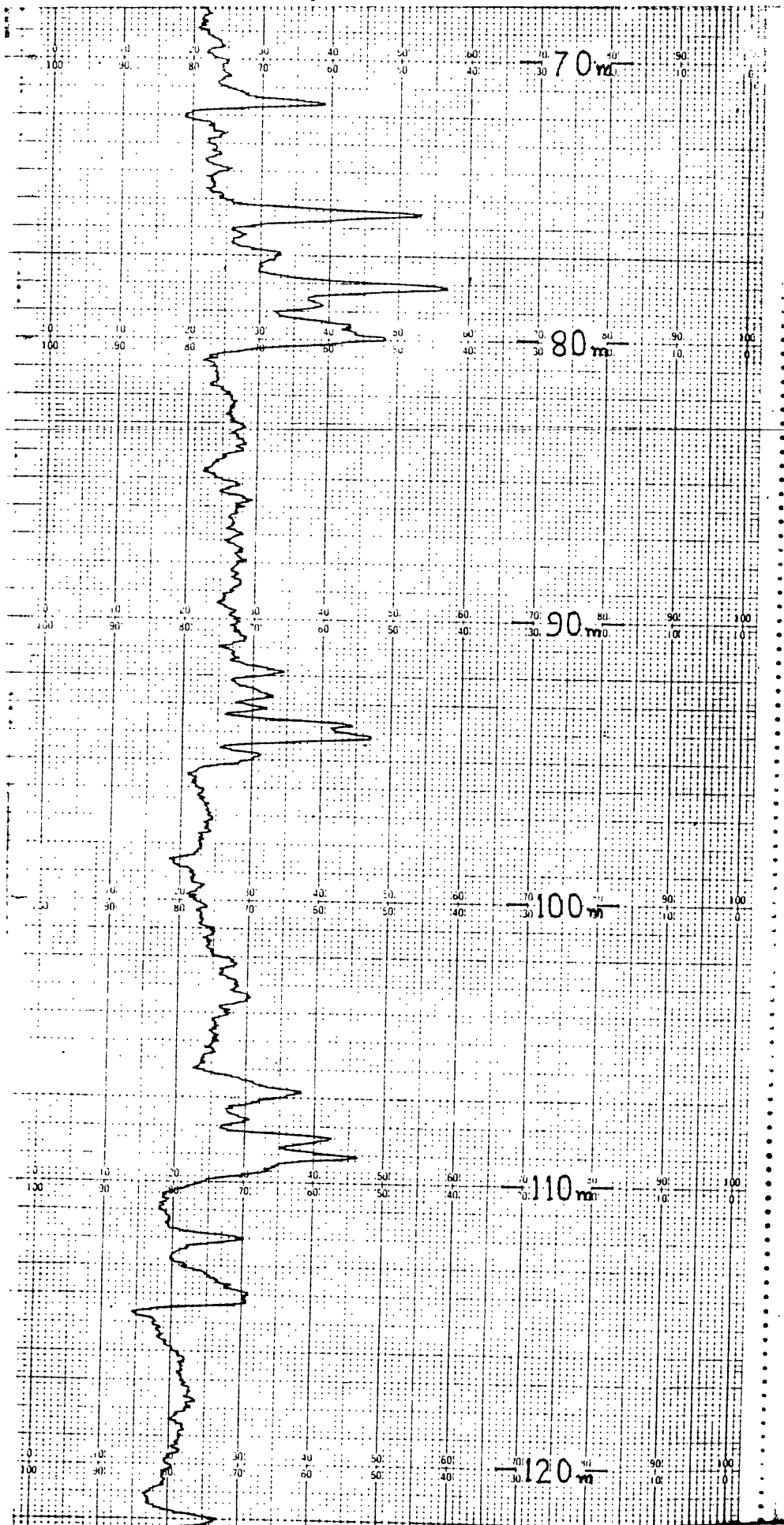
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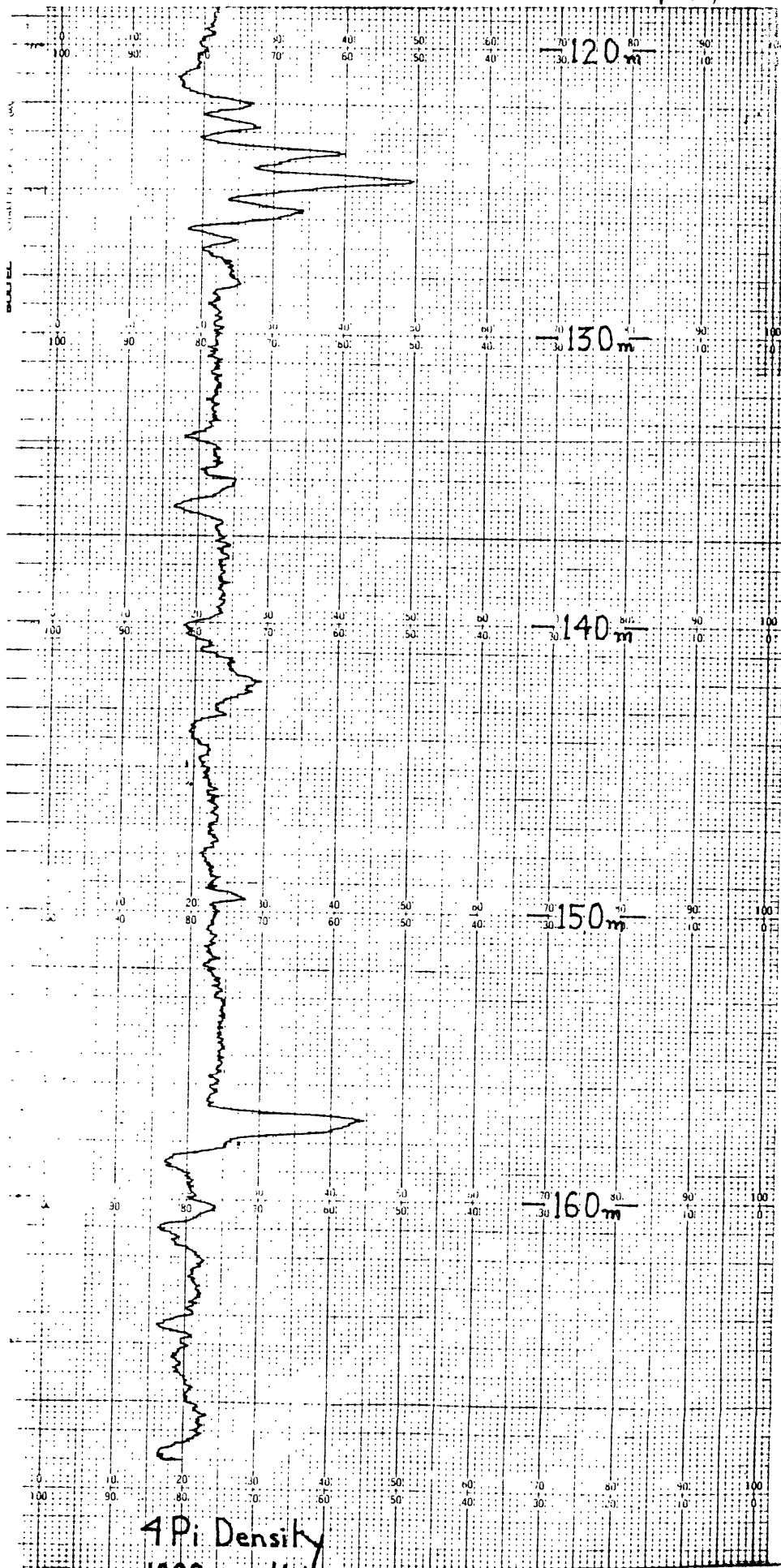
UAL-8

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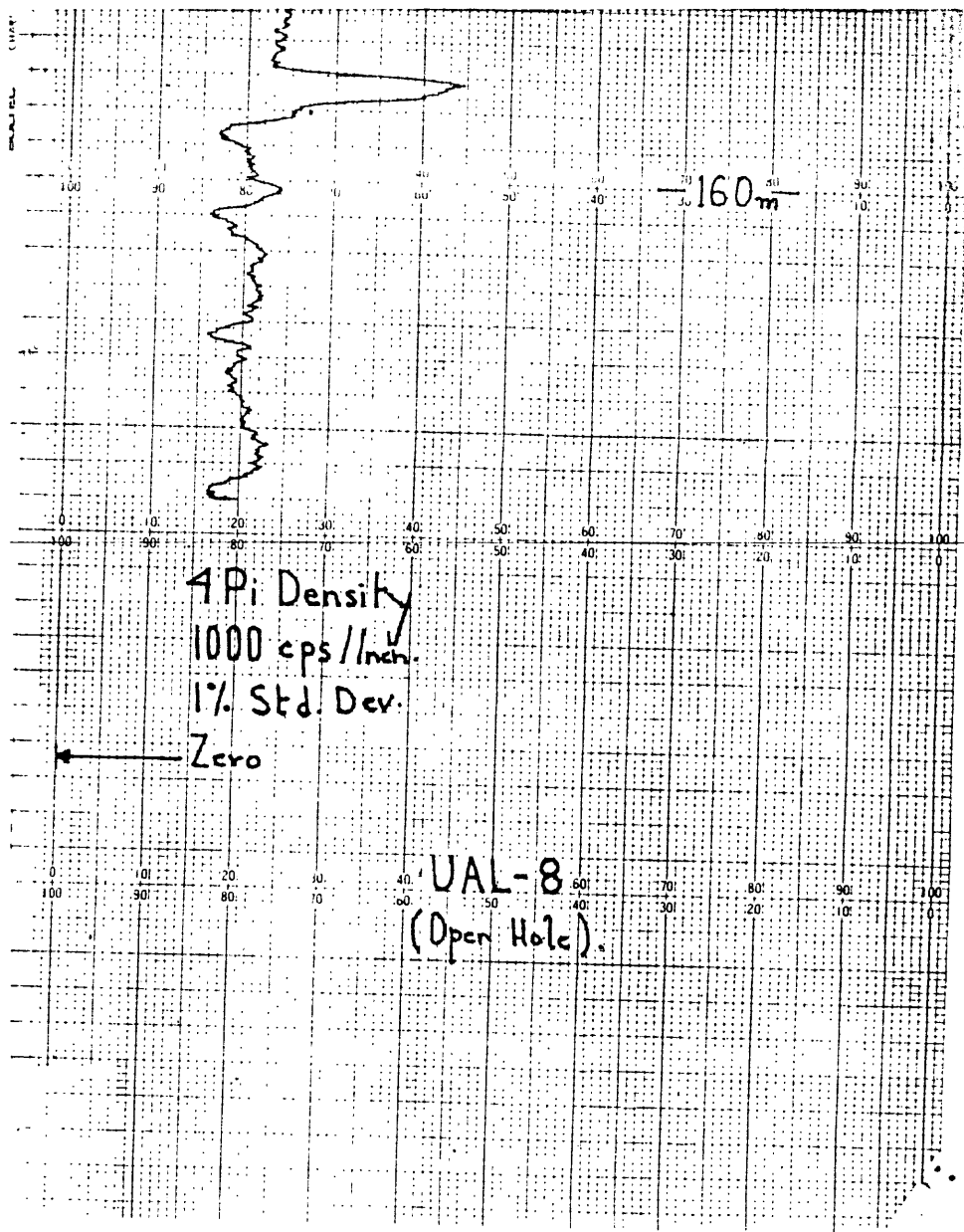
UAL-8

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# GEOSCIENCE ASSOCIATES

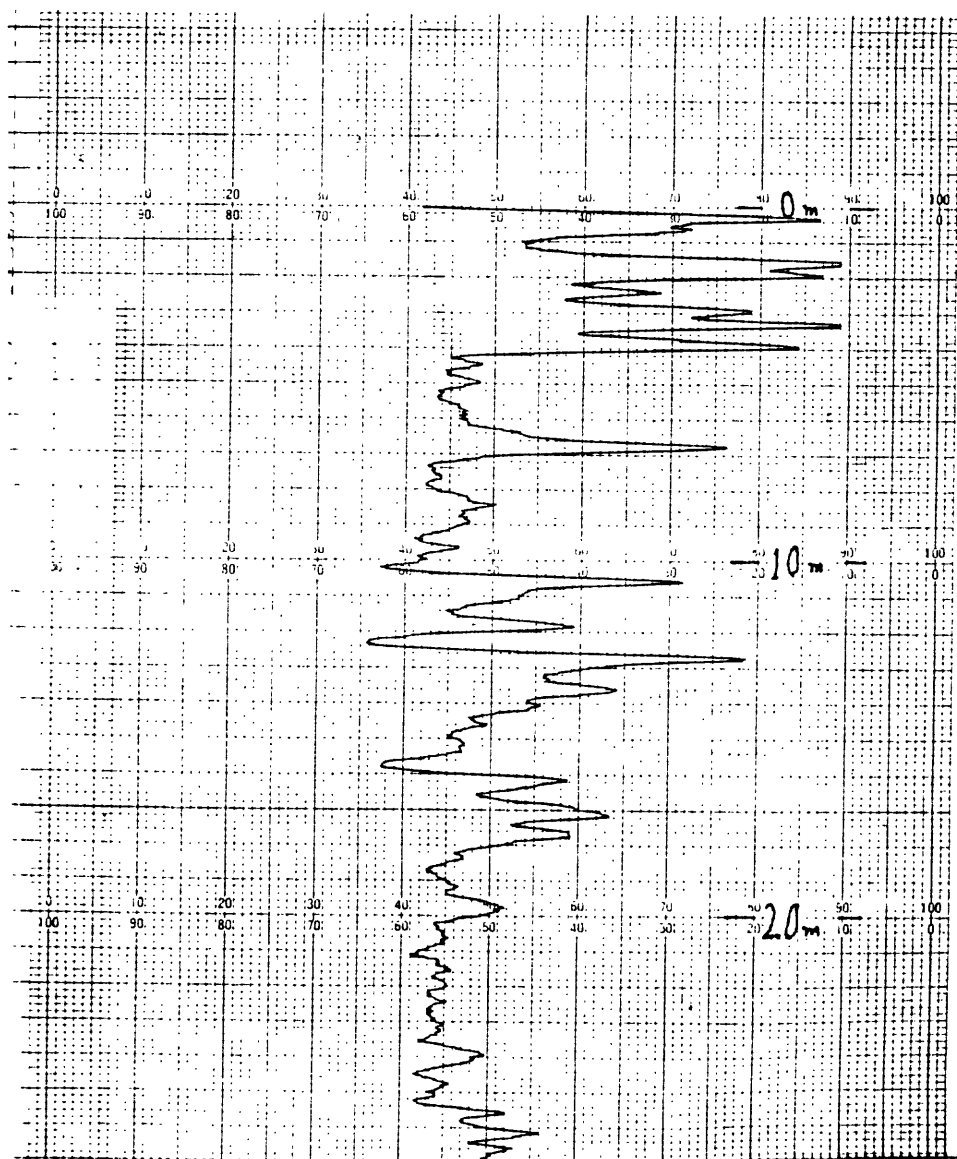
p.156

HOLE NUMBER:

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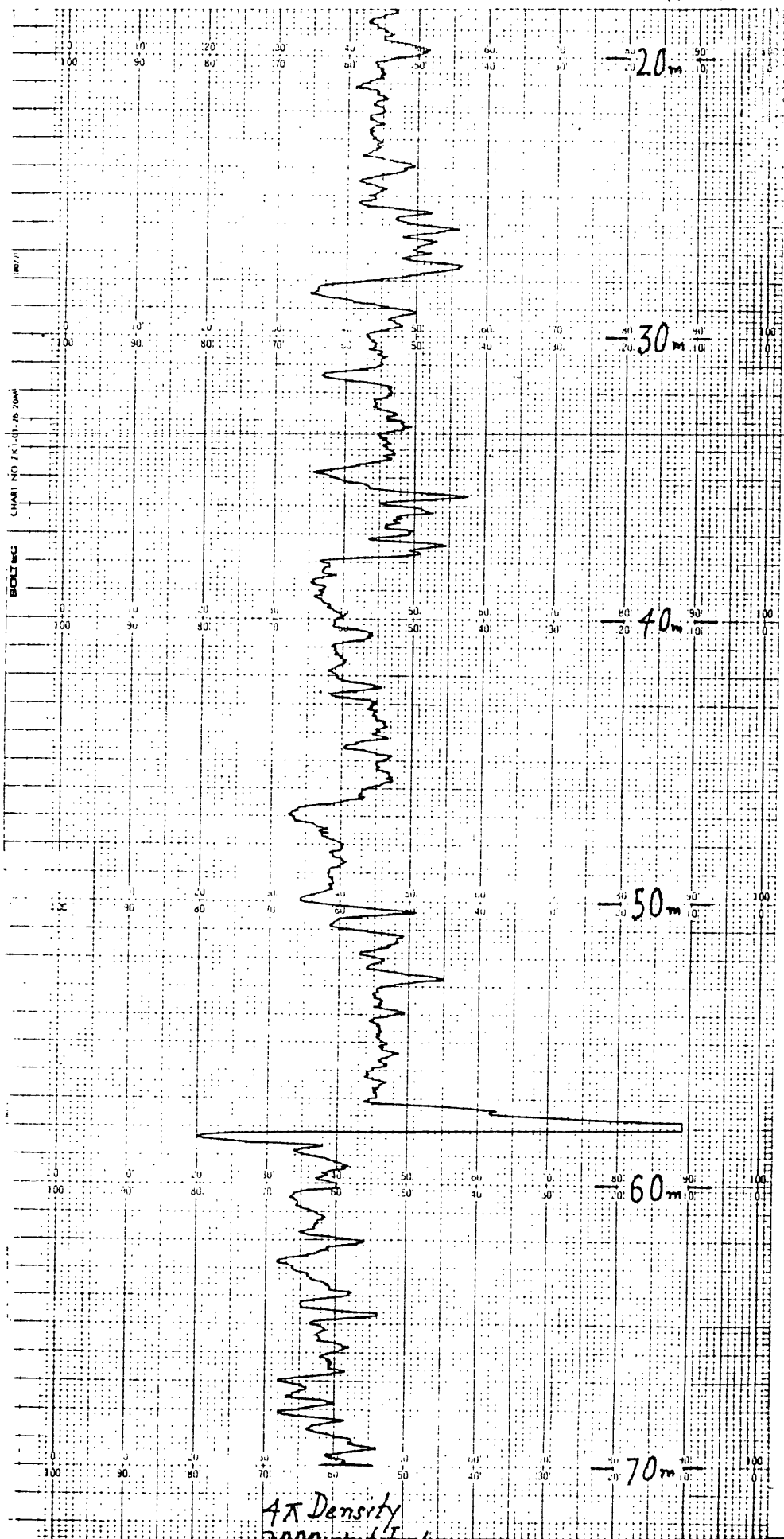
DATE: 24 OCTOBER 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh, PAKISTAN		DEPTH DRILLED	171.7m		CLIENT	G.S.P. - U.S.G.S.	
REGION	LAKHRA		DEPTH LOGGED	70 m		GEOLOGIST		
PROJECT	COAL REAP.		COLLAR ELEV			UNIT OPERATOR	ILYAS, MUJIB, MENTAB	
PROSPECT			DIA	Sec	FROM TO	UNIT NO	PL-2 OFFICE	
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER	COLORADO U.S.A.	
			DIA	103	FROM TO	ELECTRIC		
TYPE	GAM	4 P Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.		TYPE	RESIST	S.P.
LOGGED DEPTH		70 m	FLUID LEVEL			LOGGED DEPTH	FT	FT
RANGE (ft)		20%	CASING DATA			SCALE		
STD DEV		1%	WALL SIZE			PAPER SPEED		
PAPER SPEED		1-1	ID			LOG SPEED		
LOG SPEED		6-1	CASED FROM TO			FINE ADJ		
BKGD COUNT			CASING TYPE					
PROBE NO		60-1	SAMPLE DATA					
SIZE (dia.)		13/8"	NON-CORED HOLE	CORED HOLE				
K FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME		2						
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL			Open Hole			LOGGED DEPTH	PT	
TIMEBASE						SCALE	IN	
DENSITY CALIBRATION						PAPER SPEED	IN	
ALUMINUM						LOG SPEED	IN	
LUCITE						ARM LENGTH	IN	
						MAX DEF	IN	
						VERTICAL DEV.		
						DEPTH		
						INCLIN		
						BEARING		



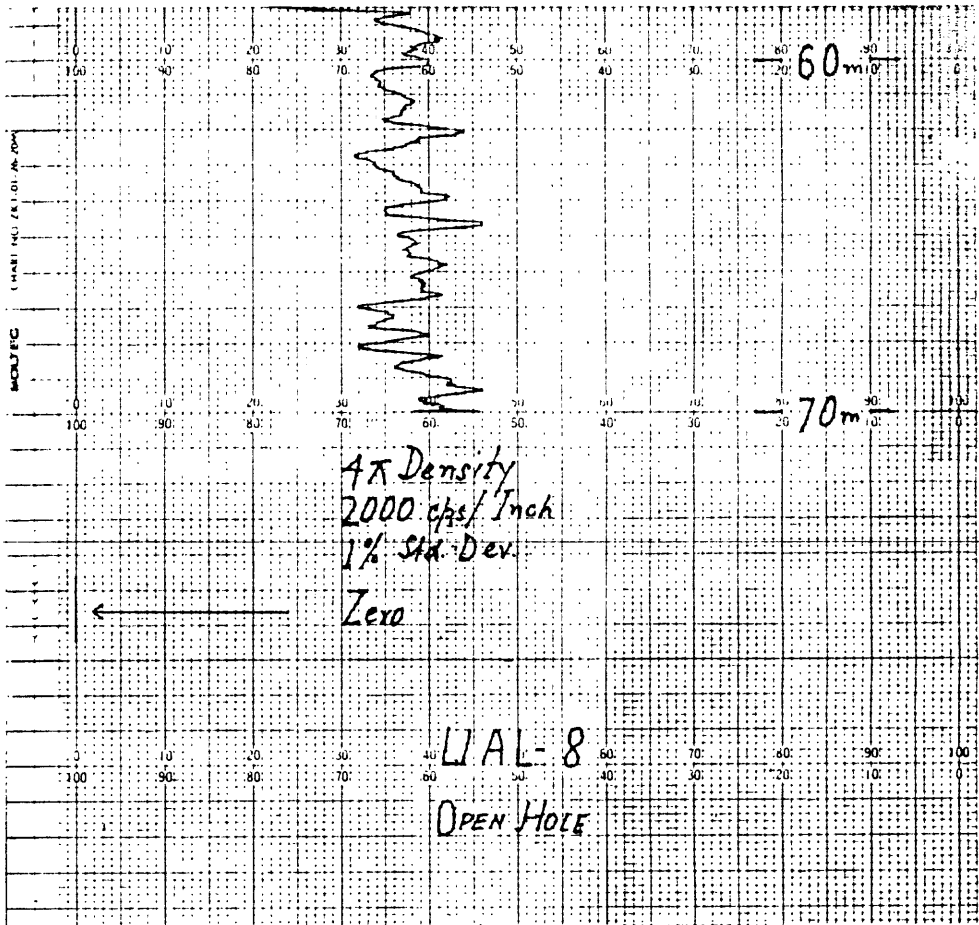
UAL-8

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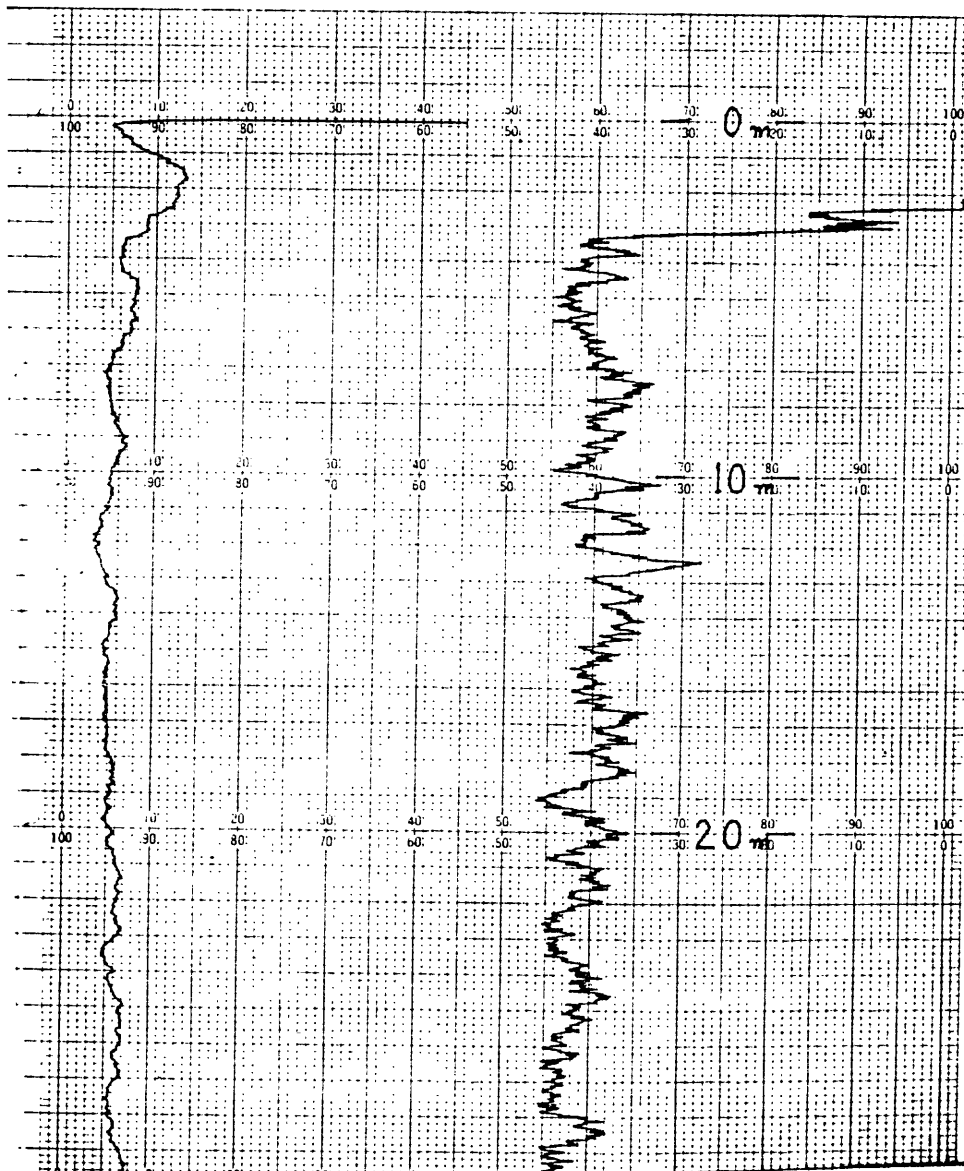
# GEOSCIENCE ASSOCIATES

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HOLE NUMBER: UAL-8

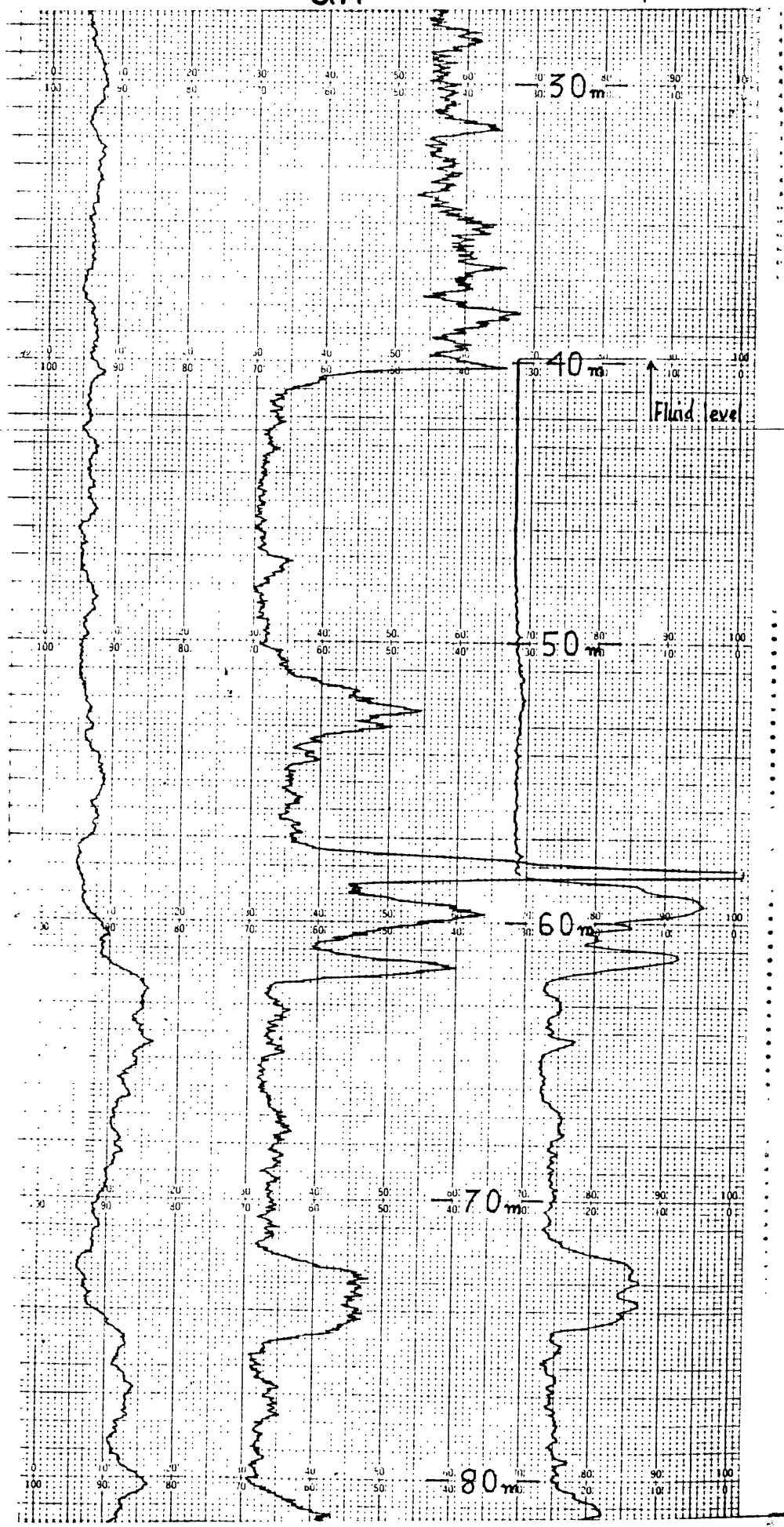
DATE: 23<sup>rd</sup> OCTOBER 1986

LOCATION			HOLE DATA		CLIENT		
STATE/COUNTY	Sind PAKISTAN		DEPTH DRILLED	171.7 m	CLIENT	G.S.P. - U.S.G.S.	
REGION	LAKHRA		DEPTH LOGGED	170 m	GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV		UNIT OPERATOR	MUJIB/NEHTAB	
PROSPECT			DIA	Sec FROM TO	UNIT NO	PL-2 OFFICE	
SEC	TWP	RNG	DIA	Caliper FROM TO	BOULDER	COLORADO U.S.A.	
TYPE	GAM	Neutron	DIA	log FROM TO	ELECTRIC		
LOGGED DEPTH	168 m	170 m	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud			
RANGE (ft)	200	2K	FLUID LEVEL	39.8 m			
STD DEV	3%	3%	CASING DATA				
PAPER SPEED	1-1	1-1	WALL SIZE		TYPE	RESIST	
LOG SPEED	6-1	6-1	ID		LOGGED DEPTH	168 m	
BKGD. COUNT			CASED FROM	TO	SCALE	10	
PROBE NO	6N-1	6N-1	CASING TYPE		PAPER SPEED	1-1	
SIZE (dia)	1 3/4"	1 3/4"	SAMPLE DATA			LOG SPEED	6-1
K-FACTOR			NON-CORED HOLE	CORED HOLE	FINE ADJ	200 gals.	
DEAD TIME	2	2	SAMPLED INTERVAL	SAMPLE TYPE			
STANDARD							
DIGITAL DATA			REMARKS				
PRINT INTERVAL			Open Hole				
TIMEBASE							
DENSITY CALIBRATION							
ALUMINUM							
LUCITE							



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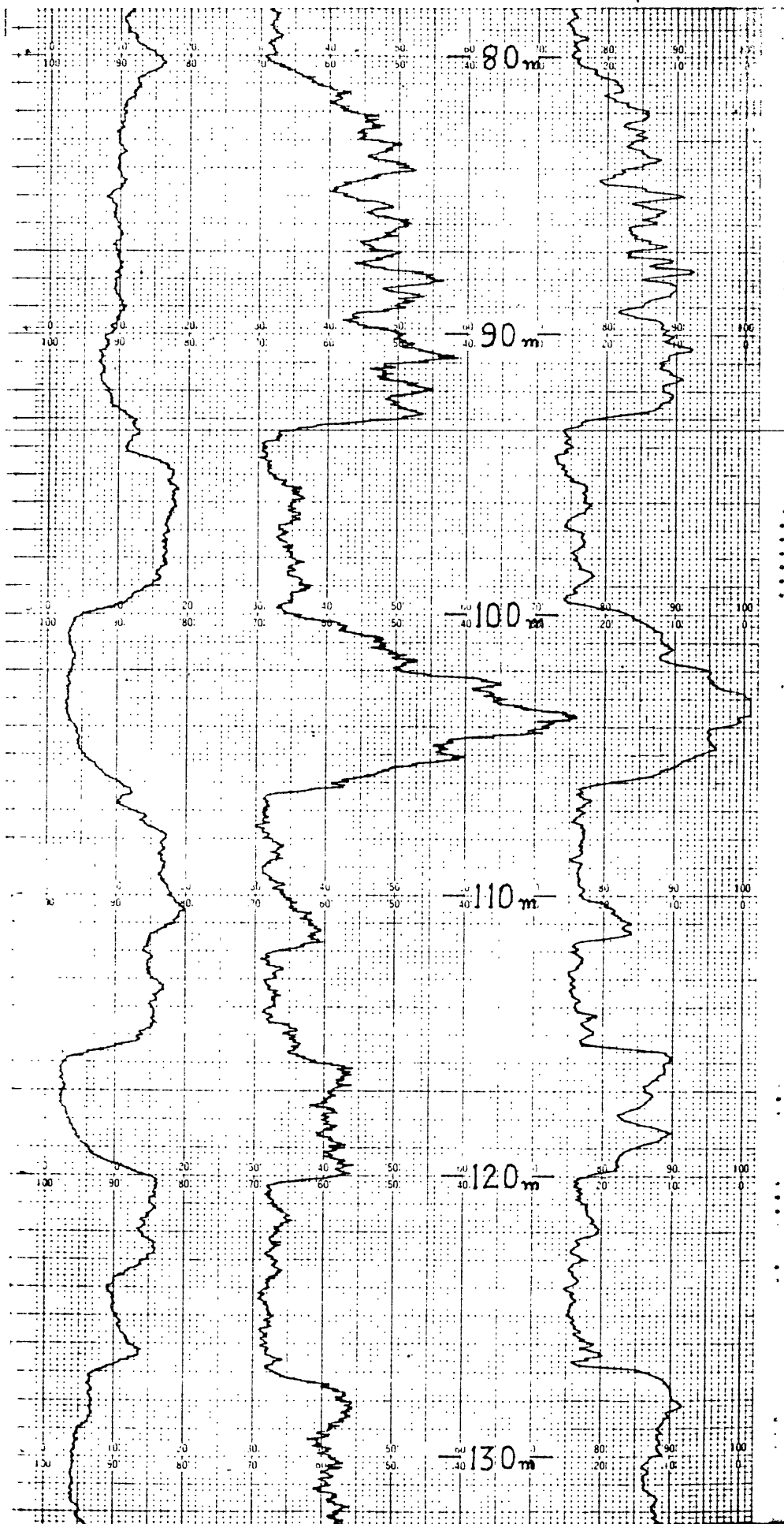
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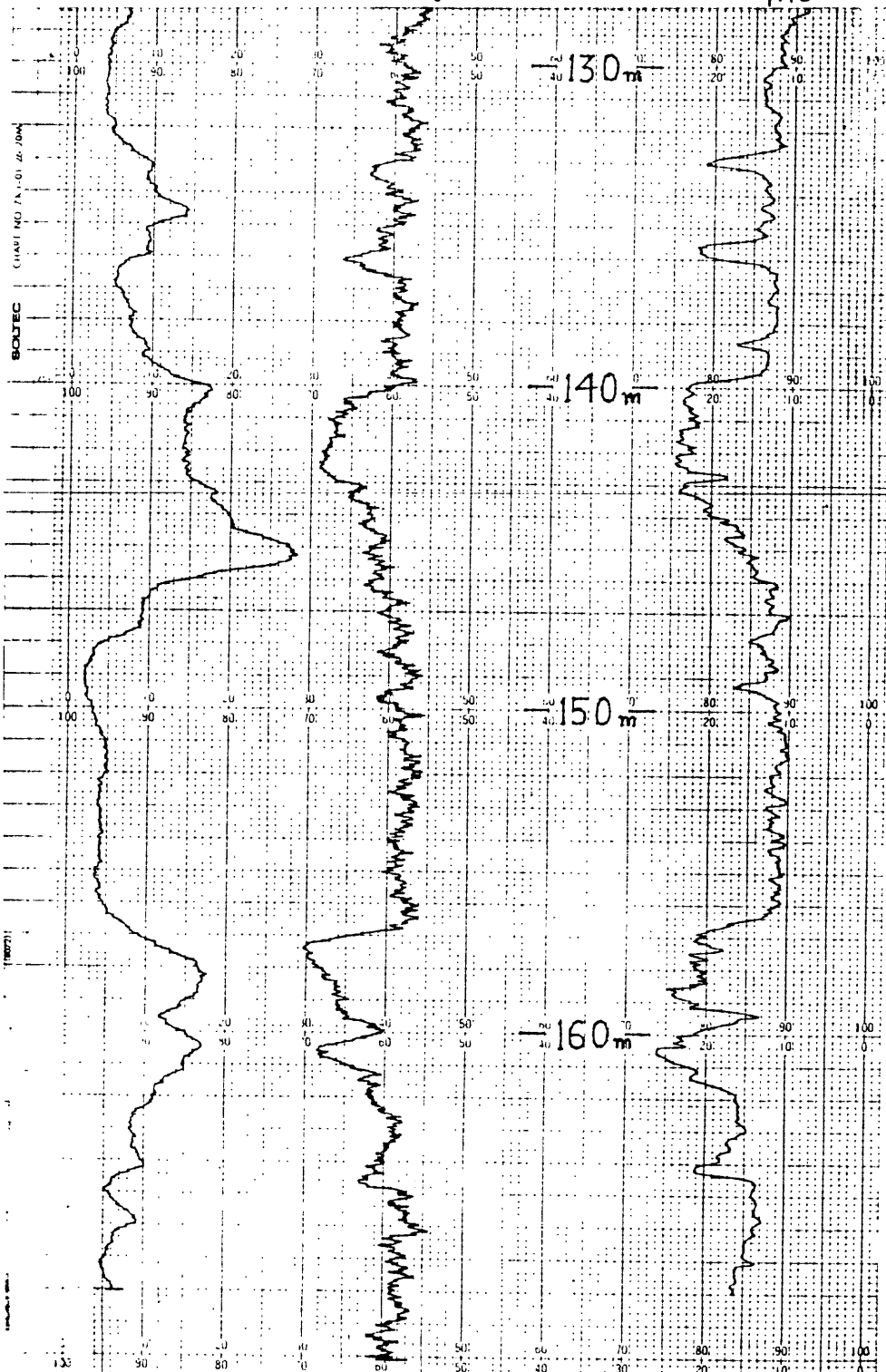
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Gamma  
20 cps / inch  
3% Std. Dev

Neutron  
200 cps / inch  
3% Std. Dev

Resistivity  
10  $\Omega$  / inch  
200 Bias.

Zero

Zero

Increased Counts

UAL-8  
(Open Hole)



# GEOSCIENCE ASSOCIATES

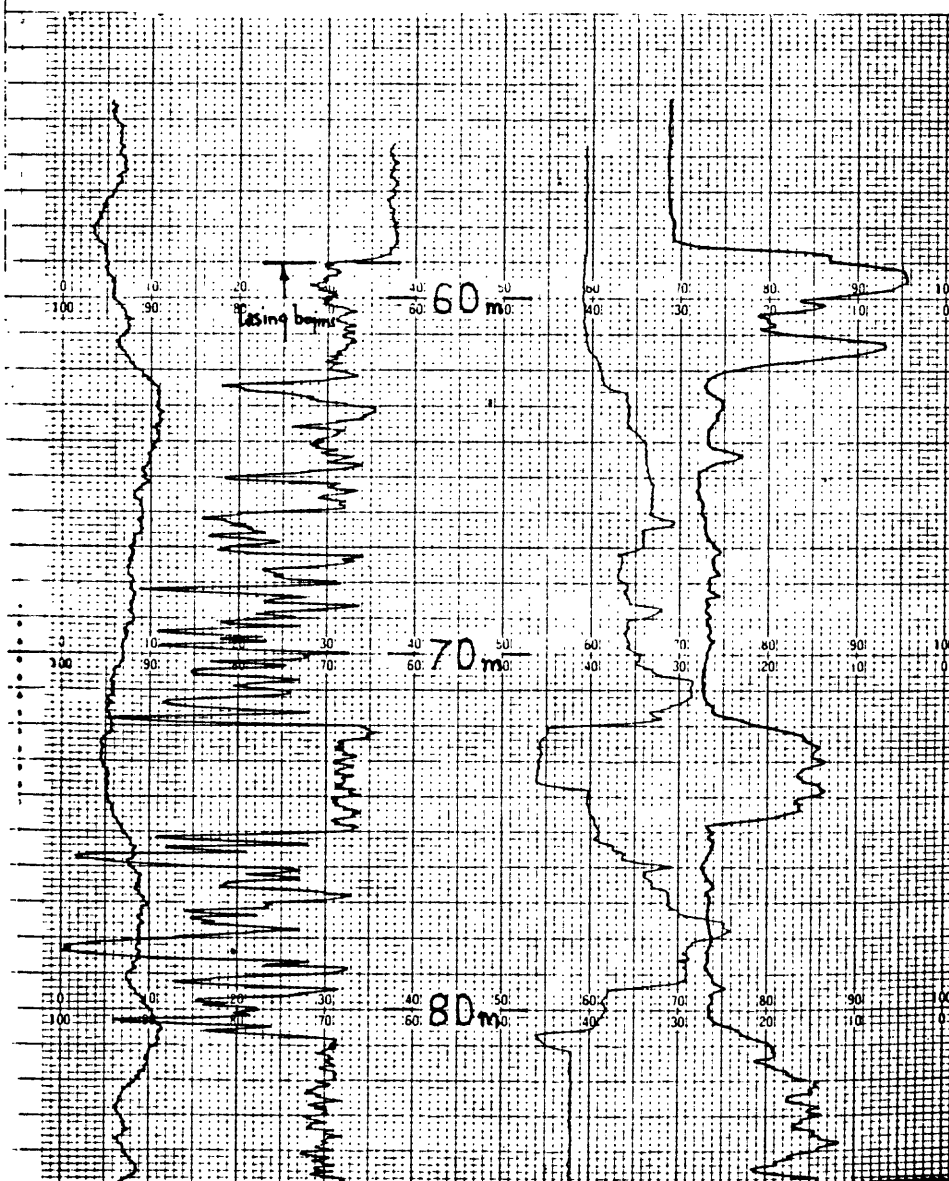
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HOLE NUMBER:

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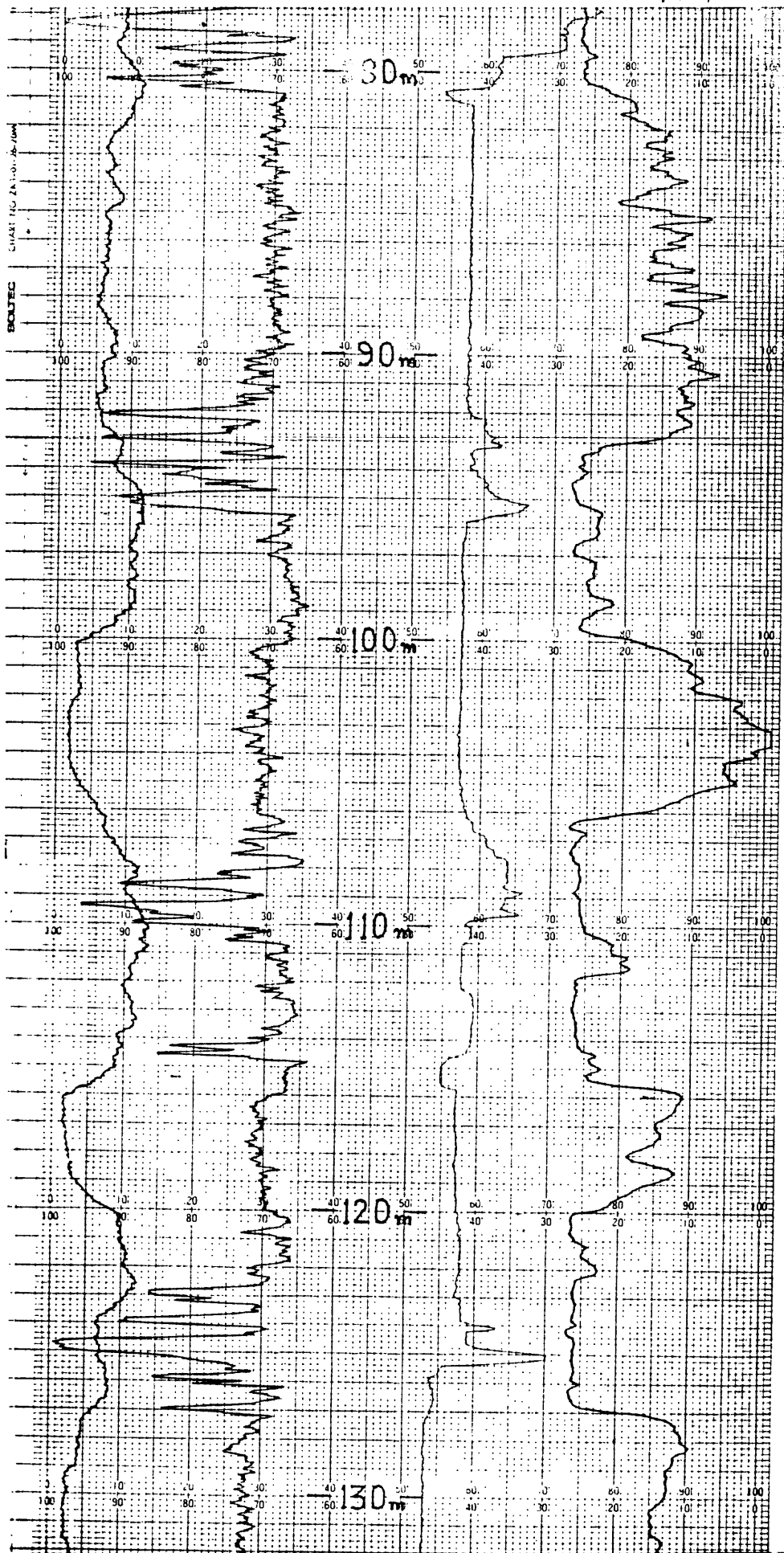
DATE: 23rd OCTOBER, 1986.

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	SIND. PAKISTAN		DEPTH DRILLED	171.7 m		CLIENT	G.S.P. - U.S.G.S.	
REGION	LAKHRA		DEPTH LOGGED	169 m		GEOLOGIST		
PROJECT	COAL REAP.		COLLAR ELEV			UNIT OPERATOR	MENTAG / MUJIB	
PROSPECT			DIA	Sec	FROM TO	UNIT NO	PL-2	OFFICE
SEC	TWP.	RNG.	DIA	Caliper	FROM TO	BOULDER	COLORADO	U.S.A.
			DIA	Log	FROM TO	ELECTRIC		
			BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
TYPE	GAM	HRD	FLUID LEVEL			LOGGED DEPTH	168 ft	FT
LOGGED DEPTH	168 m	169 m	WALL SIZE			SCALE	10	IN
RANGE (ft.)	200	200	I.D.			PAPER SPEED	1-1	IN
%STD DEV	3 1/2	1 1/2	CASED FROM	TO		LOG SPEED	3-1	IN
PAPER SPEED	1-1	1-1	CASING TYPE			FINE ADJ	200 Gals	
LOG SPEED	3-1	3-1	SAMPLE DATA					
BKGND. COUNT			NON-CORED HOLE	<input type="checkbox"/>	CORED HOLE	<input checked="" type="checkbox"/>		
PROBE NO	HRD-1	HRD-1	SAMPLED INTERVAL	SAMPLE TYPE				
SIZE (dia.)	2	2	REMARKS					
K-FACTOR								
DEAD TIME	2	2						
STANDARD								
DIGITAL DATA								
PRINT INTERVAL								
TIMEBASE								
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								
			CALIPER					
			LOGGED DEPTH 169 m.					
			SCALE 1" Deflection = 2" Dia.					
			PAPER SPEED 1-1					
			LOG SPEED 3-1					
			ARM LENGTH 30 IN					
			MAX DEF. 7 IN					
			VERTICAL DEV.					
			DEPTH					
			INCLIN					
			BEARING					



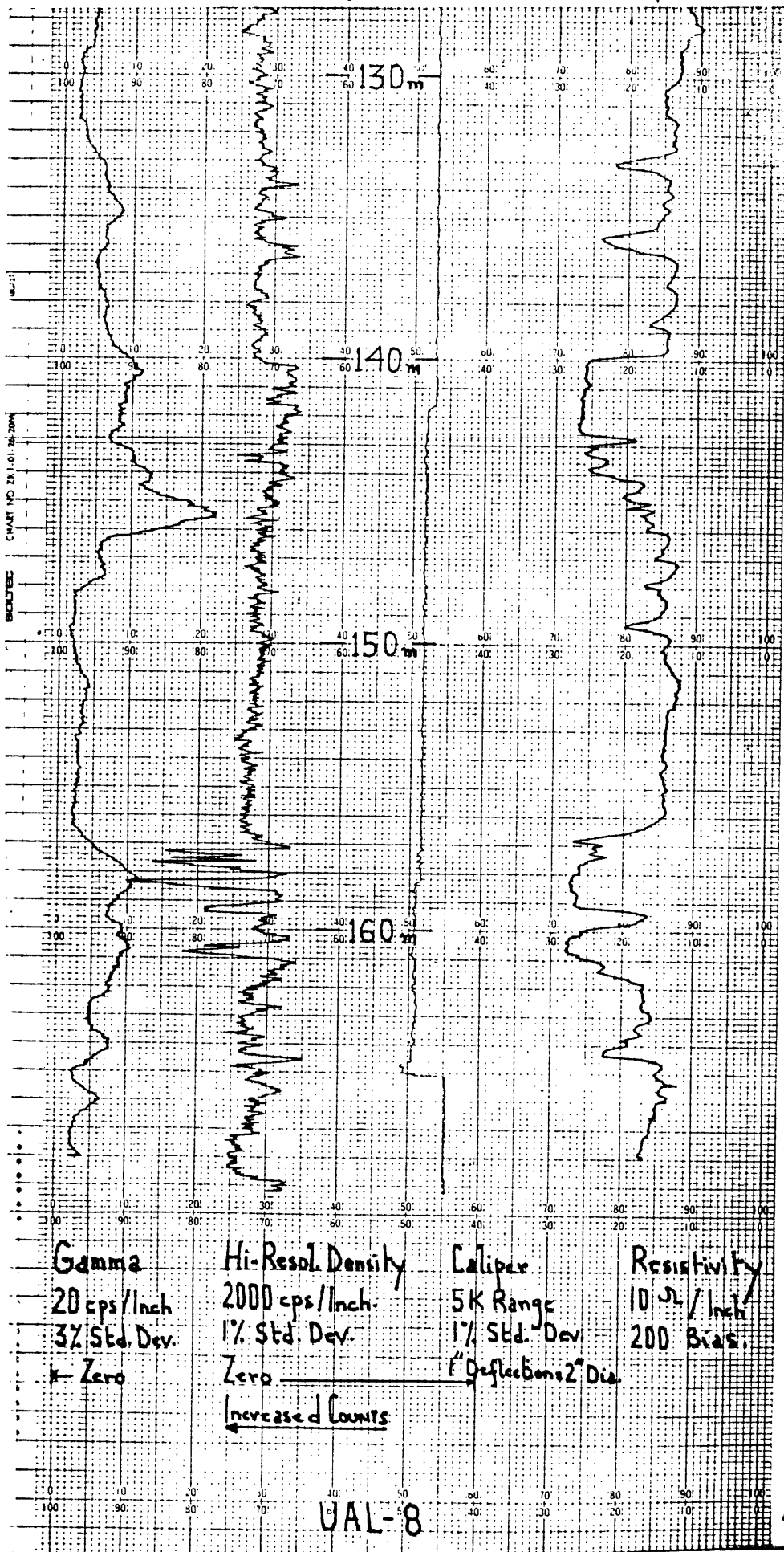
U1A2-8

8.164



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# GEOSCIENCE ASSOCIATES

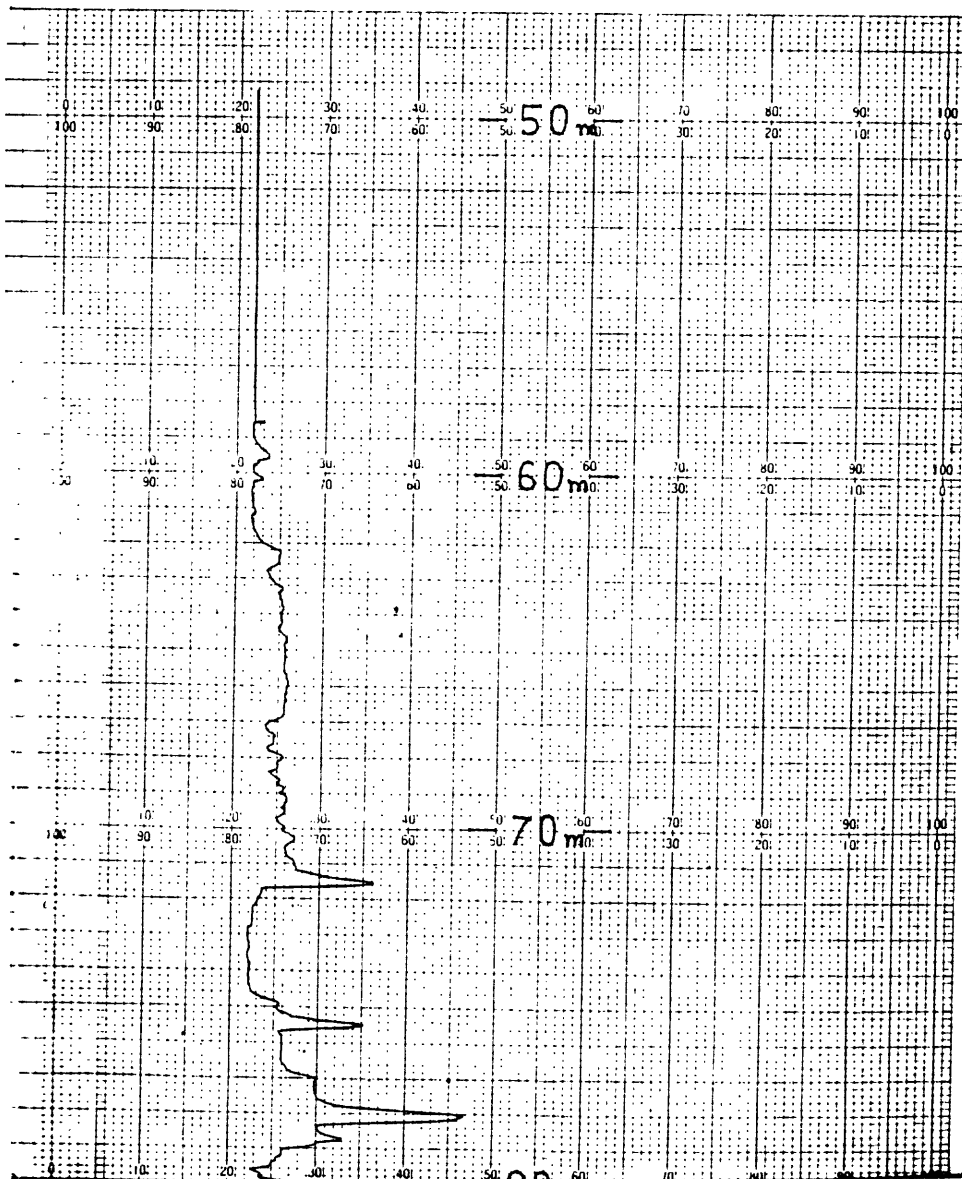
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HOLE NUMBER:

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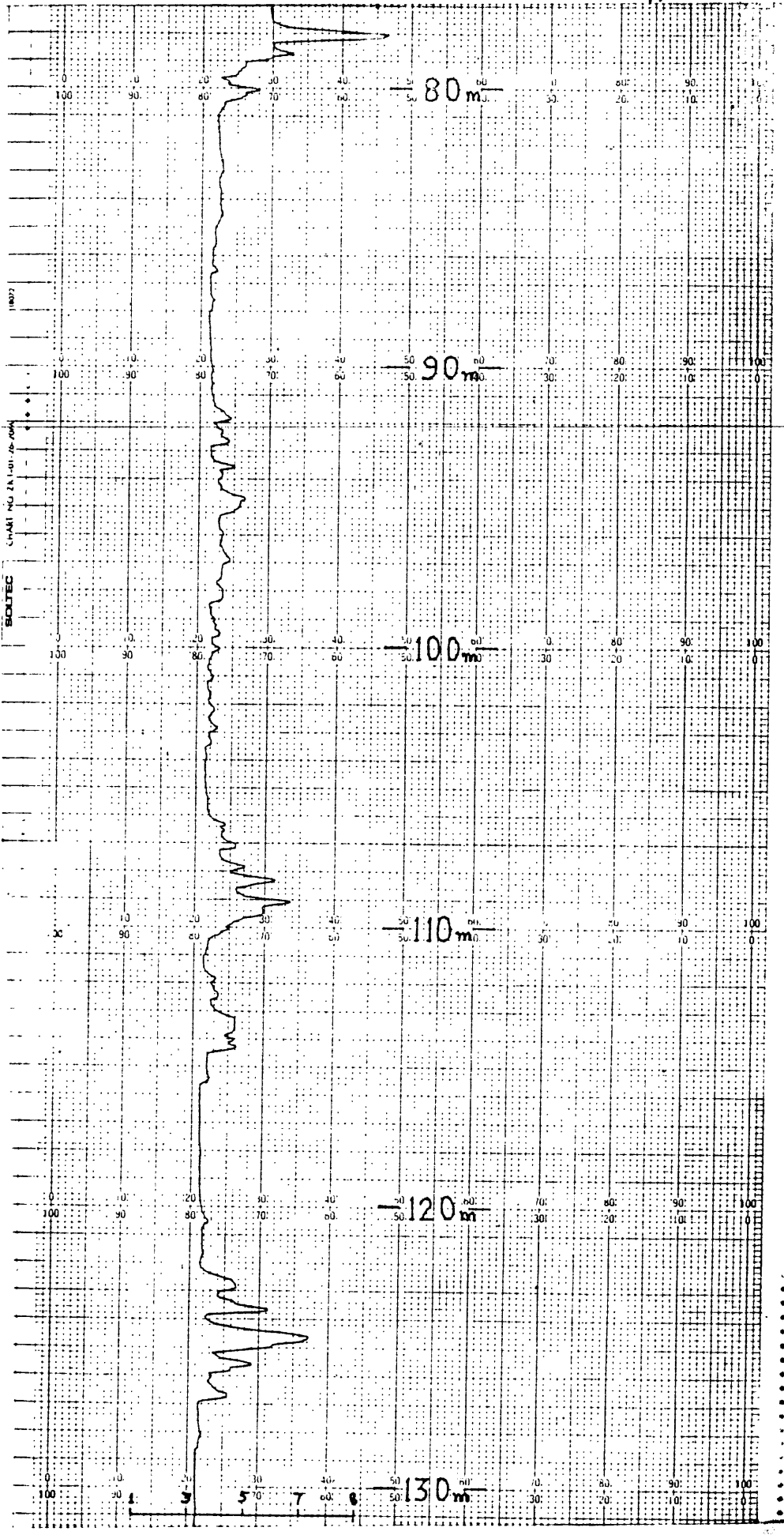
DATE: 23rd OCTOBER, 1986.

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY <u>Sind. PAKISTAN</u>				DEPTH DRILLED <u>171.7 m</u>				CLIENT <u>G.S.P. - U.S.G.S.</u>			
REGION <u>LAKHRA</u>				DEPTH LOGGED <u>170 m</u>				GEOLOGIST			
PROJECT <u>COAL REAP</u>				COLLAR ELEV				UNIT OPERATOR <u>MEHTAB/MUJIB</u>			
PROSPECT				DIA <u>Sec</u> FROM TO				UNIT NO <u>PL-2</u> OFFICE			
SEC. TWP RNG				DIA <u>Caliper</u> FROM TO				<u>BOULDER COLORADO U.S.A.</u>			
				DIA <u>102</u> FROM TO				ELECTRIC			
TYPE				BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>				TYPE			
LOGGED DEPTH				FLUID LEVEL				RESIST			
RANGE (1 ft)				CASING DATA				S.P.			
%STD DEV				WALL SIZE				LOGGED DEPTH			
PAPER SPEED				I D				FT.			
LOG SPEED				CASED FROM TO				SCALE			
BKGND COUNT				CASING TYPE				PAPER SPEED			
PROBE NO				SAMPLE DATA				LOG SPEED			
SIZE (dia)				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>				FINE ADJ			
K-FACTOR				SAMPLED INTERVAL							
DEAD TIME				SAMPLE TYPE							
STANDARD											
DIGITAL DATA				REMARKS				CALIPER			
PRINT INTERVAL				<u>3 Arm Caliper</u>				LOGGED DEPTH <u>170 m</u>			
TIMEBASE								SCALE <u>4" Deflection = 1" Dia</u>			
								PAPER SPEED <u>1</u>			
								LOG SPEED <u>6-1</u>			
								ARM LENGTH <u>12"</u>			
								MAX DEF <u>24"</u>			
								VERTICAL DEV.			
DENSITY CALIBRATION								DEPTH			
ALUMINUM								INCLIN			
LUCITE								BEARING			



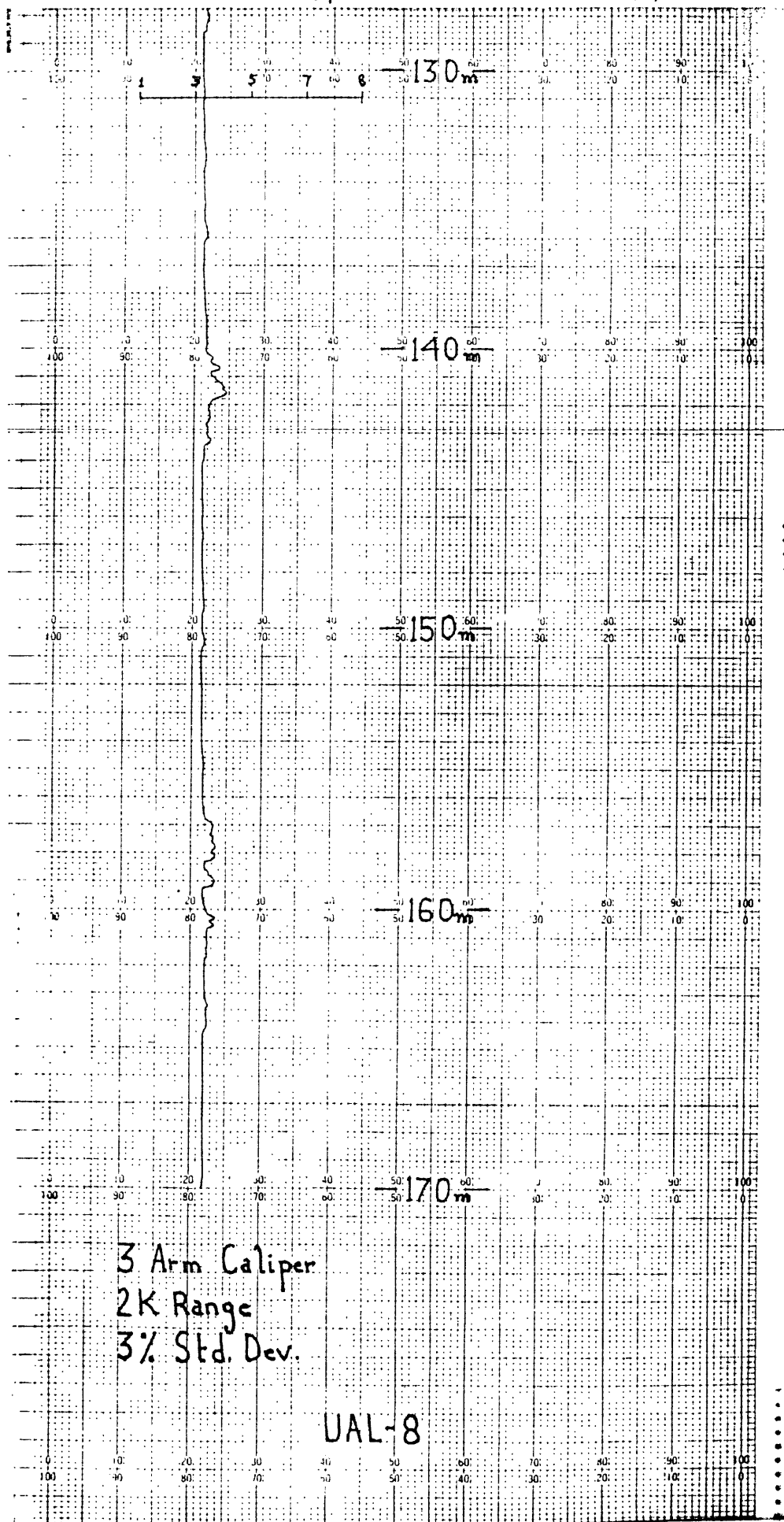
UAL-8

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# GEOSCIENCE ASSOCIATES

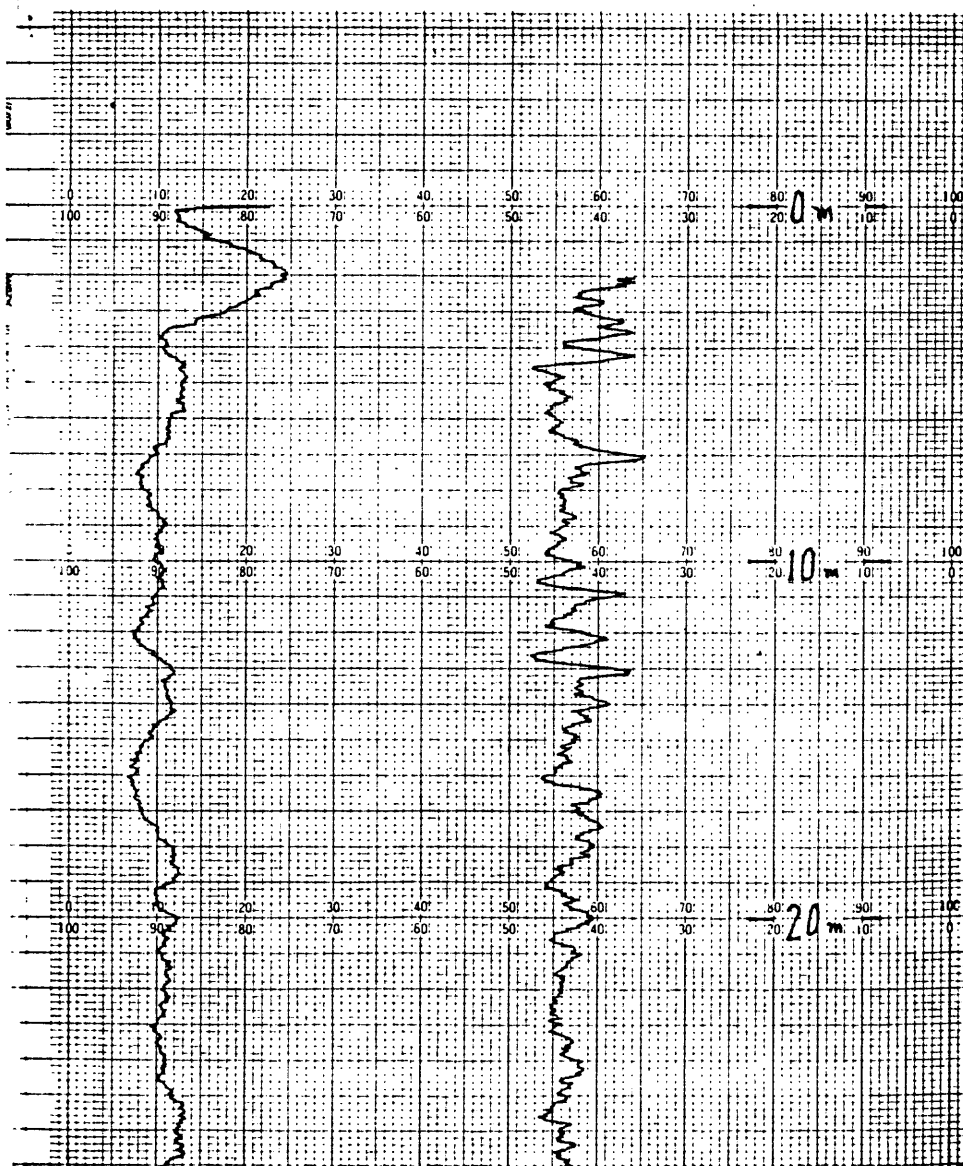
P.169

HOLE NUMBER:

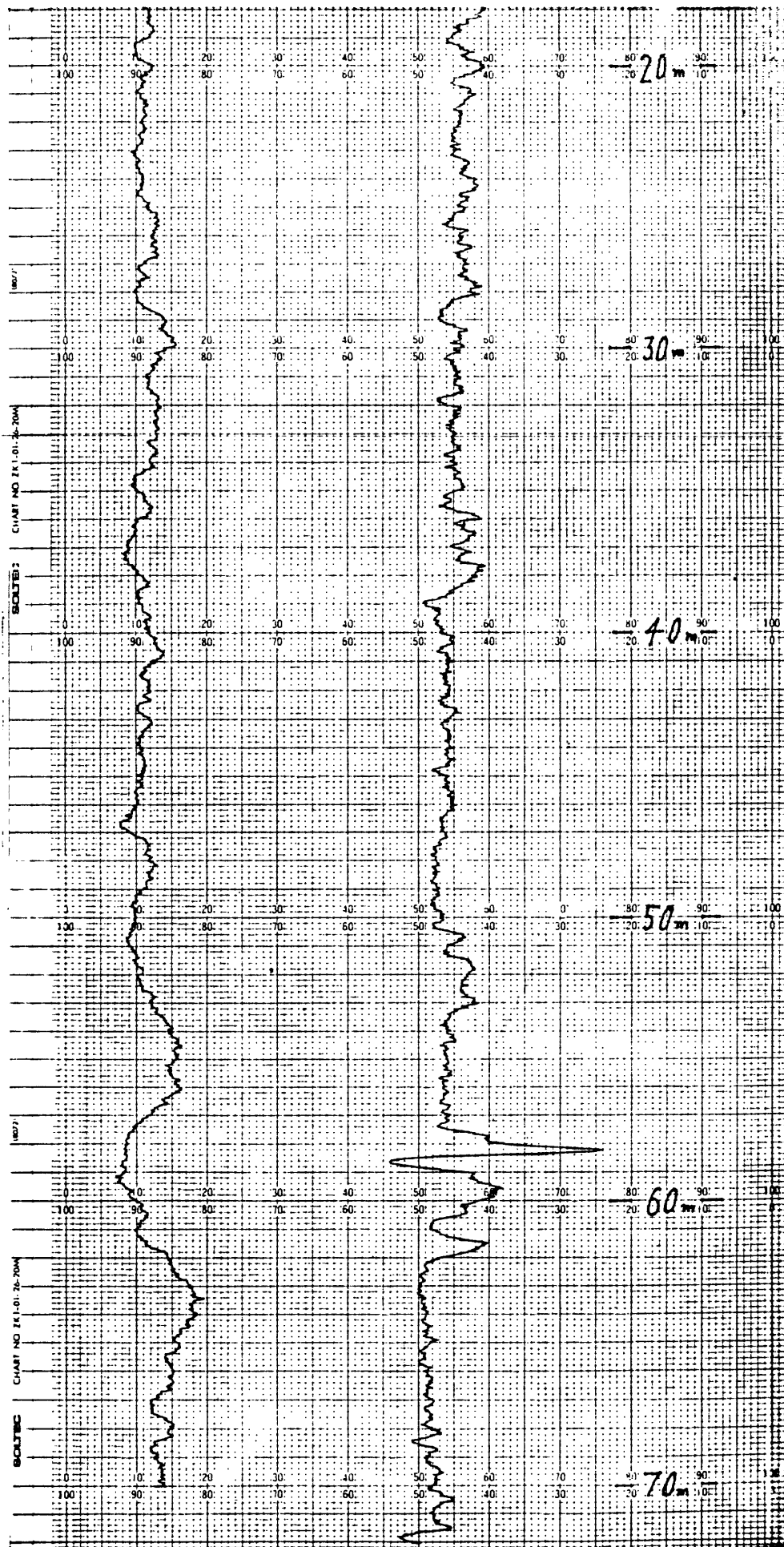
UAL-8

DATE: 21<sup>st</sup> OCTOBER, 1986.

LOCATION			HOLE DATA		CLIENT			
STATE/COUNTY	Sind. PAKISTAN		DEPTH DRILLED:	171.7m	CLIENT	G.S.P. - U.S.G.S.		
REGION	LAKHRA		DEPTH LOGGED:	72m	GEOLOGIST			
PROJECT	COAL REAP.		COLLAR ELEV		UNIT OPERATOR	MENTAG, ILYAS, MW10		
PROSPECT			DIA	See FROM TO	UNIT NO	PL-2. OFFICE		
SEC	TWP.	RNG	DIA	Caliper FROM TO	BOULDER COLORADO U.S.A.			
			DIA	1-2 FROM TO	ELECTRIC			
TYPE	GAM	Neutron	BOREHOLE MEDIUM	U.O + Mud.	TYPE		RESIST	S.P.
LOGGED DEPTH	70m	72m	FLUID LEVEL		LOGGED DEPTH	FT	FT	
RANGE (I.S.)	200	10K	CASING DATA		SCALE			
%STD DEV	3%	1%	WALL SIZE		PAPER SPEED			
PAPER SPEED	1-1	1-1	I.D.		LOG SPEED			
LOG SPEED	6-1	6-1	CASED FROM	TO	FINE ADJ			
BKGD COUNT			CASING TYPE		CALIPER			
PROBE NO.	6N-1	6N-1	SAMPLE DATA		LOGGED DEPTH	FT		
SIZE (dia.)	13/8"	13/8"	NON-CORED HOLE <input type="checkbox"/>	CORED HOLE <input checked="" type="checkbox"/>	SCALE			
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE	PAPER SPEED			
DEAD TIME	2	2			LOG SPEED			
STANDARD					ARM LENGTH	IN		
DIGITAL DATA			REMARKS		MAX DEF.	IN		
PRINT INTERVAL			Open Hole		VERTICAL DEV.			
TIMEBASE					DEPTH			
					INCLIN			
DENSITY CALIBRATION					BEARING			
ALUMINUM								
LUCITE								

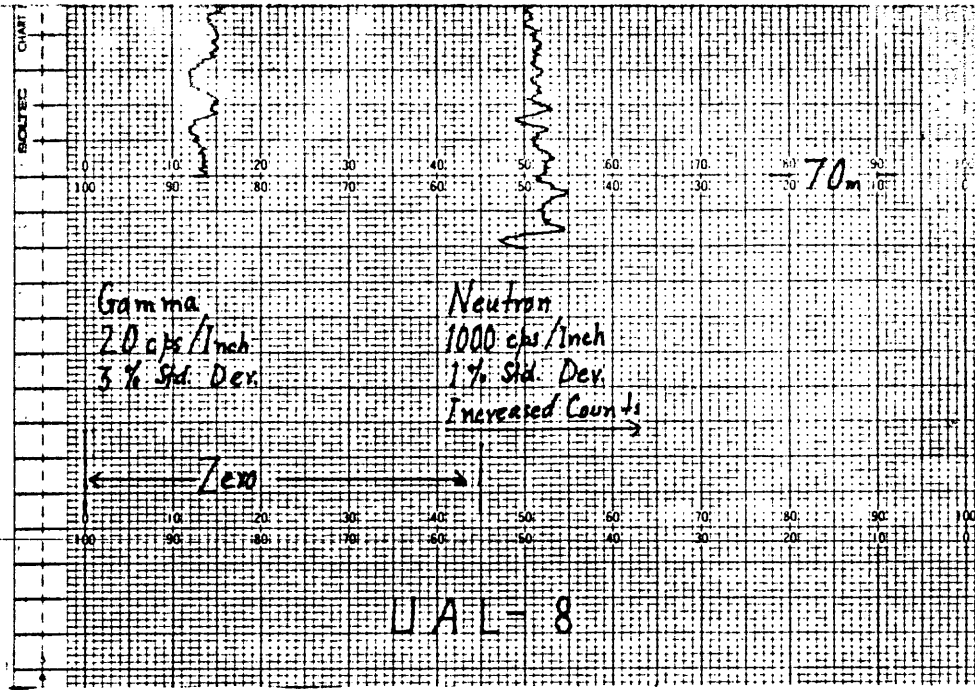


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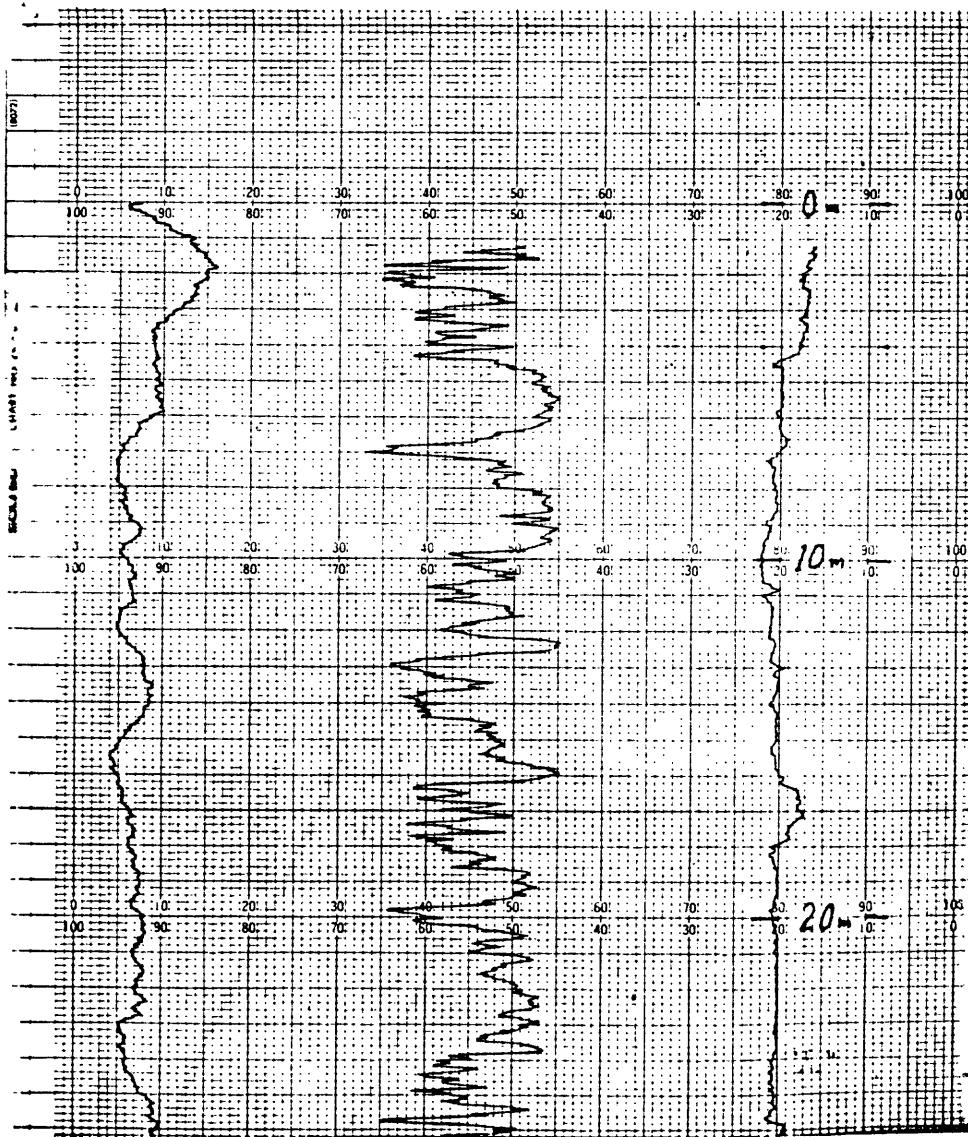
# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAL-8

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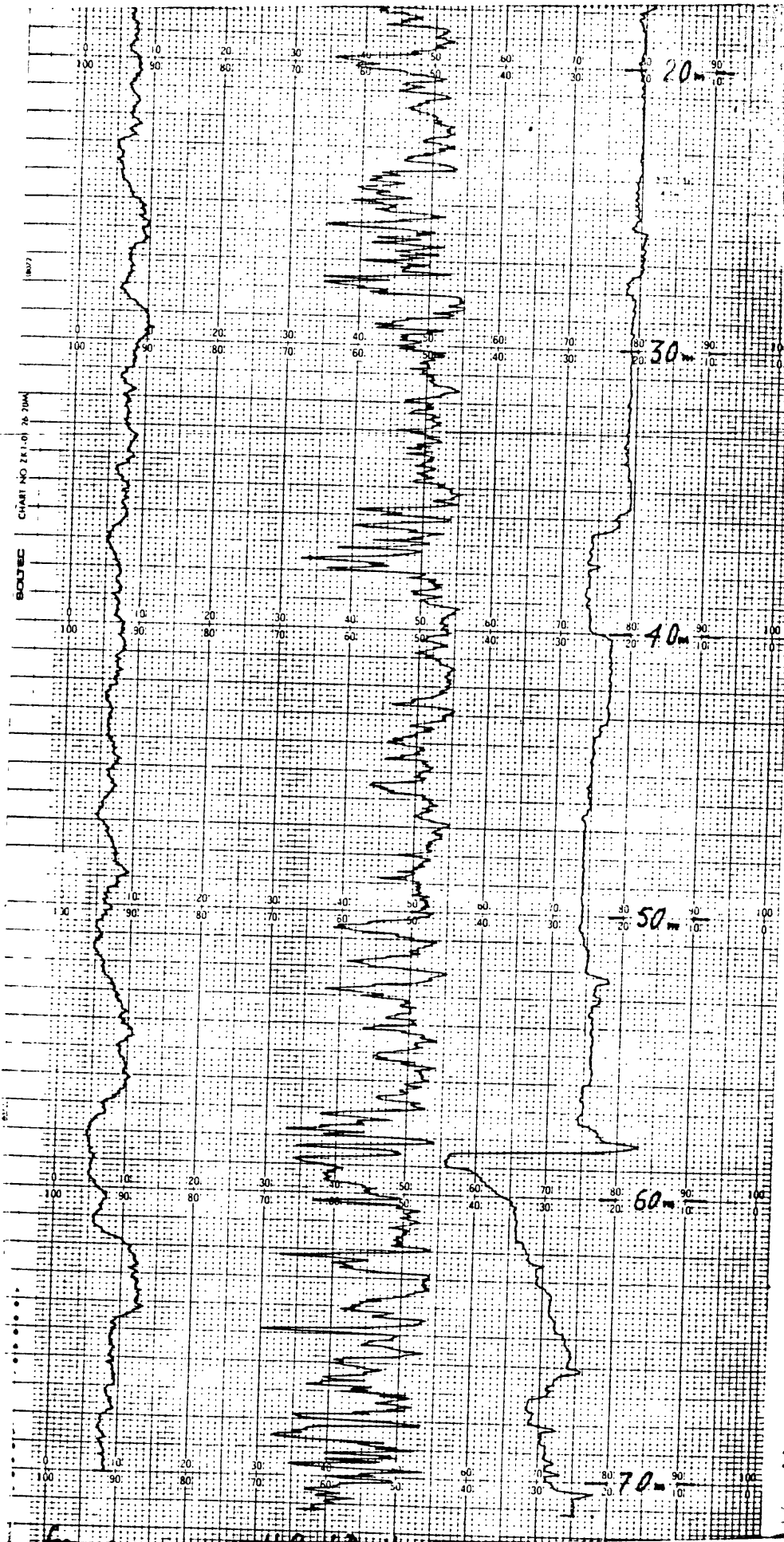
DATE: 24th OCTOBER, 1986

LOCATION			HOLE DATA		CLIENT			
STATE/COUNTRY	Sind. PAKISTAN		DEPTH DRILLED	171.7m		CLIENT	G.S.P. - U.S.G.S.	
REGION	LAKHRA		DEPTH LOGGED	71m		GEOLOGIST		
PROJECT	COAL REAP.		COLLAR ELEV.			UNIT OPERATOR	ILYAS, MUJIB, MEMAN	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2 OFFICE	
SEC.	TWP	RNG.	DIA	Caliber	FROM TO	BOULDER	COLORADO, U.S.A.	
			DIA	102	FROM TO	ELECTRIC		
			BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.		TYPE	RESIST	S.P.
TYPE	OAM	HRD	FLUID LEVEL			LOGGED DEPTH	FT.	FT.
LOGGED DEPTH	70m	71m				SCALE		
RANGE (I.S.)	200	20K	CASING DATA			PAPER SPEED		
%STD DEV	3%	1%	WALL SIZE			LOG SPEED		
PAPER SPEED	1-1	1-1	I.D.			FINE ADJ.		
LOG SPEED	3-1	3-1	CASED FROM	TO				
BKGD. COUNT			CASING TYPE					
PROBE NO	HRD-1	HRD-1	SAMPLE DATA					
SIZE (dia.)	2	2	NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>					
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME	2	2						
STANDARD			REMARKS					
DIGITAL DATA								
PRINT INTERVAL								
TIMEBASE								
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								



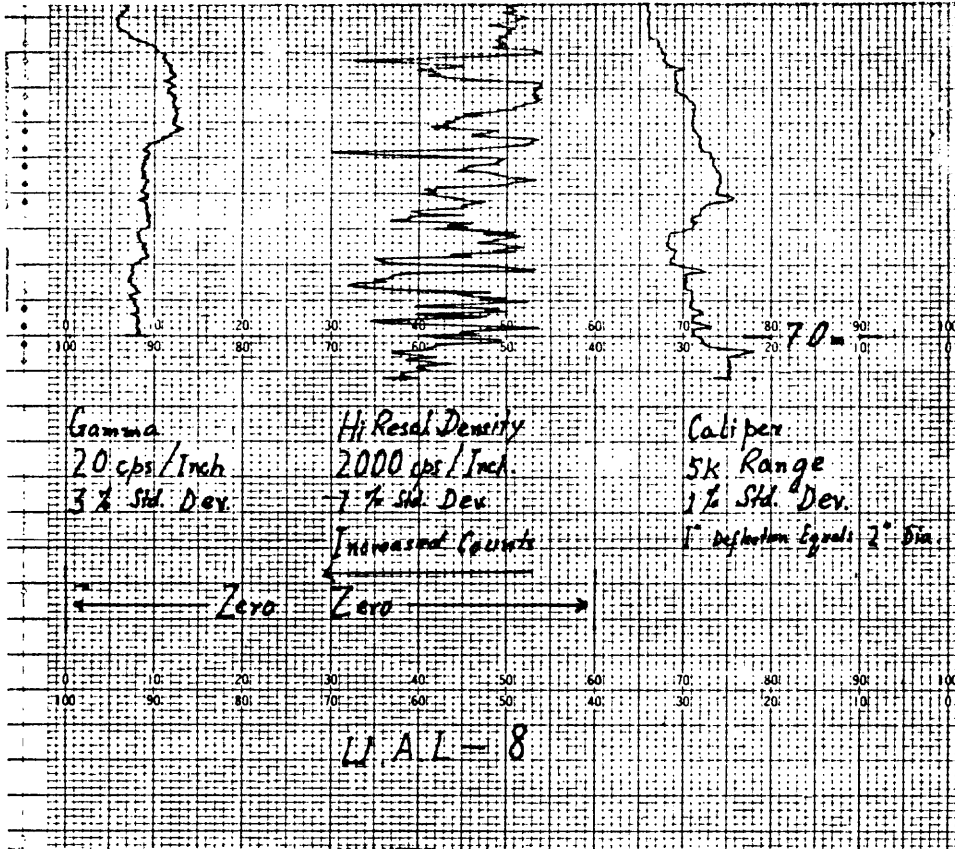
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# GEOSCIENCE ASSOCIATES

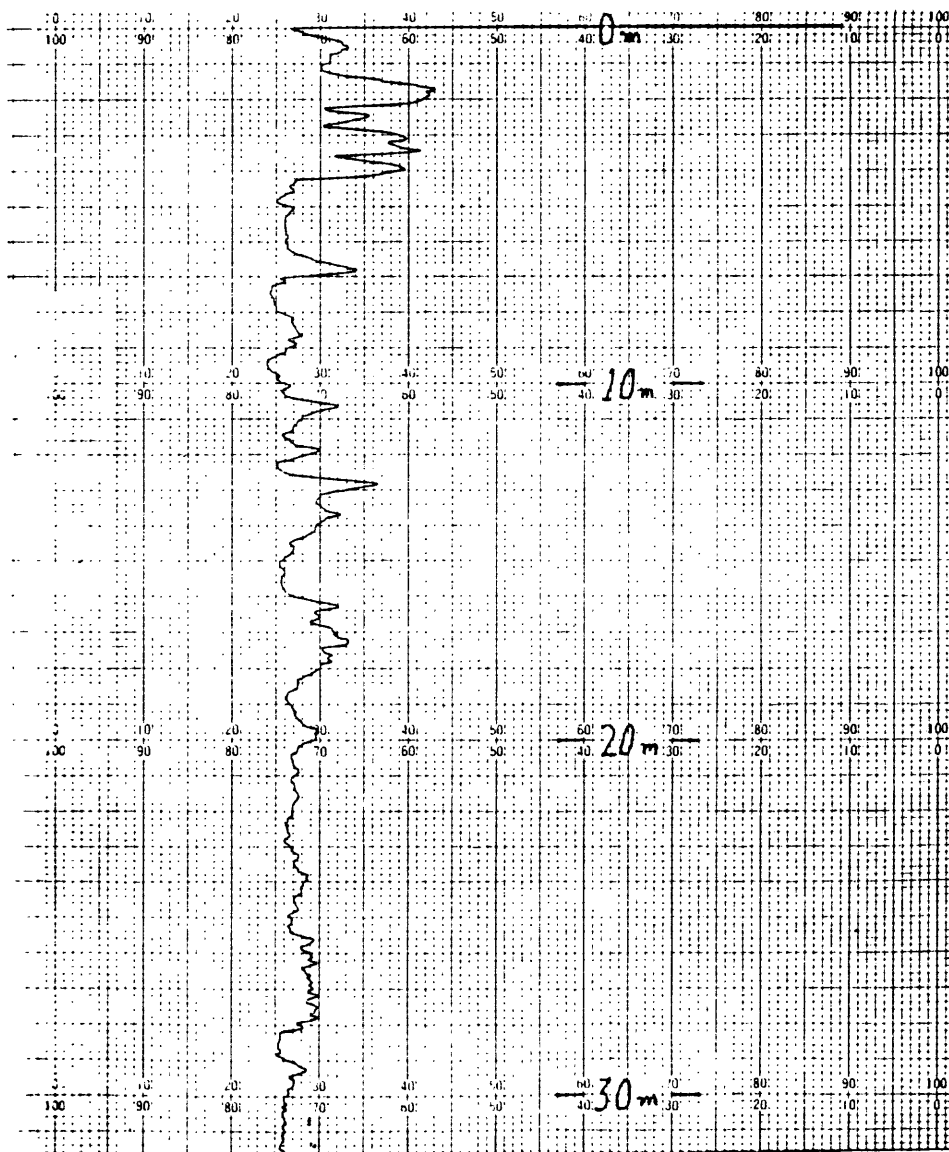
HOLE NUMBER:

UAL-8

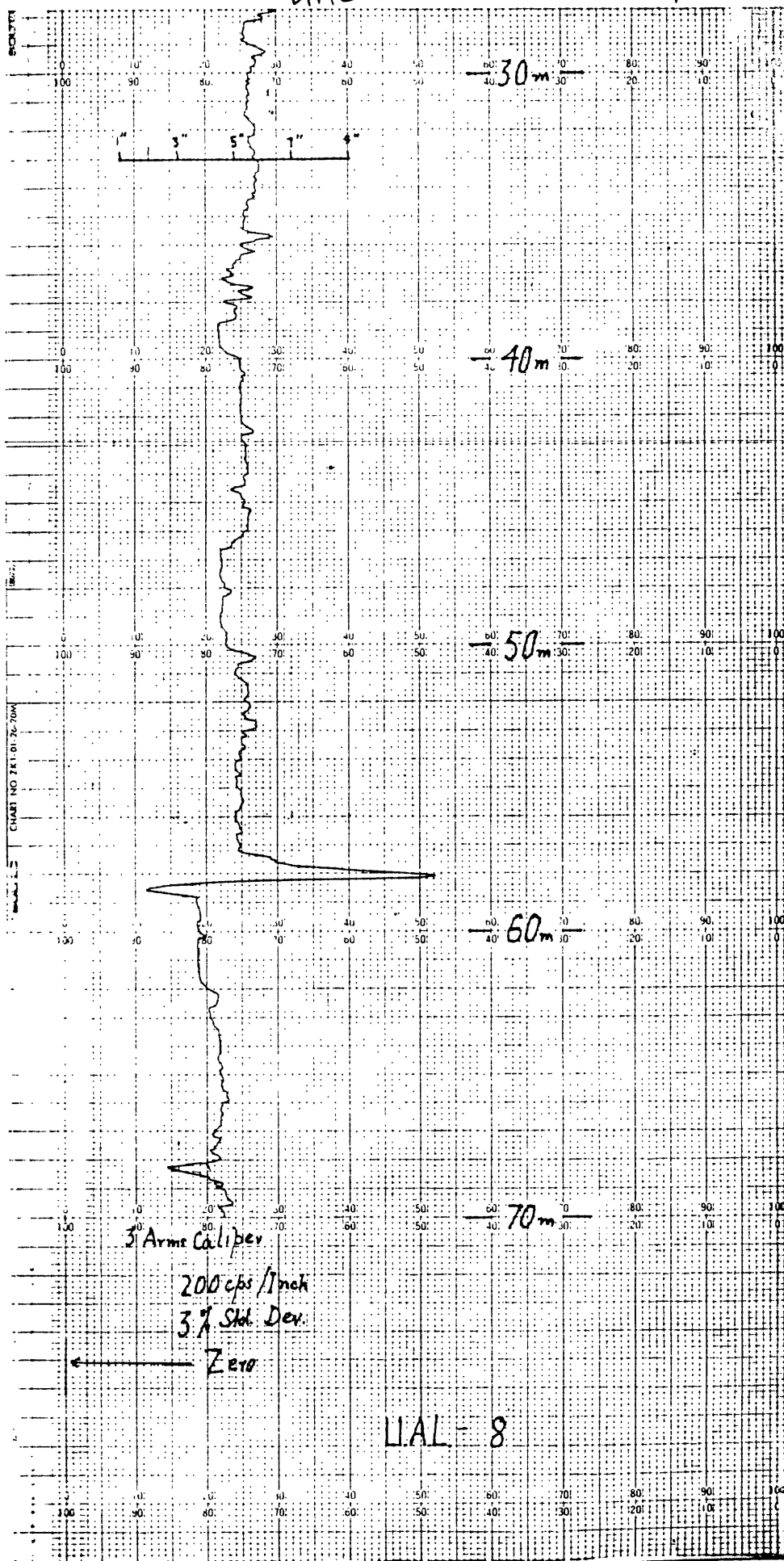
R175

DATE: 24th OCTOBER, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	SIND	PAKISTAN	DEPTH DRILLED	171.7 m		CLIENT	G.S.P. - U.S.G.S.	
REGION	LAKHRA		DEPTH LOGGED	70 m		GEOLOGIST		
PROJECT	COAL REAP.		COLLAR ELEV			UNIT OPERATOR	MEHTAB, MUJIBULLAH	
PROSPECT			DIA	See	FROM TO	UNIT NO	PC-2	OFFICE
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER, COLORADO, U.S.A.		
			DIA	log	FROM TO	ELECTRIC		
TYPE	GAM		BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH			FLUID LEVEL			LOGGED DEPTH	FT	FT
RANGE (I.R.)			CASING DATA			SCALE		
%STD DEV			WALL SIZE			PAPER SPEED		
PAPER SPEED			ID			LOG SPEED		
LOG SPEED			CASED FROM	TO		FINE ADJ		
BKGND. COUNT			CASING TYPE			CALIPER		
PROBE NO.			SAMPLE DATA			LOGGED DEPTH	70 m	FT
SIZE (dia.)			NON-CORED HOLE	<input type="checkbox"/>	CORED HOLE	SCALE	4" Deflection 1" Dia.	
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		PAPER SPEED		
DEAD TIME			REMARKS			LOG SPEED		
STANDARD			3 Arm Caliper			ARM LENGTH	12	IN
DIGITAL DATA						MAX DEF	24	IN
PRINT INTERVAL						VERTICAL DEV.		
TIMEBASE						DEPTH		
DENSITY CALIBRATION						INCLIN		
ALUMINUM						BEARING		
LUCITE								



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DRILL HOLE UAS-1



# GEOSCIENCE ASSOCIATES

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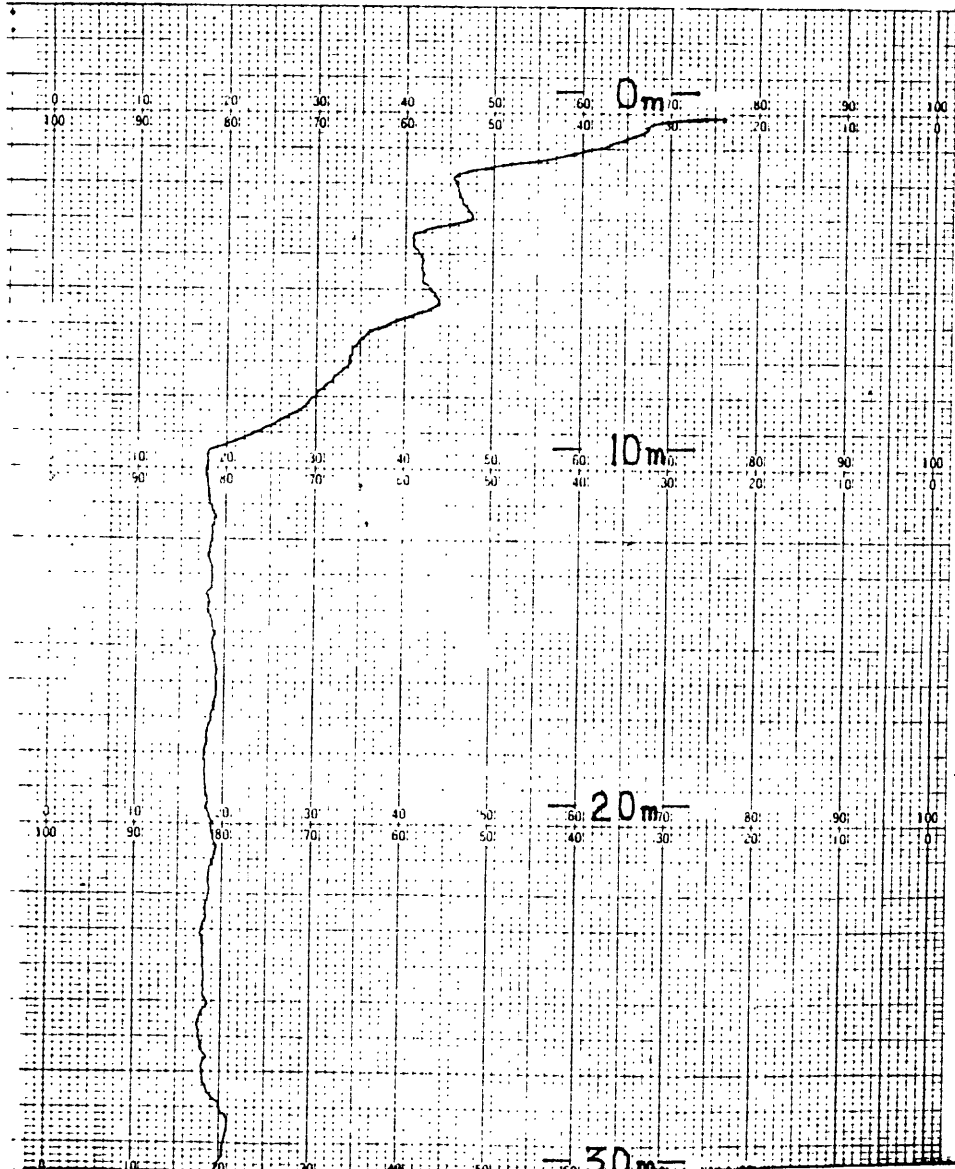
HOLE NUMBER:

U.A.S. 1

DATE:

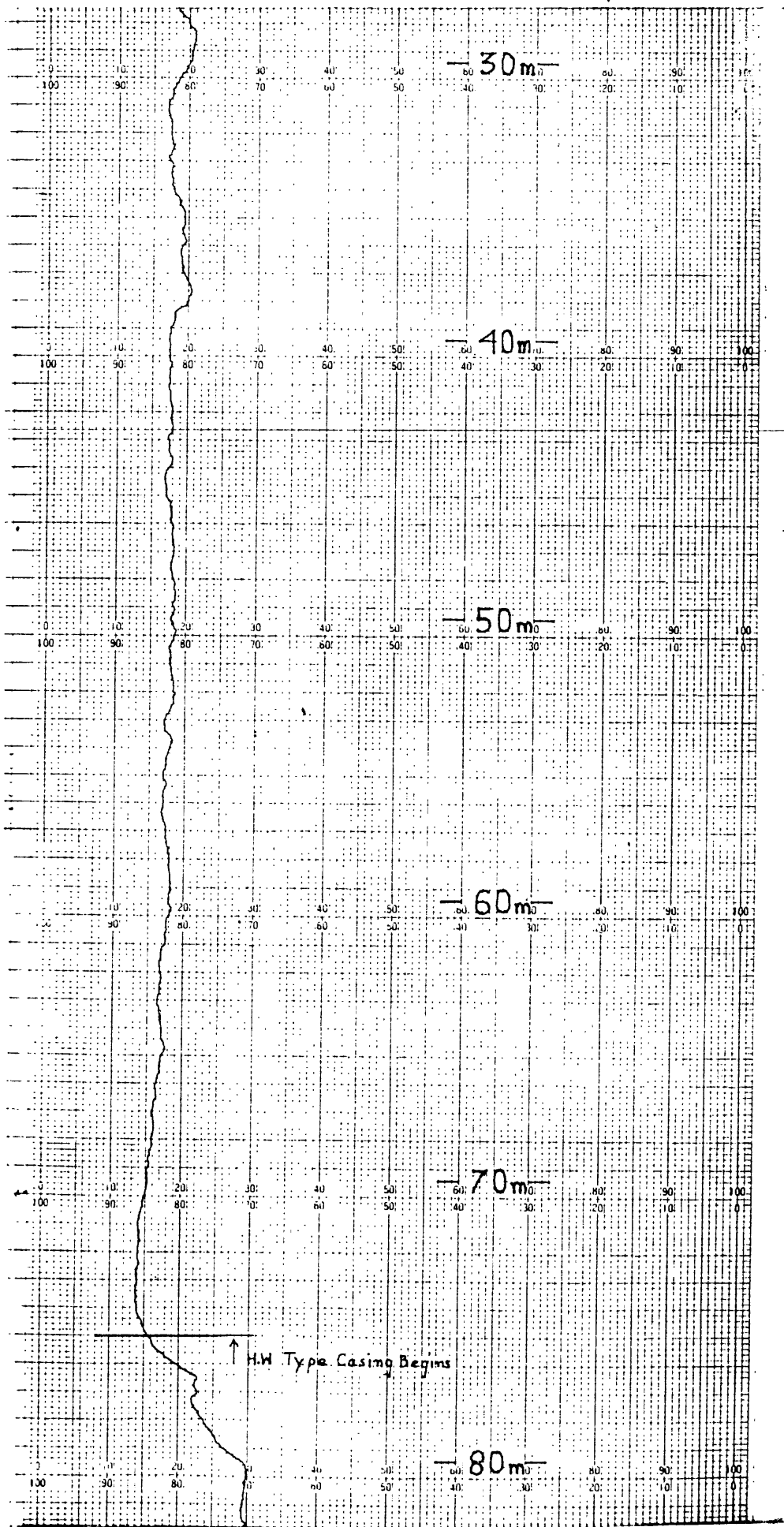
18<sup>th</sup> December, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh, Pakistan		DEPTH DRILLED	2+2 m		CLIENT	U.S.G.S - G.S.P.	
REGION	Sonda		DEPTH LOGGED	235 m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	MUJEEB / ILYAS	
PROSPECT			DIA See	FROM	TO	UNIT NO	DOUBERFFICE	
SEC	TWP	ANG.	DIA Caliper	FROM	TO	PL-2	CALKRAADU U.S.A	
			DIA Log	FROM	TO	ELECTRIC		
			BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S P
TYPE	GAM 4pi Density		FLUID LEVEL			LOGGED DEPTH	FT	FT
LOGGED DEPTH	235m		CASING DATA			SCALE		
RANGE (ft)	20K		WALL SIZE	1/4"		PAPER SPEED		
STD DEV	1 1/2		ID per H.W = 4"	ID per H.W = 3"		LOG SPEED		
PAPER SPEED	1-1		CASED FROM	See Remarks TO		PAPER SPEED		
LOG SPEED	6-1		CASING TYPE	HN AND NN		LOG SPEED		
BKGD COUNT			SAMPLE DATA			FINE ADJ		
PROBE NO.	6D-1		NON-CORED HOLE	<input type="checkbox"/>		CALIPER		
SIZE (dia.)	1 3/8		CORED HOLE	<input checked="" type="checkbox"/>		LOGGED DEPTH	FT	
K-FACTOR			SAMPLED INTERVAL			SCALE		
DEAD TIME	2		REMARKS			PAPER SPEED		
STANDARD			Logged thru drill pipe + casing			LOG SPEED		
DIGITAL DATA			HN Type Casing + Cased from 0 to 192.6m			ARM LENGTH	IN	
PRINT INTERVAL			HN Type Cased from 0 to 192 m			MAX DEF	IN	
TIMEBASE						VERTICAL DEV.		
DENSITY CALIBRATION						DEPTH		
ALUMINUM						INCLIN		
LUCITE						BEARING		



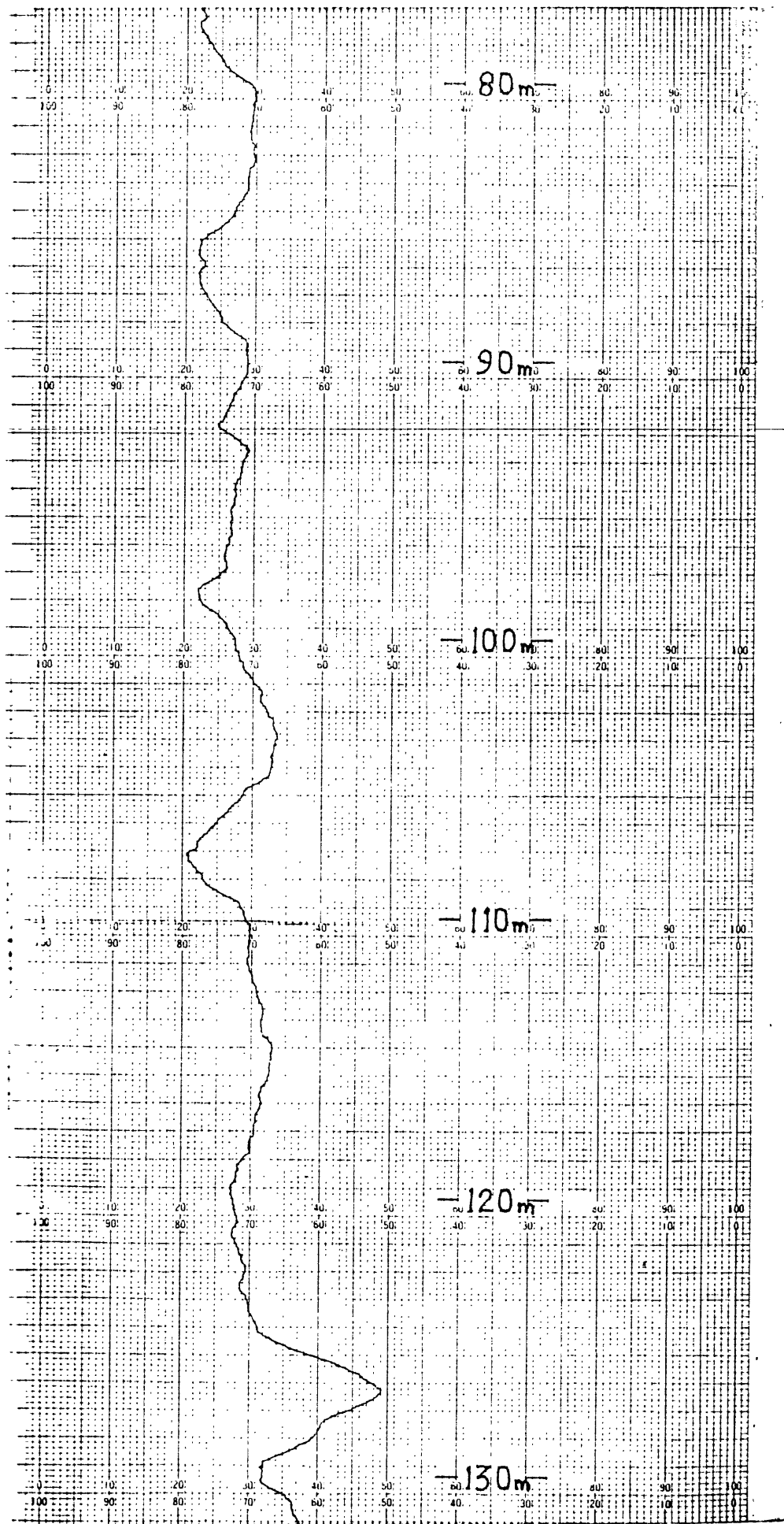
UAS-1

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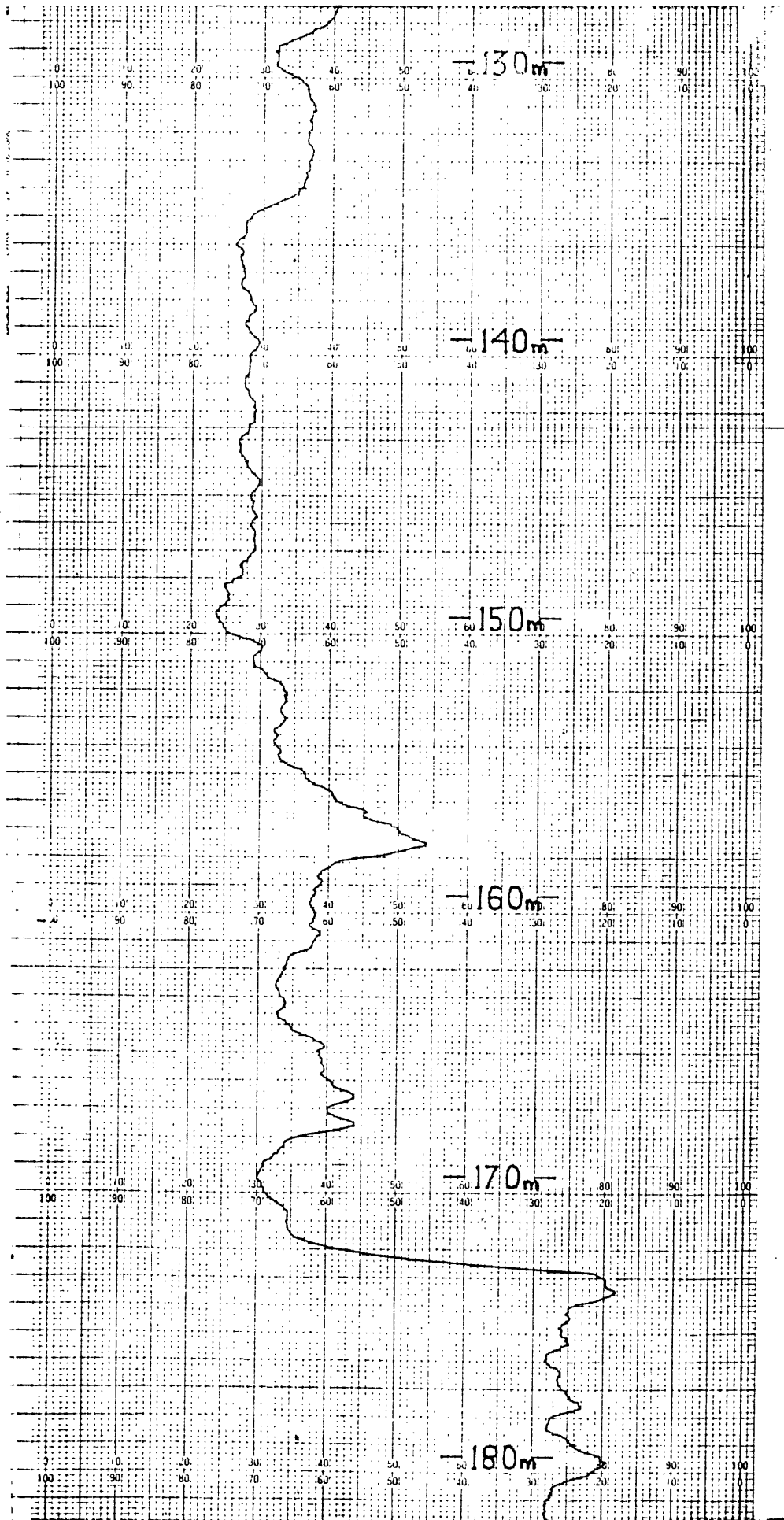
UAS-1

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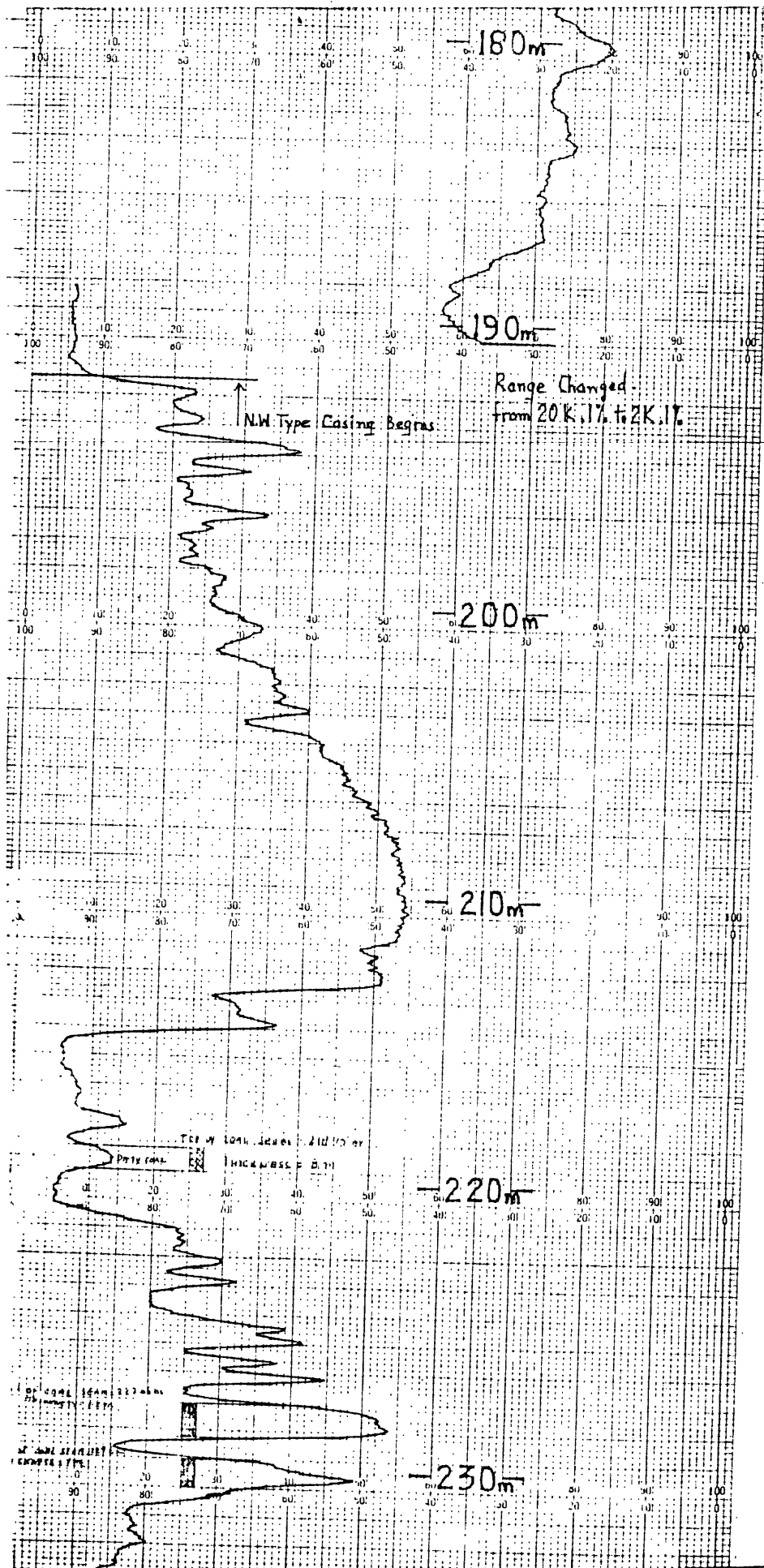
UAS-1

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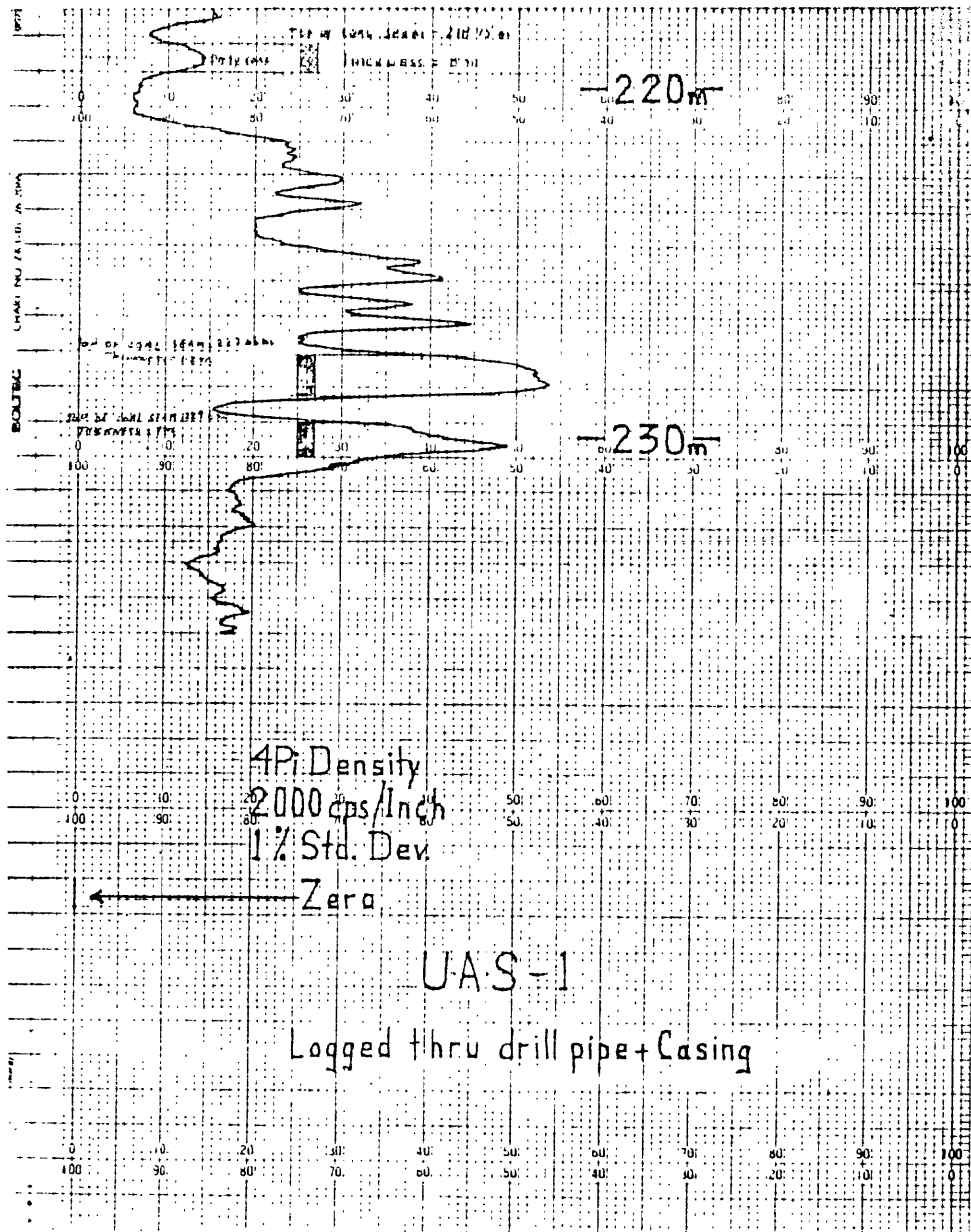
UAS-1

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# GEOSCIENCE ASSOCIATES

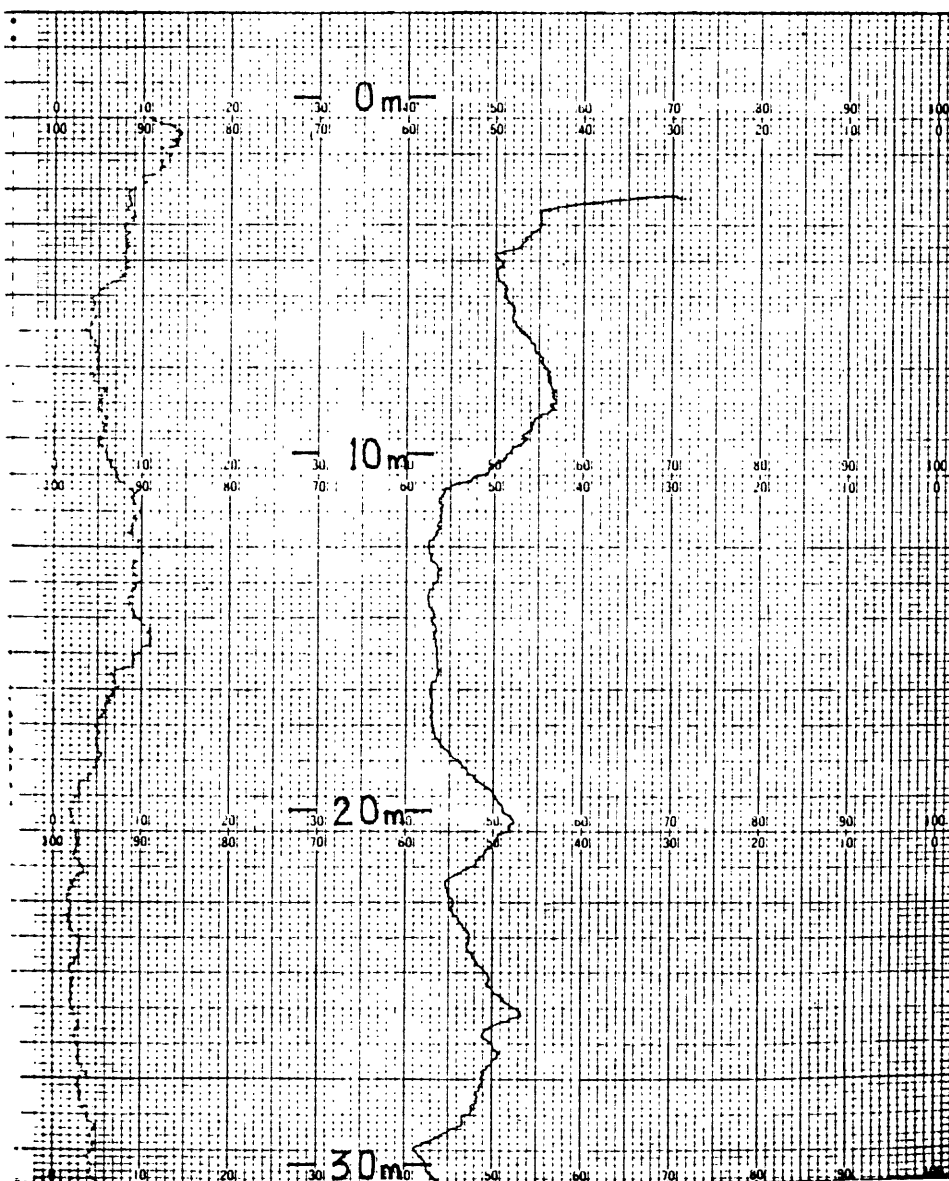
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HOLE NUMBER:

U.A.S - 1

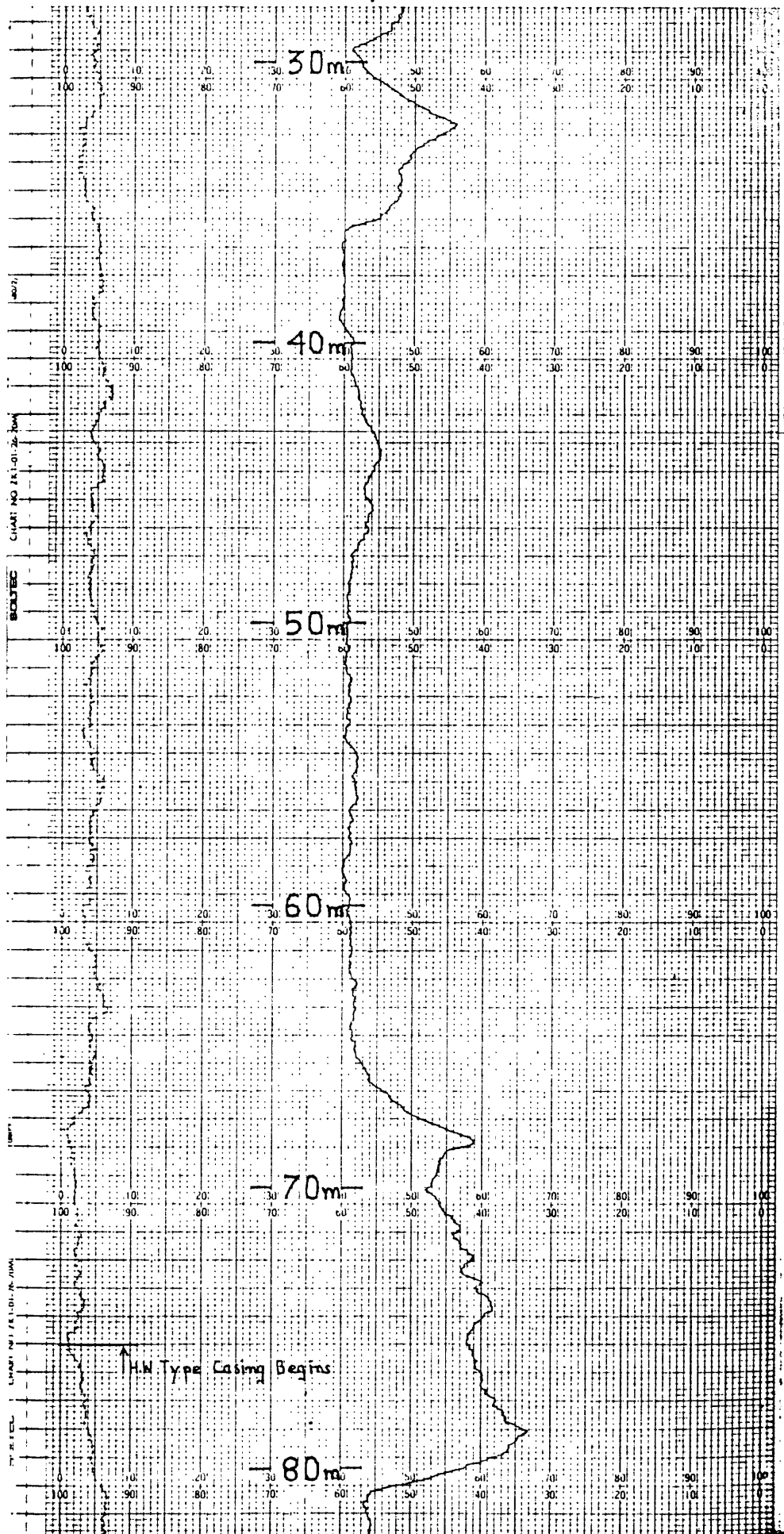
DATE: 18<sup>th</sup> December, 1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY <u>Sindh, Pakistan</u>			DEPTH DRILLED: <u>242 m</u>	CLIENT <u>U.S.G.S - G.S.P</u>		
REGION <u>Sonnda</u>			DEPTH LOGGED: <u>234 m</u>	GEOLOGIST:		
PROJECT <u>COAL REAP</u>			COLLAR ELEV	UNIT OPERATOR <u>MUJEEB/ILYAS</u>		
PROSPECT			DIA <u>See</u> FROM TO	UNIT NO <u>PL-2</u> OFFICE		
SEC. TWP RNG			DIA <u>Caliper</u> FROM TO	<u>Down Hole Camera U.S.A</u>		
TYPE GAM Neutron			DIA <u>Log</u> FROM TO	ELECTRIC		
LOGGED DEPTH	<u>232 m</u>	<u>234 m</u>	BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>	TYPE		
RANGE (ft.)	<u>100</u>	<u>500</u>	FLUID LEVEL	LOGGED DEPTH	REBIST	
STD DEV	<u>3 1/2</u>	<u>1 1/2</u>	CASING DATA	SCALE	S.P.	
PAPER SPEED	<u>1-1</u>	<u>1-1</u>	WALL SIZE <u>1/4"</u>	PAPER SPEED		
LOG SPEED	<u>6-1</u>	<u>6-1</u>	I.D. for HW = <u>4"</u> , I.D. for NW = <u>3"</u>	LOG SPEED		
BKGD. COUNT			CASED FROM <u>See Remarks</u> TO	ARM LENGTH		
PROBE NO	<u>6N-1</u>	<u>6N-1</u>	CASING TYPE <u>HW</u> <u>NW</u>	MAX DEF.		
SIZE (dia.)	<u>1 1/8"</u>	<u>1 3/8"</u>	SAMPLE DATA	VERTICAL DEV.		
K-FACTOR			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>	DEPTH		
DEAD TIME	<u>2</u>	<u>2</u>	SAMPLED INTERVAL	INCLIN		
STANDARD			SAMPLE TYPE	BEARING		
DIGITAL DATA			REMARKS			
PRINT INTERVAL			<u>Logged thru drill pipe + casing</u>			
TIMEBASE			<u>HW Type Cased from 0 to 75.6 m</u>			
DENSITY CALIBRATION			<u>NW Type Cased from 0 to 192 m</u>			
ALUMINUM						
LUCITE						



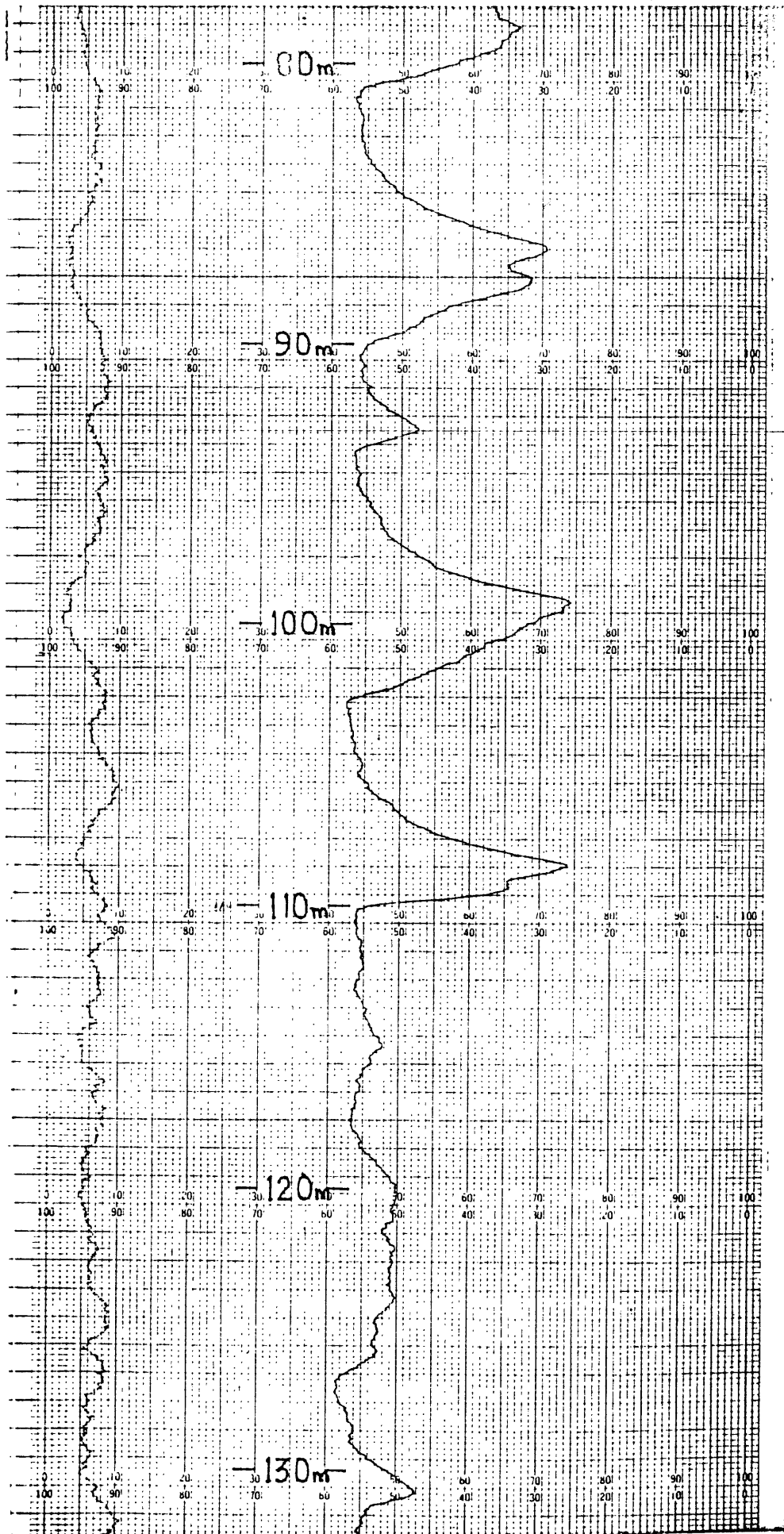


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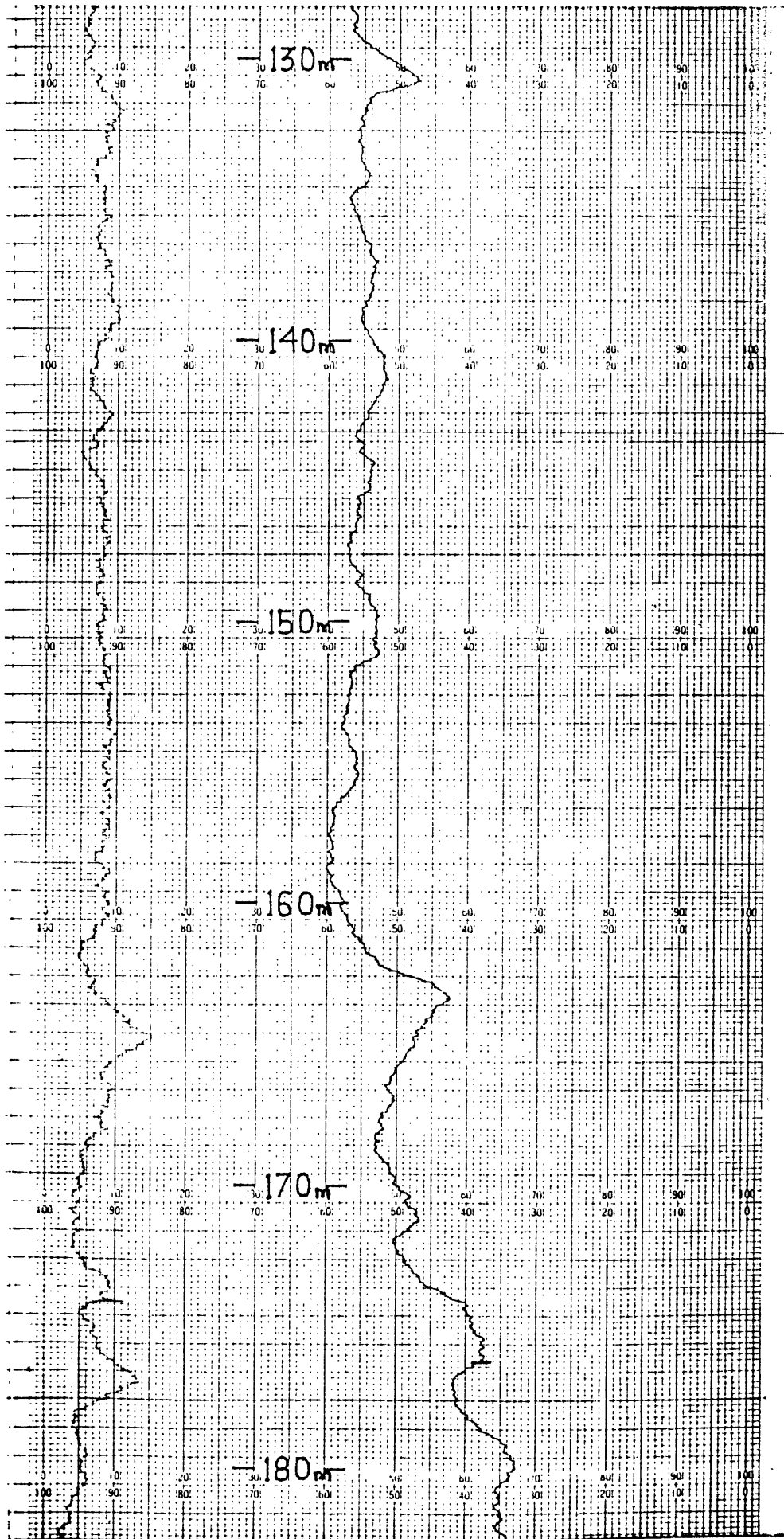
UAS-1

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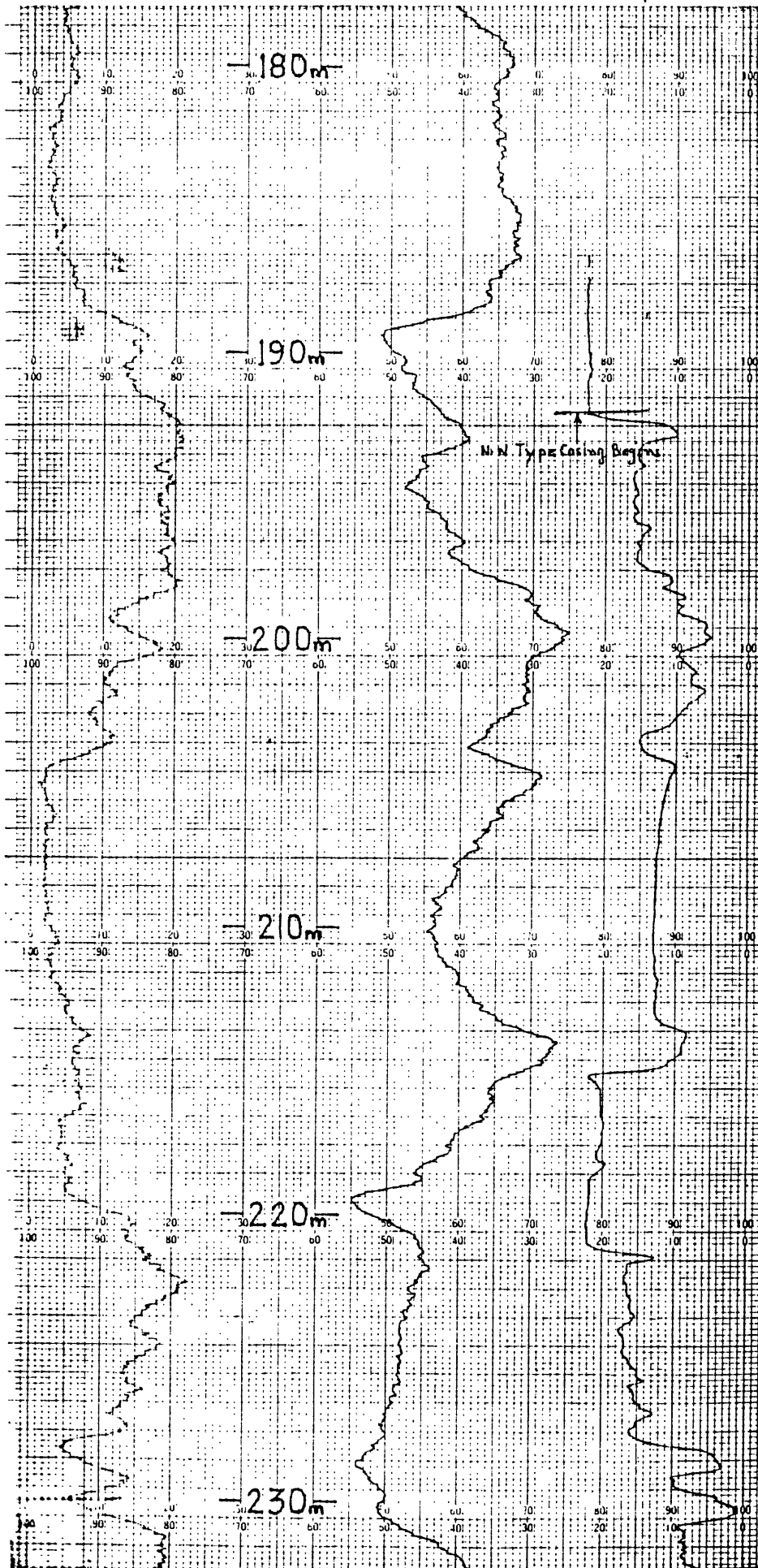
UAS-1

R187



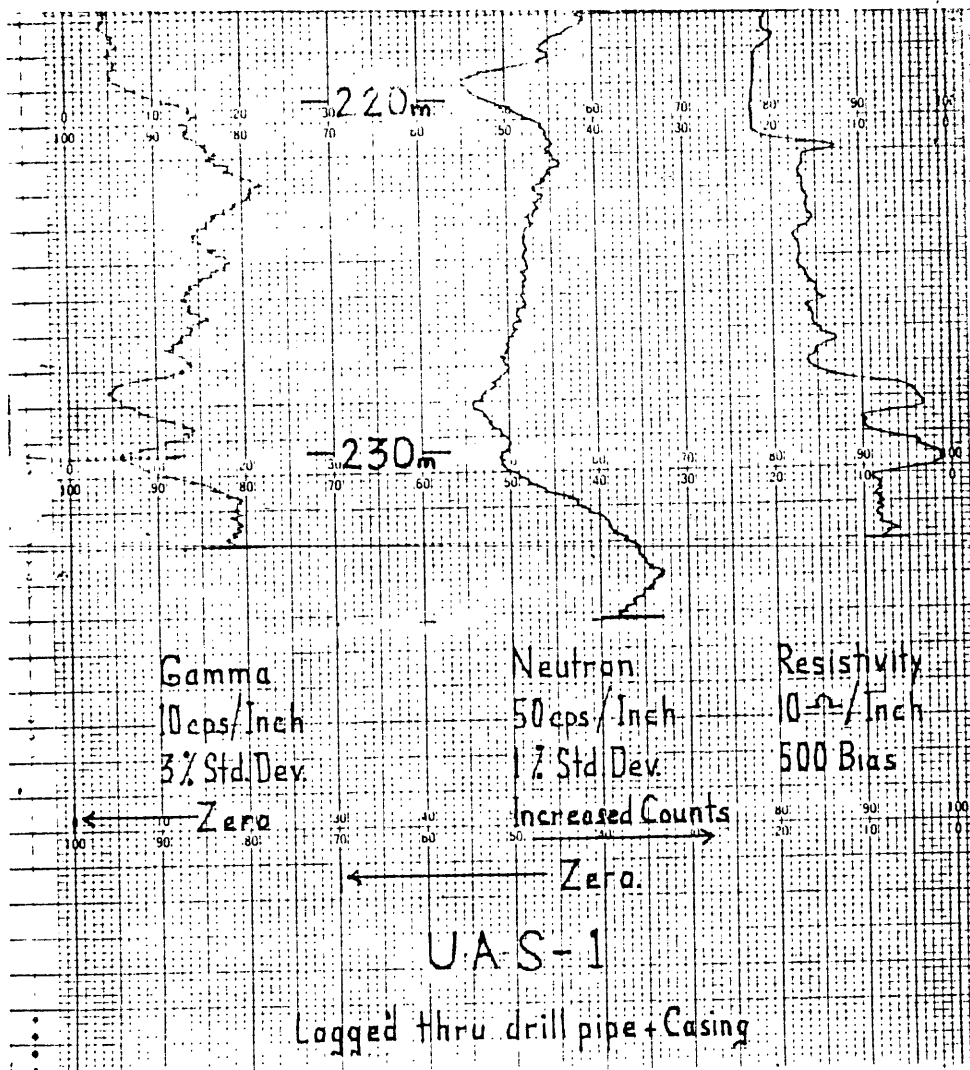
UAS-1

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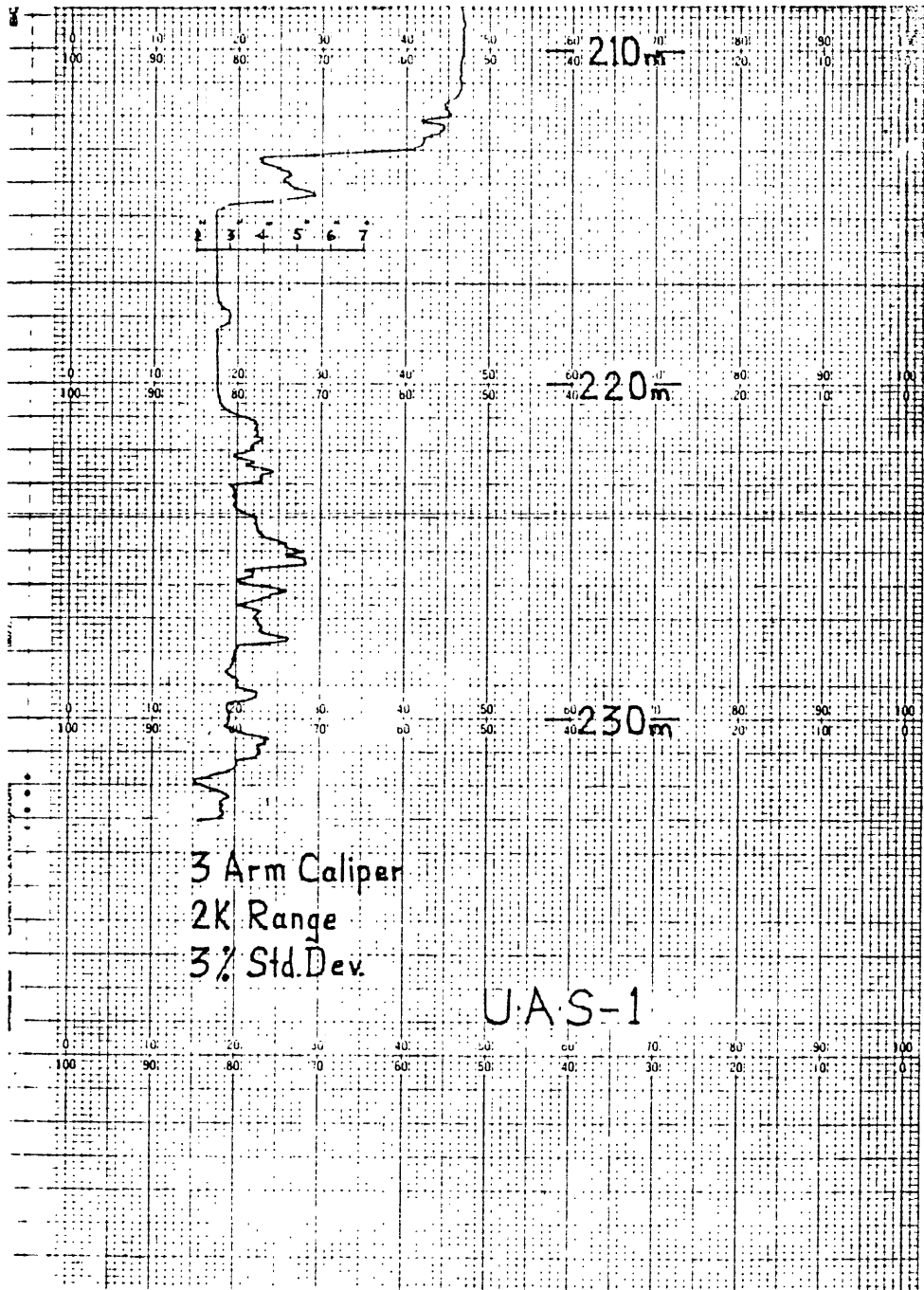
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DRILL HOLE UAS-2





# GEOSCIENCE ASSOCIATES

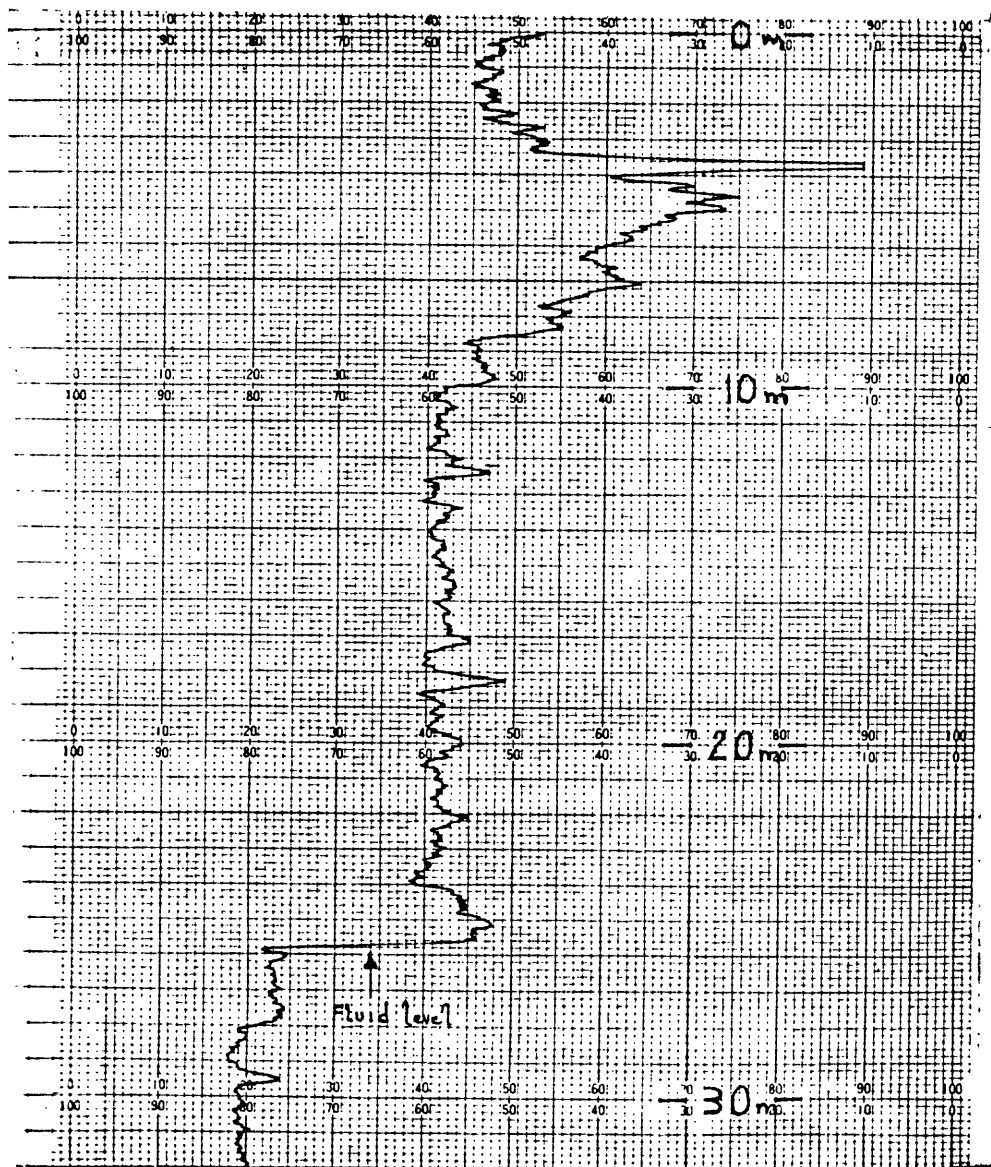
R193

MOLE NUMBER:

UAS-2

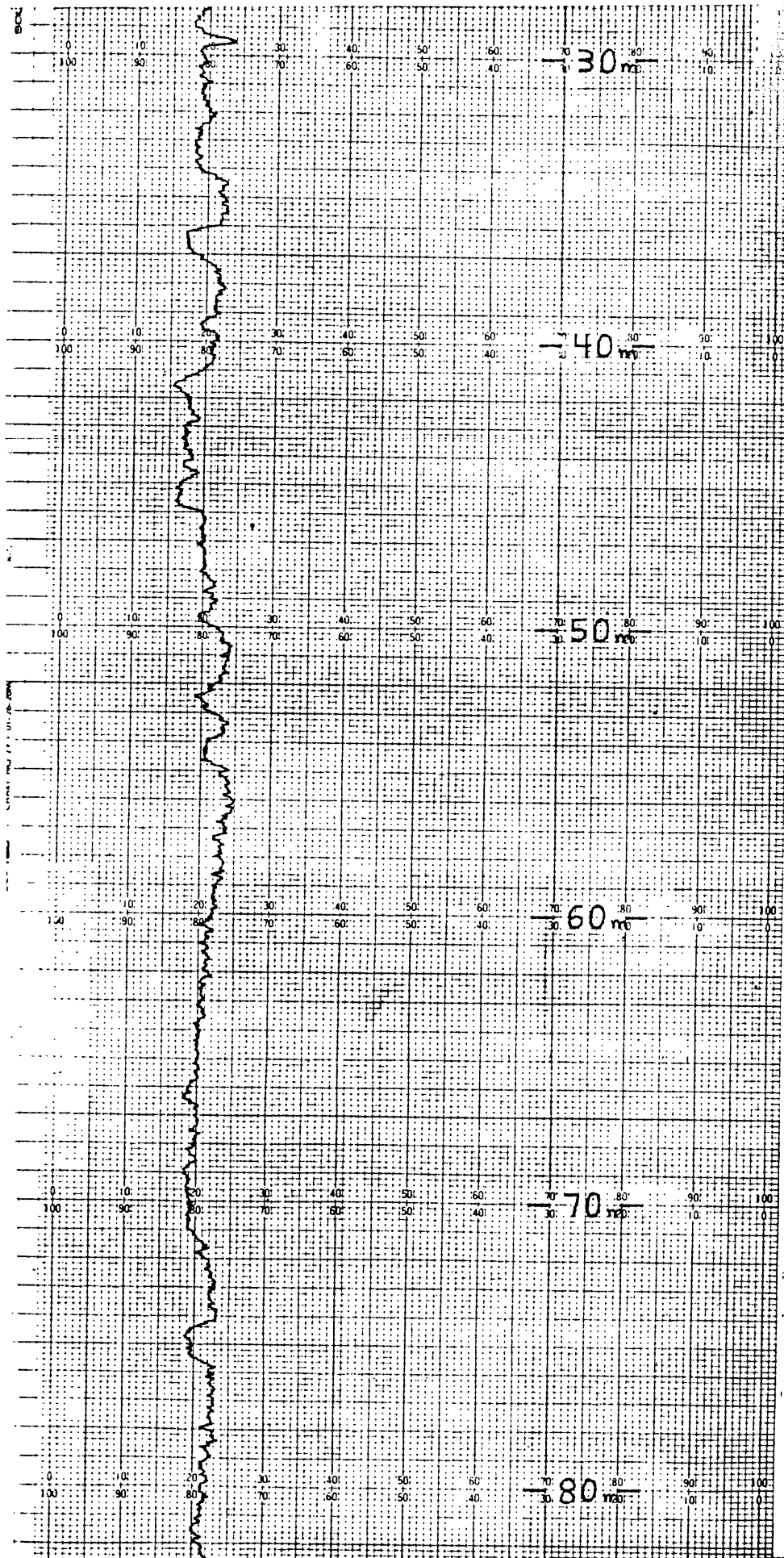
DATE: 7th December 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY Sind Pakistan			DEPTH DRILLED 228.10m			CLIENT U.S.G.S. - G.S.P.		
REGION Sindh			DEPTH LOGGED 224m			GEOLOGIST.		
PROJECT COAL REAP			COLLAR ELEV			UNIT OPERATOR MEHTAB MUJIB/ILYAS		
PROSPECT			DIA See FROM TO			UNIT NO PL-2 OFFICE		
SEC TWP RNG.			DIA Caliper FROM TO			BOULDER COLORADO U.S.A.		
TYPE			DIA 10g FROM TO			ELECTRIC		
LOGGED DEPTH			BOREHOLE MEDIUM H <sub>2</sub> O + Mud			TYPE		
RANGE (f.s.)			FLUID LEVEL 25.9m			LOGGED DEPTH		
%STD DEV			CASING DATA			RESIST		
PAPER SPEED			WALL SIZE 1/4"			FT.		
LOG SPEED			ID 4"			FT.		
BKGND. COUNT			CASED FROM 0 TO 87.2m			PAPER SPEED		
PROBE NO.			CASING TYPE HW			LOG SPEED		
SIZE (dia)			SAMPLE DATA			FINE ADJ		
K-FACTOR			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			LOGGED DEPTH		
DEAD TIME			SAMPLED INTERVAL			RESIST		
STANDARD			SAMPLE TYPE			B.P.		
DIGITAL DATA			REMARKS			LOGGED DEPTH		
PRINT INTERVAL			Logged through Casing			SCALE		
TIMEBASE						PAPER SPEED		
DENSITY CALIBRATION			CALIPER			LOG SPEED		
ALUMINUM			LOGGED DEPTH			ARM LENGTH		
LUCITE			SCALE			MAX DEF.		
			PAPER SPEED			VERTICAL DEV.		
			LOG SPEED			DEPTH		
			ARM LENGTH			INCLIN		
			MAX DEF.			BEARING		



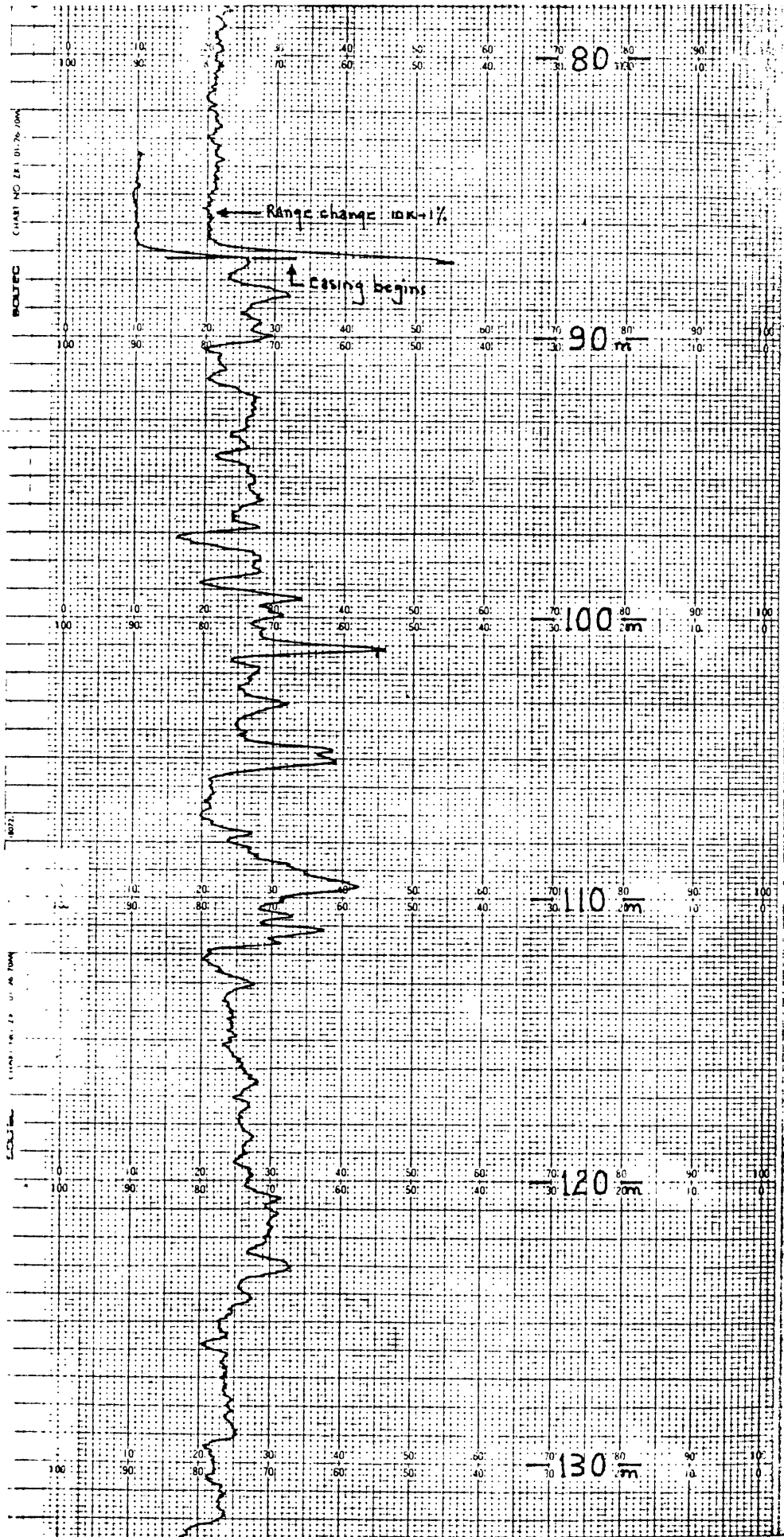
UAS-2

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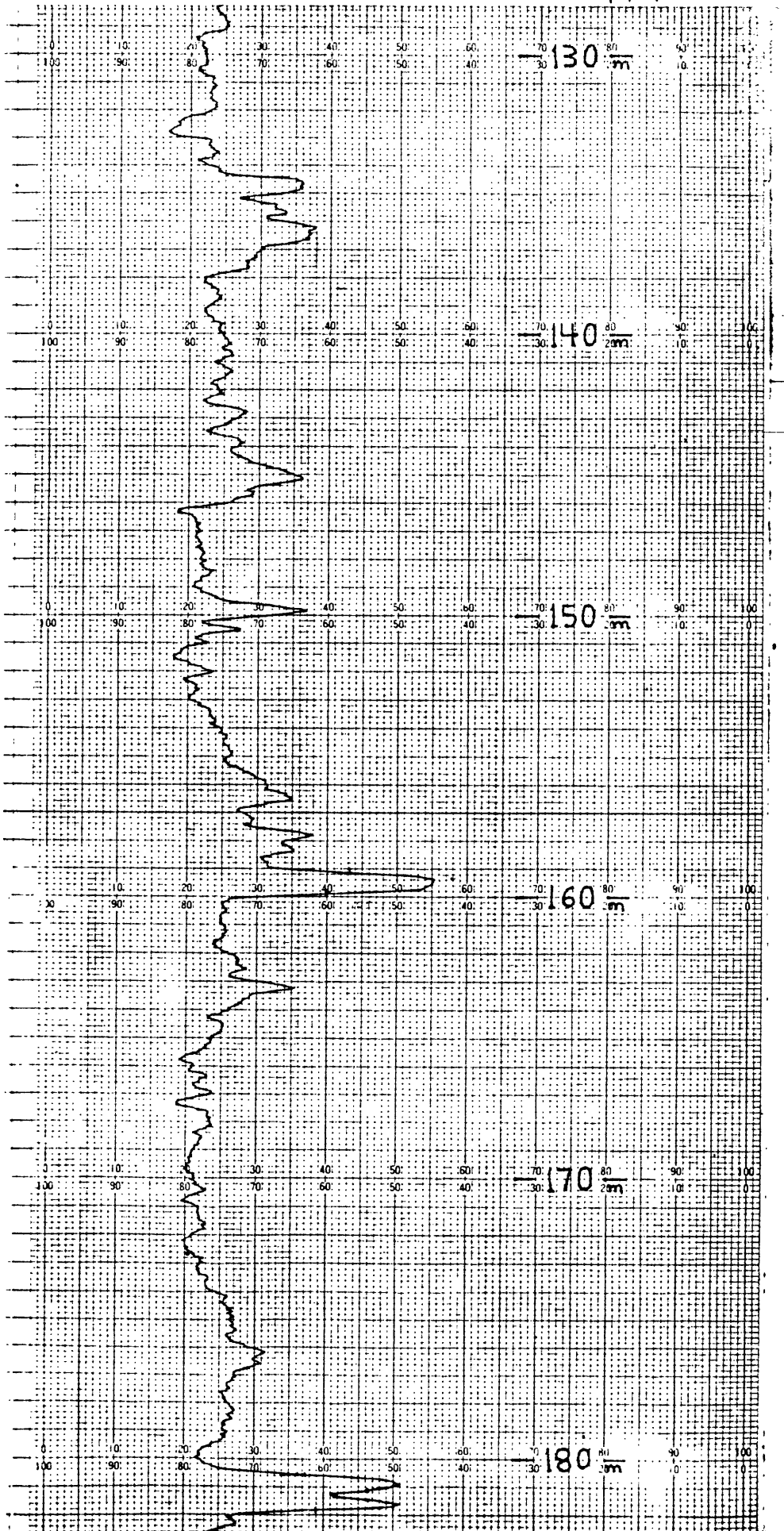
UAS-2

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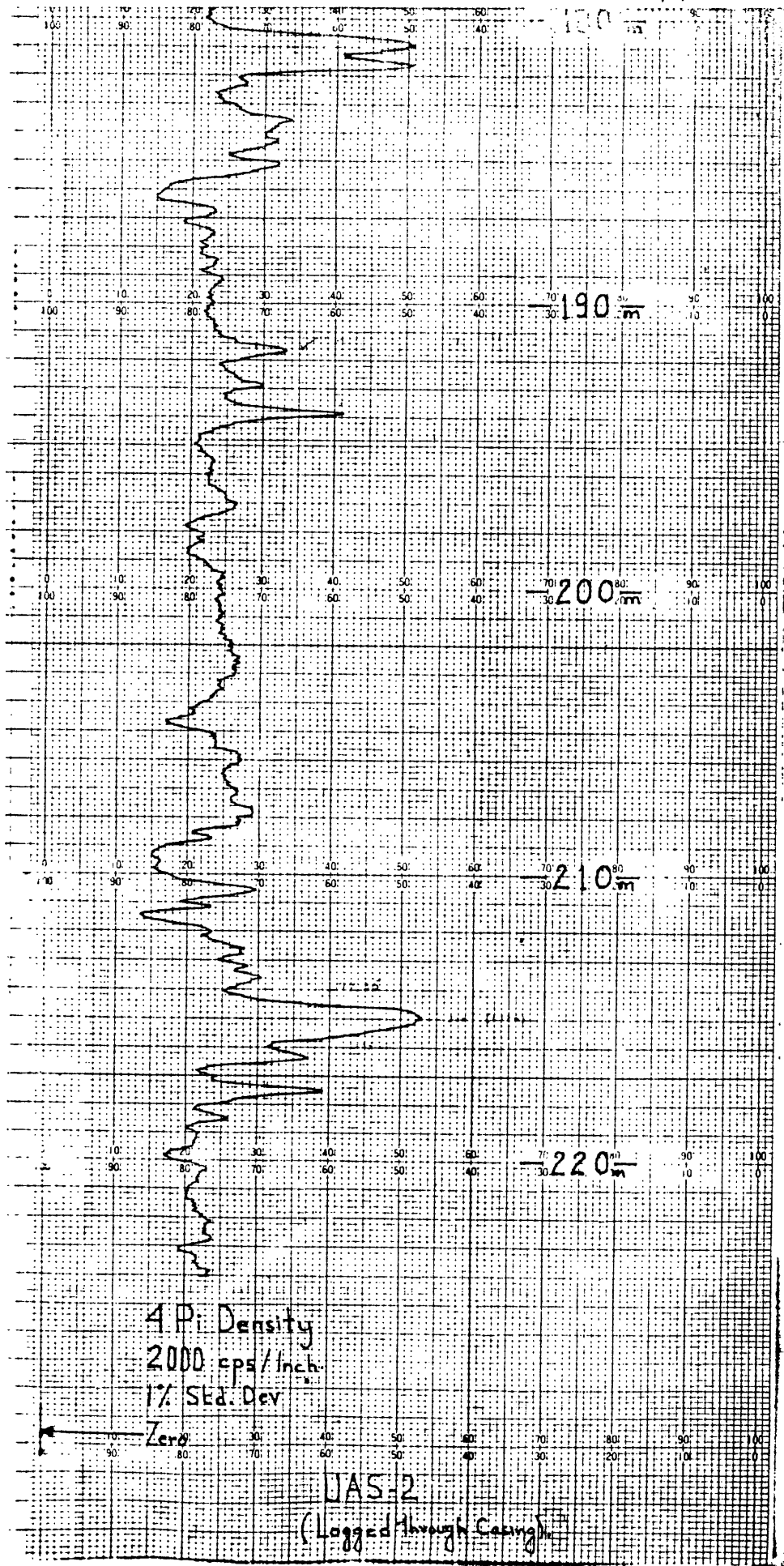
UAS-2

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4 Pi Density  
2000 cps/inch  
1% Std. Dev

Zero

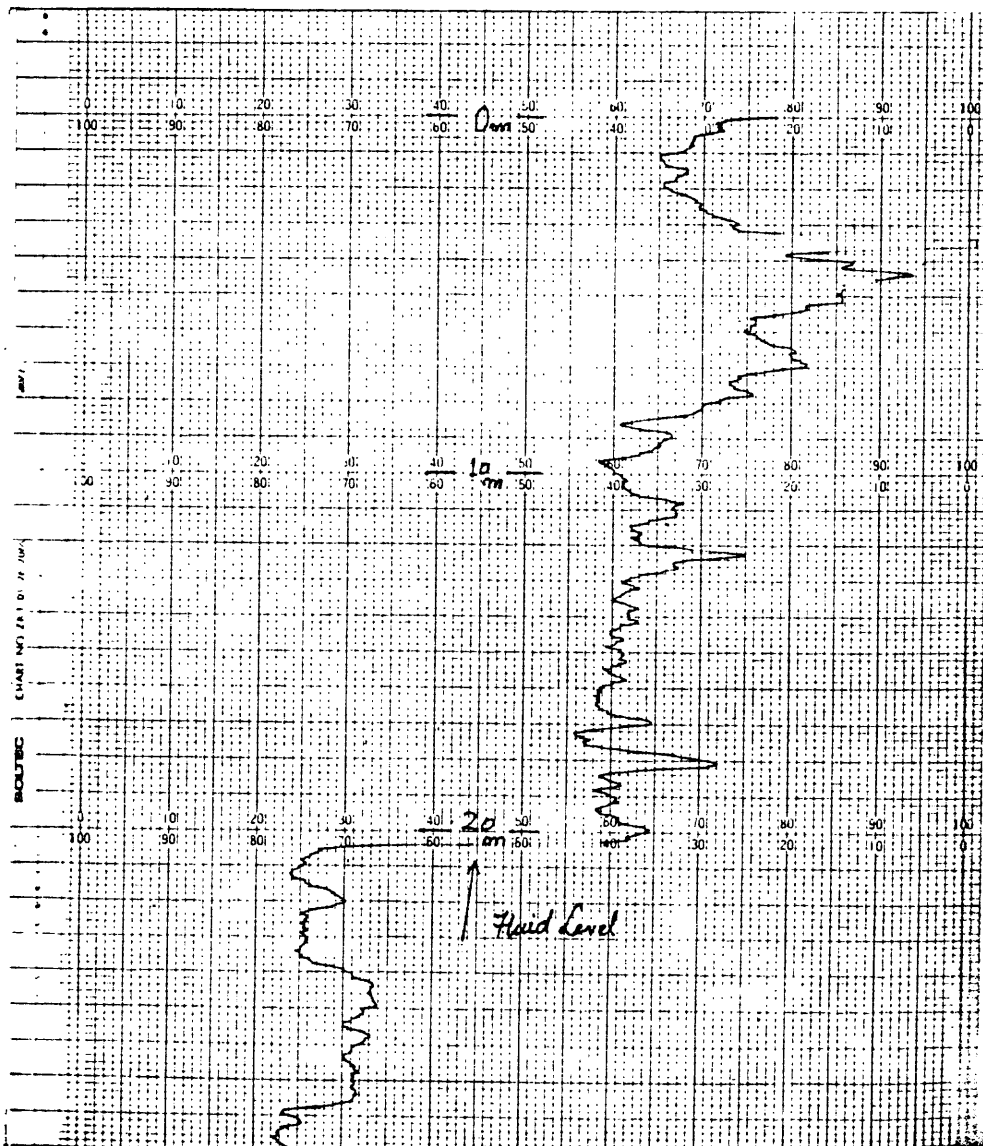


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HOLE NUMBER: UAS - 2

DATE: Dec 8th - 1986

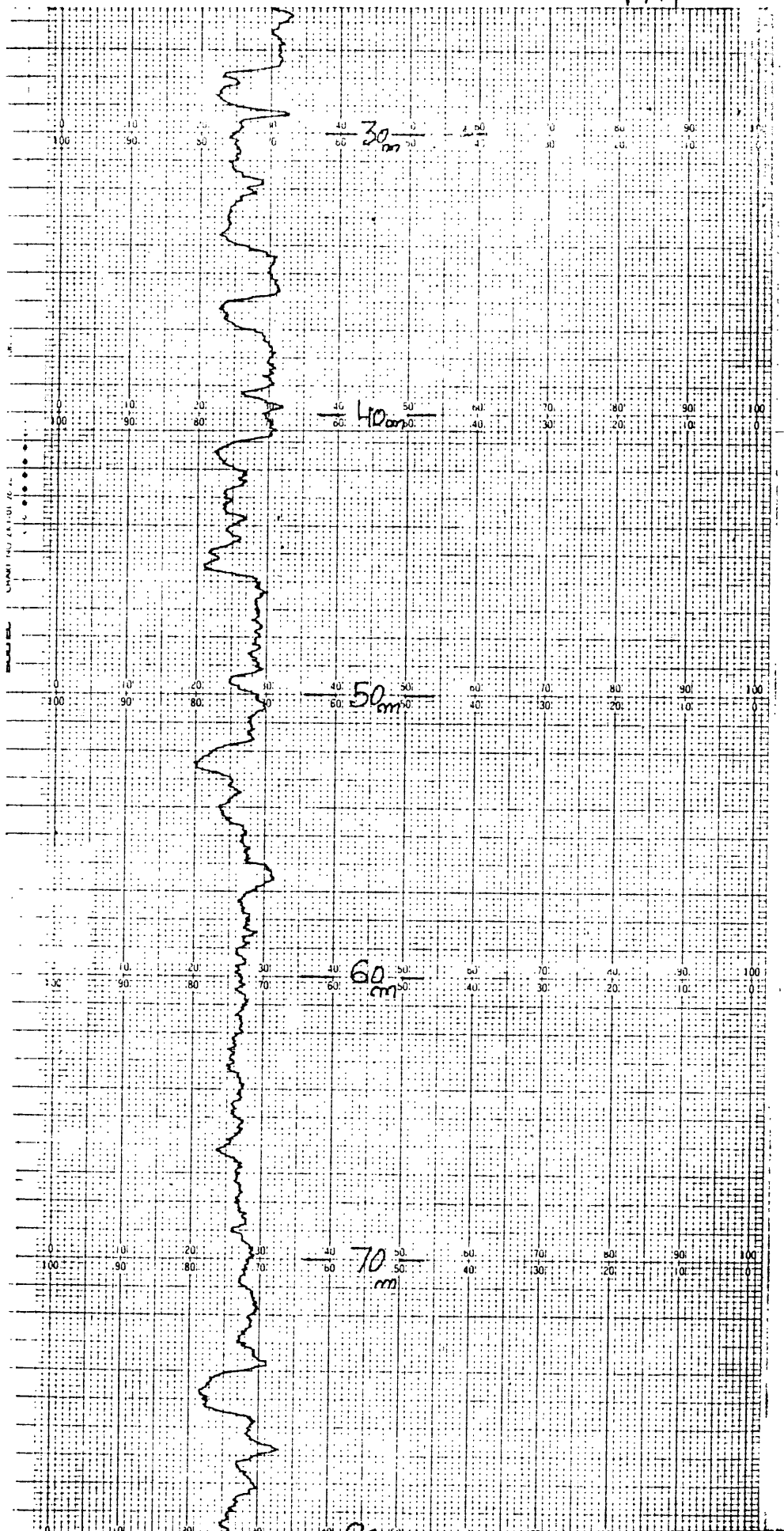
LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	Sindh Pakistan		DEPTH DRILLED	228.10 m	CLIENT	USGS/GSP
REGION	Sindh		DEPTH LOGGED	95m	GEOLOGIST	
PROJECT	Coal Reap		COLLAR ELEV		UNIT OPERATOR	TEXAS/MUSBERG/HARRIS
PROSPECT			DIA	See FROM TO	UNIT NO	PL-2
SEC	TWP	RNG.	DIA	Caliper FROM TO	OFFICE	BOULDER, COLORADO U.S.A.
			DIA	Log FROM TO	ELECTRIC	
TYPE	GAM	4A Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		
LOGGED DEPTH		95m	FLUID LEVEL	20.5 m		
RANGE (I.S.)		20k	CASING DATA			
WSTO DEV		1 1/2	WALL SIZE			
PAPER SPEED		6-1	I.D.			
LOG SPEED			CASED FROM	TO		
BKGD COUNT			CASING TYPE			
PROBE NO		60-1	SAMPLE DATA			
SIZE (dia.)		1 3/8	NON-CORED HOLE	CORED HOLE		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		
DEAD TIME		2	REMARKS			
STANDARD			OPEN HOLE			
DIGITAL DATA						
PRINT INTERVAL						
TIMEBASE						
DENSITY CALIBRATION						
ALUMINUM						
LUCITE						





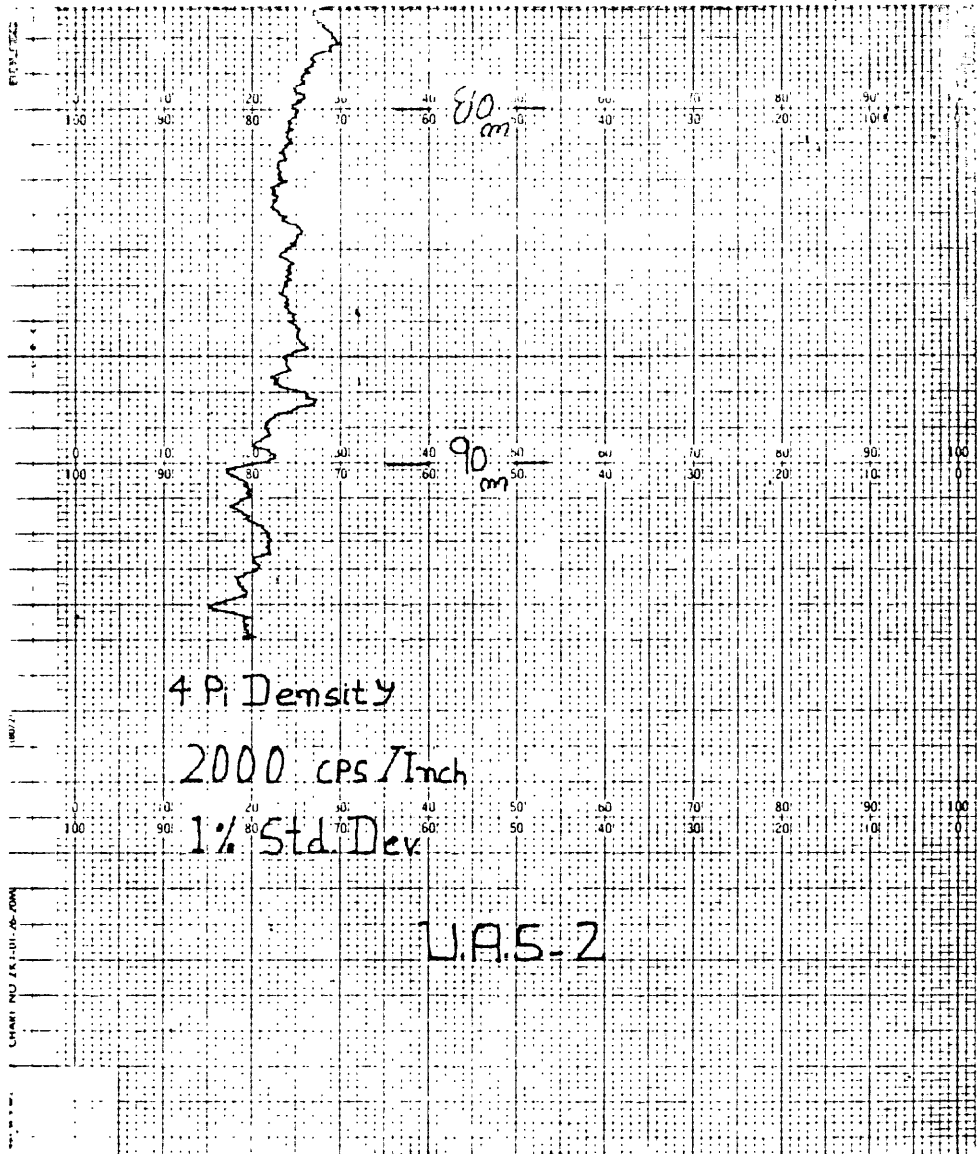
UAS-2

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# GEOSCIENCE ASSOCIATES

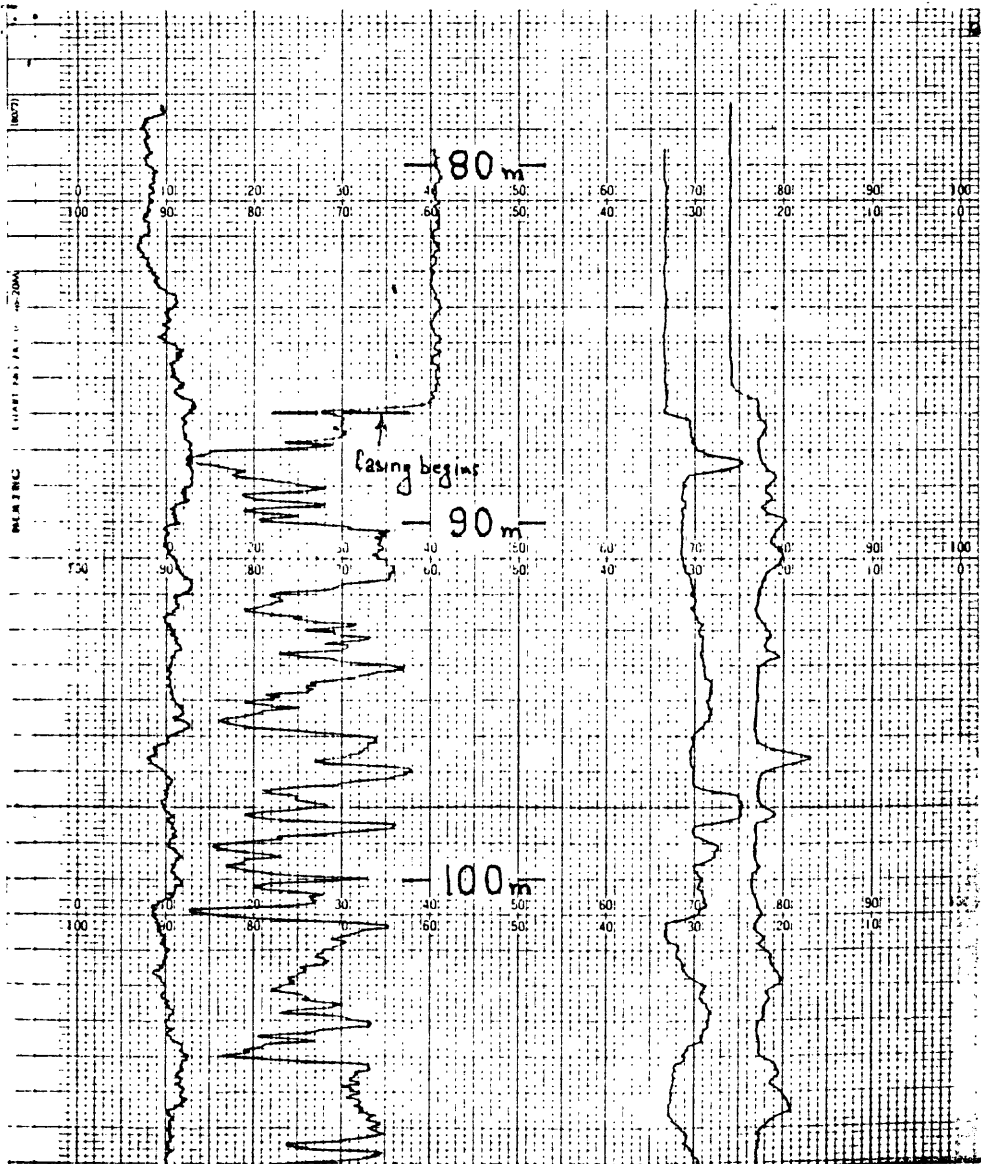
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HOLE NUMBER:

UAS-2

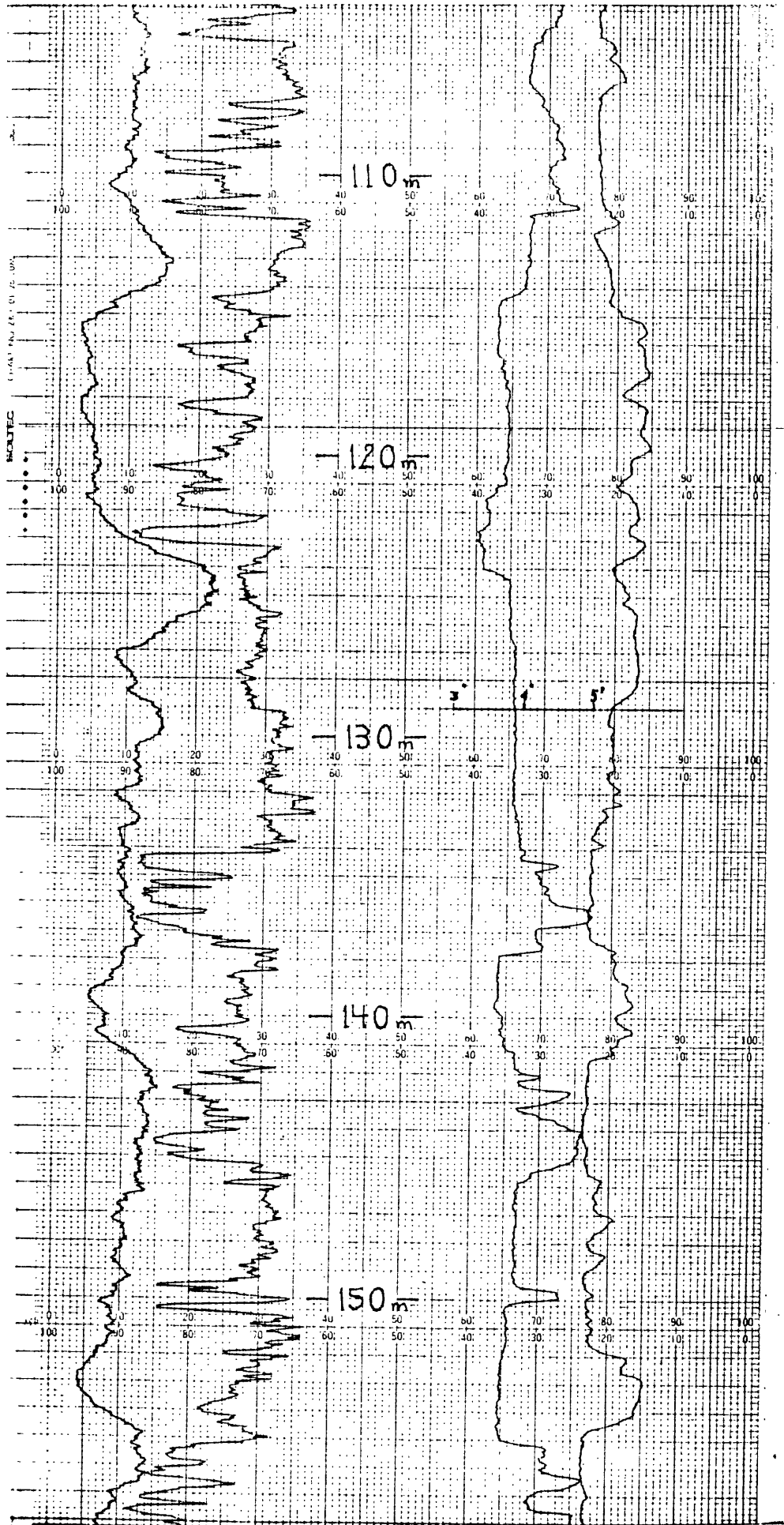
DATE: 7th December, 1986

LOCATION			HOLE DATA		CLIENT		
STATE/COUNTRY	Sindh Pakistan		DEPTH DRILLED	228.10m	CLIENT	U.S.G.S. - G.S.P.	
REGION	Sonda		DEPTH LOGGED	222m	GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV		UNIT OPERATOR	HEMTAS/MUJIB/ILYAS	
PROSPECT			DIA	Sec FROM TO	UNIT NO	PL-2 OFFICE	
SEC	TWP	RNG	DIA	Caliper FROM TO	BOULDER COLORADO	U.S.A.	
			DIA	log FROM TO	ELECTRIC		
TYPE	GAM	HRD	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud	FLUID LEVEL		
LOGGED DEPTH	221m	222m	CASING DATA				
RANGE (F.T.)	100	20K	WALL SIZE	1/4"	TYPE	RESIST S.P.	
STD DEV	3%	1%	ID	4"	LOGGED DEPTH	221m FT	
PAPER SPEED	1-1	1-1	CASED FROM	0 TO 87.2m	SCALE	10	
LOG SPEED	3-1	3-1	CASING TYPE	HW	PAPER SPEED	1-1	
BKGD COUNT			SAMPLE DATA			LOG SPEED	3-1
PROBE NO	HRD-1	HRD-1	NON-CORED HOLE	CORED HOLE	FINE ADJ	300 Bias	
SIZE (dia.)	2	2	SAMPLED INTERVAL	SAMPLE TYPE	CALIPER		
K-FACTOR			REMARKS			LOGGED DEPTH	222m
DEAD TIME	2	2				SCALE 1" Deflection = 1" Dia.	
STANDARD						PAPER SPEED	1-1
DIGITAL DATA						LOG SPEED	3-1
PRINT INTERVAL						ARM LENGTH	30 IN
TIMEBASE						MAX DEF	7 IN
DENSITY CALIBRATION						VERTICAL DEV.	
ALUMINUM						DEPTH	
LUCITE						INCLIN	
						BEARING	



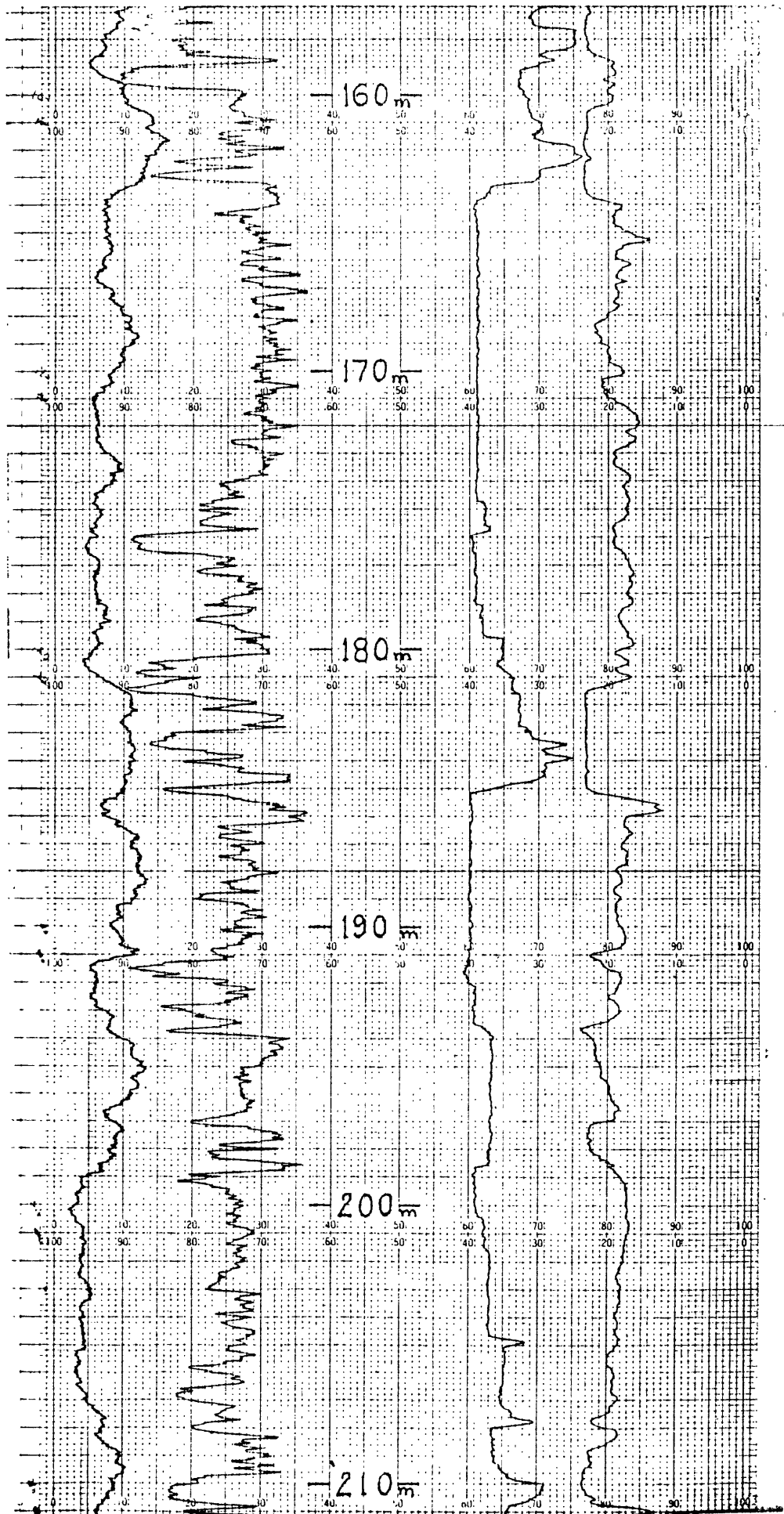
UAS-2

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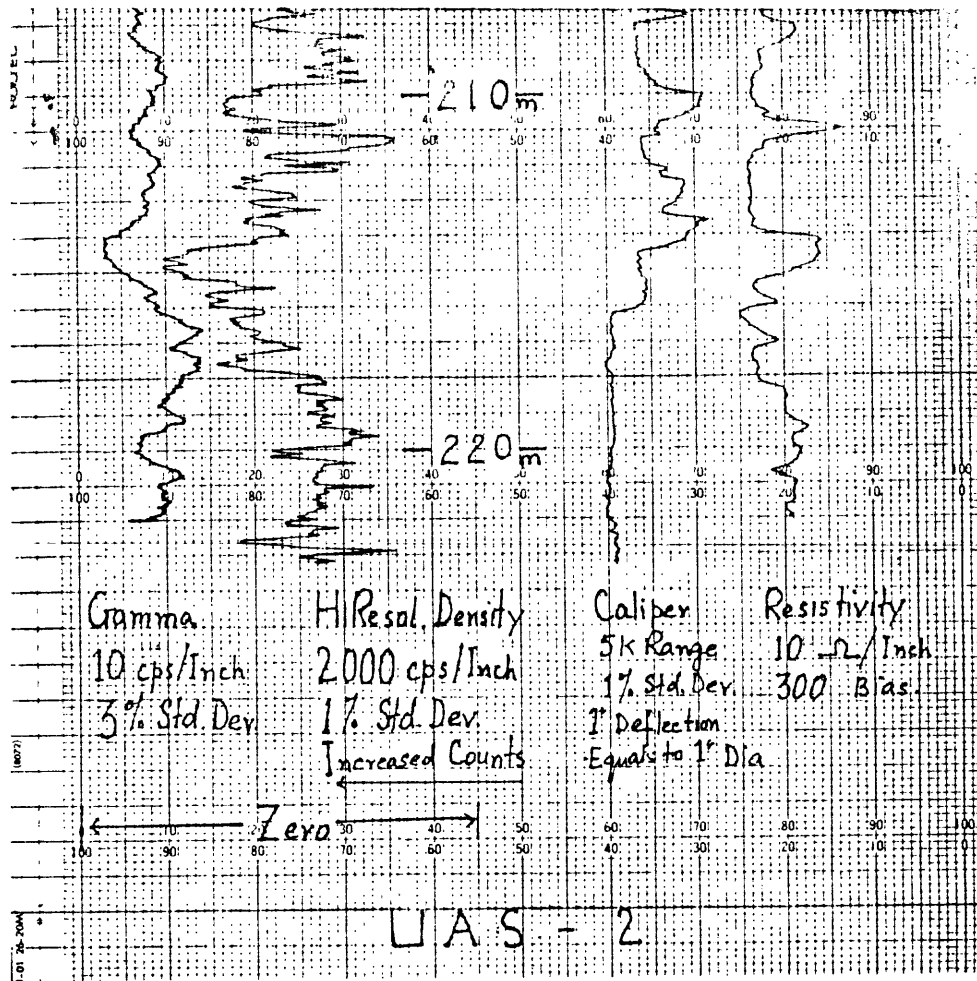
UAS-2

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# GEOSCIENCE ASSOCIATES

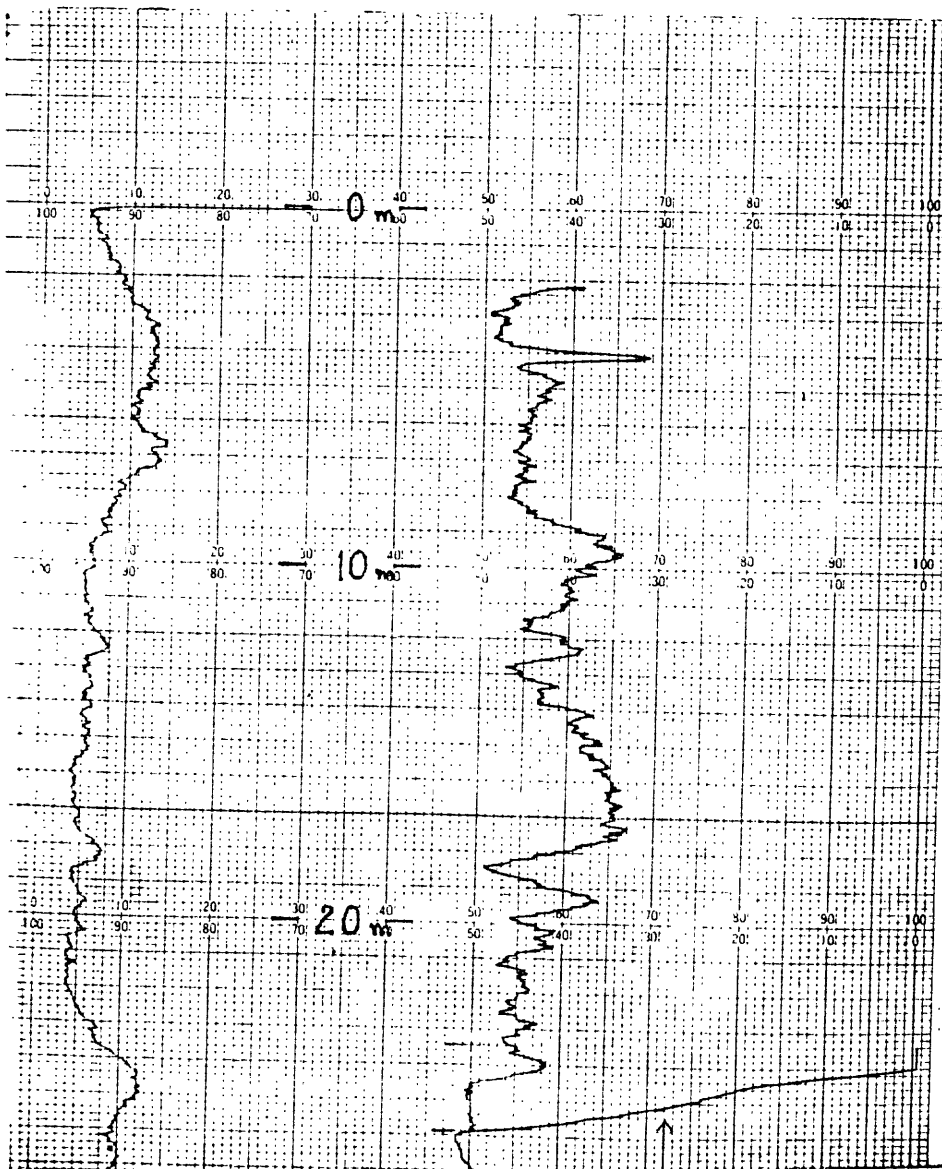
HOLE NUMBER:

UAS-2

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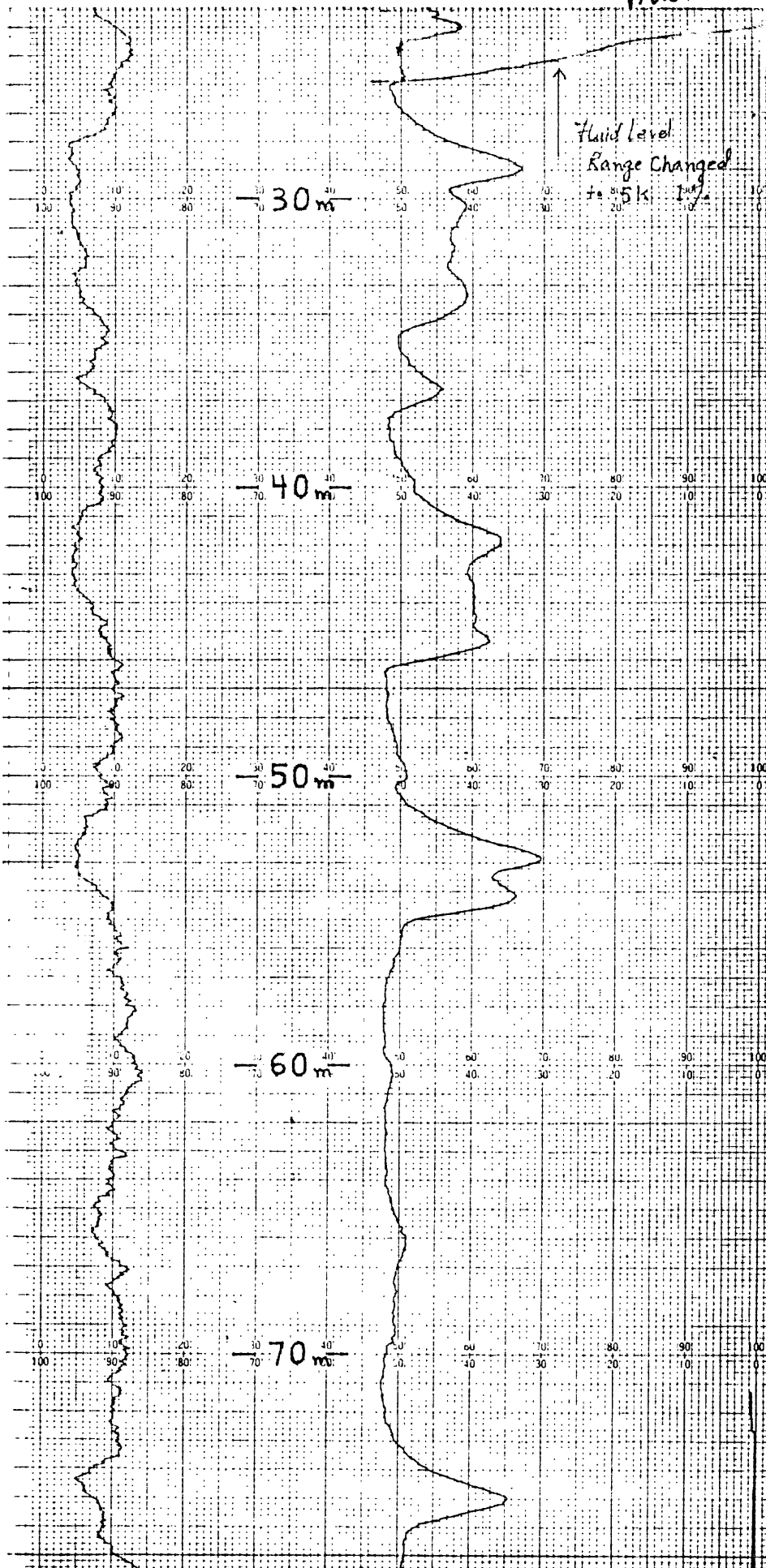
DATE: 7th December, 1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sind	Pakistan	DEPTH DRILLED	228.10 m	CLIENT	U.S.G.S. - G.S.P.
REGION	Sonda		DEPTH LOGGED	22.4 m	GEOLOGIST	
PROJECT	COAL REAP		COLLAR ELEV		UNIT OPERATOR	MENTAG/MUJIB/ILYAS
PROSPECT			DIA	Sec FROM TO	UNIT NO	PL-2 OFFICE
SEC	TWP	RNG	DIA	Caliper FROM TO	BOULDER	COLORADO U.S.A.
			DIA	log FROM TO		
TYPE	GAM	Neutron	HOIF HOLE MEDIUM	H <sub>2</sub> O - mud	ELECTRIC	
LOGGED DEPTH	222 m	22.4 m	FLUID LEVEL	26 m	TYPE	RESIST
RANGE (1 & 2)	100	1K-5K	CASING DATA		LOGGED DEPTH	222 m FT
STD DEV	3%	1%	WALL SIZE	1/4"	SCALE	10
PAPER SPEED	1-1	1-1	ID	4"	PAPER SPEED	1-1
LOG SPEED	6-1	6-1	CASED FROM	D TO 87.2 m	LOG SPEED	6-1
BKGND COUNT			CASING TYPE	HW	FINE ADJ	300 Bias
PROBE NO	6N-1	6N-1	SAMPLE DATA			
SIZE (dia)	13"	13"	NON-CORED HOLE	CORED HOLE X		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		
DEAD TIME	2	2	REMARKS			
STANDARD			Logged through Casing			
DIGITAL DATA					CALIPER	
PRINT INTERVAL					LOGGED DEPTH	FT
TIMEBASE					SCALE	
					PAPER SPEED	
					LOG SPEED	
					ARM LENGTH	IN
					MAX DEF	IN
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN	
					BEARING	



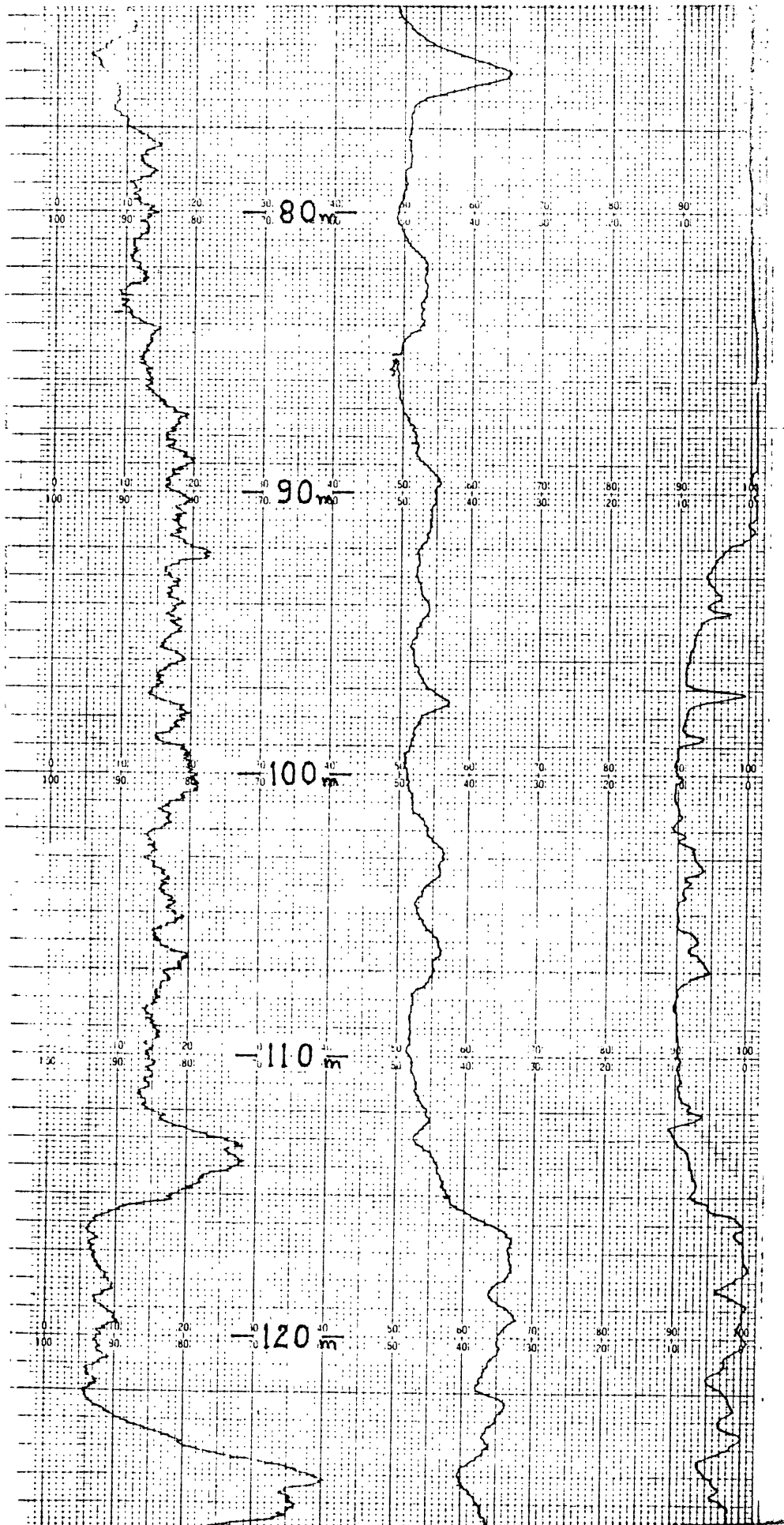
UAS-2

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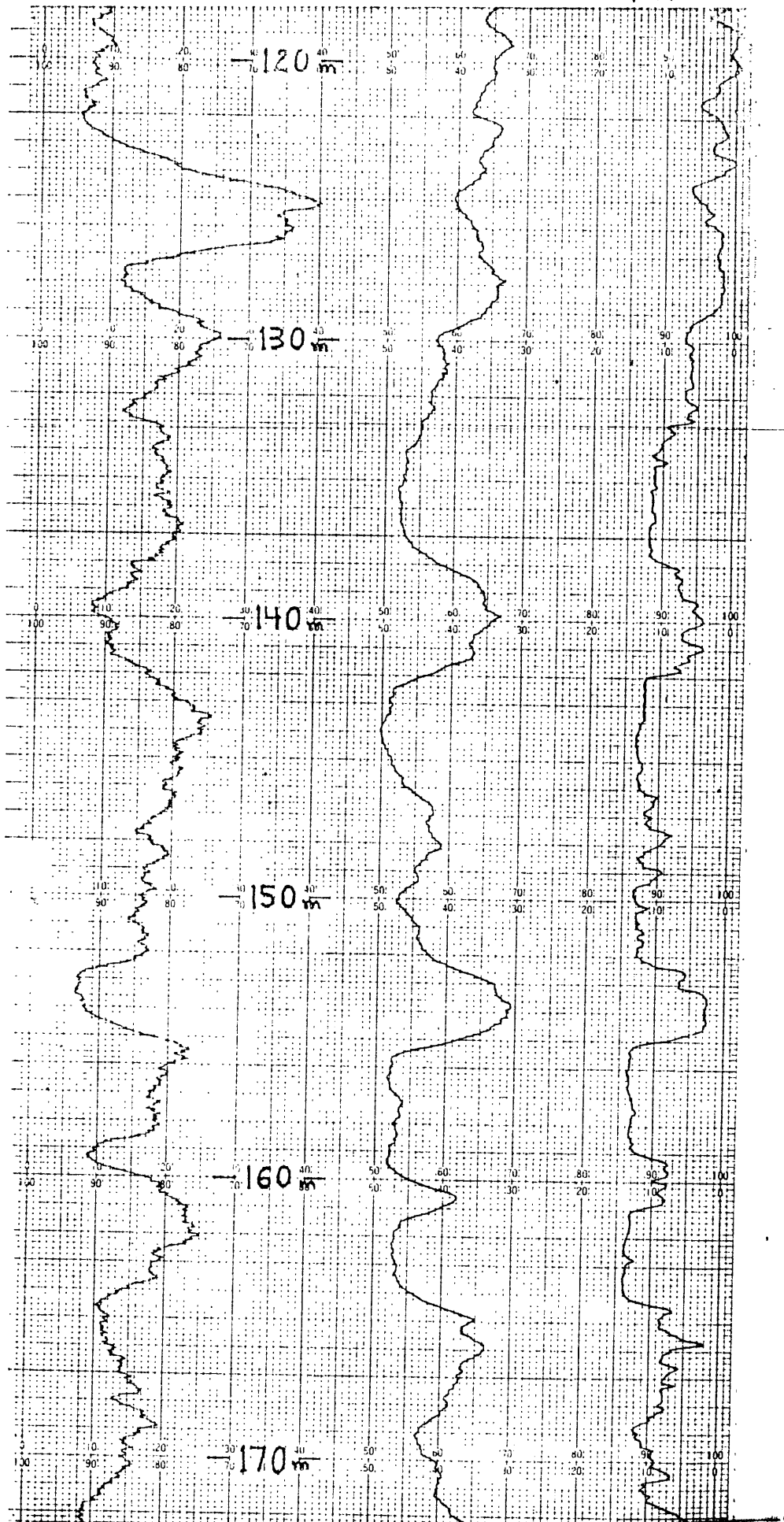
UAS-2

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UAS-2

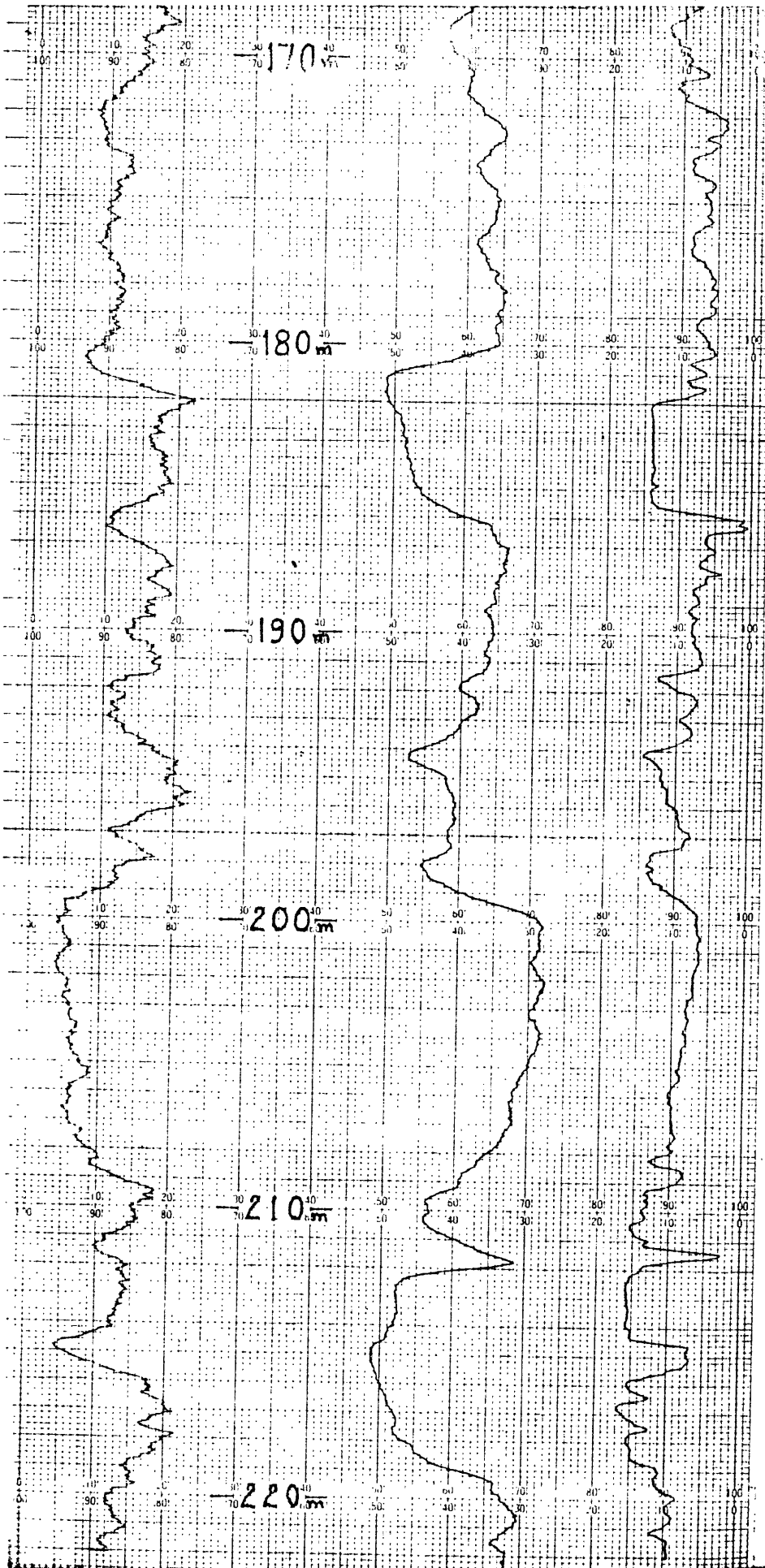
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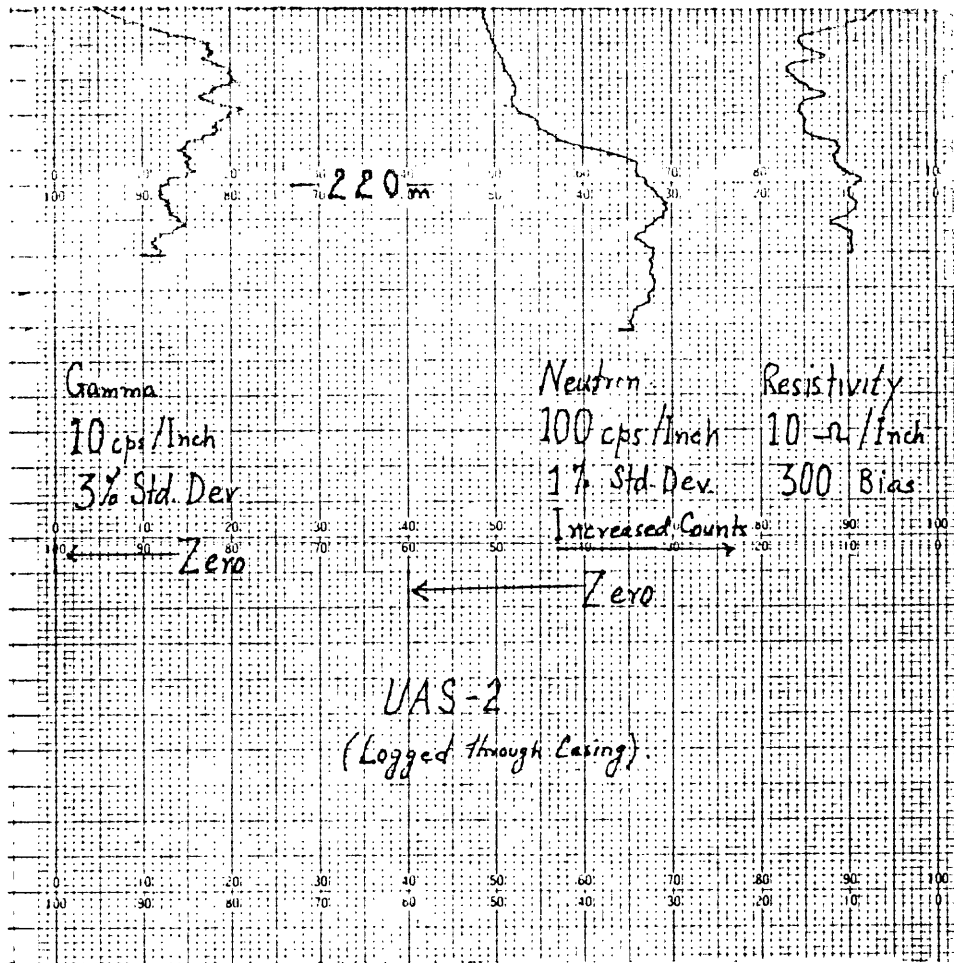
UAS-2

R209



UAS-2

P.210



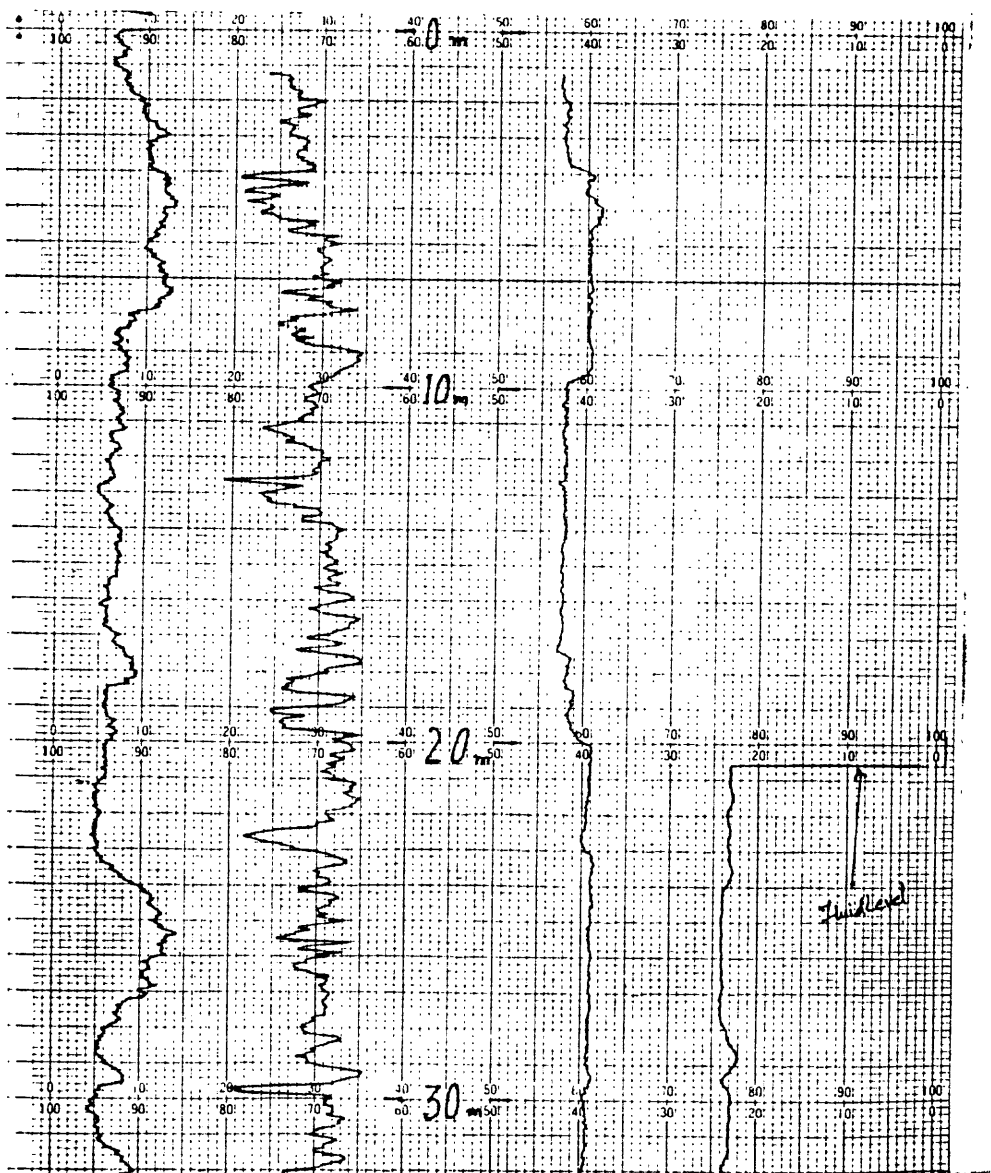


# GEOSCIENCE ASSOCIATES

HOLE NUMBER: U.A.S. - 2

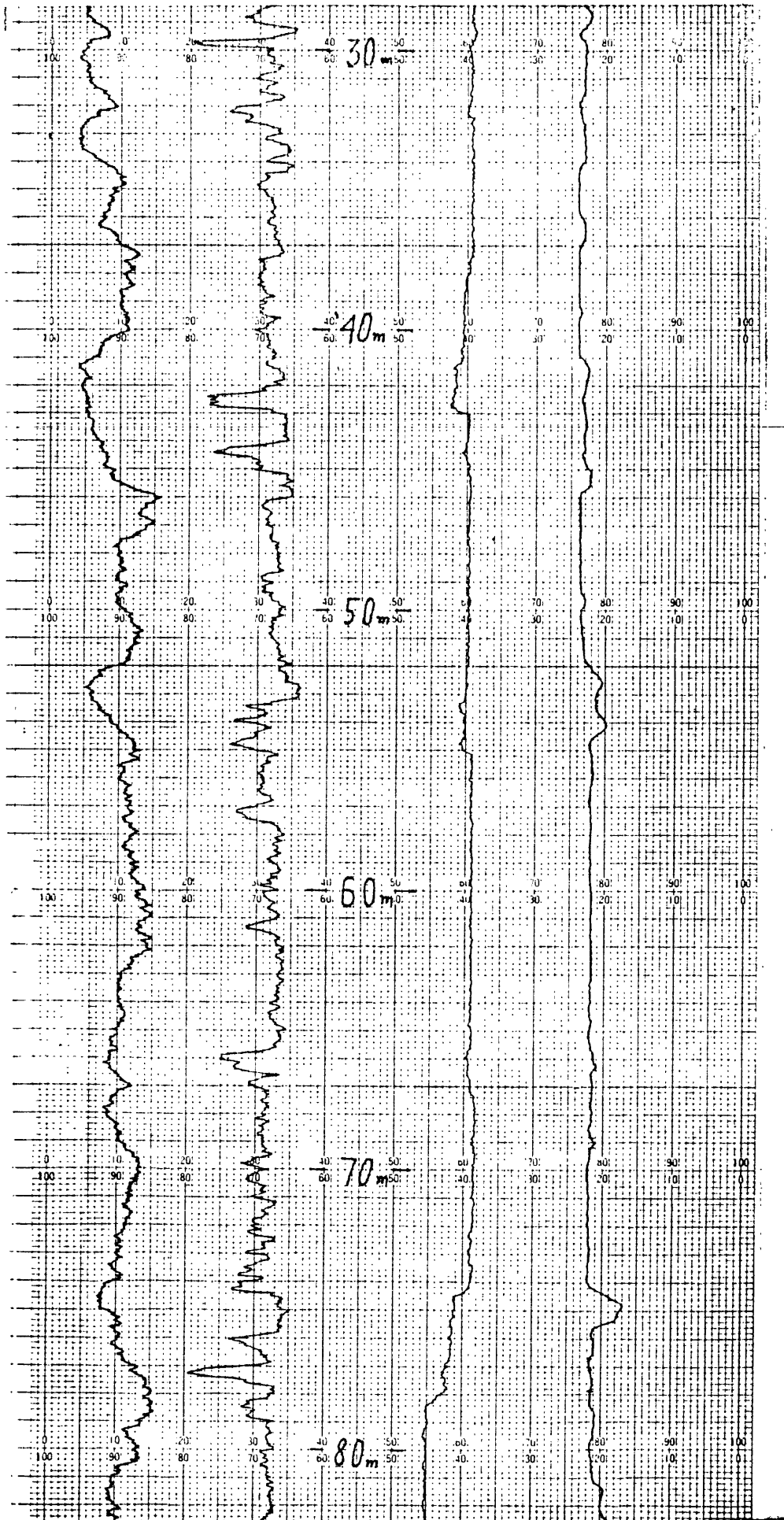
P.211

DATE: Dec. 8th. 1986		
LOCATION		
STATE/COUNTY Sindh Pakistan		
REGION SONDA		
PROJECT COAL REAP		
PROSPECT		
SEC	TWP	RNG
TYPE	GAM	HRQ
LOGGED DEPTH	88m	89m
RANGE (ft.)	100	20K
%STD DEV	3%	1%
PAPER SPEED	1-1	1-1
LOG SPEED	3-1	3-1
BKGD COUNT		
PROBE NO.	HRP-1	HRP-2
SIZE (dia)	2"	2"
K-FACTOR		
DEAD TIME	2	2
STANDARD		
DIGITAL DATA		
PRINT INTERVAL		
TIMEBASE		
DENSITY CALIBRATION		
ALUMINUM		
LUCITE		
HOLE DATA		
DEPTH DRILLED: 228.10m		
DEPTH LOGGED: 88m		
COLLAR ELEV		
DIA	See	FROM TO
DIA	Calif	FROM TO
DIA	2"	FROM TO
BOREHOLE MEDIUM H <sub>2</sub> O + MUD		
FLUID LEVEL		
CASING DATA		
WALL SIZE		
I.D.		
CASING FROM TO		
CASING TYPE		
SAMPLE DATA		
NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>		
SAMPLED INTERVAL SAMPLE TYPE		
CLIENT		
CLIENT UGS / GSP		
GEOLOGIST		
UNIT OPERATOR HENTAB / LAYAS / H		
UNIT NO. PI-3		
OFFICE COLLECTOR USA		
ELECTRIC		
TYPE	RESIST	S.P.
LOGGED DEPTH	88m	FT
SCALE	10	
PAPER SPEED	1-1	
LOG SPEED	3-1	
FINE ADJ.	500	
CALIPER		
LOGGED DEPTH	89m	FT
SCALE	1" Def = 1" dia	
PAPER SPEED	1-1	
LOG SPEED	3-1	
ARM LENGTH	30"	IN
MAX DEF	7"	IN
VERTICAL DEV.		
DEPTH		
INCLIN		
BEARING		



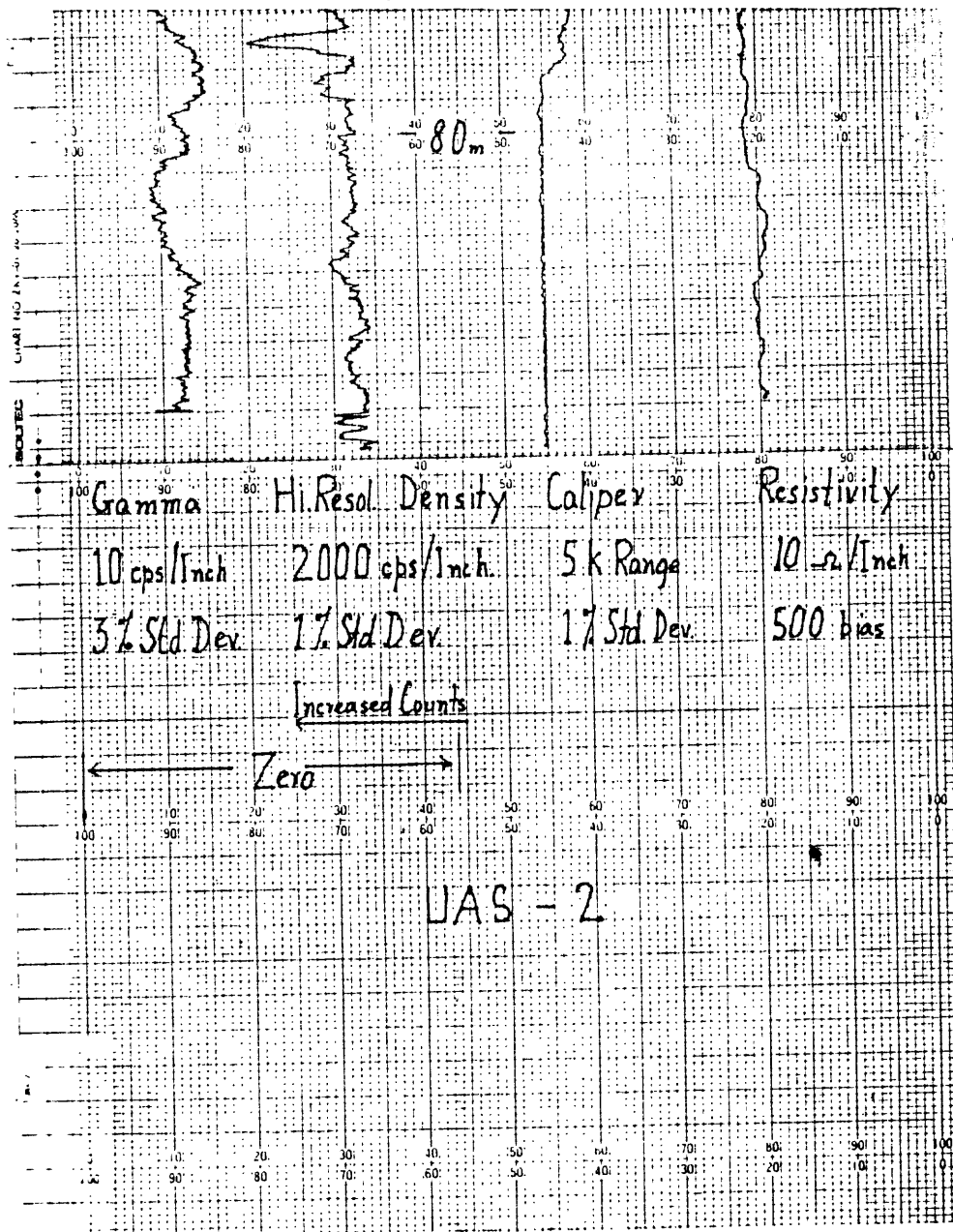
UAS-2

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UAS - 2



# GEOSCIENCE ASSOCIATES

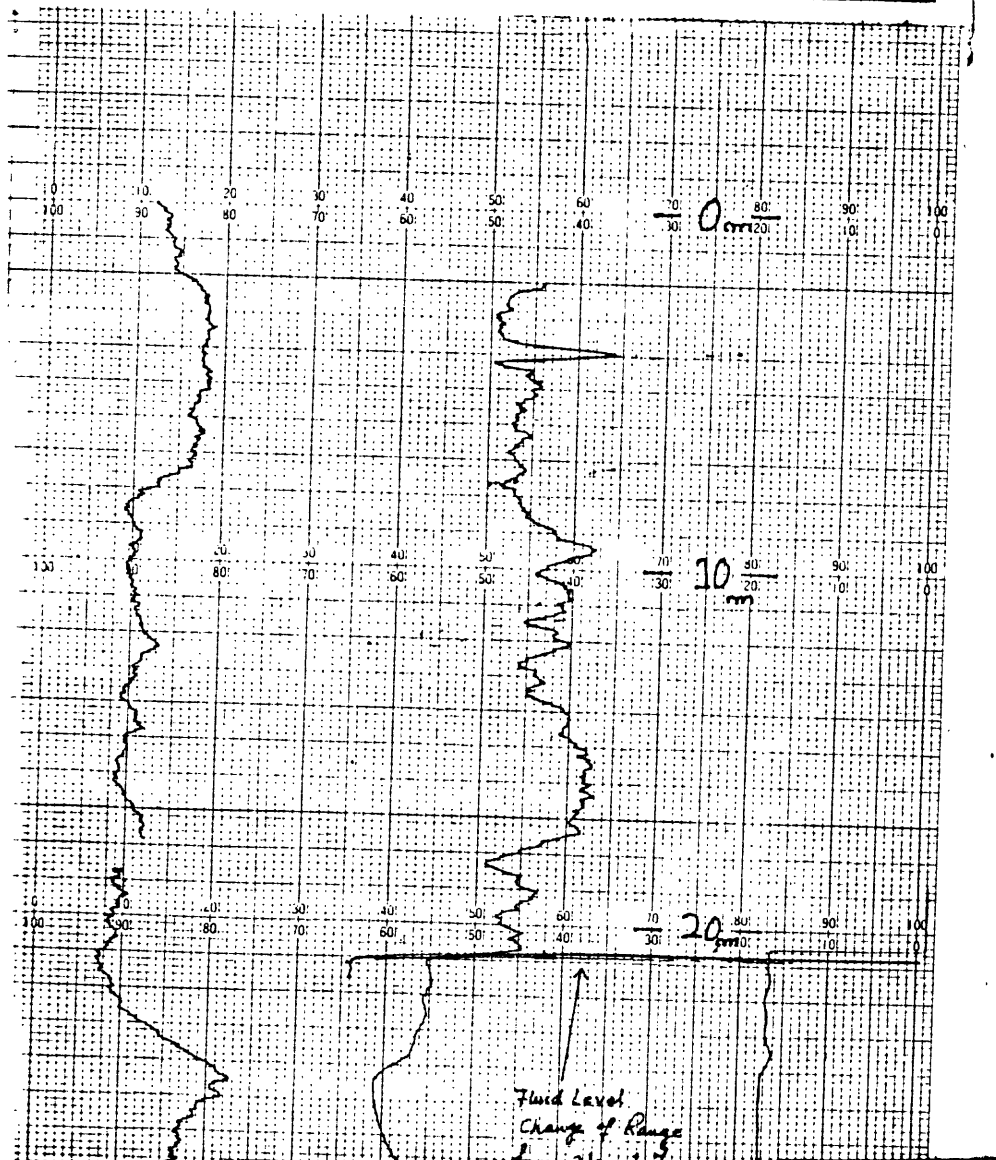
P.214

HOLE NUMBER:

UAS-2

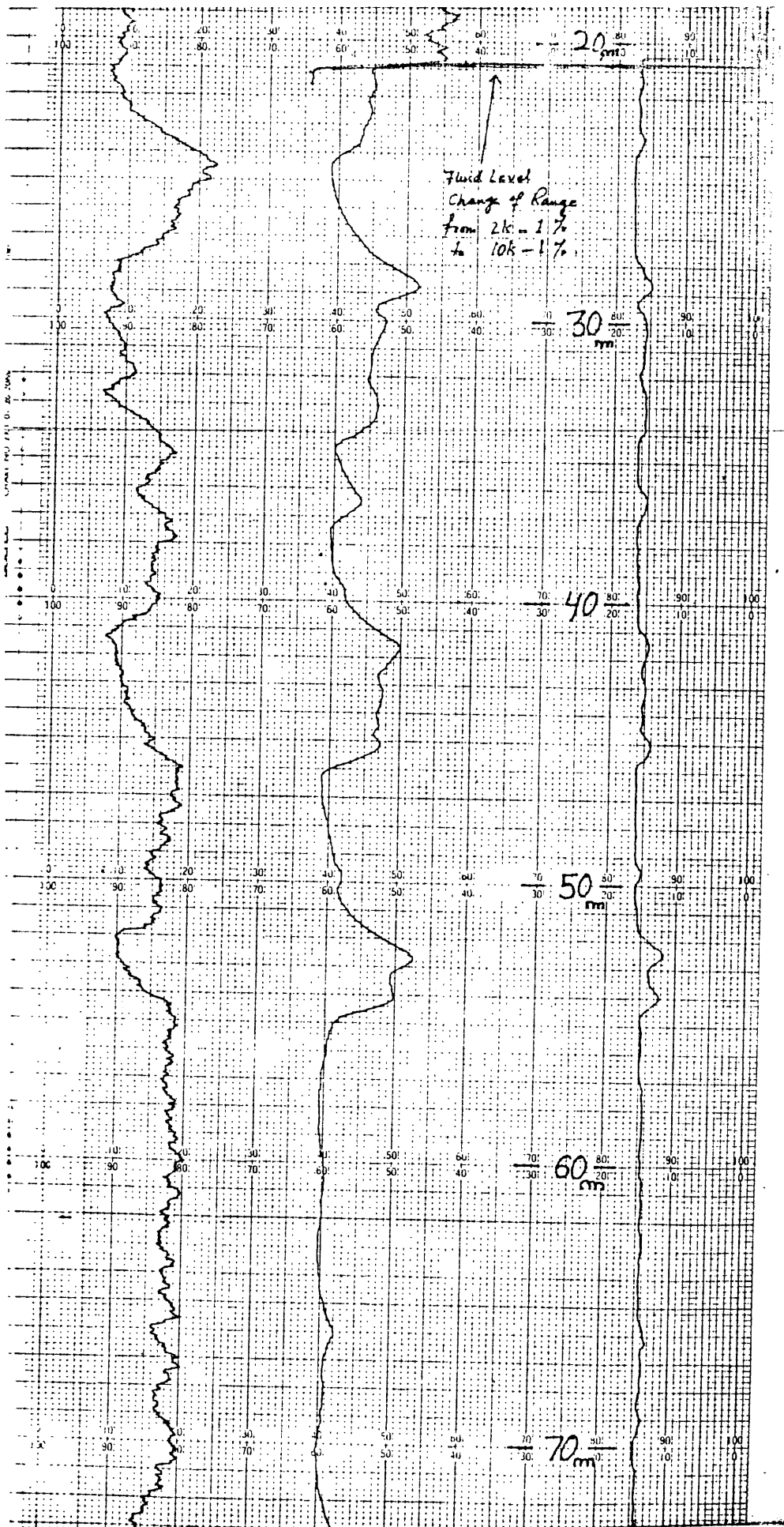
DATE: DEC 8th 1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	SIND PAKISTAN		DEPTH DRILLED	228.10 m	CLIENT	USGS/GSP
REGION	SONDA		DEPTH LOGGED	95 m	GEOLOGIST	
PROJECT	COAL REAP		COLLAR ELEV		UNIT OPERATOR	ILYAS/MUJEEB/MEHTA
PROSPECT			DIA	SEE FROM TO	UNIT NO.	PL-1
SEC	TWP	ANG	DIA	CALIPER FROM TO	OFFICE	Colorado U.S.A.
			DIA	LOG FROM TO		
TYPE	GAM	NEUT	BOREHOLE MEDIUM	H <sub>2</sub> O + MUD	ELECTRIC	
LOGGED DEPTH	93 m	95 m	FLUID LEVEL	20.8 m	TYPE	RESIST
RANGE (f.s.)	100	35	CASING DATA		LOGGED DEPTH	95 m
STD DEV	3%	1%	WALL SIZE		SCALE	90
PAPER SPEED	1-1	1-1	ID		PAPER SPEED	
LOG SPEED	6-1	6-1	CASED FROM	TO	LOG SPEED	
BKGD COUNT			CASING TYPE		FINE ADJ	500 Br
PROBE NO	64-1	64-1	SAMPLE DATA		CALIPER	
SIZE (dia)	1 3/8	1 3/8	NON-CORED HOLE	CORED HOLE	LOGGED DEPTH	FT
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE	SCALE	
DEAD TIME	2	2	REMARKS		PAPER SPEED	
STANDARD			OPEN HOLE		LOG SPEED	
DIGITAL DATA					ARM LENGTH	IN
PRINT INTERVAL					MAX DEF.	IN
TIMEBASE					VERTICAL DEV.	
DENSITY CALIBRATION					DEPTH	
ALUMINUM					INCLIN	
LUCITE					BEARING	



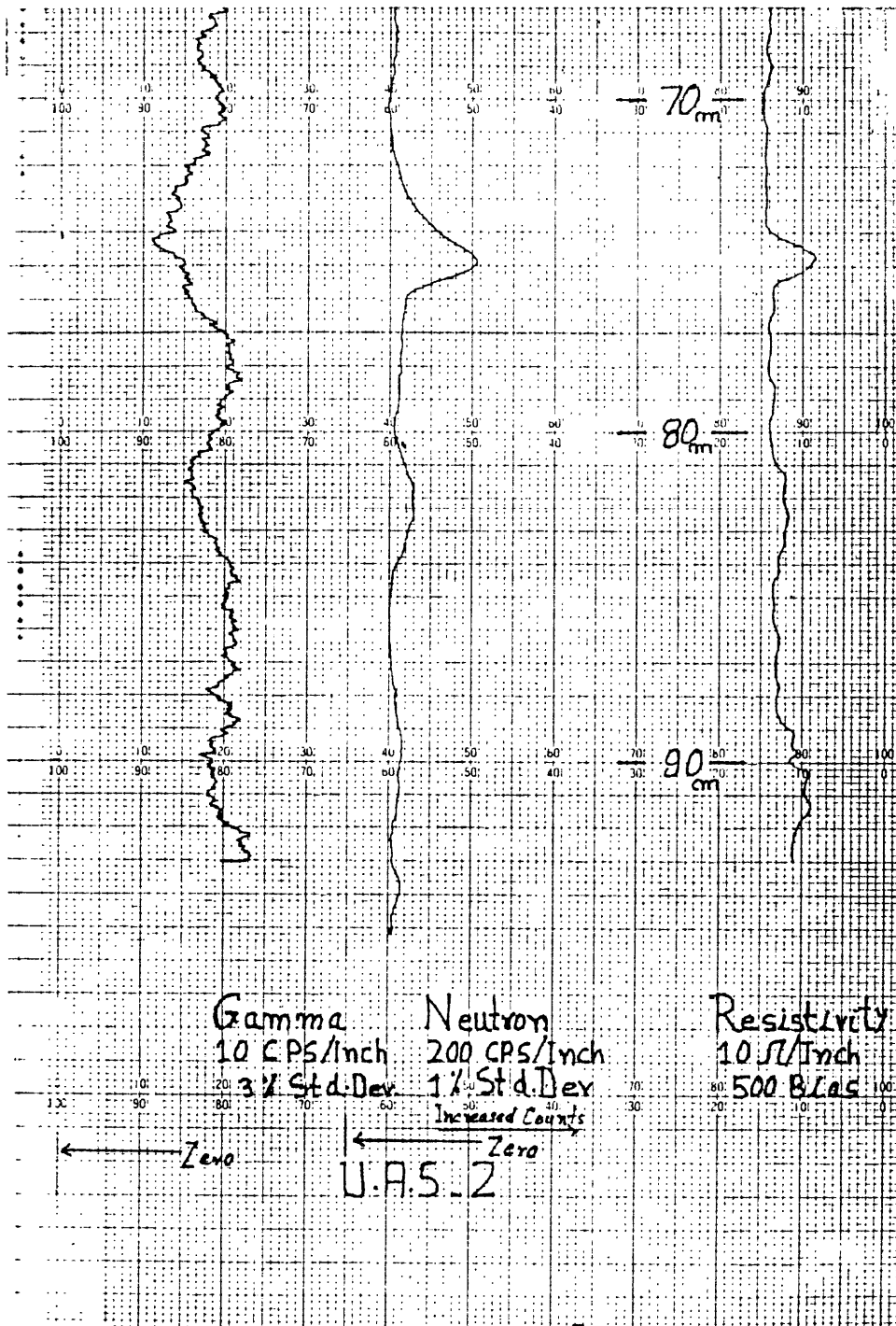
UAS-2

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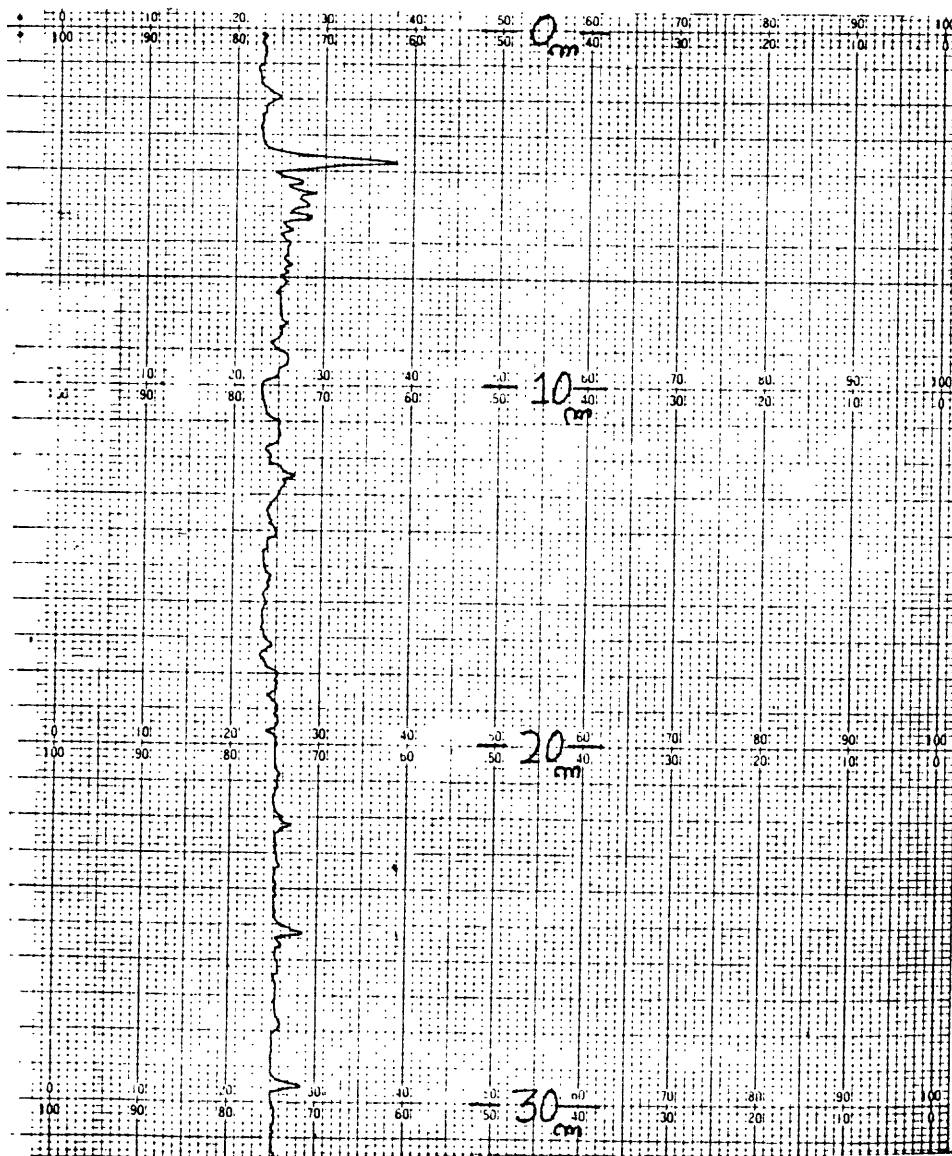
# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAS-2

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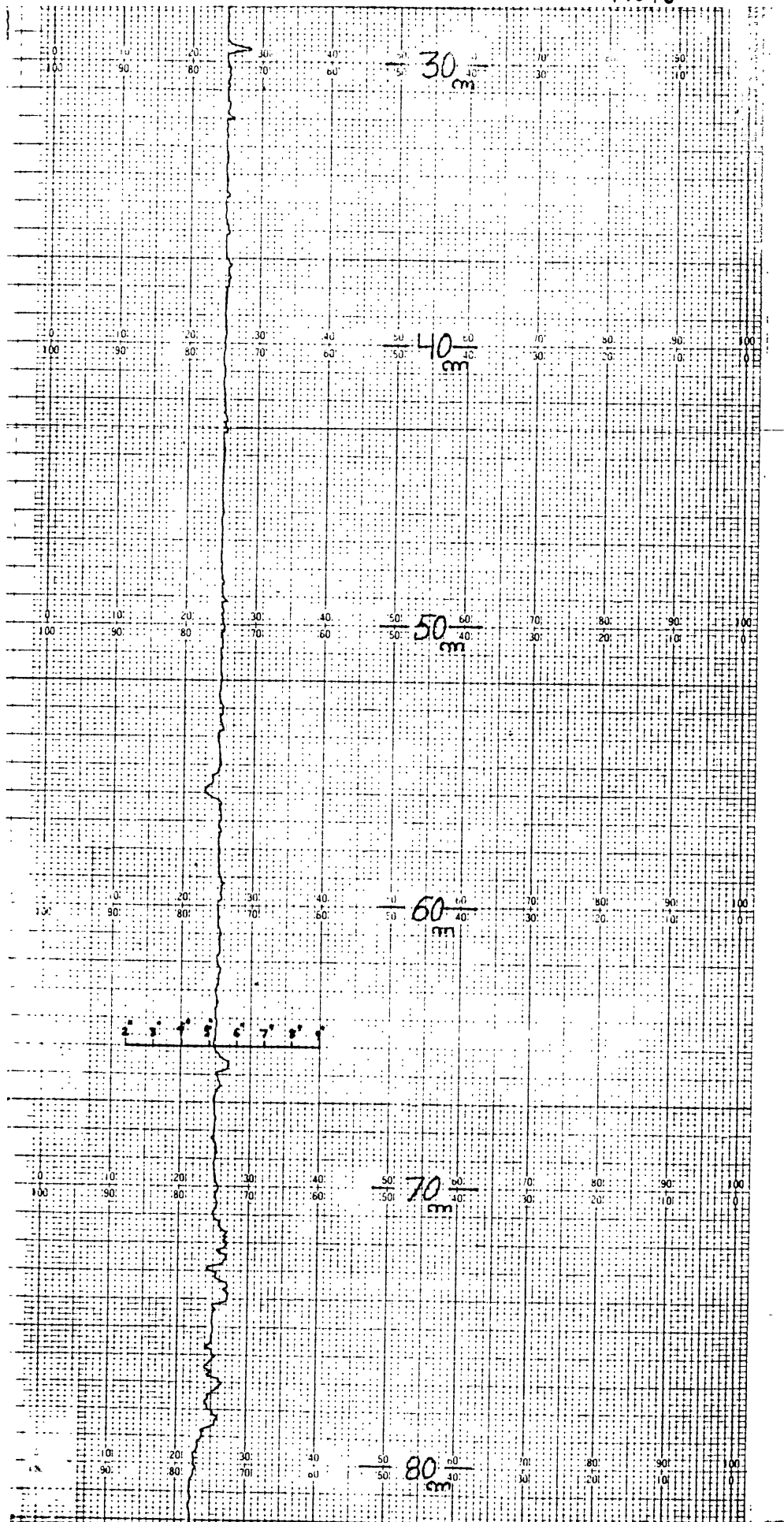
DATE: Dec 84 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind Pakistan		DEPTH DRILLED	228.10 m		CLIENT	45 98 / 45 P	
REGION	Sonda		DEPTH LOGGED	94 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	MUSHER / MYS / M... UNIT NO PL-2 SPINNER COLOADO OFFICE LISA	
PROSPECT			DIA	See	FROM TO	ELECTRIC		
SEC	TWP	RNG	DIA	Caliper	FROM TO			
			DIA	LOS	FROM TO			
TYPE	OAM	SAm	NONFILL MATHIUM					
LOGGED DEPTH			FLUID LEVEL					
RANGE (1 s)			CASING DATA					
STD DEV			WALL SIZE					
PAPER SPEED			I.D.					
LOG SPEED			CASED FROM TO					
BKGD. COUNT			CASING TYPE					
PROBE NO.			SAMPLE DATA					
SIZE (dia.)			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>					
K-FACTOR			SAMPLED INTERVAL					
DEAD TIME			SAMPLE TYPE					
STANDARD			REMARKS					
DIGITAL DATA			Three Arm CALIPER					
PRINT INTERVAL			LOGGED DEPTH			94 m		
TIMEBASE			SCALE			.4" = 1" Dia.		
DENSITY CALIBRATION			PAPER SPEED			1-1		
ALUMINUM			LOG SPEED			6-1		
LUCITE			ARM LENGTH			12		
			MAX DEF			24		
			VERTICAL DEV.					
			DEPTH					
			INCLIN					
			BEARING					



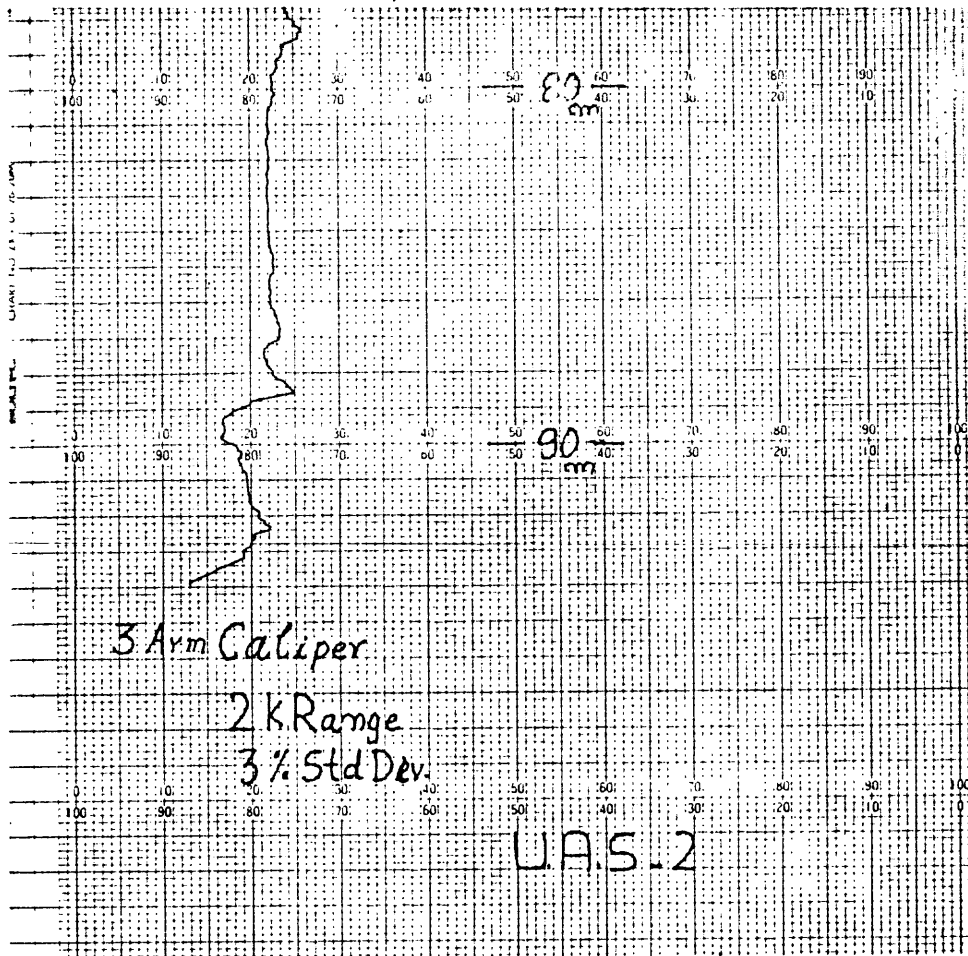
UAS-2

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# GEOSCIENCE ASSOCIATES

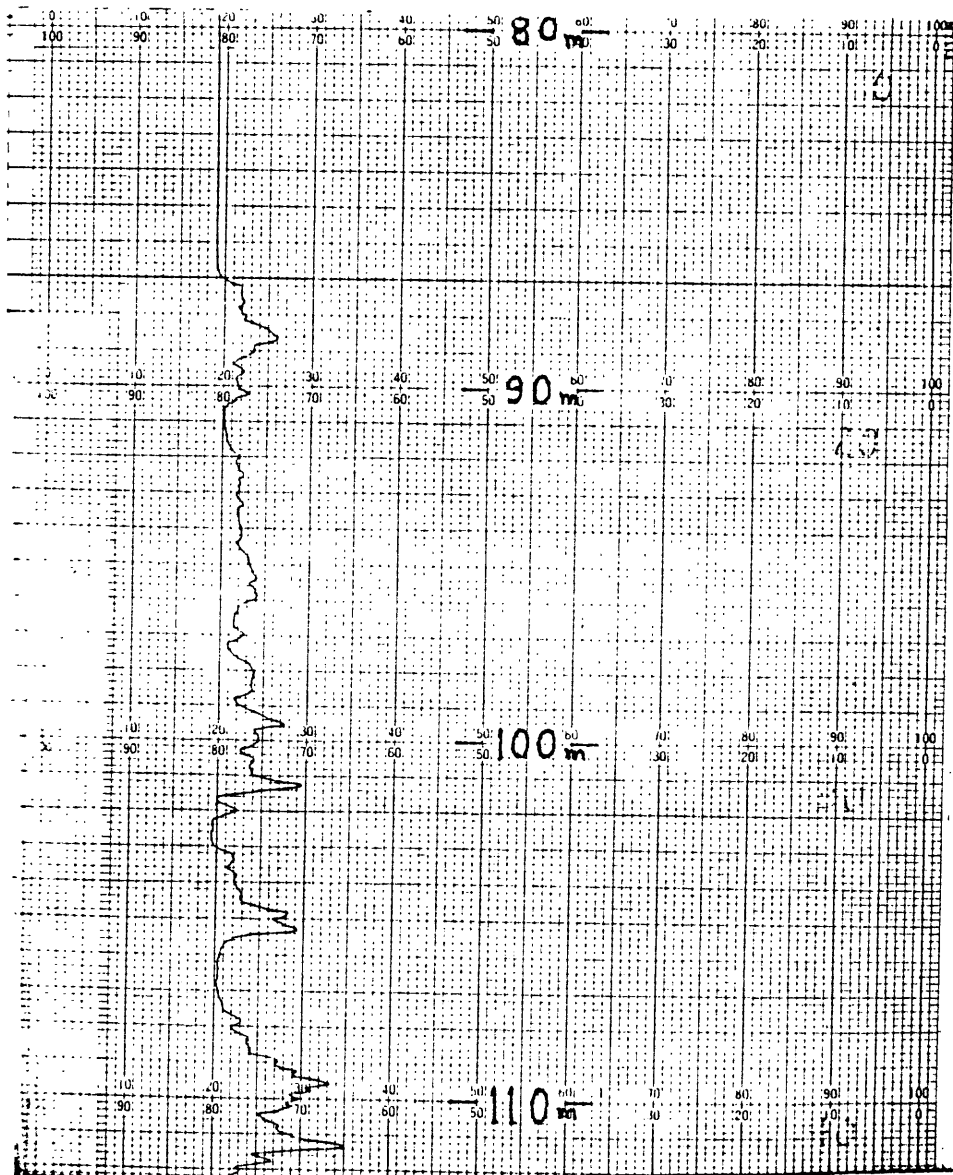
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HOLE NUMBER:

UAS-2

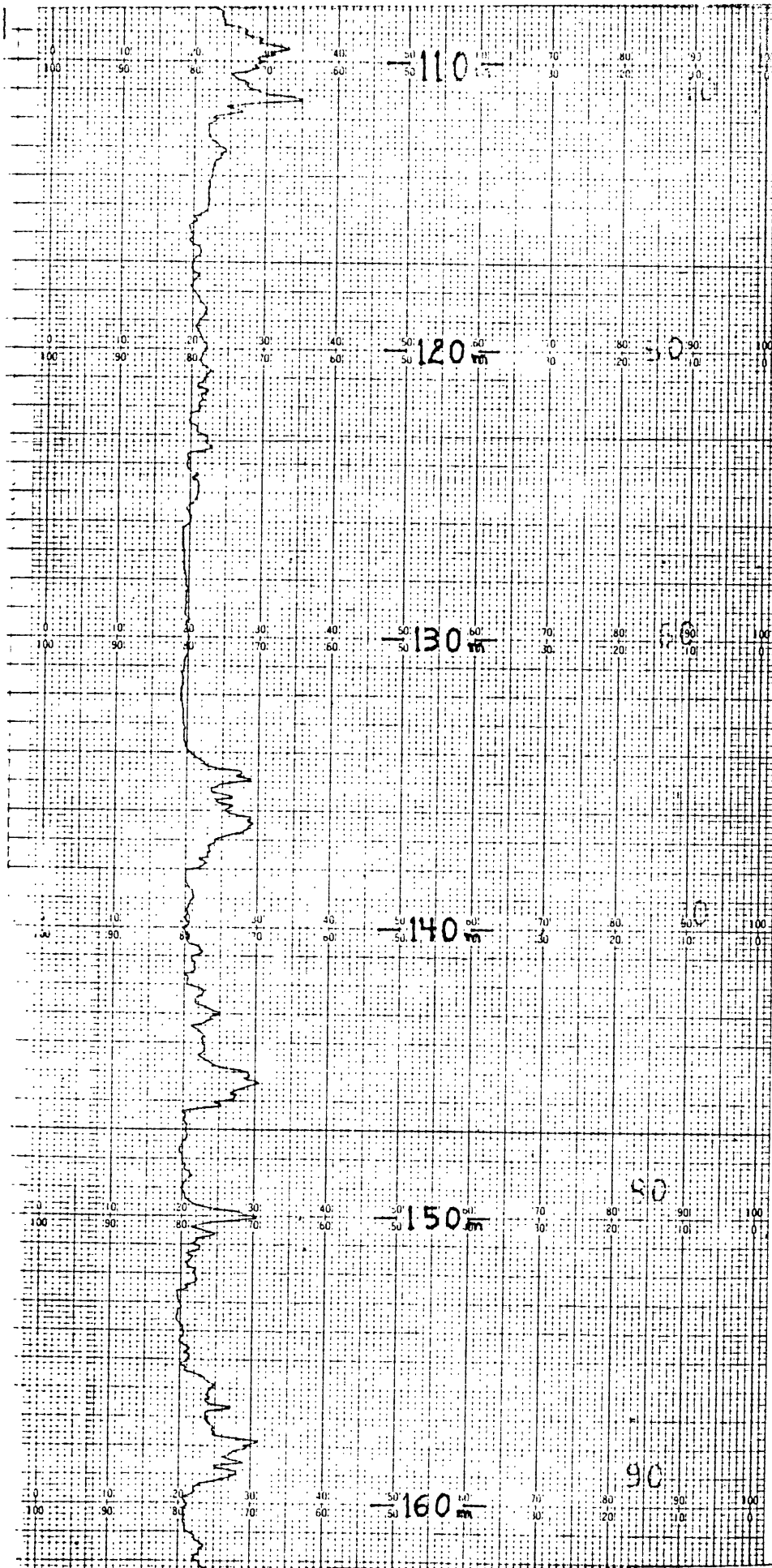
DATE: 7th December, 1986

LOCATION			HOLE DATA			CLIENT			
STATE/COUNTRY	Sindh Pakistan		DEPTH DRILLED	228.10 m		CLIENT	U.S.G.S. - G.S.P.		
REGION	Sonda		DEPTH LOGGED	225 m		GEOLOGIST			
PROJECT	COAL REAP.		COLLAR ELEV			UNIT OPERATOR	MEHTAB/MUJIB/ILYAS		
PROSPECT			DIA	Sec	FROM TO	UNIT NO	PL-2 OFFICE		
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER	SOLARADO U.S.A.		
			DIA	Log	FROM TO	ELECTRIC			
TYPE	OAM		NON-HOM. MEDIUM	H <sub>2</sub> O + Mud.		TYPE	RESIST	S.P.	
LOGGED DEPTH			FLUID LEVEL			LOGGED DEPTH	FT	FT	
RANGE (I.S.)			CASING DATA			SCALE			
STD DEV			WALL SIZE	1/4"		PAPER SPEED			
PAPER SPEED			ID	1"		LOG SPEED			
LOG SPEED			CASED FROM	0 TO 87.2m		FINE ADJ.			
BKGND. COUNT			CASING TYPE	HW		3 ARM CALIPER			
PROBE NO			SAMPLE DATA			LOGGED DEPTH	225 m	FT	
SIZE (dia)			NON-CORED HOLE	<input type="checkbox"/>		SCALE			
K-FACTOR			CORED HOLE	<input checked="" type="checkbox"/>		PAPER SPEED	1-1		
DEAD TIME			SAMPLED INTERVAL			LOG SPEED	6-1		
STANDARD			SAMPLE TYPE			ARM LENGTH	12	IN	
DIGITAL DATA			REMARKS						MAX DEF. 24 IN
PRINT INTERVAL									VERTICAL DEV.
TIMEBASE									DEPTH
									INCLIN
									BEARING
DENSITY CALIBRATION									
ALUMINUM									
LUCITE									



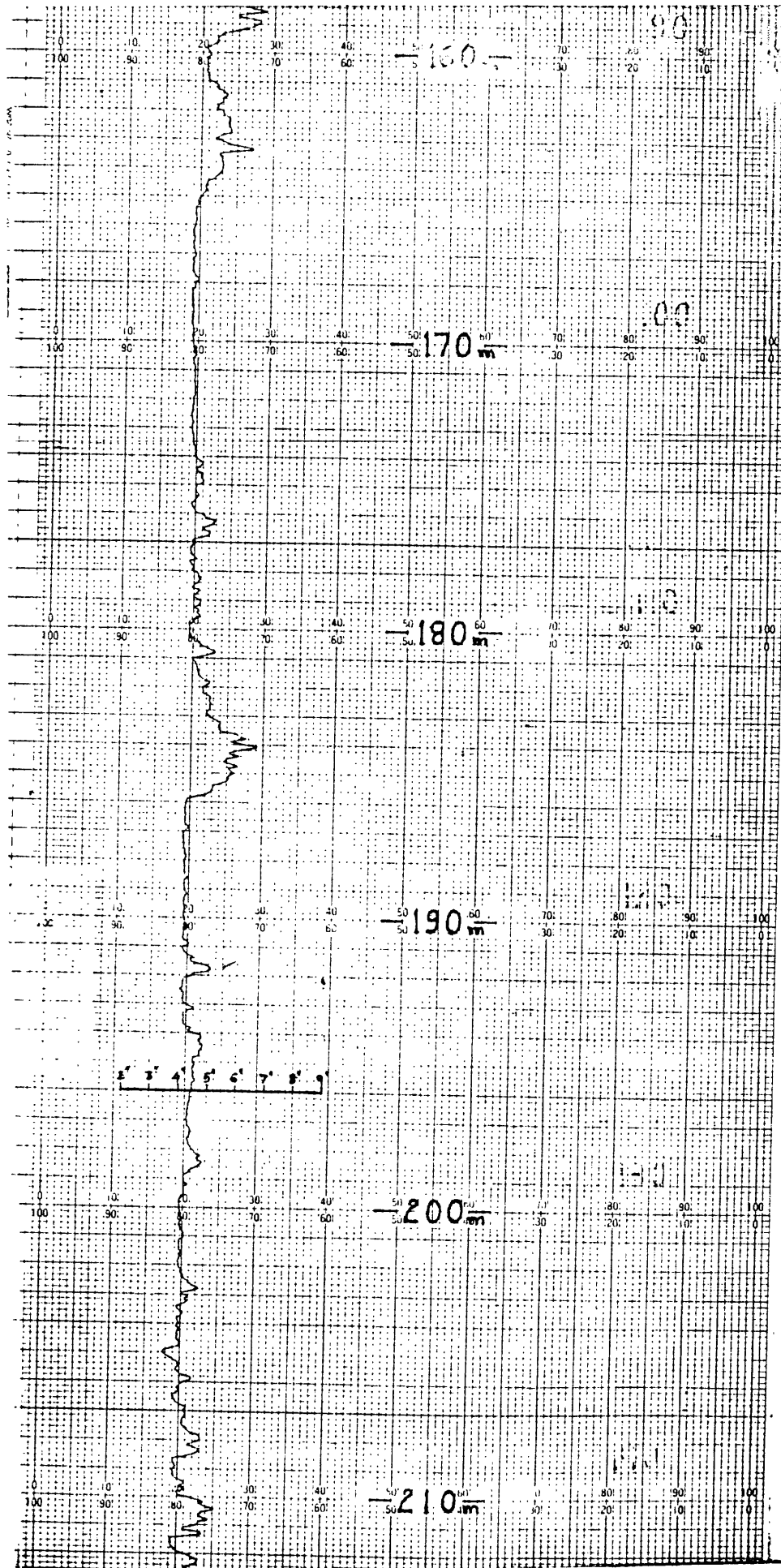
UAS-2

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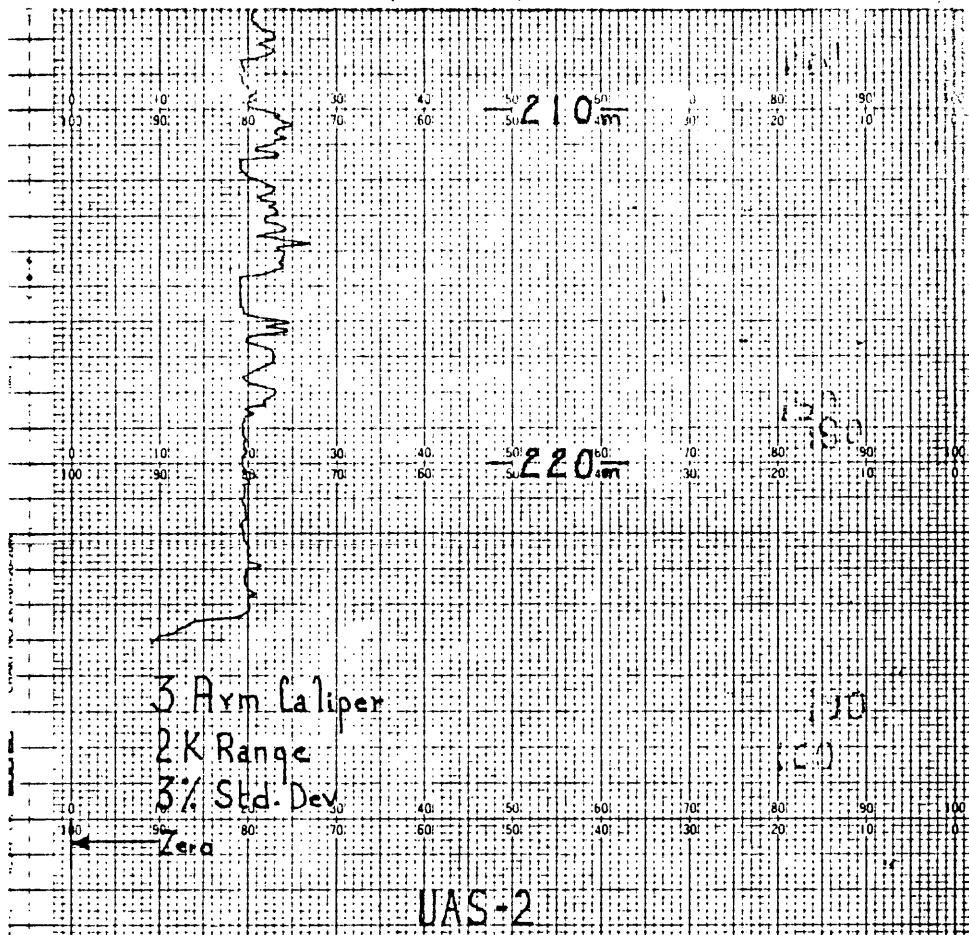
UAS-2

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DRILL HOLE UAS-3





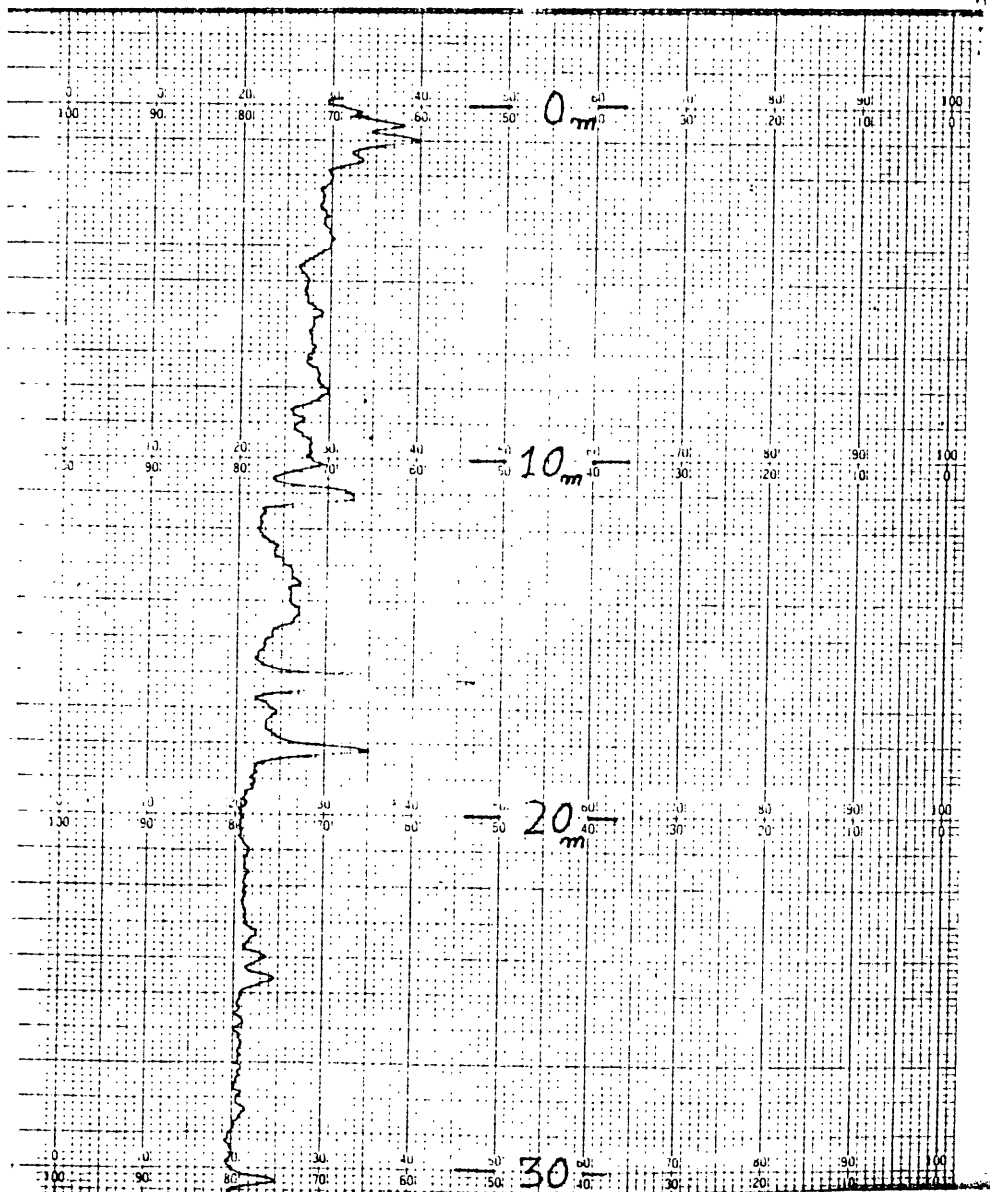
# GEOSCIENCE ASSOCIATES

HOLE NUMBER

UAS - 3

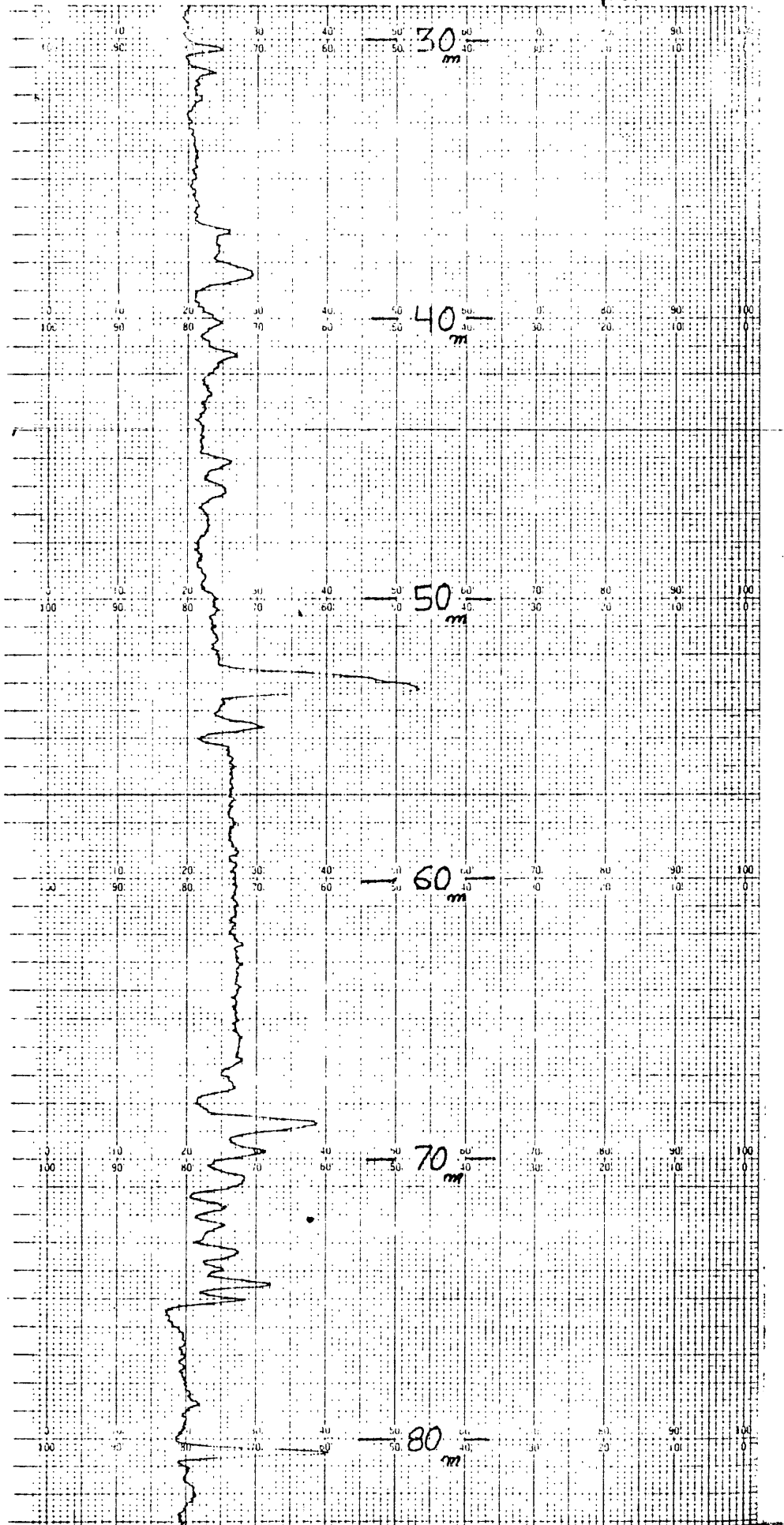
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DATE: Dec. 19th 1986		
LOCATION		
STATE/COUNTY: Sindh Pakistan		
REGION: Sindh		
PROJECT: Coal Reap		
PROSPECT:		
SEC: TWP: RNG:		
TYPE: 18 Density		
LOGGED DEPTH: 259 m		
RANGE (1 ft): 20 ft		
STD DEV: 1.5		
PAPER SPEED: 1-1		
LOG SPEED: 6-1		
BKGND COUNT:		
PROBE NO. (60-1)		
SIZE (dia): 1 1/4"		
K-FACTOR:		
DEAD TIME: 2		
STANDARD:		
DIGITAL DATA		
PRINT INTERVAL:		
TIMEBASE:		
DENSITY CALIBRATION		
ALUMINUM		
LUCITE		
HOLE DATA		
DEPTH DRILLED: 260 m		
DEPTH LOGGED: 259 m		
COLLAR ELEV:		
DIA: Sea FROM TO		
DIA: Caliber FROM TO		
DIA: Log FROM TO		
BOREHOLE MEDIUM: H <sub>2</sub> O + Mud		
FLUID LEVEL: 54.4 m		
CASING DATA		
WALL SIZE: 4"		
ID: 4"		
CASED FROM: 0 TO 54.4 m		
CASING TYPE: HX		
SAMPLE DATA		
NON-CORED HOLE: <input checked="" type="checkbox"/> CORED HOLE: <input type="checkbox"/>		
SAMPLED INTERVAL: SAMPLE TYPE:		
REMARKS		
Logged thru casing		
CLIENT		
CLIENT: U.S.G.S./G.S.P.		
GEOLOGIST:		
UNIT OPERATOR: ILYAS / MUSEEB		
UNIT NO: P1-2 OFFICE: BOULDER COLORADO USA		
ELECTRIC		
TYPE: RESIST: S P		
LOGGED DEPTH: FT		
SCALE: FT		
PAPER SPEED: FT		
LOG SPEED: FT		
ARM LENGTH: IN		
MAX DEF: IN		
CALIPER		
LOGGED DEPTH: FT		
SCALE: FT		
PAPER SPEED: FT		
LOG SPEED: FT		
ARM LENGTH: IN		
MAX DEF: IN		
VERTICAL DEV.		
DEPTH: FT		
INCLIN: FT		
BEARING: FT		



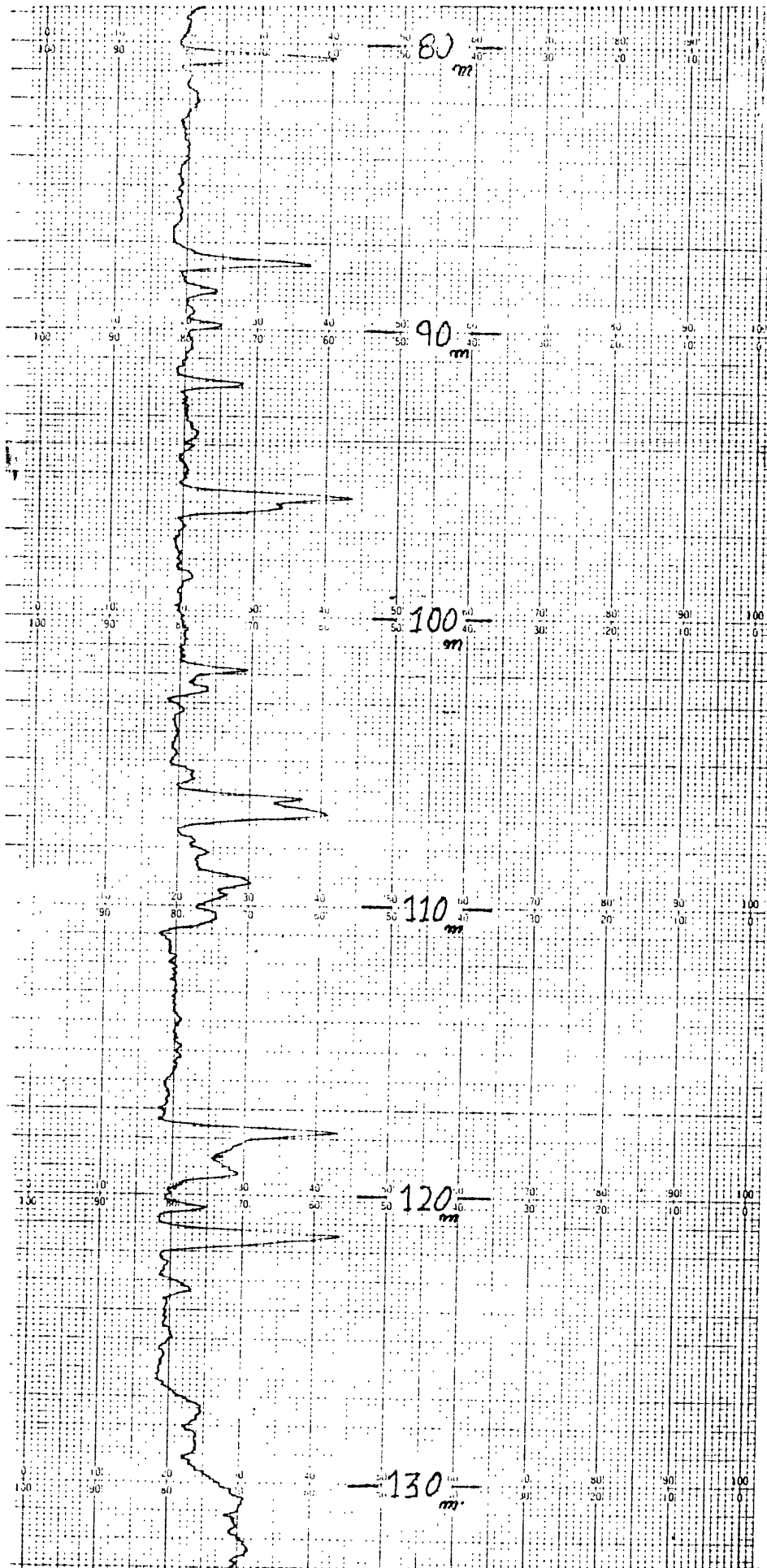
UAS-3

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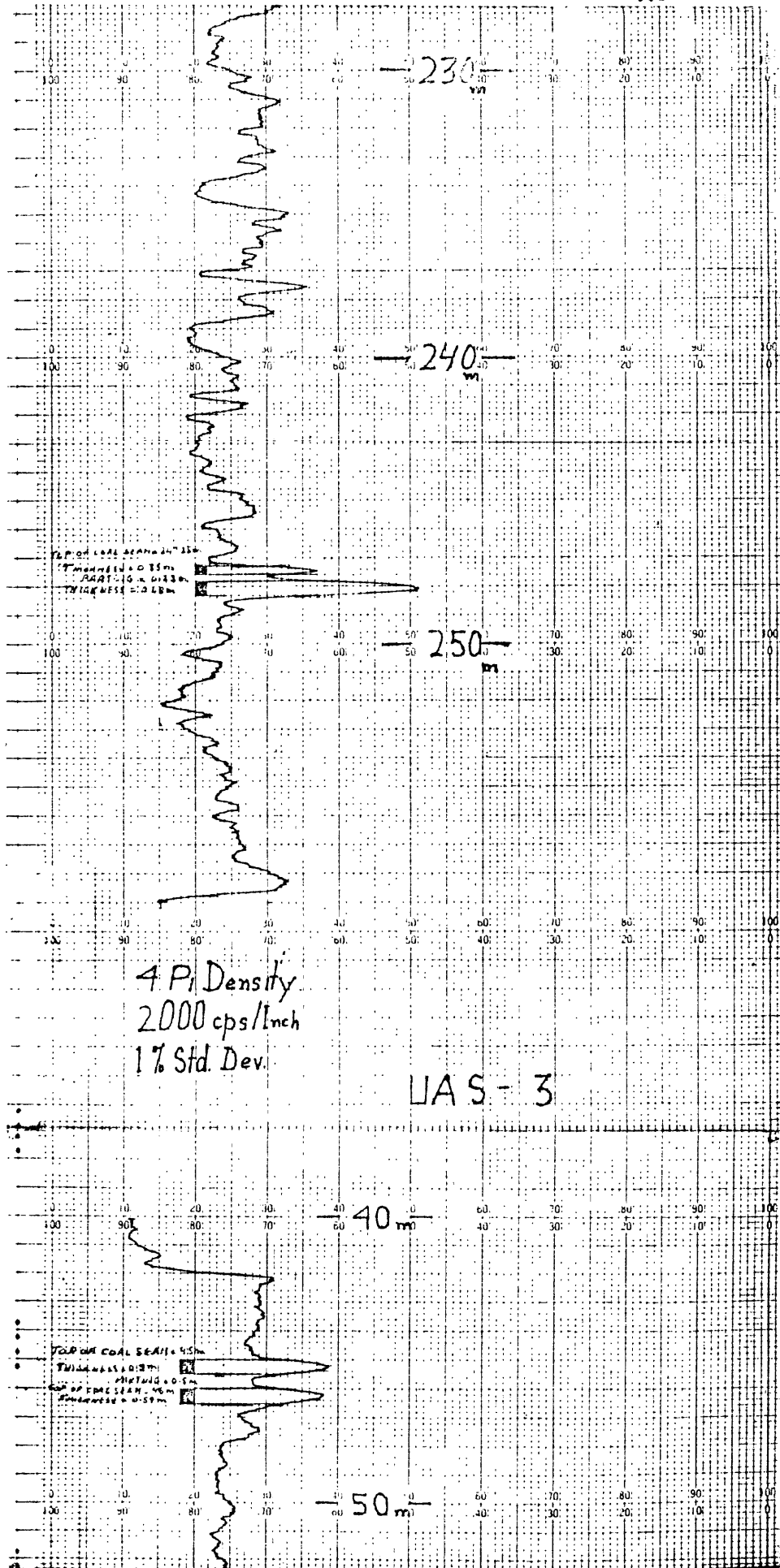




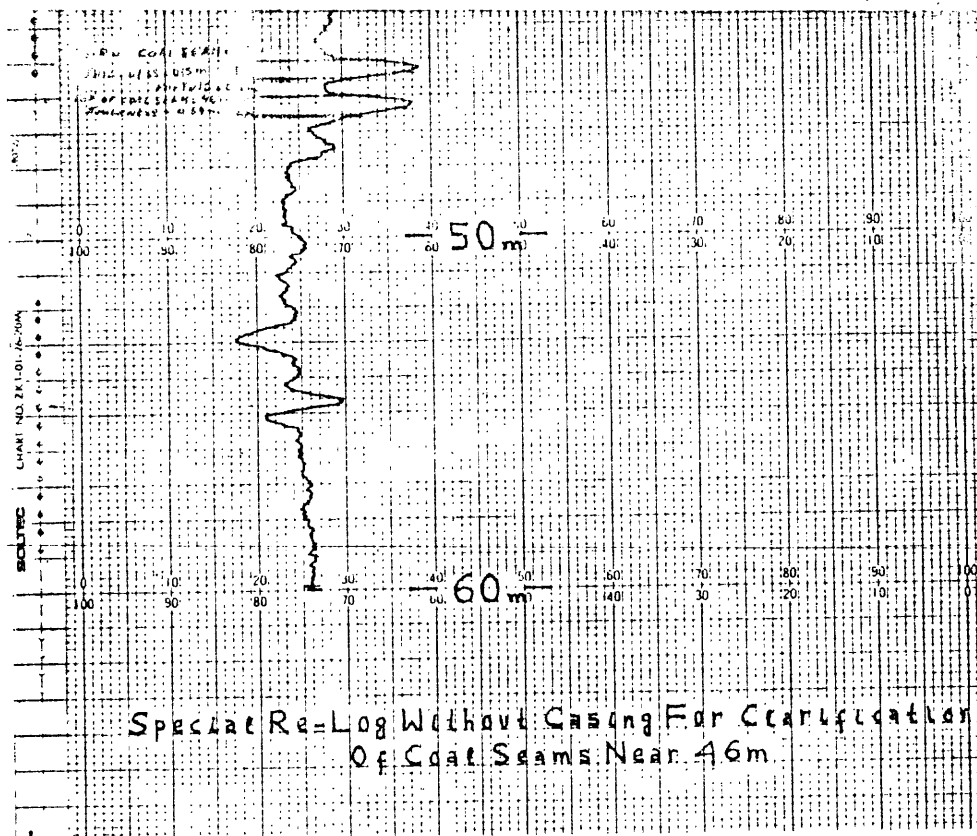


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# GEOSCIENCE ASSOCIATES

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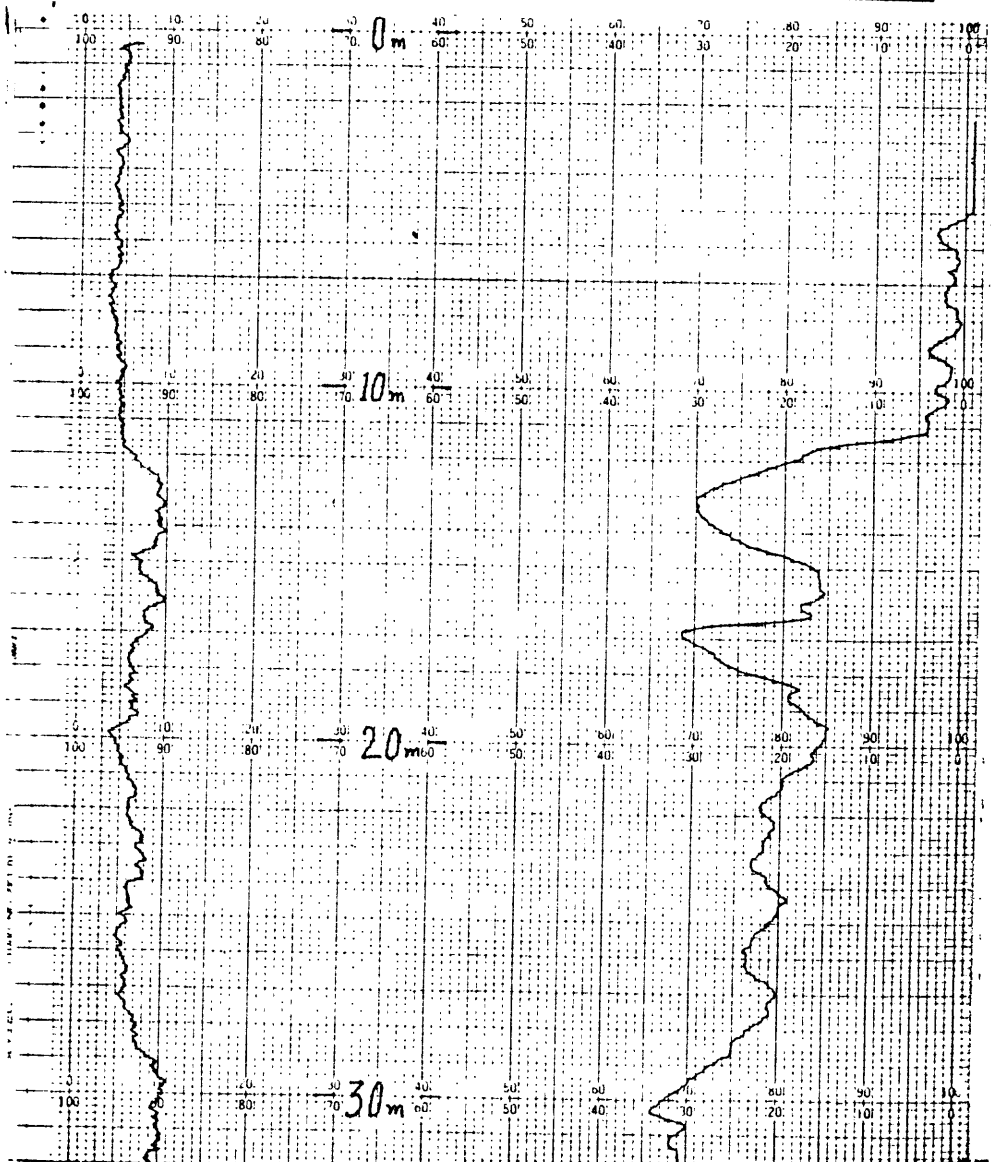
HOLE NUMBER:

UAS-3

DATE:

19th Dec. 1986

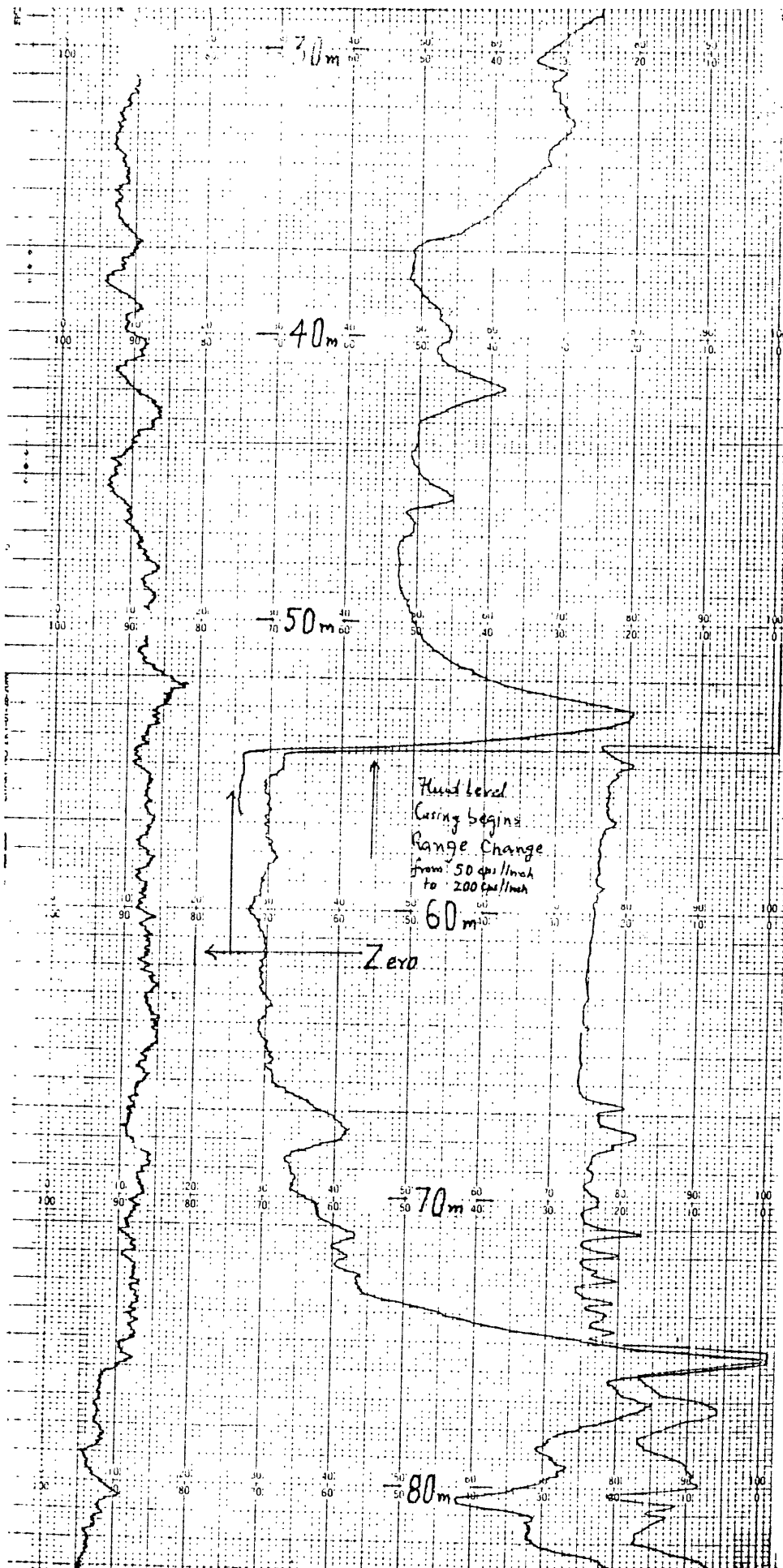
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh Pakistan		DEPTH DRILLED	260m		CLIENT	S.G.S./G.S.P.	
REGION	Sindh		DEPTH LOGGED	259.6m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	ILYAS/MUJEEB	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2 OFFICE	
SEC.	TWP.	RNG	DIA	Caliper	FROM TO	BOULDER COLORADO, USA		
			DIA	Log	FROM TO	ELECTRIC		
TYPE	GAM	Neut	BOREHOLE	MEDIUM		TYPE	RESIST	S.P.
LOGGED DEPTH	257.6m	259.6m	FLUID LEVEL			LOGGED DEPTH	257.6m	FT
RANGE (H.S.)	100	500	CASING DATA			SCALE	10	IN
%STD DEV	3	1	WALL SIZE	1 1/4"		PAPER SPEED	6-1	IN
PAPER SPEED	6-1	6-1	I.D.	4"		LOG SPEED	1-1	IN
LOG SPEED	1-1	1-1	CASED FROM	0 TO 54.4m		FINE ALJ	700	IN
BRND COUNT			CASINO TYPE	HW		CALIPER		
PROBE NO.	GN-1	GN-1	SAMPLE DATA			LOGGED DEPTH	FT	
SIZE (dia.)	1 1/8	1 1/8	NON-CORED HOLE	<input checked="" type="checkbox"/>		SCALE	IN	
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		PAPER SPEED	IN	
DEAD TIME	2	2	REMARKS			LOG SPEED	IN	
STANDARD			Logged thru Casing			ARM LENGTH	IN	
DIGITAL DATA						MAX DEF	IN	
PRINT INTERVAL						VERTICAL DEV.		
TIMEBASE						DEPTH		
DENSITY CALIBRATION						INCLIN		
ALUMINUM						BEARING		
LUCITE								





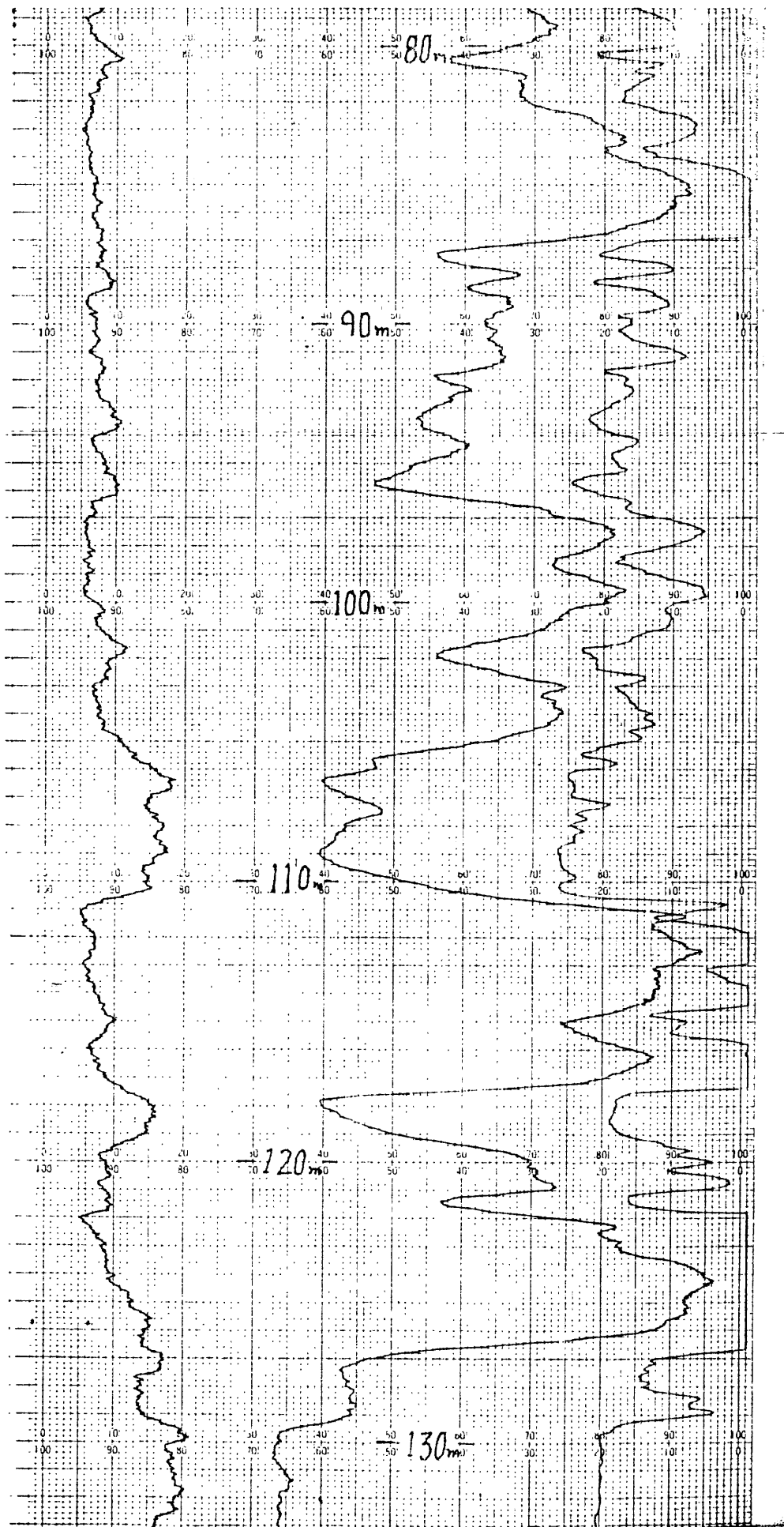
UAS-3

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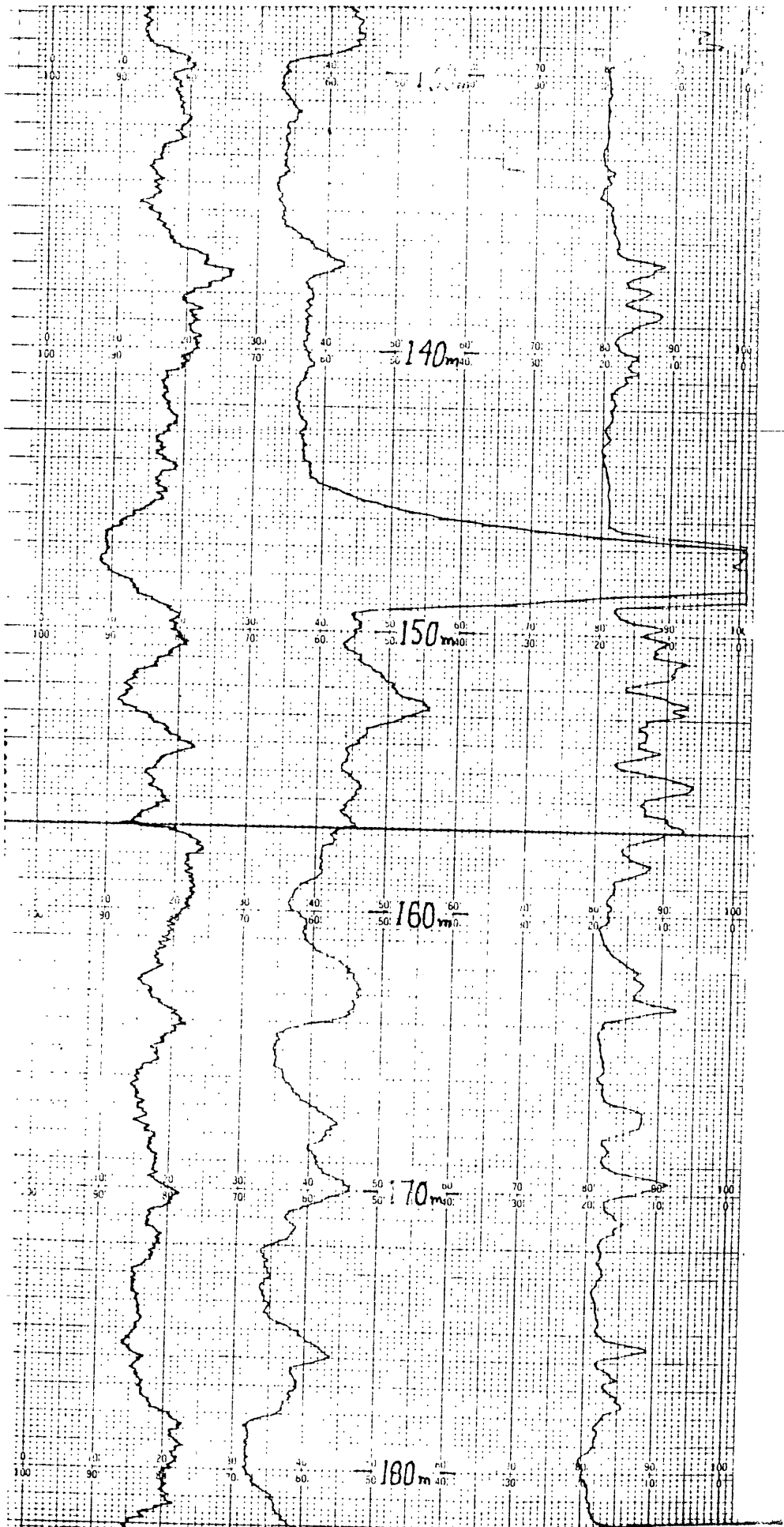
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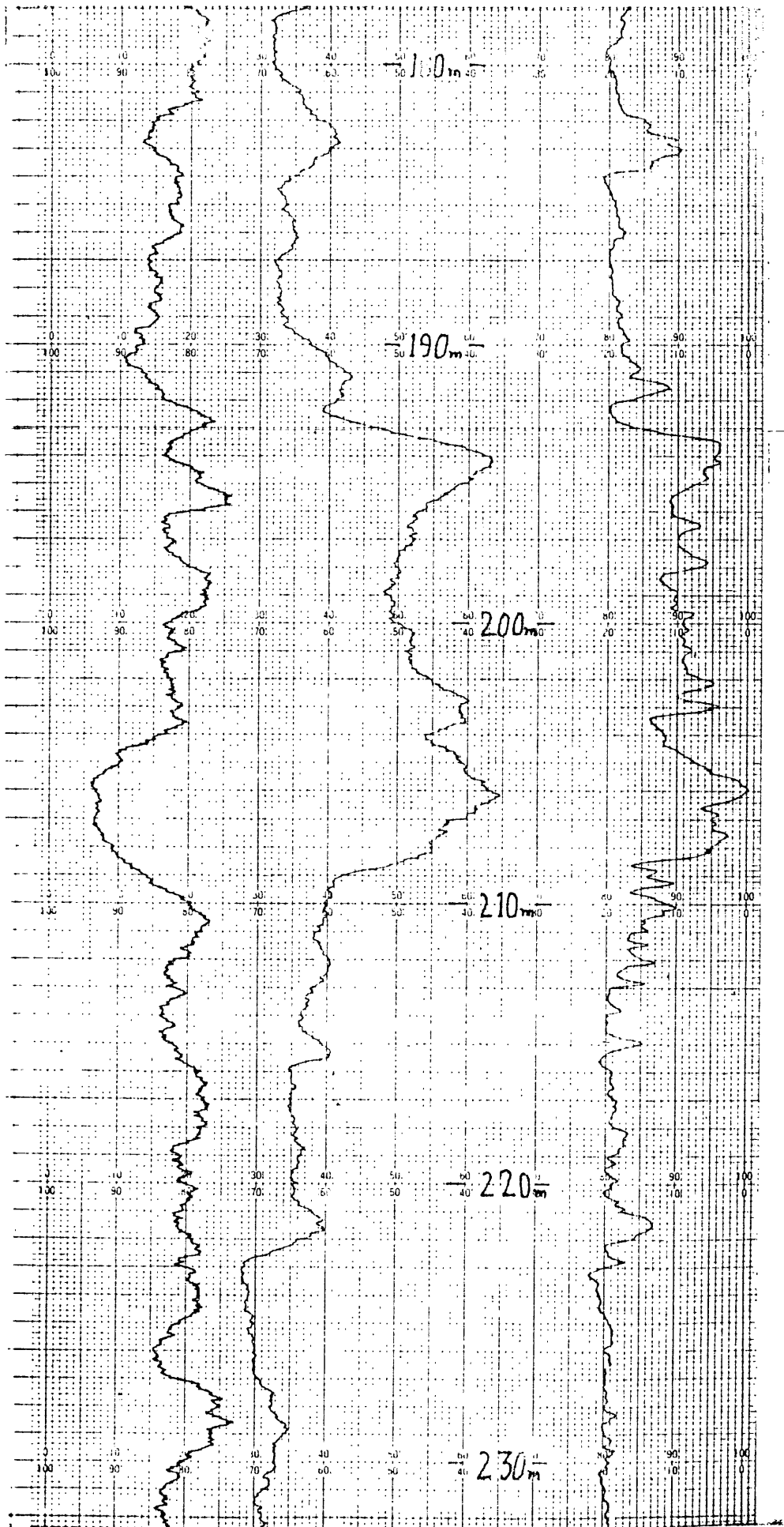
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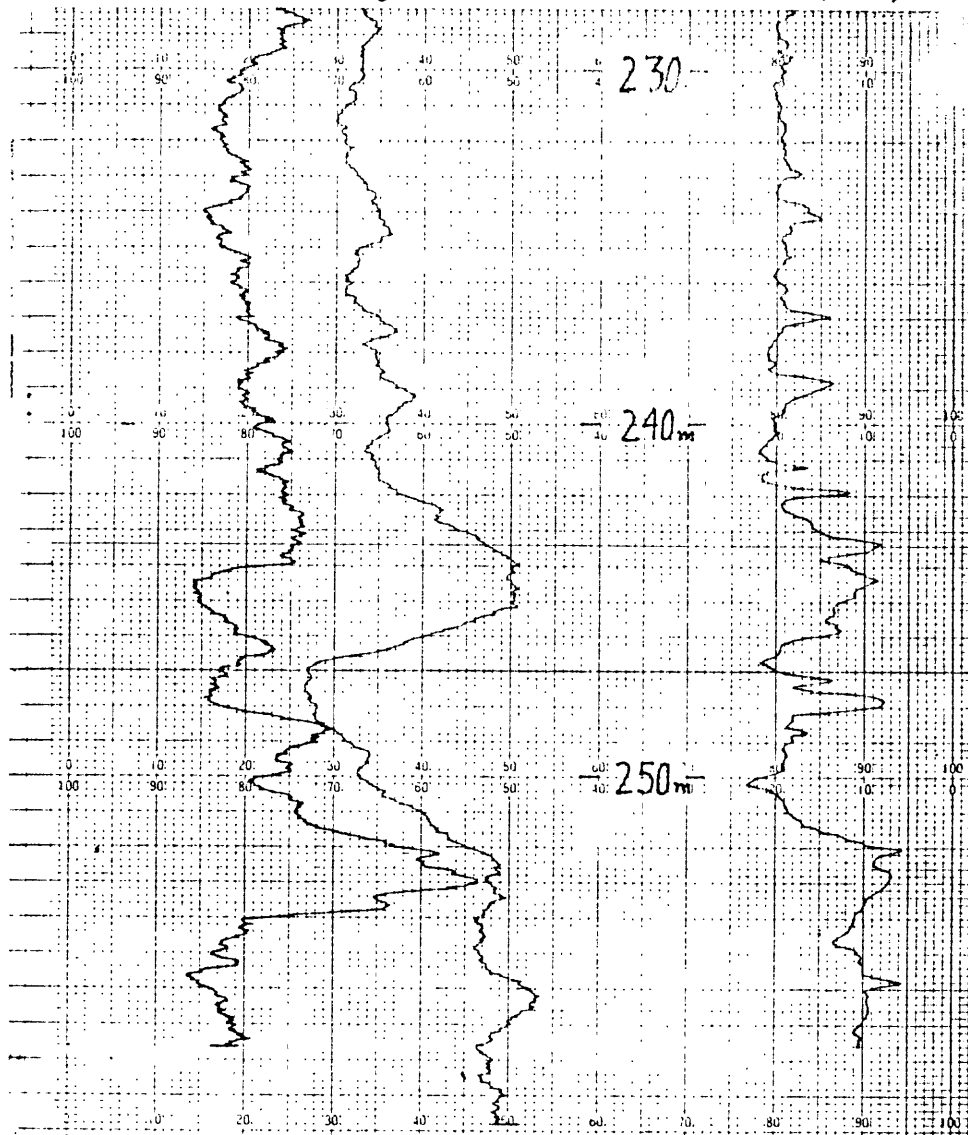
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Gamma  
10 cps/Inch  
3% Std. Dev.

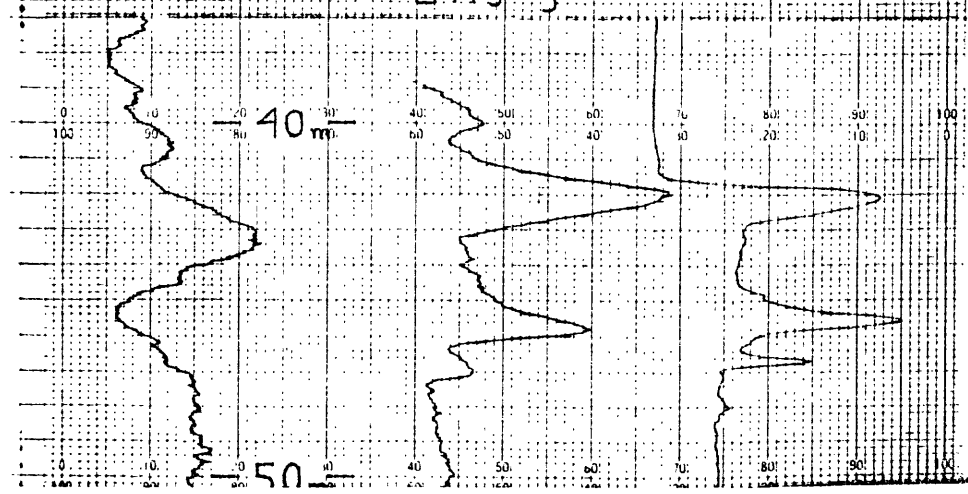
Neutron  
50 cps/Inch  
1% Std. Dev.  
Increased Counts

Resistivity  
10  $\Omega$ /Inch  
700 Bias

← Zero

← Zero

UAS-3

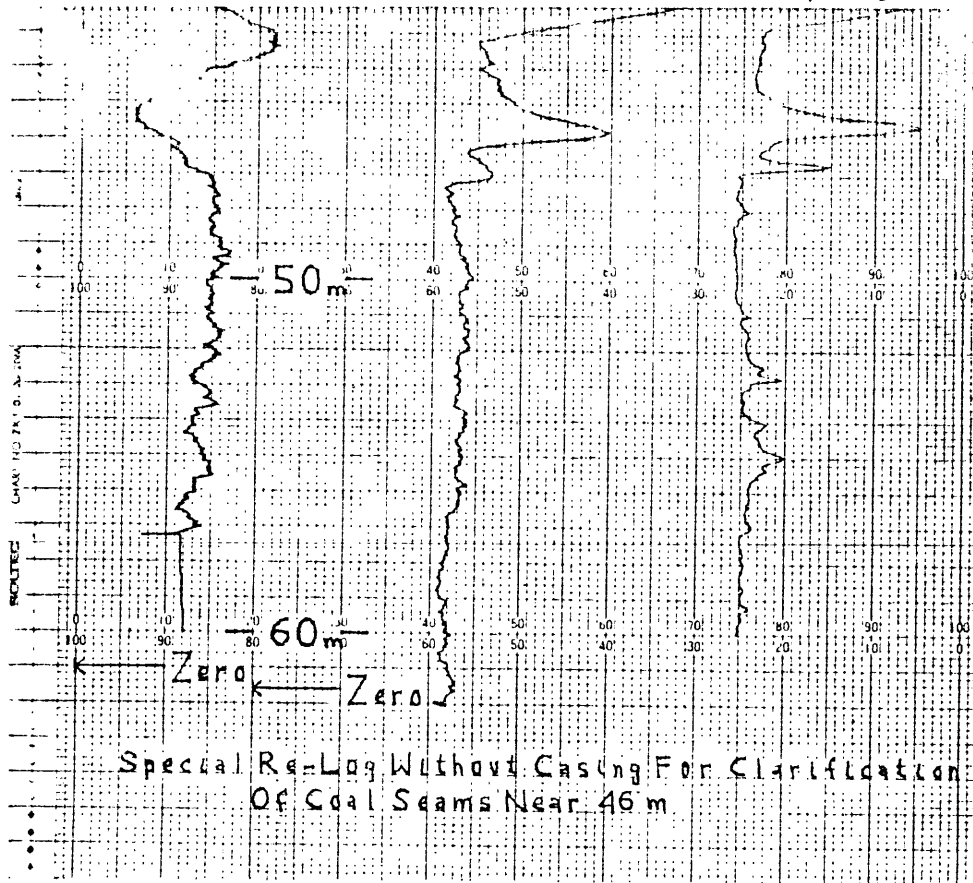


40m

50m

UAS-3

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# GEOSCIENCE ASSOCIATES

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HO. NUMBER:

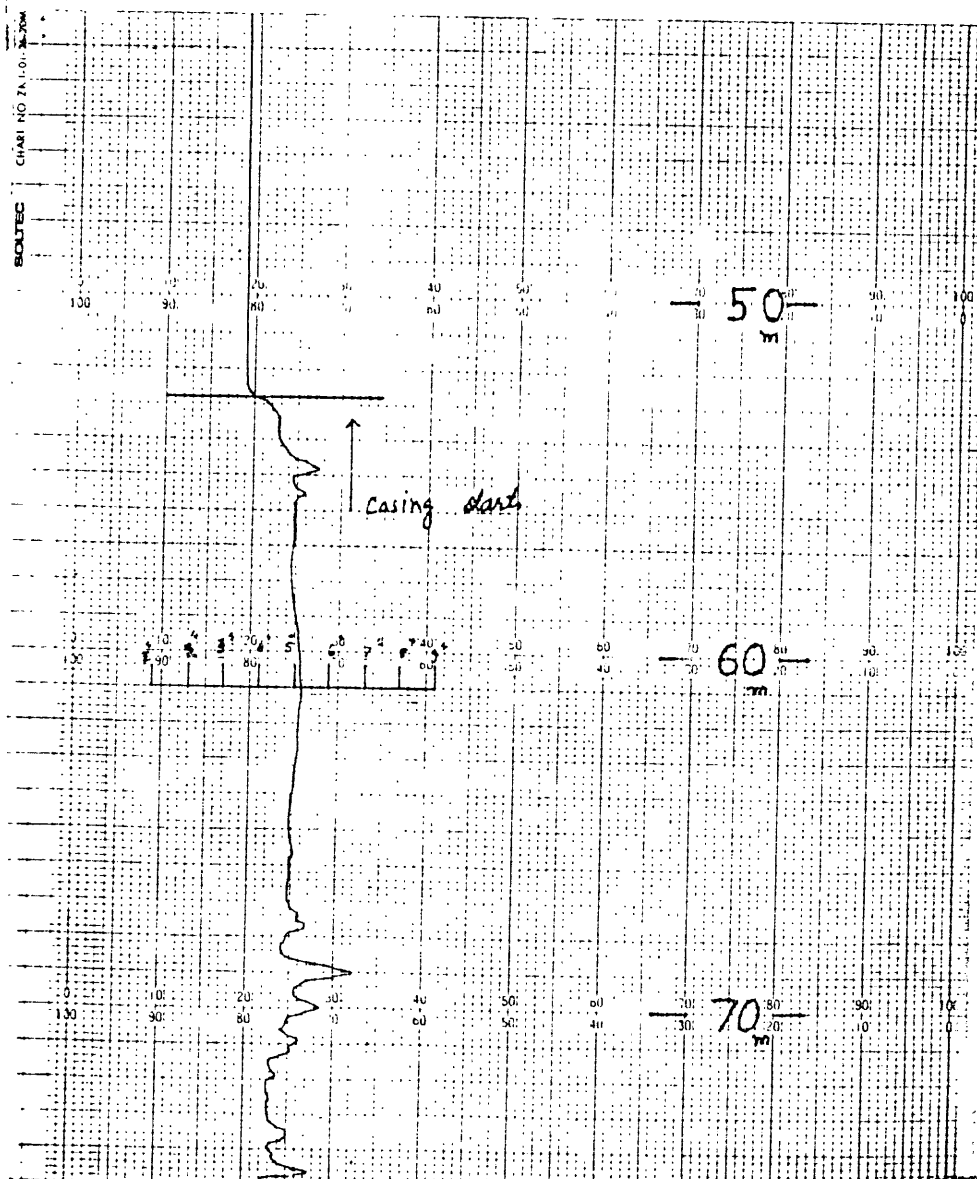
UAS-3

DATE:

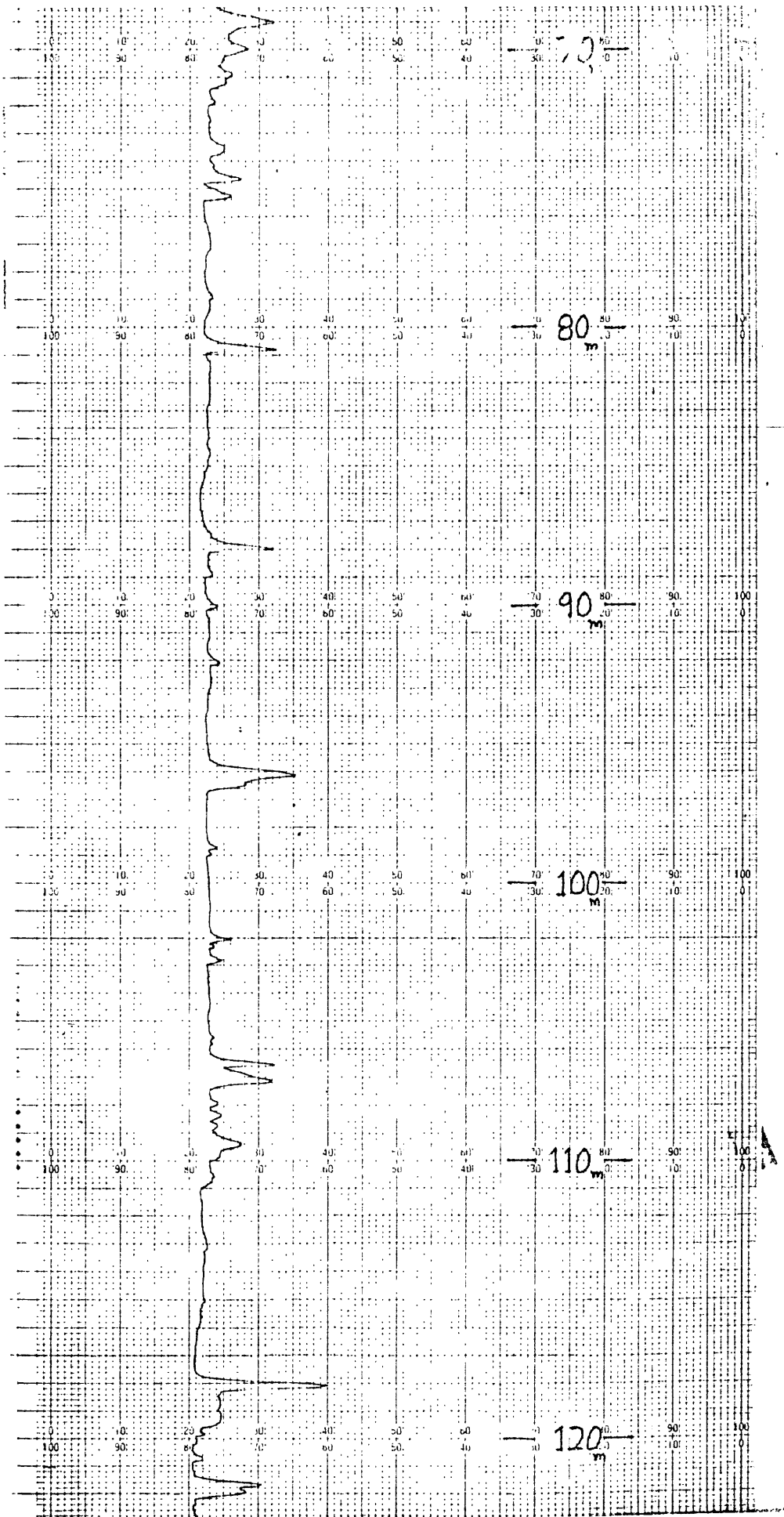
19th December 1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sindh Pakistan		DEPTH DRILLED	260 m	CLIENT	U.S.G.S / G.S.P.
REGION	Sonda		DEPTH LOGGED	259.6 m	GEOLOGIST	
PROJECT	Coal Heap		COLLAR ELEV		UNIT OPERATOR	ILYAS/MUJEEB
PROSPECT			DIA See	FROM TO	UNIT NO	PL-2
SEC	TWP	RNG	DIA Caliper	FROM TO	OFFICE	
			DIA 1 1/2	FROM TO	BOULDER COLORADO USA	
TYPE	QAM		BOREHOLE MEDIUM	Hot Mud	ELECTRIC	
LOGGED DEPTH			FLUID LEVEL	54.3 m		
RANGE (1.5)			CASING DATA			
STD DEV			WALL SIZE			
PAPER SPEED			ID			
LOG SPEED			CASED FROM	TO		
BKGD. COUNT			CASING TYPE			
PROBE NO.			SAMPLE DATA			
SIZE (dia.)			NON-CORED HOLE	<input type="checkbox"/>	CORED HOLE	<input type="checkbox"/>
K-FACTOR			SAMPLED INTERVAL		SAMPLE TYPE	
DEAD TIME						
STANDARD						
DIGITAL DATA			REMARKS			
PRINT INTERVAL						
TIMEBASE						
DENSITY CALIBRATION						
ALUMINUM						
LUCITE						

TYPE	RESIST	S.P.
LOGGED DEPTH	FT	FT
SCALE		
PAPER SPEED		
LOG SPEED		
FINE ADJ		
3 ARM CALIPER		
LOGGED DEPTH	259.6 m	FT
SCALE	0.4 in = 1 Dia	
PAPER SPEED	6-1	
LOG SPEED	1-1	
ARM LENGTH	12	IN
MAX DEF	24	IN
VERTICAL DEV.		
DEPTH		
INCLIN		
BEARING		



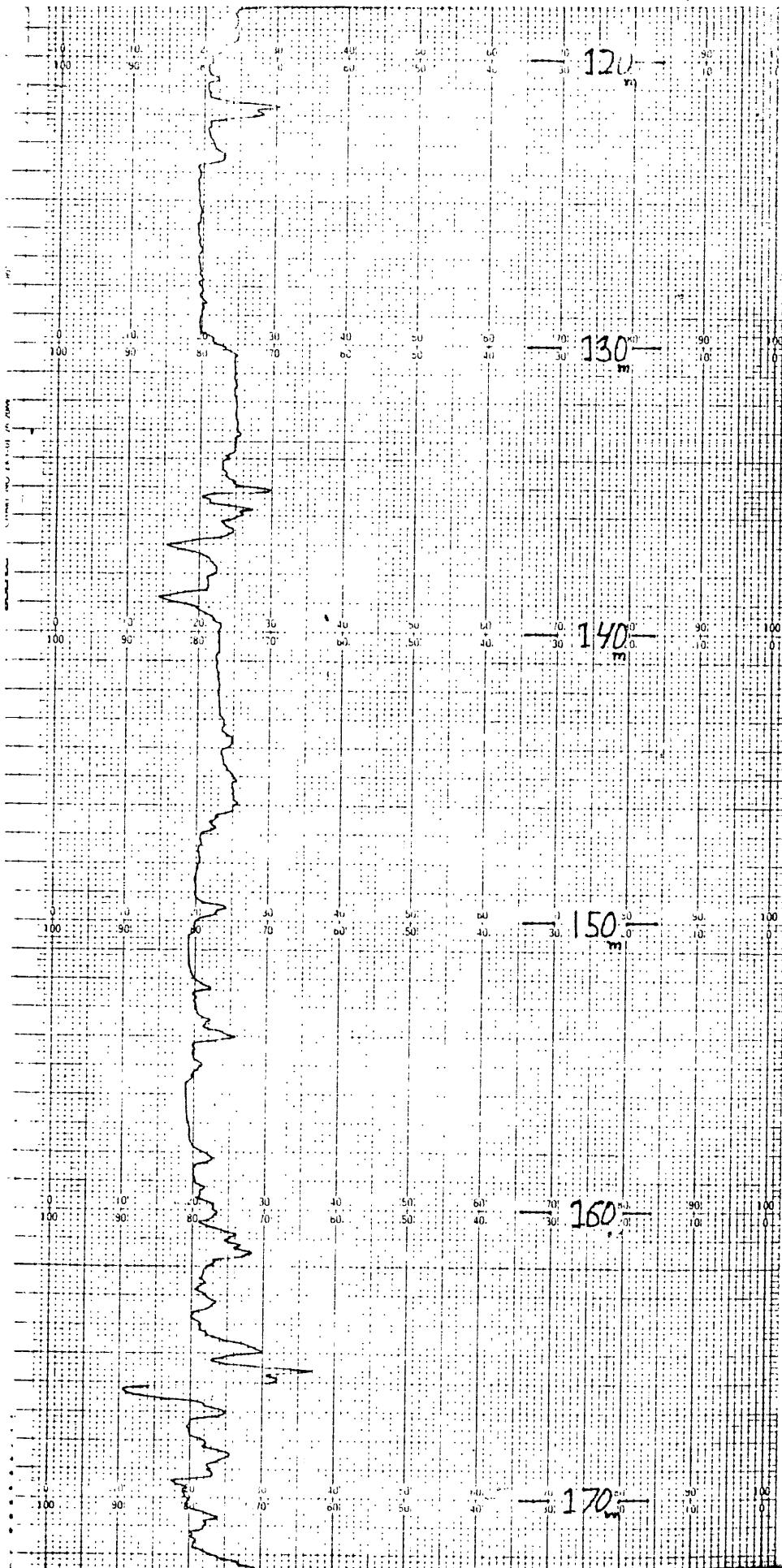
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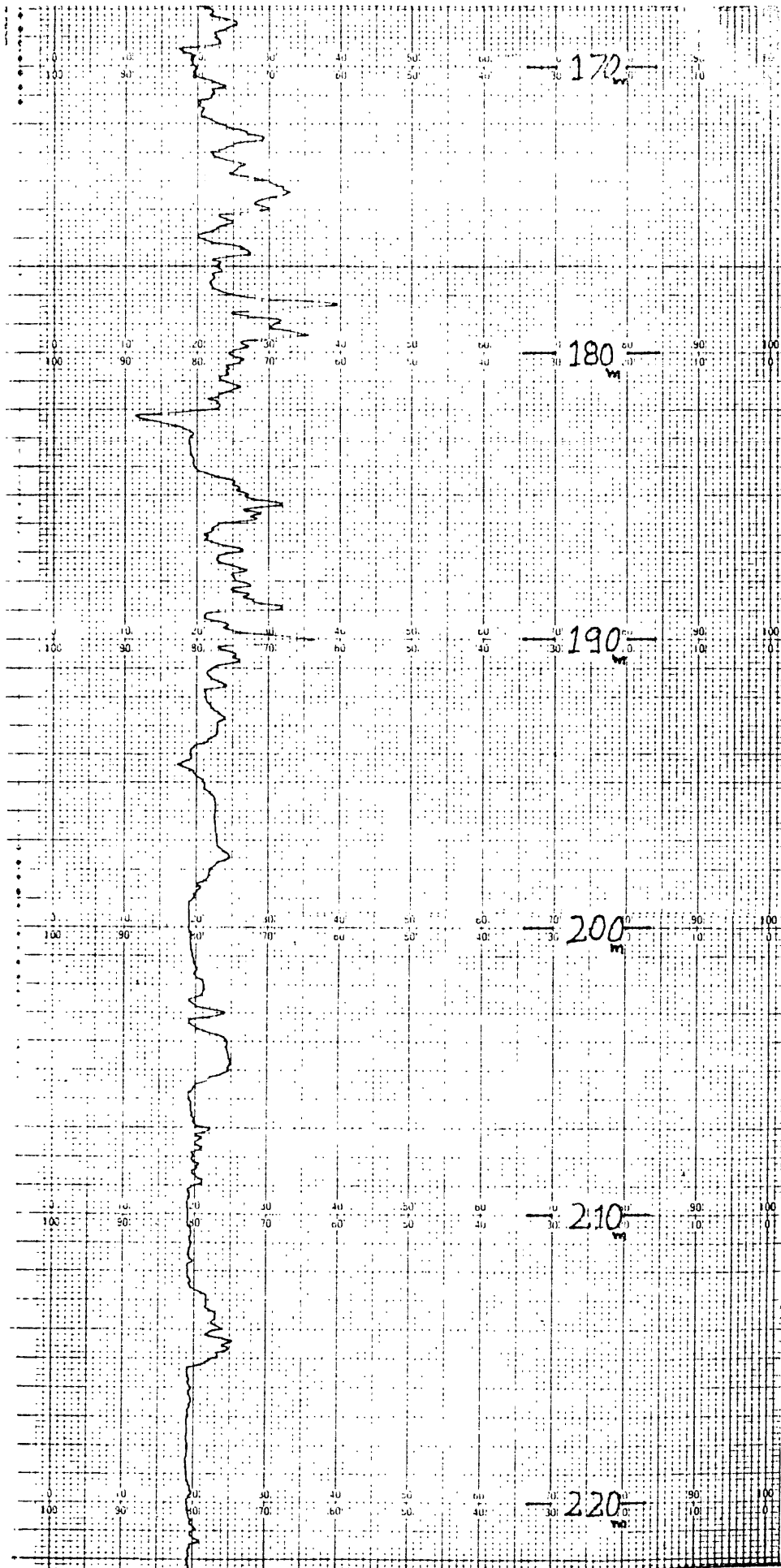
P.241

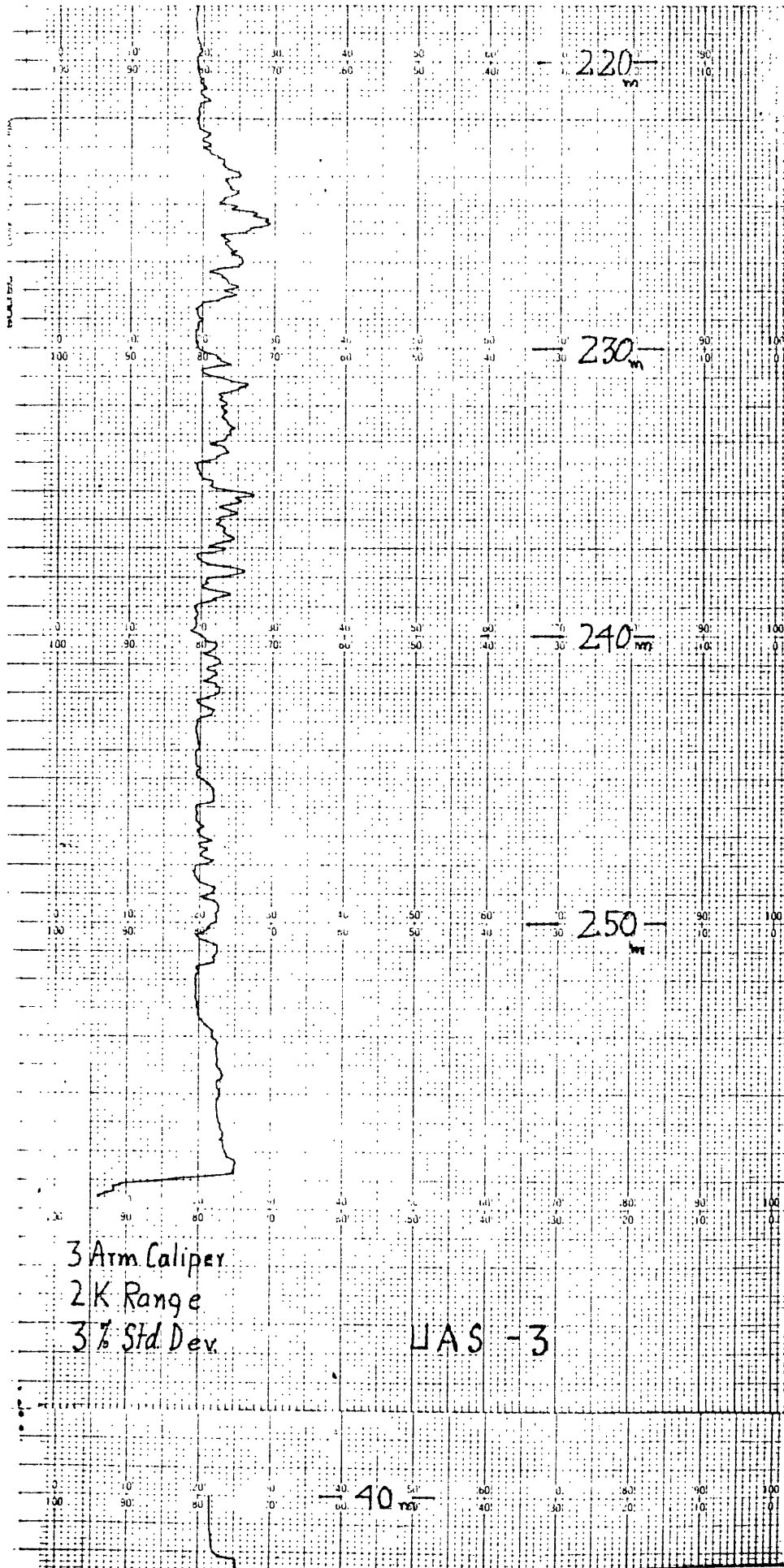


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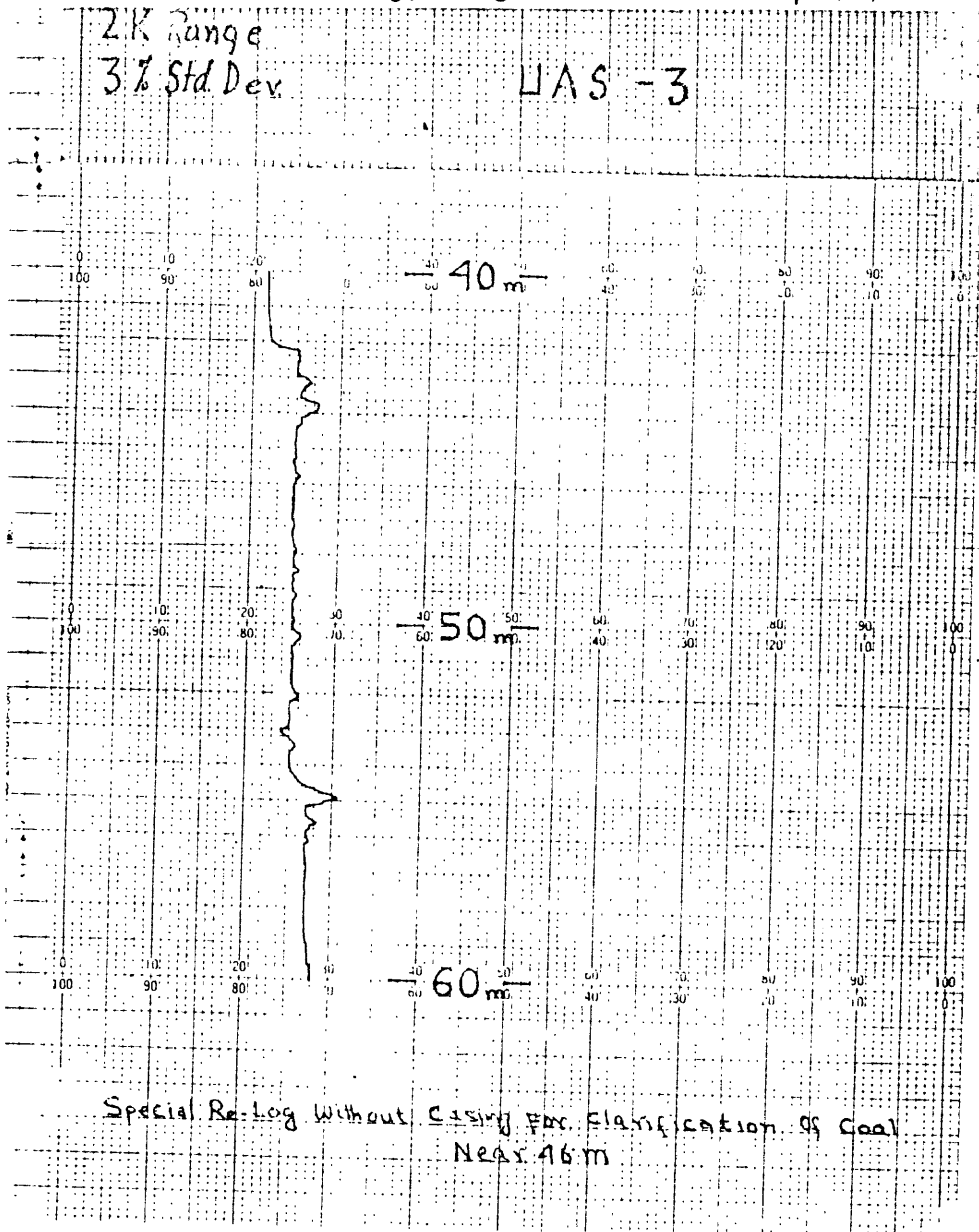


3 Arm Caliper  
2K Range  
3% Std Dev

UAS - 3

UAS-3

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DRILL HOLE UAS-4

# OSCIENCE ASSOCIATES

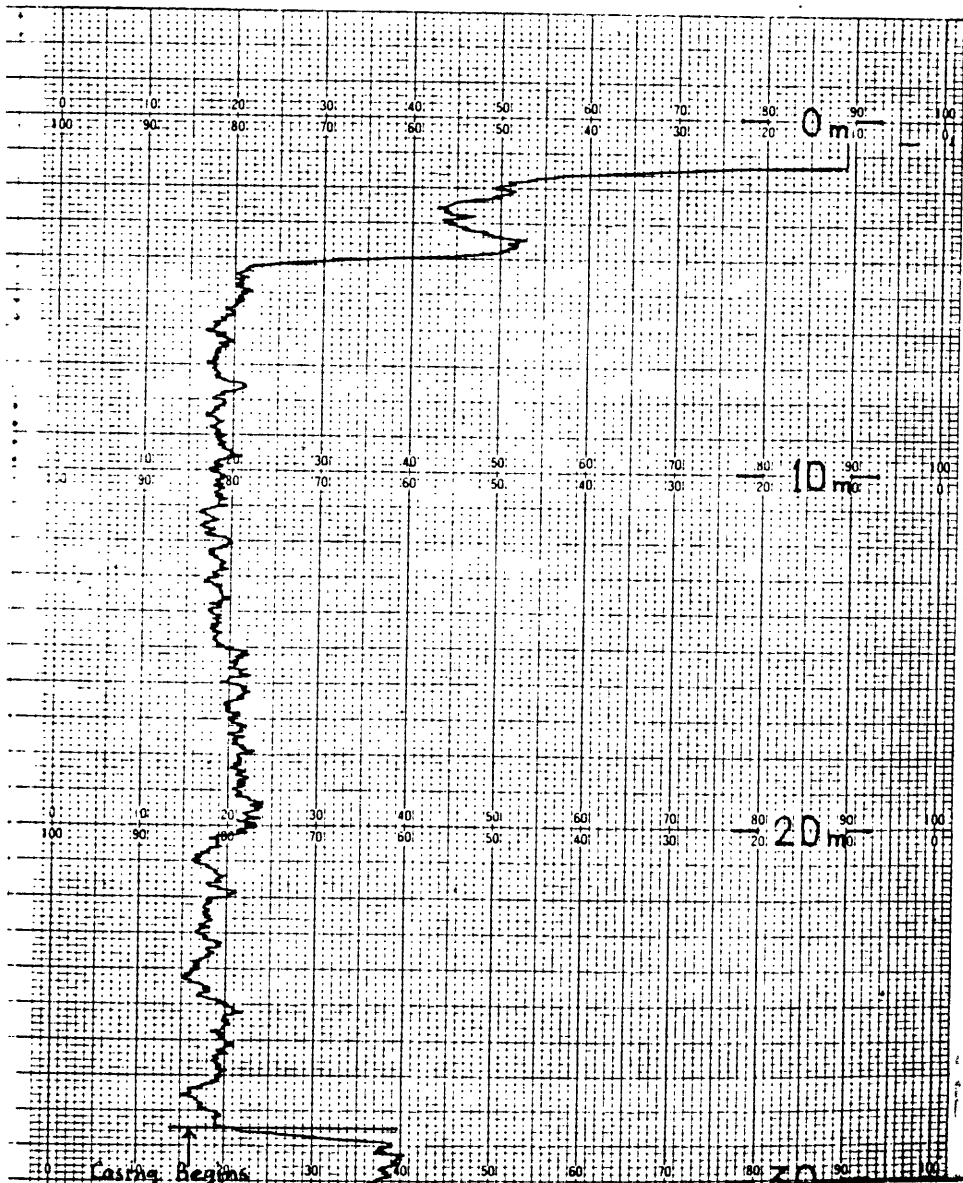
1.246

HOLE NUMBER:

U.A.S-4

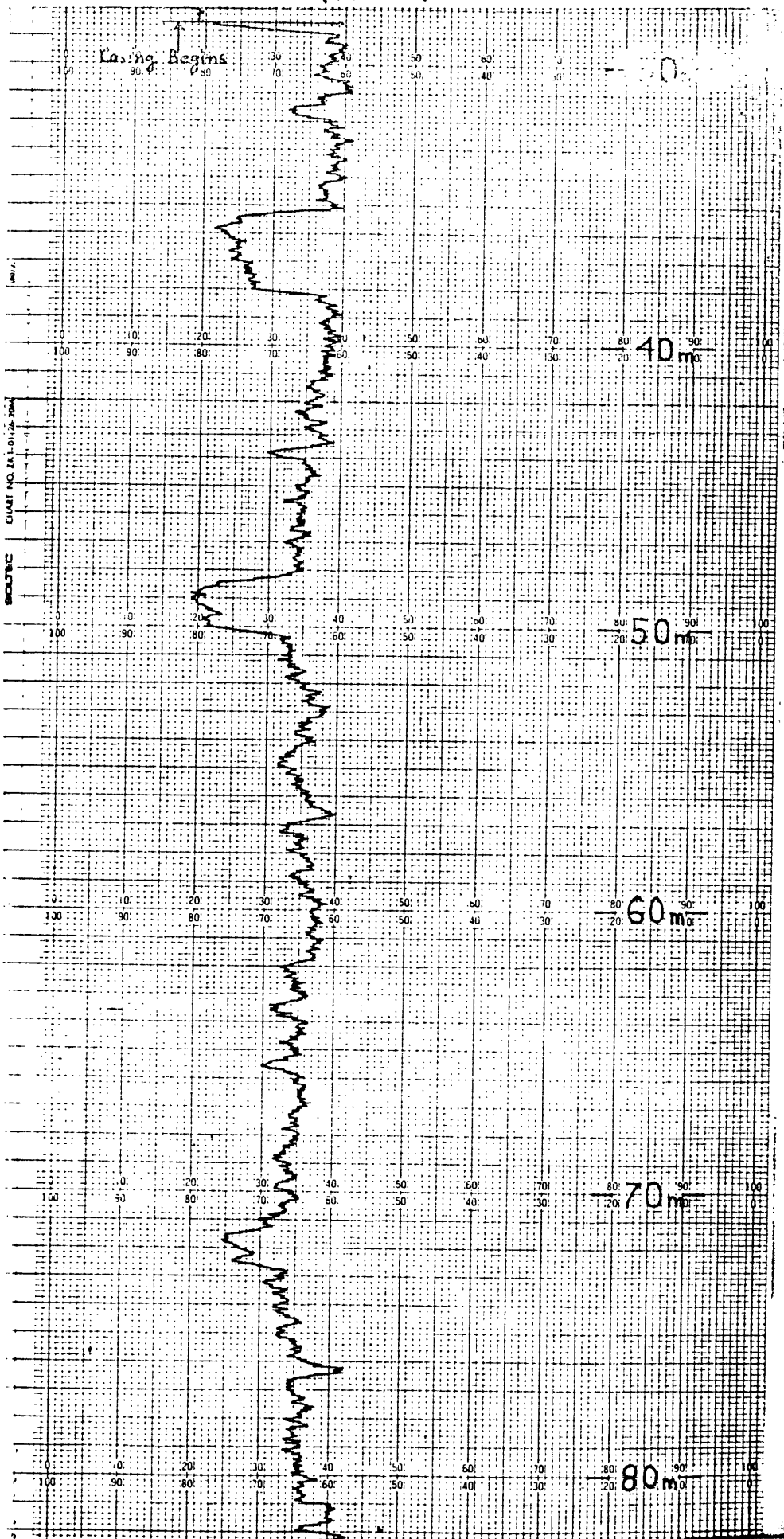
DATE: 28<sup>th</sup> December, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind. Pakistan		DEPTH DRILLED	250m		CLIENT	U.S.G.S. - G.S.P.	
REGION	Sonda		DEPTH LOGGED	234m		GEOLOGIST		
PROJECT	COAL REAP.		COLLAR ELEV					
PROSPECT			DIA. Sec	FROM	TO			
SEC.	TWP	RNG	DIA. Caliper	FROM	TO			
			DIA. 1.03	FROM	TO			
TYPE	GAM	4Pi Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.		UNIT OPERATOR MUJIB / NERTAB / AYA		
LOGGED DEPTH		234m	FLUID LEVEL			UNIT NO PL-2 OFFICE U.S.A.		
RANGE (I.R.)		5K				ELECTRIC		
%STO DEV		1%				TYPE	RESIST	S.P.
PAPER SPEED		1-1				LOGGED DEPTH	FT	FT
LOG SPEED		6-1				SCALE		
BKGD COUNT						PAPER SPEED		
PROBE NO		6D-1				LOG SPEED		
SIZE (dia.)		1 3/8"				FINE ADJ		
K-FACTOR								
DEAD TIME		2						
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL			Logged through casing and drillpipe.			LOGGED DEPTH		
TIMEBASE						FT		
DENSITY CALIBRATION			Drillpipe I.D. = 3 1/16" O.D. = 3 1/2"			SCALE		
ALUMINUM						PAPER SPEED		
LUCITE						LOG SPEED		
						ARM LENGTH		
						MAX DEF		
						VERTICAL DEV.		
						DEPTH		
						INCLIN.		
						BEARING		



UAS-4

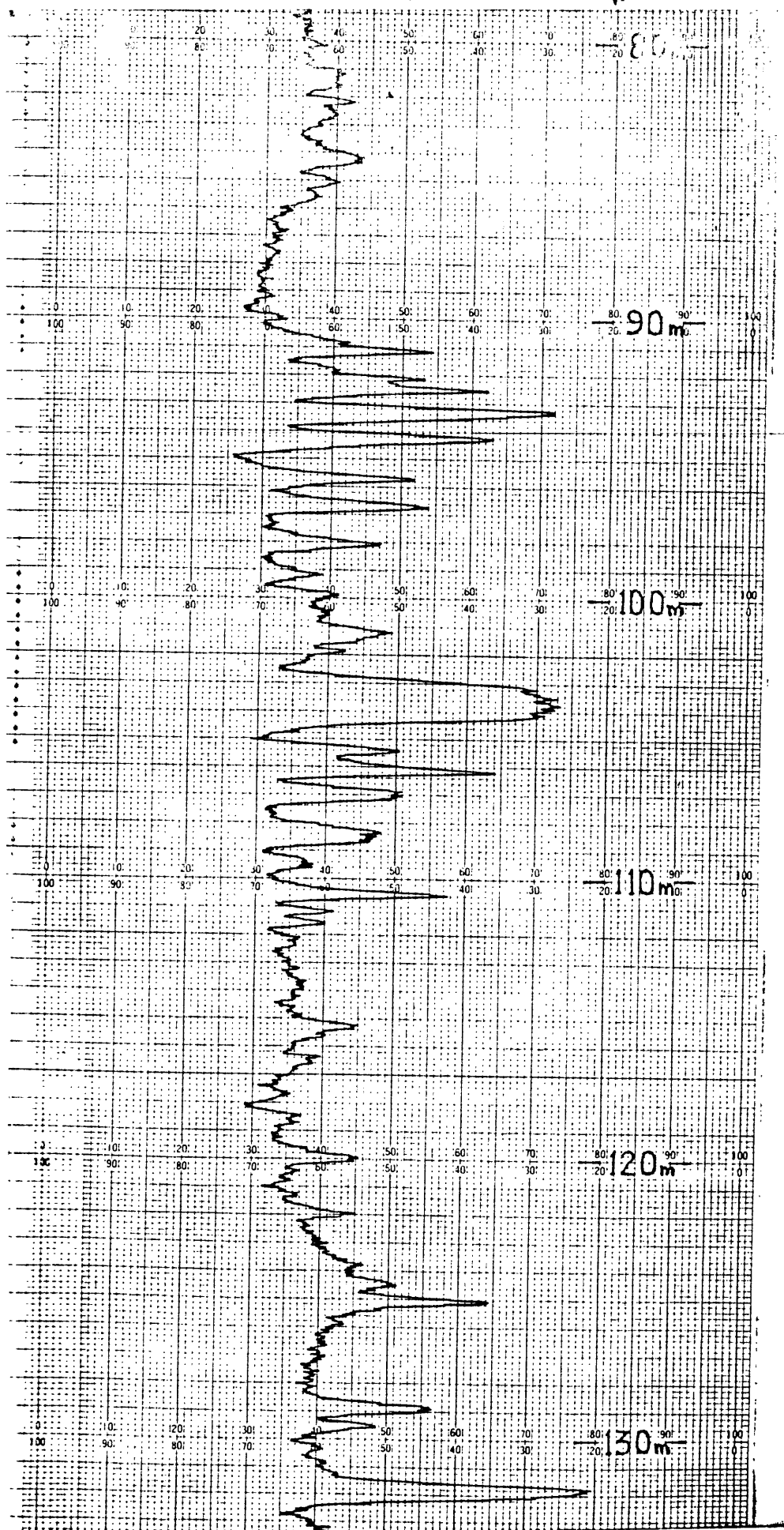
P.247



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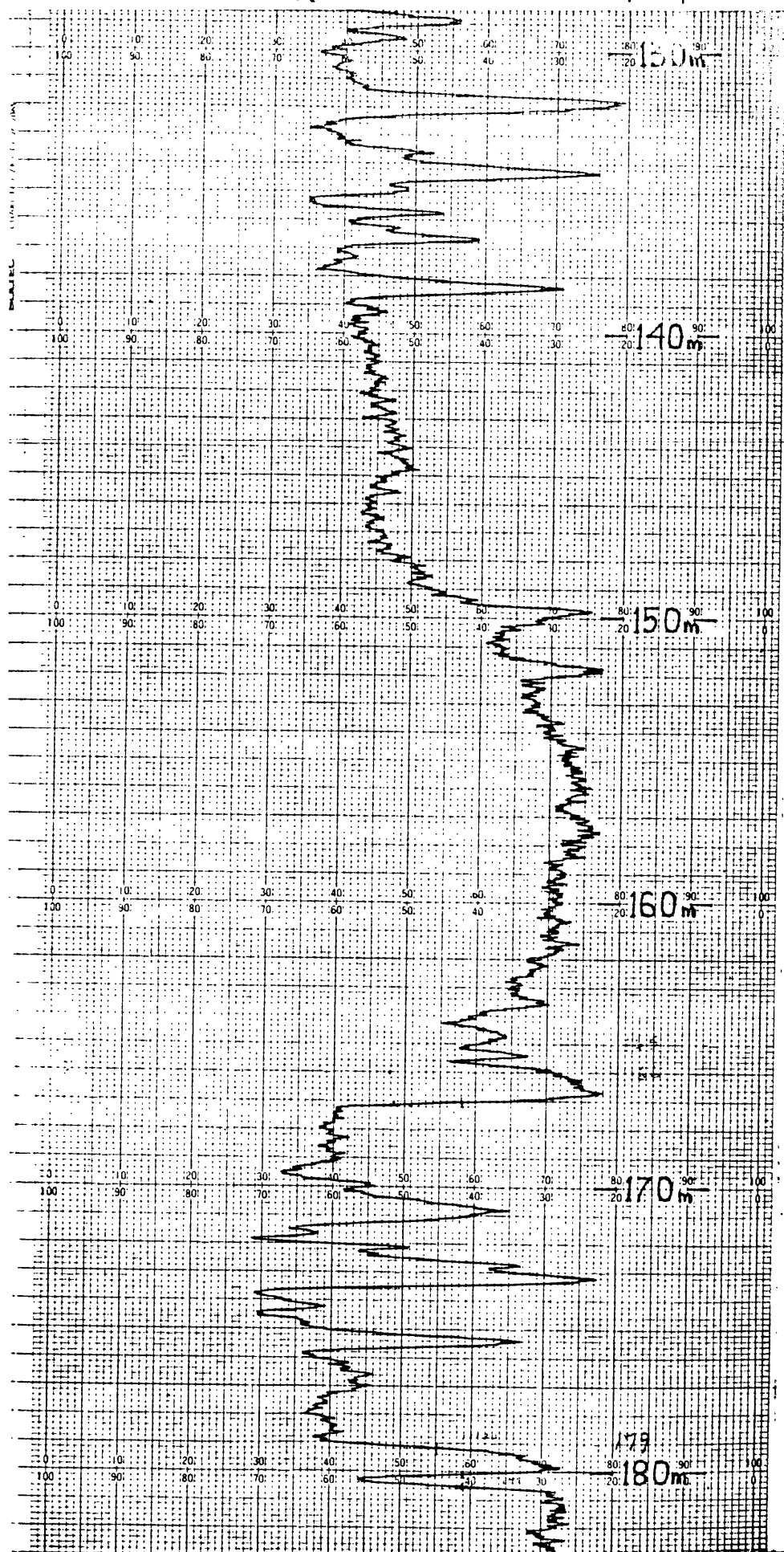
P.248





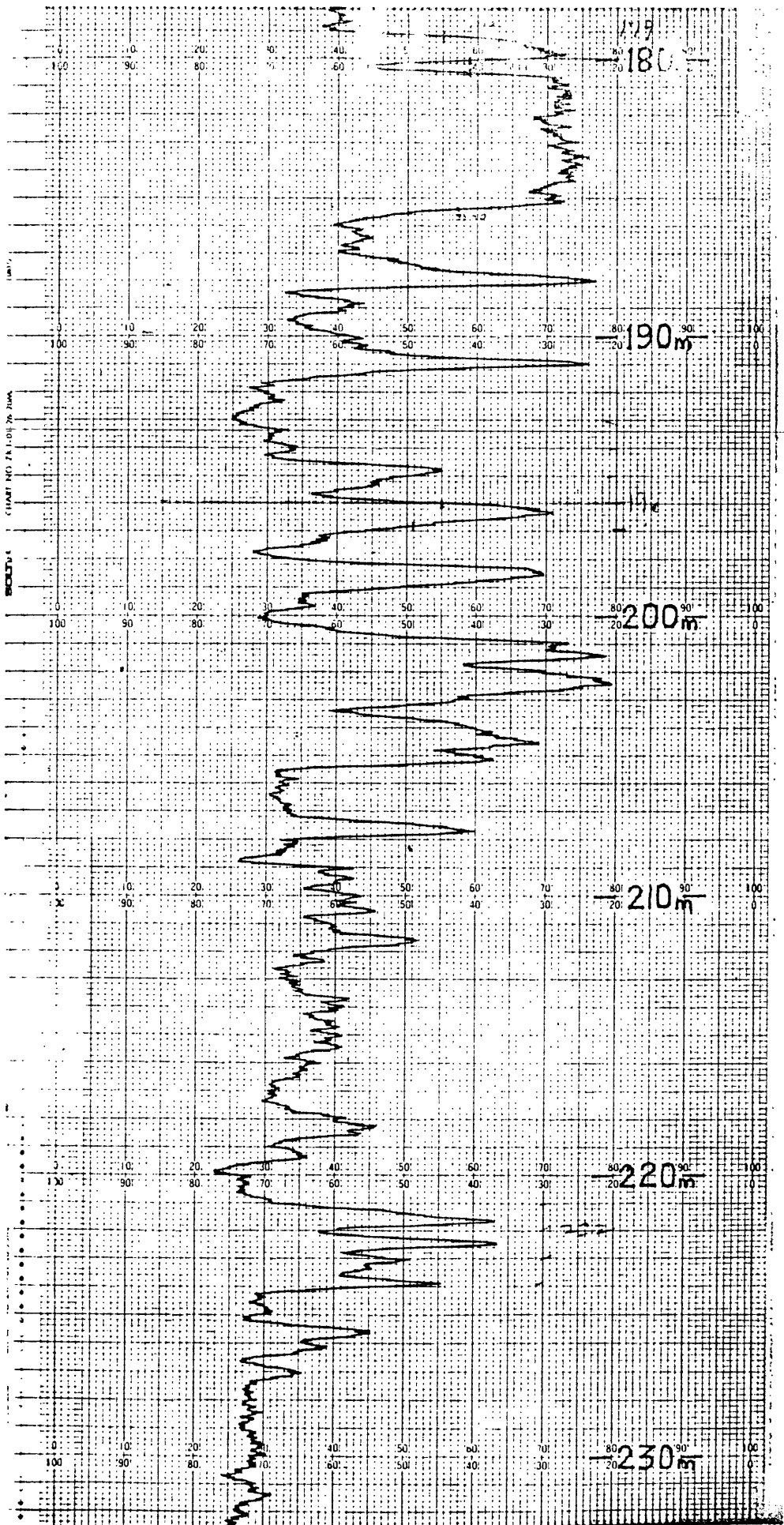
UAS-4

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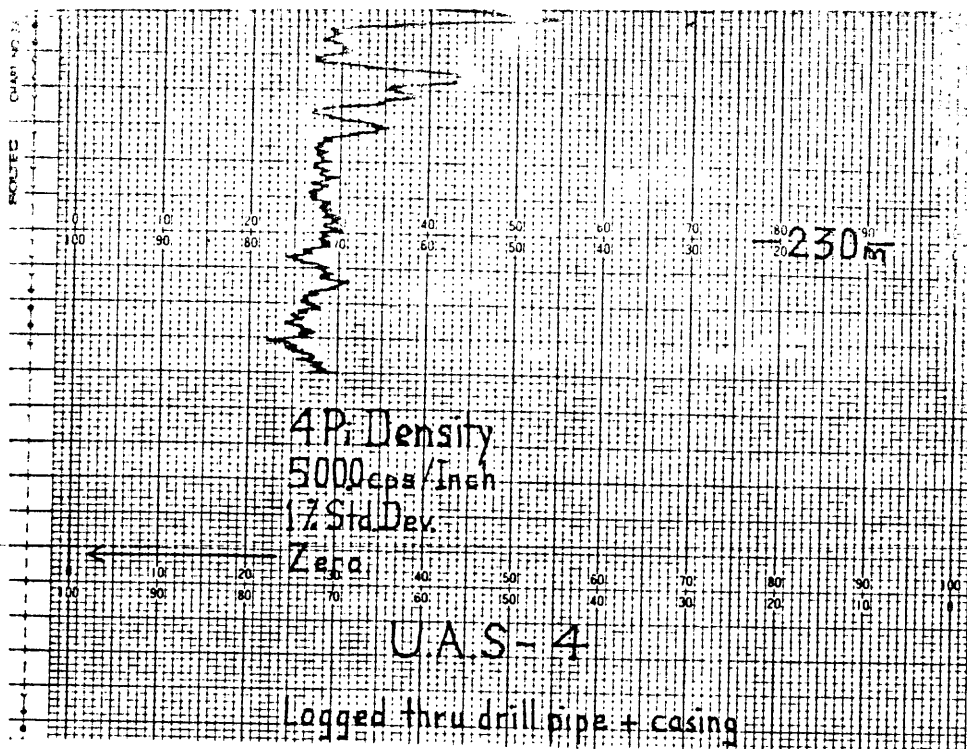
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# GEOSCIENCE ASSOCIATES

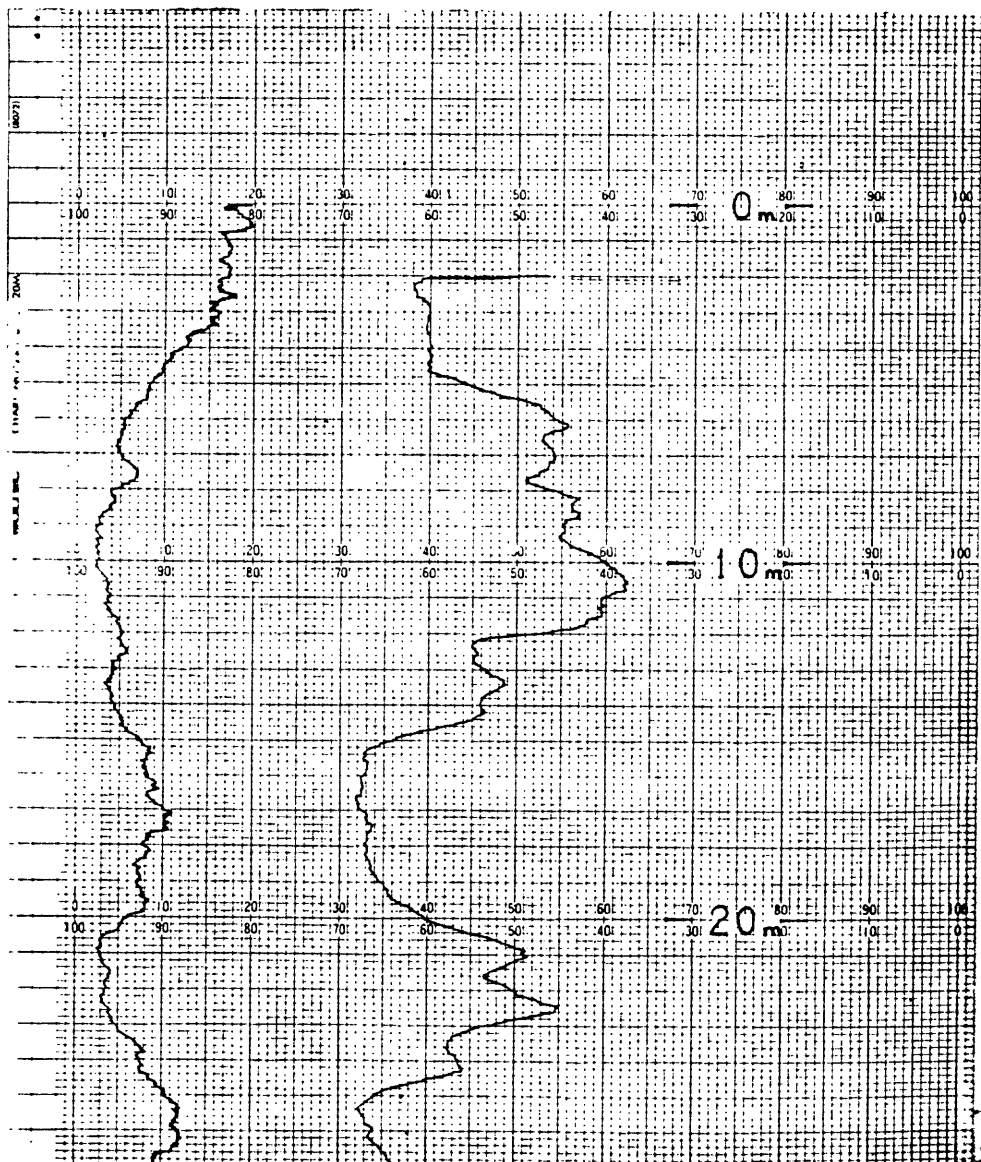
P252

HOLE NUMBER:

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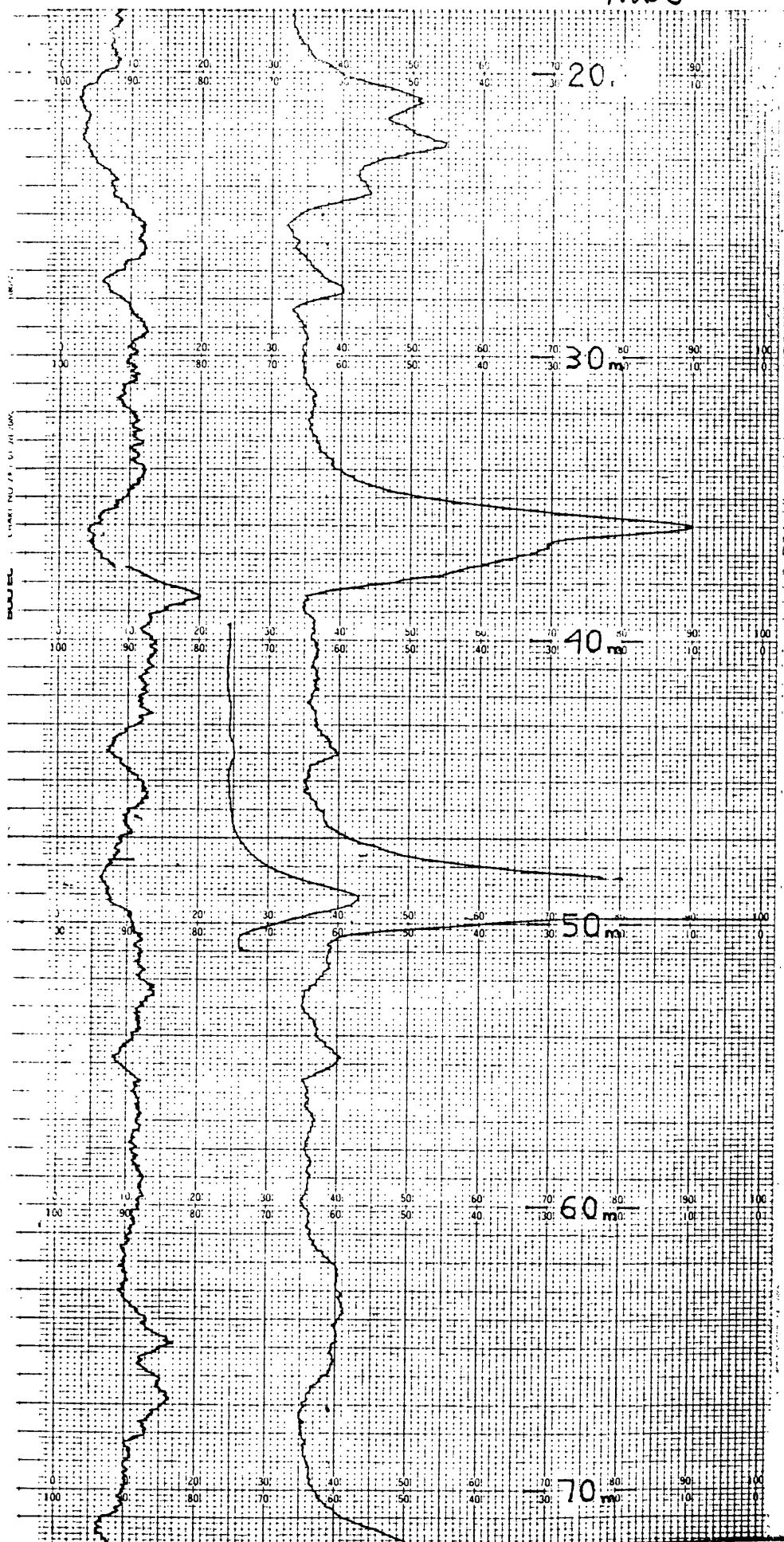
DATE: December 28, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sindh Pakistan		DEPTH DRILLED	250 m		CLIENT	U.S.G.S - G.S.P.	
REGION	Sonda		DEPTH LOGGED	235 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	MUJEED MEHTAR	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2	
BEC	TWP	RNG	DIA	Caliper	FROM TO	OFFICE	BOULDER COLORADO USA	
			DIA	Log	FROM TO	ELECTRIC		
			BOREHOLE MEDIUM	H <sub>2</sub> O + Mud				
			FLUID LEVEL					
TYPE			CASING DATA			TYPE		
LOGGED DEPTH	GAM	Neutron	WALL SIZE	1 1/4"		LOGGED DEPTH	RESIST	S.P.
RANGE (ft)	100	500	I.D.	4"		SCALE	FT	FT
STD DEV	3	1	CASED FROM	0 TO 28.3 m		PAPER SPEED		
PAPER SPEED	4-1	1-1	CASING TYPE	HQ		LOG SPEED		
LOG SPEED	6-1	6-1	NON-CORED HOLE	<input type="checkbox"/>		FINE ADJ.		
BKGND. COUNT			SAMPLED INTERVAL					
PROBE NO.	GN-1	GN-1	SAMPLE TYPE					
SIZE (dia)	1 3/8"	1 3/8"						
K-FACTOR								
DEAD TIME	2	2						
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL			Logged through Casing			LOGGED DEPTH	FT	
TIMEBASE			and Drill Pipes			SCALE	IN	
			Drill Pipe I.D. = 3 1/16"			PAPER SPEED	IN	
			O.D. = 3 3/8"			LOG SPEED	IN	
						ARM LENGTH	IN	
						MAX DEF	IN	
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN		
						BEARING		

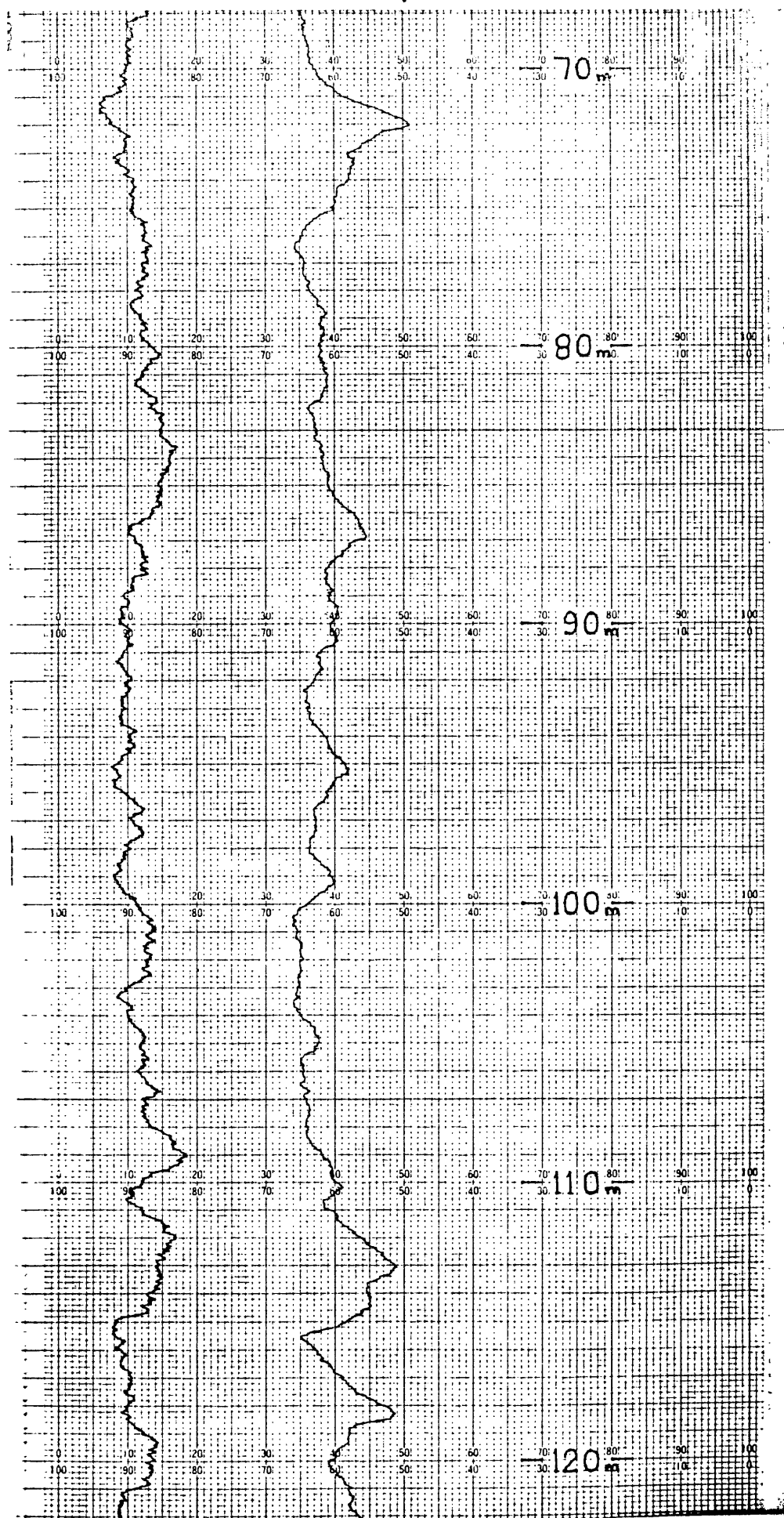


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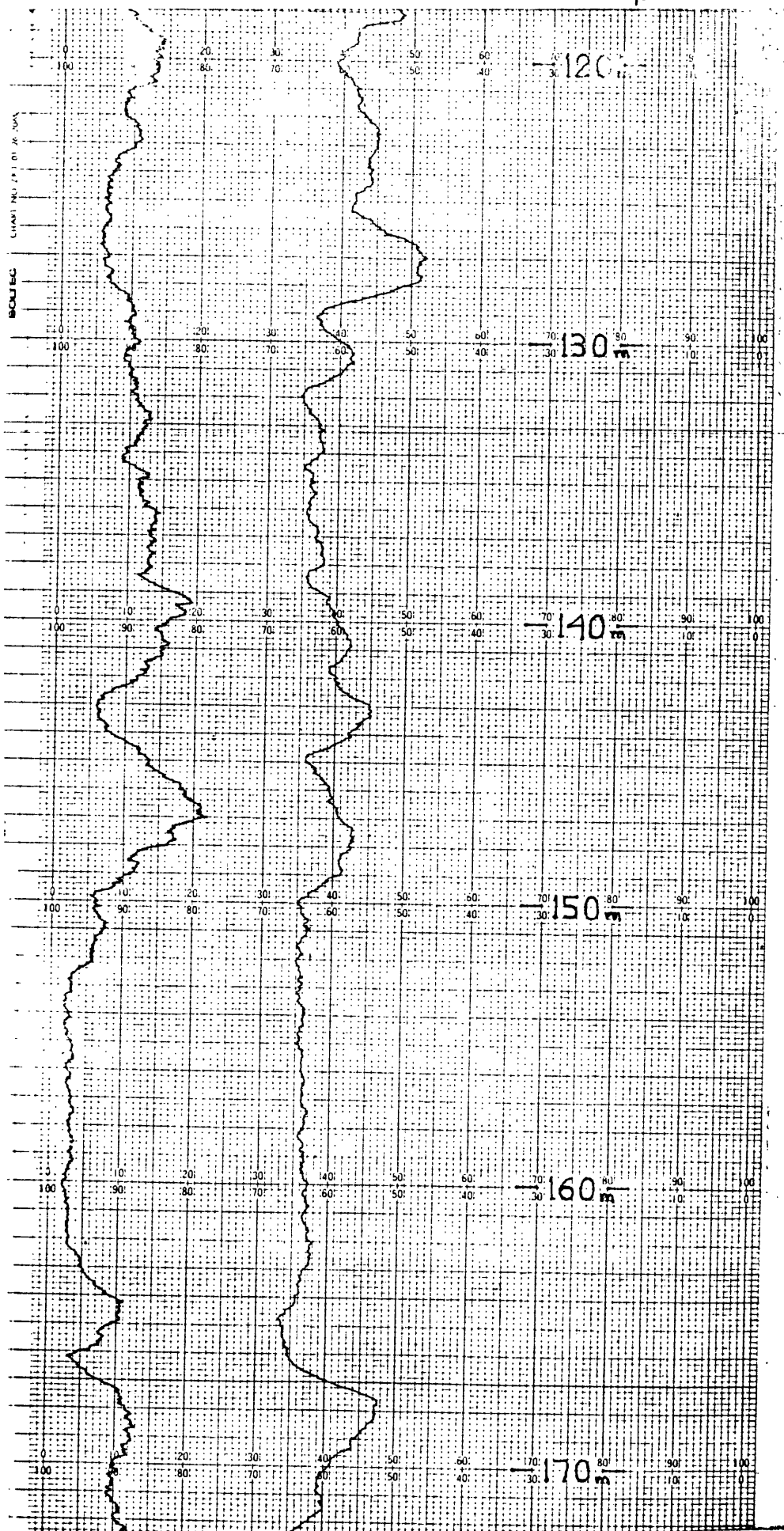
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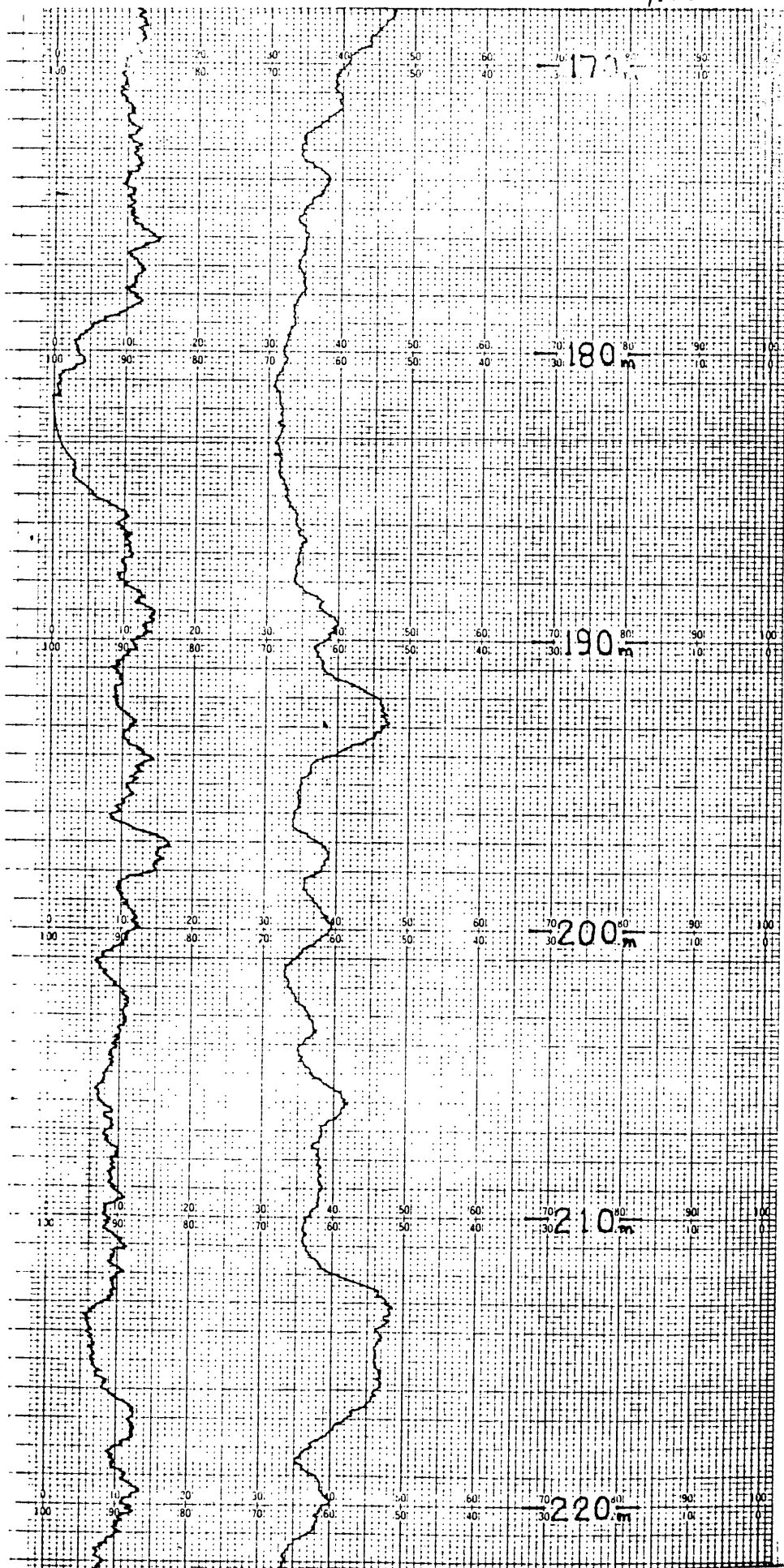


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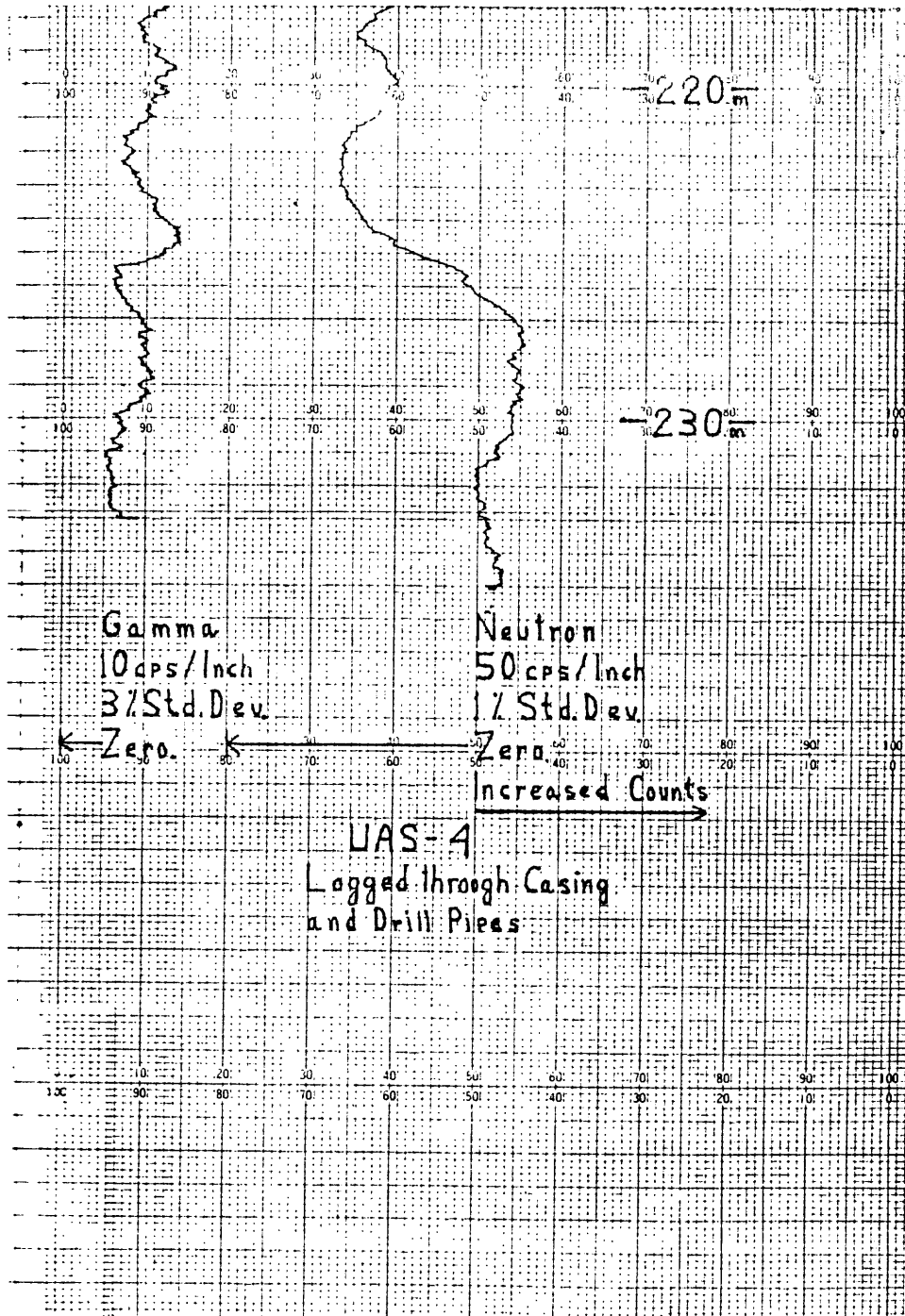


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# GEOSCIENCE ASSOCIATES

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HOLE NUMBER:

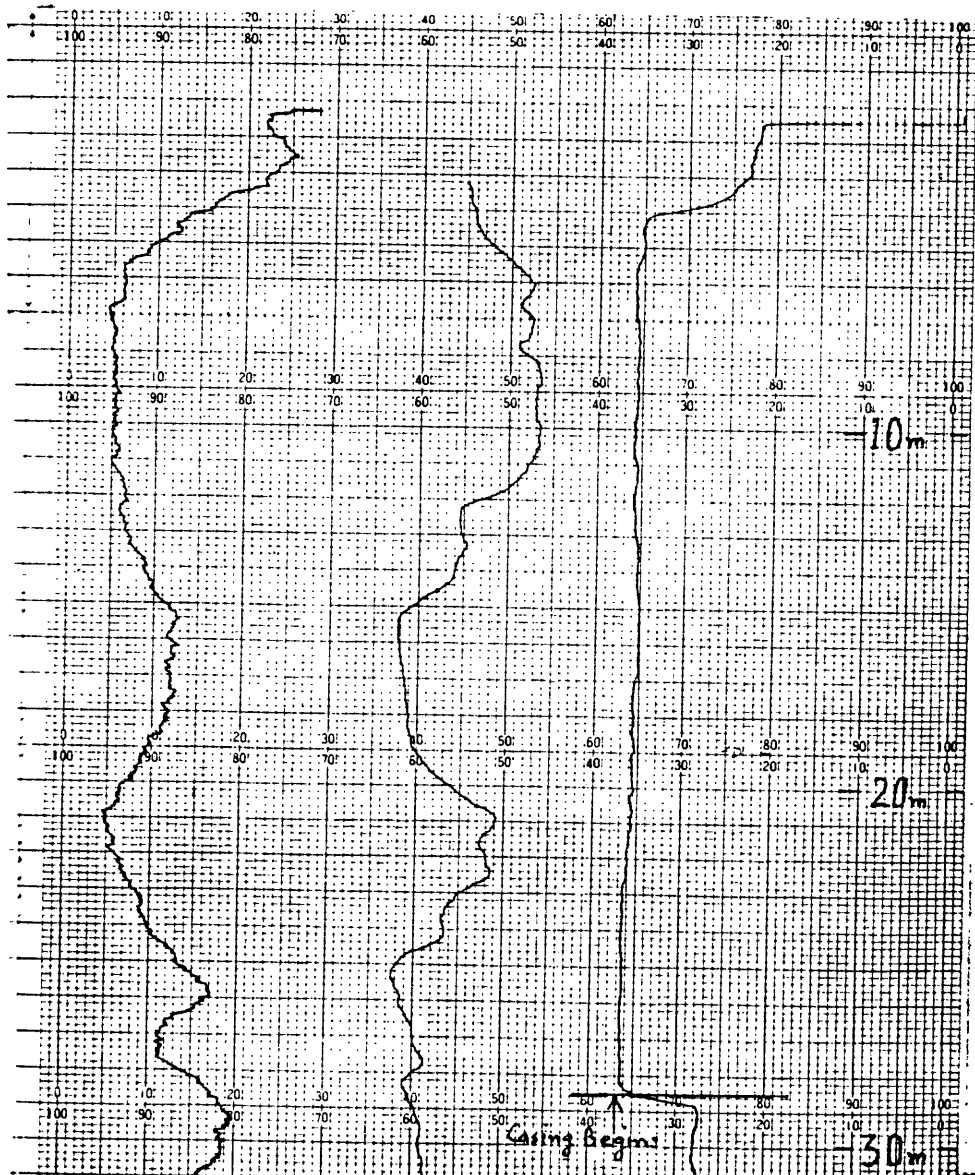
U.A.S.-4

DATE: 28th December, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh, Pakistan		DEPTH DRILLED	250 m		CLIENT	U.S.G.S.-G.S.P.	
REGION	Sonda		DEPTH LOGGED	202 m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	MENTAS/MUSIB/ILWIS	
PROSPECT			DIA	Sec	FROM TO	UNIT NO	PL-2 OFFICE	
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER COLORADO	U.S.A.	
			DIA	2.0	FROM TO	ELECTRIC		
TYPE	QAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH	200 m	202 m	FLUID LEVEL			LOGGED DEPTH	200 m	FT
RANGE (I.R.)	100	1K	CASING DATA			SCALE	10	
%STD DEV	3%	1%	WALL SIZE	1/4"		PAPER SPEED	1-1	
PAPER SPEED	1-1	1-1	I.D.	4"		LOG SPEED	6-1	
LOG SPEED	6-1	6-1	CASED FROM	0 TO 28.3"		FINE ADJ.	700 Bls.	
BKND. COUNT			CASING TYPE	HQ				
PROBE NO.	6N-1	6N-1	SAMPLE DATA					
SIZE (dia)	13/8"	13/8"	NON-CORED HOLE	CORED HOLE				
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME	2	2						
STANDARD								
DIGITAL DATA			REMARKS					
PRINT INTERVAL								
TIMEBASE								
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								

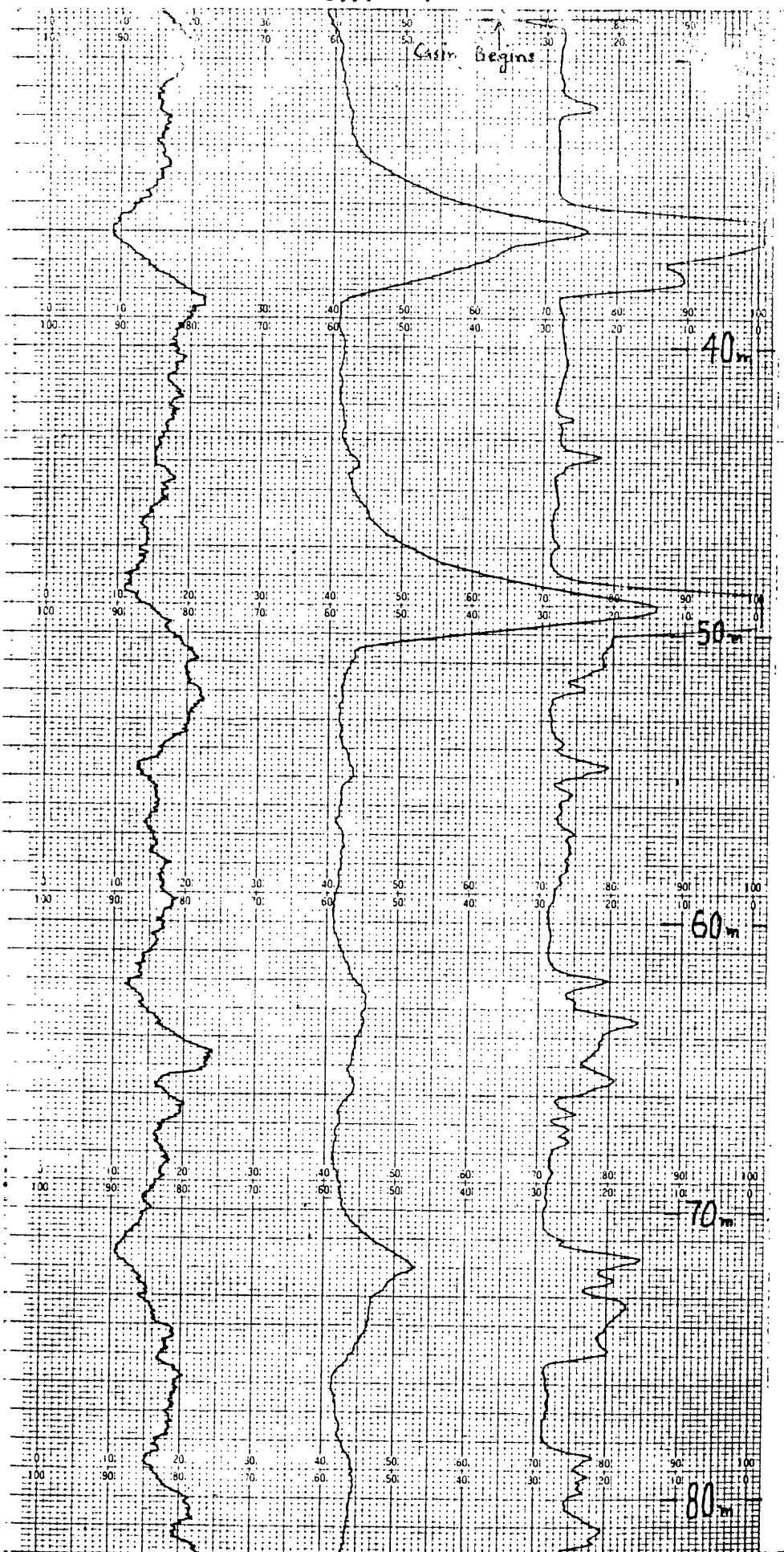
CALIPER		
LOGGED DEPTH	FT	
SCALE		
PAPER SPEED		
LOG SPEED		
ARM LENGTH	IN	
MAX DEF.	IN	

VERTICAL DEV.		
DEPTH		
INCLIN		
BEARING		



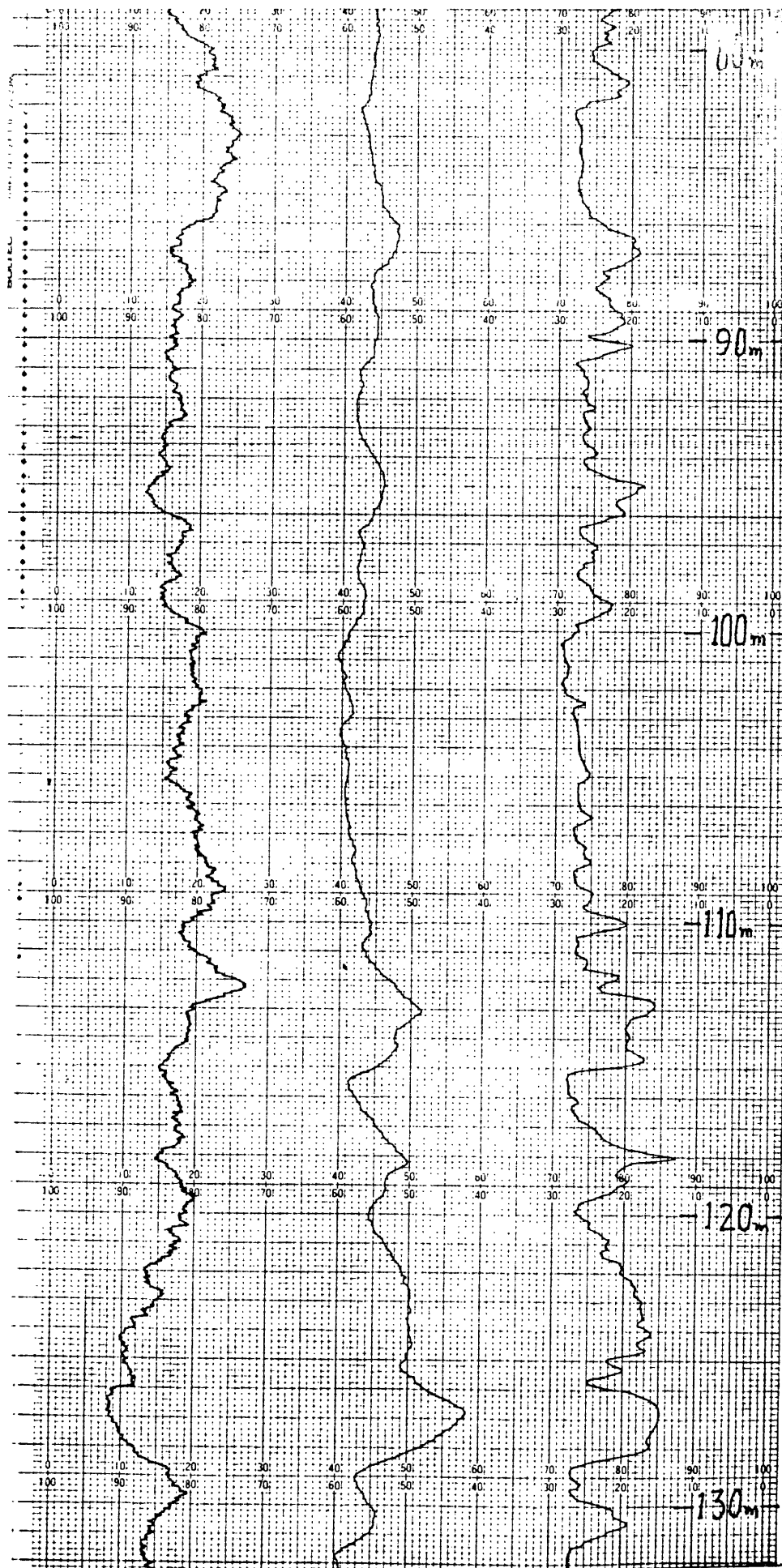
UAS-4

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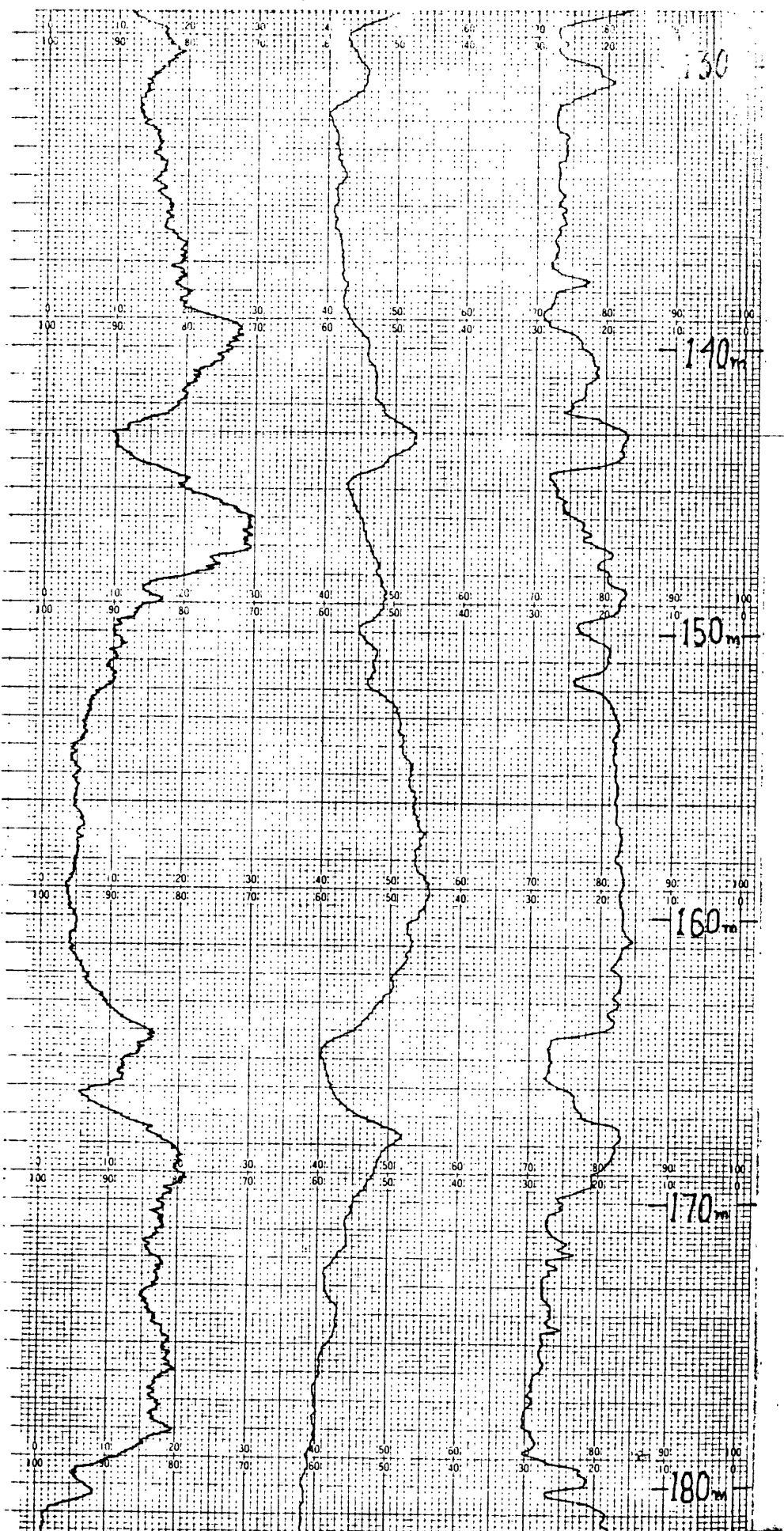
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Gamma

10 cps/Inch

3% Std. Dev.

Neutron

100 cps/Inch

1% Std. Dev.

Resistivity

10  $\Omega$ /Inch

700 bias

← Zero →

Increased Counts

UAS-4

Open Hole

# GEO SCIENCE ASSOCIATES

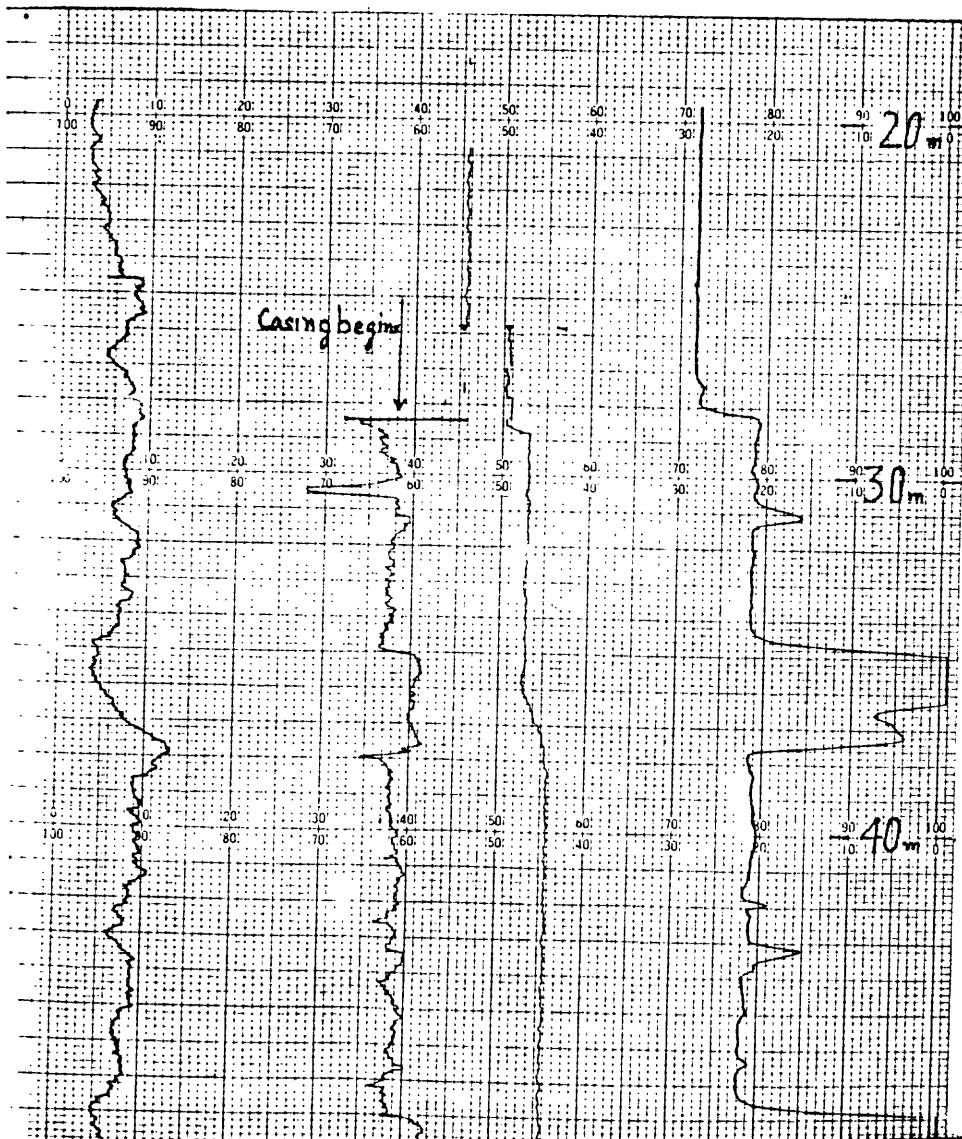
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HOLE NUMBER:

U.A.S.-4

DATE: 28<sup>th</sup> December, 1986

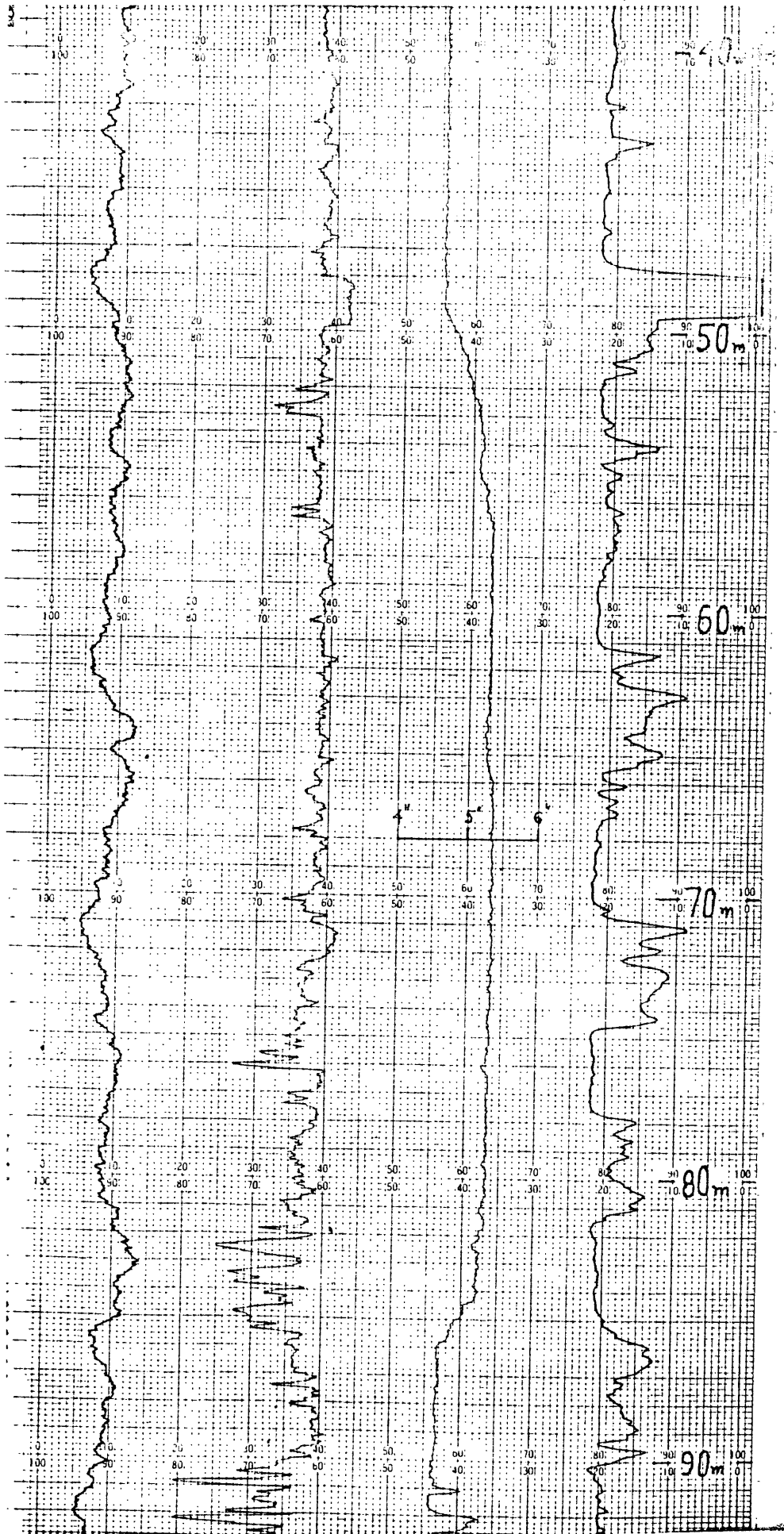
LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	Sind	Pakistan	DEPTH DRILLED	250 m	CLIENT	U.S.G.S. - G.S.P.
REGION	Sonda		DEPTH LOGGED	170 m	GEOLOGIST	
PROJECT	COAL REAP.		COLLAR ELEV		UNIT OPERATOR	MENTAB/HUTIO/ILYAS
PROSPECT			DIA	See FROM TO	UNIT NO	PL-2
SEC	TWP	RNG	DIA	Caliper FROM TO	OFFICE	BOULDER COLORADO U.S.A.
			DIA	Log FROM TO		
TYPE			NUMERICAL METHOD	HLU 111111		
LOGGED DEPTH	169 m	170 m	FLUID LEVEL			
RANGE (ft.)	100	20 K				
WSTO DEV	3%	1%	CASING DATA			
PAPER SPEED	1-1	1-1	WALL SIZE	1/4"		
LOG SPEED	3-1	3-1	ID	4"		
BKGD COUNT			CASED FROM	0 TO 283 m		
PROBE NO	HRD-1	HRD-1	CASING TYPE	PG		
SIZE (dia.)	2	2	SAMPLE DATA			
K-FACTOR			NON-CORED HOLE	<input type="checkbox"/>	CORED HOLE	<input checked="" type="checkbox"/>
DEAD TIME	2	2	SAMPLED INTERVAL		SAMPLE TYPE	
STANDARD			REMARKS			
DIGITAL DATA						
PRINT INTERVAL						
TIMEBASE						
DENSITY CALIBRATION						
ALUMINUM						
LUCITE						
			CALIPER			
			LOGGED DEPTH			
			SCALE			
			PAPER SPEED			
			LOG SPEED			
			FINE ADJ			
			VERTICAL DEV.			
			DEPTH			
			INCLIN.			
			BEARING			





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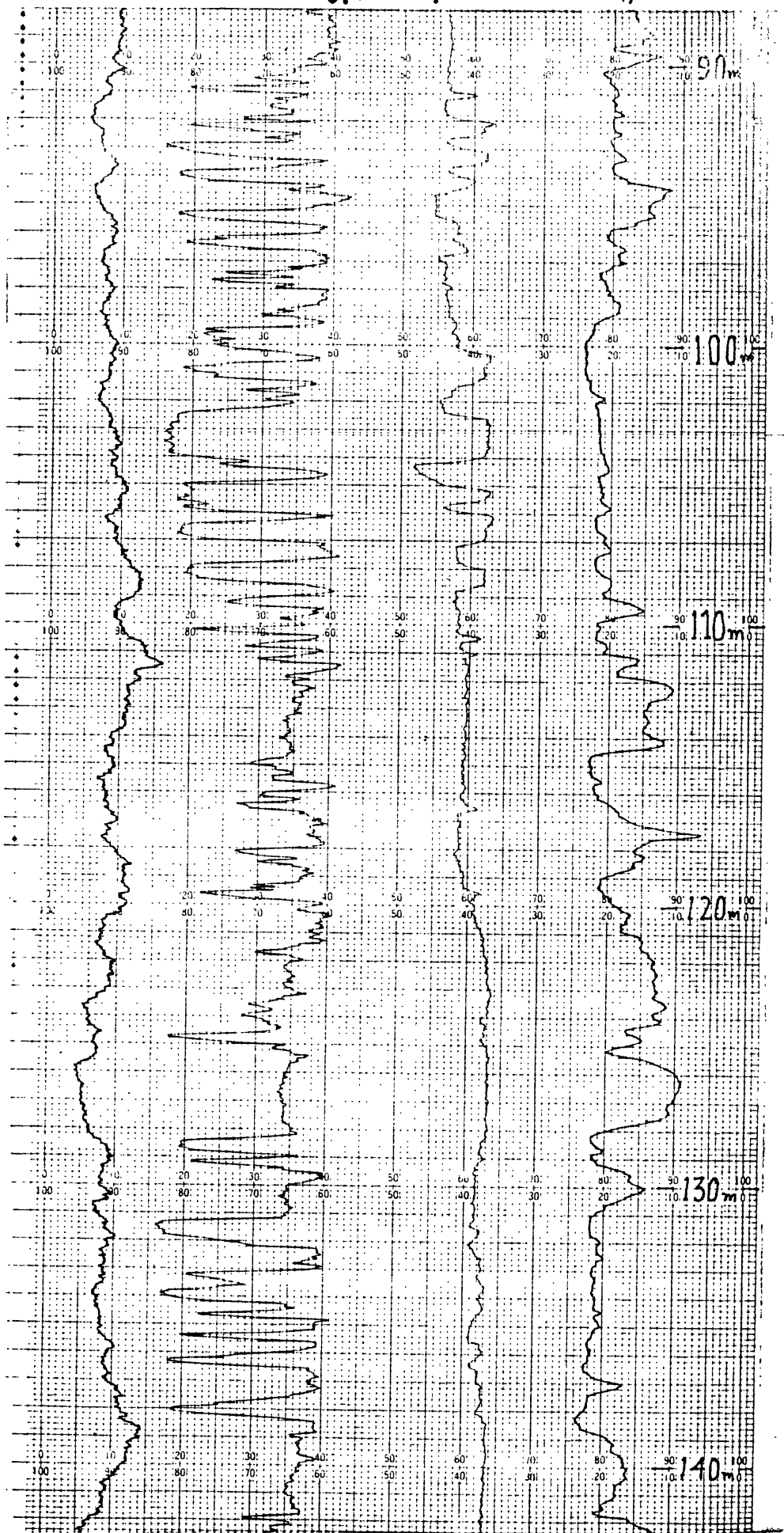
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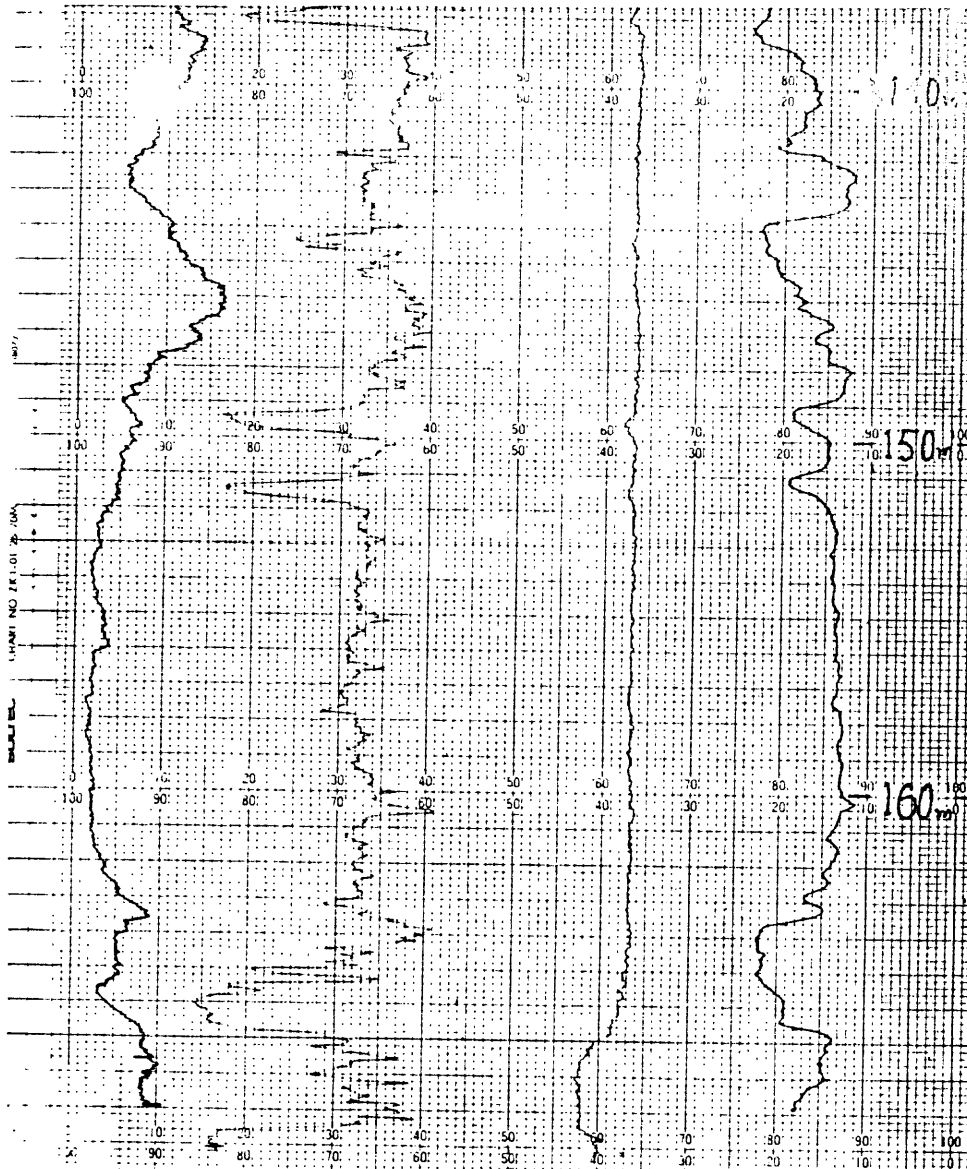
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Gamma

10 cps/Inch

3 % Std. Dev.

Hi Resol. Density

2000 cps /Inch

10 % Std. Dev.

Increased Counts

Caliper

5K Range

1% Std. Dev.

1" Deflection  
Equals 1" Dia

Resistivity

10  $\Omega$ /Inch

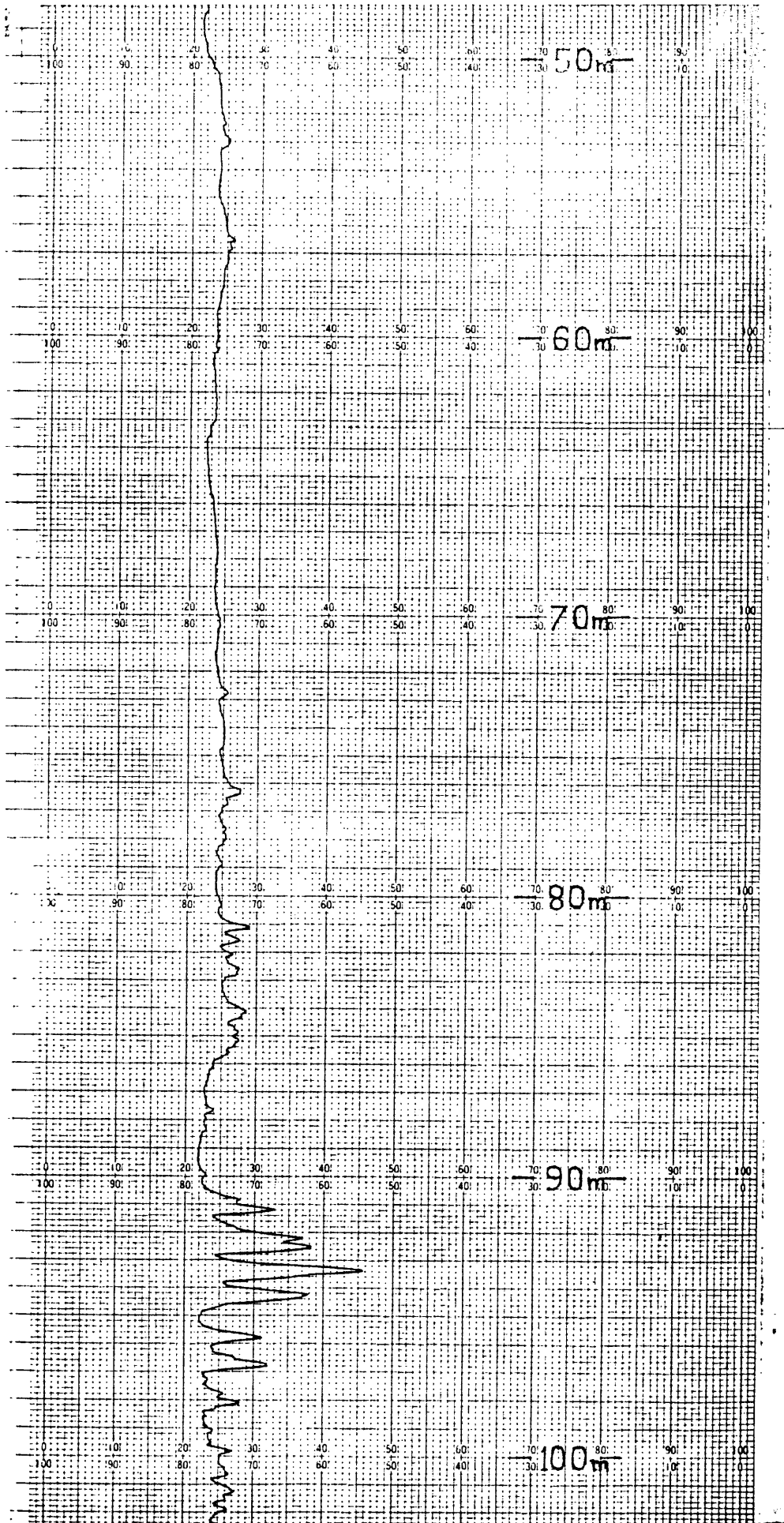
700 Bias

UAS-4



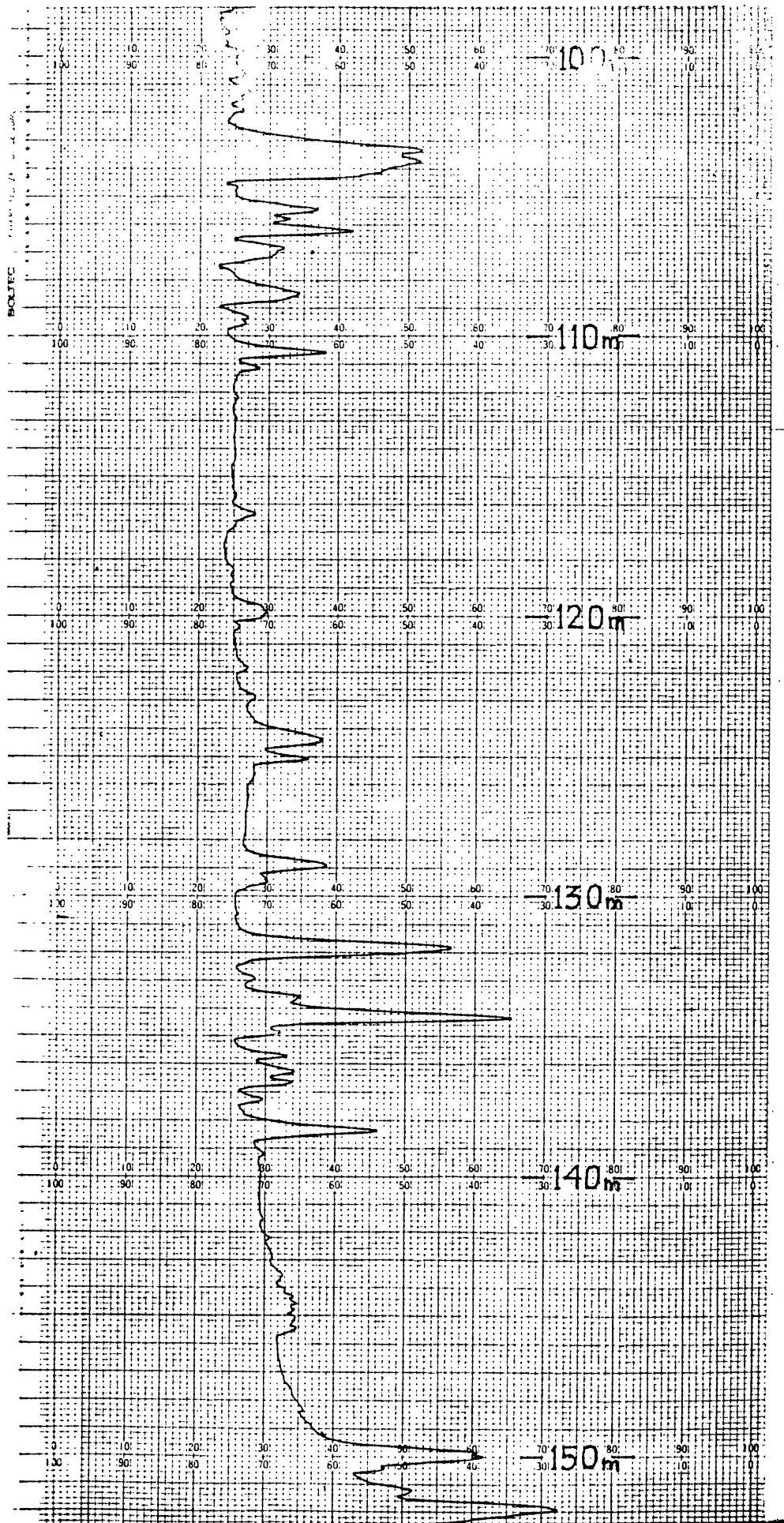
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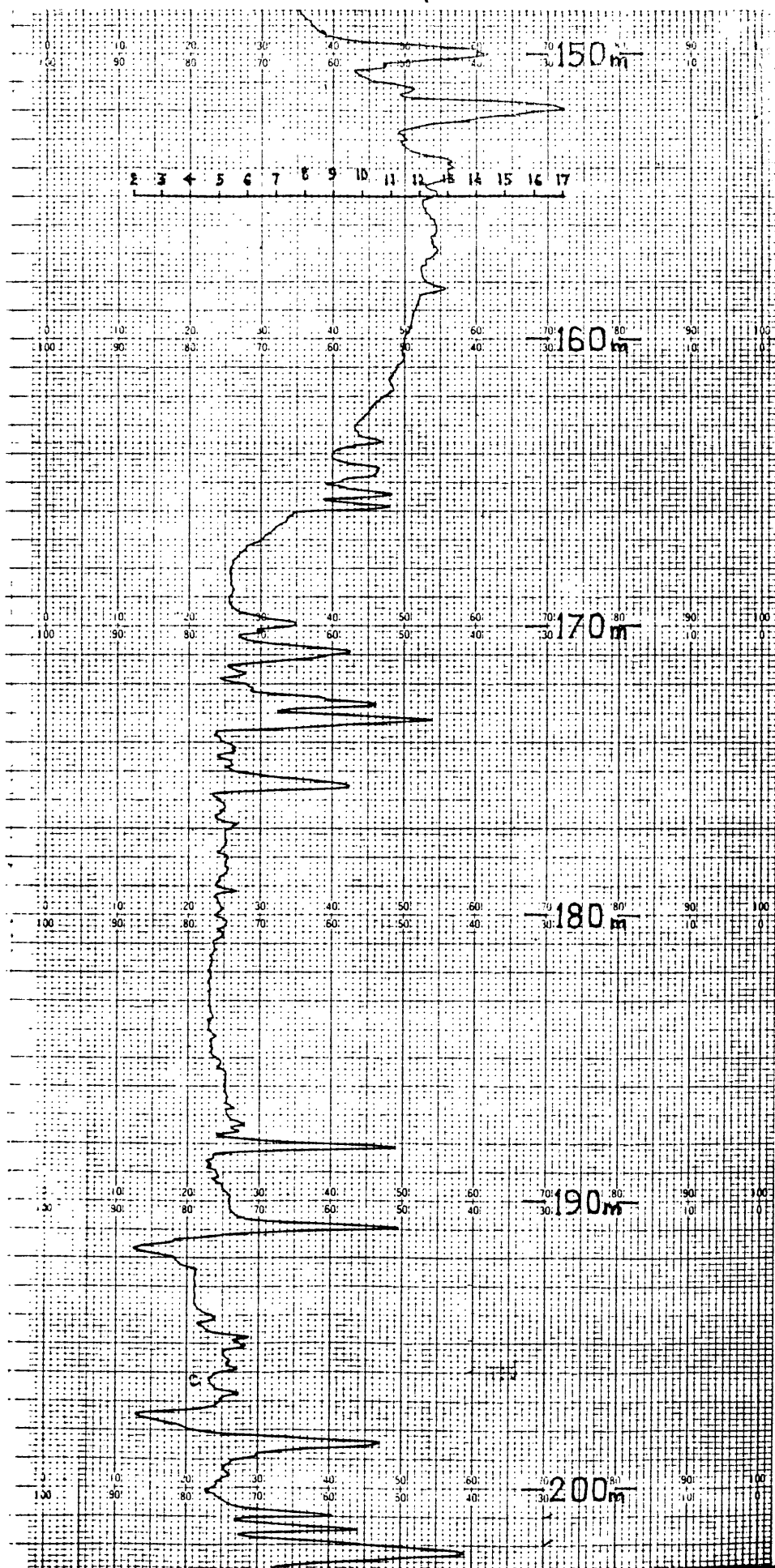
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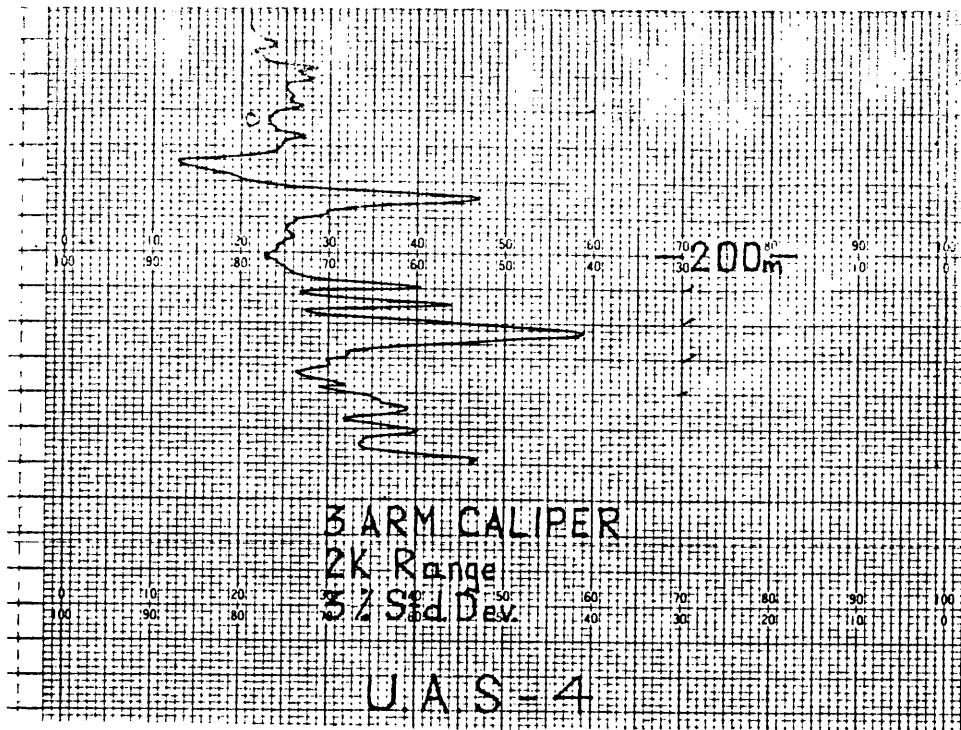
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DRILL HOLE UAS-5





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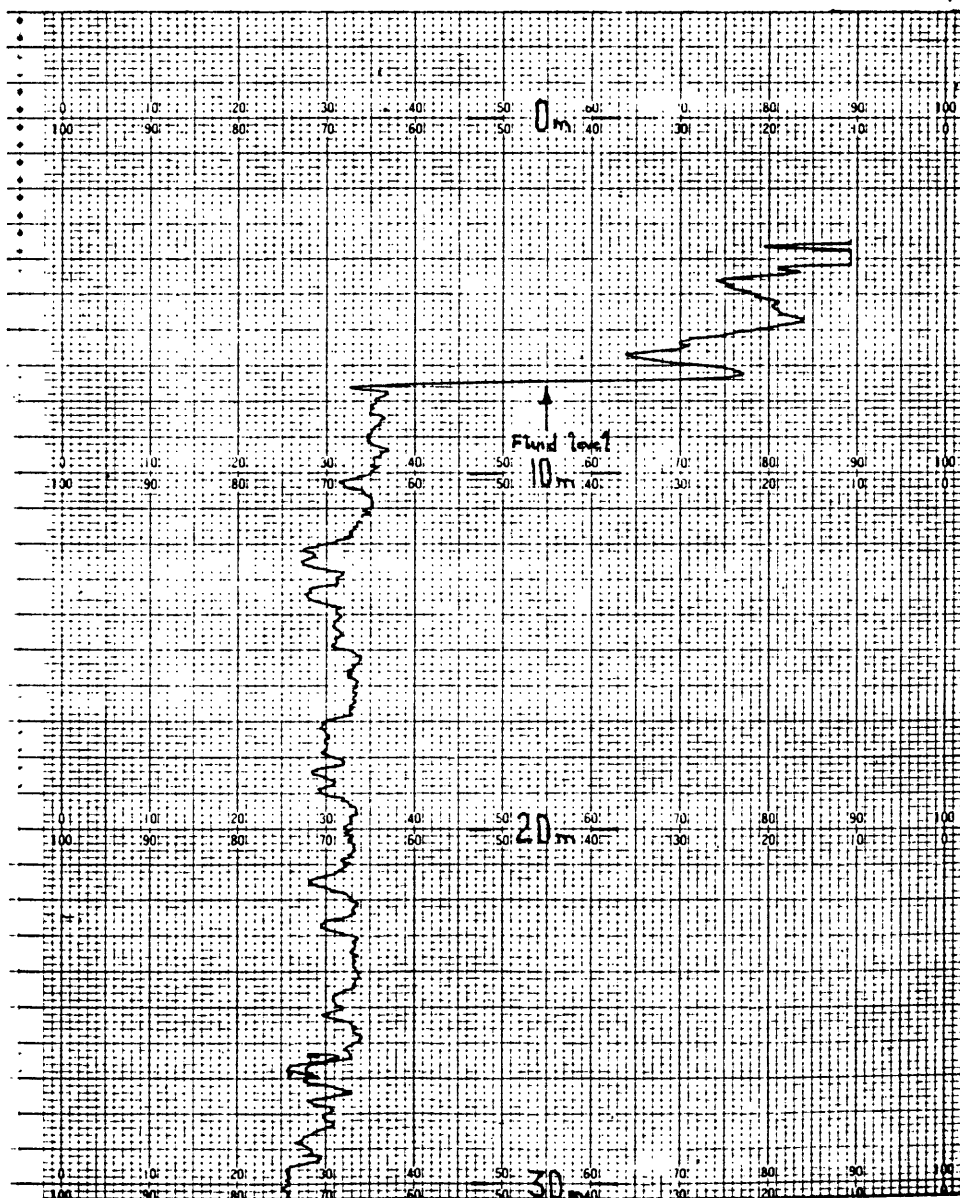
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HOLE NUMBER:

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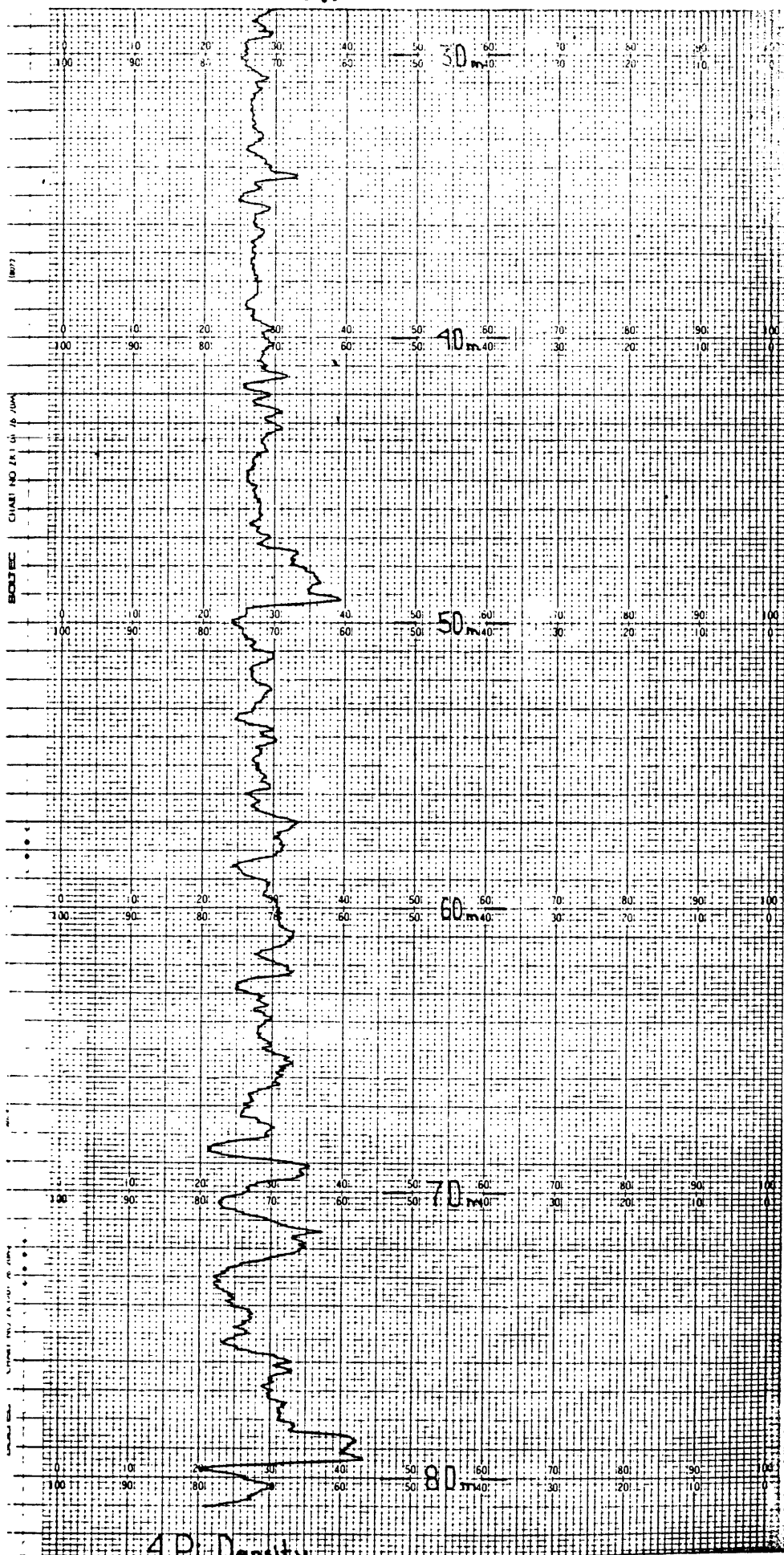
DATE: 8th December, 1986

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh, Pakistan		DEPTH DRILLED	282 m		CLIENT	U.S.G.S. - G.S.P.	
REGION	Sonda		DEPTH LOGGED	81 m		GEOLOGIST		
PROJECT	COAL REAR		COLLAR ELEV			UNIT OPERATOR	MEHTAG/MUJIB/ILYAS	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2	OFFICE
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER, COLORADO	U.S.A.	
			DIA	log	FROM TO	ELECTRIC		
TYPE	GAM 4 P Density		BOREHOLE MEDIUM	H <sub>2</sub> O + Mwd.				
LOGGED DEPTH	81 m		FLUID LEVEL	7.6 m				
RANGE (f.s.)	208		CASING DATA					
STD DEV	1.5		WALL SIZE					
PAPER SPEED	1-1		ID					
LOG SPEED	6-1		CASED FROM TO					
BKGND. COUNT			CASING TYPE					
PROBE NO.	6D-1		SAMPLE DATA					
SIZE (dia.)	13/8"		NON-CORED HOLE <input checked="" type="checkbox"/> CORED HOLE <input type="checkbox"/>					
K-FACTOR			SAMPLED INTERVAL SAMPLE TYPE					
DEAD TIME	2		REMARKS					
STANDARD			Open Hole					
DIGITAL DATA								
PRINT INTERVAL								
TIMEBASE								
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								
			CALIPER					
			LOGGED DEPTH FT					
			SCALE					
			PAPER SPEED					
			LOG SPEED					
			FINE ADJ					
			VERTICAL DEV.					
			DEPTH					
			INCLIN					
			BEARING					



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## GEOSCIENCE ASSOCIATION

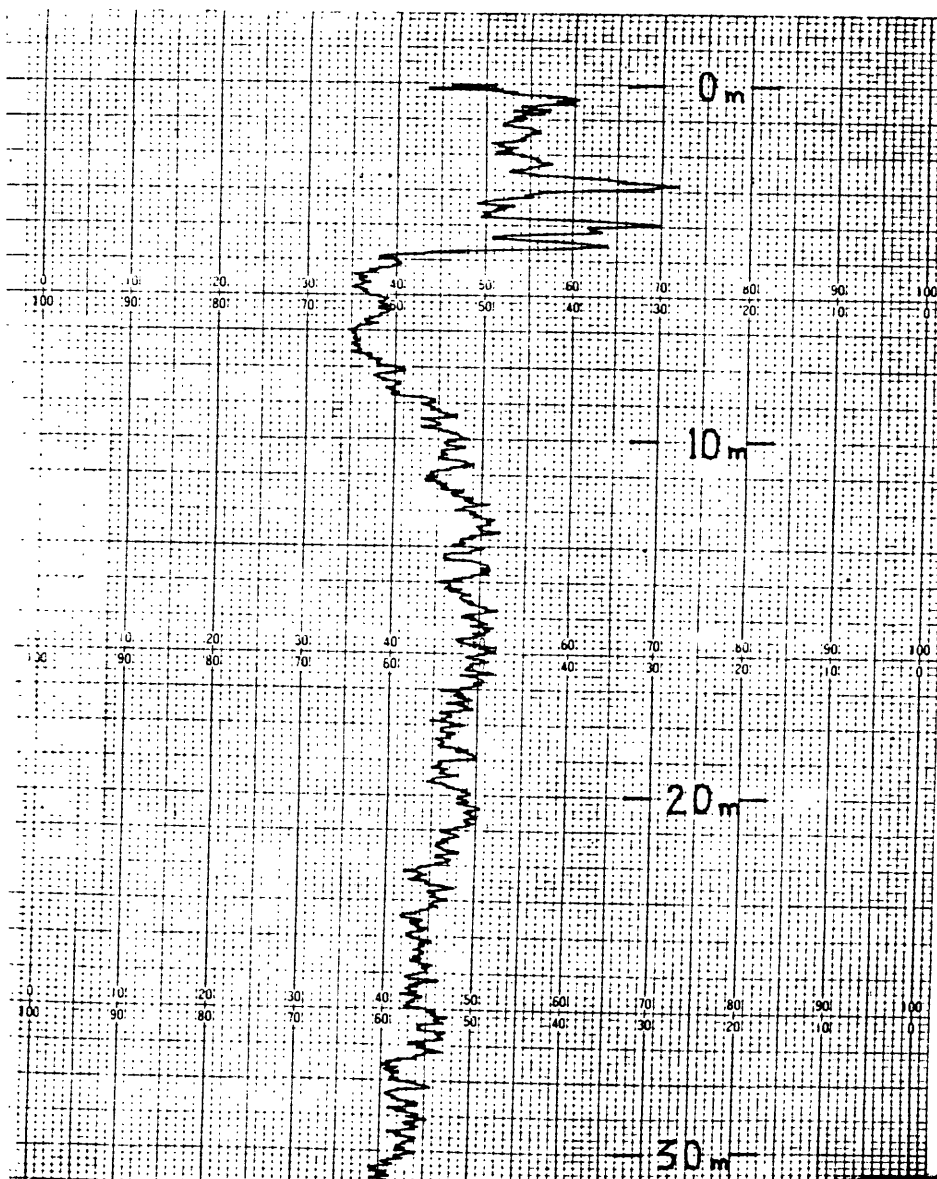
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HOLE NUMBER:

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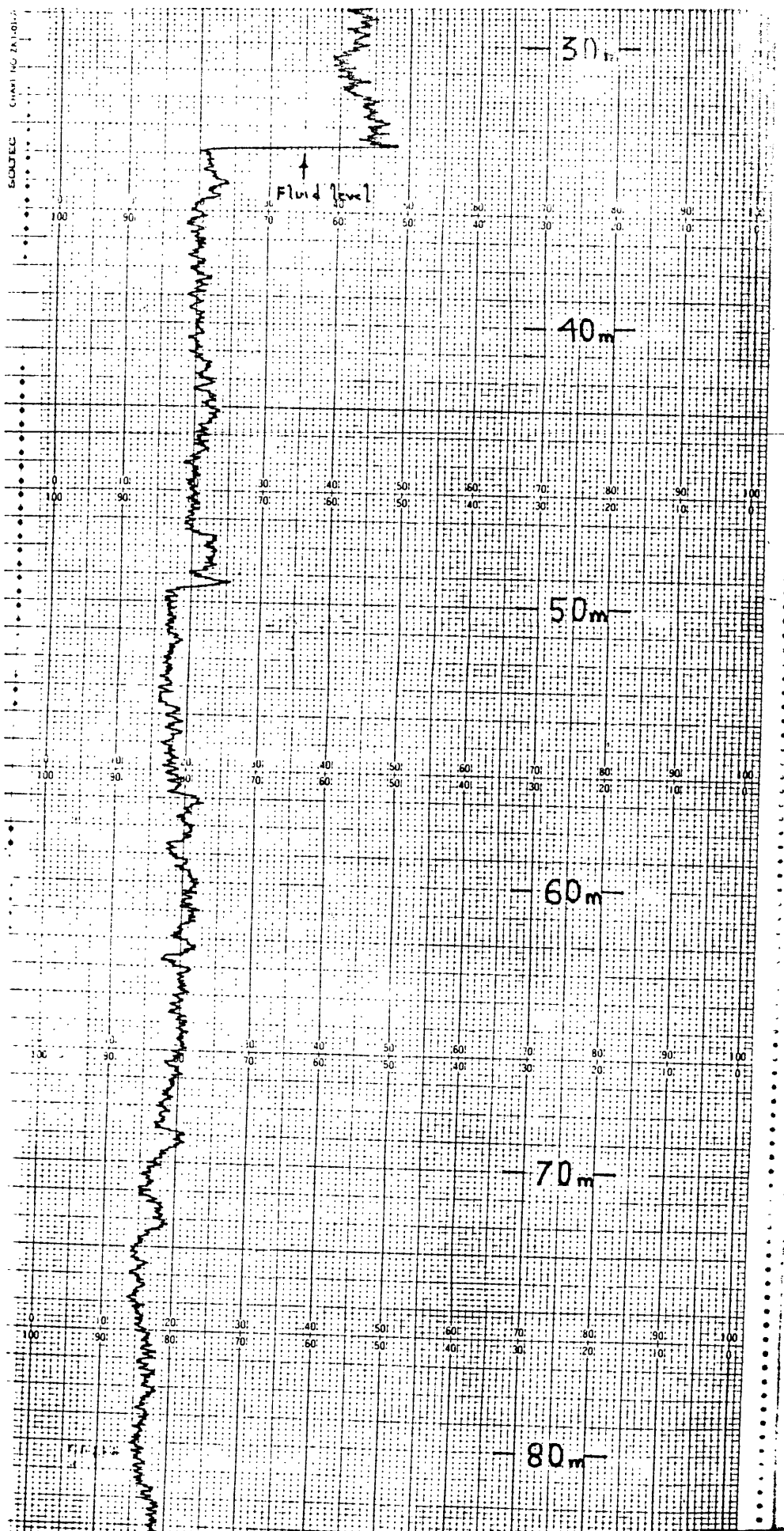
DATE: 4th December, 1986.

LOCATION		HOLE DATA		CLIENT	
STATE/COUNTY	Sindh, PAKISTAN	DEPTH DRILLED	282 m	CLIENT	U.S.G.S. - G.S.P.
REGION	SINDH	DEPTH LOGGED	216 m	GEOLOGIST	
PROJECT	COAL REAP	COLLAR ELEV		UNIT OPERATOR	MEHTAB/MUJIB
PROSPECT		DIA	Sec FROM TO	UNIT NO	PL-2 OFFICE
SEC	TWP RING	DIA	Caliper FROM TO	BOULDER COLORADO U.S.A.	
TYPE	GAM 4 Pi Density	DIA	108 FROM TO	ELECTRIC	
LOGGED DEPTH	216 m	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.	TYPE	RESIST S.P.
RANGE (I.S.)	5K	FLUID LEVEL	33.8 m	LOGGED DEPTH	FT FT
%STD DEV	1%	CASING DATA		SCALE	
PAPER SPEED	1-1	WALL SIZE	1/8"	PAPER SPEED	
LOG SPEED	6-1	CASED FROM	0 TO 254 m	LOG SPEED	
BKGD COUNT		CASING TYPE		FINE ADJ	
PROBE NO.	60-1	SAMPLE DATA			
SIZE (dia.)	1 1/2"	NON-CORED HOLE	<input checked="" type="checkbox"/> CORED HOLE <input type="checkbox"/>		
K-FACTOR		SAMPLED INTERVAL	SAMPLE TYPE		
DEAD TIME	2	REMARKS			
STANDARD		Logged through casing			
DIGITAL DATA				CALIPER	
PRINT INTERVAL				LOGGED DEPTH	FT
TIMEBASE				SCALE	
DENSITY CALIBRATION				PAPER SPEED	
ALUMINUM				LOG SPEED	
LUCITE				ARM LENGTH	IN
				MAX DEF.	IN
				VERTICAL DEV.	
				DEPTH	
				INCLIN.	
				BEARING	



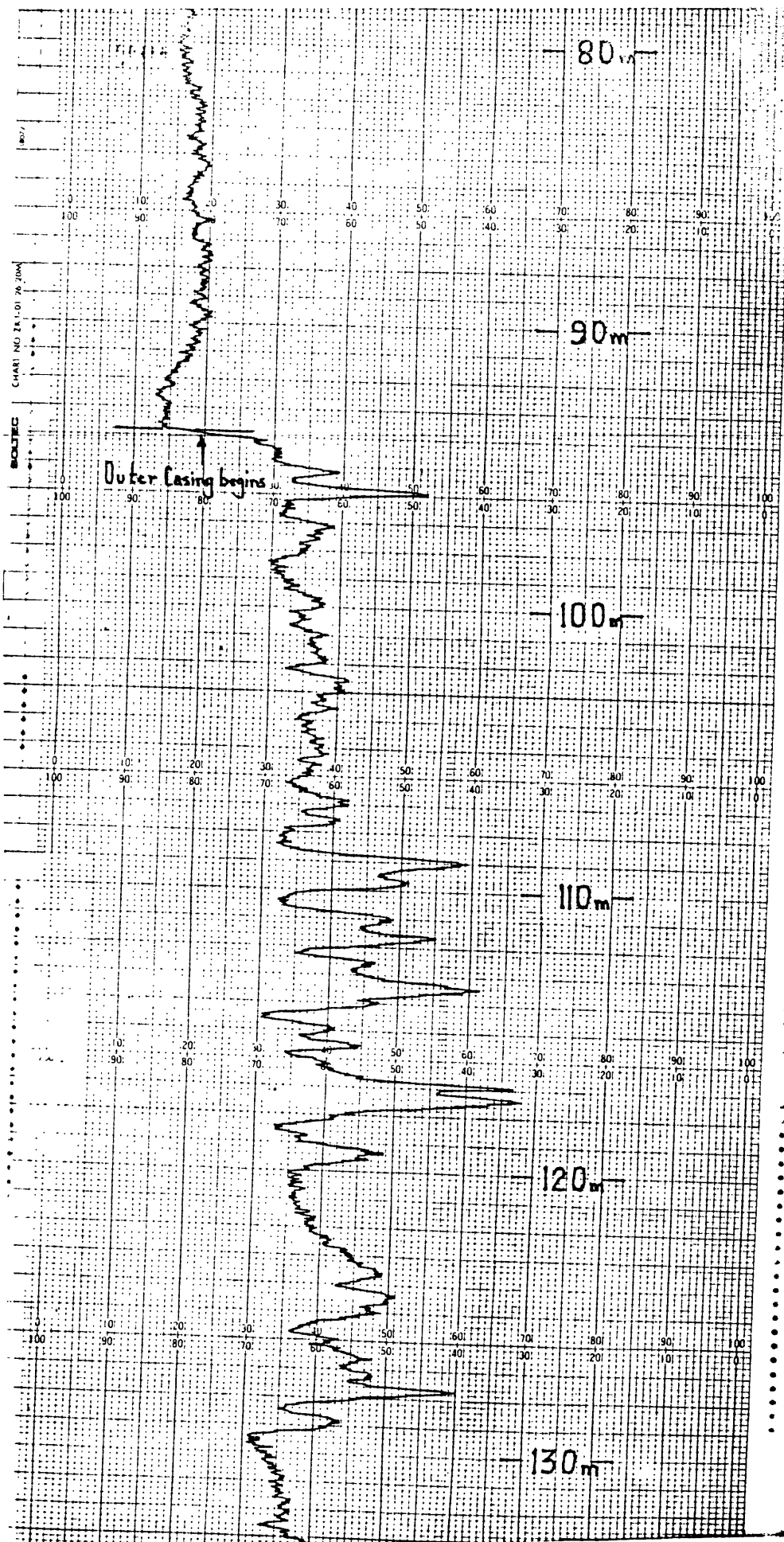
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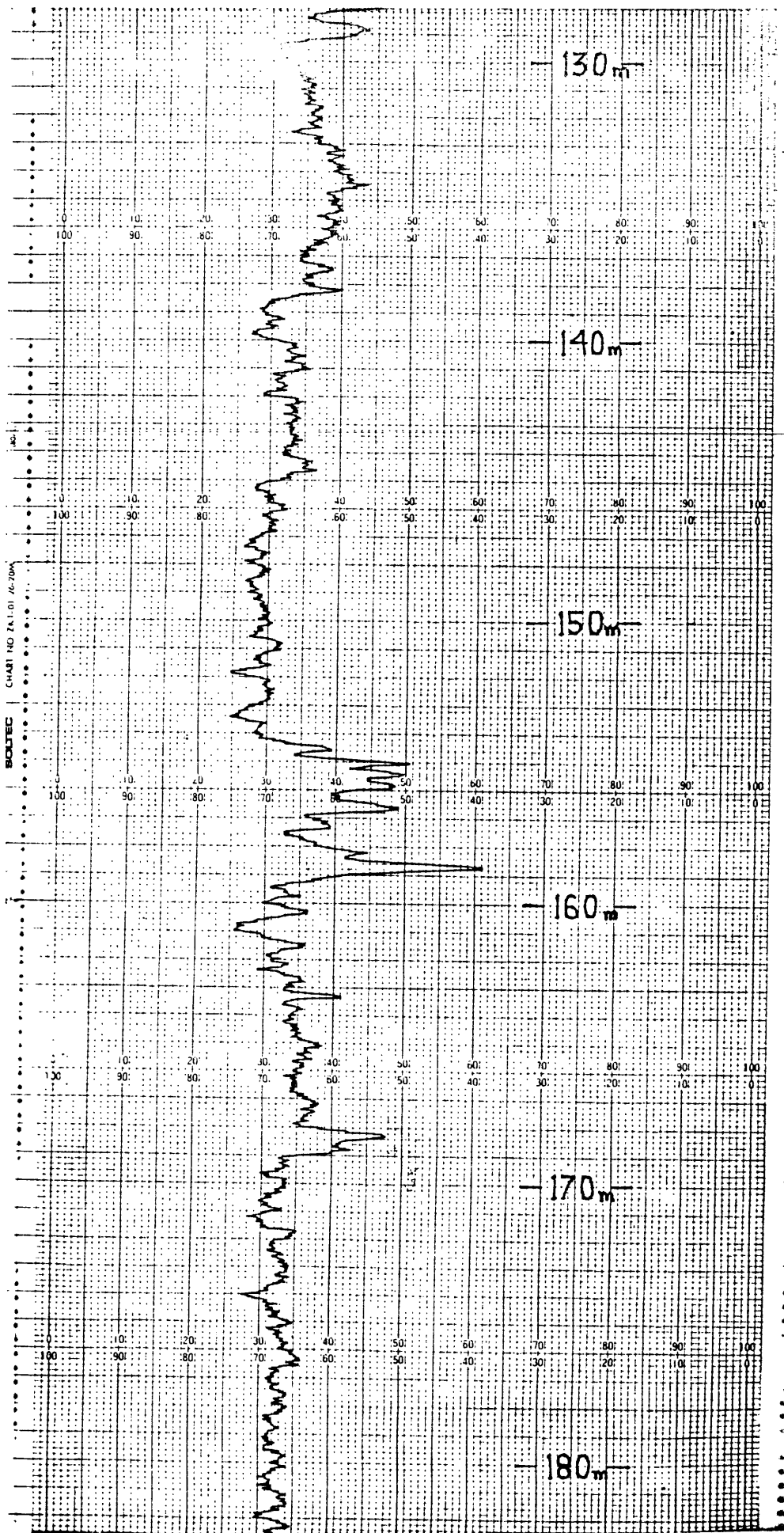


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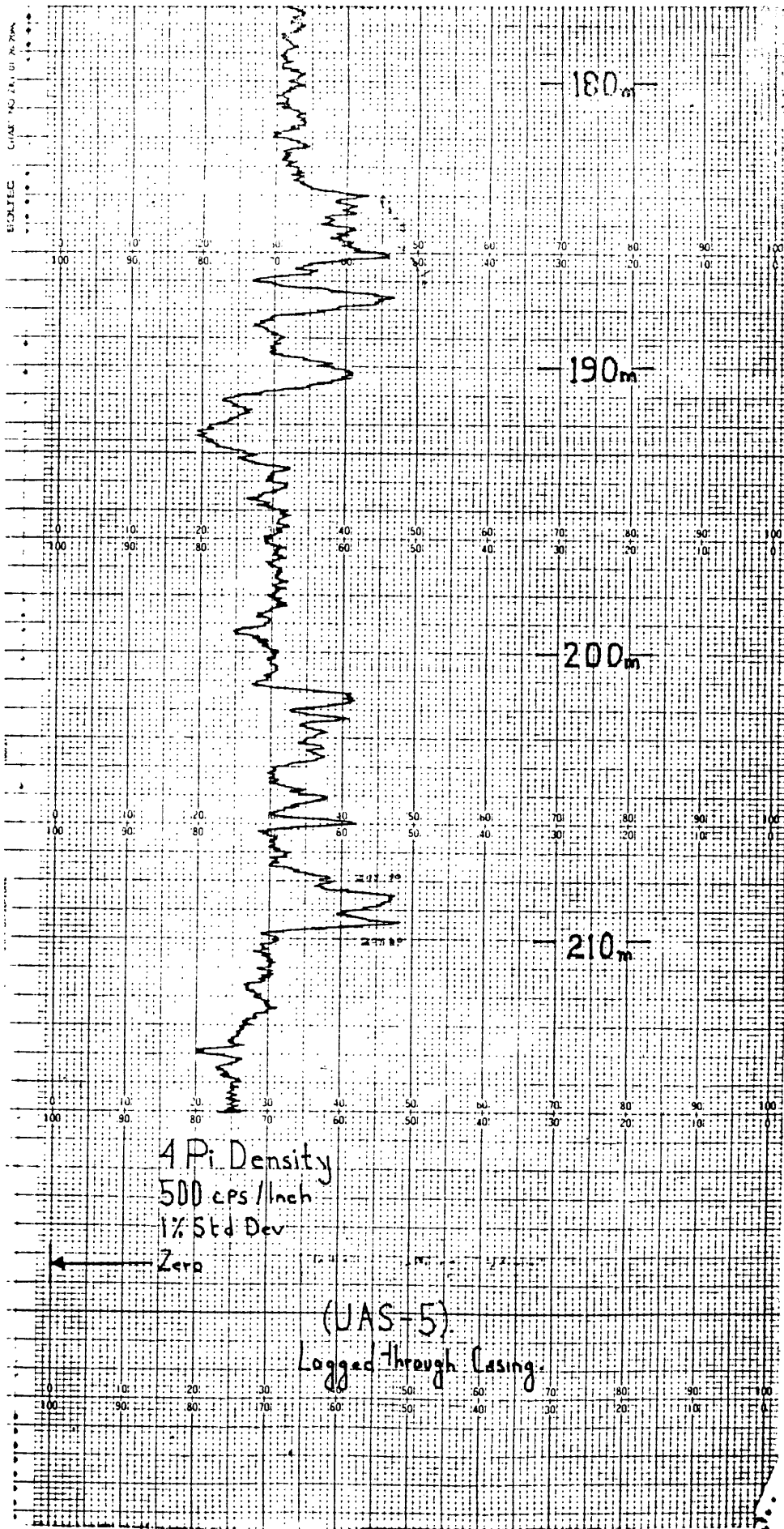
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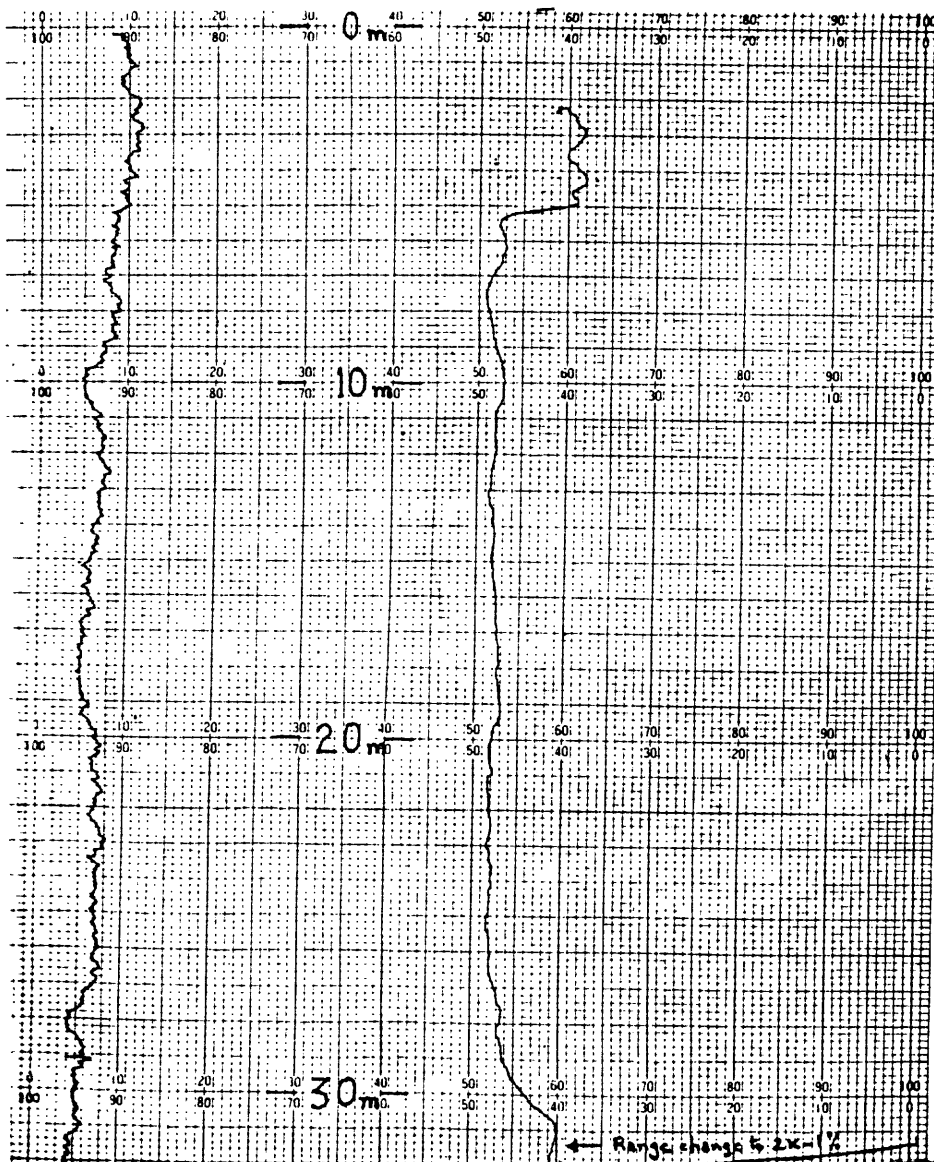
HOLE NUMBER:

UAS-5

DATE:

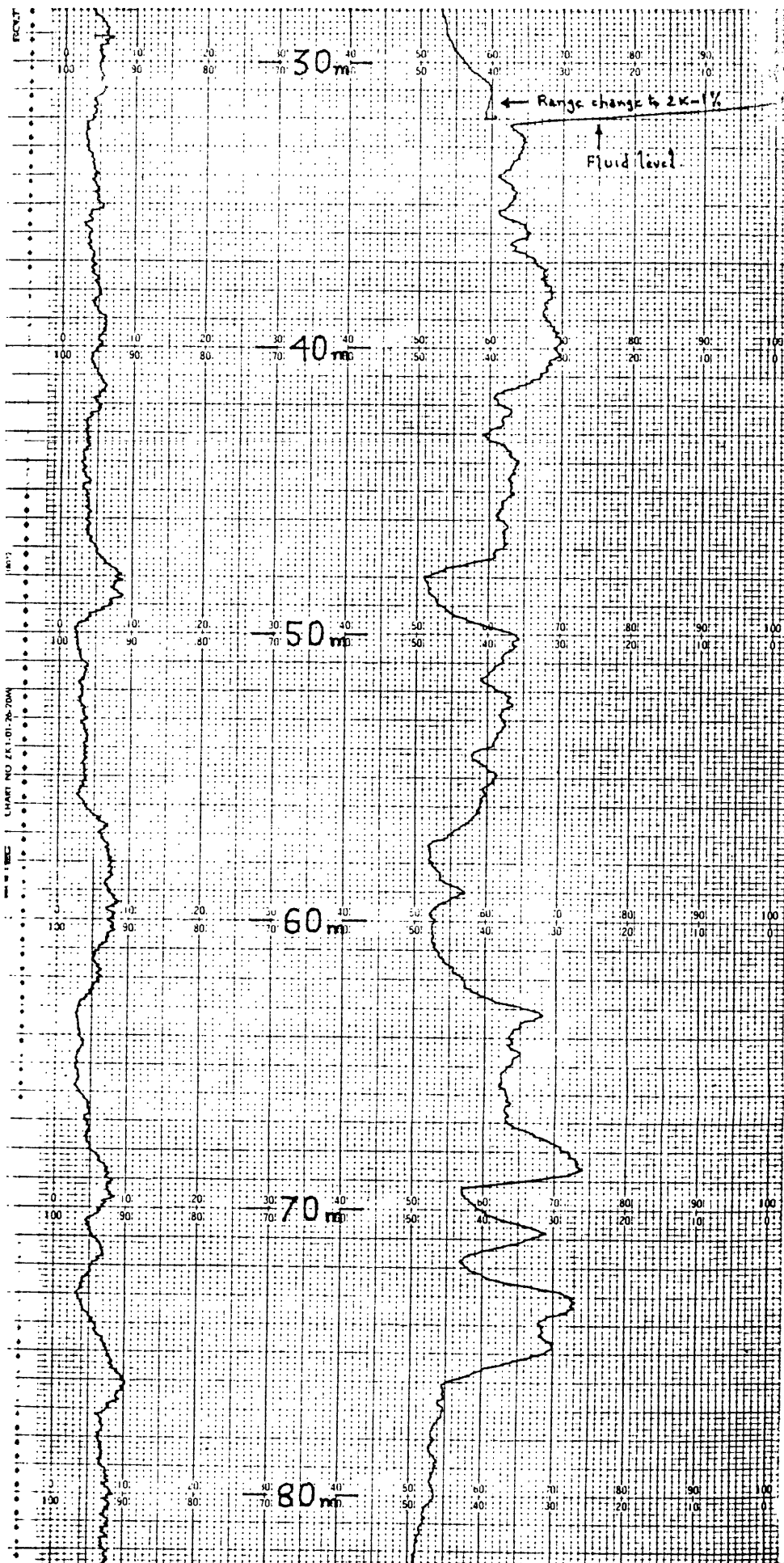
4<sup>th</sup> December, 1986.

LOCATION			HOLE DATA			CLIENT				
STATE/COUNTY	Sindh, PAKISTAN		DEPTH DRILLED	282 m		CLIENT	U.S.G.S - G.S.P.			
REGION	SONDA		DEPTH LOGGED	216 m		GEOLOGIST				
PROJECT	COAL REAP		COLLAR ELEV							
PROSPECT			DIA. Sec	FROM	TO	UNIT OPERATOR HENTAB/MUJIB				
SEC	TWP	RNG.	DIA. Caliber	FROM	TO	UNIT NO PL-2 OFFICE				
			DIA. 1.02	FROM	TO	BRULDER COLORADO U.S.A.				
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.		ELECTRIC				
LOGGED DEPTH	214 m	216 m	FLUID LEVEL	32.2 m		TYPE	RESIST	S.P.		
RANGE (I.S.)	100	500+2K	CASING DATA			LOGGED DEPTH	FT.	FT.		
%STD DEV	3%	1%+1%	WALL SIZE	1/8"		SCALE				
PAPER SPEED	1-1	1-1	I.D.			PAPER SPEED				
LOG SPEED	6-1	6-1	CASED FROM	0 TO 254 m		LOG SPEED				
BKGD. COUNT			CASING TYPE			FINE ADJ.				
PROBE NO	6N-1	6N-1	SAMPLE DATA			CALIPER				
SIZE (dia.)	13/16"	13/16"	NON-CORED HOLE	<input checked="" type="checkbox"/> CORED HOLE		LOGGED DEPTH	FT.			
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		SCALE	1/2"			
DEAD TIME	2	2	REMARKS			PAPER SPEED	1/2"			
STANDARD			Logged through casing			LOG SPEED	1/2"			
DIGITAL DATA						VERTICAL DEV.				
PRINT INTERVAL						DEPTH				
TIMEBASE						INCLIN.				
DENSITY CALIBRATION						BEARING				
ALUMINUM										
LUCITE										



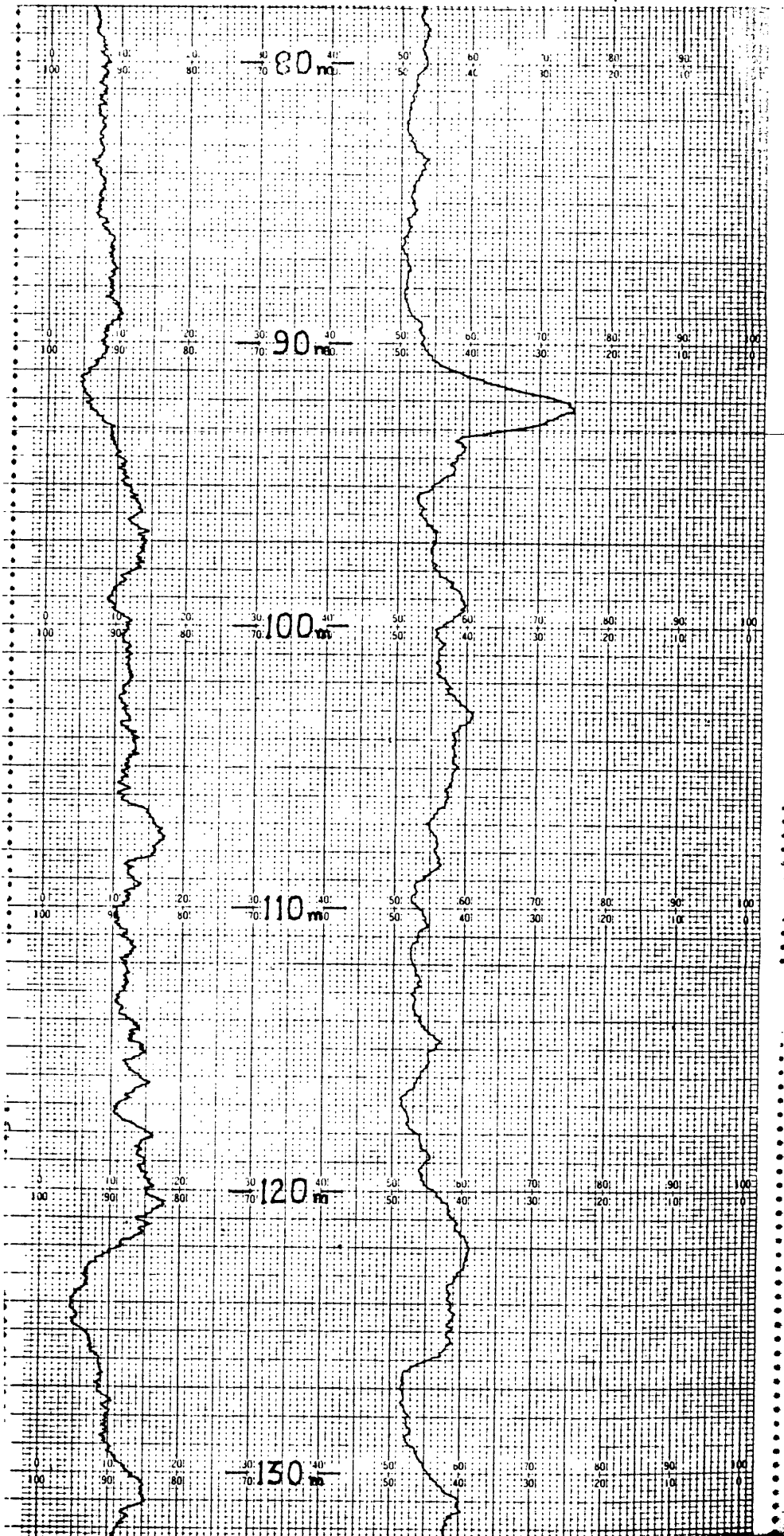
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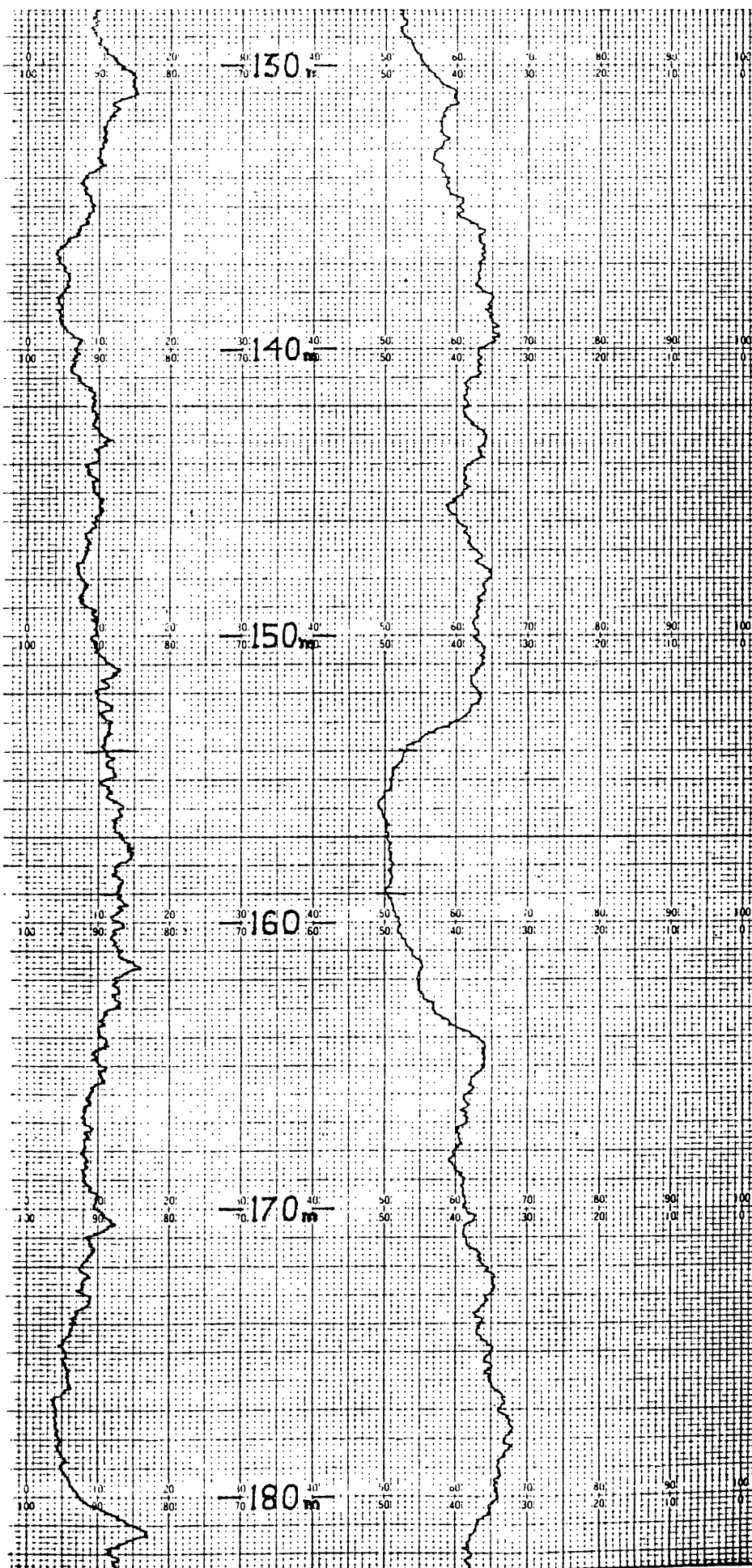
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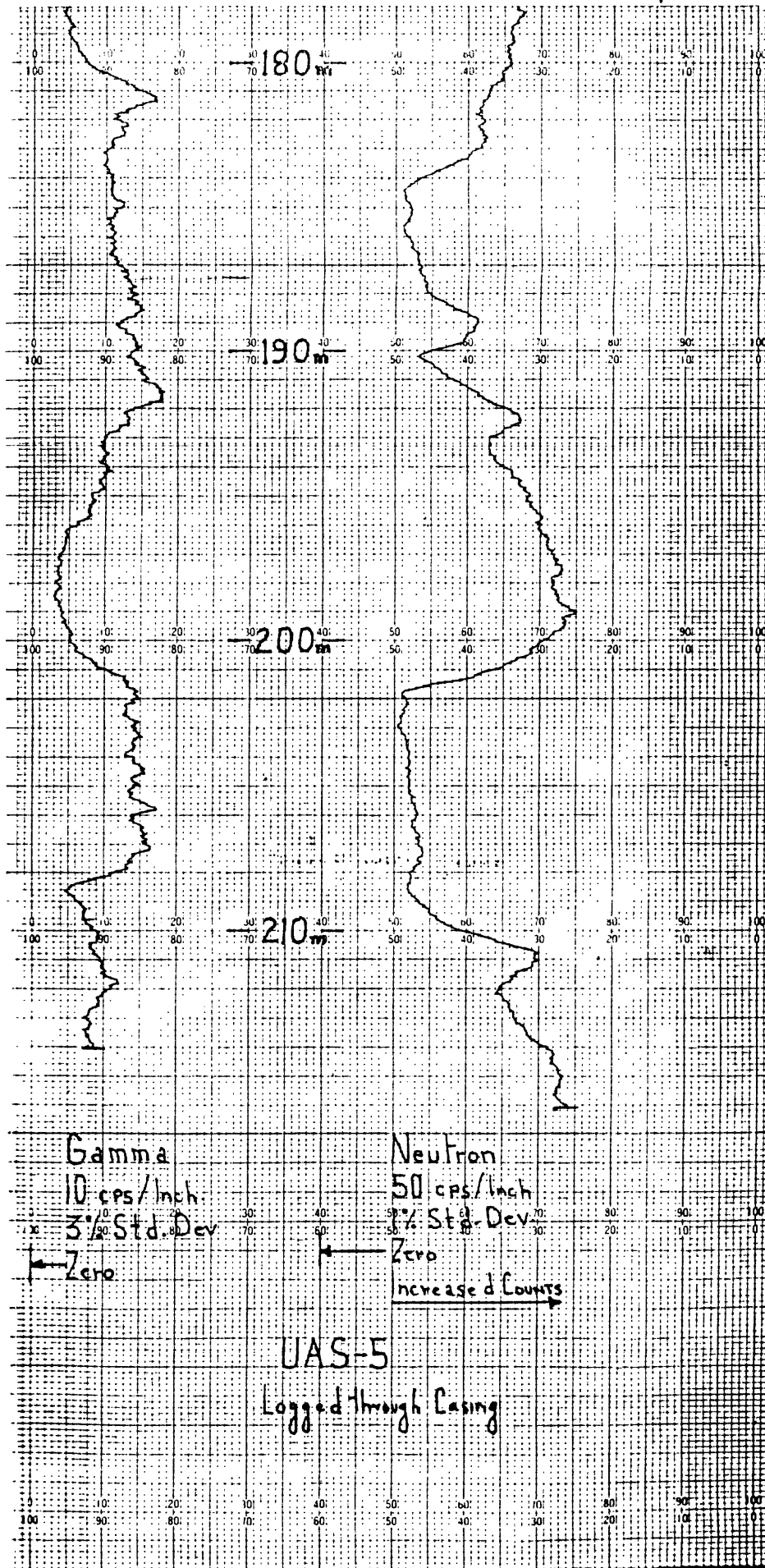
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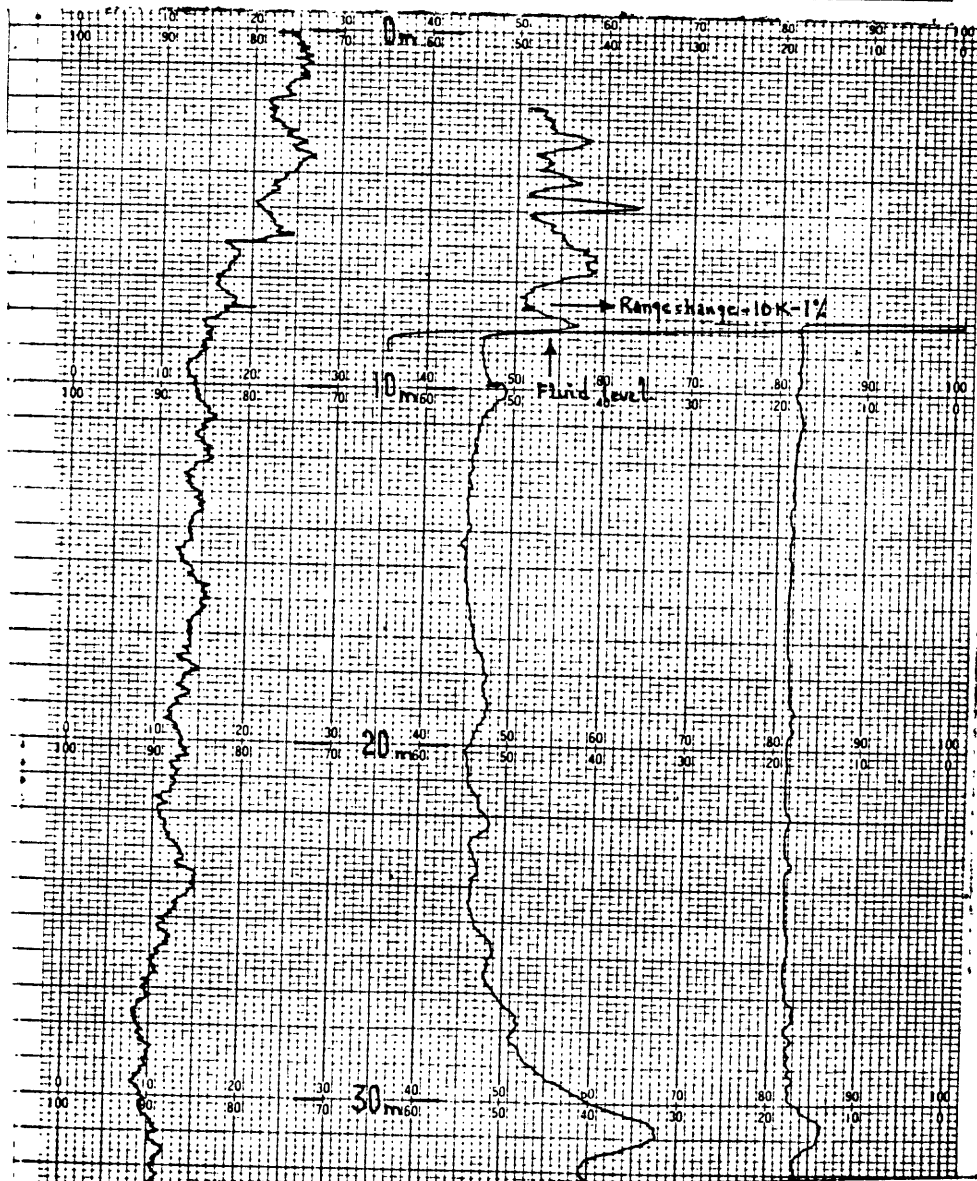
# GEOSCIENCE ASSOCIATES p.286

HOLE NUMBER:

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DATE: 8th December, 1986

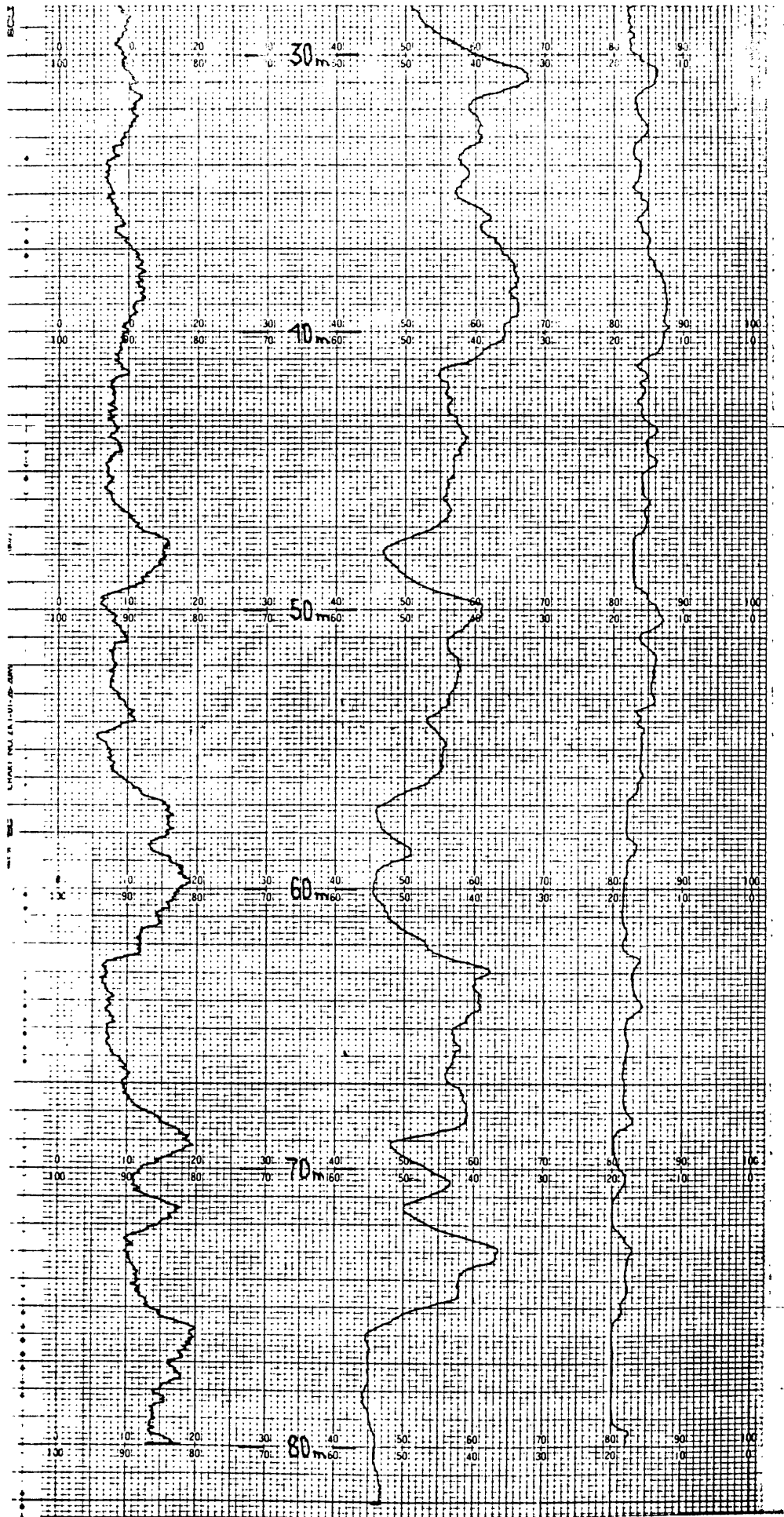
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh Pakistan		DEPTH DRILLED	282 m		CLIENT	U.S.G.S. - G.S.P.	
REGION	Sonda		DEPTH LOGGED	82 m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	MENTAS/MUDIS/ILYA	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2	
SEC	TWP	RNG	DIA	Caliper	FROM TO	OFFICE	U.S.A.	
			DIA	log	FROM TO	BOULDER COLORADO		
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O+Mud		ELECTRIC		
LOGGED DEPTH	80 m	82 m	FLUID LEVEL	8.6 m		TYPE	RESIST	S.P.
RANGE (ft. s.)	100	1K-10K	CASING DATA			LOGGED DEPTH	80 m	FT
%STD DEV	3%	1%	WALL SIZE			SCALE	10	FT
PAPER SPEED	1-1	1-1	ID			PAPER SPEED	1-1	FT
LOG SPEED	6-1	6-1	CASED FROM	TO		LOG SPEED	6-1	FT
BKGD. COUNT			CASING TYPE			FINE ADJ.	350 Bl/s.	
PROBE NO.	GN-1	GN-1	SAMPLE DATA			CALIPER		
SIZE (dia.)	13/8	13/8	NON-CORED HOLE	<input checked="" type="checkbox"/>	CORED HOLE	<input type="checkbox"/>	LOGGED DEPTH	FT
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		SCALE		
DEAD TIME	2	2	REMARKS			PAPER SPEED		
STANDARD			Open Hole			LOG SPEED		
DIGITAL DATA						ARM LENGTH	IN	
PRINT INTERVAL						MAX DEF.	IN	
TIMEBASE						VERTICAL DEV.		
DENSITY CALIBRATION						DEPTH		
ALUMINUM						INCLIN.		
LUCITE						BEARING		





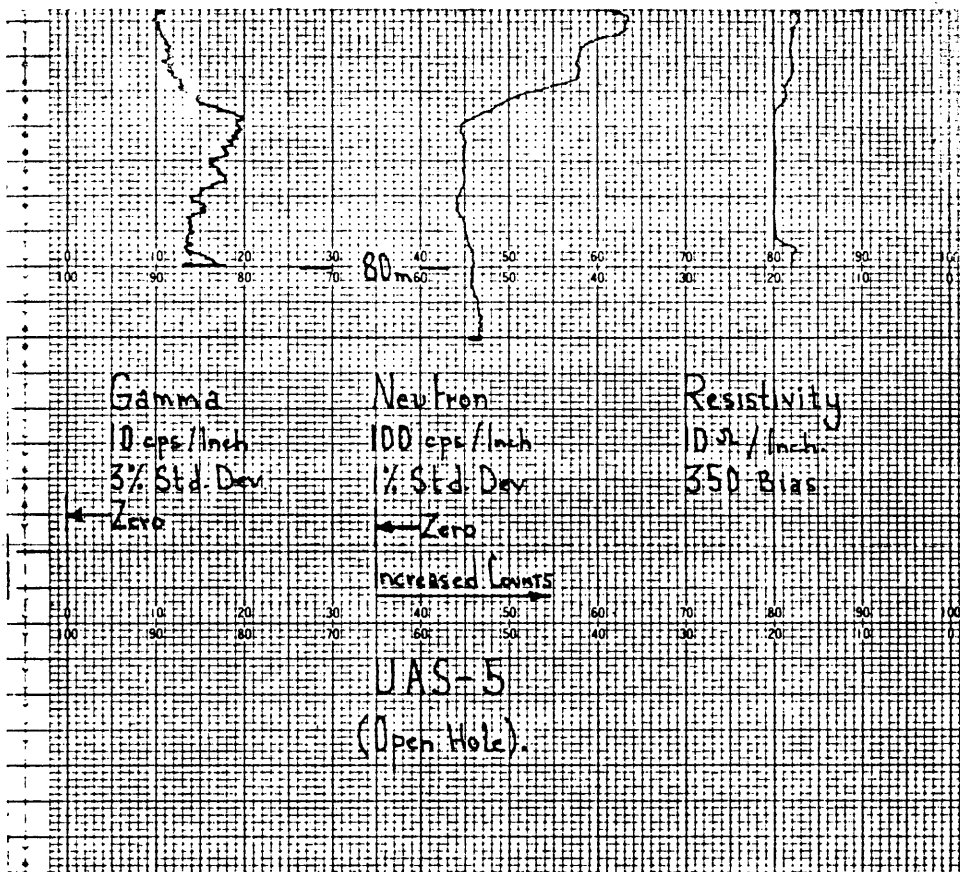
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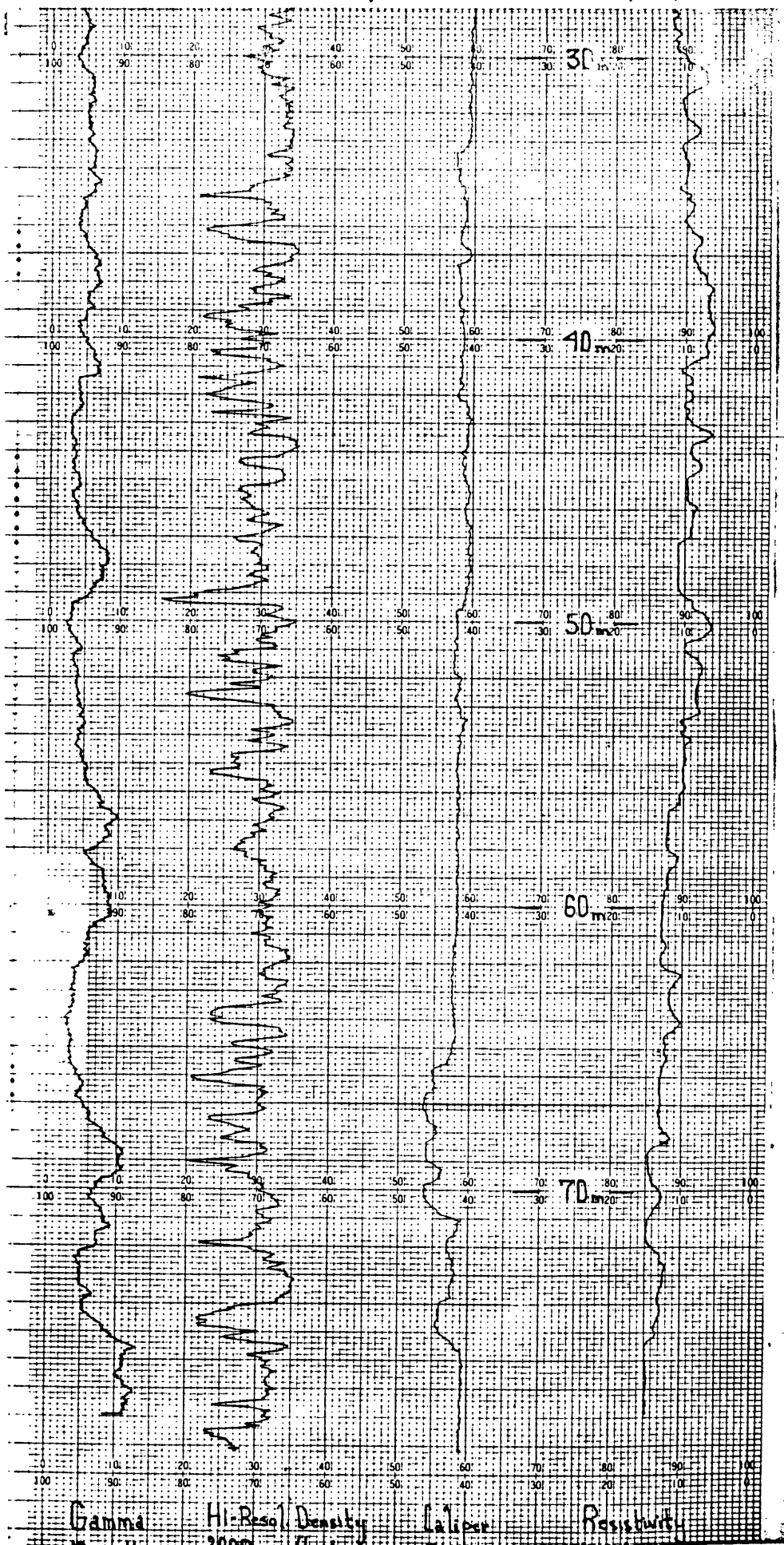


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DATE: 8<sup>th</sup> December, 1986

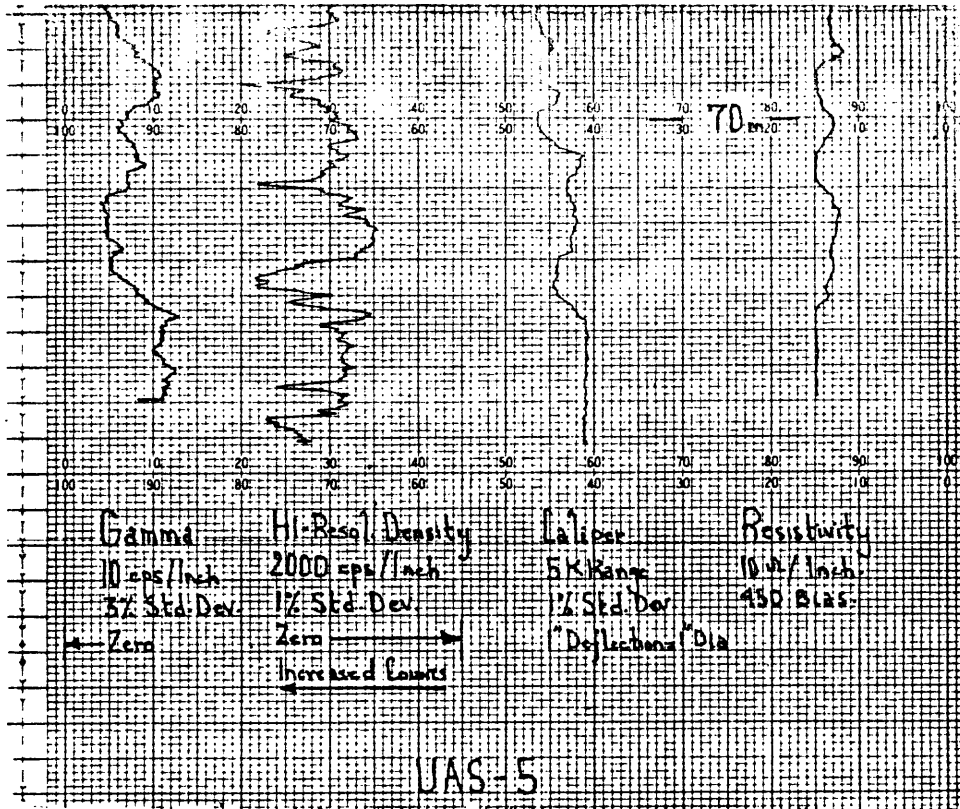
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# GEOSCIENCE ASSOCIATES

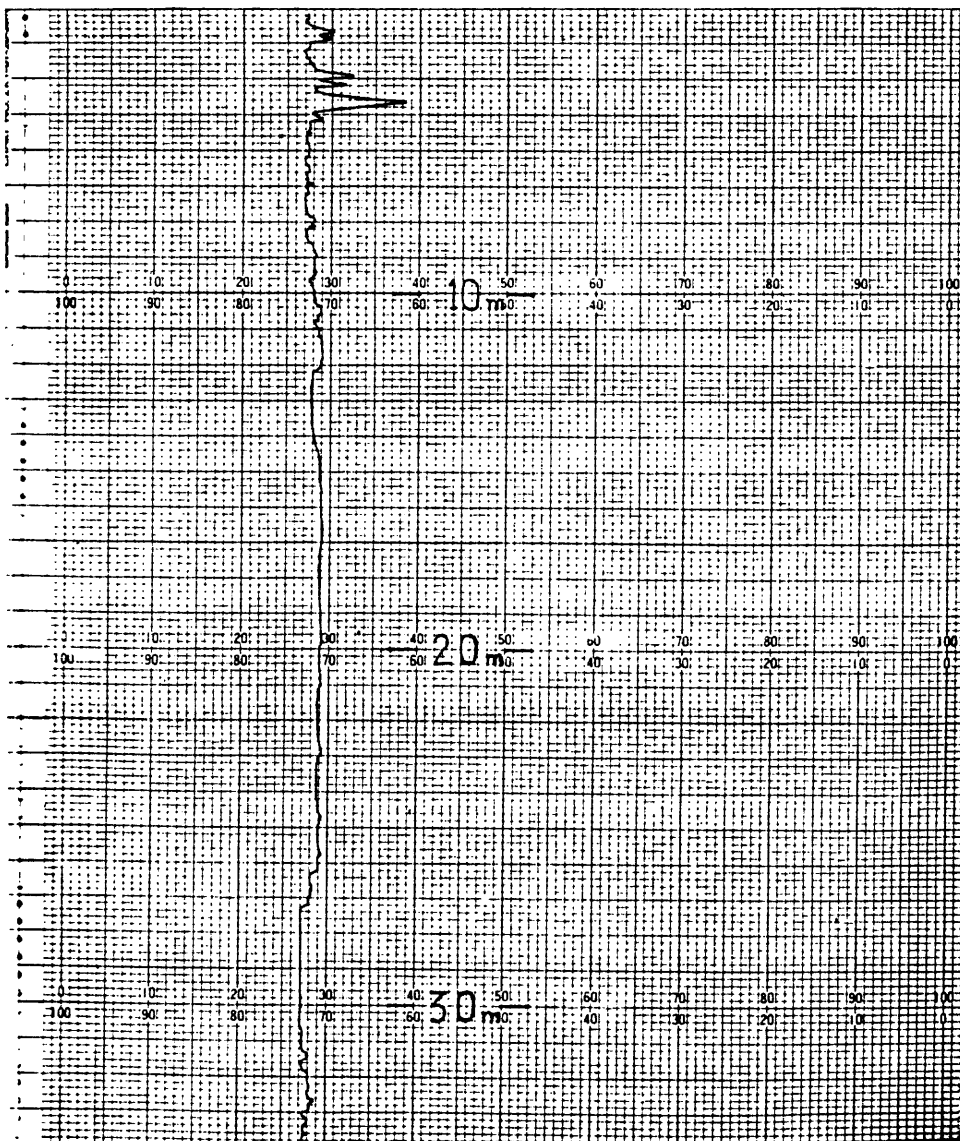
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HOLE NUMBER:

UAS-5

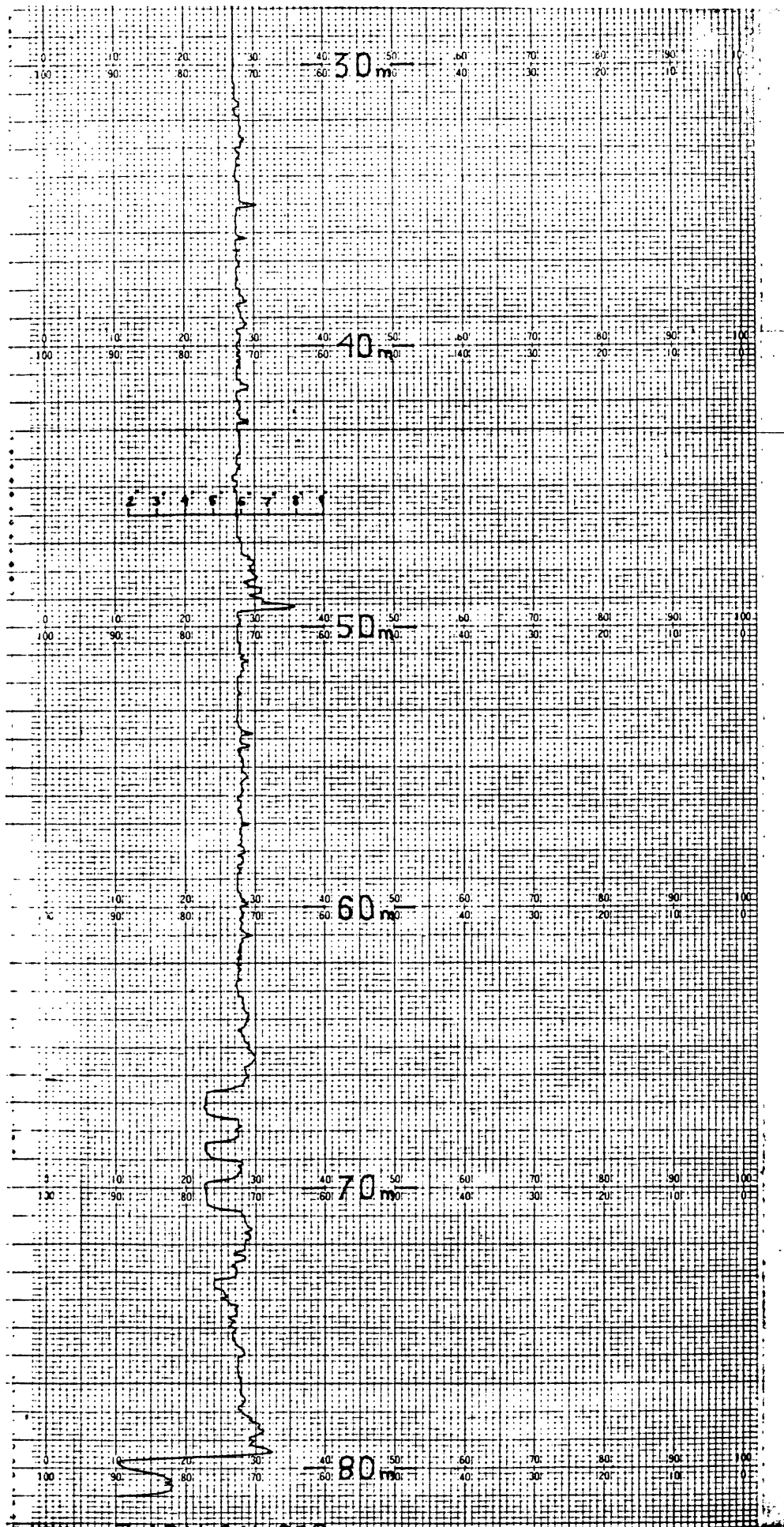
DATE: 8th December, 1986.

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY Sind Pakistan				DEPTH DRILLED: 282 m				CLIENT U.S.G.S. - G.S.P.			
REGION Sonda				DEPTH LOGGED: 81 m				GEOLOGIST			
PROJECT COAL REAP.				COLLAR ELEV.				UNIT OPERATOR MEHTAB/HUJIB/LVA			
PROSPECT				DIA. 5cc FROM TO				UNIT NO. PL-2 OFFICE			
SEC TWP RNG.				DIA. Caliper FROM TO				Boulder COLORADO U.S.A.			
				DIA. 10g FROM TO				ELECTRIC			
TYPE GAM				BOREHOLE MEDIUM H <sub>2</sub> O + Mud.				TYPE RESIST S.P.			
LOGGED DEPTH				FLUID LEVEL				LOGGED DEPTH FT. FT.			
RANGE (ft.)				CASING DATA				SCALE			
STD DEV				WALL SIZE				PAPER SPEED			
PAPER SPEED				I.D.				LOG SPEED			
LOG SPEED				CASED FROM TO				FINE ADJ.			
BKGND. COUNT				CASING TYPE							
PROBE NO				SAMPLE DATA							
SIZE (dia.)				NON-CORED HOLE <input checked="" type="checkbox"/> CORED HOLE <input type="checkbox"/>							
K-FACTOR				SAMPLED INTERVAL SAMPLE TYPE				3 ARM CALIPER			
DEAD TIME								LOGGED DEPTH 81 m FT.			
STANDARD								SCALE			
DIGITAL DATA				REMARKS				PAPER SPEED 1-1			
PRINT INTERVAL								LOG SPEED 6-1			
TIMEBASE								ARM LENGTH 12 IN			
								MAX DEF 24 IN			
DENSITY CALIBRATION								VERTICAL DEV.			
ALUMINUM								DEPTH			
LUCITE								INCLIN.			
								BEARING			



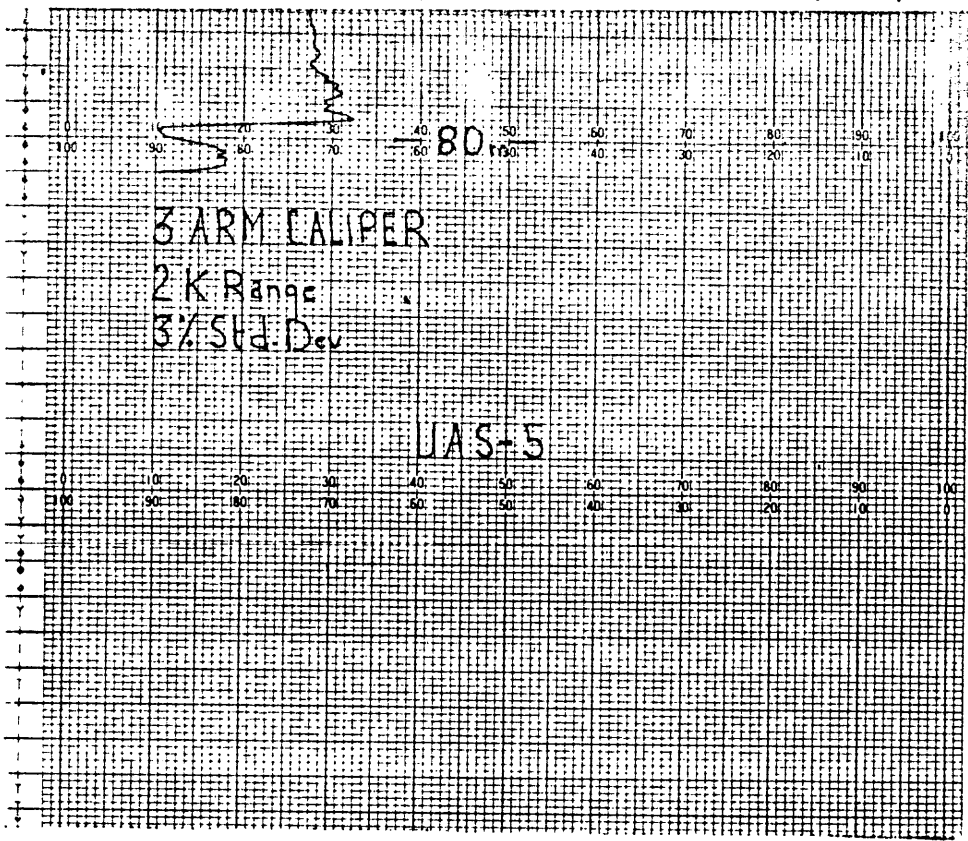
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DRILL HOLE UAS-6





# GEOSCIENCE ASSOCIATES

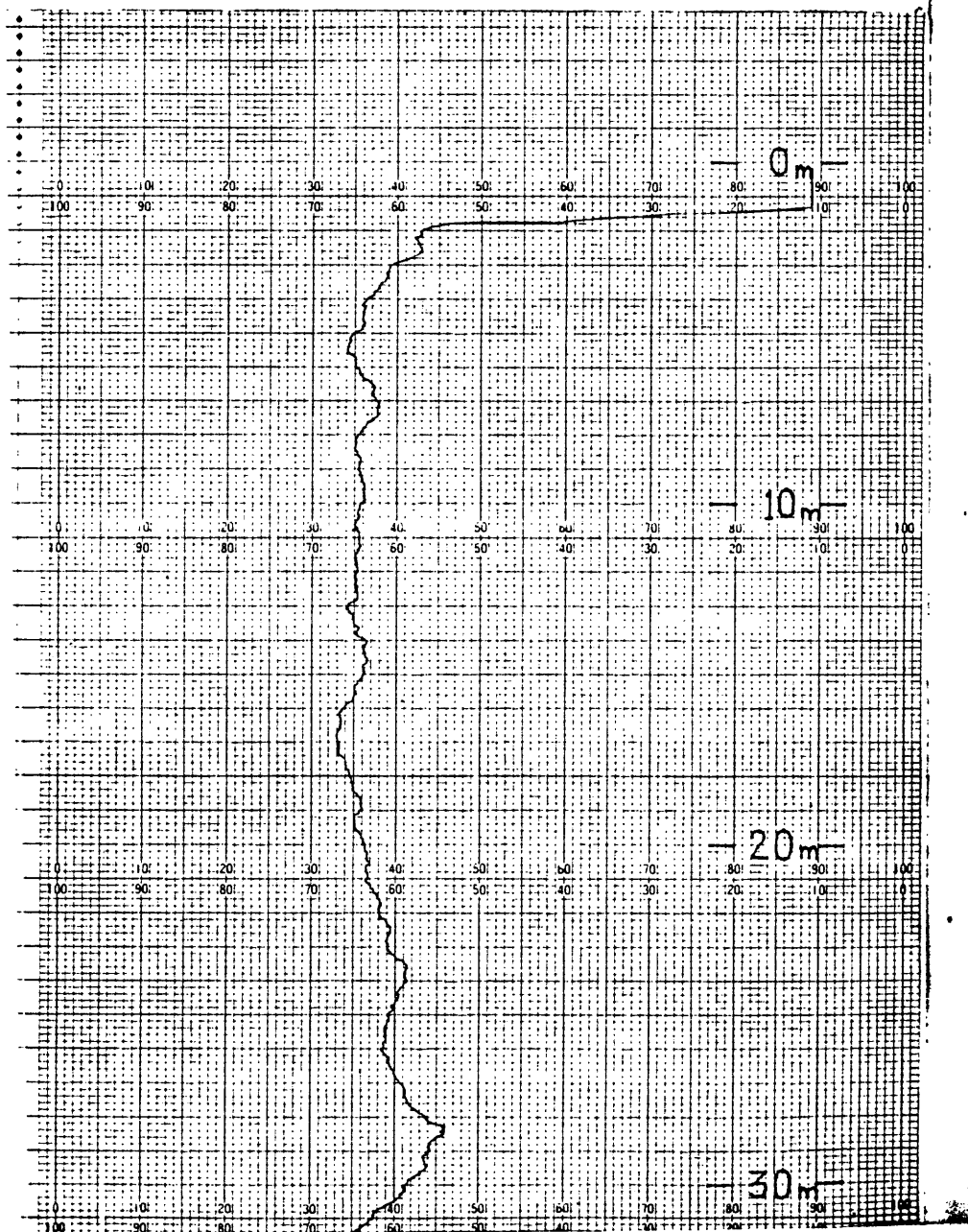
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HOLE NUMBER:

U.A.S.-6

DATE: DEC: 25 - 1986

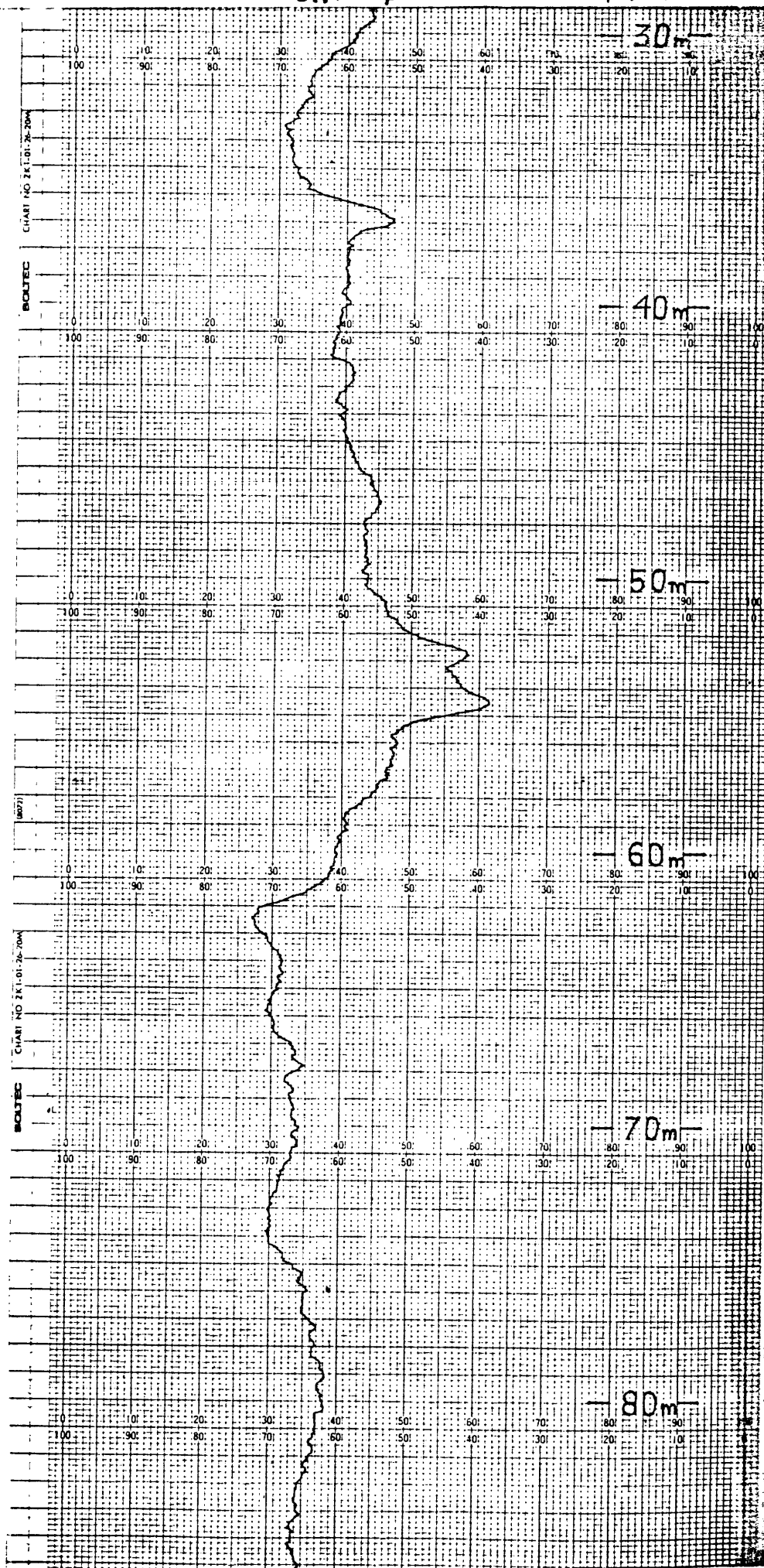
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY SIND/PAKISTAN			DEPTH DRILLED: 321.19 m			CLIENT G.S.P.-U.S.G.S.		
REGION SONDA			DEPTH LOGGED: 296 m			GEOLOGIST:		
PROJECT COAL REAP			COLLAR ELEV			UNIT OPERATOR MUJIB/MEHTAB/ILYAS		
PROSPECT			DIA. See FROM TO			UNIT NO. PL-2 OFFICE U.S.A		
SEC. TWP. RNG.			DIA. Caliper FROM TO			BAULDER PL-2 COLORADO		
			DIA. Log FROM TO			ELECTRIC		
TYPE GAM 4P DENSITY			BOREHOLE MEDIUM H <sub>2</sub> O + MUD			TYPE RESIST S.P.		
LOGGED DEPTH 296 m			FLUID LEVEL			LOGGED DEPTH FT FT		
RANGE (f.s.) 5 K-2K-1K			CASING DATA			SCALE		
STD DEV 1/2 - 1/2 - 1/2			WALL SIZE 1/4"			PAPER SPEED		
PAPER SPEED 1-1			I.D. NW = 3" I.D. HW = 4"			LOG SPEED		
LOG SPEED 6-1			CASING FROM See Remarks TO			FINE ADJ.		
BKGD. COUNT			CASING TYPE NW and HW					
PROBE NO. 50-1			SAMPLE DATA					
SIZE (dia.) 1 3/8"			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>					
K-FACTOR 2			SAMPLED INTERVAL SAMPLE TYPE					
DEAD TIME								
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL			Logged through casing and drill pipe			LOGGED DEPTH FT		
TIMEBASE			HW Type cased from 0 to 110 m			SCALE		
			NW Type cased from 0 to 182.2 m			PAPER SPEED		
			Drill pipe NG I.D. = 2 7/16"			LOG SPEED		
			O.D. = 2 13/16"			ARM LENGTH IN		
						MAX DEF. IN		
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN		
						BEARING		





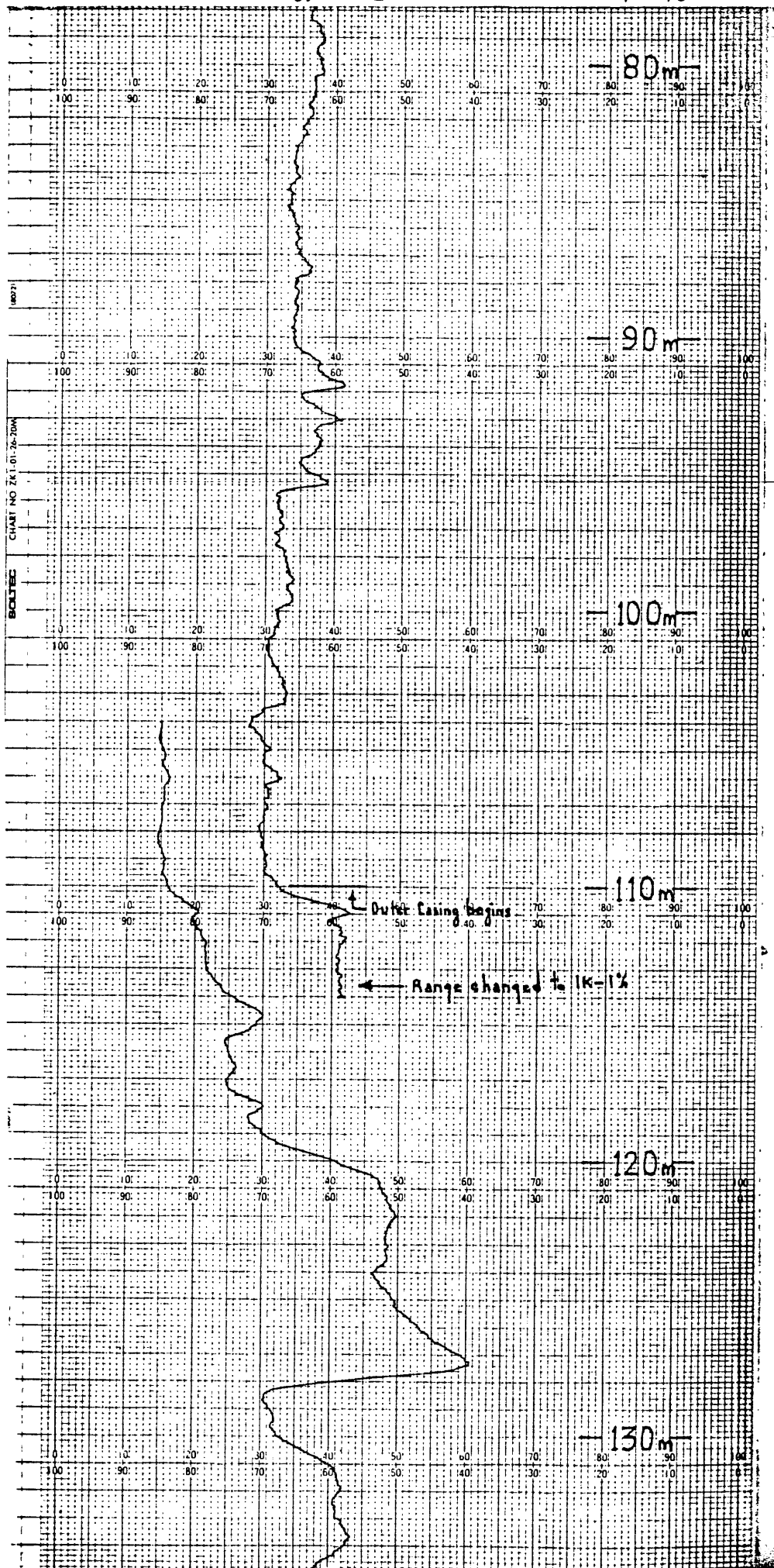
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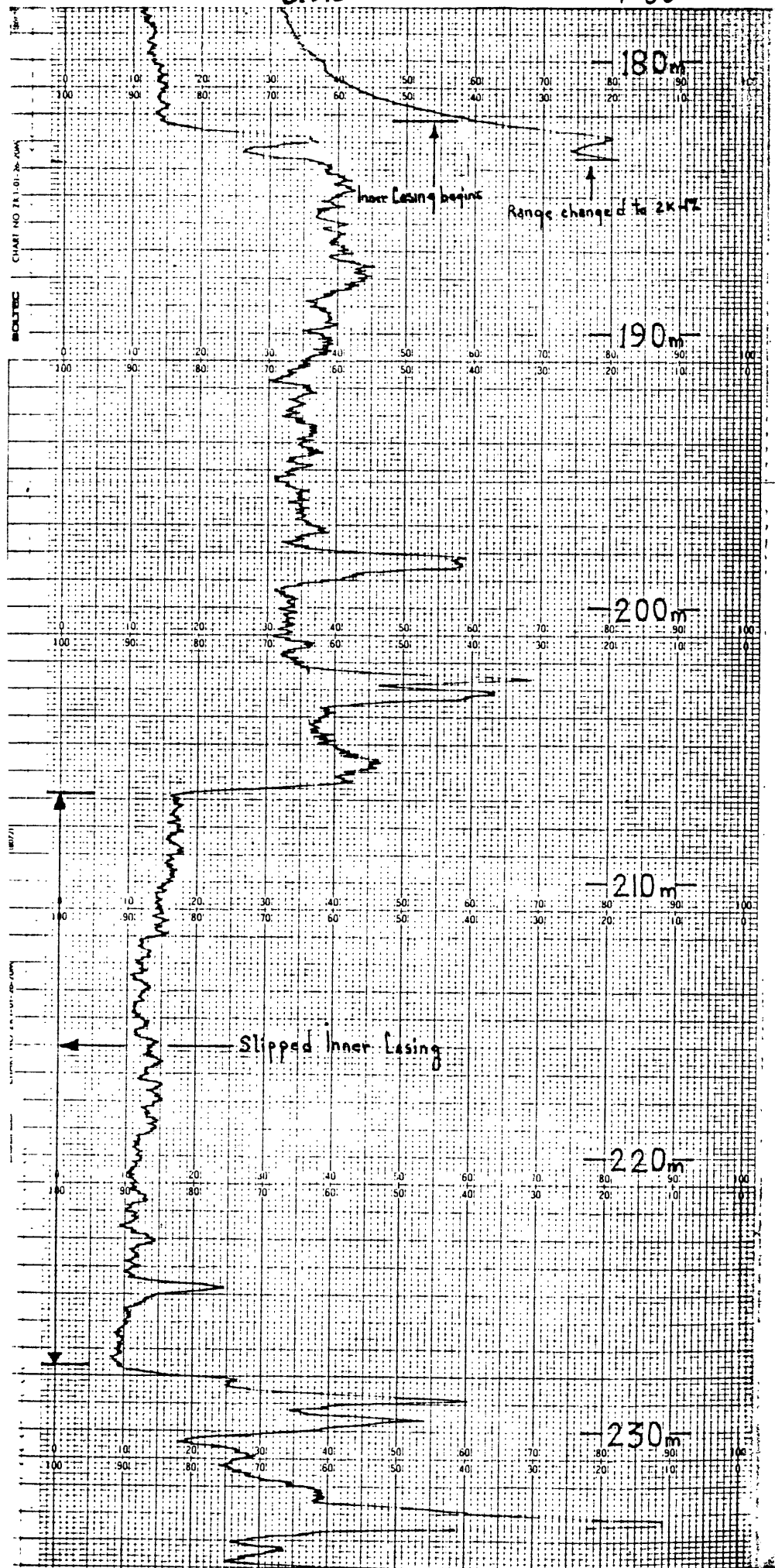
P. 298





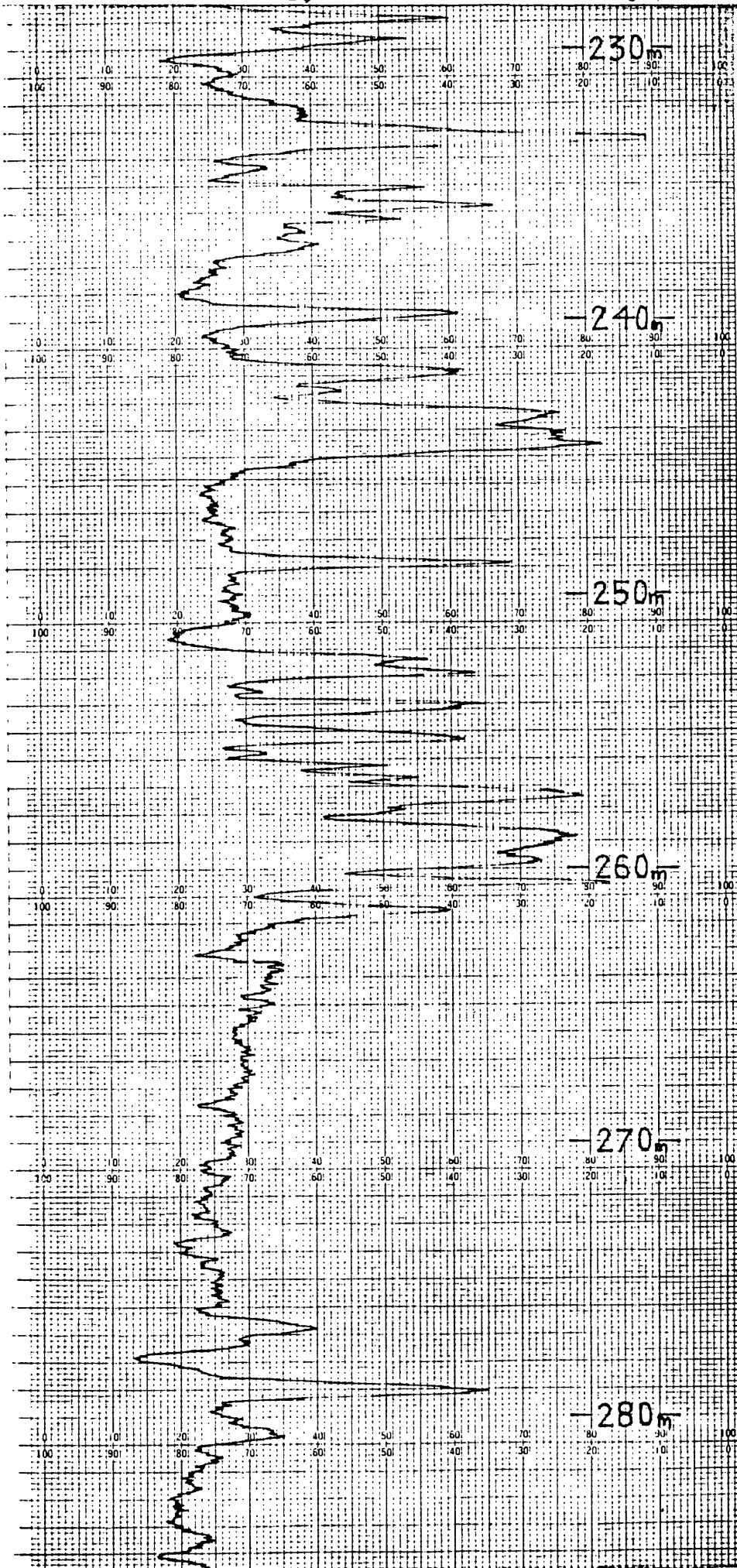
UAS-6

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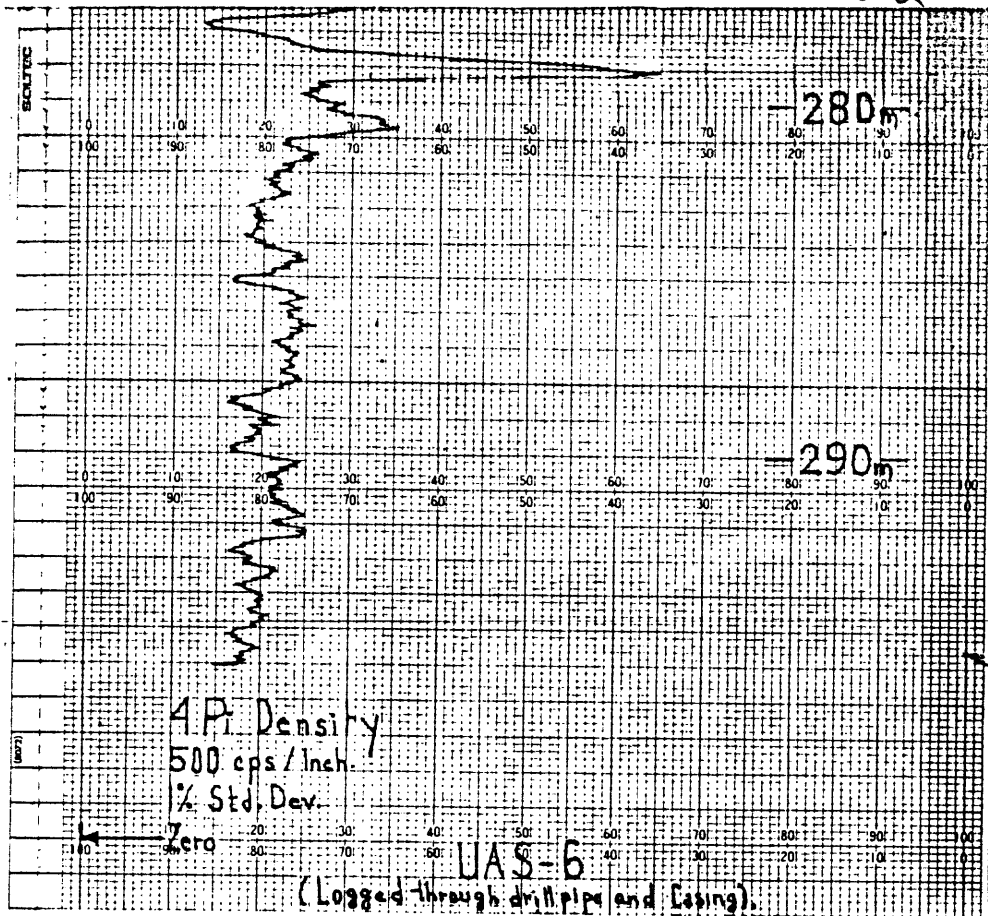
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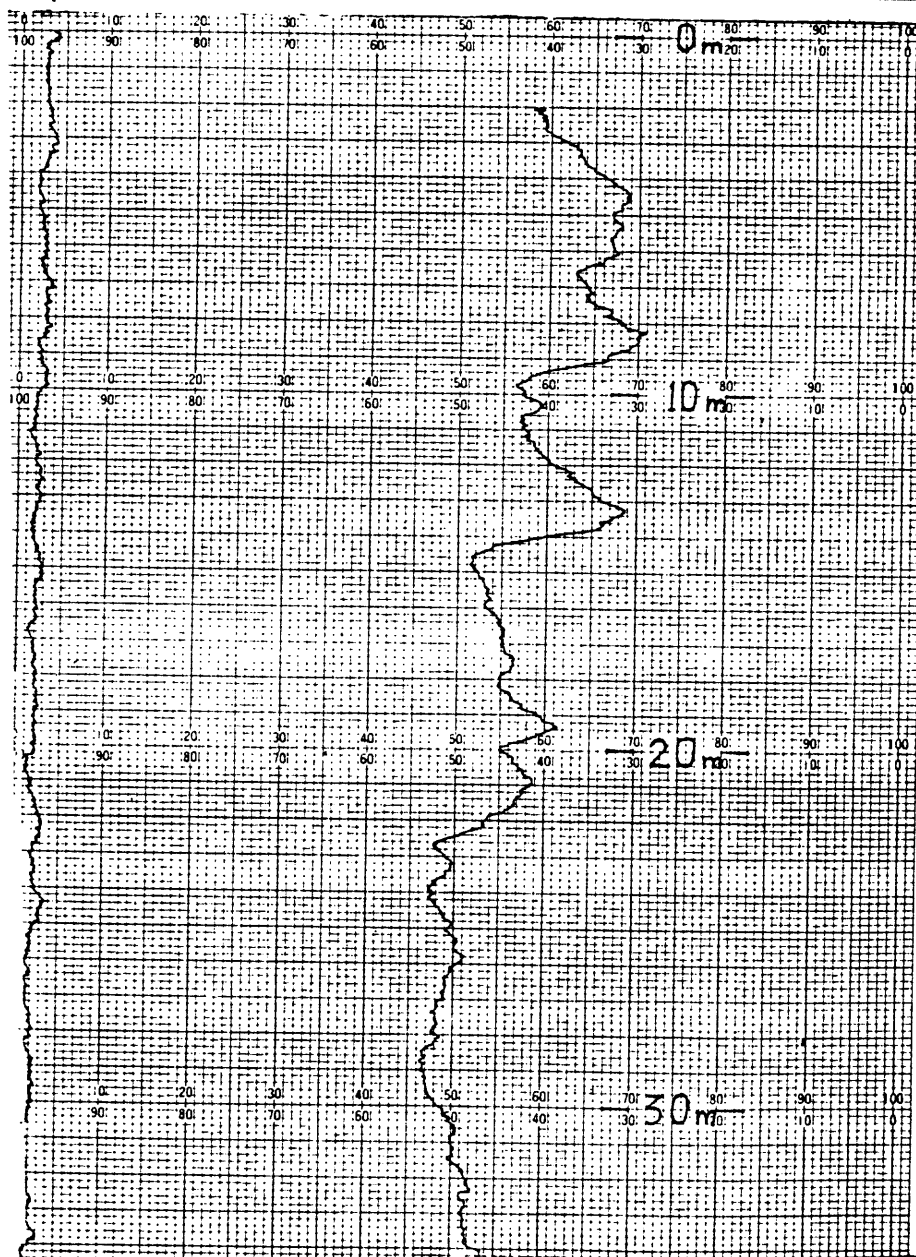
GEOSCIENCE ASSOCIATES P.303

HOLE NUMBER:

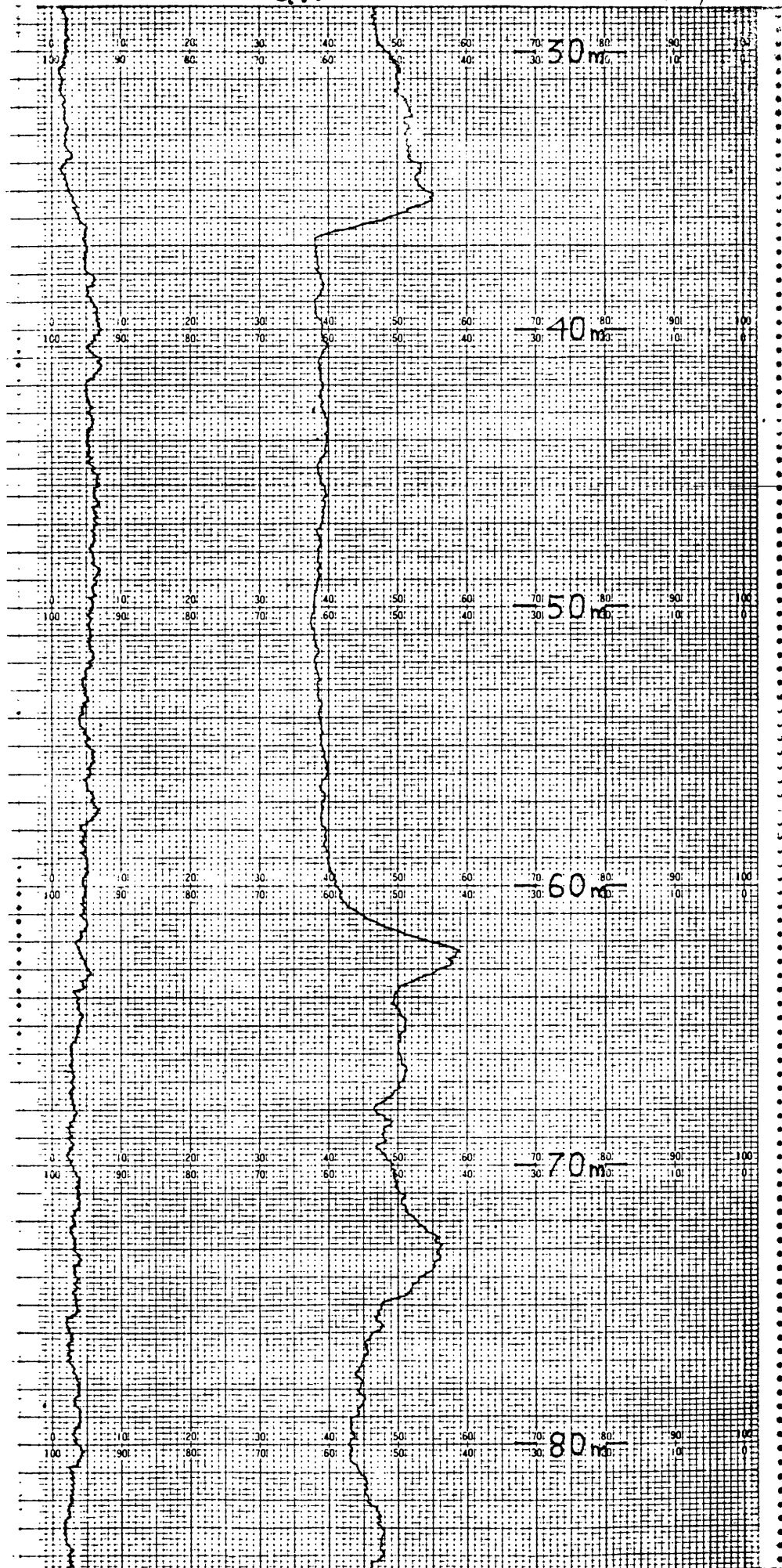
U.A.S-6

DATE: DEC: 25-1986

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	SINDH/PAKISTAN		DEPTH DRILLED:	321.19 m	CLIENT	G.S.P- U.S.G.S
REGION	SONDA		DEPTH LOGGED:	297 m	GEOLOGIST:	
PROJECT	COAL REAP		COLLAR ELEV		UNIT OPERATOR	MUTIB/MEHTAB/IAS
PROSPECT			DIA. Sec	FROM TO	UNIT NO.	PL-2
BEC.	TWP.	RNG.	DIA. Caliper	FROM TO	OFFICE	BOULDER COLORADO U.S.A
			DIA. Log	FROM TO	ELECTRIC	
TYPE	GAM	NEU	BOREHOLE MEDIUM	H <sub>2</sub> O + MUD		
LOGGED DEPTH	295 m	297 m	FLUID LEVEL			
RANGE (F.S.)	100	500	CASING DATA			
%STD DEV	3%	1%	WALL SIZE	1/4"		
PAPER SPEED	1-1	1-1	I.D. NW = 3" I.D. HW = 4"			
LOG SPEED	6-1	6-1	CASED FROM	See Remarks TO		
BKGD. COUNT			CASING TYPE	NW and HW		
PROBE NO.	4-N3	6-N3	SAMPLE DATA			
SIZE (GIB.)	1 3/8"	1 3/8"	NON-CORED HOLE	<input type="checkbox"/> CORED HOLE	<input checked="" type="checkbox"/>	
K-FACTOR	1.5	1.5	SAMPLED INTERVAL	SAMPLE TYPE		
DEAD TIME	2	2				
STANDARD						
DIGITAL DATA			REMARKS			
PRINT INTERVAL			Logged through casing and drill pipe			
TIMEBASE			HW type cased from 0 to 110m			
			NW type cased from 0 to 182m			
DENSITY CALIBRATION			Drillpipe NB I.D. = 2 7/16"			
ALUMINUM			D.D. = 2 13/16"			
LUCITE						
			CALIPER			
			LOGGED DEPTH			
			SCALE			
			PAPER SPEED			
			LOG SPEED			
			ARM LENGTH			
			MAX DEF.			
			VERTICAL DEV.			
			DEPTH			
			INCLIN.			
			BEARING			



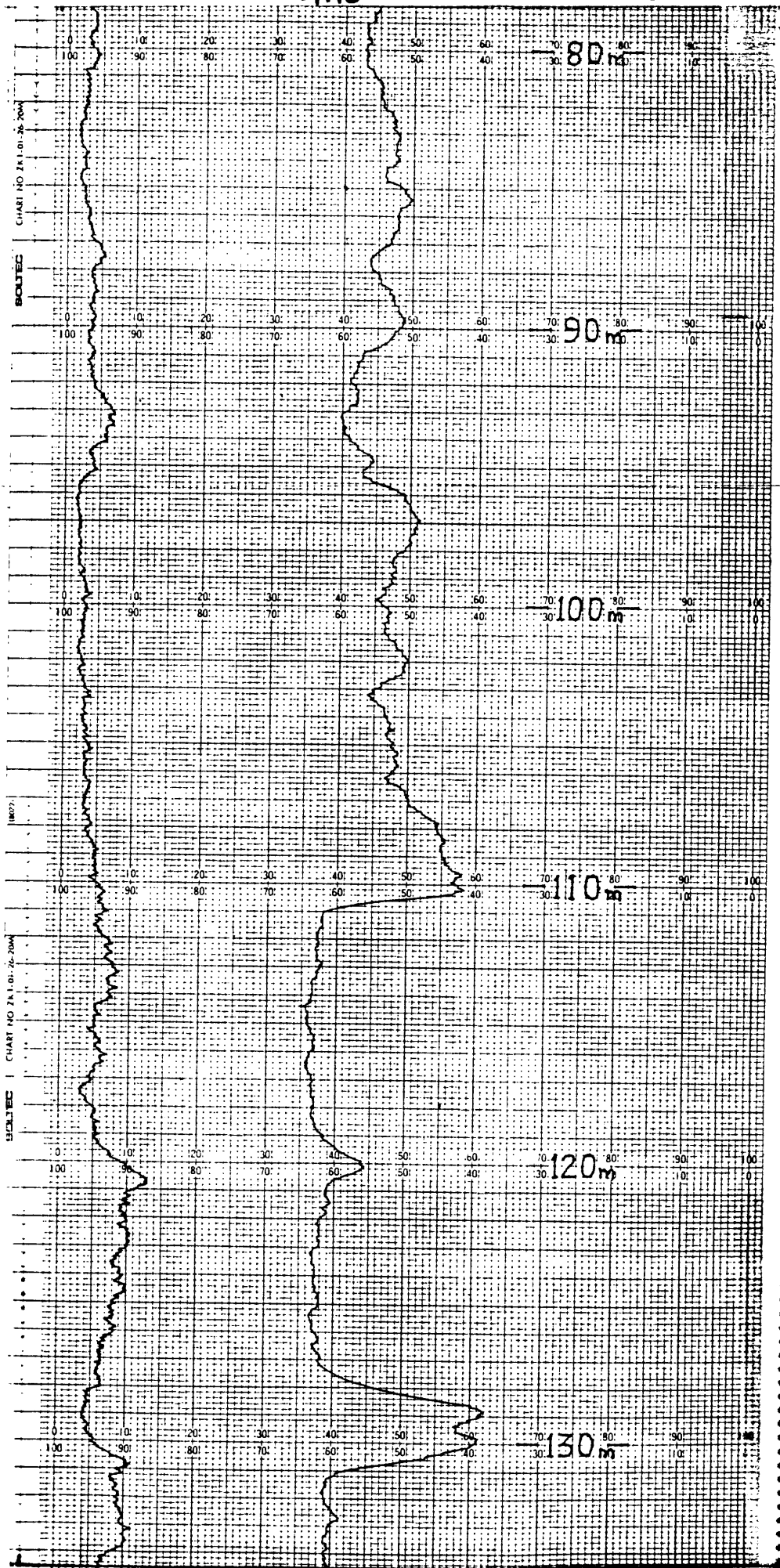
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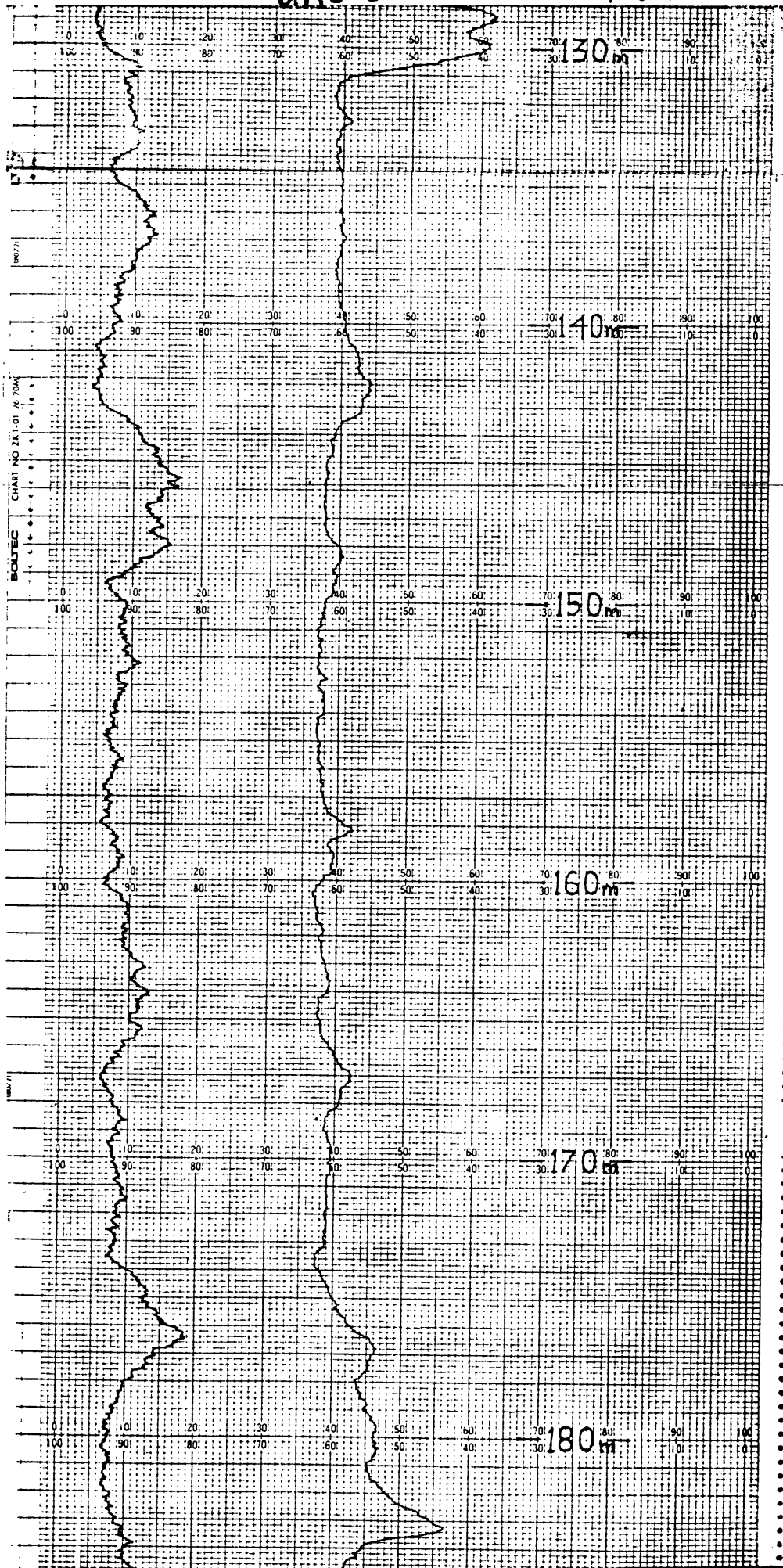
R305



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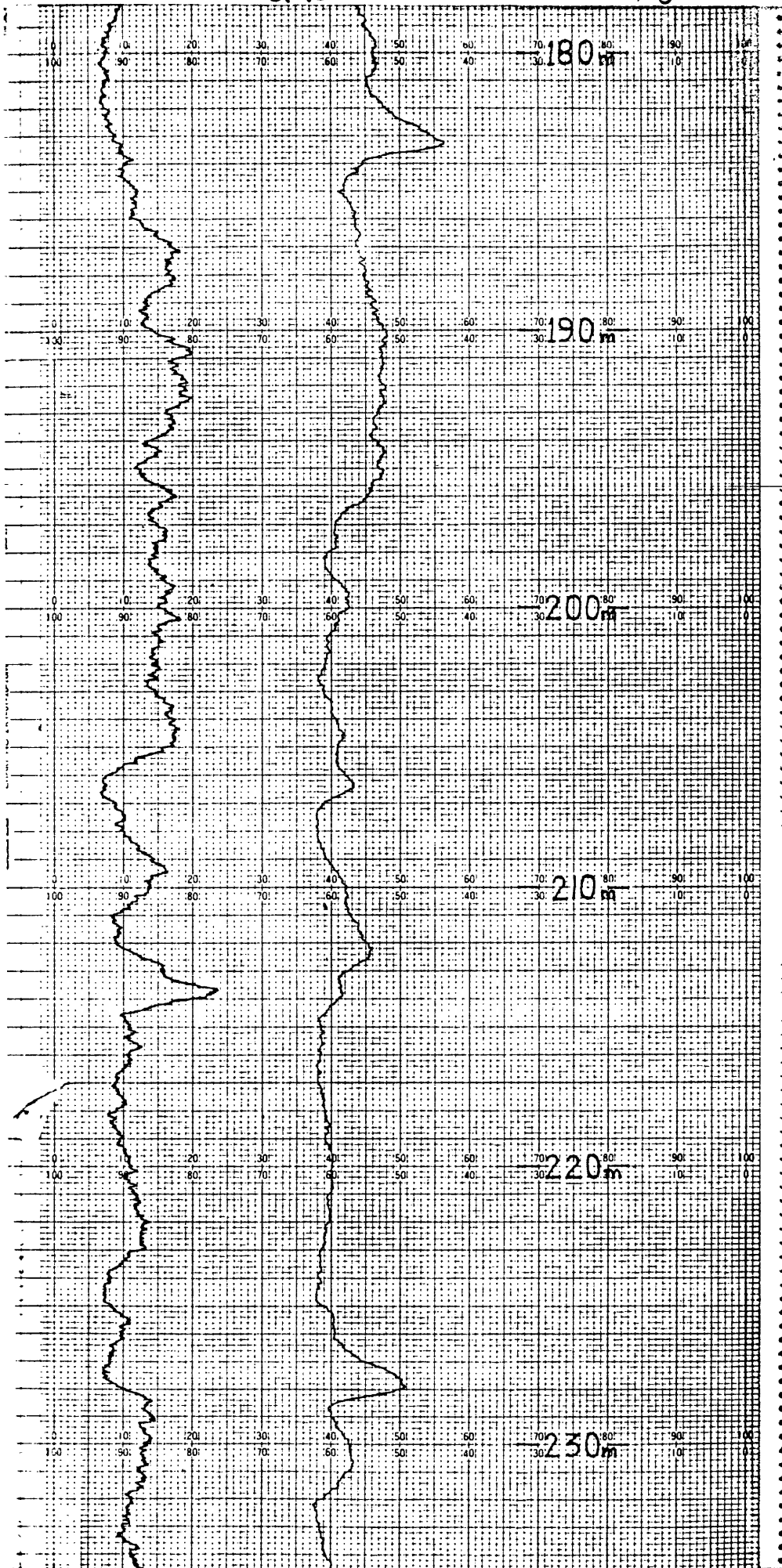
P. 306



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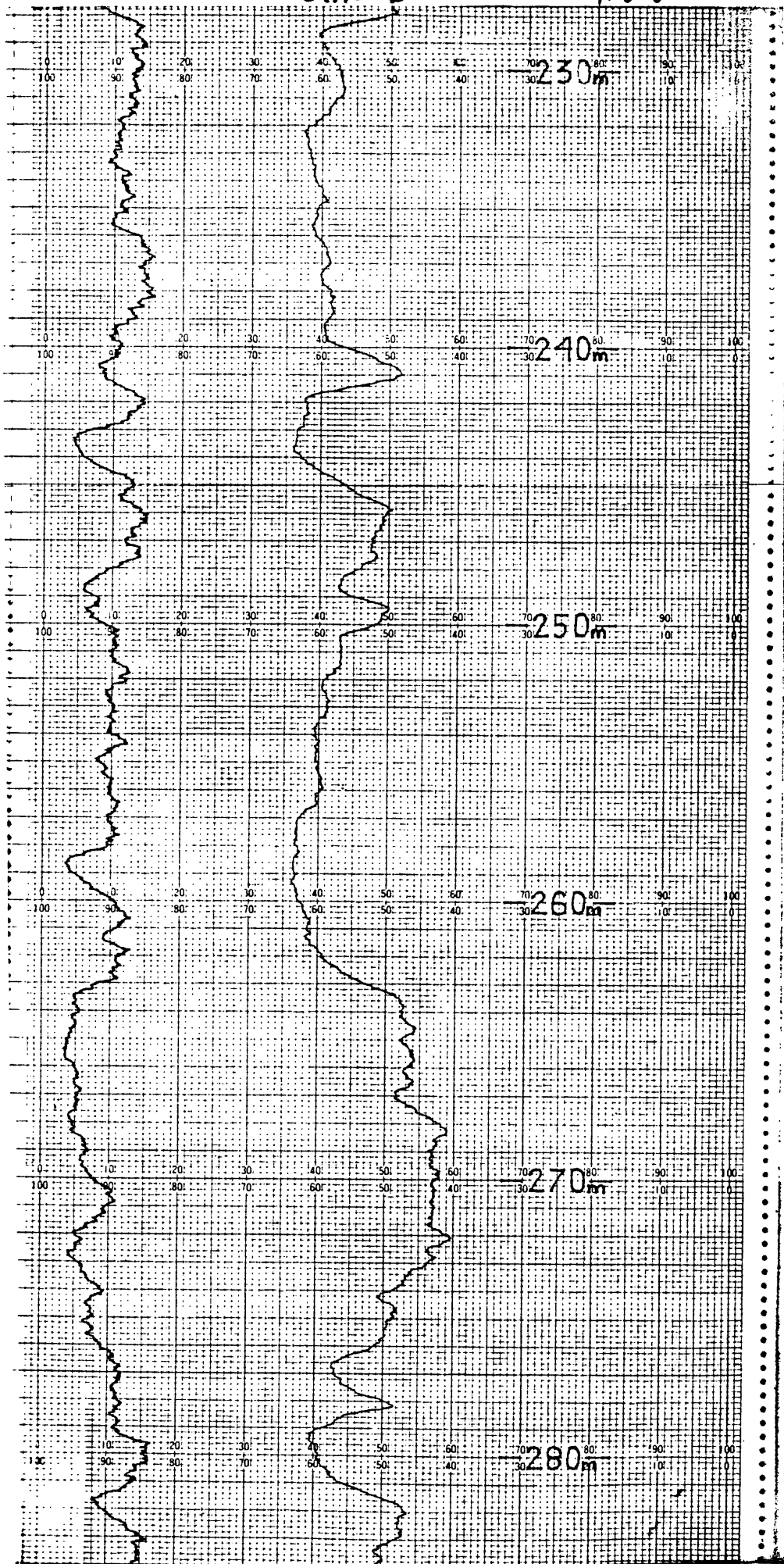
UAS-6

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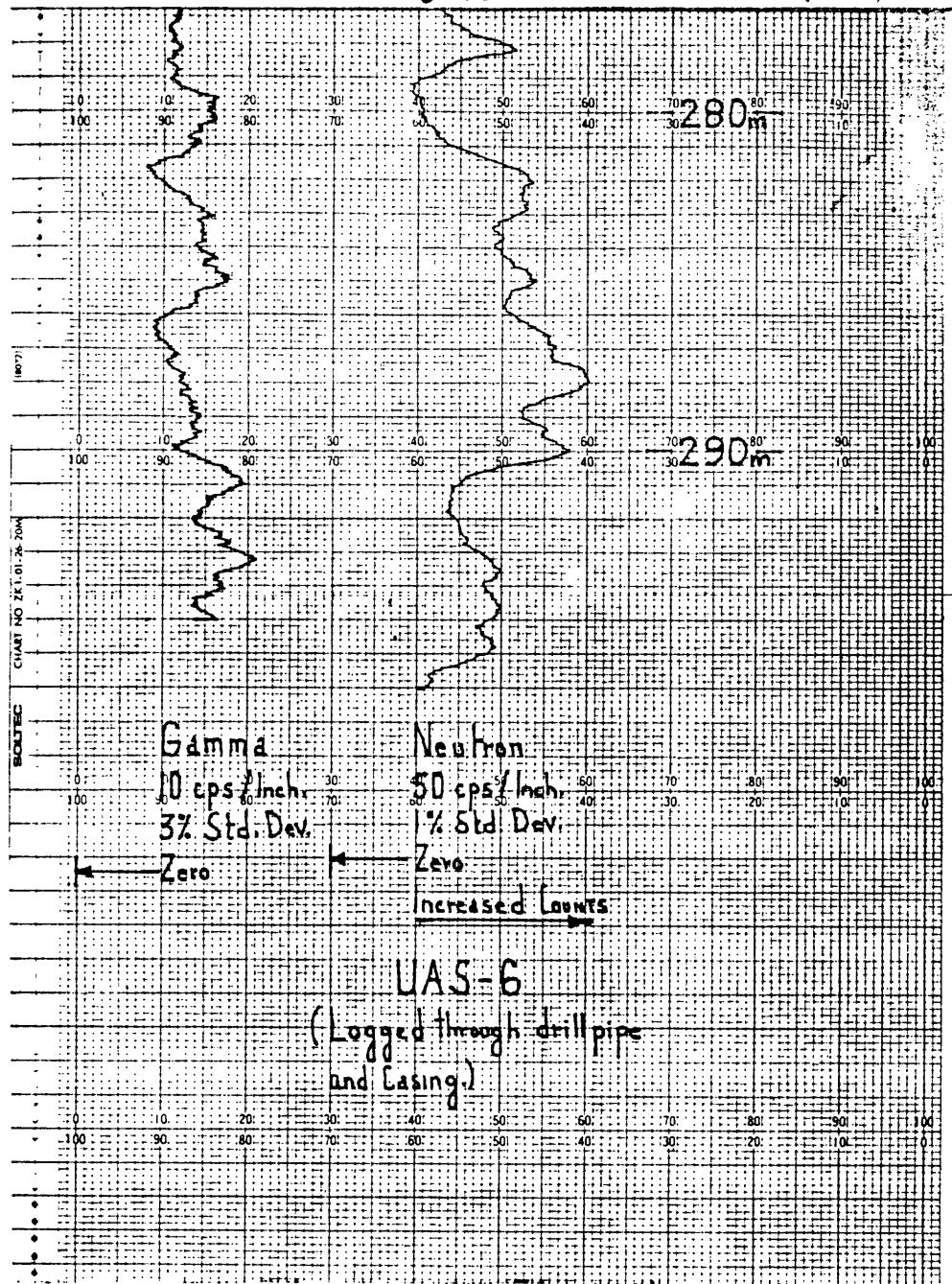
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DRILL HOLE UAS-7





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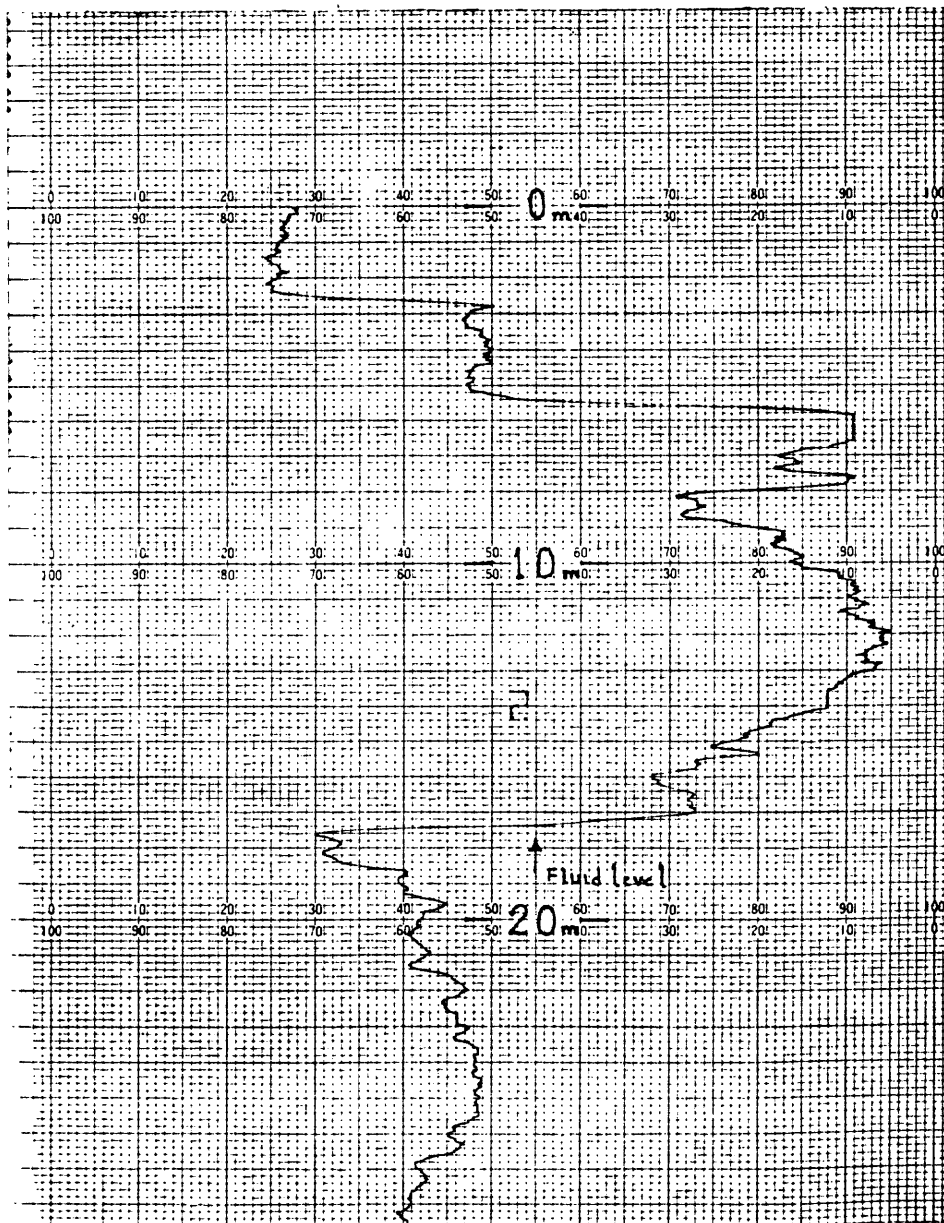
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HOLE NUMBER:

UAS-7

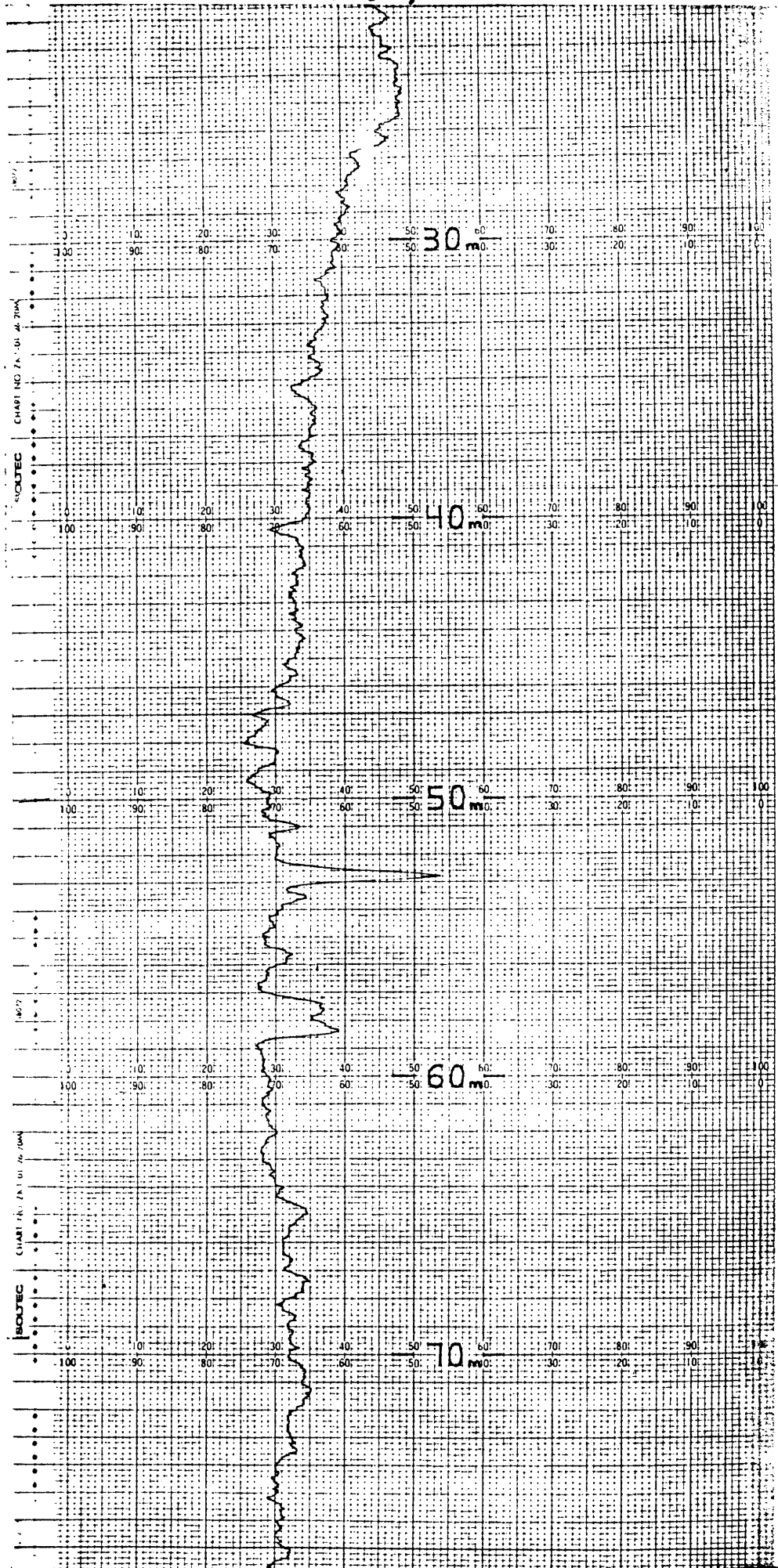
DATE: 31 Jan, 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh Pakistan		DEPTH DRILLED:	380 m		CLIENT	U.S.G.S. - G.S.P.	
REGION	Sonda		DEPTH LOGGED:	379 m		GEOLOGIST:		
PROJECT	COAL REAP		COLLAR ELEV.			UNIT OPERATOR	MUJIB / MEHTAB	
PROSPECT			DIA. Sec	FROM	TO	UNIT NO	PL-1 OFFICE	
SEC.	TWP.	RNG.	DIA. Caliper	FROM	TO	BOULDER COLORADO	U.S.A.	
			DIA. 1.9	FROM	TO	ELECTRIC		
TYPE	GAM	4 P Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH		379 m	FLUID LEVEL	17.6 m		LOGGED DEPTH	FT	FT
RANGE (f.s.)		20 K	CASING DATA			SCALE		
% STD DEV		1%	WALL SIZE	1/4"		PAPER SPEED		
PAPER SPEED		1-	I.D. HW = 4"	I.D. PW = 5"		LOG SPEED		
LOG SPEED		6-	CASED FROM	0 TO 5.2 m		FINE ADJ.		
BKGD. COUNT			CASING TYPE	HW and PW				
PROBE NO.		6D-1	SAMPLE DATA					
SIZE (dia.)		13/8"	NON-CORED HOLE	<input checked="" type="checkbox"/> CORED HOLE <input type="checkbox"/>				
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME		2						
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL			Inner casing slipped down and is at 225-252 m depth.			LOGGED DEPTH		
TIME BASE						FT		
						SCALE		
						PAPER SPEED		
DENSITY CALIBRATION						LOG SPEED		
ALUMINUM						ARM LENGTH		
LUCITE						MAX DEF.		
						VERTICAL DEV.		
						DEPTH		
						INCLIN.		
						BEARING		



UAS-7

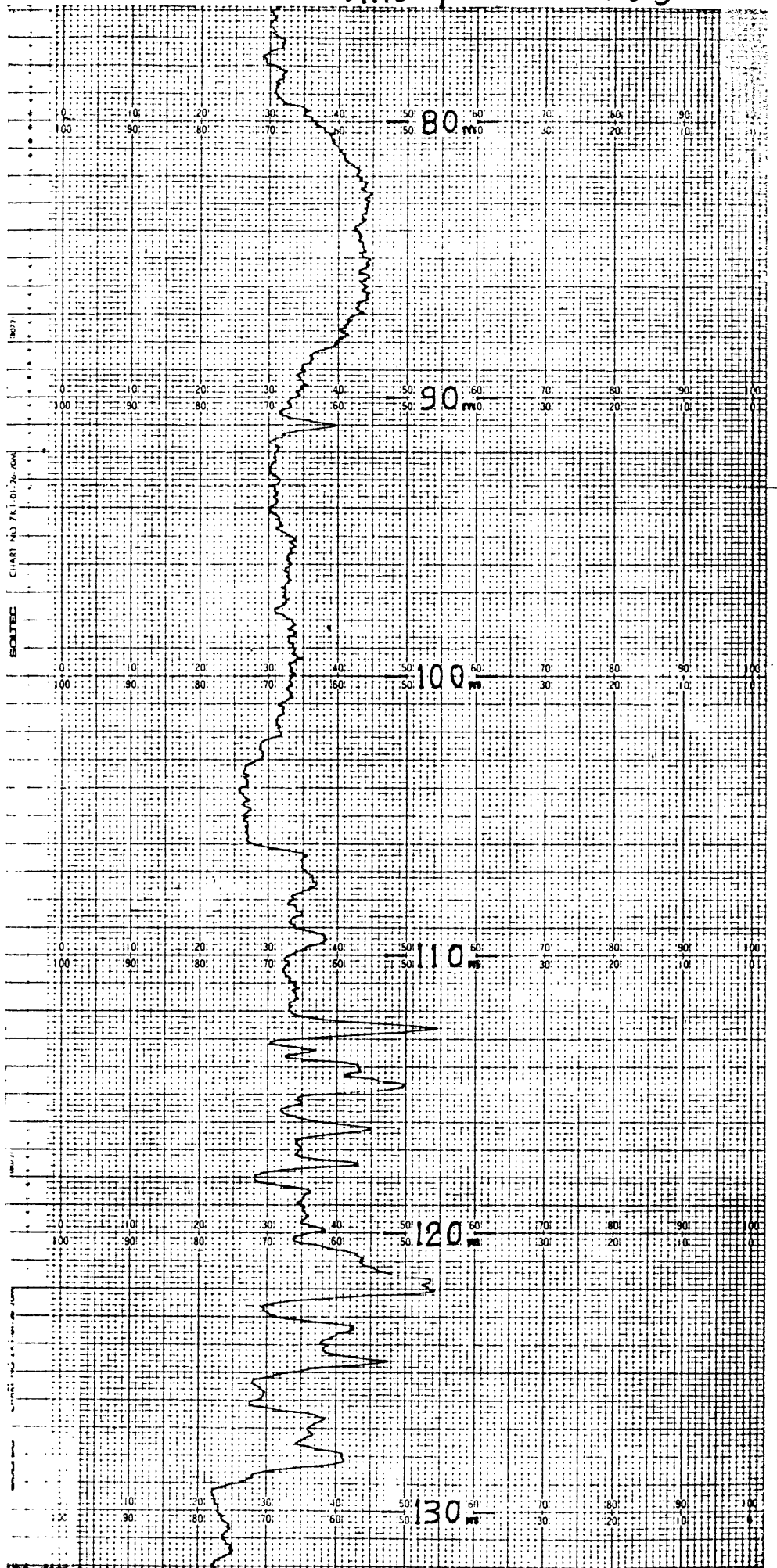
P.3/2





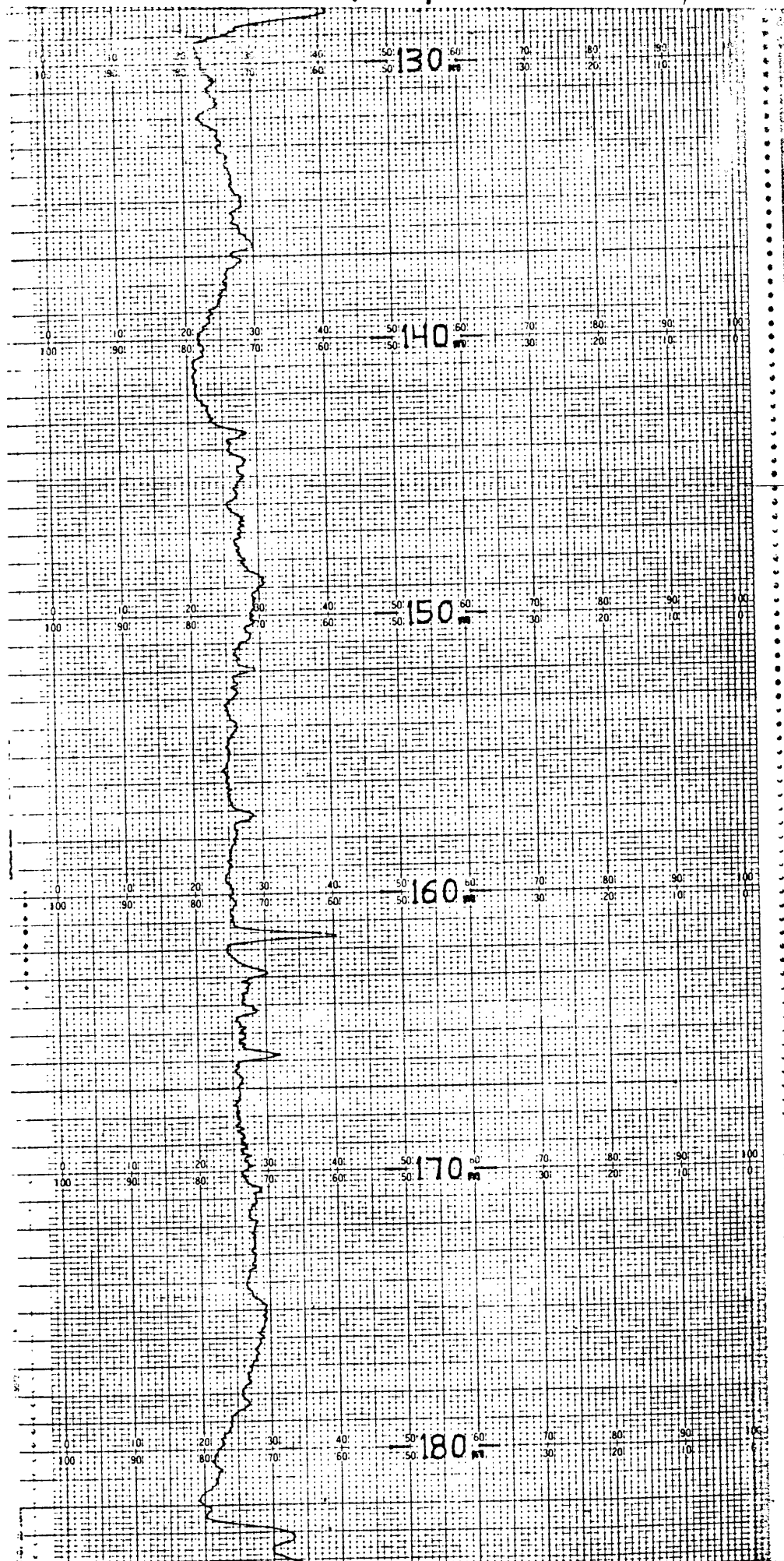
UAS-7

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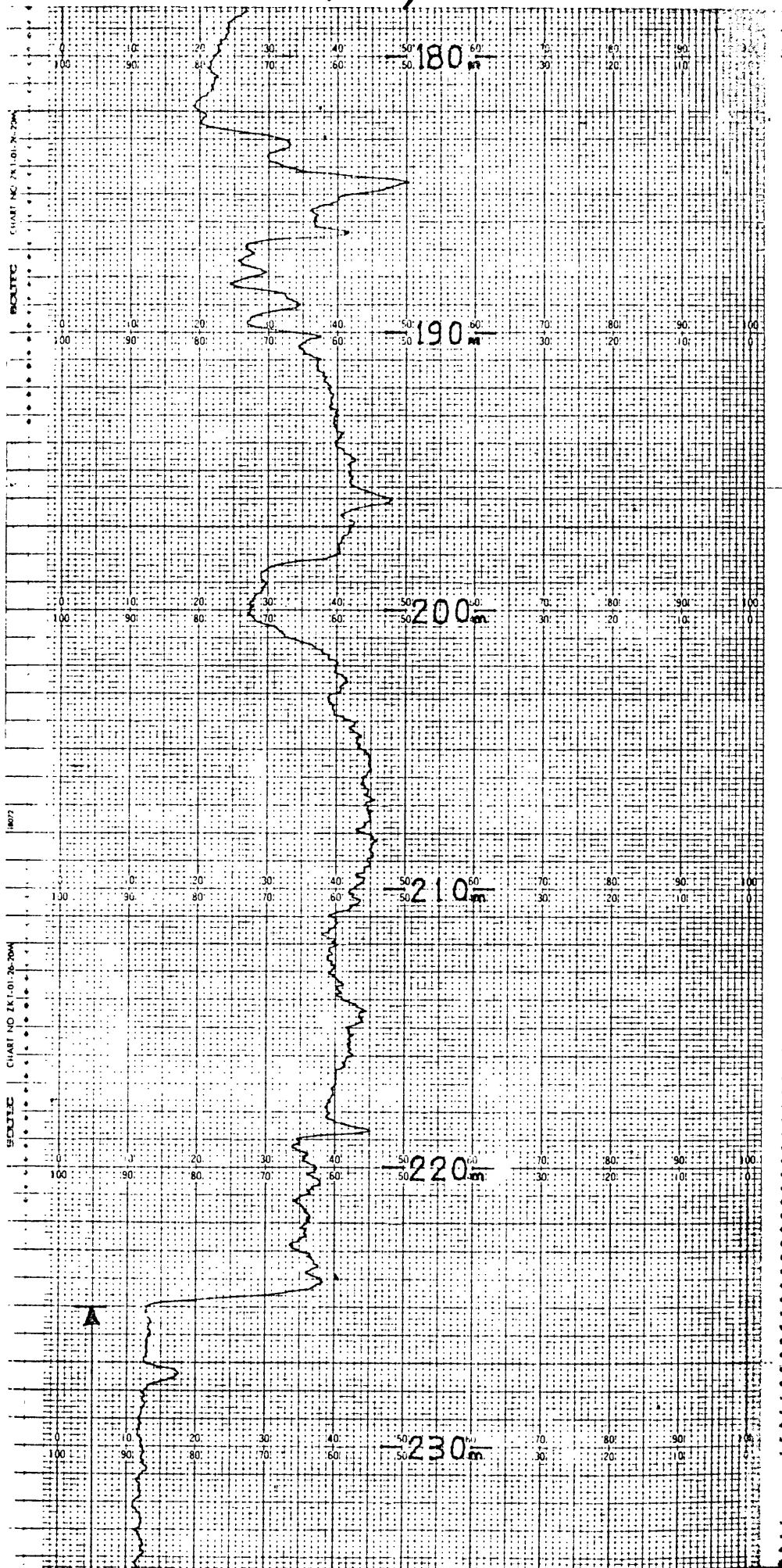
UAS-7

R314



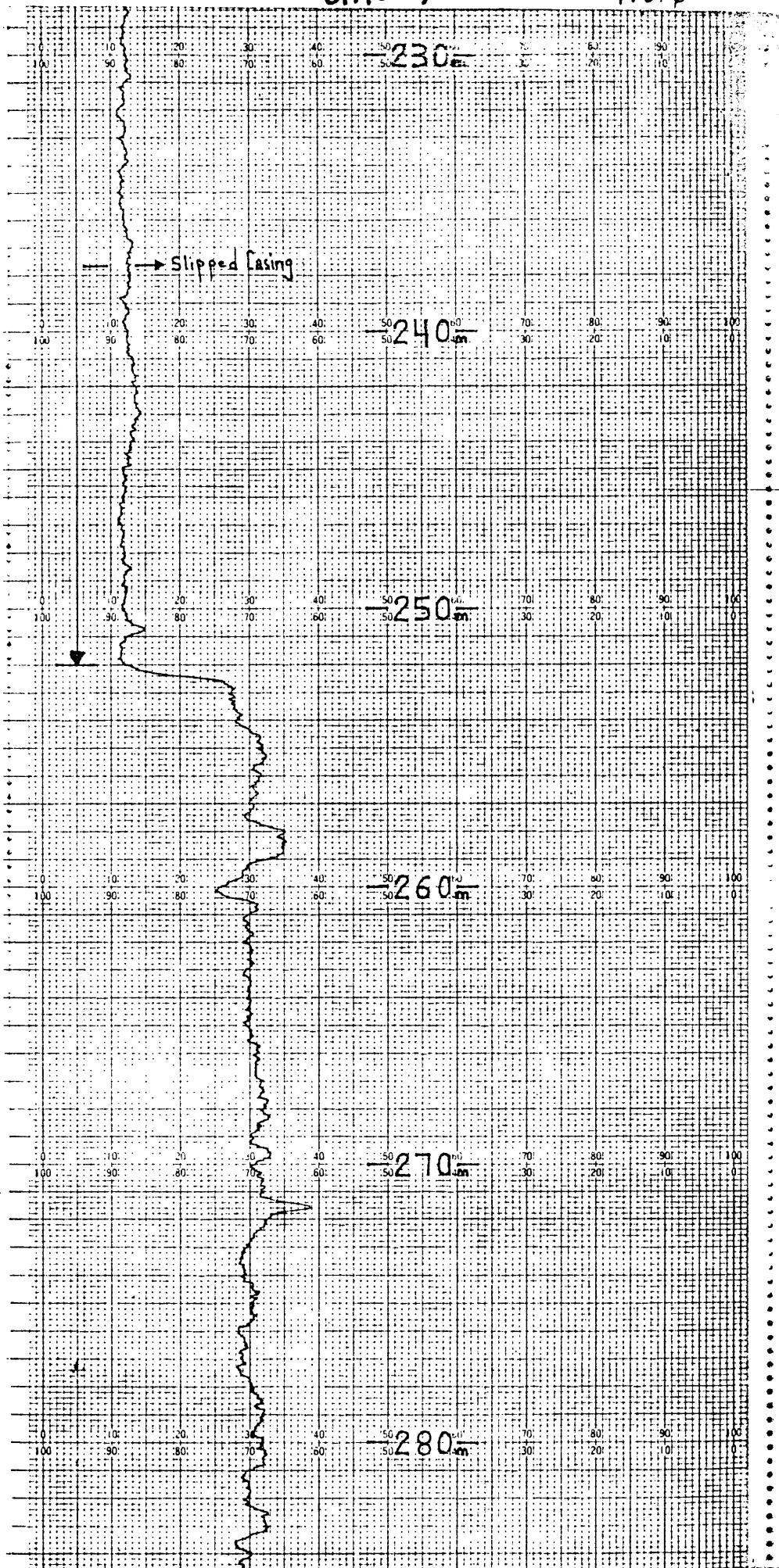
UAS-7

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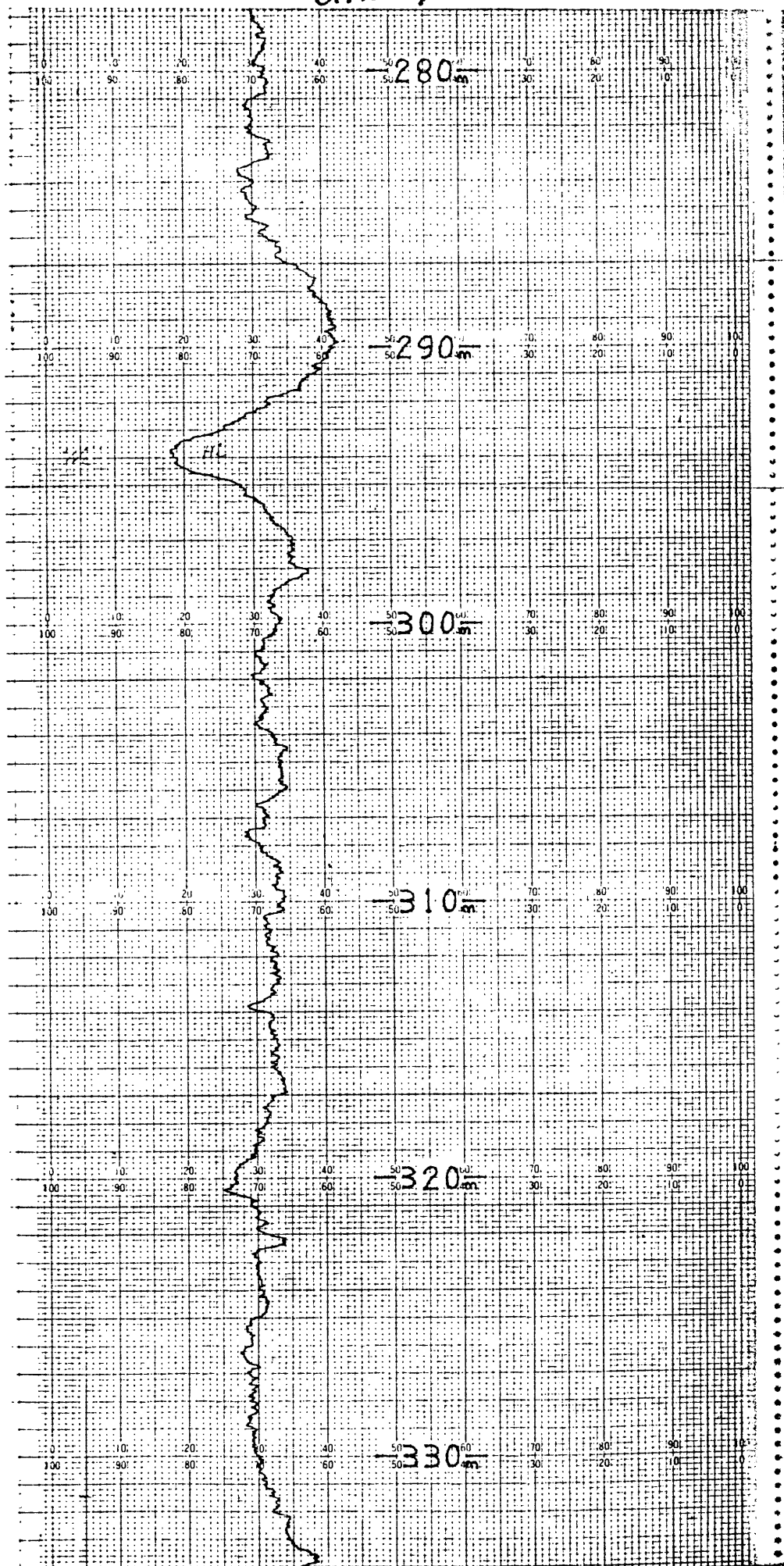


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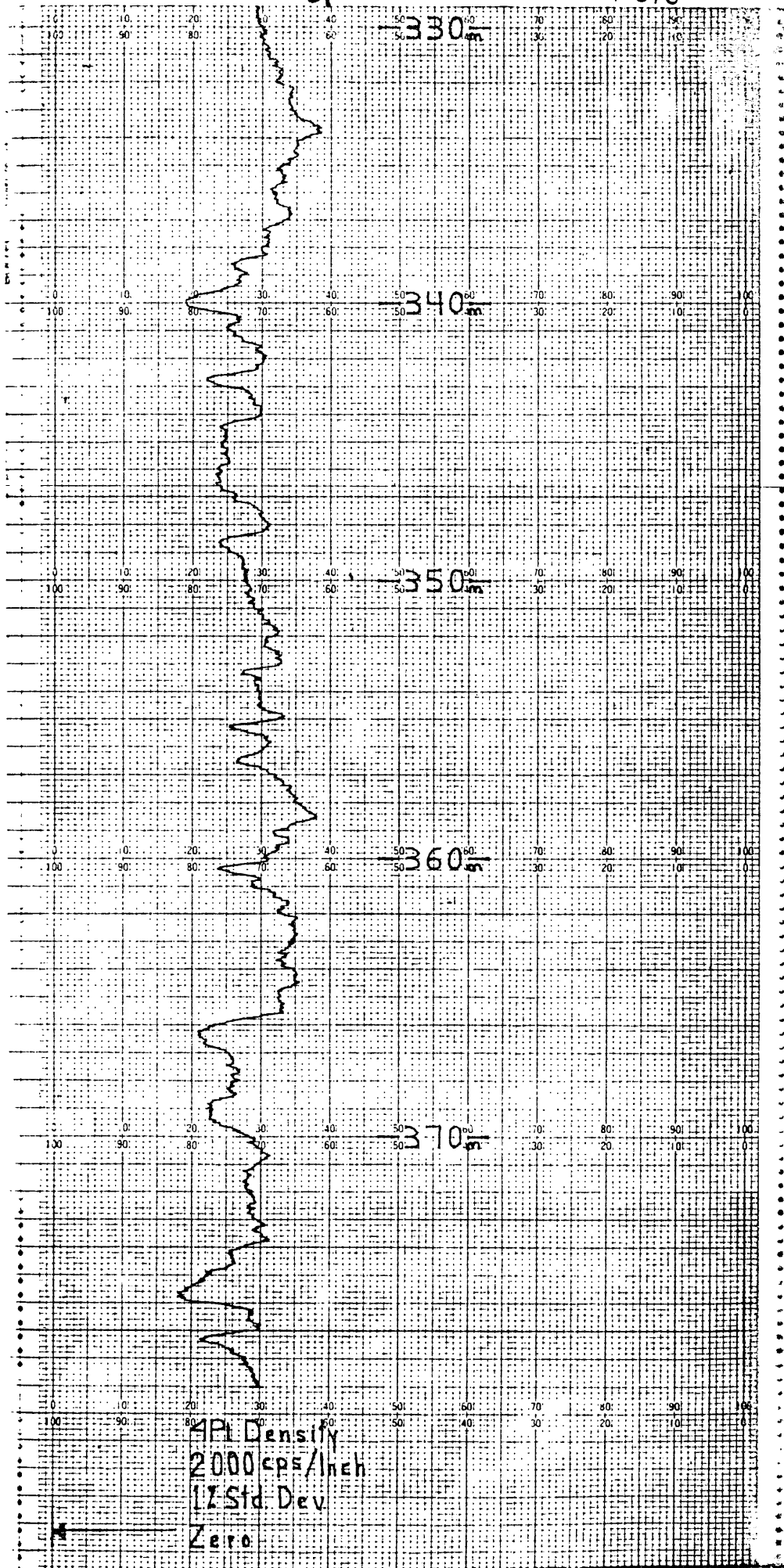
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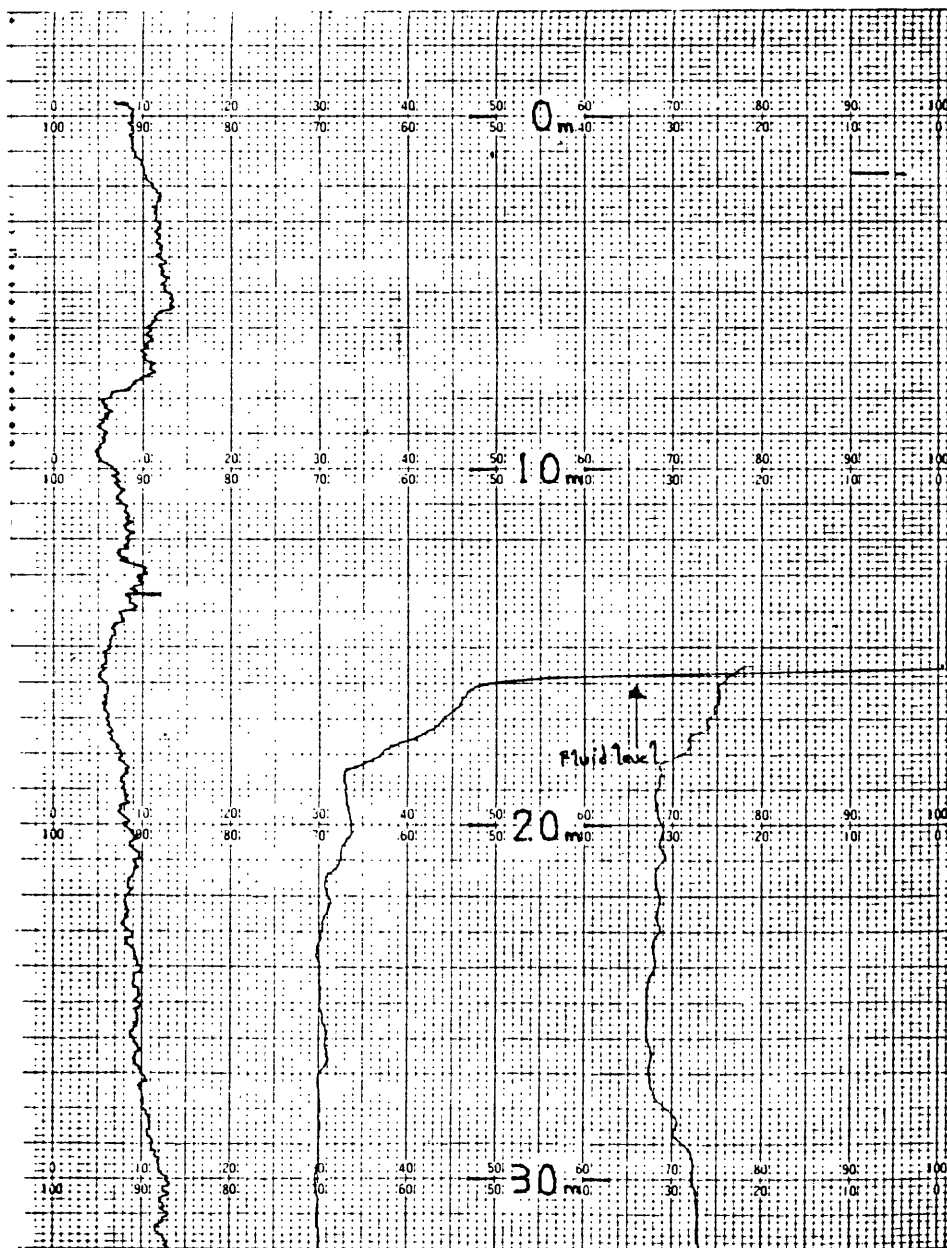
# GEOSCIENCE ASSOCIATES

HOLE NUMBER:

WS-7

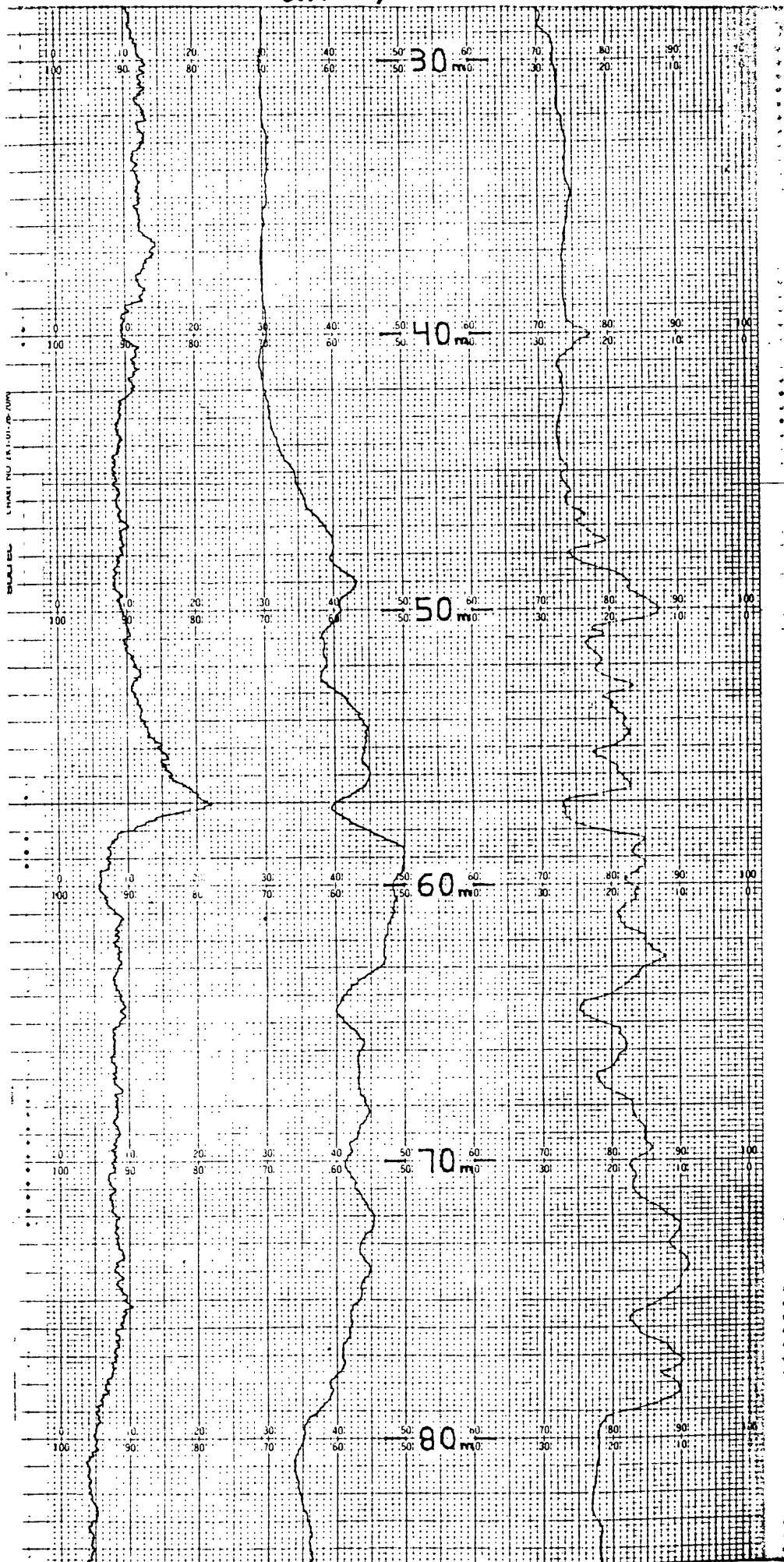
DATE: 3rd Jan 1987

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTRY Sindh Pakistan				DEPTH DRILLED: 380m				CLIENT U.S.G.S. - G.S.P.			
REGION Sindh				DEPTH LOGGED: 380m				GEOLOGIST:			
PROJECT COAL REAP.				COLLAR ELEV				UNIT OPERATOR MUJIB/MEHTAB			
PROSPECT				DIA. Sec FROM TO				UNIT NO. PL-2 OFFICE			
SEC. TWP. RING.				DIA. Caliper FROM TO				BOULDER COLORADO U.S.A.			
TYPE GAM Neutron				BOREHOLE MEDIUM H <sub>2</sub> O + Mud.				ELECTRIC			
LOGGED DEPTH 378m 380m				FLUID LEVEL 15.5m				TYPE RESIST S.P.			
RANGE (I.S.) 100 1K				CASING DATA				LOGGED DEPTH 378m FT			
STD DEV 3% 1%				WALL SIZE 1/4"				SCALE 10 3			
PAPER SPEED 1-1 1-1				I.D. HW=4" I.D. PW=5"				PAPER SPEED 1-1 2 2			
LOG SPEED 6-1 6-1				CASED FROM 0 TO 5.2m				LOG SPEED 6-1 2			
BKGD. COUNT				CASING TYPE HW and PW				FINE ADJ. 700 BLS.			
PROBE NO. GN-1 GN-1				SAMPLE DATA							
SIZE (dia.) 13/8 13/8				NON-CORED HOLE <input checked="" type="checkbox"/> CORED HOLE <input type="checkbox"/>				CALIPER			
K-FACTOR				SAMPLED INTERVAL SAMPLE TYPE				LOGGED DEPTH FT			
DEAD TIME 2 2								SCALE			
STANDARD				REMARKS				PAPER SPEED			
DIGITAL DATA								LOG SPEED			
PRINT INTERVAL								ARM LENGTH IN			
TIMEBASE				Inner casing slipped down				MAX DEF. IN			
				and is at 225-252 m				VERTICAL DEV.			
DENSITY CALIBRATION				depth.				DEPTH			
ALUMINUM								INCLIN.			
LUCITE								BEARING			



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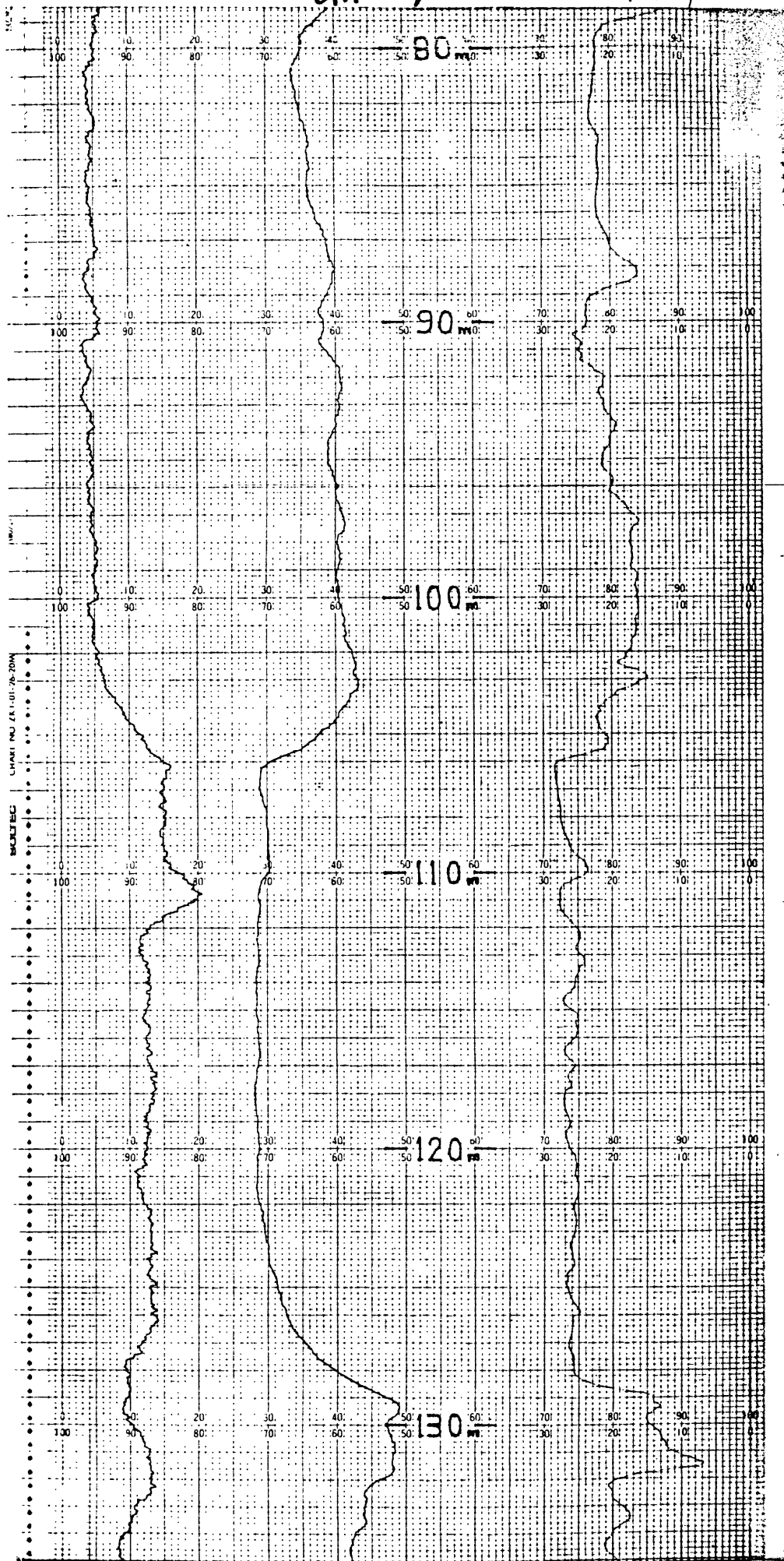


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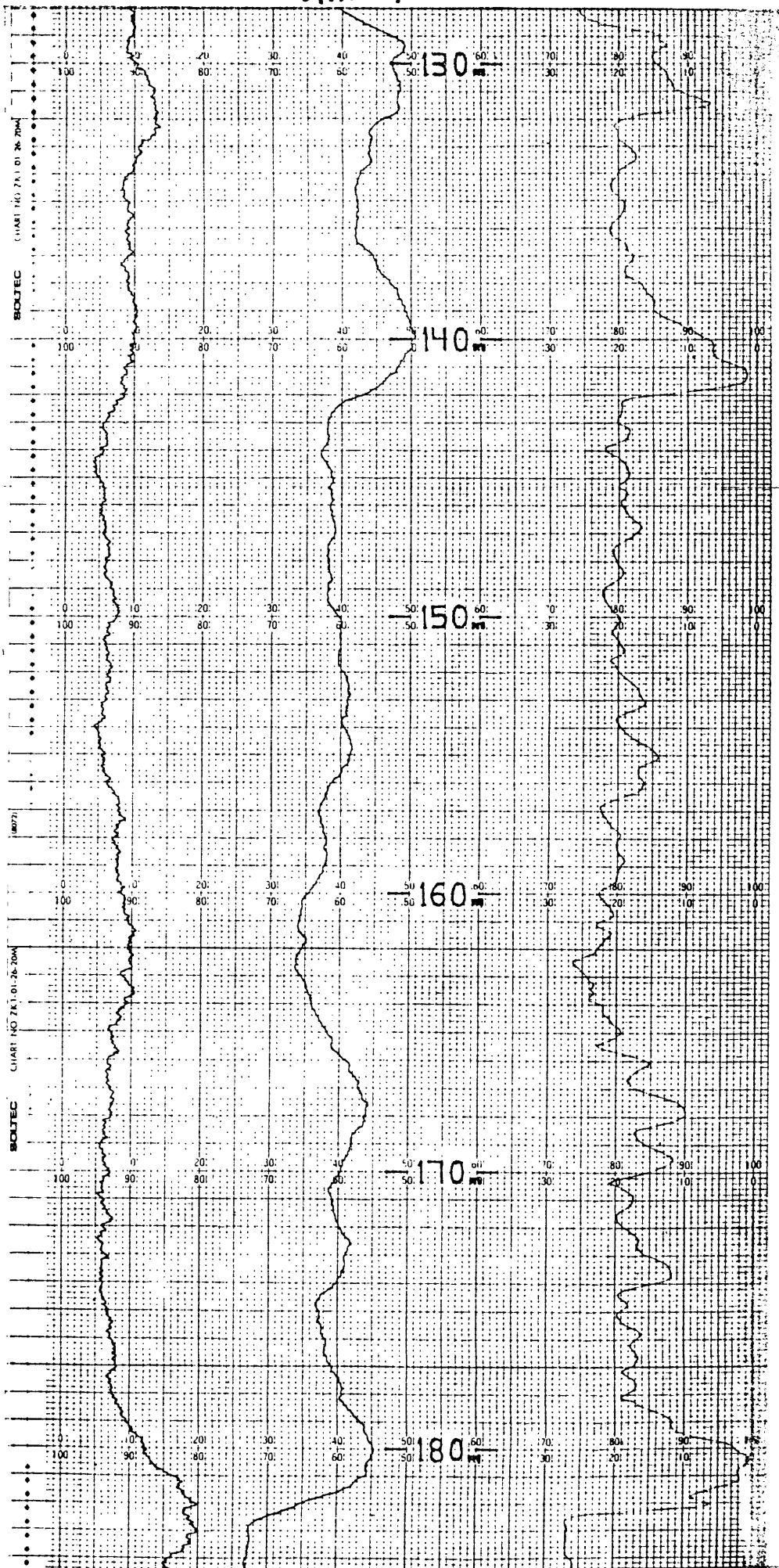
UAS-7

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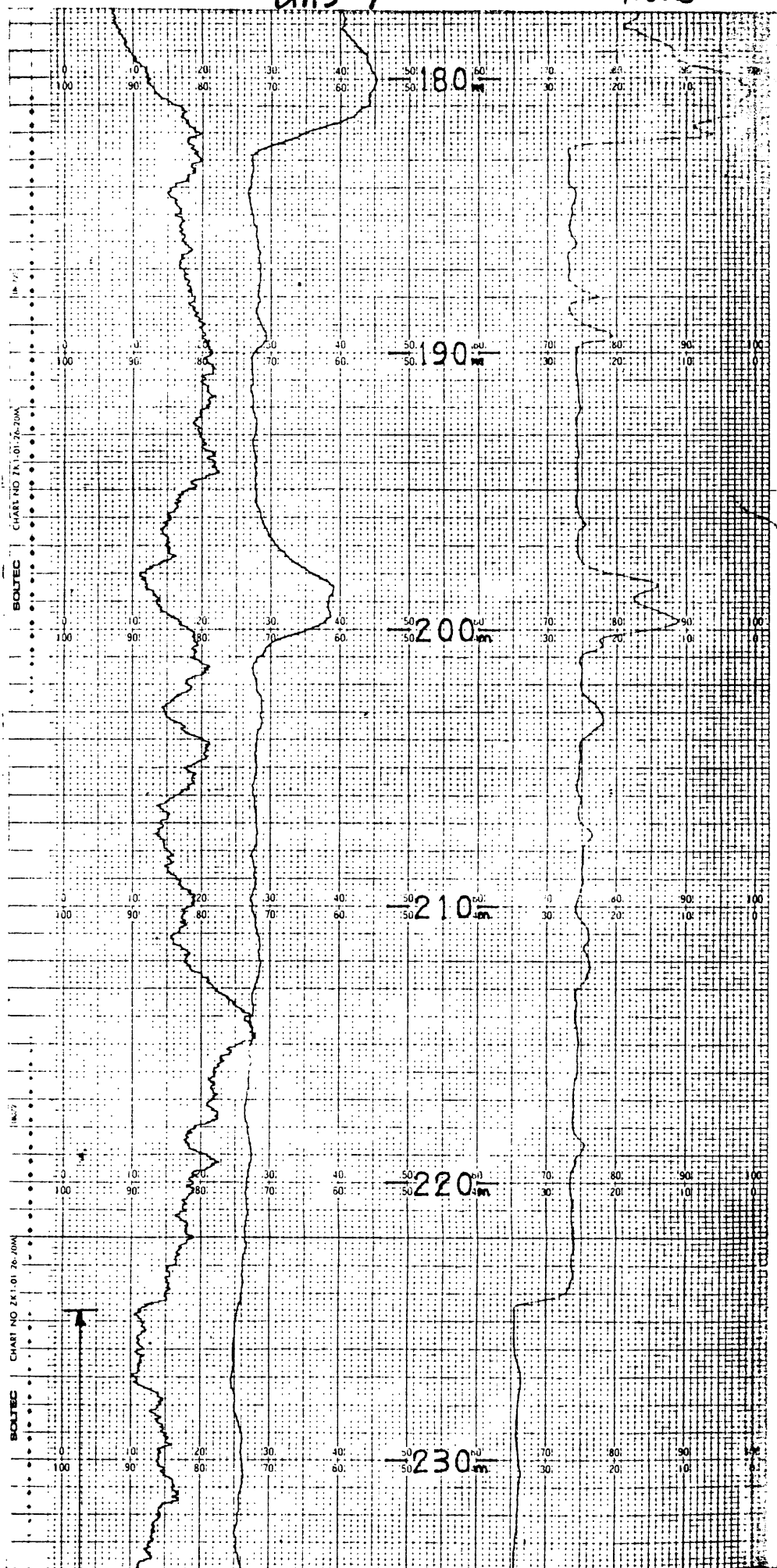
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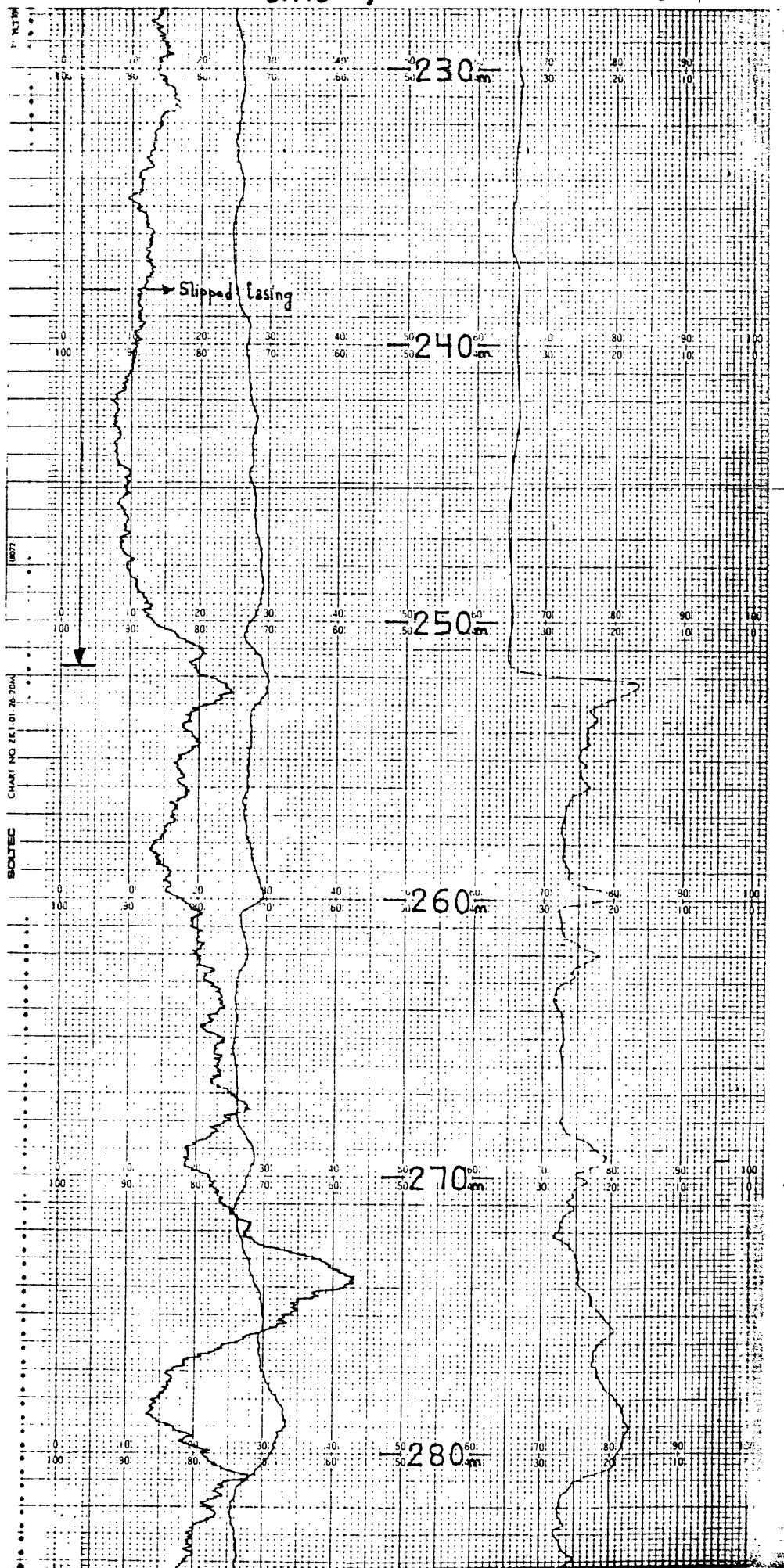
UAS-7

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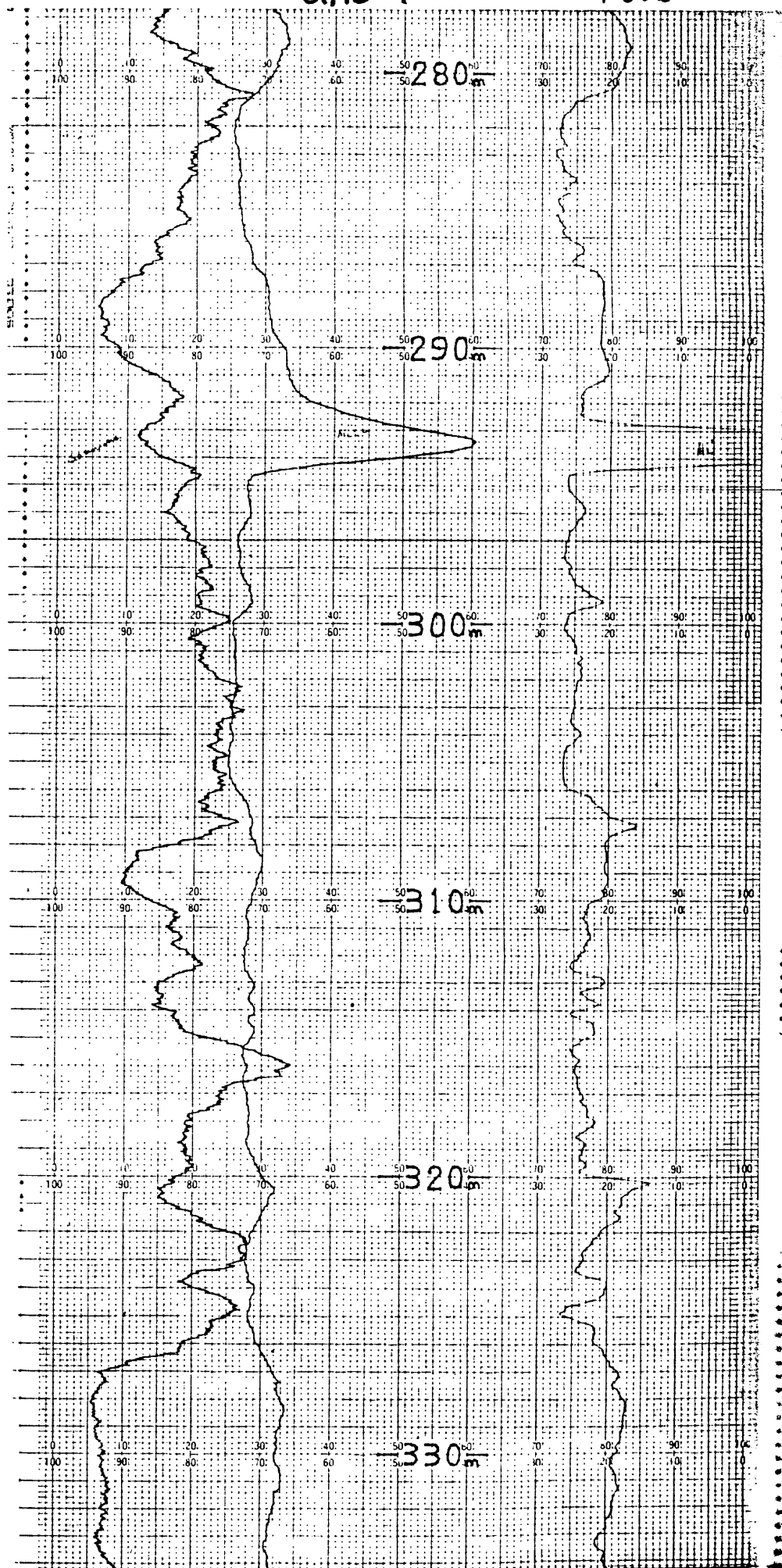


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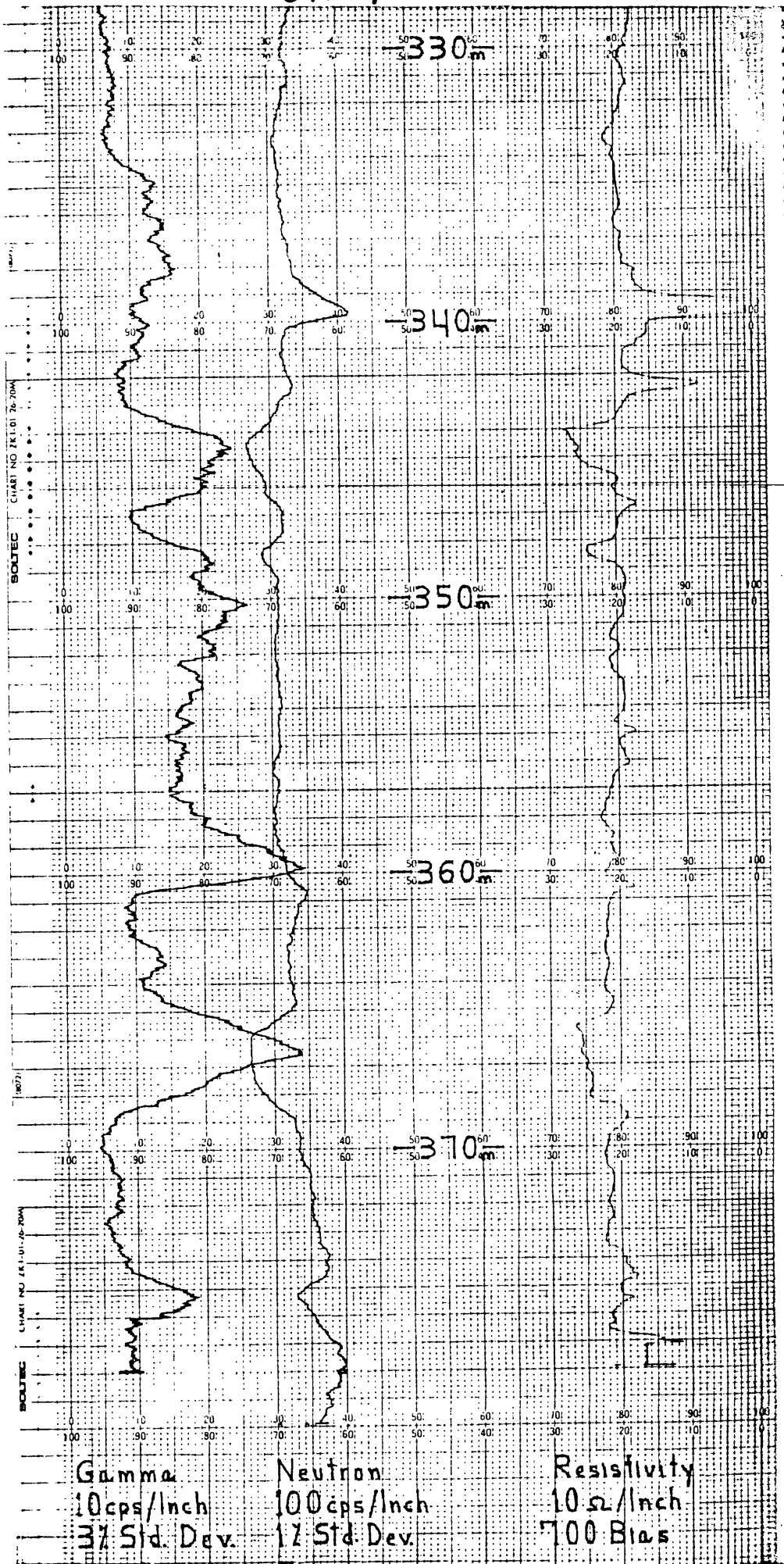


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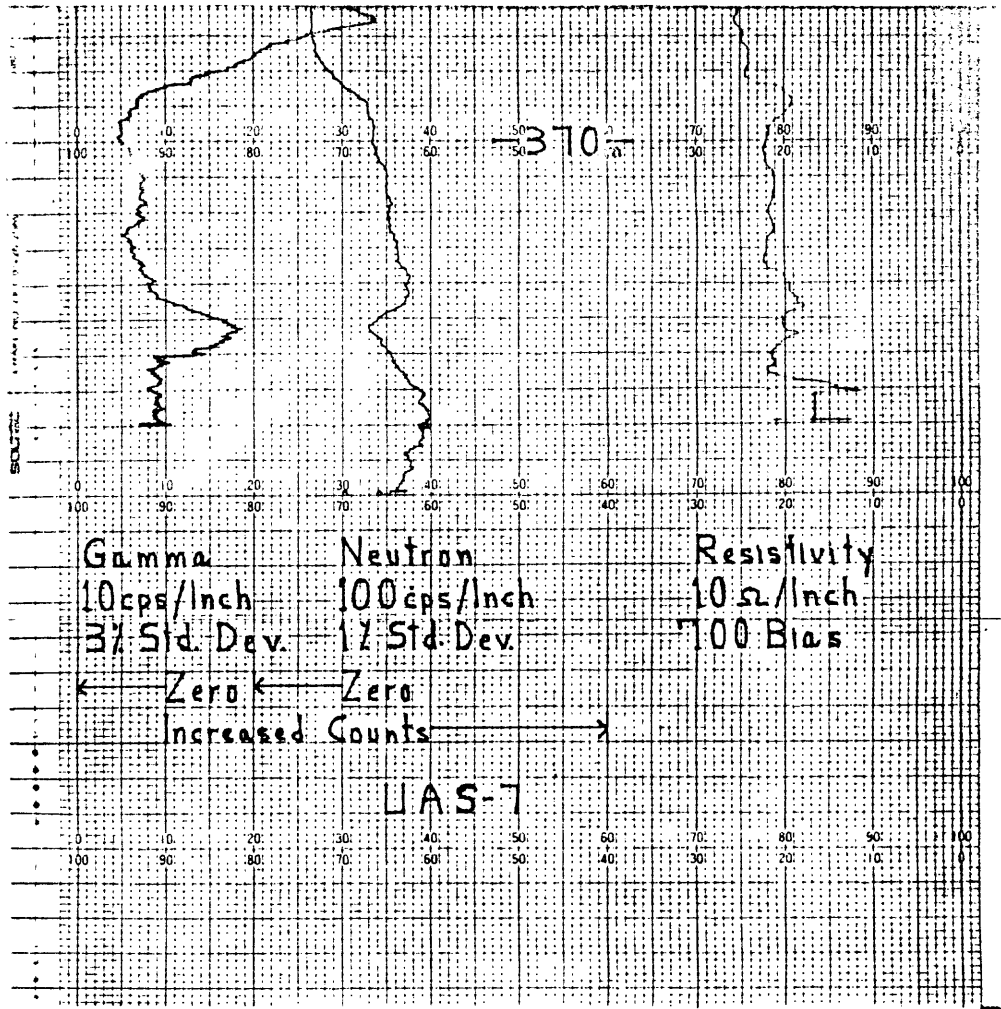
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# GEO SCIENCE ASSOCIATES

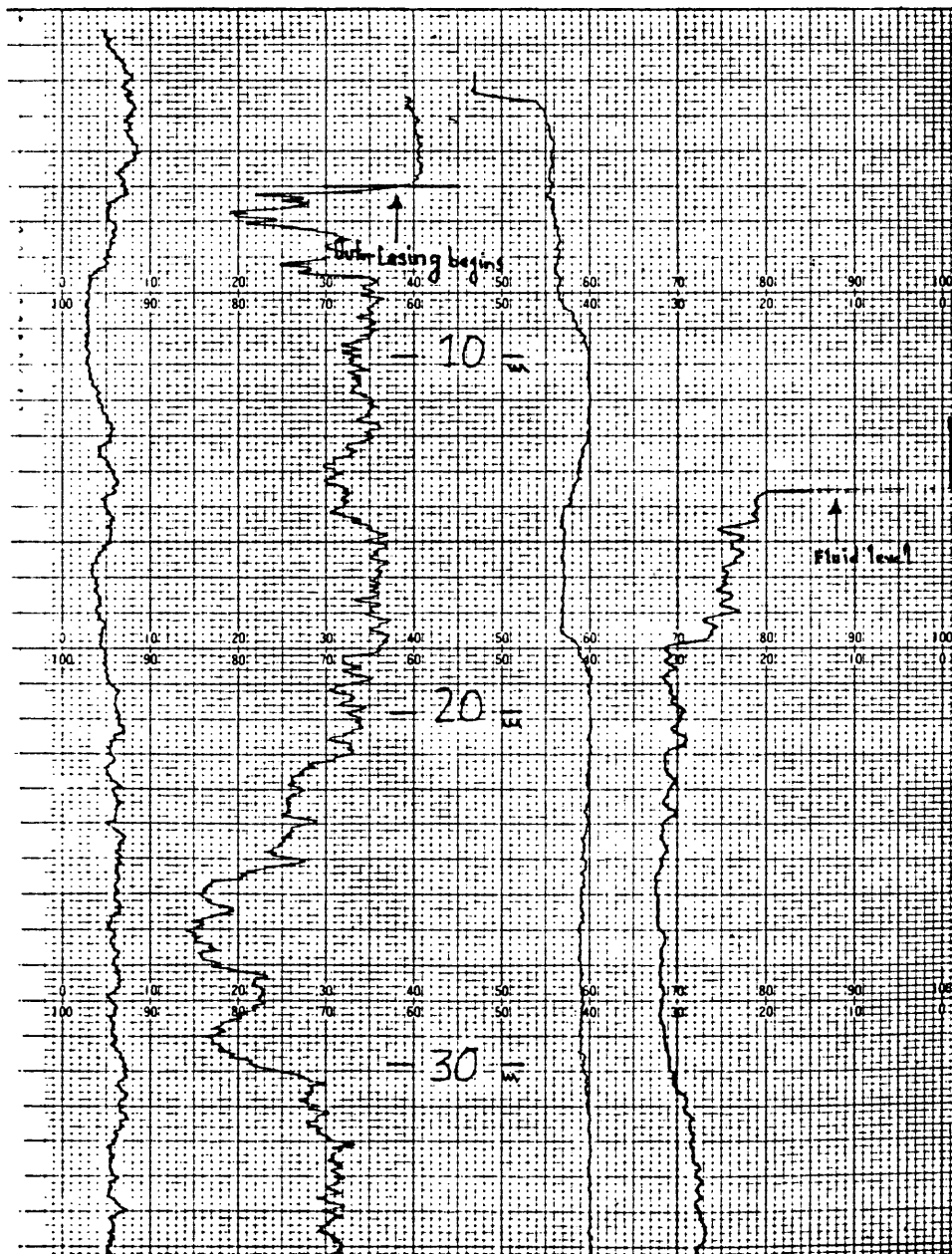
HOLE NUMBER:

AS-7

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DATE: 3rd Jan. 1987

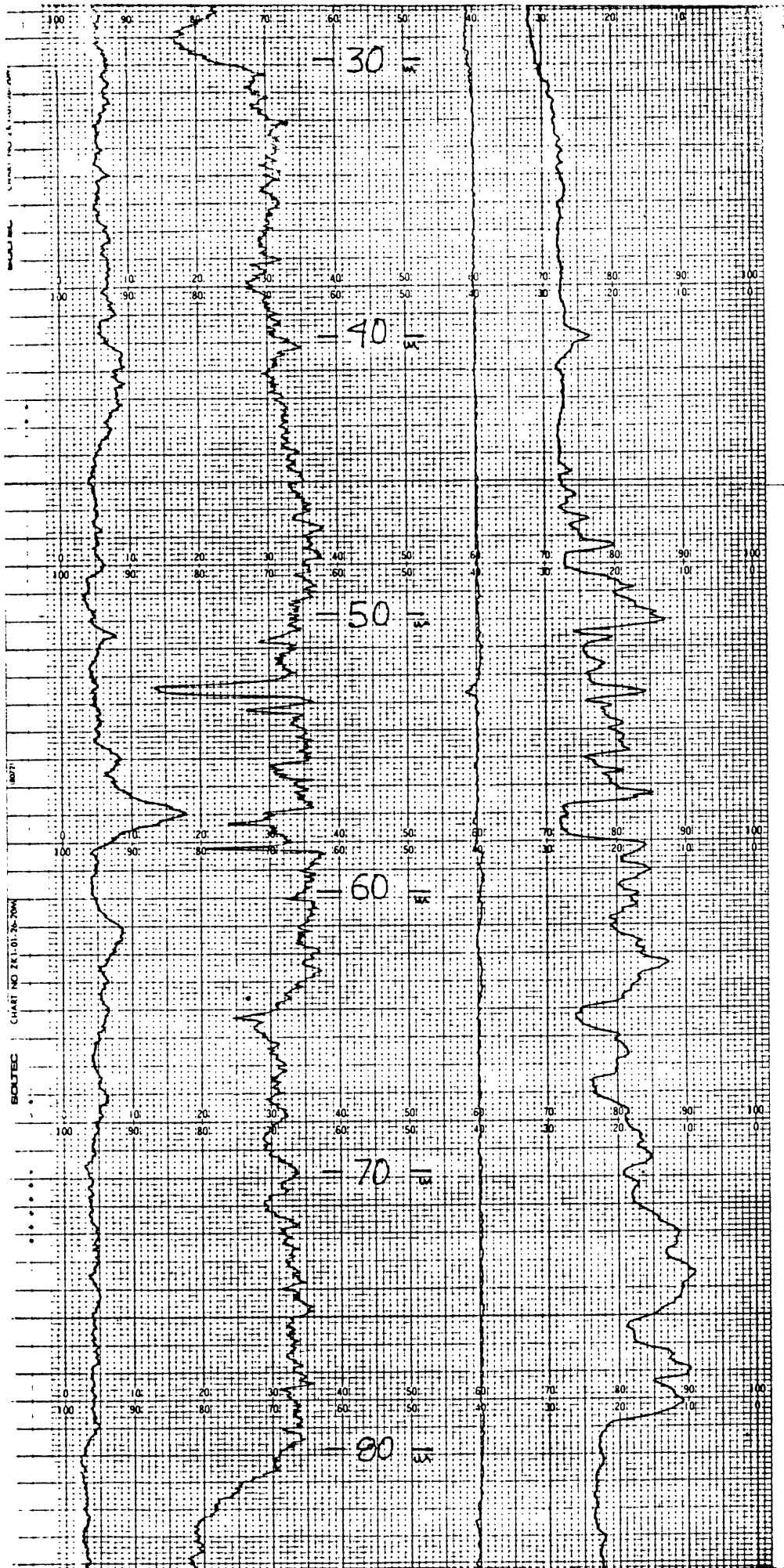
LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY: Sind Pakistan			DEPTH DRILLED: 380m		CLIENT: USGS - GSP	
REGION: Sonda			DEPTH LOGGED: 221.2m		GEOLOGIST:	
PROJECT: COAL REAP			COLLAR ELEV.		UNIT OPERATOR: MENTAS/MUJIB	
PROSPECT:			DIA. See FROM TO		UNIT NO. PL. 2 OFFICE	
SEC. TWP. ANO.			DIA. Calliper FROM TO		BOULDER COLORADO USA	
TYPE			DIA. Log FROM TO		ELECTRIC	
LOGGED DEPTH: 220.2m HRD 221.2m			BOREHOLE MEDIUM: H <sub>2</sub> O + Mud		TYPE RESIST S.P.	
RANGE (ft.): 100 200			FLUID LEVEL: 15.8m		LOGGED DEPTH: 220.2ft FT.	
STD DEV: 37 17			CASING DATA		SCALE: 10 2	
PAPER SPEED: 1-1 1-1			WALL SIZE: 1/4"		PAPER SPEED: 1-1 2	
LOG SPEED: 3-1 3-1			I.D. HW = 4" I.D. PW = 5"		LOG SPEED: 3-1 2	
BKGD. COUNT			CASED FROM: 0 TO 5.2m		LOG SPEED: 3-1 2	
PROBE NO. HRD-1 HRD-1			CASING TYPE: HW and PW		FINE ADJ. 700 Dias	
SIZE (dia.): 2 2			SAMPLE DATA		CALIPER	
K-FACTOR: 2 2			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input type="checkbox"/>		LOGGED DEPTH: 221.2m FT.	
DEAD TIME: 2 2			SAMPLED INTERVAL SAMPLE TYPE		SCALE 1 Deflection = 1 Dia 2	
STANDARD: 2 2			REMARKS		PAPER SPEED: 1-1 2	
DIGITAL DATA					LOG SPEED: 3-1 2	
PRINT INTERVAL					ARM LENGTH: 30 IN	
TIMEBASE					MAX DEF. 7 IN	
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN.	
					BEARING	





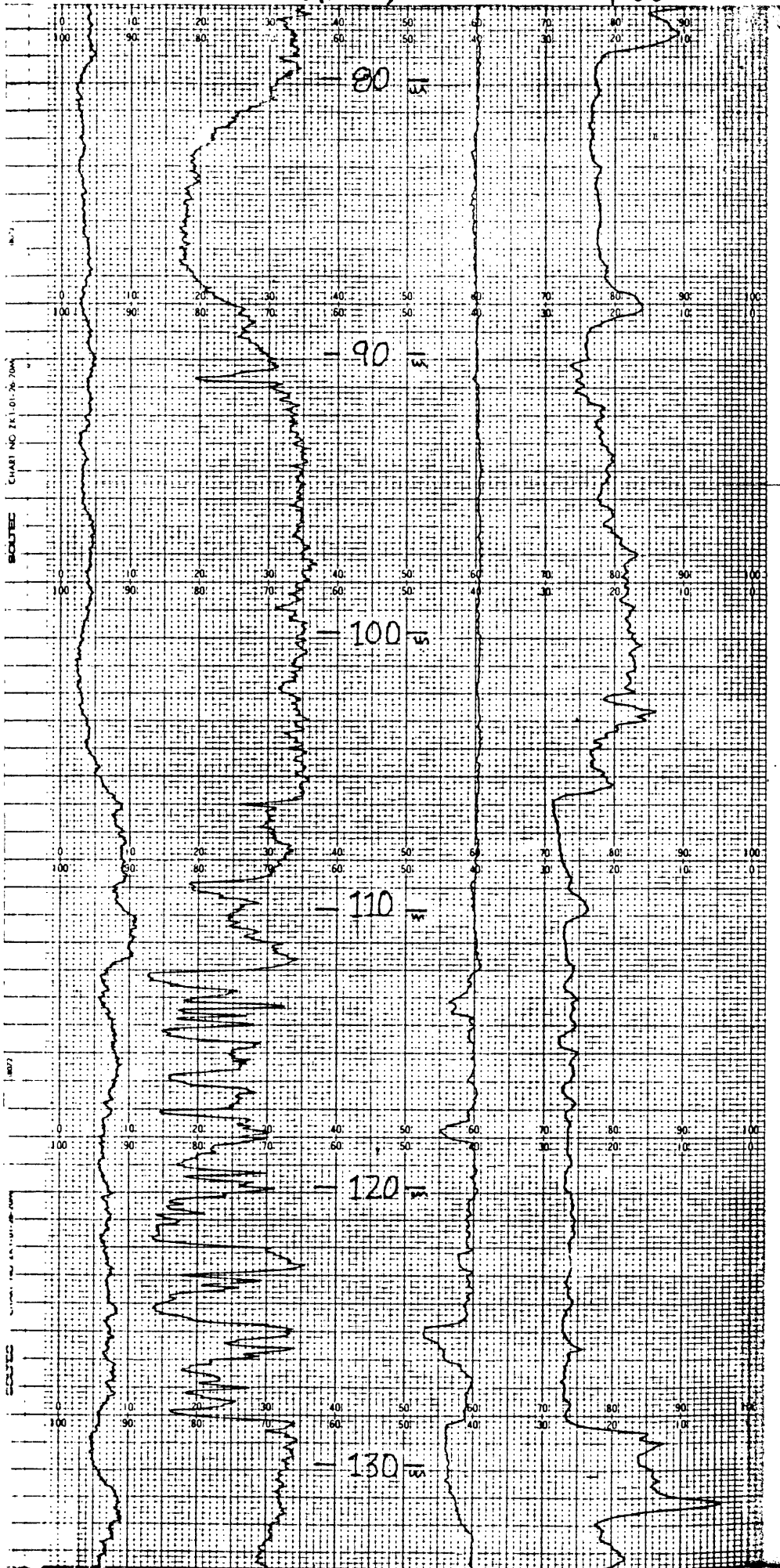
UAS-7

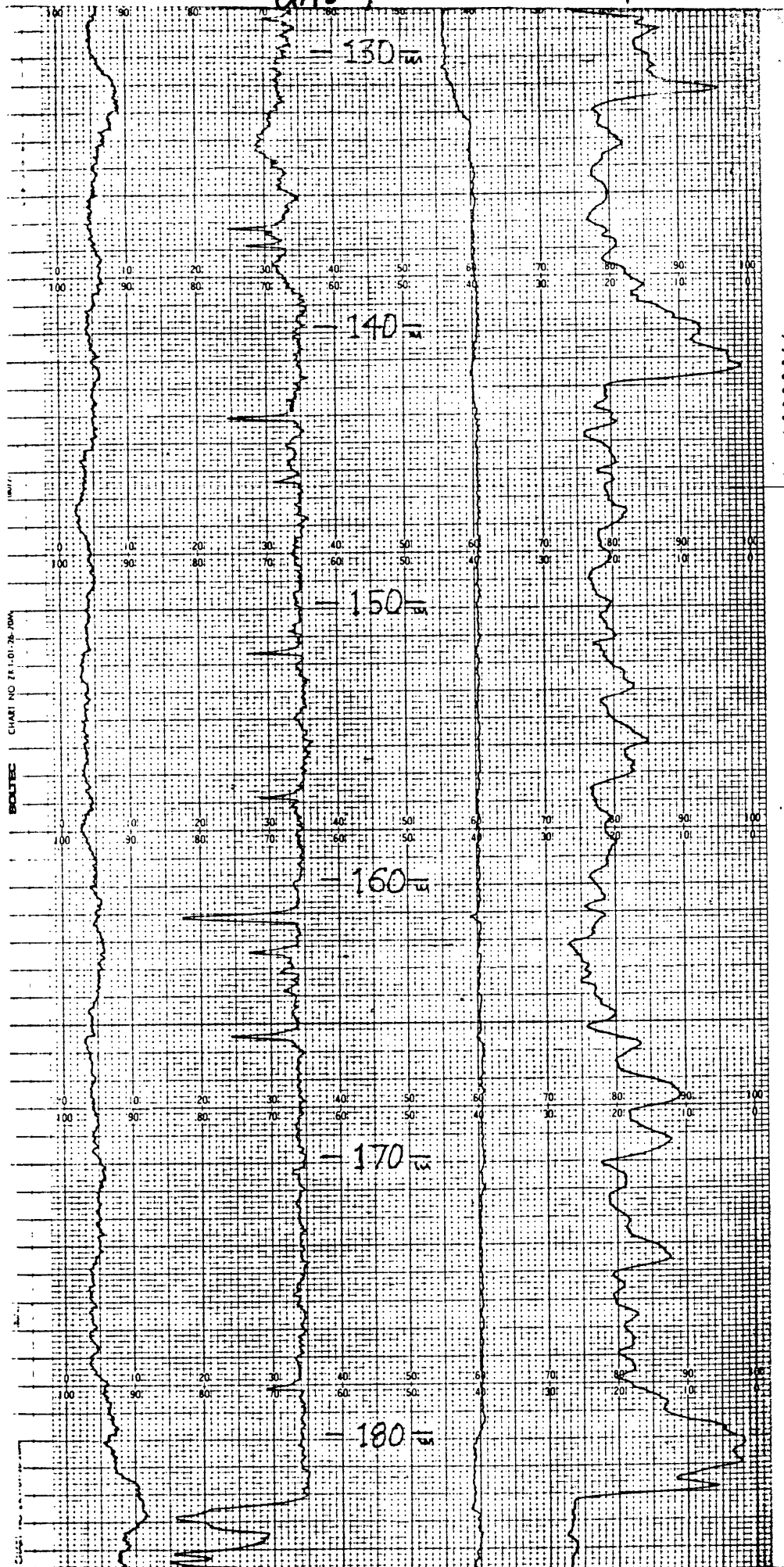
P.329



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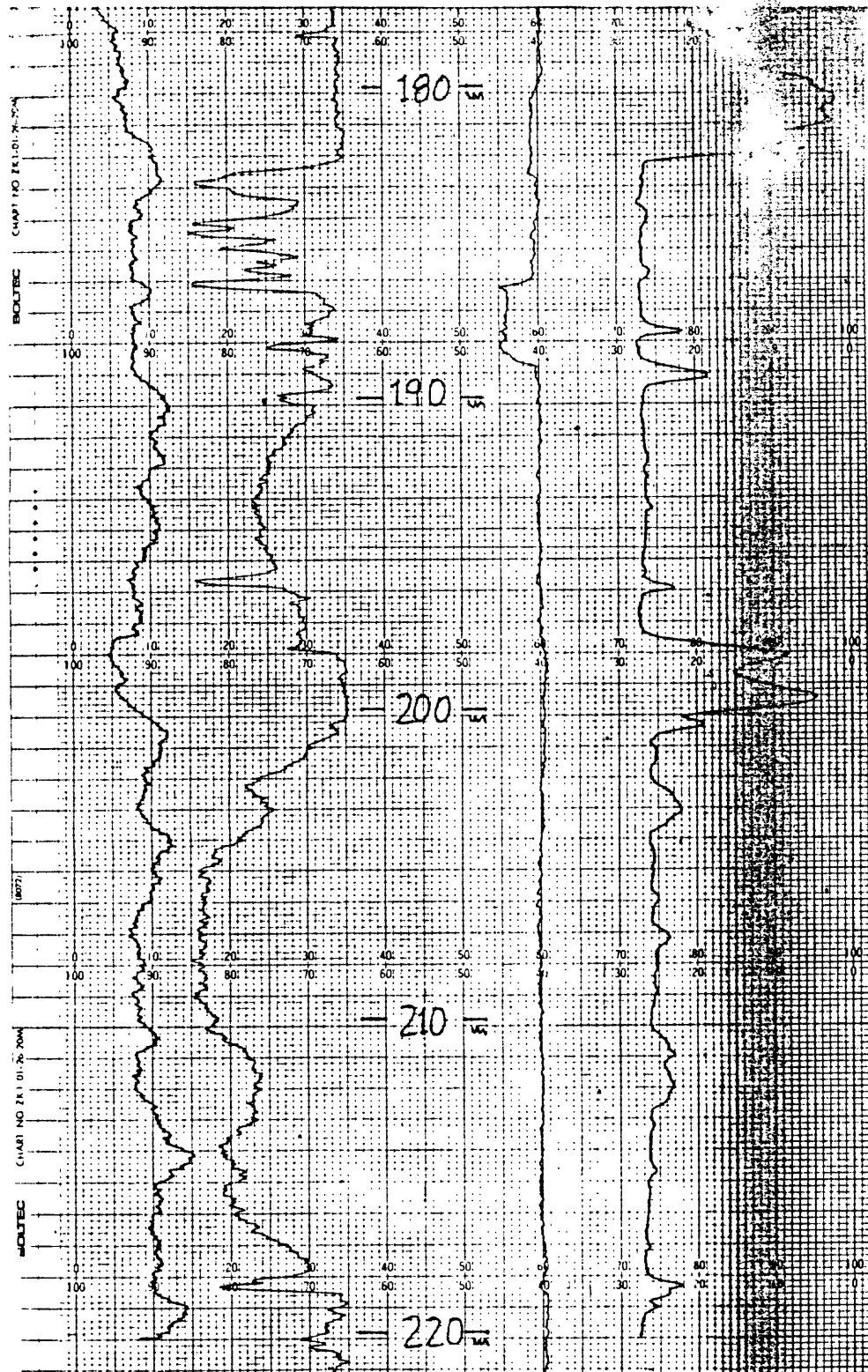
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Gamma  
10 cps/Inch  
3% Std Dev  
Zero

Hi Resol. Density  
2000 cps/Inch  
1% Std Dev  
Increased Counts  
Zero

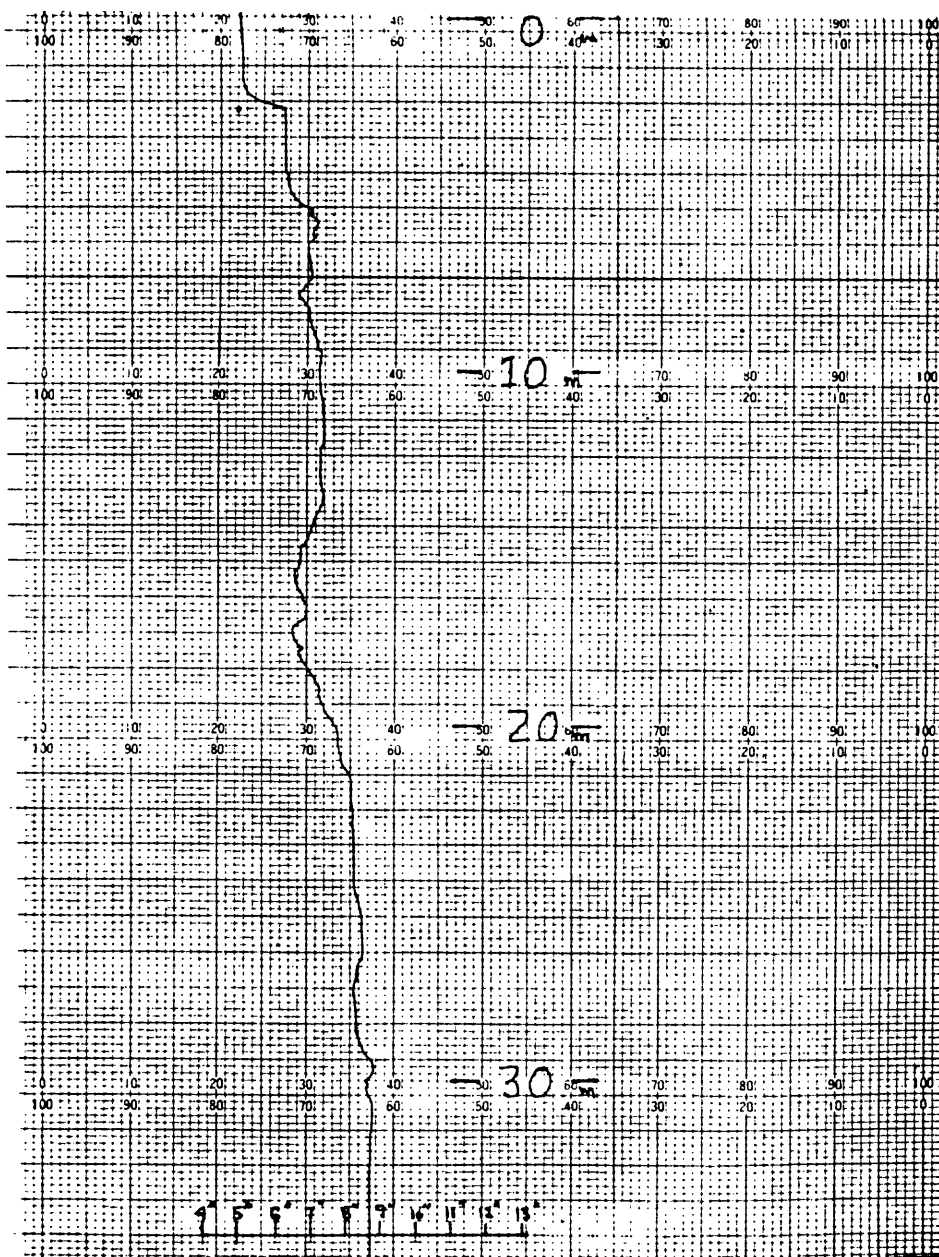
Caliper Resistivity  
5K Range 100/Inch  
1% Std Dev 100 Blue  
1" Deflect = 1 Dca

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HOLE NUMBER:

UAS-7

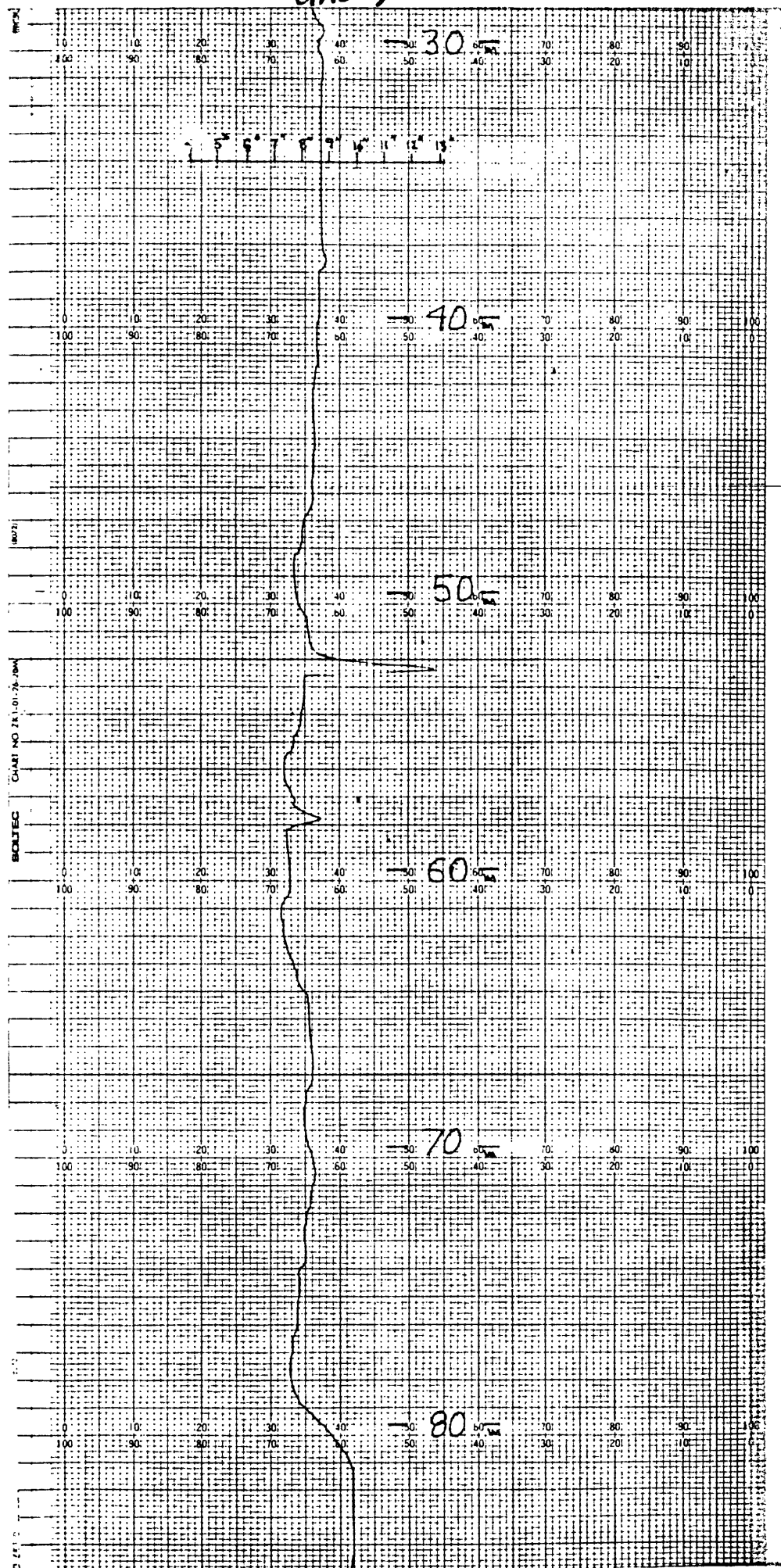
DATE: 3rd Jan, 1987

[illegible]



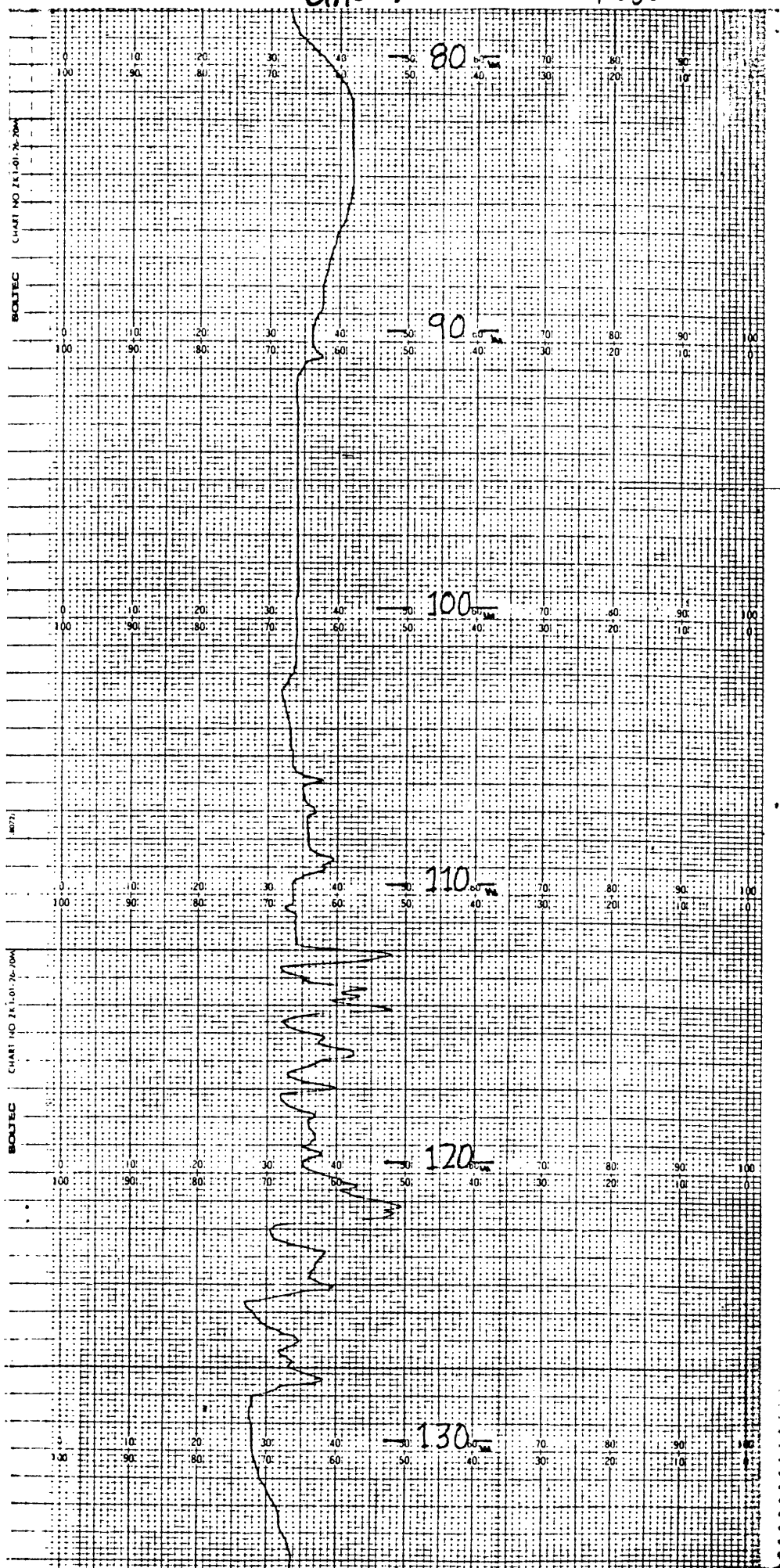
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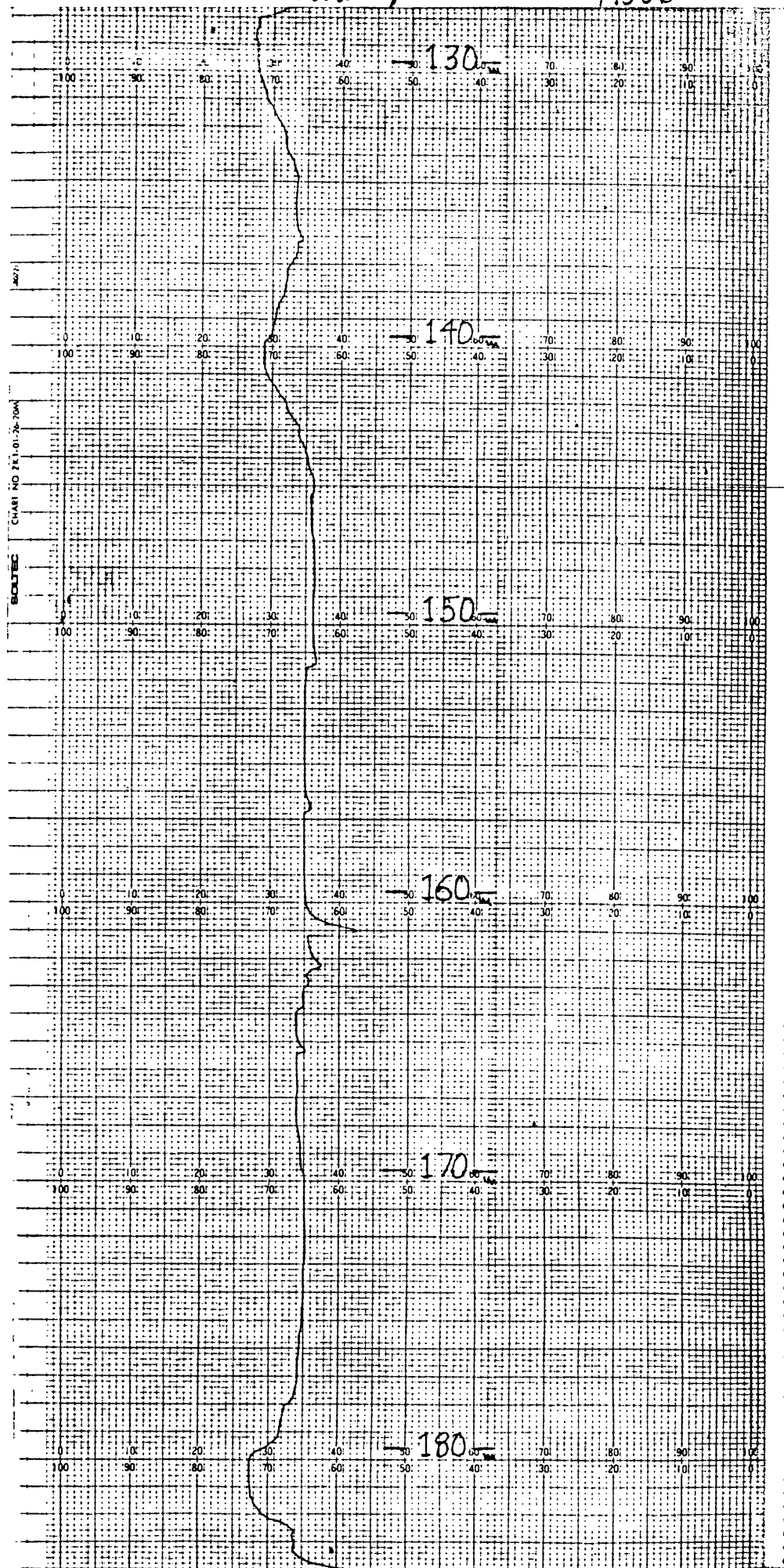
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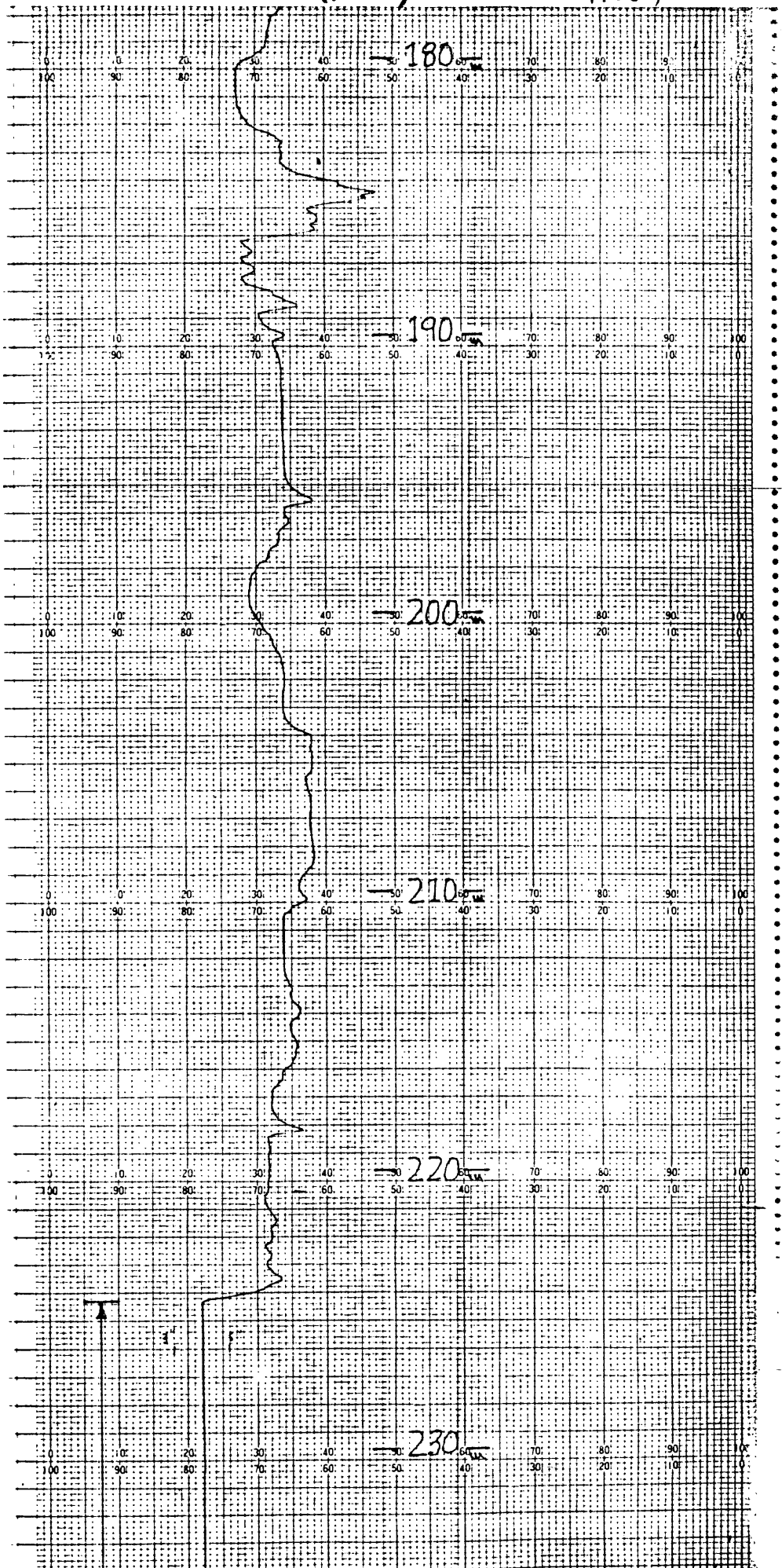
P.336

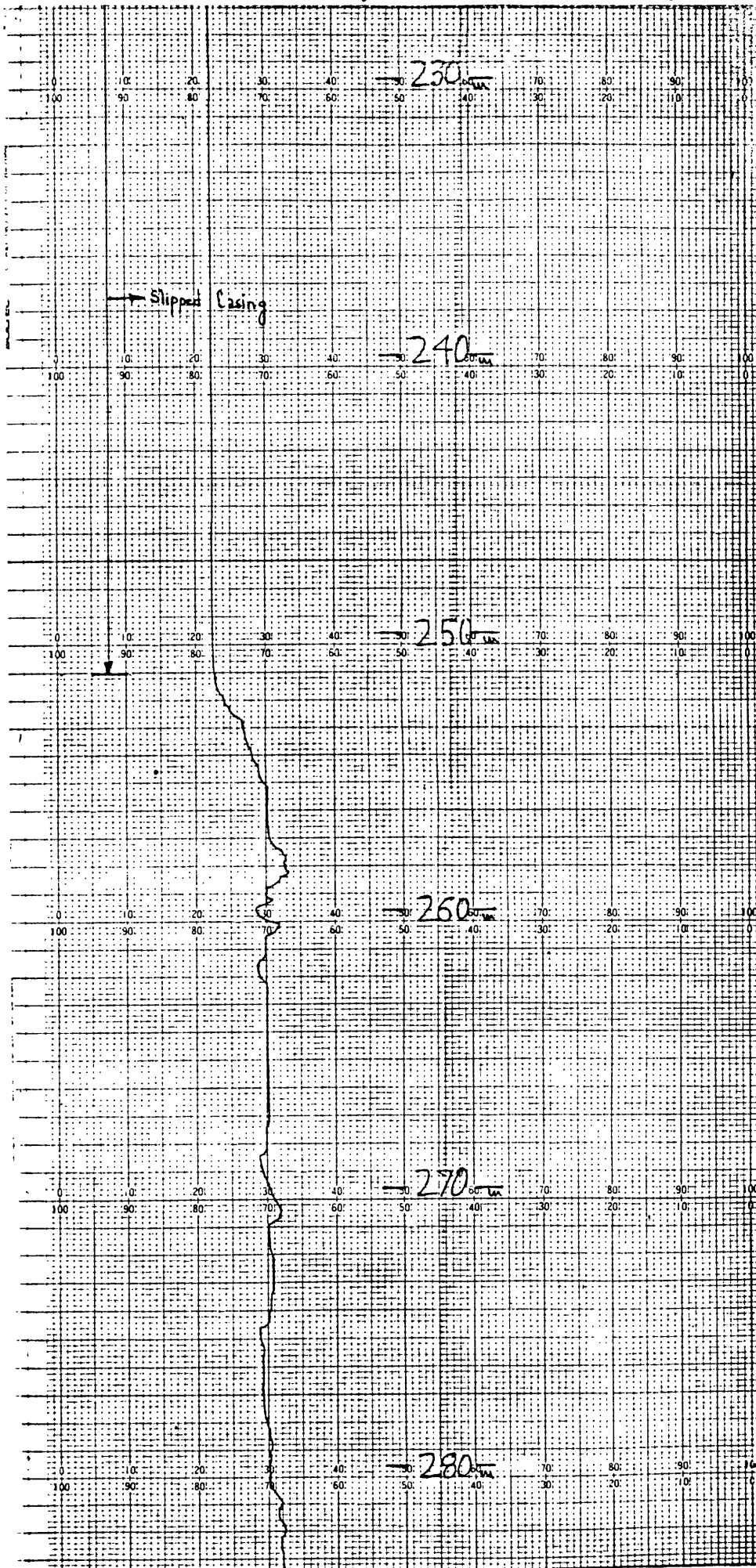




UAS-7

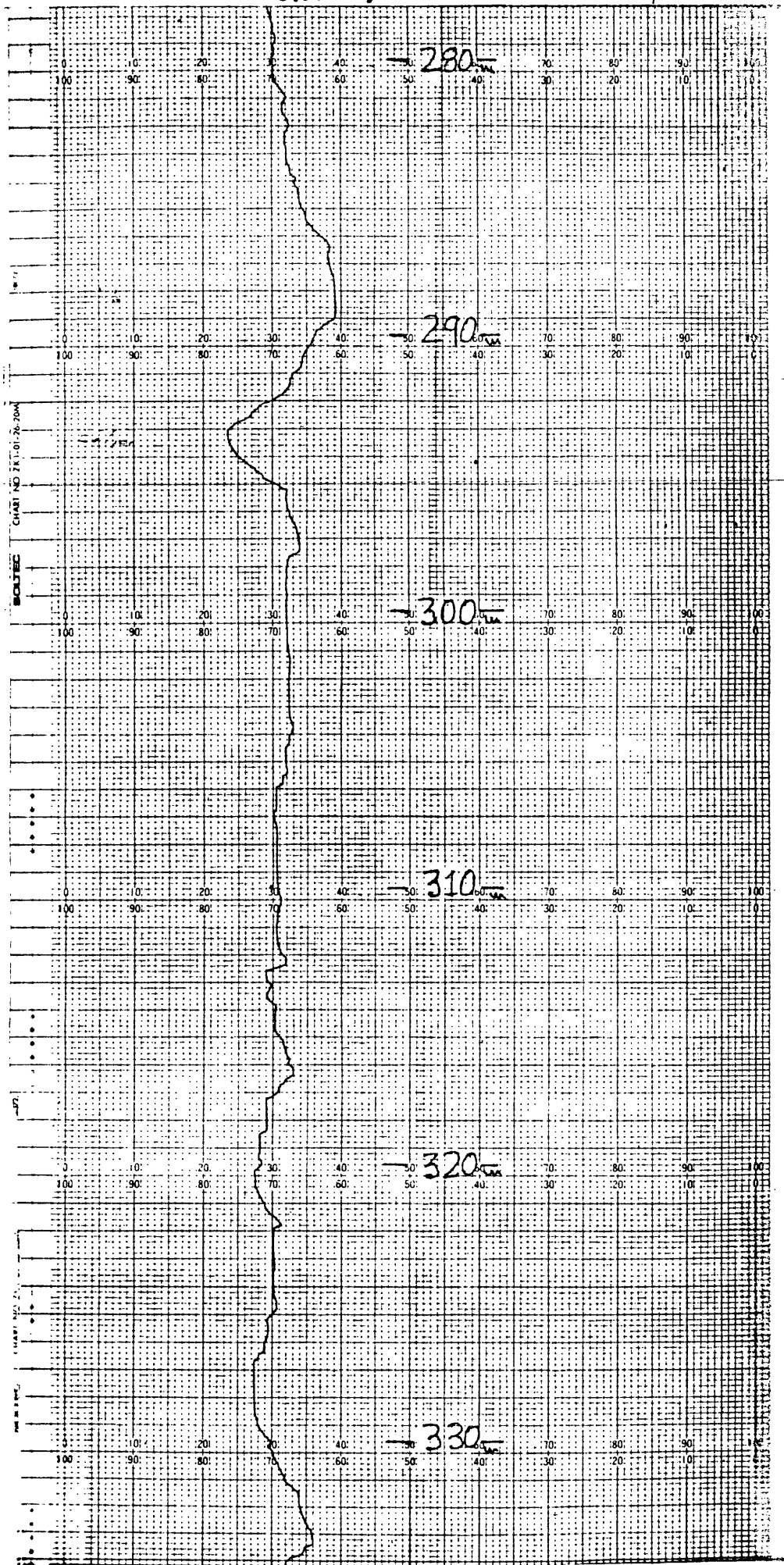
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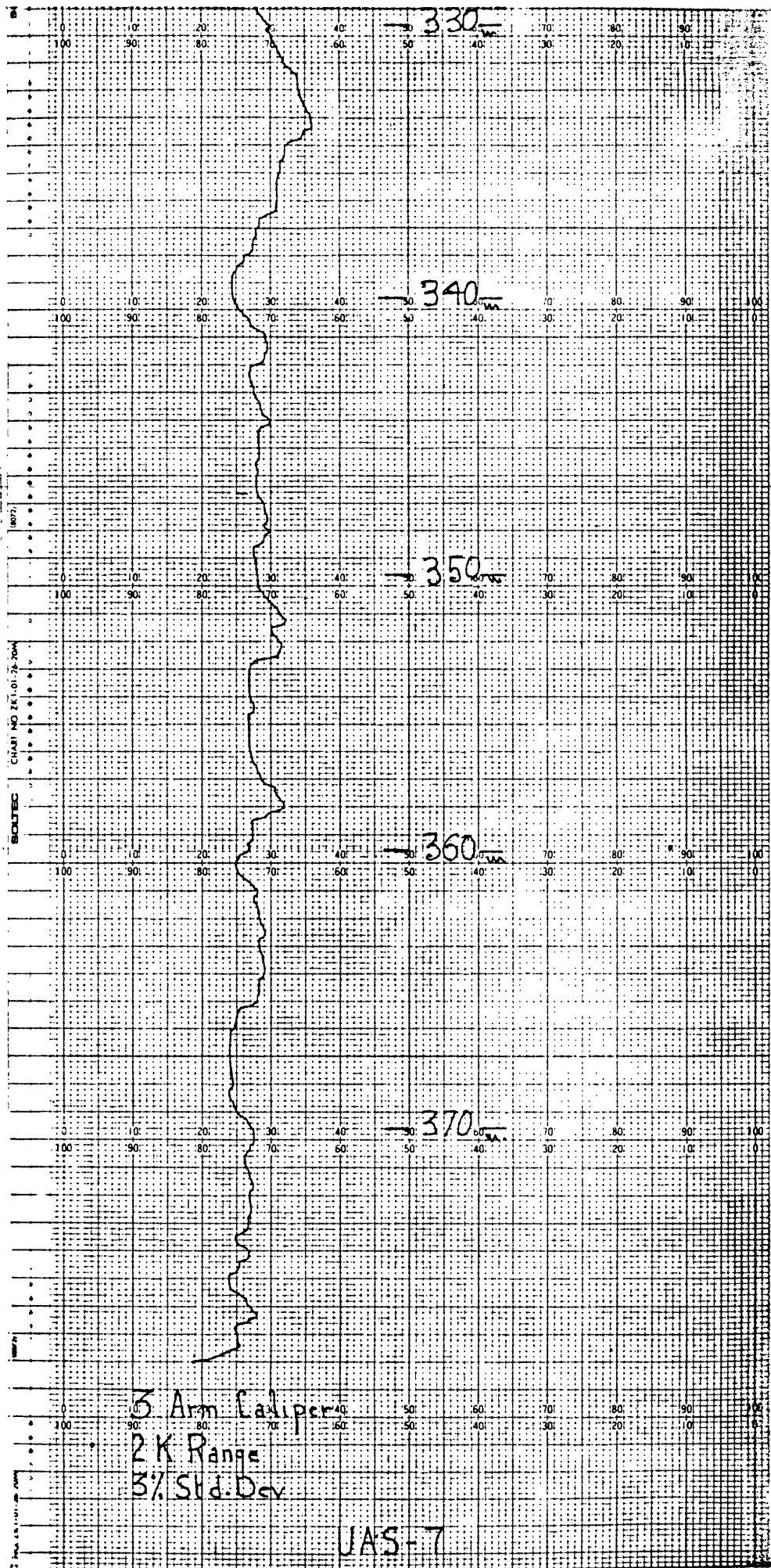
UAS-7

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DRILL HOLE UAS-8



## GEOSCIENCE ASSOCIATES

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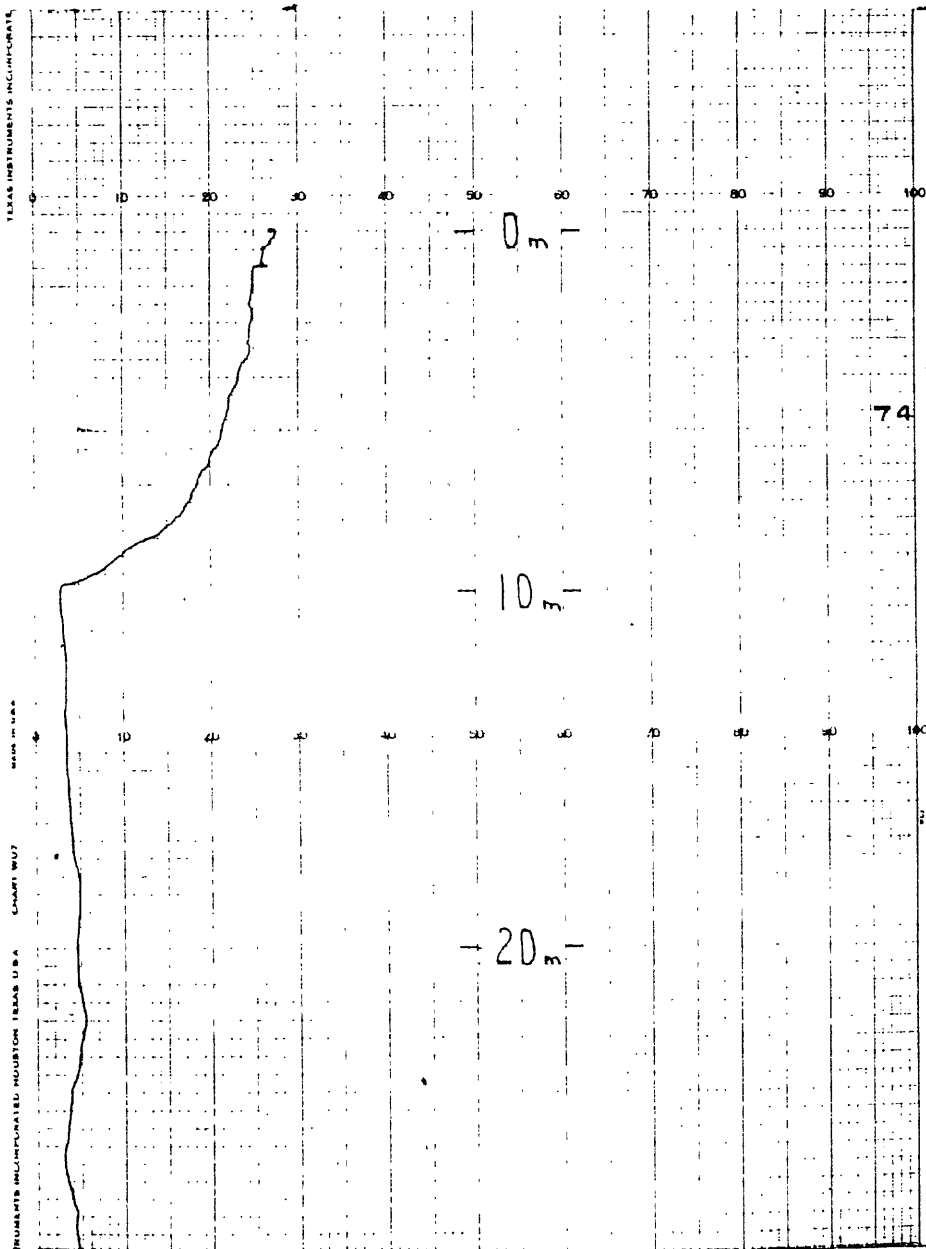
HOLE NUMBER:

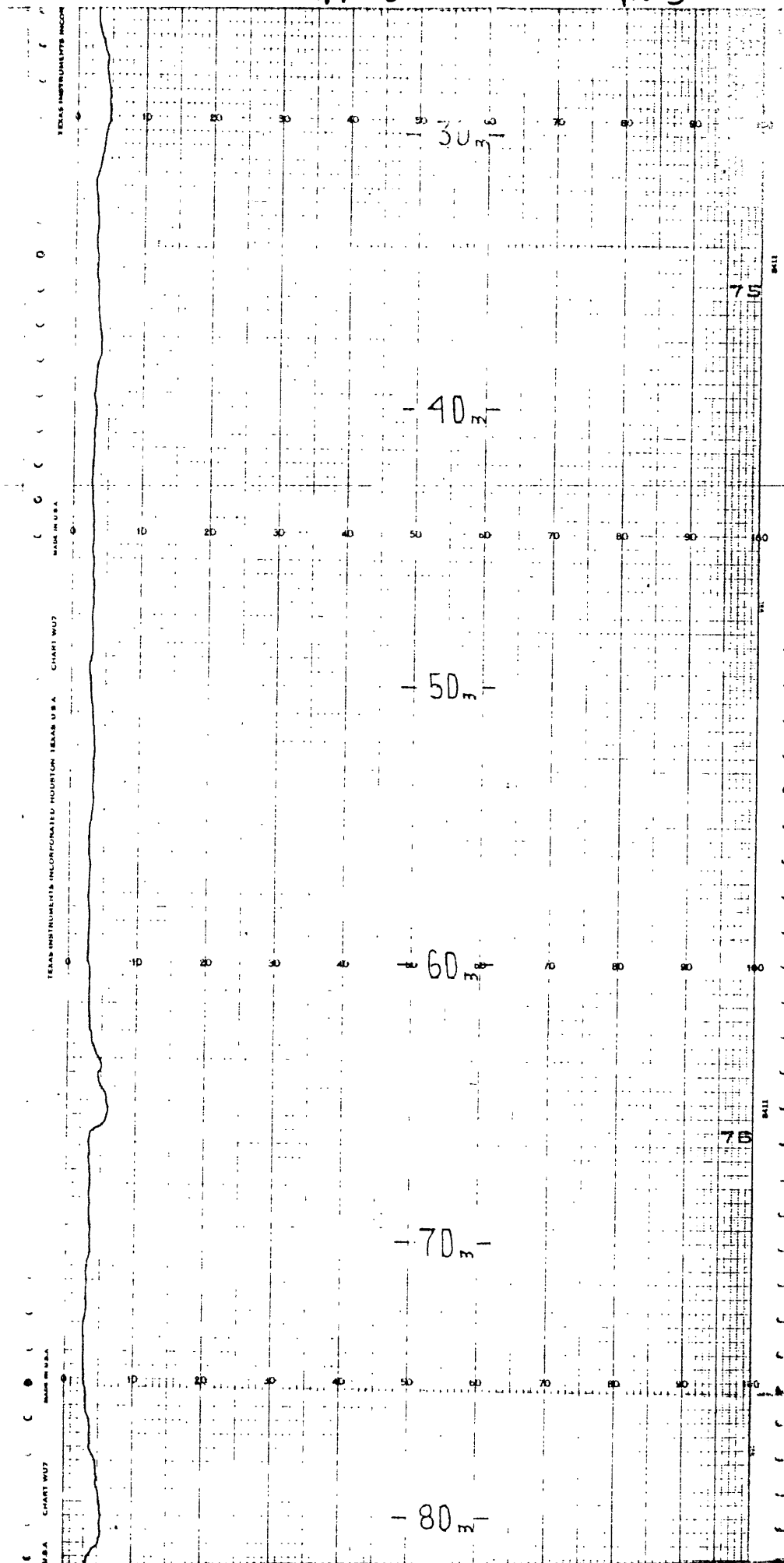
UAS-8

DATE:

15 JANUARY 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind	PAKISTAN	DEPTH DRILLED	347.45m		CLIENT	U.S.G.S. - G.S.P.	
REGION	Sonda		DEPTH LOGGED	340m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	MUJIB / MENTAB	
PROSPECT			DIA	Sec	FROM TO	UNIT NO	PL-1 OFFICE	
SEC	TWP	RNG.	DIA	Caliper	FROM TO	BOULDER	CALORADO U.S.A	
			DIA	log	FROM TO	ELECTRIC		
TYPE	QAM	4 P Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.		TYPE	RESIST	SP
LOGGED DEPTH		340m	FLUID LEVEL			LOGGED DEPTH	FT	FT
RANGE (I.S.)		500	CASING DATA			SCALE		
STD DEV		1/4	WALL SIZE	1/4"		PAPER SPEED		
PAPER SPEED		1-1	ID NW=3" HW=4"			LOG SPEED		
LOG SPEED		6-1	CASED FROM	Sec Remark TO		FINE ADJ		
BKND. COUNT			CASING TYPE	HW and NW				
PROBE NO.		6D-1	SAMPLE DATA					
SIZE (dia)		13/8"	NON-CORED HOLE	CORED HOLE				
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME		2						
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL			HW casing = 0 - 122.64m			LOGGED DEPTH	FT	
TIMEBASE			NW casing = 0 - 262.36m			SCALE	IN	
			Drill pipe I.D. = 1 3/8"			PAPER SPEED	IN	
			D.D. = 2 3/8"			LOG SPEED	IN	
			Logged through drill pipe and casing.			ARM LENGTH	IN	
						MAX DEF.	IN	
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN		
						BEARING		



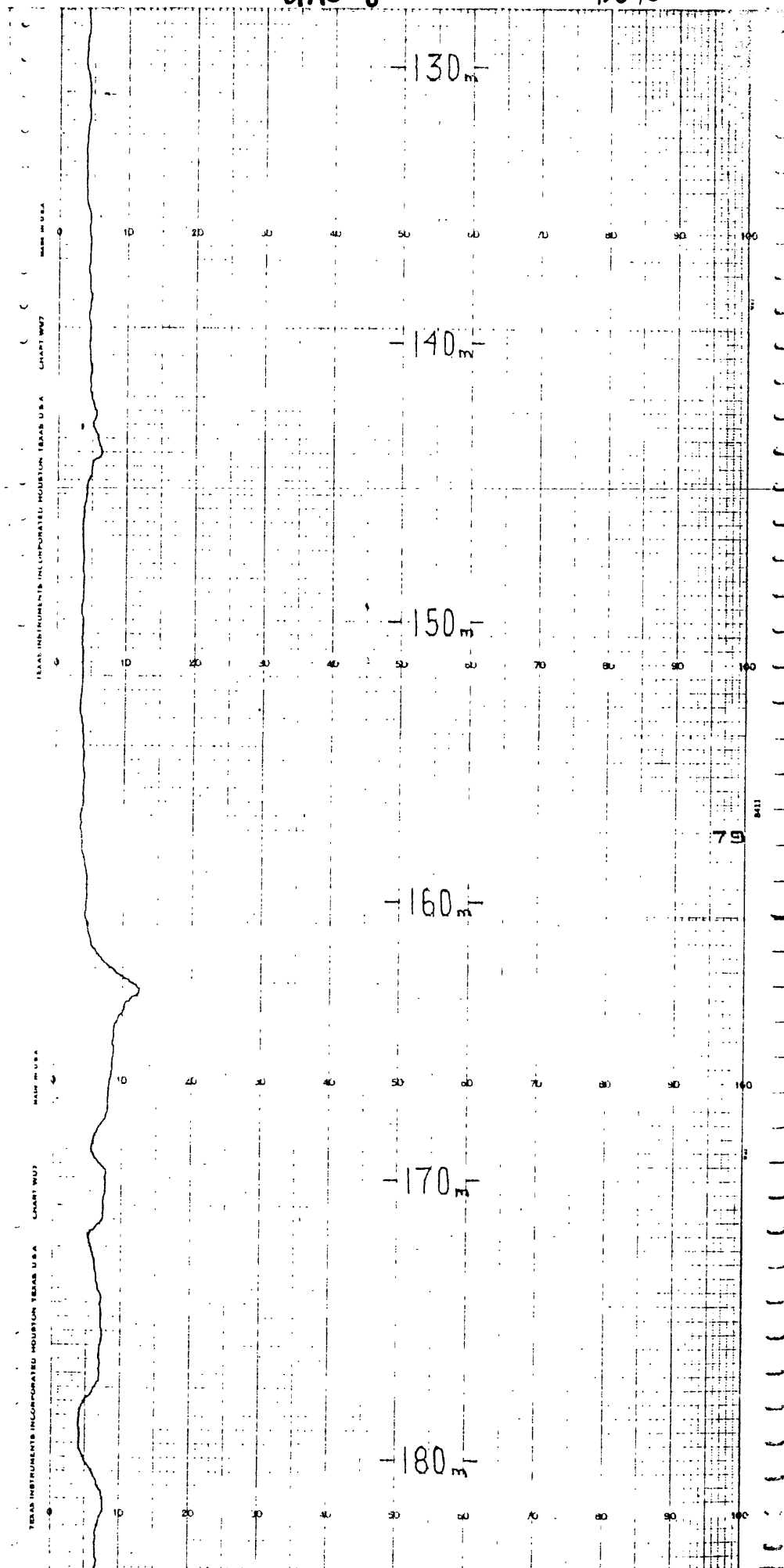
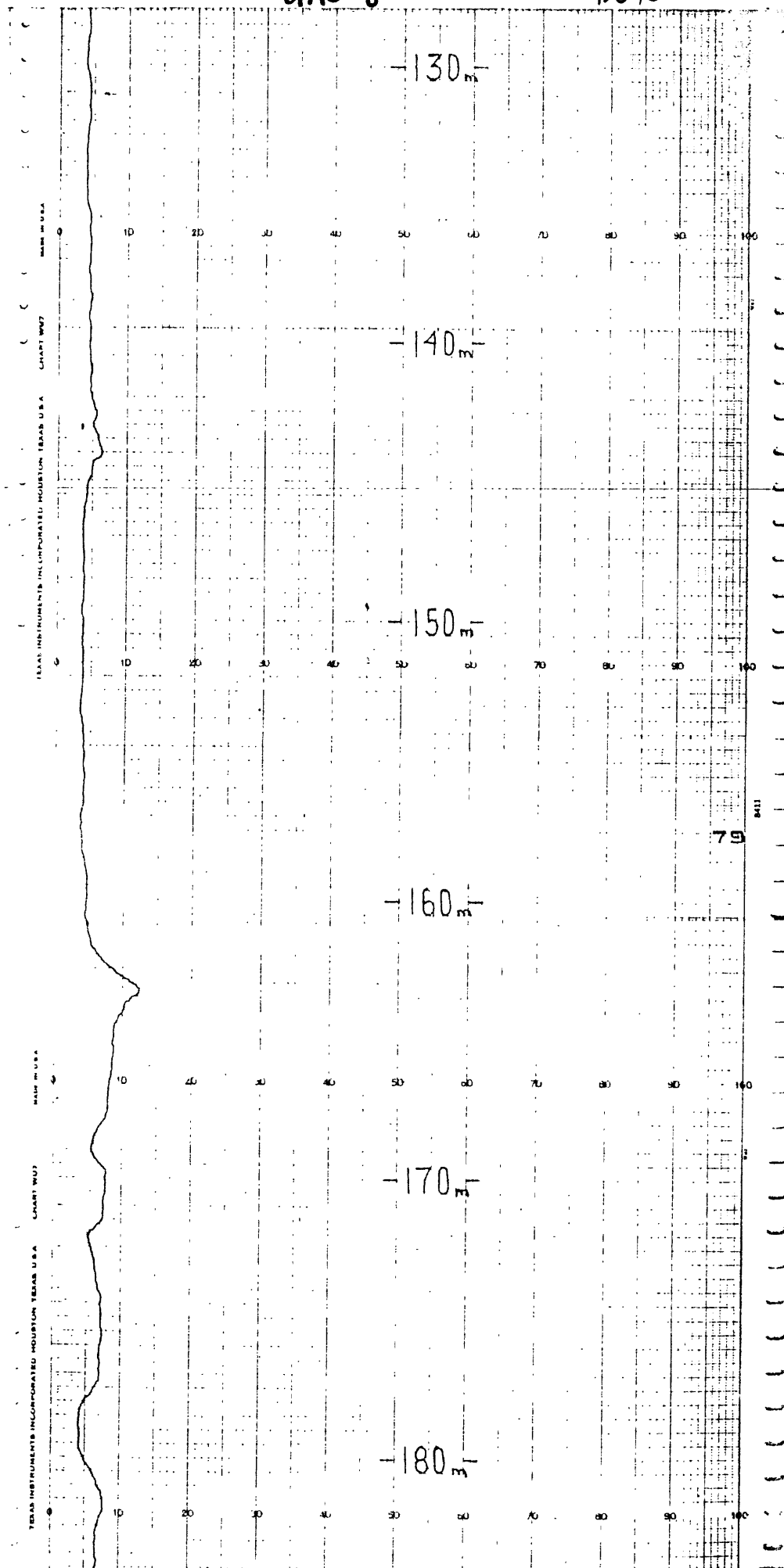
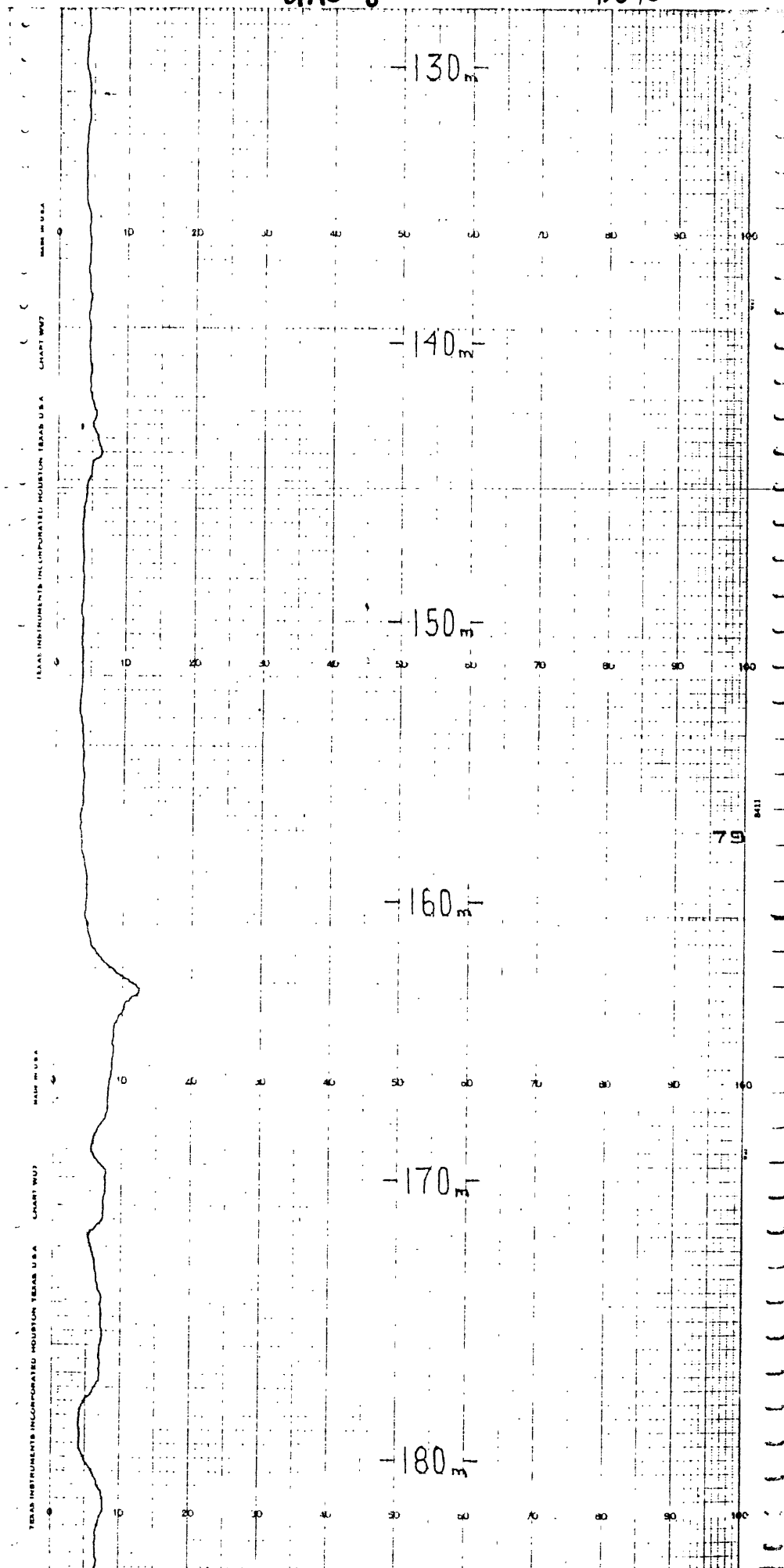
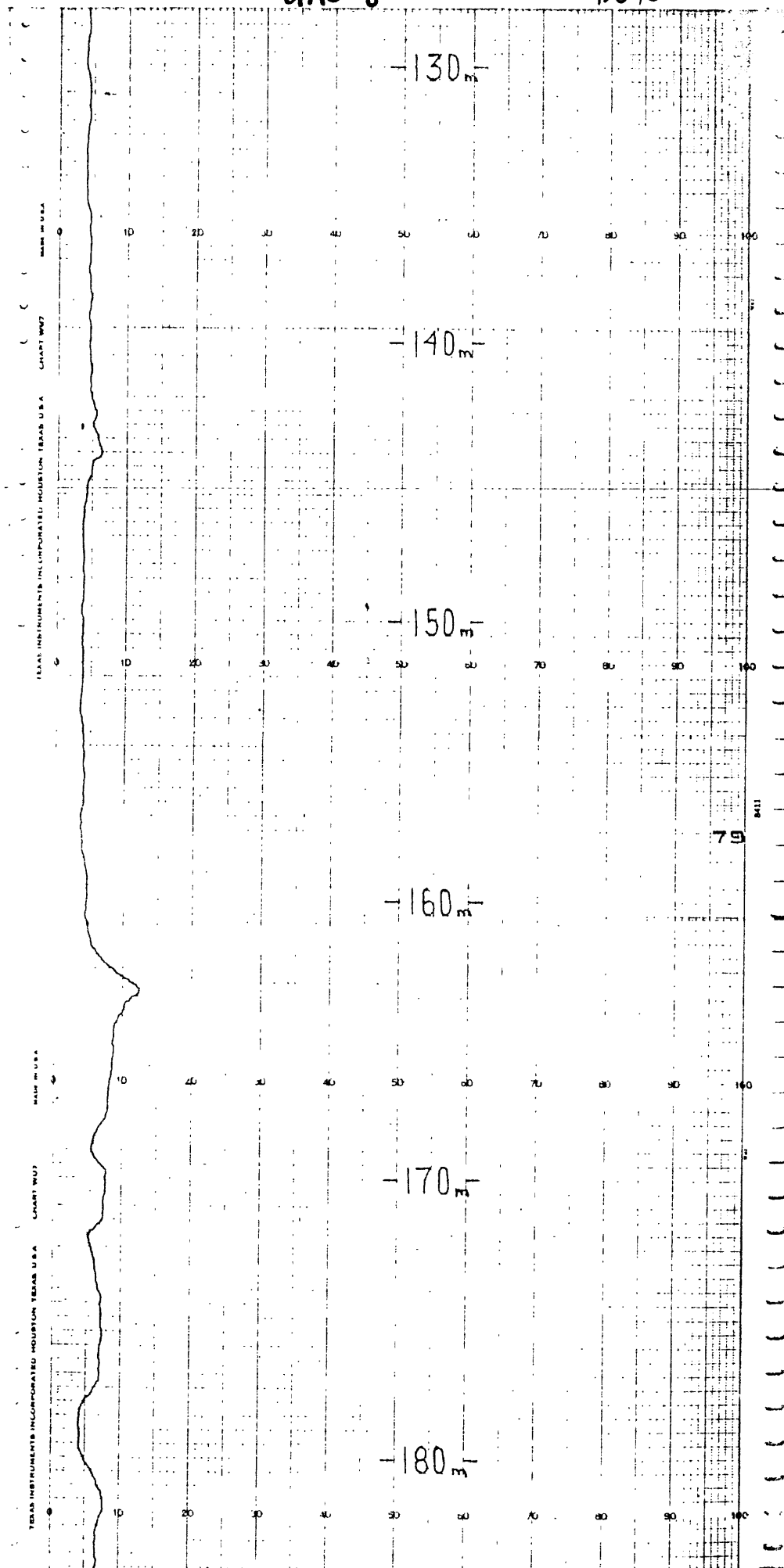
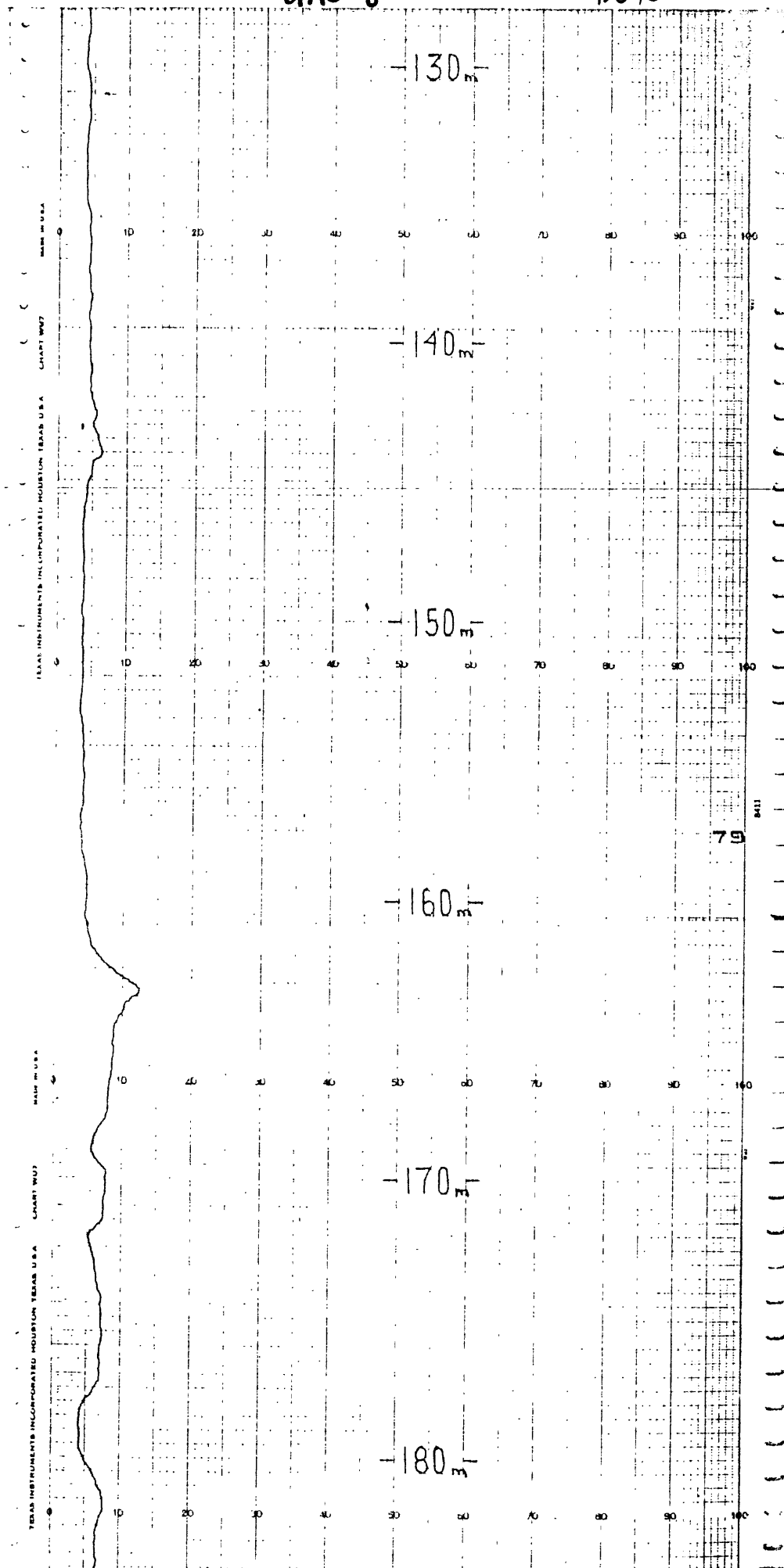
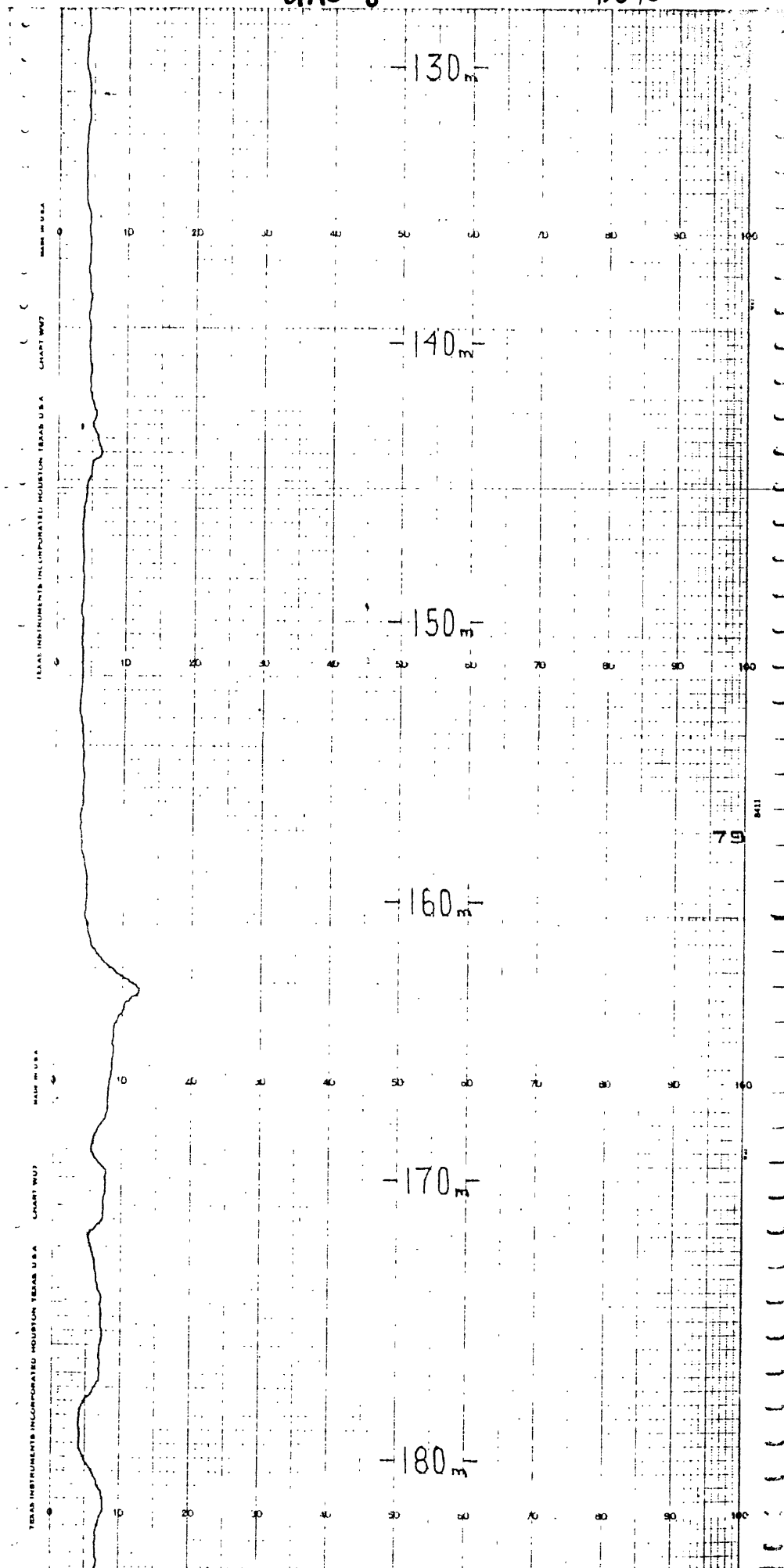






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**FROM THE**

CHART WWT

EALB INSTRUMENTS INCORPORATED HOLSTON TEXAS U S A

7 9 0 34 6778

CHAM: WO?

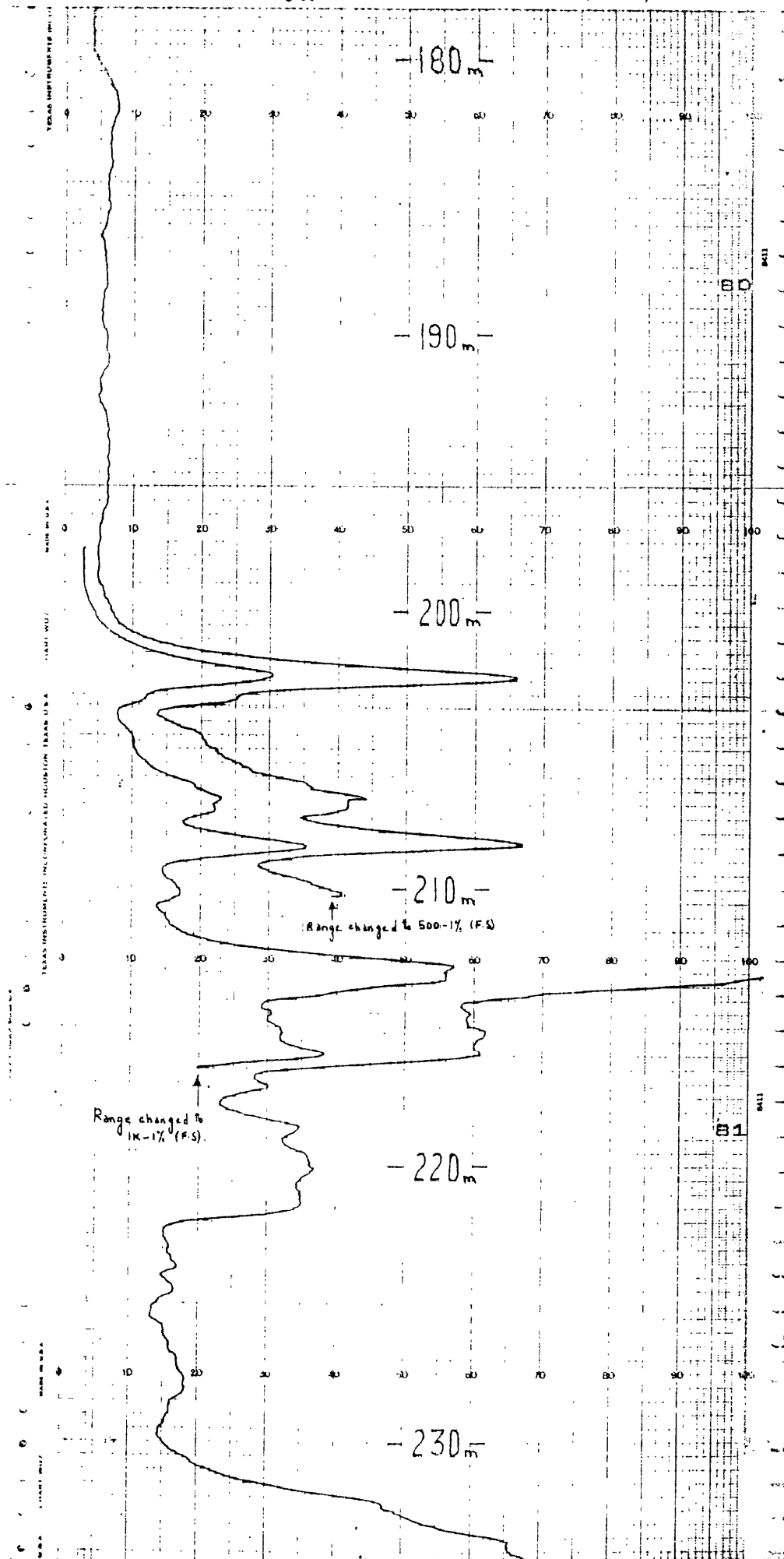
1000

75

45

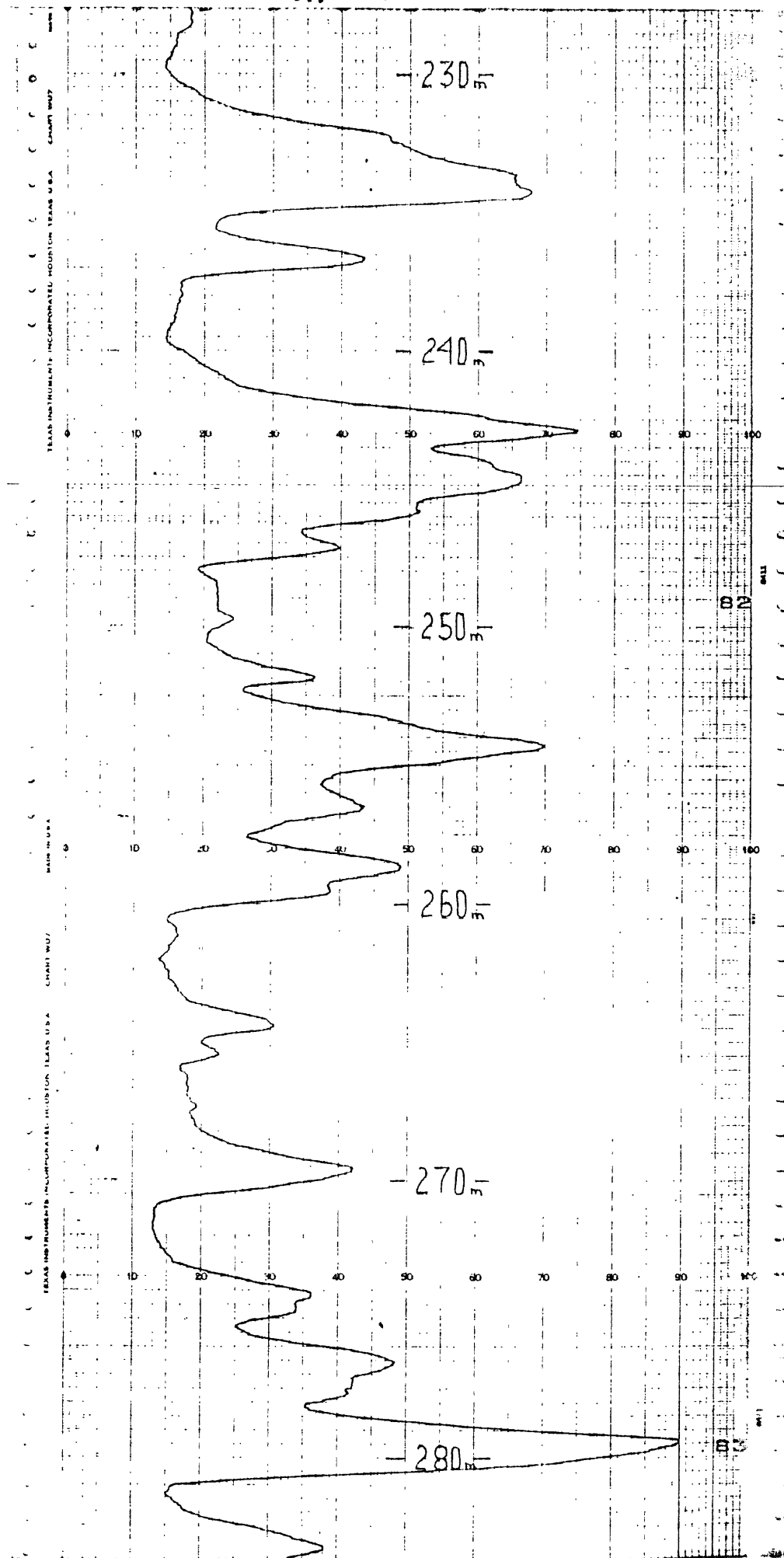
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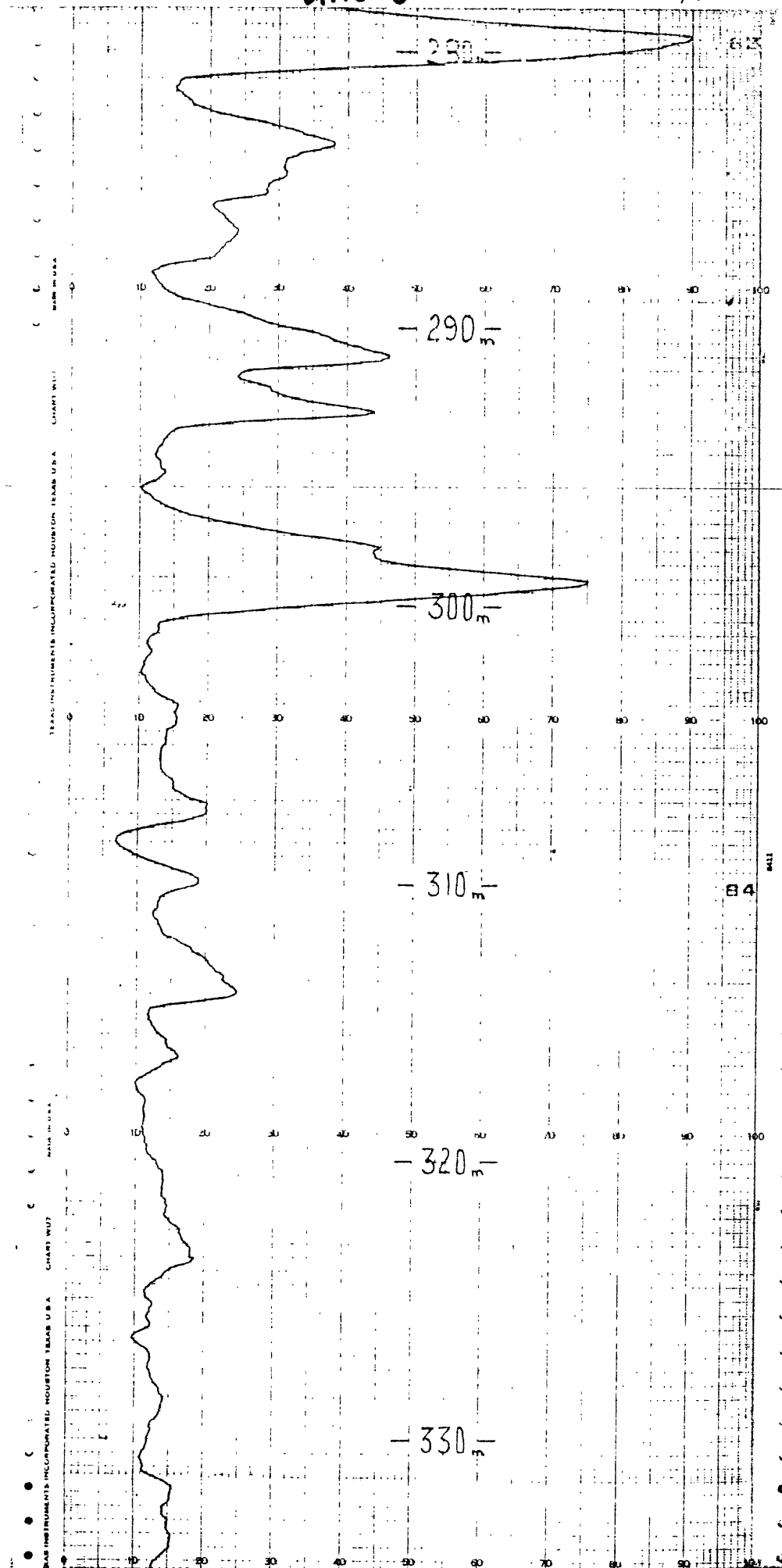
UAS-8

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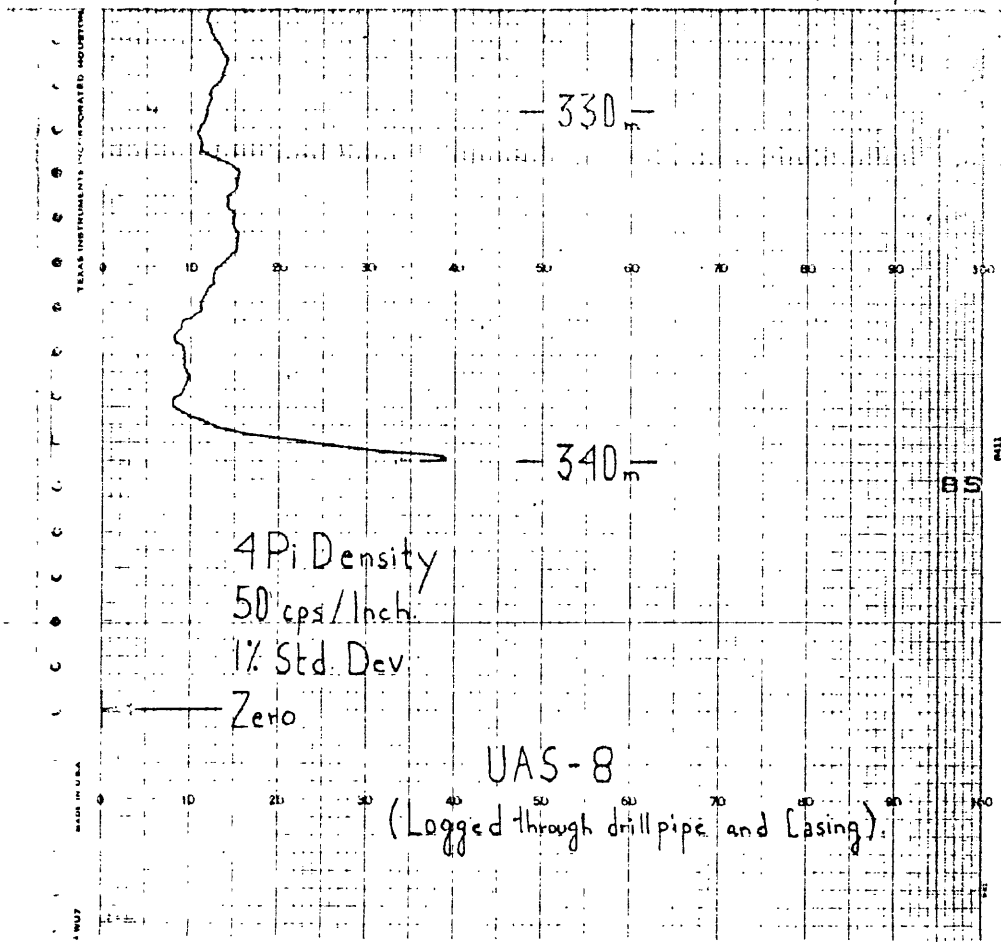
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# GEOSCIENCE ASSOCIATES

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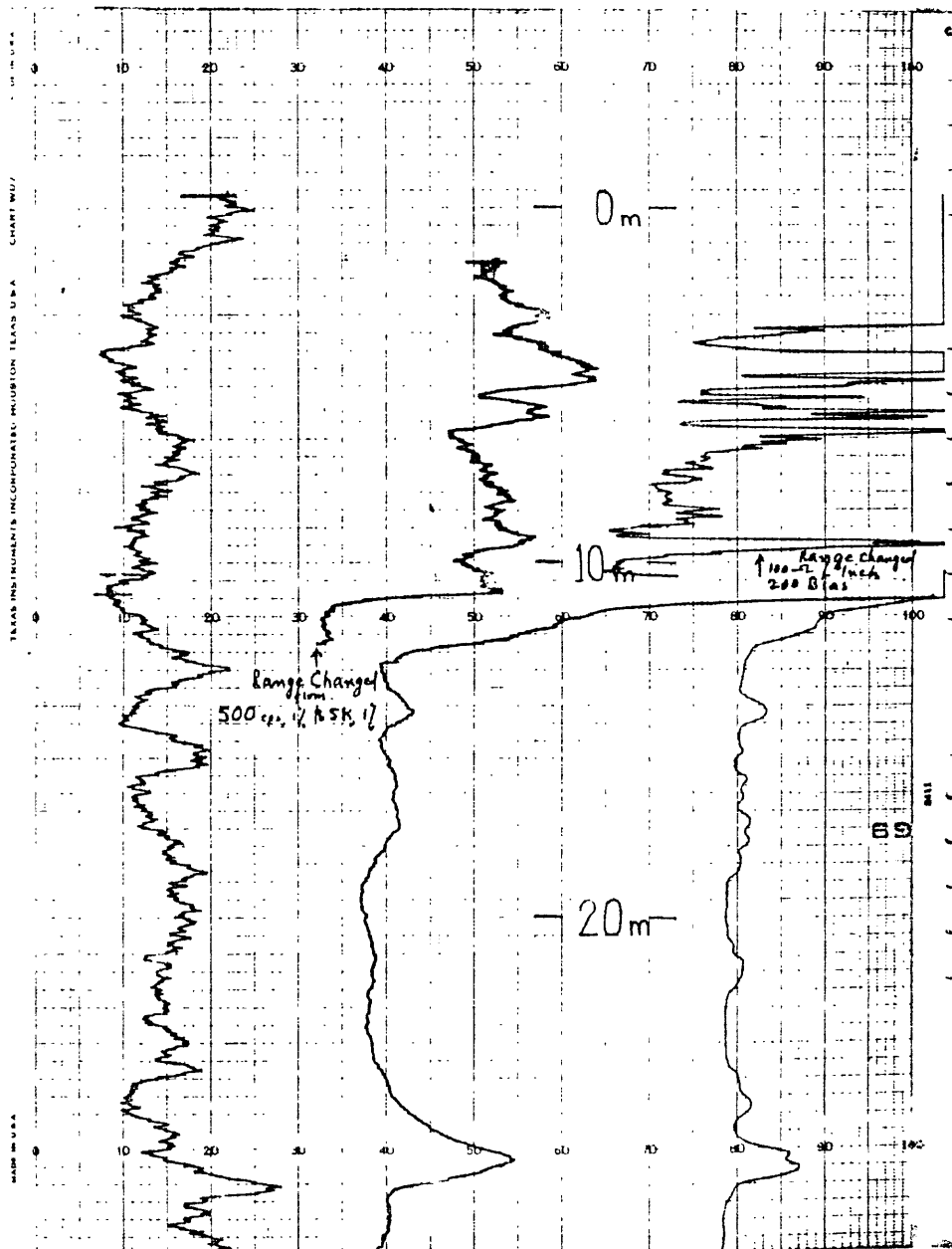
HOLE NUMBER:

UAS-8

DATE:

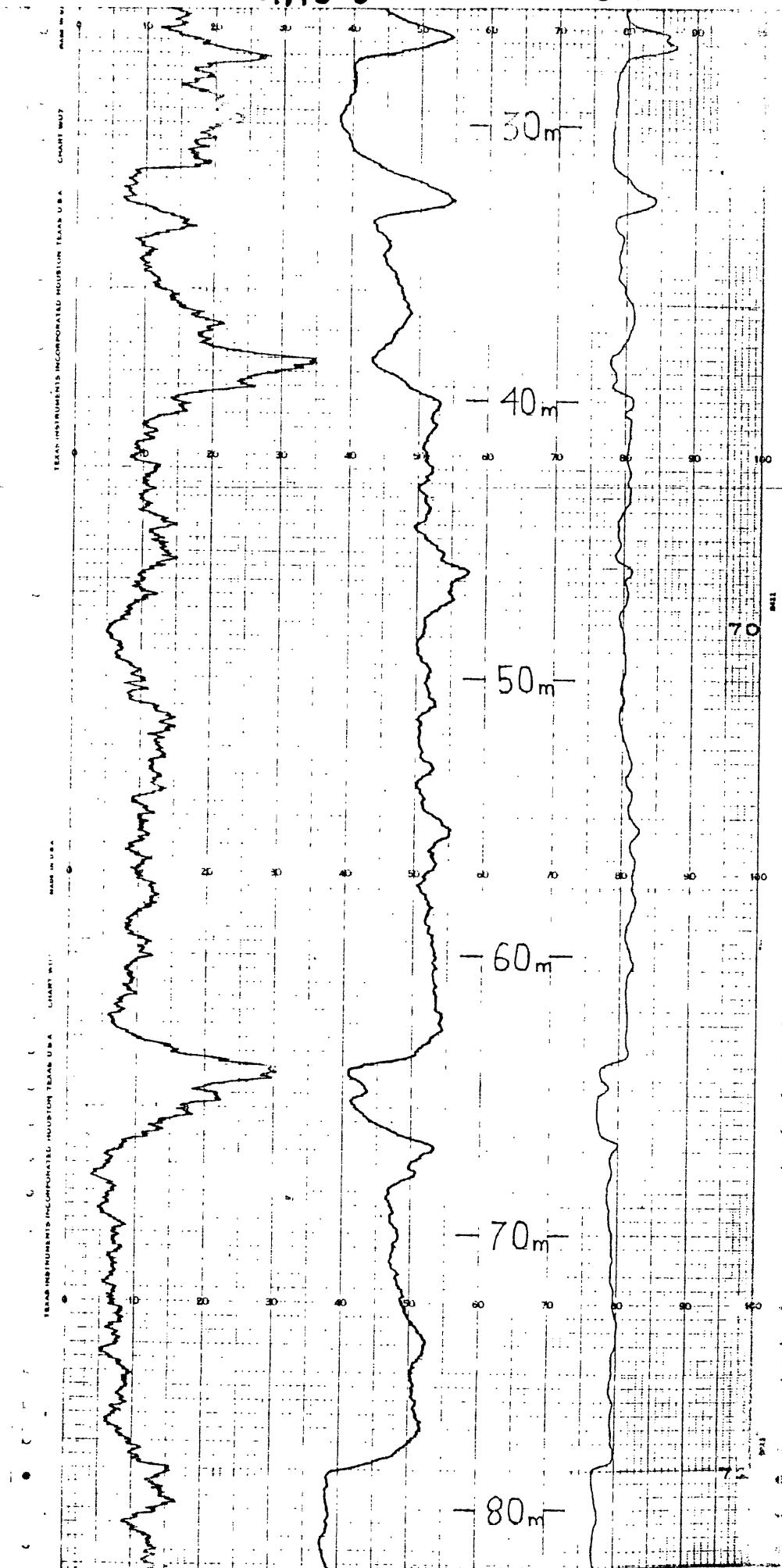
18 JANUARY, 1967

LOCATION			HOLE		CLIENT				
STATE/COUNTRY	SINDH PAKISTAN		DEPTH DRILLED:	347.45 m		CLIENT	S.S. - G.S.P.		
REGION	Sindh		DEPTH LOGGED:	101m		GEOLOGIST			
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	MUJIB/MENTAL		
PROSPECT			DIA	Sec	FROM TO	UNIT NO	PL-1 OFFICE		
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER	COLORADO U.S.A.		
			DIA	103	FROM TO	ELECTRIC			
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.	
LOGGED DEPTH	99m	101m	FLUID LEVEL	12.8m		LOGGED DEPTH	99 mPT	FT	
RANGE (I.S.)	100	500	CASING DATA			SCALE	10	2	
%STD DEV	10%	1%	WALL SIZE			PAPER SPEED	1-1	2	
PAPER SPEED	1-1	1-1	I.D.			LOG SPEED	6-1	2	
LOG SPEED	6-1	6-1	CASED FROM	TO		FINE ADJ	1000 8	25	
BKGD. COUNT			CASING TYPE						
PROBE NO	6N-1	6N-1	SAMPLE DATA						
SIZE (dia)	1 3/8"	1 3/8"	NON-CORED HOLE	<input type="checkbox"/>		CORED HOLE <input checked="" type="checkbox"/>			
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE					
DEAD TIME	2	2	REMARKS			LOGGED DEPTH			FT.
STANDARD			Open Hole			SCALE			2
DIGITAL DATA						PAPER SPEED			2
PRINT INTERVAL						LOG SPEED			2
TIMEBASE						ARM LENGTH			IN
DENSITY CALIBRATION						MAX DEF.			IN
ALUMINUM						VERTICAL DEV.			
LUCITE						DEPTH			
						INCLIN			
						BEARING			



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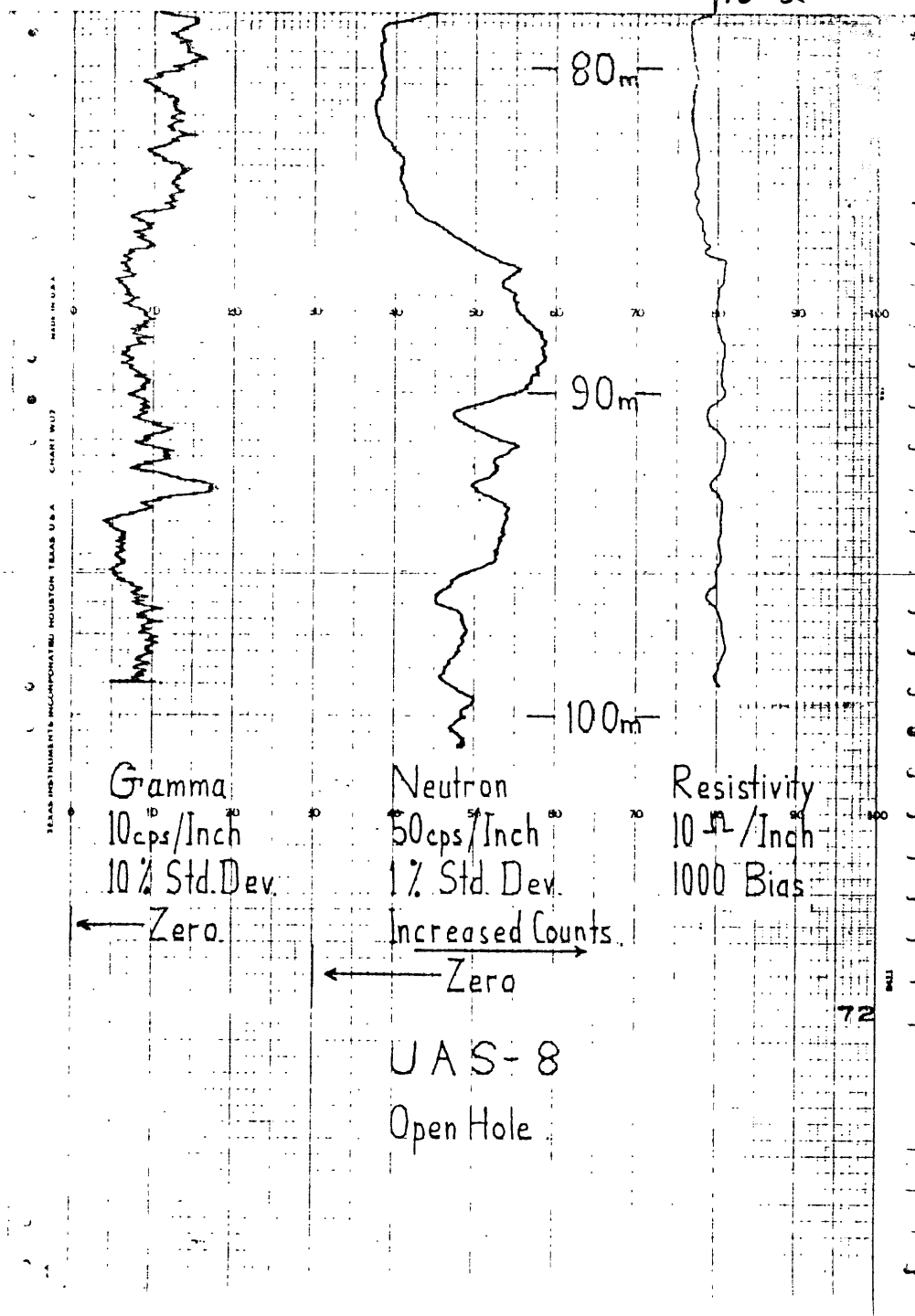
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# GEOSCIENCE ASSOCIATES

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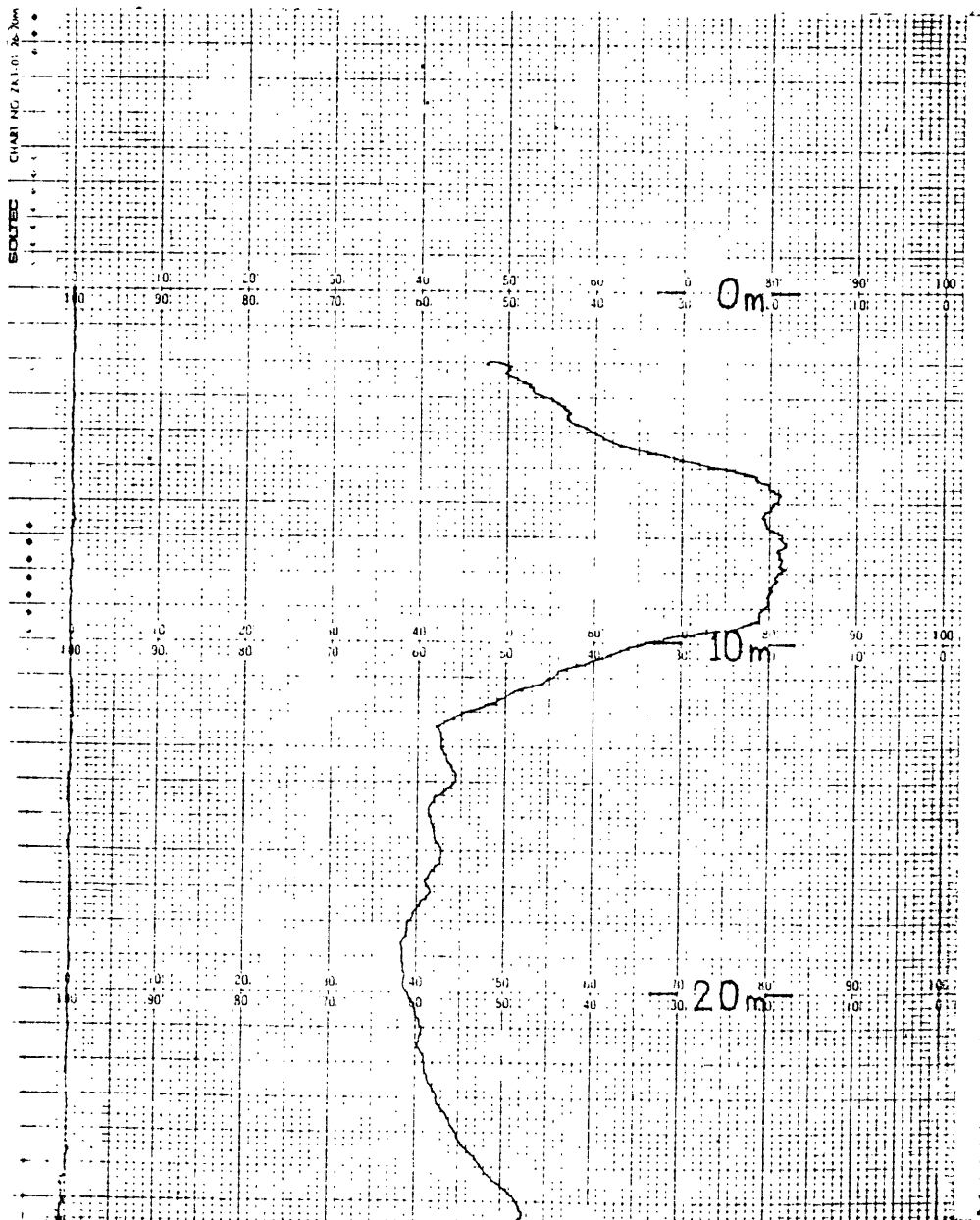
HOLE NUMBER:

IAS-8

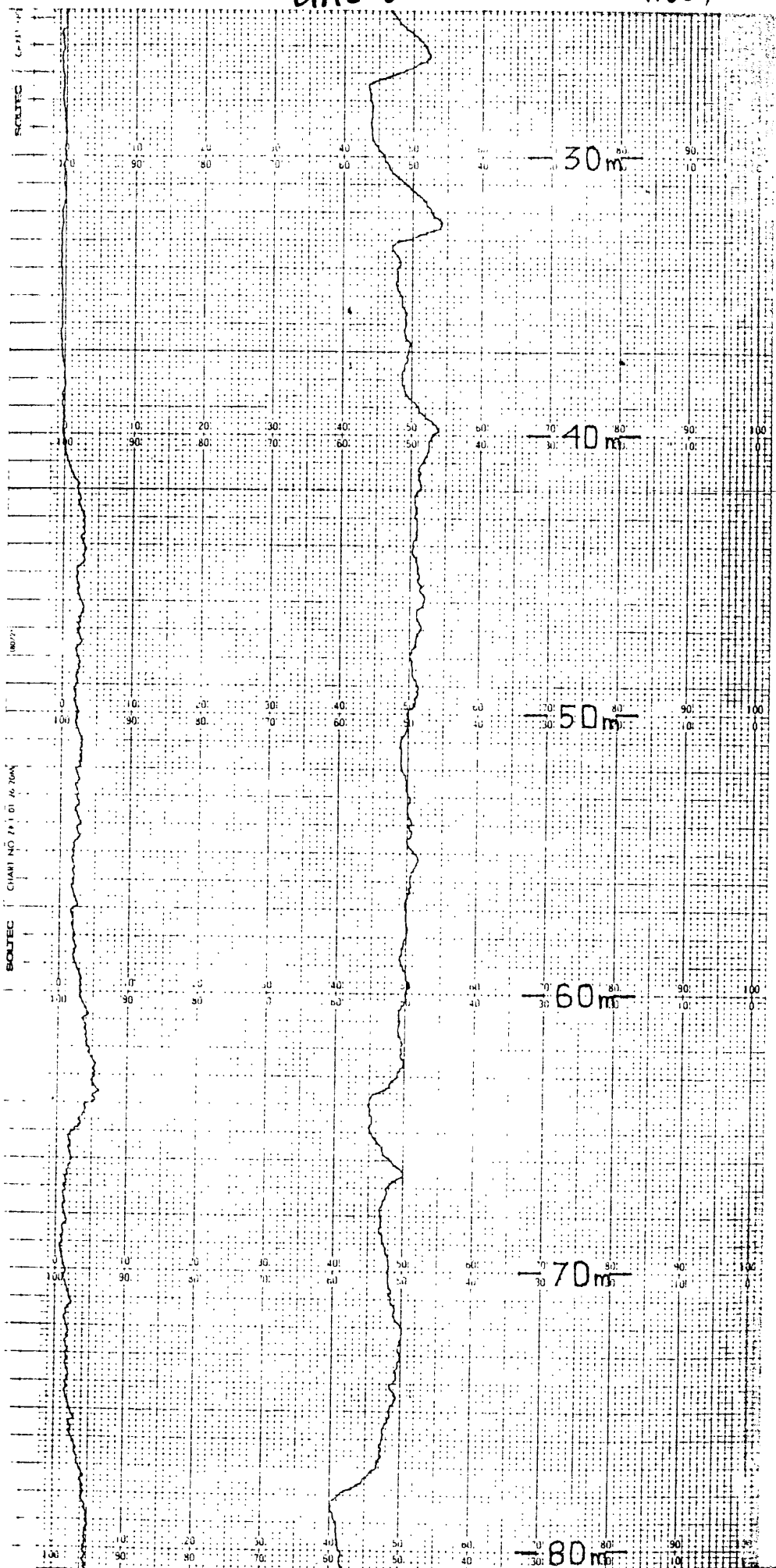
DATE:

15th January 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sindh Pakistan		DEPTH DRILLED	547.45m		CLIENT	U.S.S. - G.S.P.	
REGION	Sonda		DEPTH LOGGED	340m		GEOLOGIST		
PROJECT	COAL REAP.		COLLAR ELEV			UNIT OPERATOR	MUJIB/MENTAR	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2	OFFICE
SEC	TWP	RNG.	DIA	Caliper	FROM TO	BOULDER	COLLRADO	U.S.A.
			DIA	log	FROM TO	ELECTRIC		
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	SP
LOGGED DEPTH	338m	340m	FLUID LEVEL			LOGGED DEPTH	FT	FT
RANGE (ft)	100	500	CASING DATA			SCALE		
STD DEV	3	12	WALL SIZE	1/4"		PAPER SPEED		
PAPER SPEED	1-1	1-1	IO NW	3" HW=4"		LOG SPED		
LOG SPEED	6-1	6-1	CASED FROM	See Remarks TO		FINE ADJ		
BKGD. COUNT			CASING TYPE	HW and NW		CALIPER		
PROBE NO.	GN-1	GN-1	SAMPLE DATA			LOGGED DEPTH	FT	
SIZE (dia.)	1 3/8"	1 3/8"	NON-CORED HOLE	CORED HOLE		SCALE		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		PAPER SPEED		
DEAD TIME	2	2				LOG SPEED		
STANDARD						ARM LENGTH		
DIGITAL DATA			REMARKS			MAX DEF		
PRINT INTERVAL			HW casing = 0-122.64m			VERTICAL DEV.		
TIMEBASE			NW casing = 0-202.36m			DEPTH		
			Drill pipe 1-0 = 1 3/8"			INCLIN		
DENSITY CALIBRATION			D.D = 2.5/g			BEARING		
ALUMINUM			Logged through drill pipe and casing					
LUCITE								

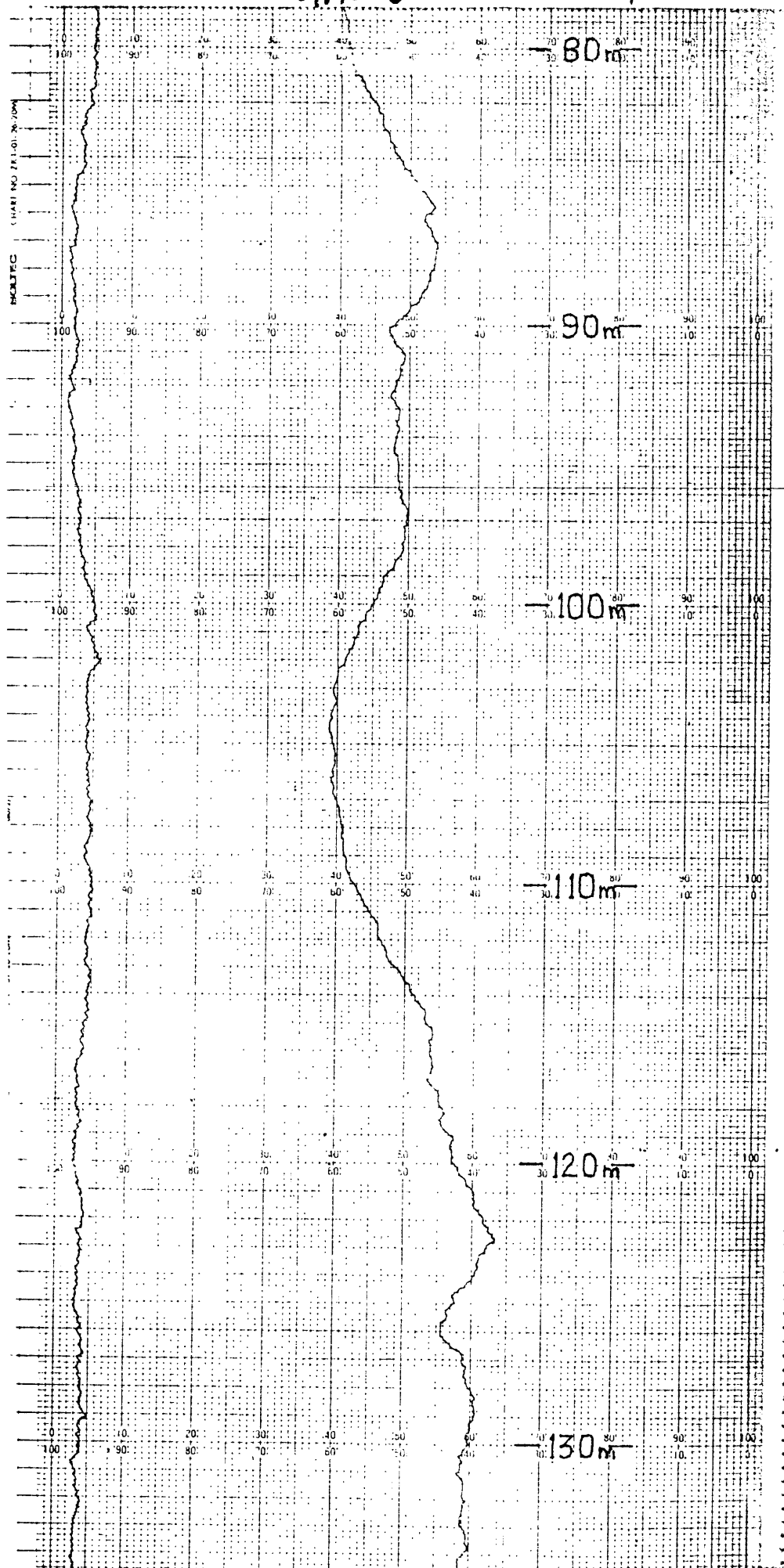


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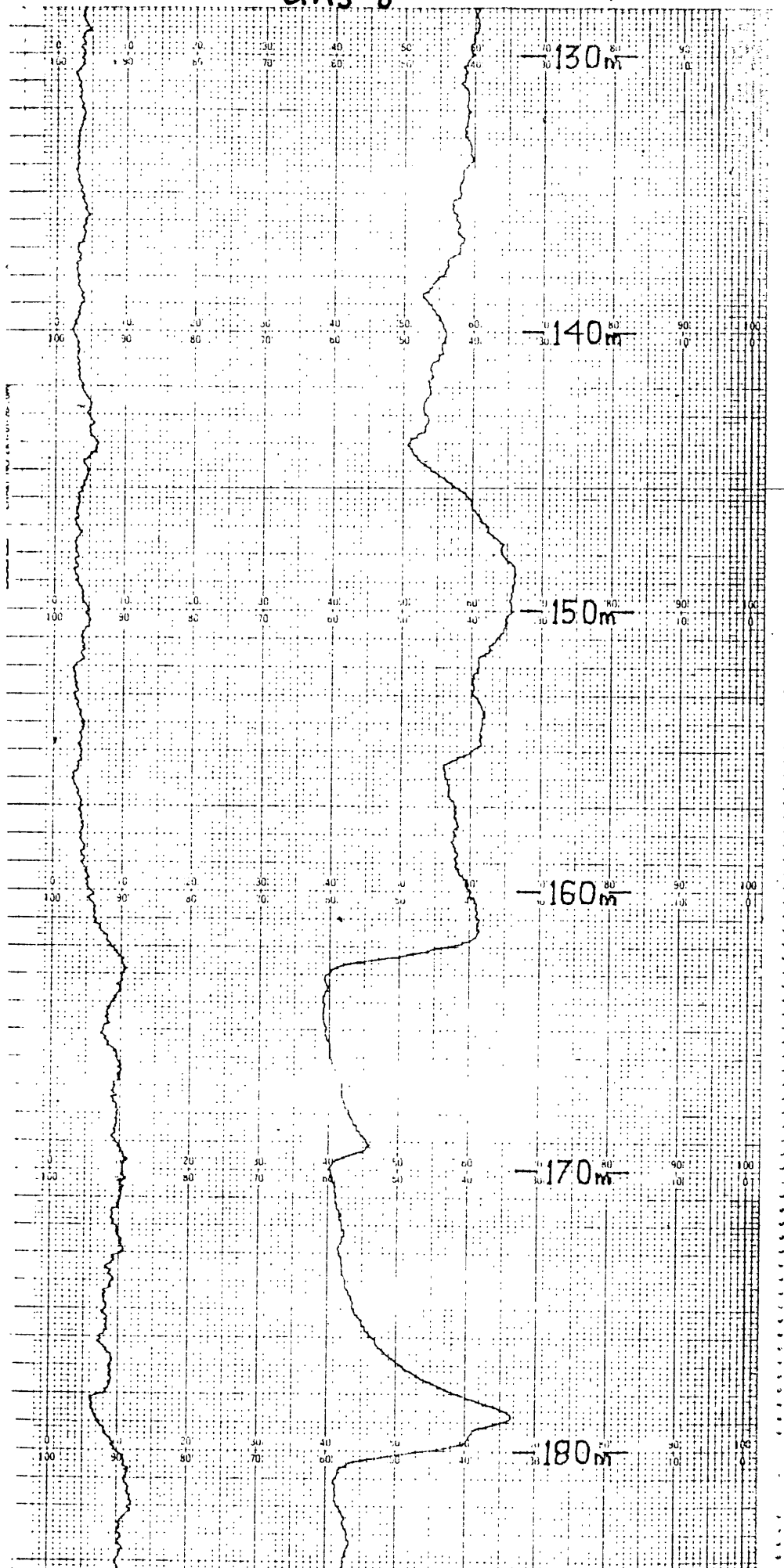
UAS-8

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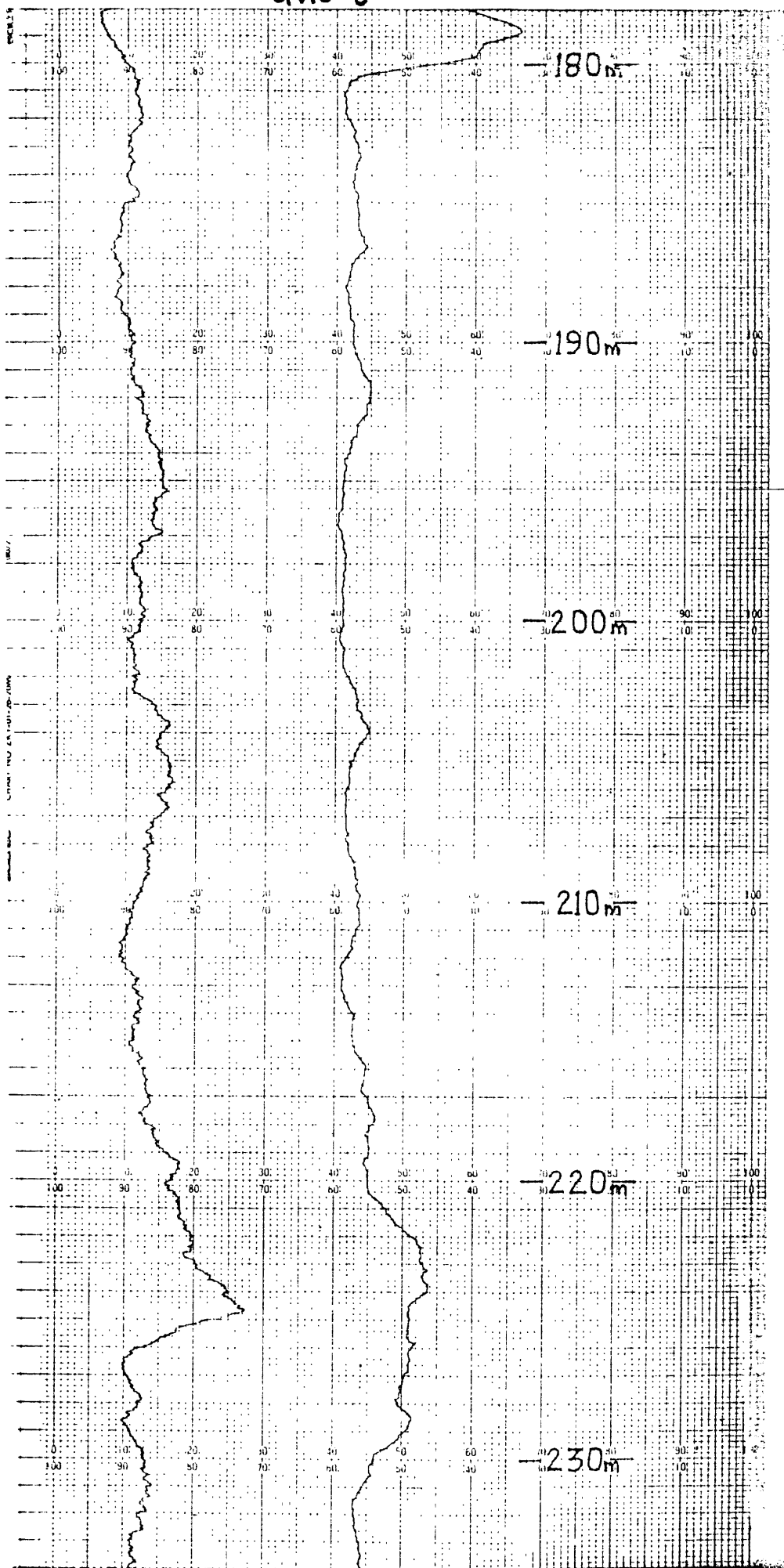
UAS-8

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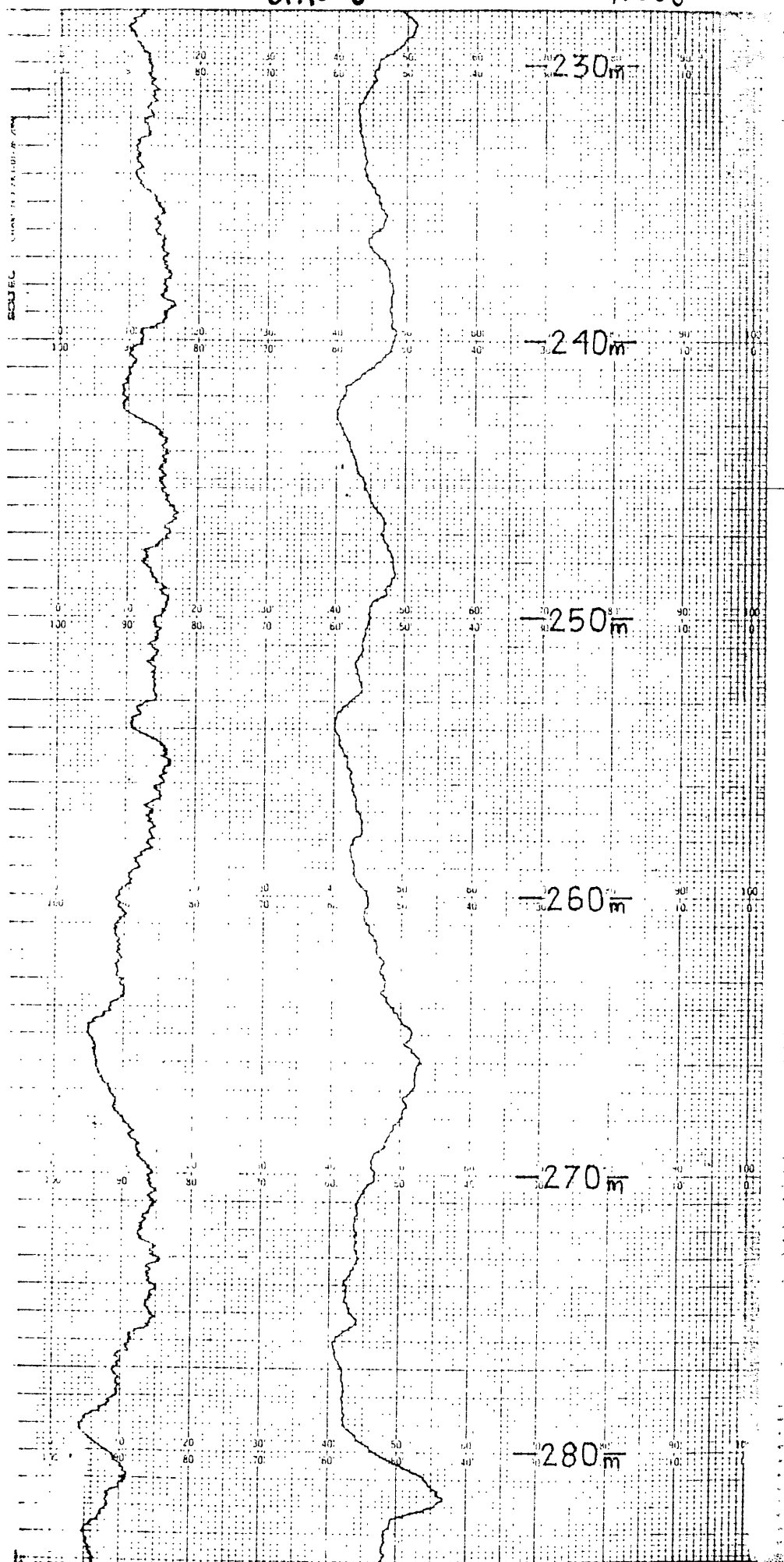


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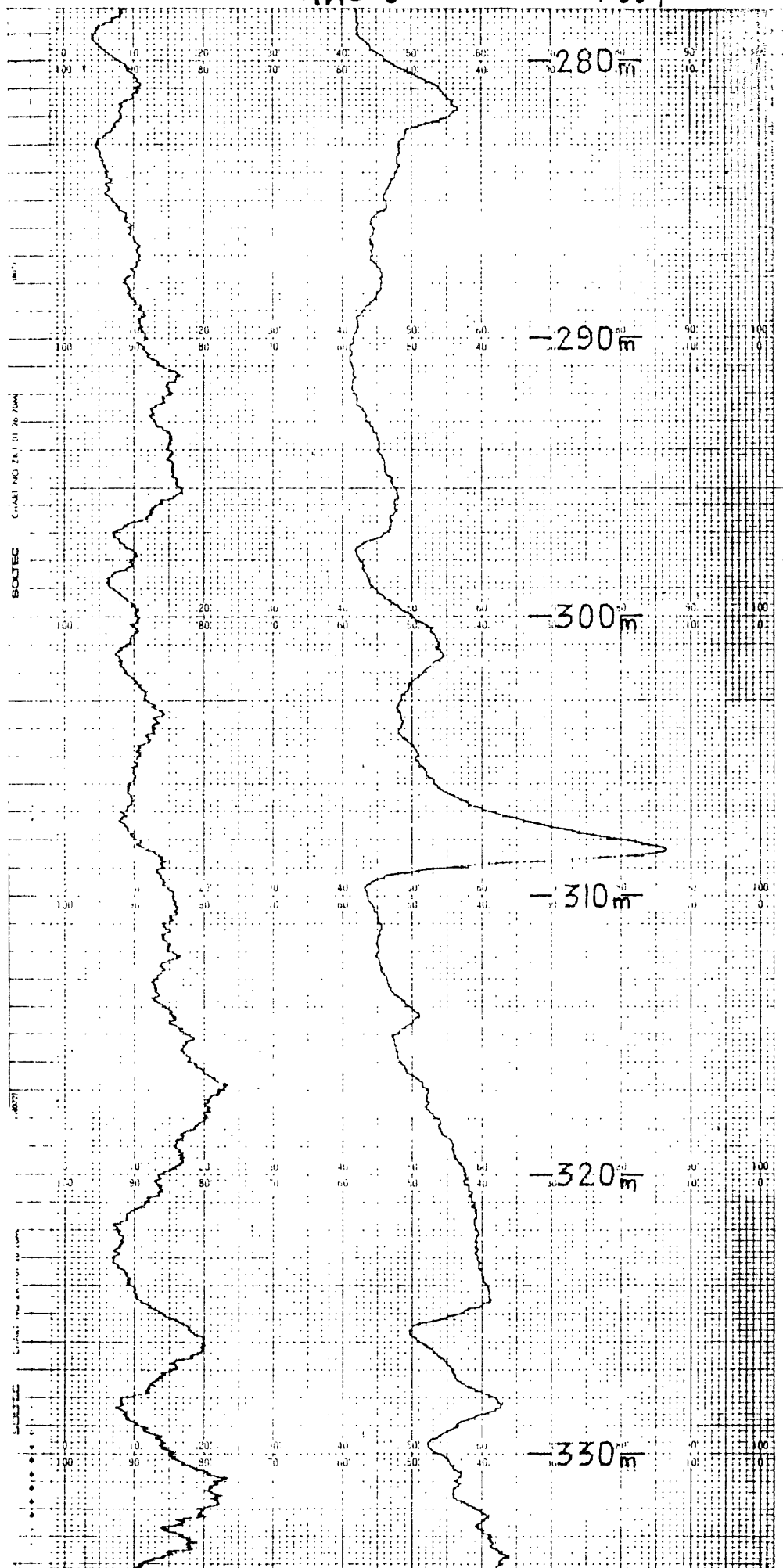
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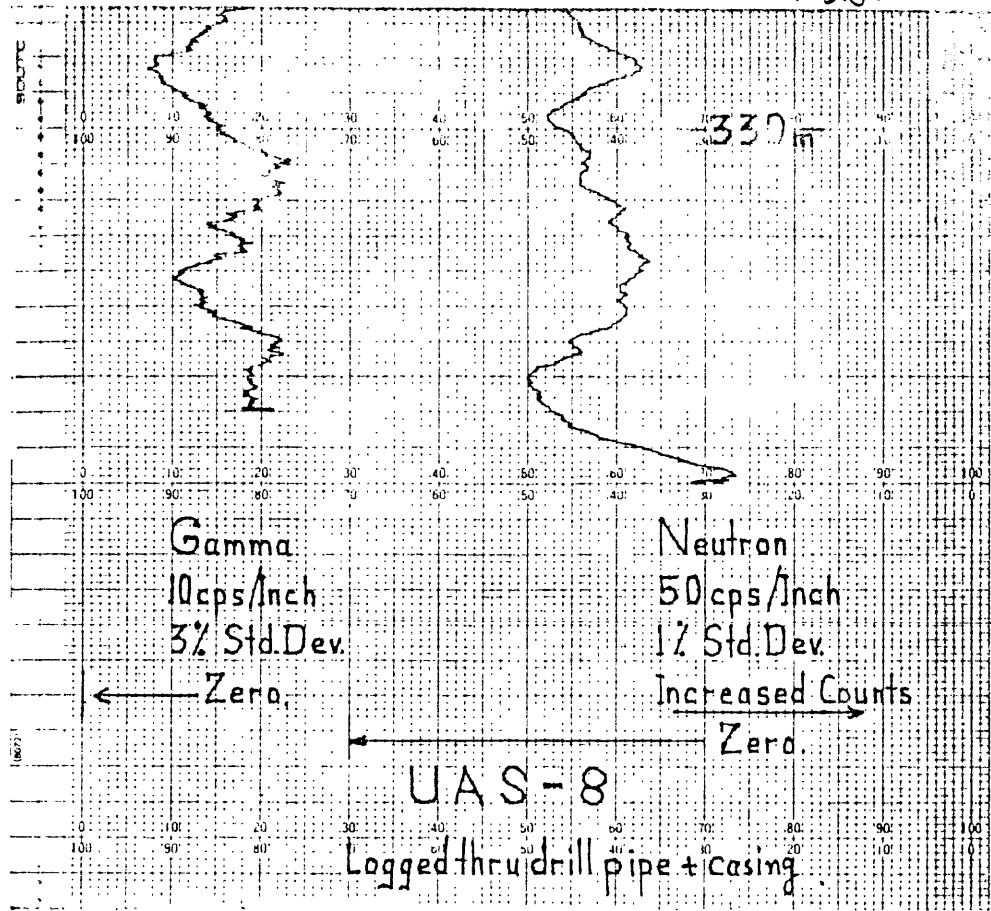
B359



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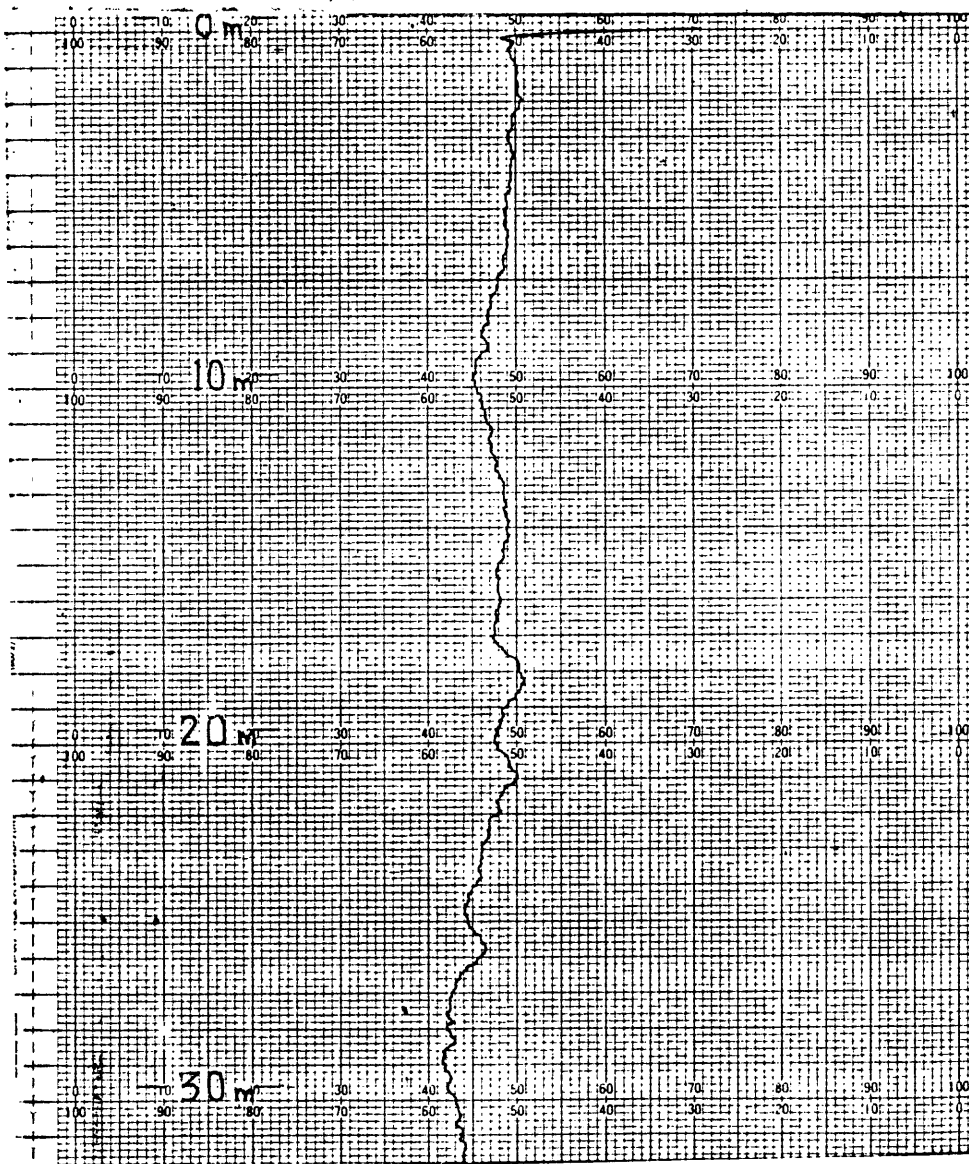
P360





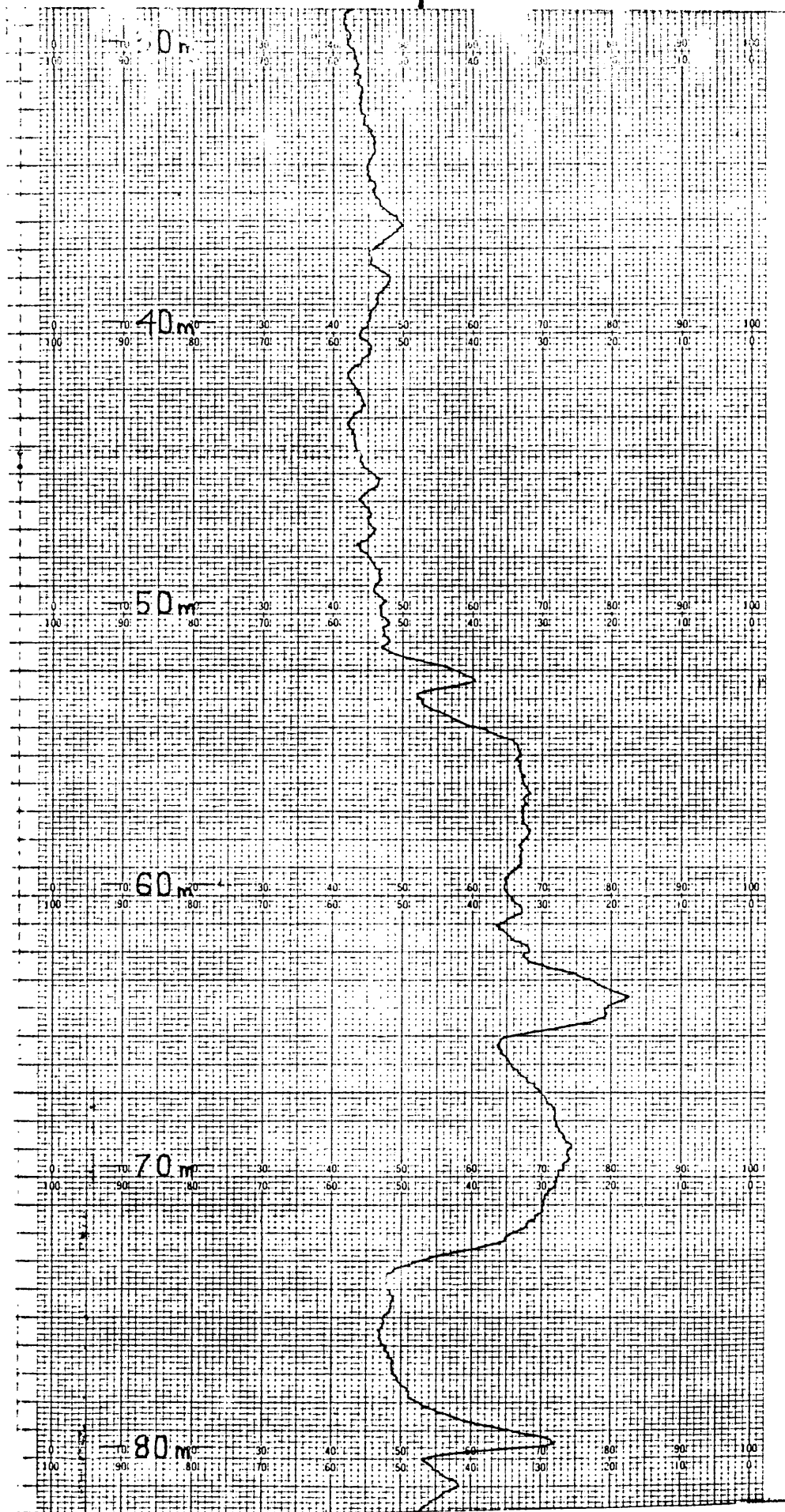
DRILL HOLE UAS-9

STATE/COUNTRY			LOCALITY			CLIENT		
REGION			PROJECT			CLIENT GSP - USGS - USAID		
PROSPECT			DEPTH LOGGED			GEOLOGIST		
SEC.			COLLAR ELEV			UNIT OPERATOR		
TWP			DIA. FROM TO			UNIT NO. PL-2 OFFICE		
RNG			DIA. FROM TO			BOUNDER COLORED USA		
TYPE			BOREHOLE MEDIUM			ELECTRIC		
LOGGED DEPTH			FLUID LEVEL			TYPE		
RANGE (I.S.)			CASING DATA			LOGGED DEPTH		
%STD DEV			WALL SIZE			RESIST		
PAPER SPEED			I.D.			FT		
LOG SPEED			CASED FROM			SCALE		
BKGND. COUNT			CASING TYPE			PAPER SPEED		
PROBE NO.			NON-CORED HOLE			LOG SPEED		
SIZE (dia.)			SAMPLED INTERVAL			FINE ADJ.		
K-FACTOR			SAMPLE TYPE			CALIPER		
DEAD TIME			REMARKS			LOGGED DEPTH		
STANDARD			Logged through Drill Pipes			SCALE		
DIGITAL DATA			and Casing			PAPER SPEED		
PRINT INTERVAL						LOG SPEED		
INCREASE						ARM LENGTH		
DENSITY CALIBRATION						MAX DEF.		
ALUMINUM						VERTICAL DEV.		
LUCITE						DEPTH		
						INCLIN.		
						BEARING		



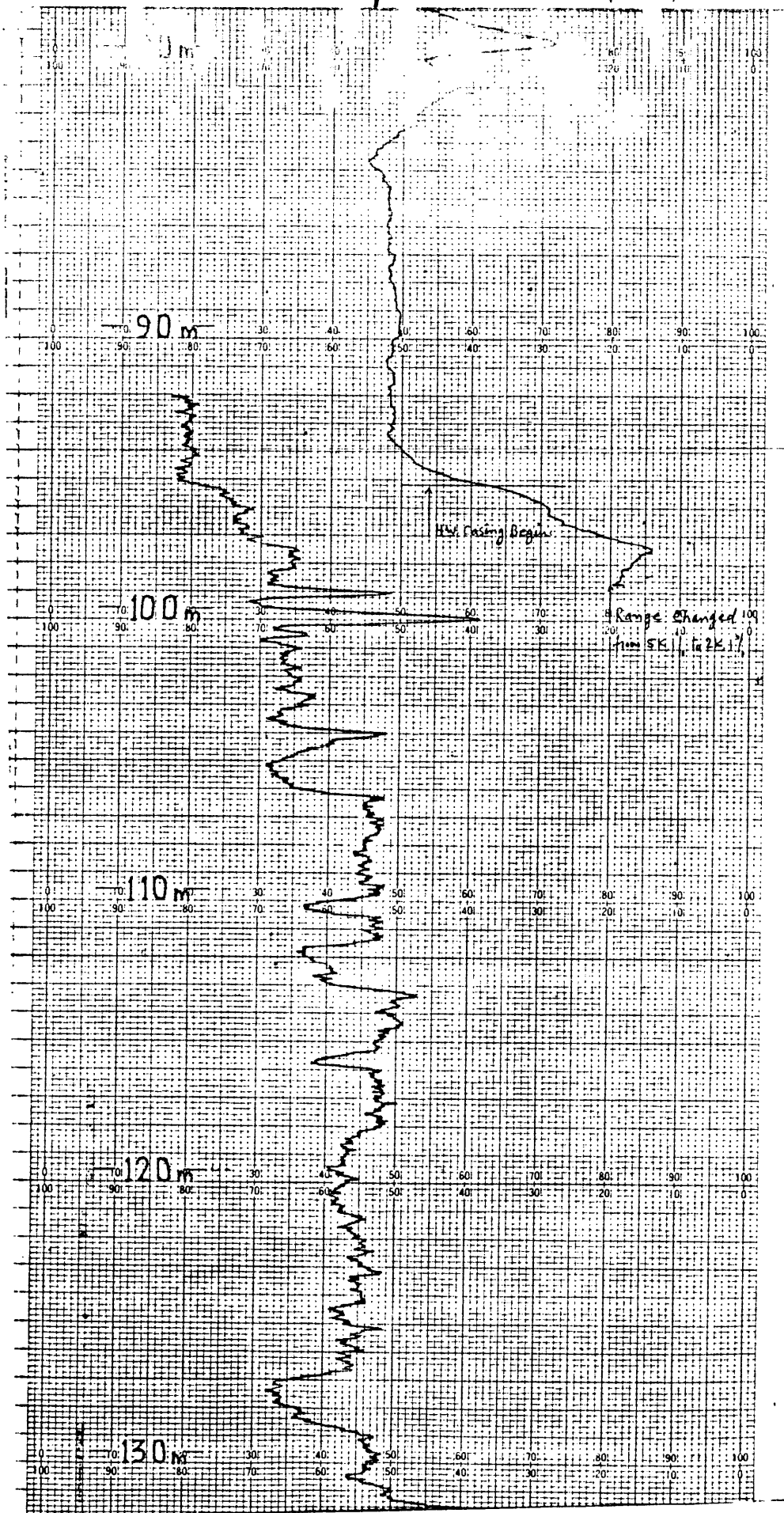
UAS-9

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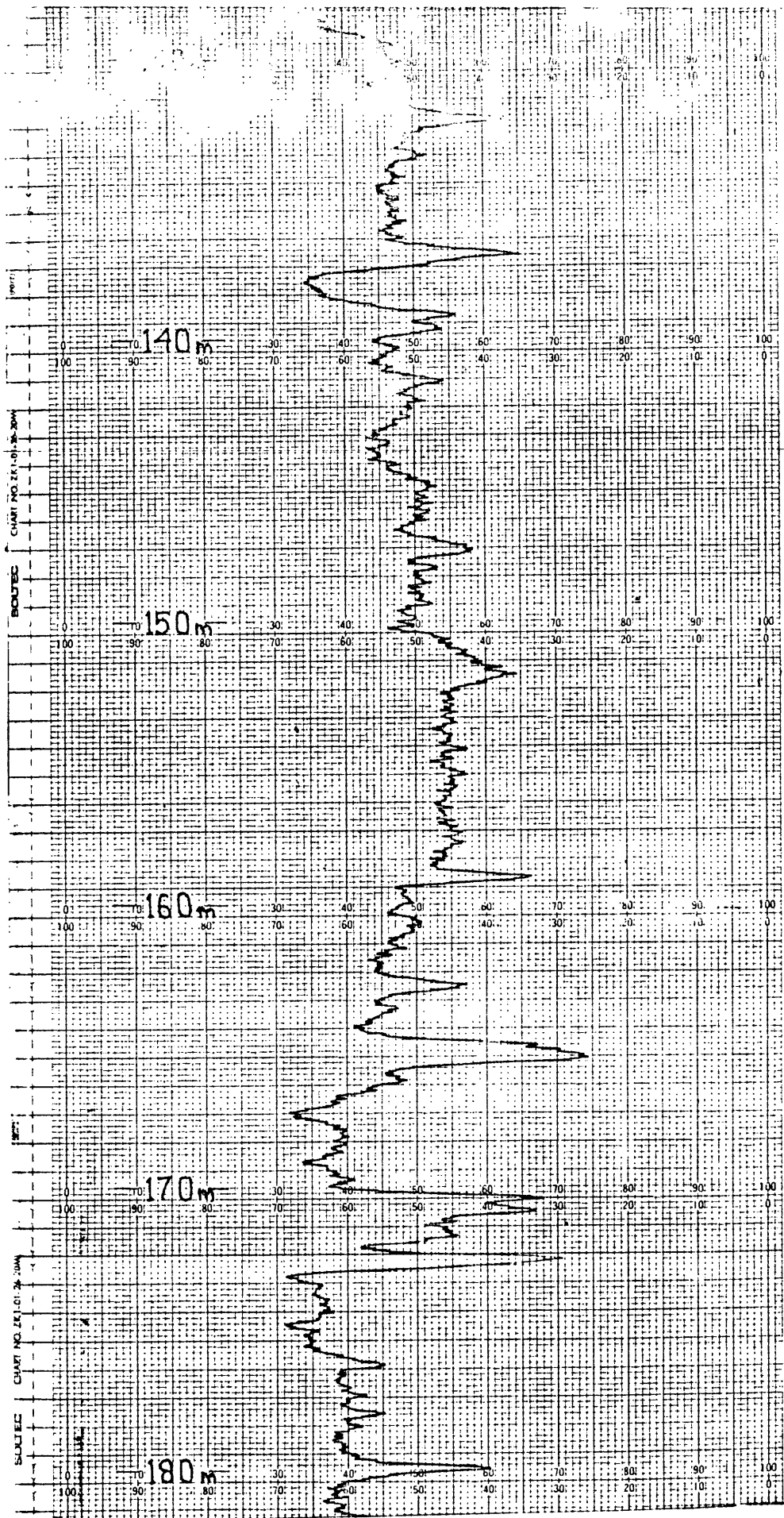


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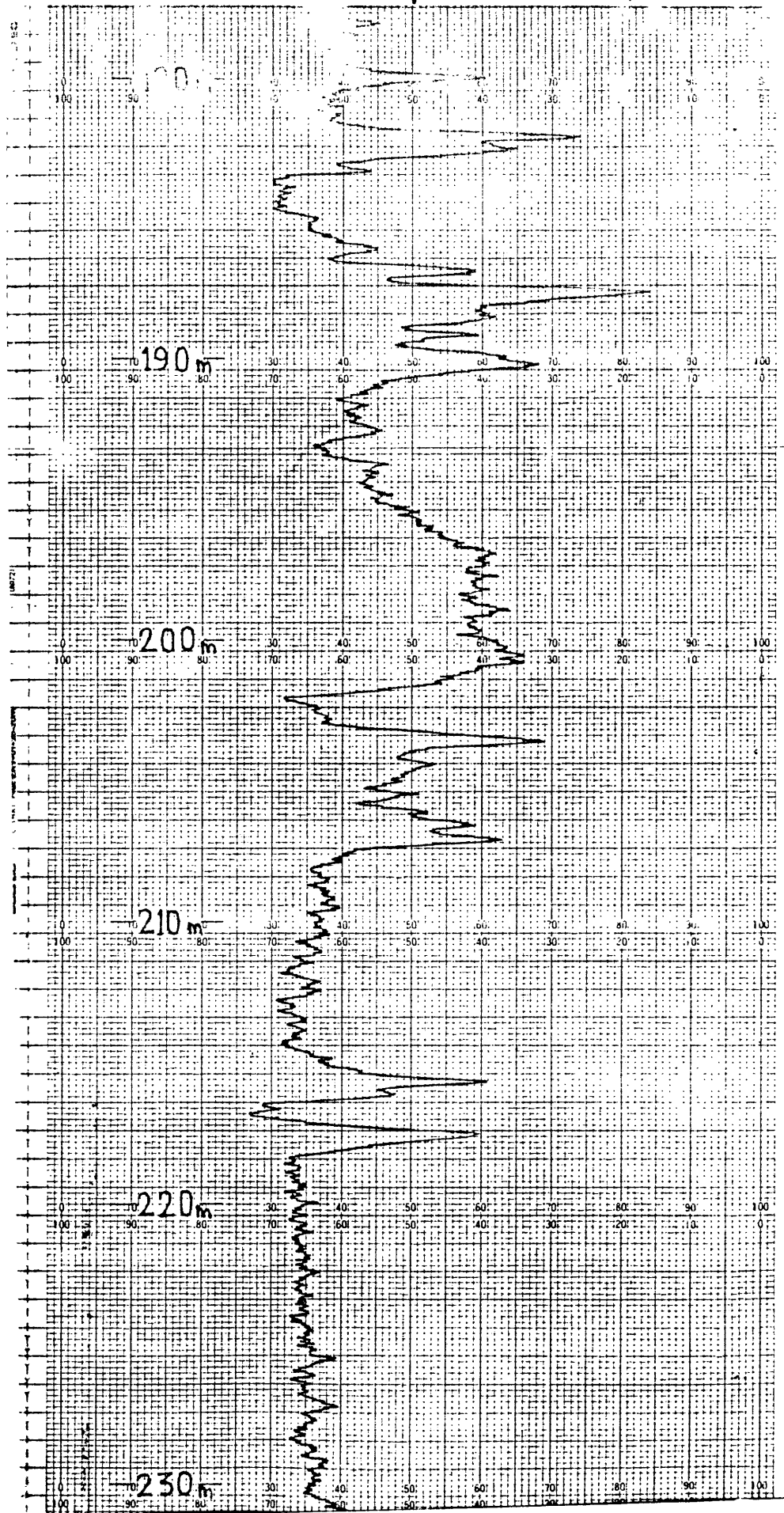


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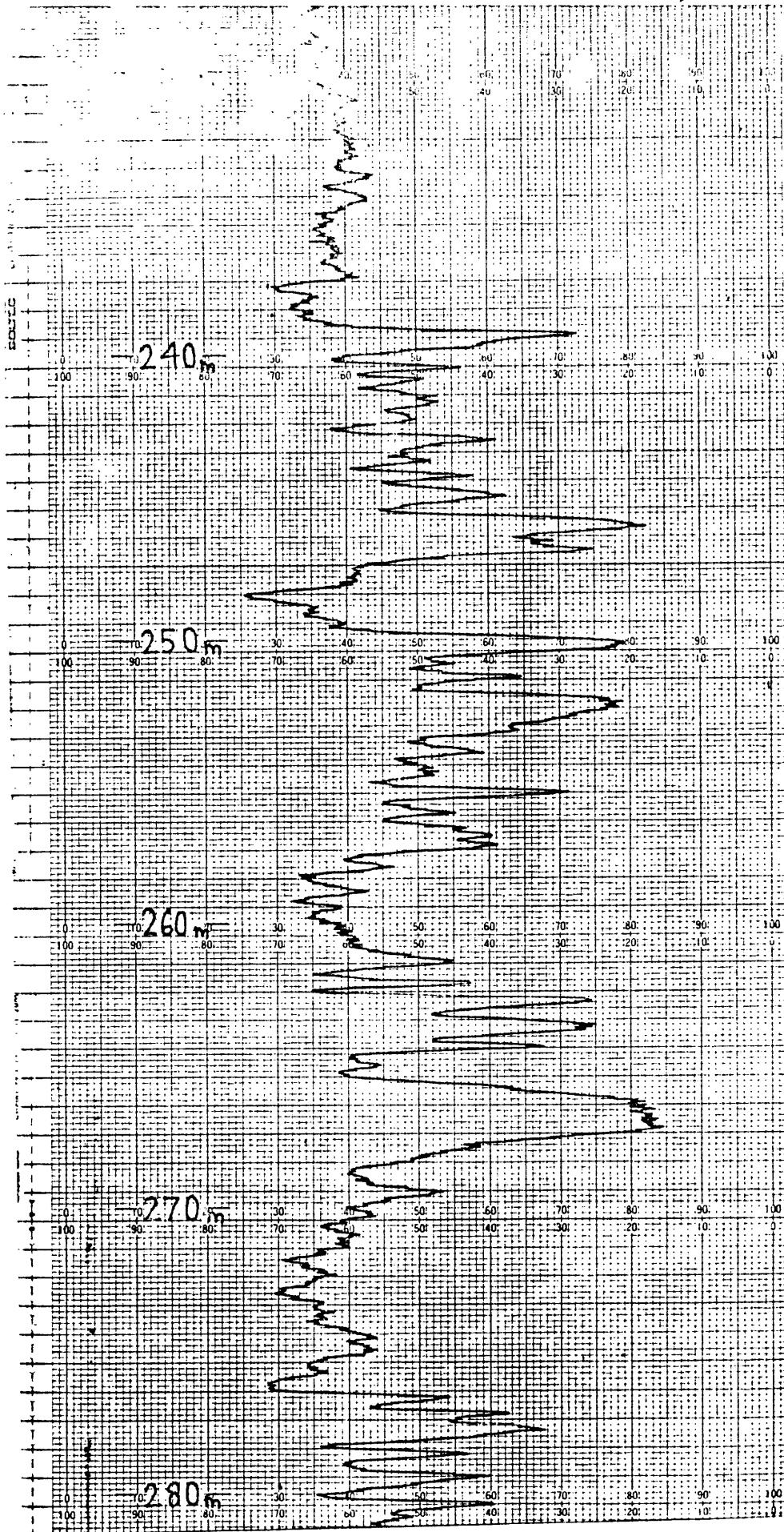
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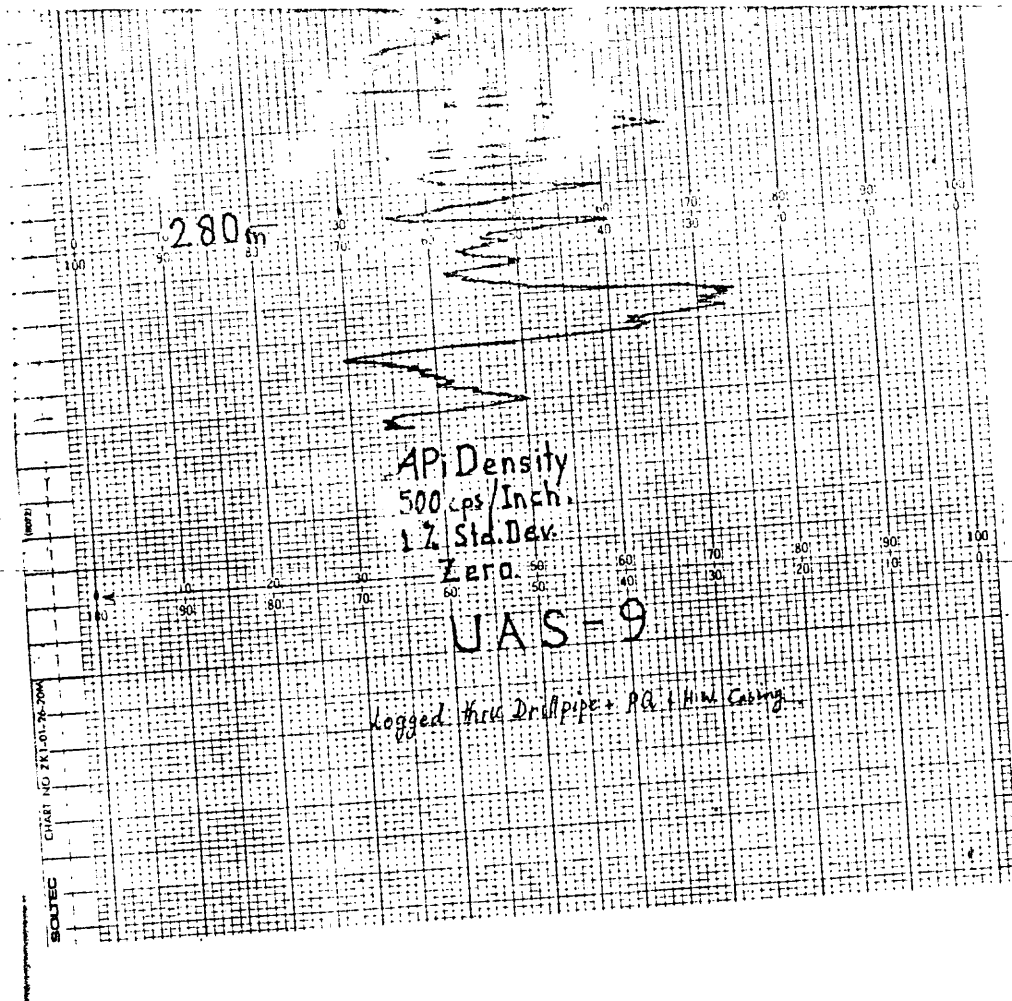
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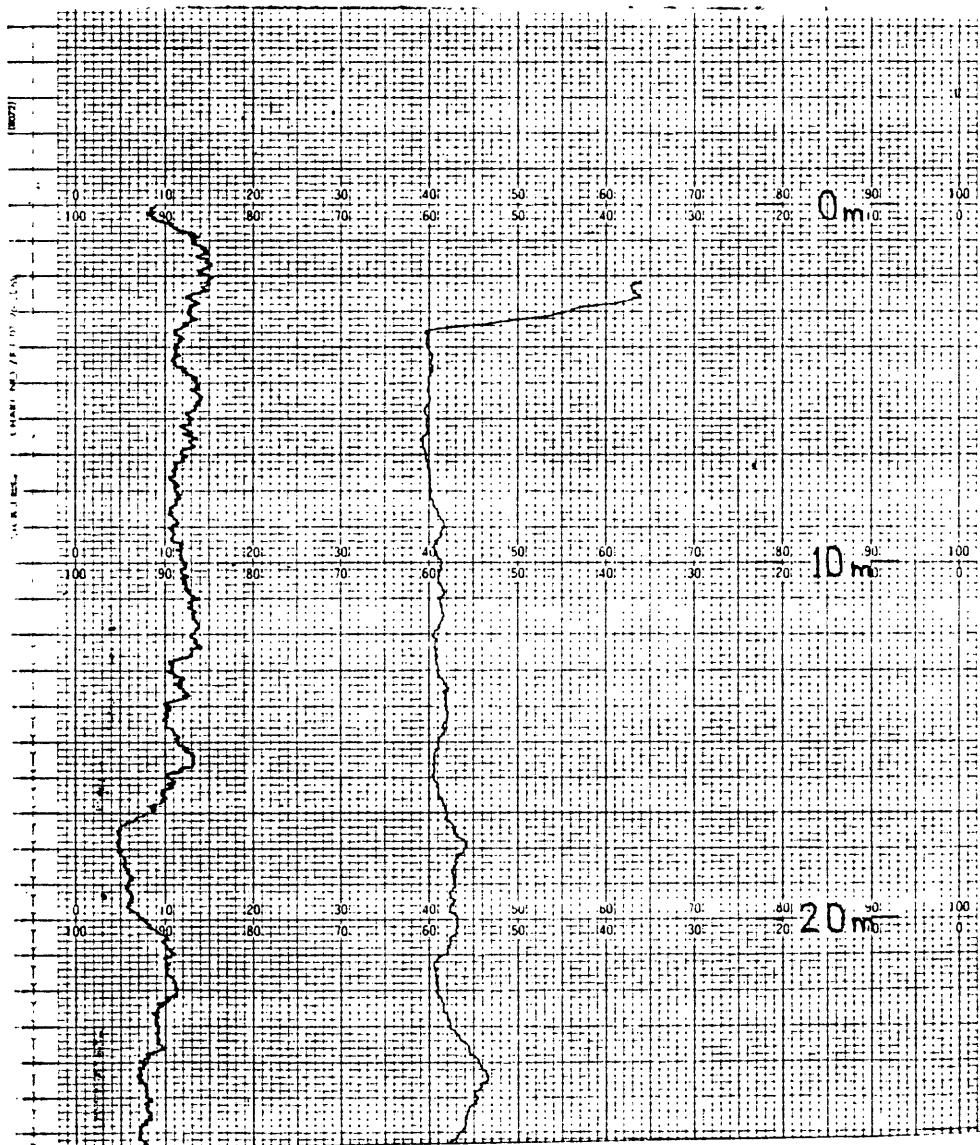




# SCIENCE ASSOCIATES

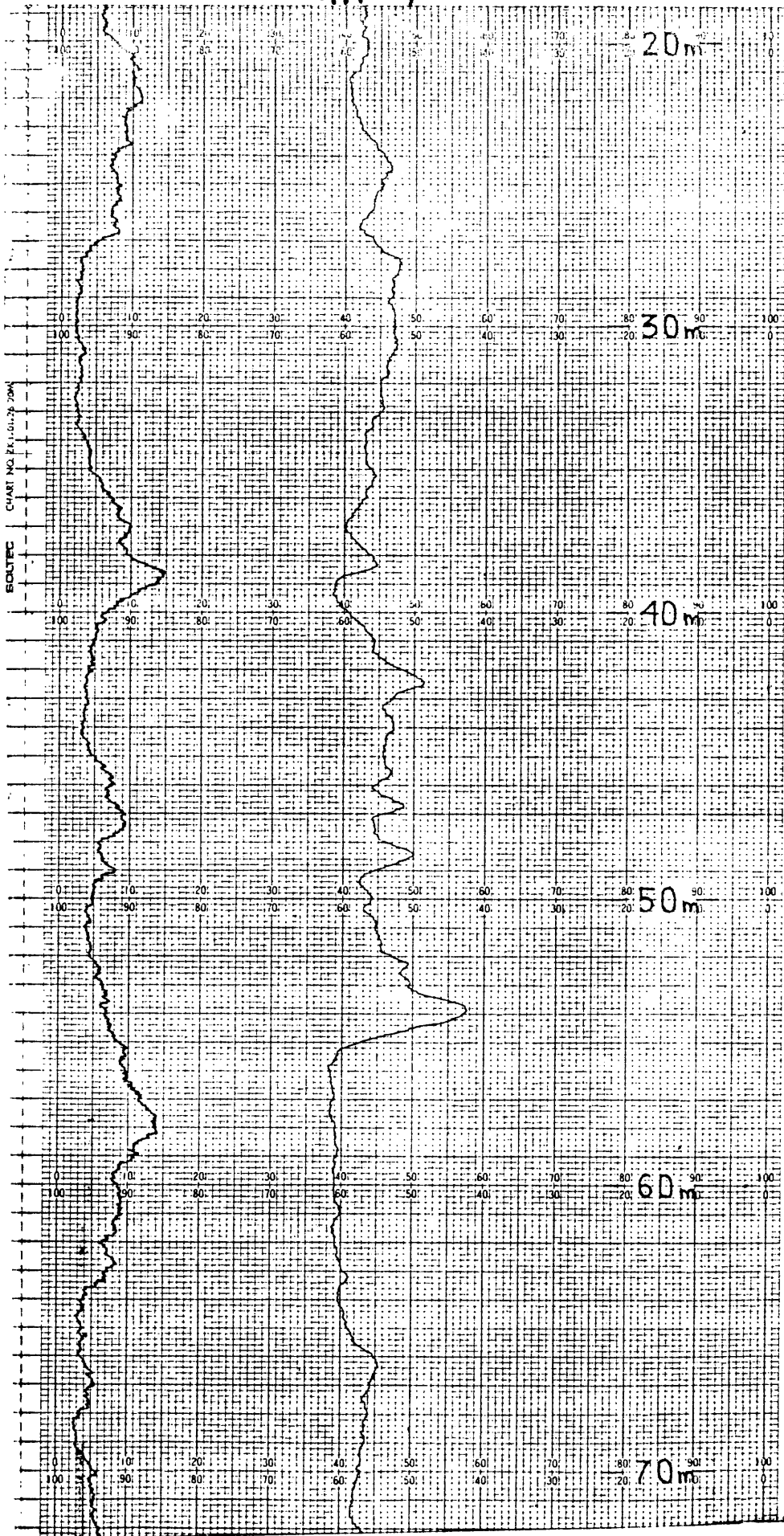
ORDER: **UAS - 9** **P.369**

STATE/COUNTRY: <b>USA</b>			DEPTH DRILLED: <b>287.5m</b>			CLIENT: <b>USGS USA USAID</b>		
REGION: <b>Alaska</b>			DEPTH LOGGED: <b>287m</b>			GEOLOGIST:		
PROJECT: <b>Coastal Geology</b>			COLLAR ELEV.			UNIT OPERATOR: <b>Museeb, NYAS</b>		
PROSPECT:			DIA FROM TO			UNIT NO. <b>PL-2</b> OFFICE:		
SEC. <b>TV</b> <b>RNG.</b>			DIA FROM TO			<b>BOULDER - COLORADO - USA</b>		
DIA FROM TO			BOREHOLE MEDIUM: <b>Hard + Mud</b>			ELECTRIC		
TYPE: <b>GAM</b> <b>Neutron</b>			FLUID LEVEL			TYPE: <b>SIST</b> <b>SP</b>		
LOGGED DEPTH: <b>285m</b> <b>287m</b>			CASING DATA			LOGGED DEPTH: <b>FT</b> <b>FT</b>		
RANGE (I.R.): <b>100</b> <b>500</b>			WALL SIZE: <b>1/4"</b>			SCALE: <b>25</b>		
%STD DEV: <b>3</b> <b>1</b>			I.D. <b>NN = 4"</b> <b>PQ = 5 1/2"</b>			PAPER SPEED: <b>2</b>		
PAPER SPEED: <b>1-1</b> <b>1-1</b>			CASED FROM: <b>0</b> TO <b>95.6m</b>			LOG SPEED: <b>2</b>		
LOG SPEED: <b>6-1</b> <b>6-1</b>			CASING TYPE: <b>NN</b> <b>PQ</b>			FINE ADJ: <b>2</b>		
BKGD. COUNT			SAMPLE DATA			CALIPER		
PROBE NO. <b>GN-1</b> <b>GN-1</b>			NON CORE HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			LOGGED DEPTH: <b>FT</b>		
SIST (I.R.): <b>3/8</b> <b>1 3/8</b>			SAMPLED INTERVAL: <b>2</b> <b>2</b>			SCALE: <b>25</b>		
MOTOR: <b>2</b> <b>2</b>			REMARKS			PAPER SPEED: <b>2</b>		
DIGITAL DATA			Logged through drill pipe and casing			LOG SPEED: <b>2</b>		
TIME INTERVAL						ARM LENGTH: <b>IN</b>		
TIMEBASE						MAX DEF: <b>IN</b>		
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH: <b>0m</b>		
LUCITE						INCLIN: <b>10m</b>		
						BEARING: <b>20m</b>		



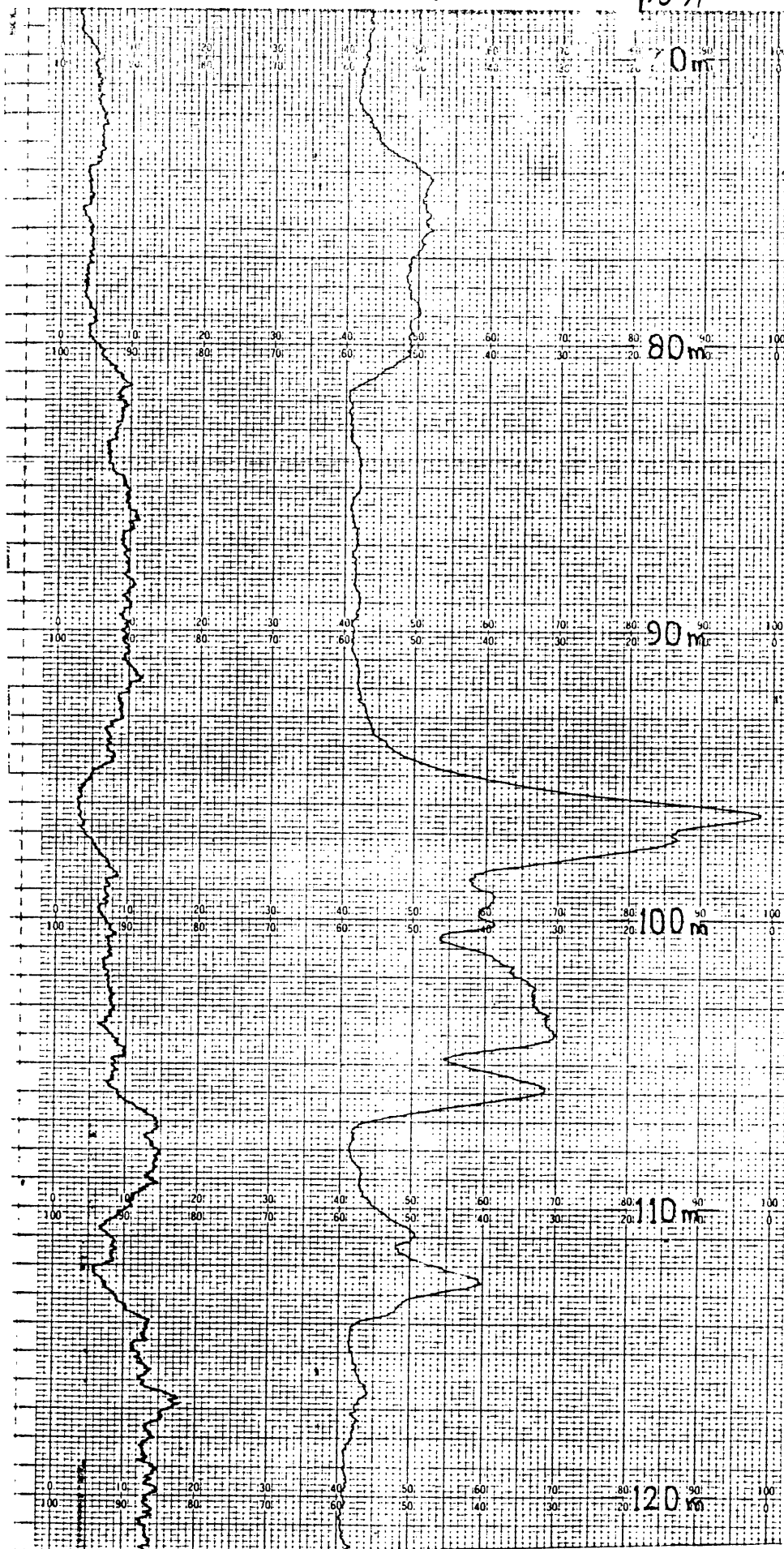
UAS-9

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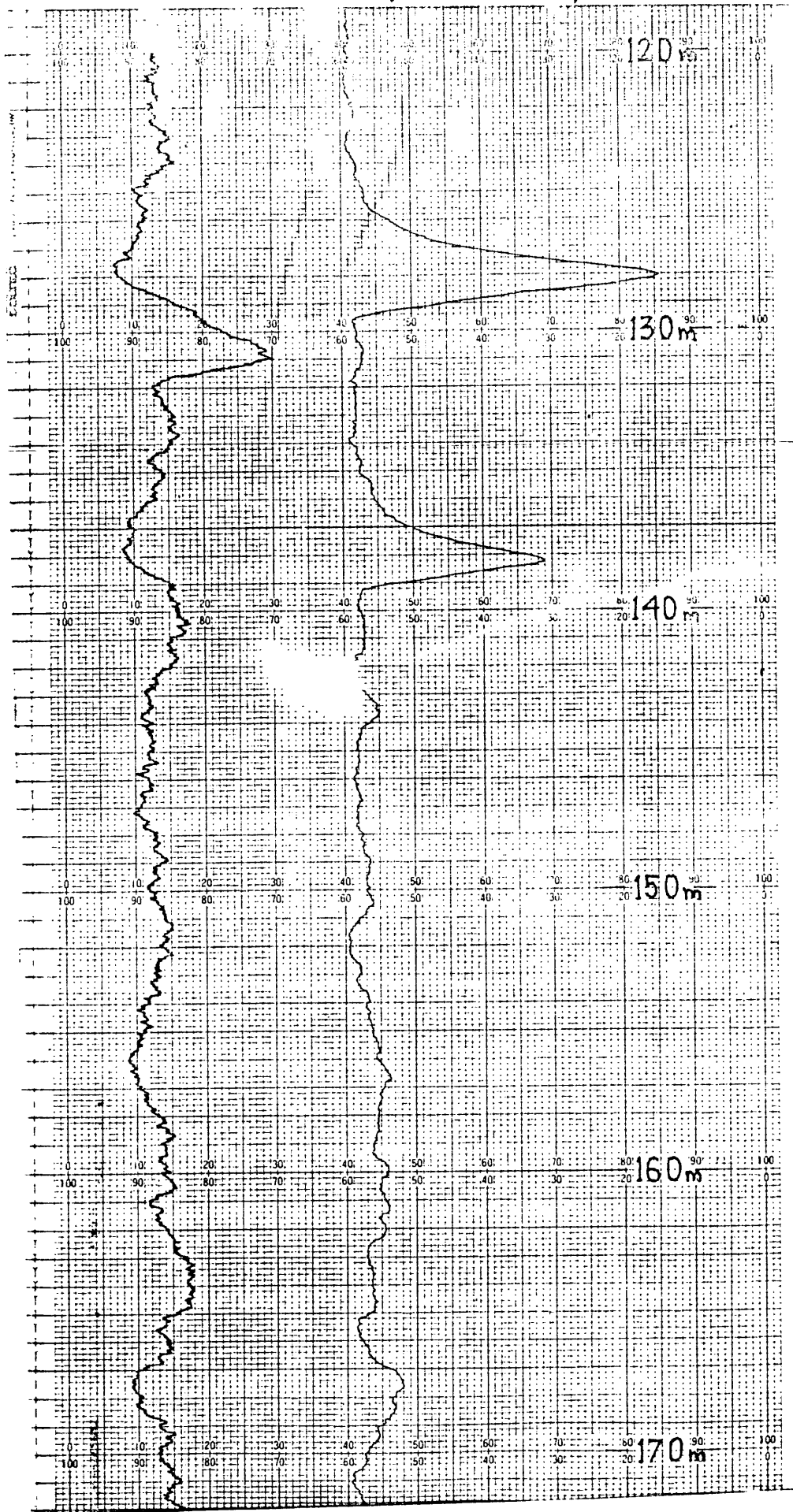
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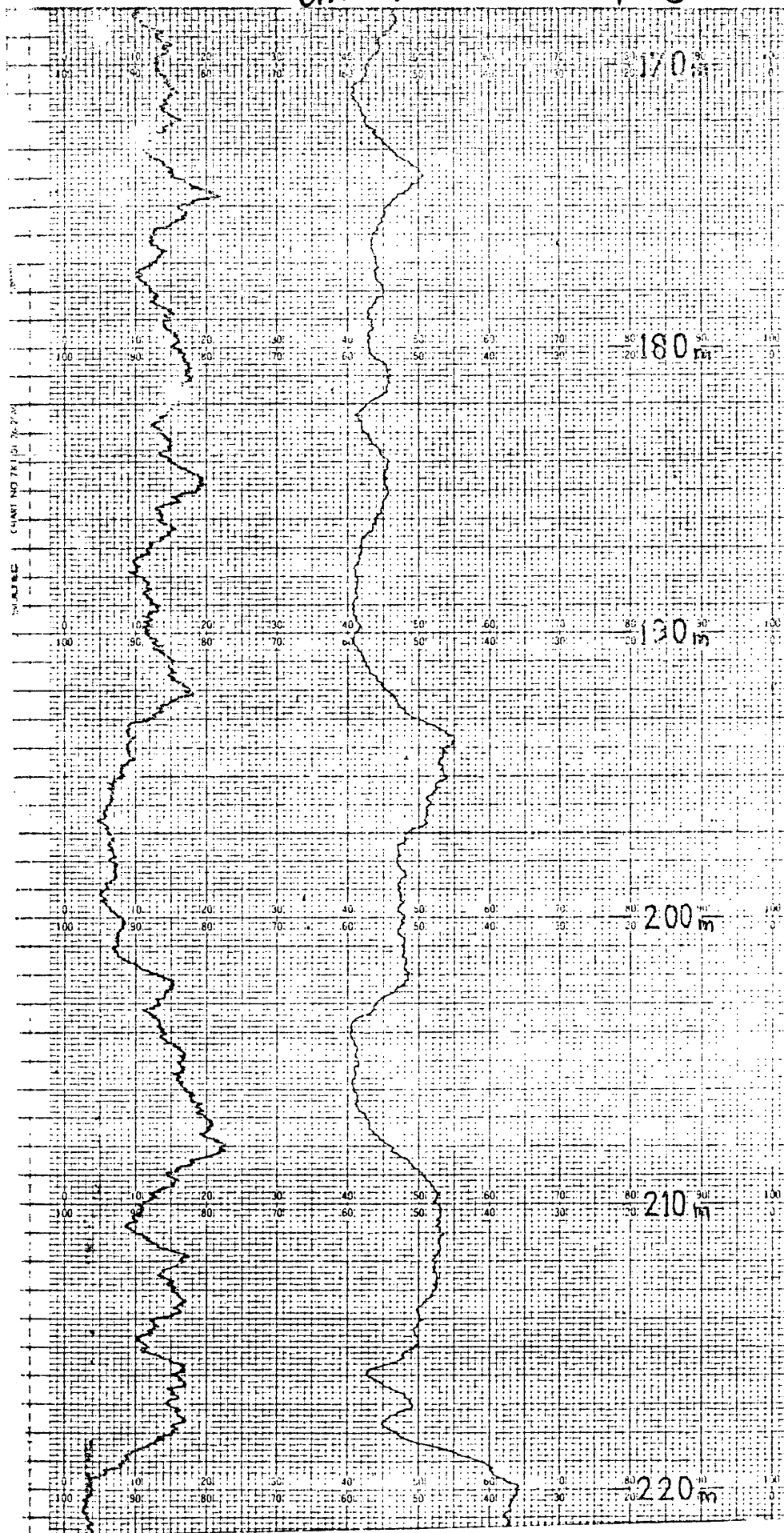
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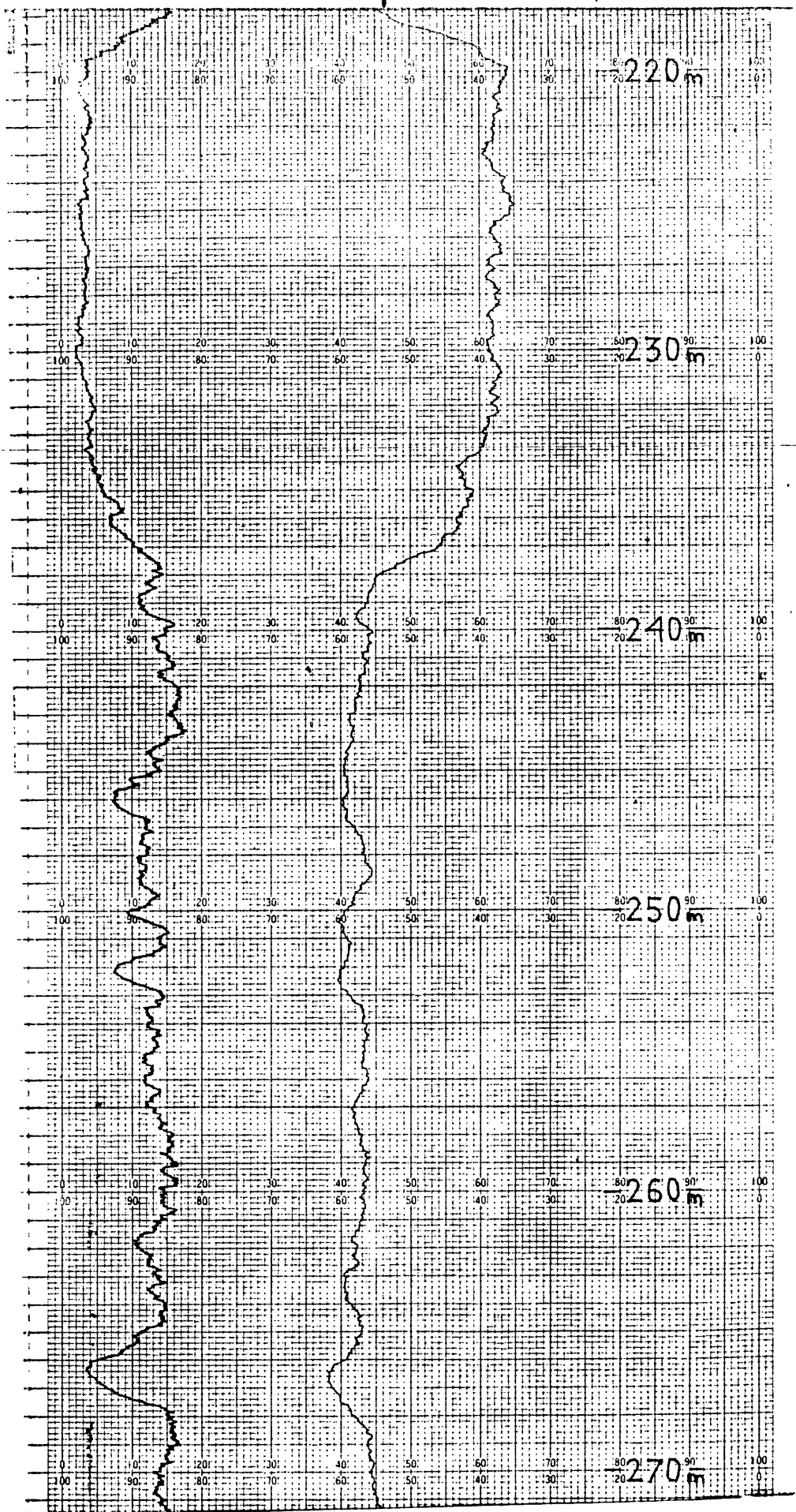
UAS-9

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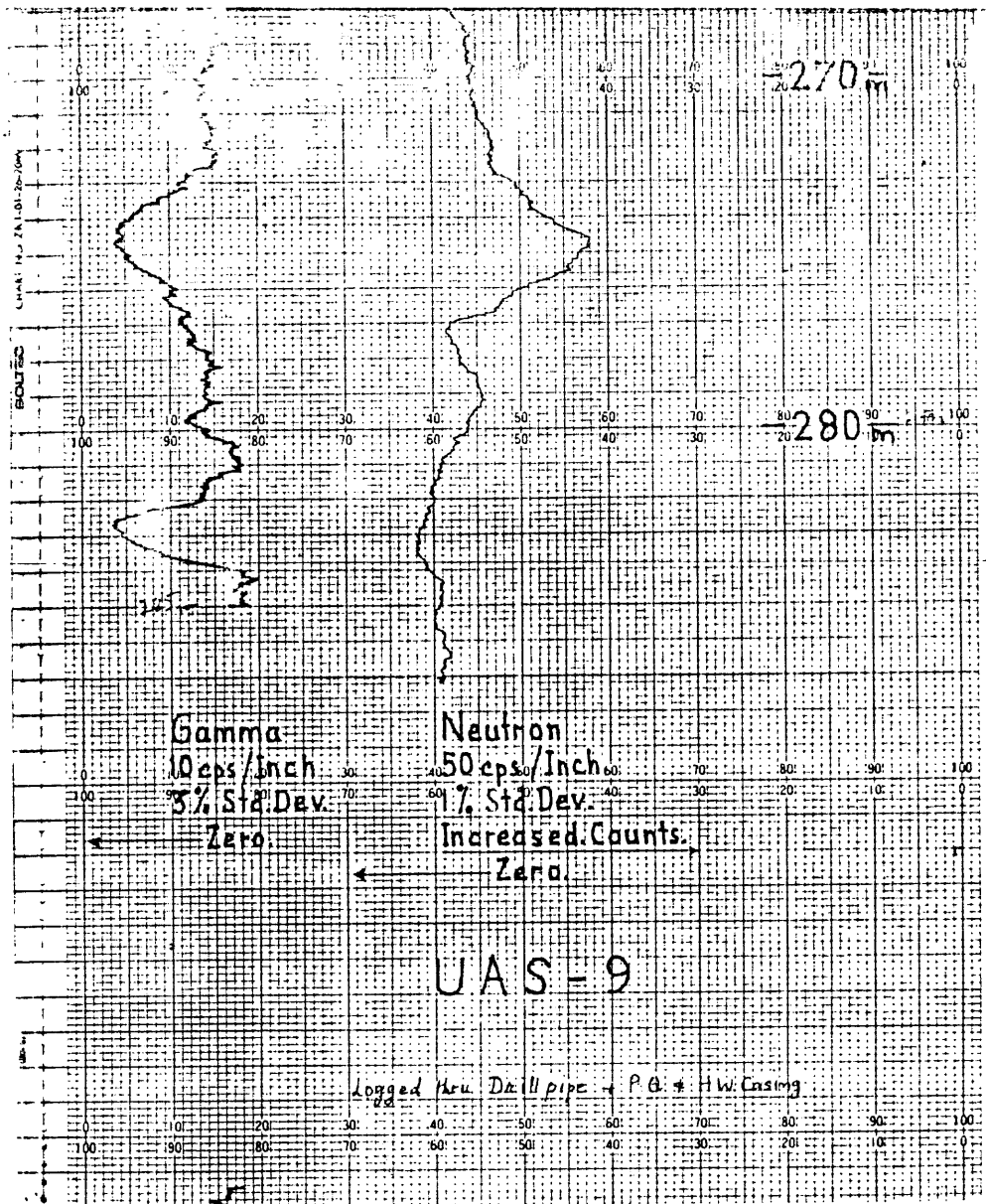
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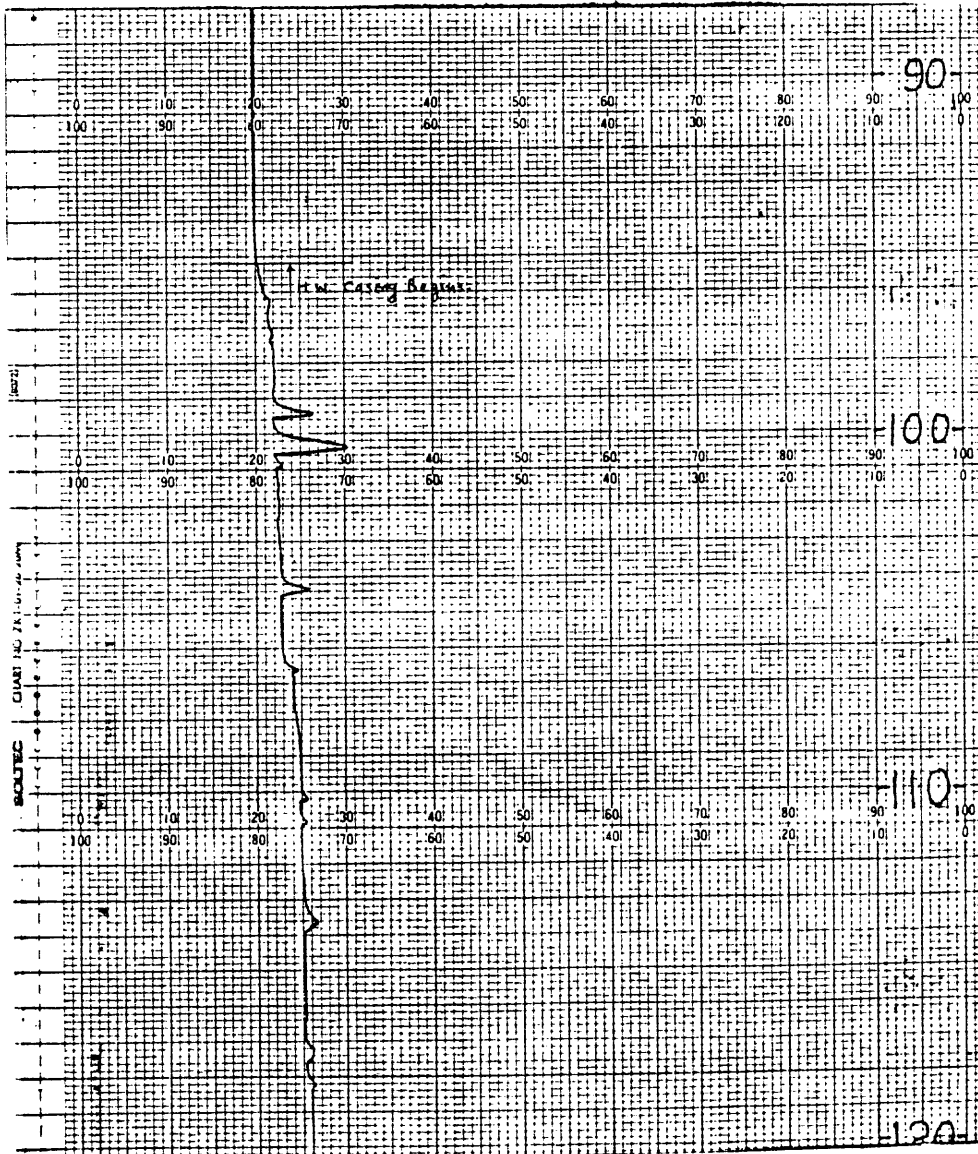
HOLE NUMBER

U.S. - 3

DATE: \_\_\_\_\_

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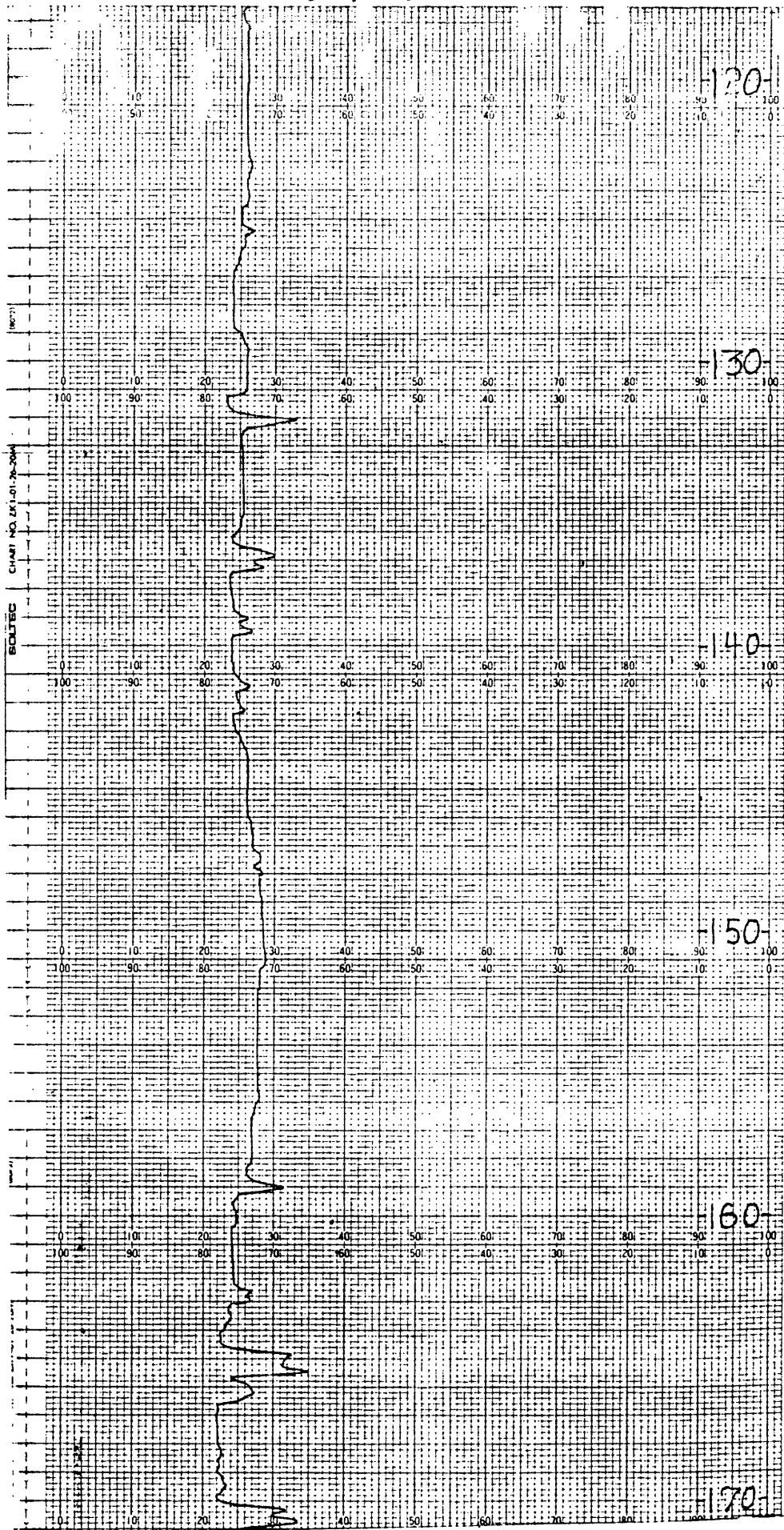
LOCATION				DATA				CLIENT			
STATE/COUNTRY <i>Swaziland</i>				DEPTH <i>286 m</i>				CLIENT <i>GSP - USGS - USAID</i>			
REGION <i>SARWA</i>				DEPTH LOGGED <i>286 m</i>				GEOLOGIST:			
PROJECT <i>COAL REAP</i>				COLLAR ELEV				UNIT OPERATOR <i>ICVAS / MUSECO</i> UNIT NO <i>PL-2</i> OFFICE <i>LISA</i> <i>SCHUBER COLOMADO</i>			
PROSPECT				DIA. FROM TO							
SEC. TWP. RNC.				DIA. FROM TO							
TYPE				DIA. FROM TO				ELECTRIC			
LOGGED DEPTH				BOREHOLE METHOD <i>H<sub>2</sub>O<sub>2</sub> Mud</i>							
RANGE (ft.)				FLUID LEVEL				CASING DATA			
%STD DEV				WALL SIZE							
PAPER SPEED				I.D.				3 ARM CALIPER			
LOG SPEED				CASED FROM TO							
BKGD. COUNT				CASING TYPE				LOGGED DEPTH <i>286 m</i>			
PROBE NO.				SAMPLE DATA							
SIZE (dia.)				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>				SCALE <i>0.9" Deflection = 1" dia</i>			
K-FACTOR				SAMPLED INTERVAL SAMPLE TYPE							
DEAD TIME				REMARKS				PAPER SPEED <i>1-1</i>			
STANDARD											
DIGITAL DATA								LOG SPEED <i>6-1</i>			
PRINT INTERVAL											
TIMEBASE								ARM LENGTH <i>12"</i>			
DENSITY CALIBRATION								MAX DEF. <i>2.4"</i>			
ALUMINUM											
LUCITE								VERTICAL DEV.			
								DEPTH			
								INCLIN.			
								BEARING			





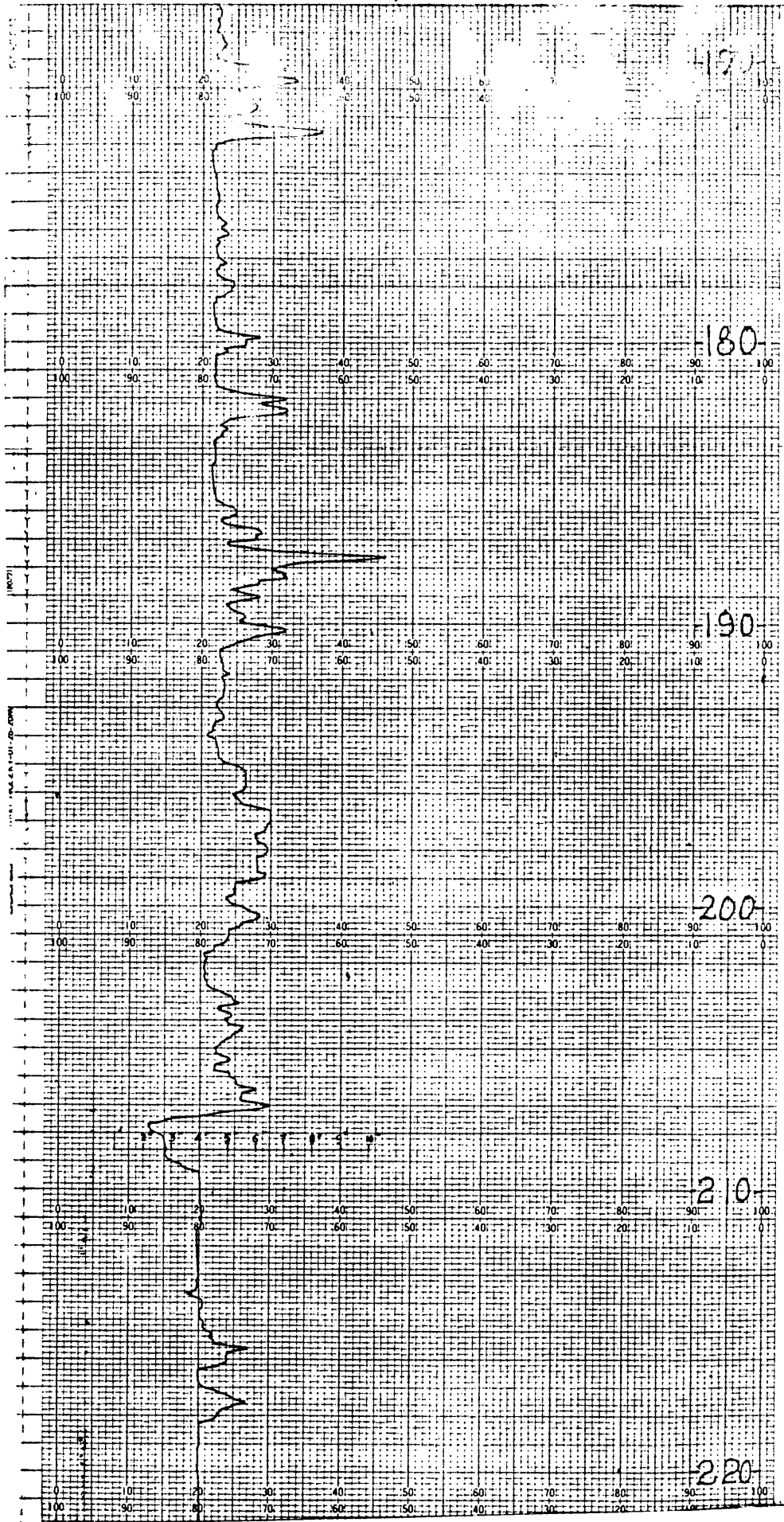
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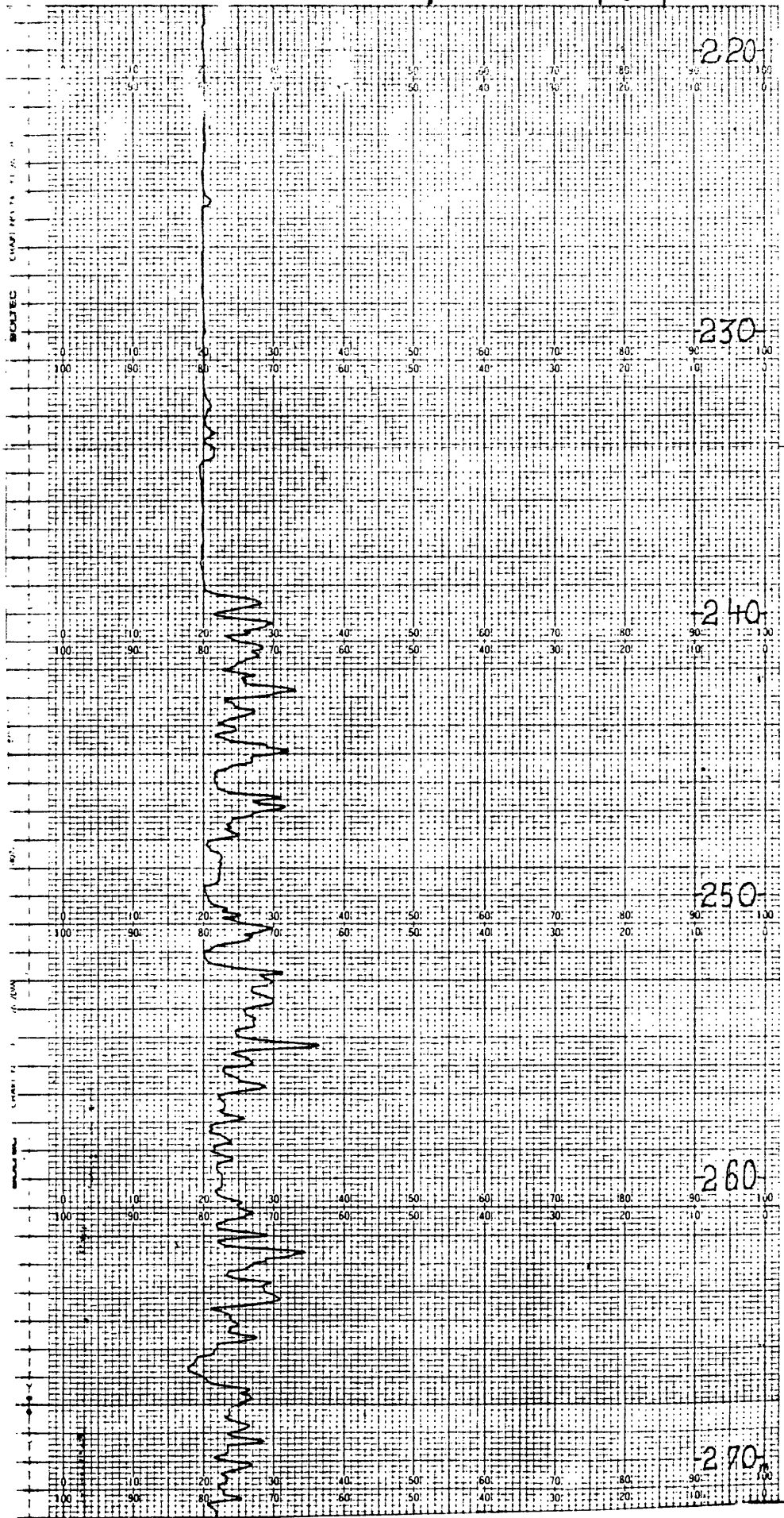
UAS-9

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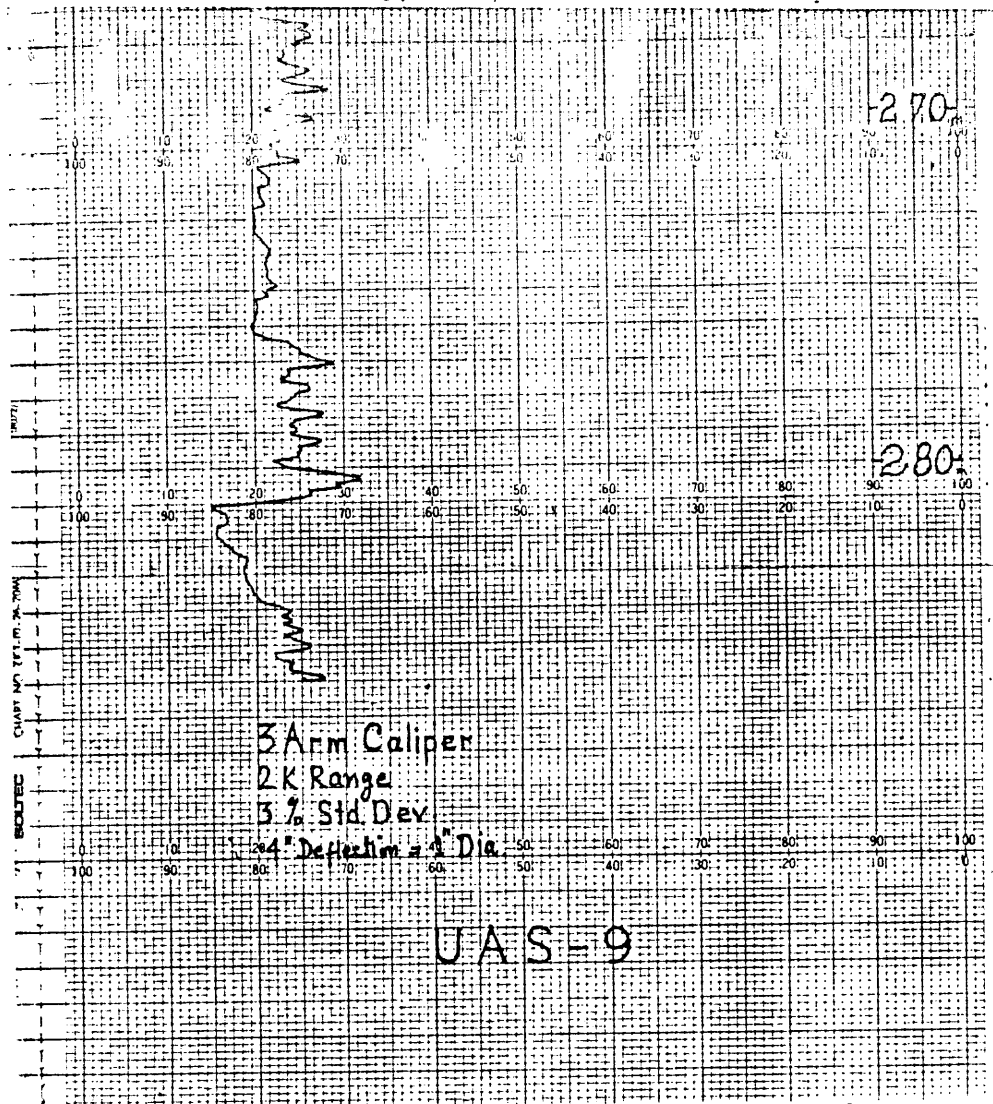


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DRILL HOLE UAT-1

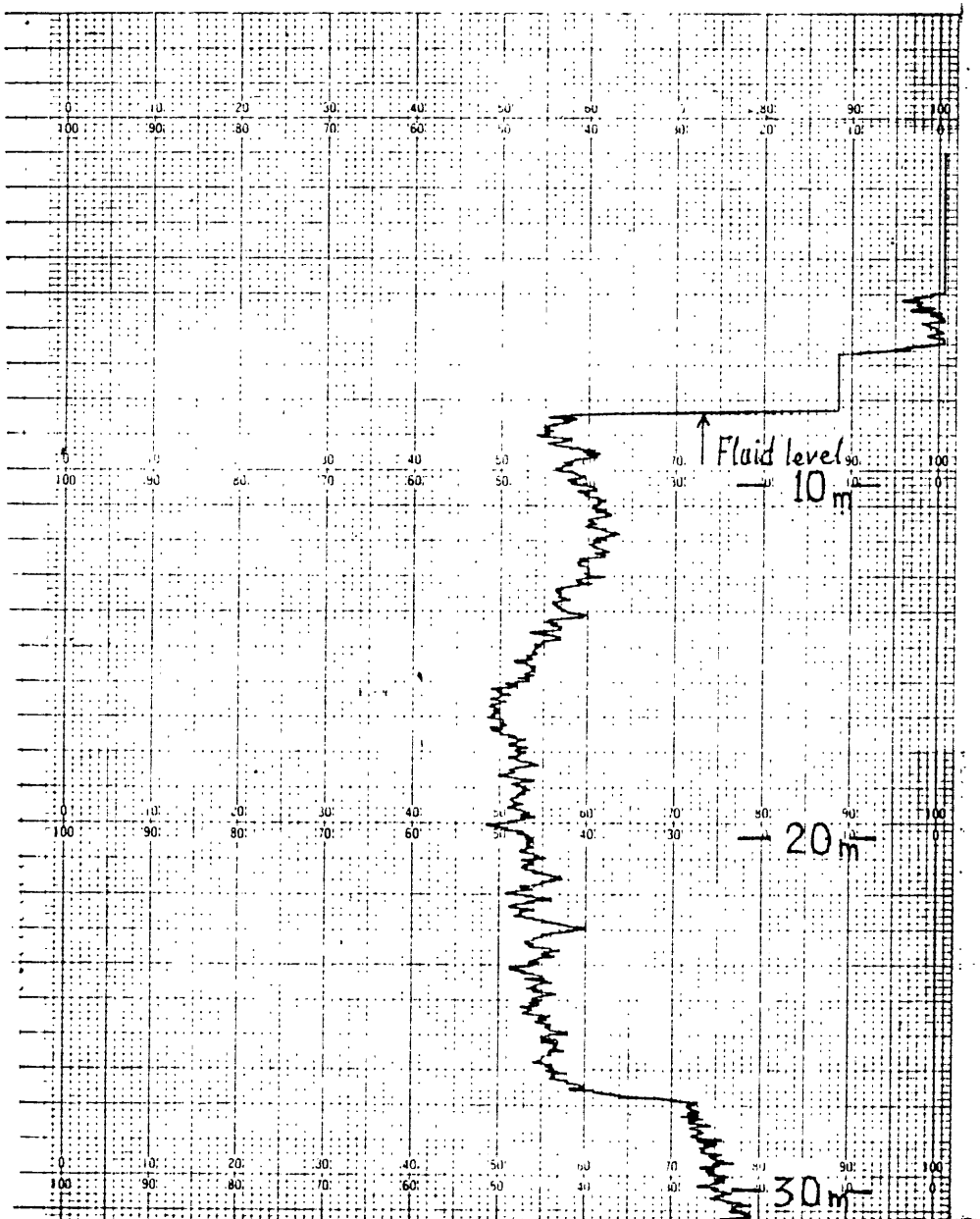


## GEOSCIENCE ASSOCIATES

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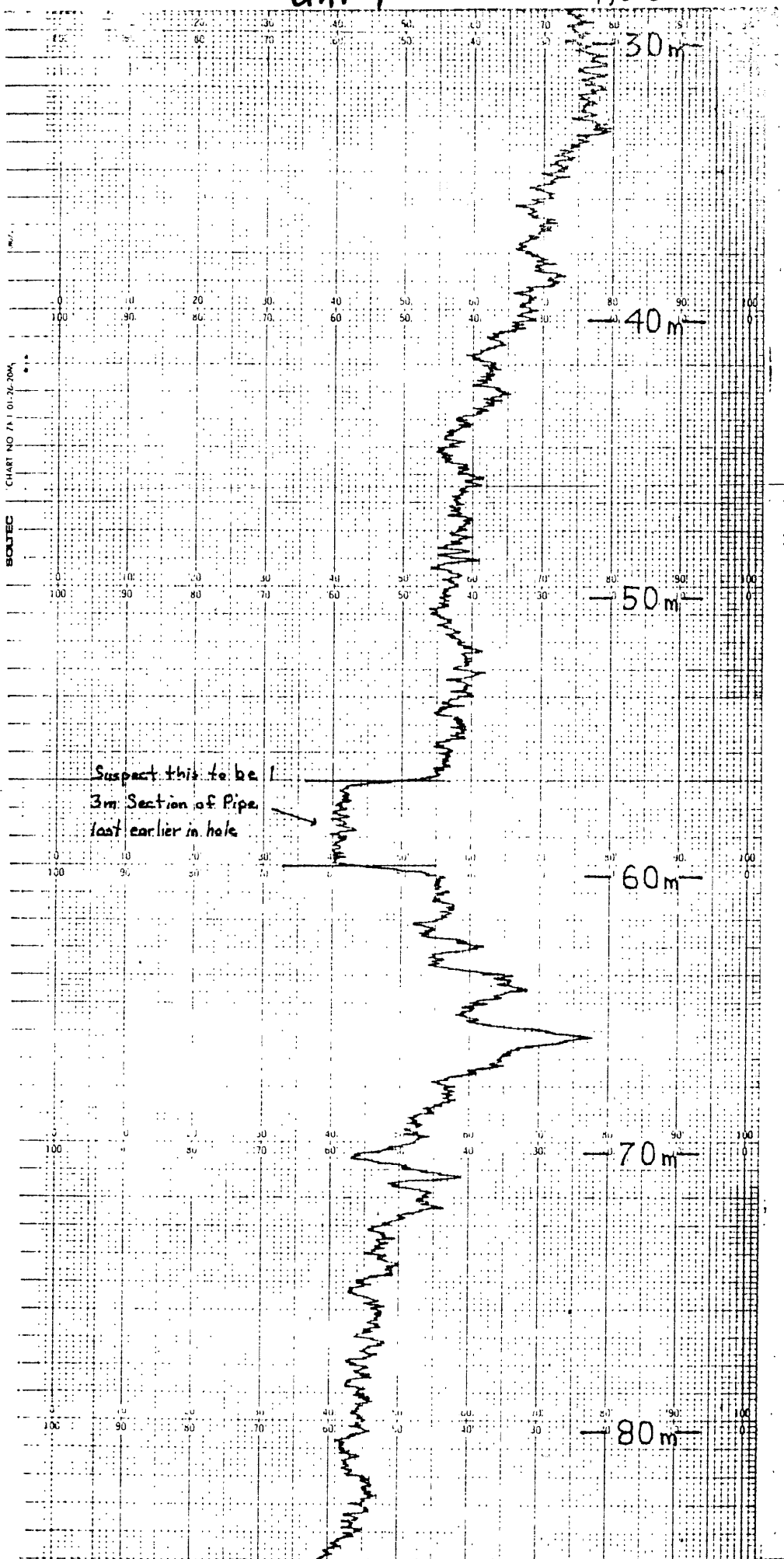
HOLE NUMBER: UAT-1DATE: March 16, 1989

LOCATION			HOLE DATA		CLIENT			
STATE/COUNTY	<u>Sind - Pakistan</u>		DEPTH DRILLED	<u>250.50</u>		CLIENT	<u>OSP-US-S-USAID</u>	
REGION	<u>Thatta</u>		DEPTH LOGGED	<u>142m</u>		GEOLOGIST		
PROJECT	<u>COAL REAP</u>		COLLAR ELEV			UNIT OPERATOR	<u>DAVIS</u>	
PROSPECT			DIA	See Caliper	FROM	UNIT NO	<u>PL-2 Boulder, Colorado</u>	
SEC	TWP	RNG	DIA	-IOM	TO	OFFICE		
			DIA	-IOM	TO	ELECTRIC		
TYPE	<u>GAM 4A-Density</u>		BOREHOLE MEDIUM	<u>H<sub>2</sub>O + mud</u>		LOGGED DEPTH	RESIST	S P
LOGGED DEPTH	<u>142m</u>		FLUID LEVEL	<u>8m</u>		LOGGED DEPTH	FT	FT
RANGE (I.S.)	<u>5K</u>		CASING DATA			SCALE		
%STD DEV	<u>17%</u>		WALL SIZE	<u>HW</u>		PAPER SPEED		
PAPER SPEED	<u>1-1</u>		ID	<u>4"</u>		LOG SPEED		
LOG SPEED	<u>6-1</u>		CASED FROM	<u>0m</u> TO <u>1406m</u>		FINE ADJ		
BKGD. COUNT			CASING TYPE			CALIPER		
PROBE NO	<u>40-2</u>		SAMPLE DATA			LOGGED DEPTH	FT	
SIZE (dia)	<u>13/8</u>		NON-CORED HOLE	CORED HOLE		SCALE		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		PAPER SPEED		
DEAD TIME	<u>2.0</u>		REMARKS			LOG SPEED		
STANDARD			<u>This log was run thru HW</u> <u>Casing after retrieval of</u> <u>3mm Caliper Tool. No further</u> <u>Open Hole Logs were</u> <u>Recommended. Too Dangerous!!</u> <u>RWD</u>			ARM LENGTH	IN	
DIGITAL DATA		MAX DEF				IN		
PRINT INTERVAL						VERTICAL DEV.		
TIMEBASE						DEPTH		
DENSITY CALIBRATION			INCLIN					
ALUMINUM			BEARING					
LUCITE								



UAT-1

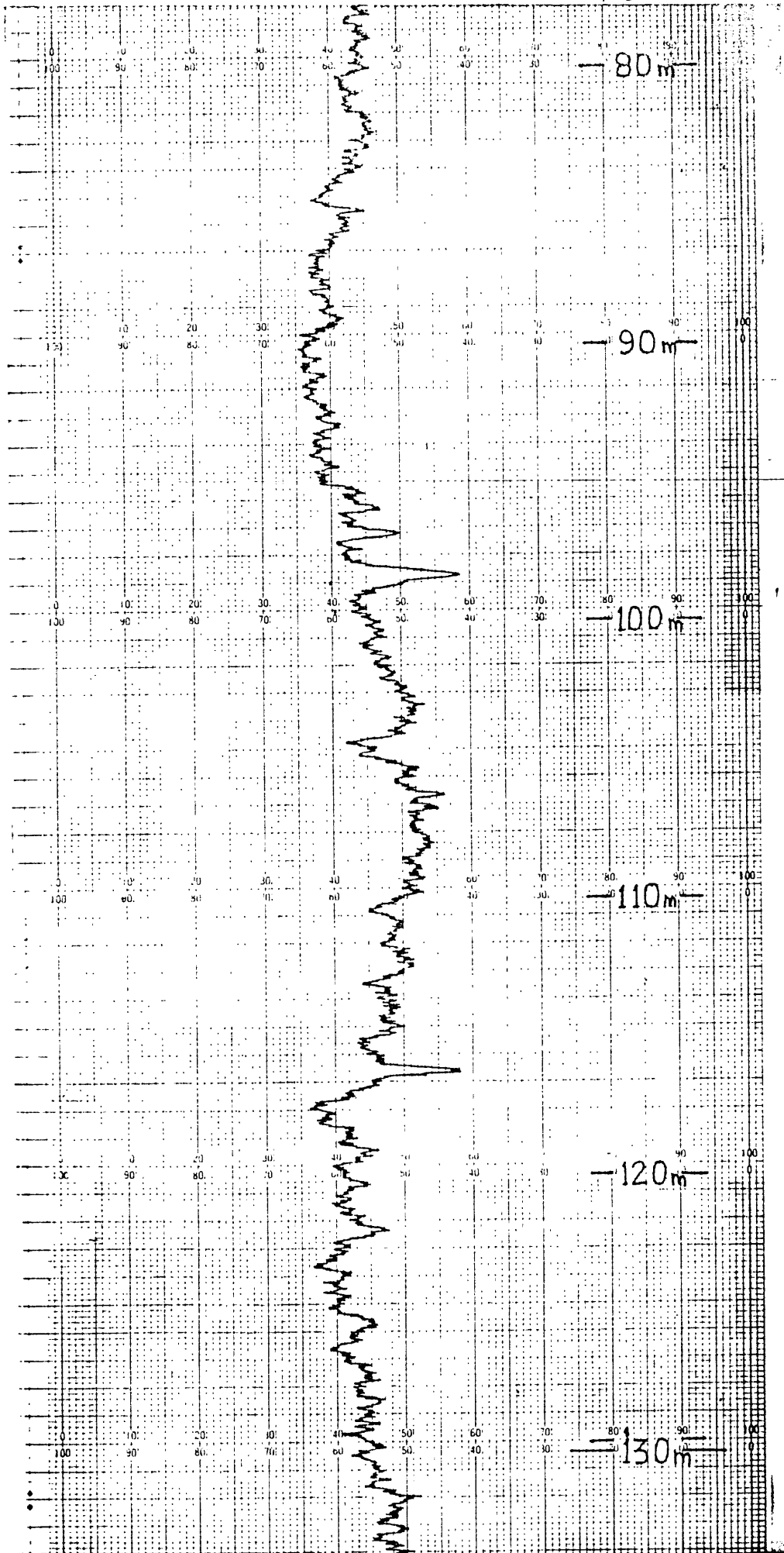
P,383





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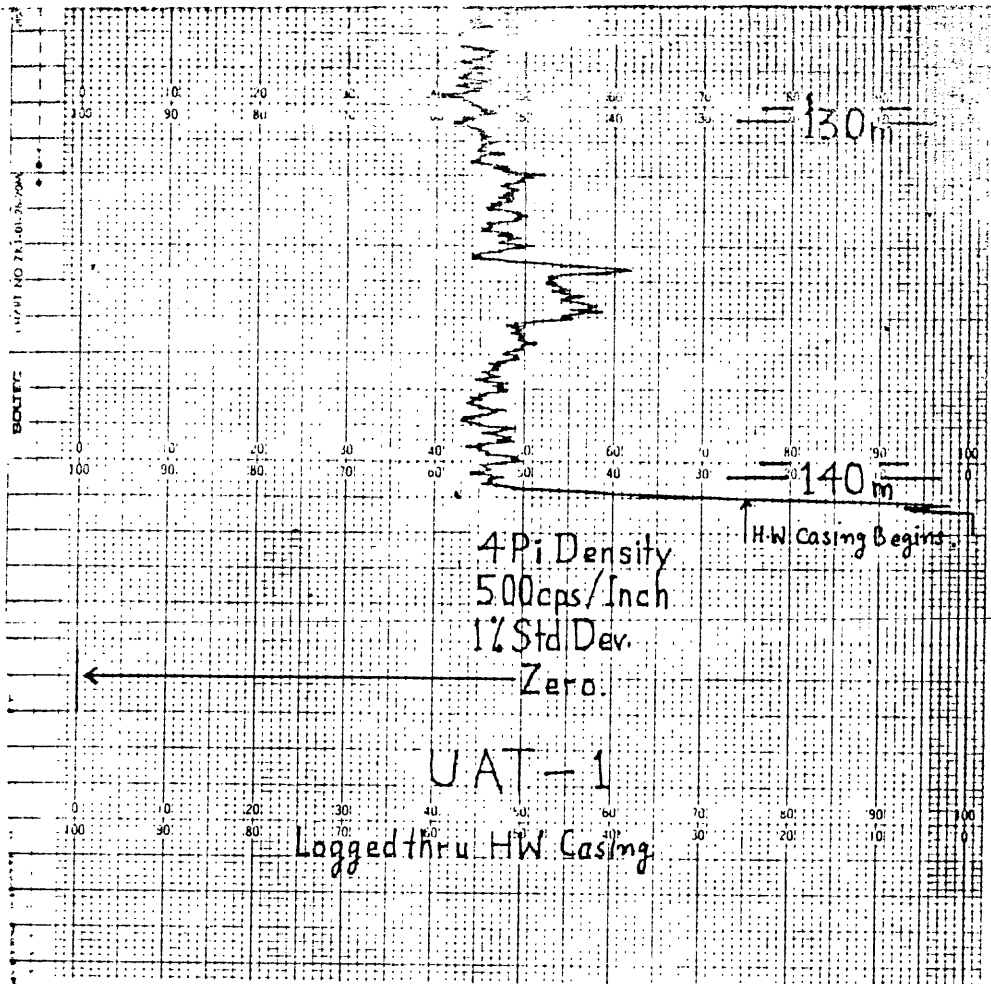
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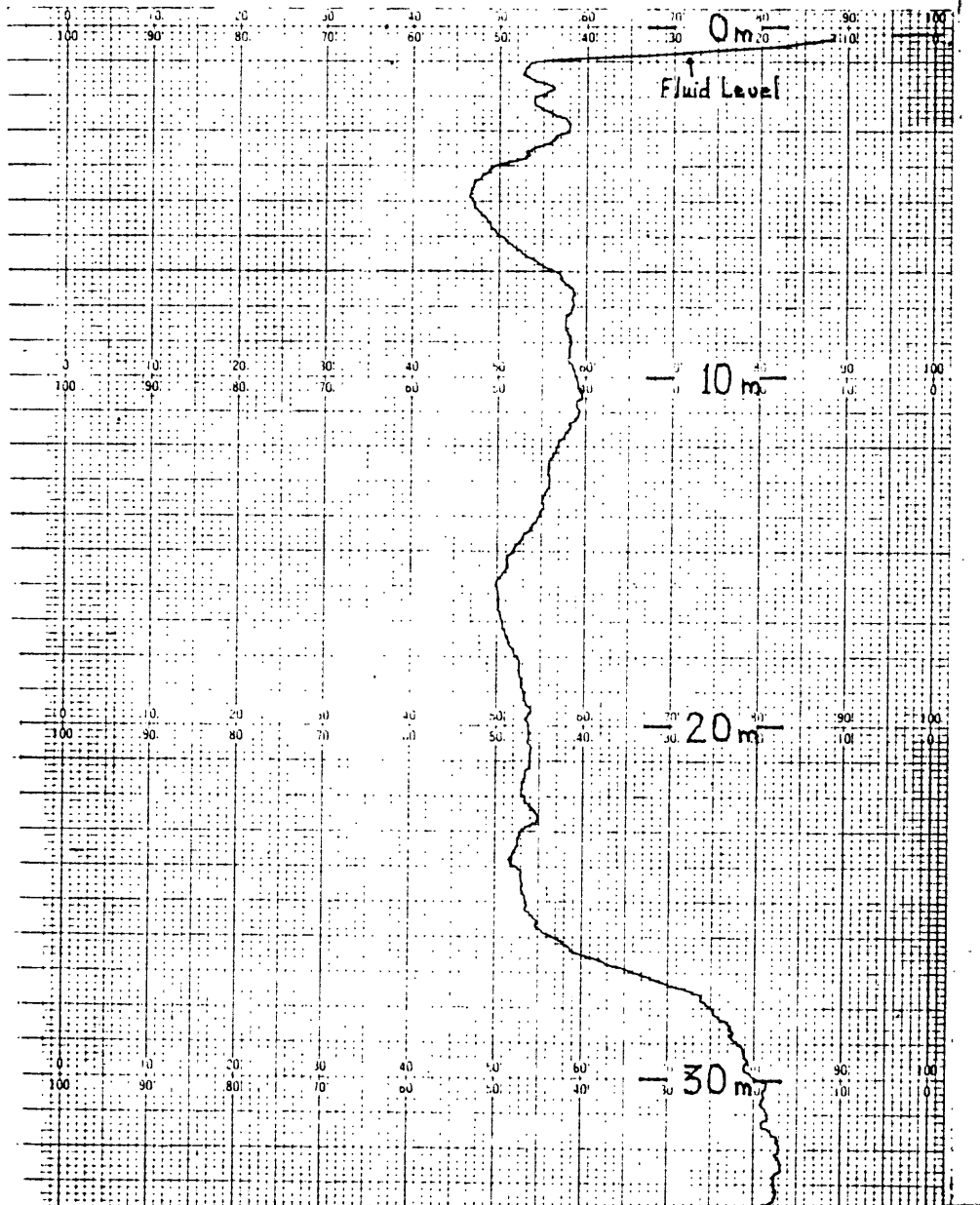


# GEOSCIENCE ASSOCIATES P.386

HOLE NUMBER: UAT-1

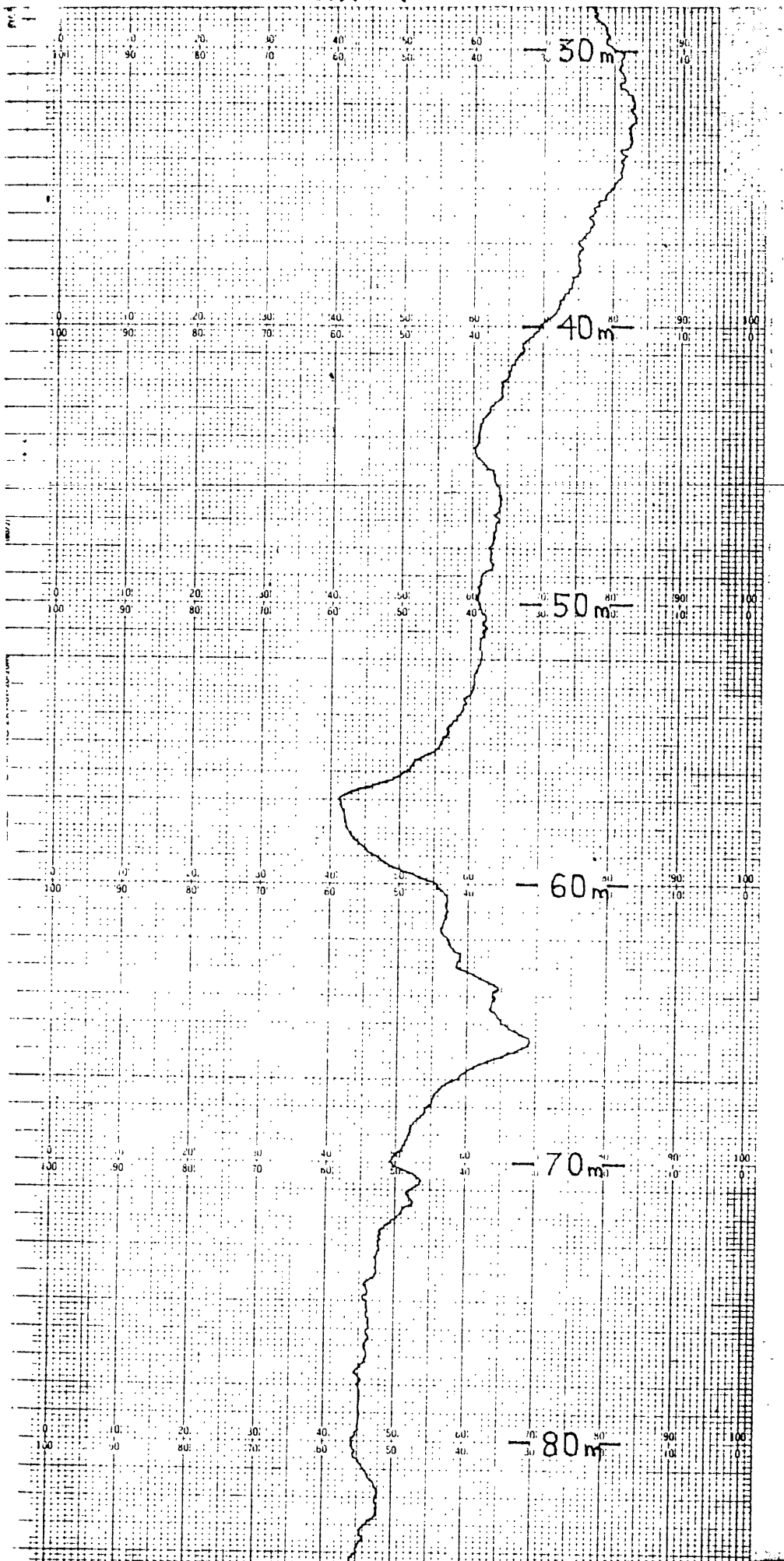
DATE: March 13, 1987 (Friday)

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind - Pakistan		DEPTH DRILLED	250.50m		CLIENT	GSP-435-USAID	
REGION	Thatta		DEPTH LOGGED	245.5 m		GEOLOGIST	Shafiq	
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	Ilyas Mujeeb	
PROSPECT			DIA	See Caliper FROM TO		UNIT NO	OFFICE	
SEC	TWP	RNG	DIA	log FROM TO		Pl-2 Boulder, Colorado		
TYPE	GAM 4pi-Density		BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		ELECTRIC		
LOGGED DEPTH	245.5m		FLUID LEVEL	.8 m		TYPE	RESIST	SP
RANGE (1 & 2)	10K 5K		CASING DATA			LOGGED DEPTH	FT	FT
STO DEV	1% 1%		WALL SIZE	HW + NW		SCALE		
PAPER SPEED	1-1 1-1		TO	4" 2"		PAPER SPEED		
LOG SPEED	6-1 6-1		CASED FROM	See Remarks		LOG SPEED		
BKGD COUNT			CASING TYPE			FINE ADJ		
PROBE NO.	00-2 60-2		SAMPLE DATA			CALIPER		
SIZE (dia.)	1 1/8 1 1/8		NON-CORED HOLE	CORED HOLE		LOGGED DEPTH	FT	
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		SCALE		
DEAD TIME	2.0 2.0		REMARKS			PAPER SPEED		
STANDARD			HW to 140.60m			LOG SPEED		
DIGITAL DATA			NW to 244.60m			ARM LENGTH	IN	
PRINT INTERVAL			Logged thru Drill Pipe			MAX DEF	IN	
TIMEBASE						VERTICAL DEV.		
DENSITY CALIBRATION						DEPTH		
ALUMINUM						INCLIN		
LUCITE						BEARING		



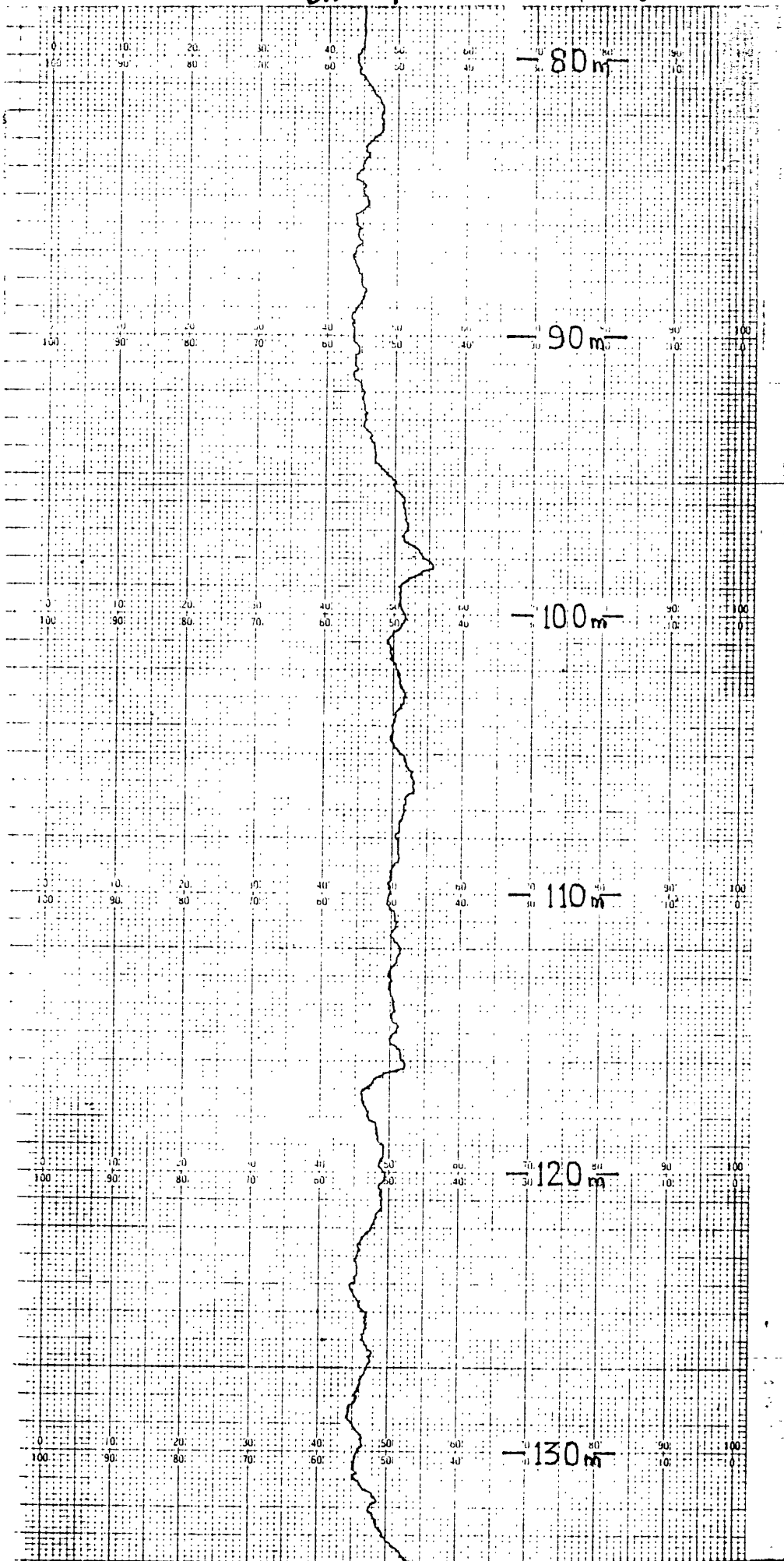
UAT-1

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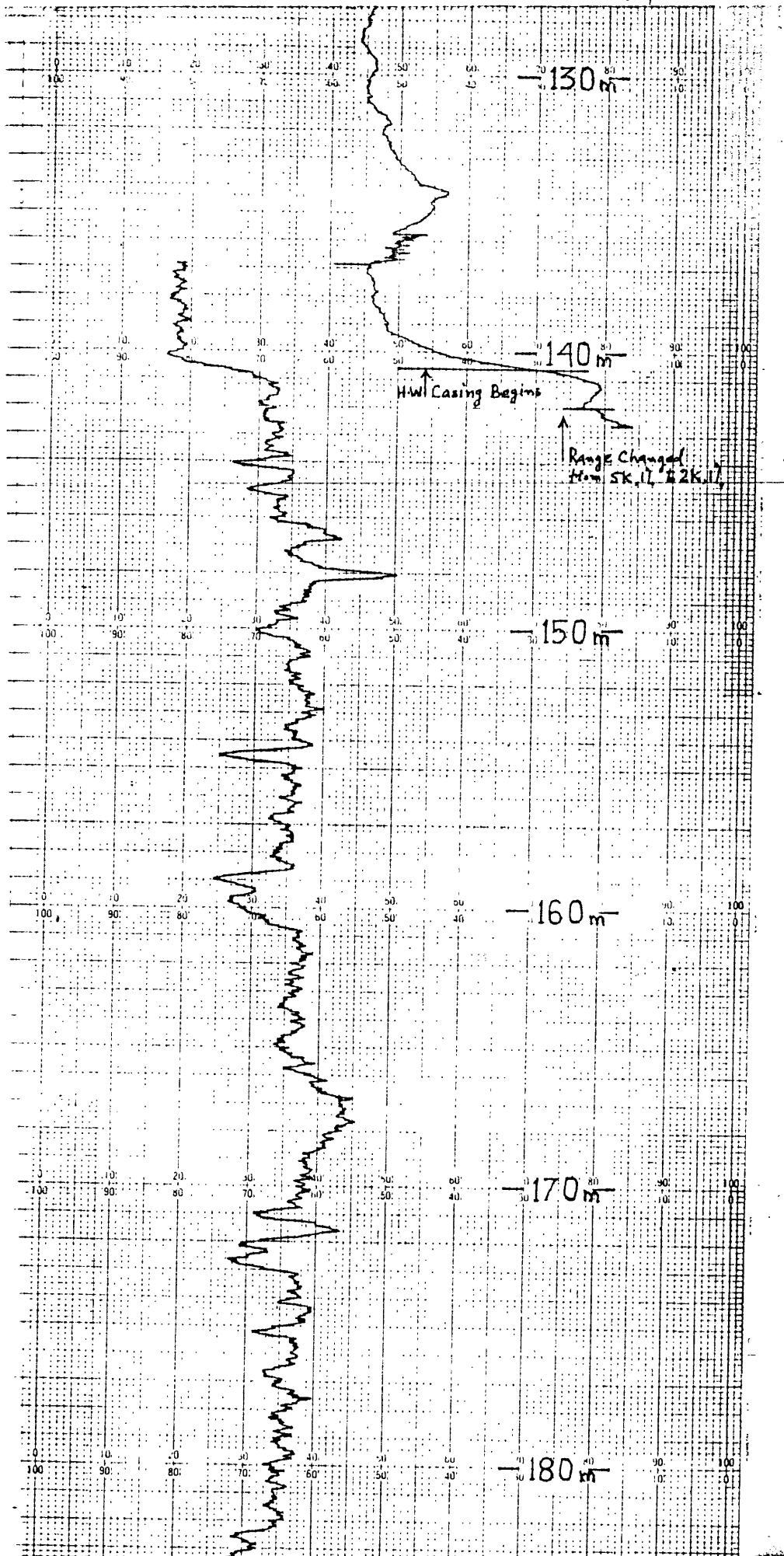
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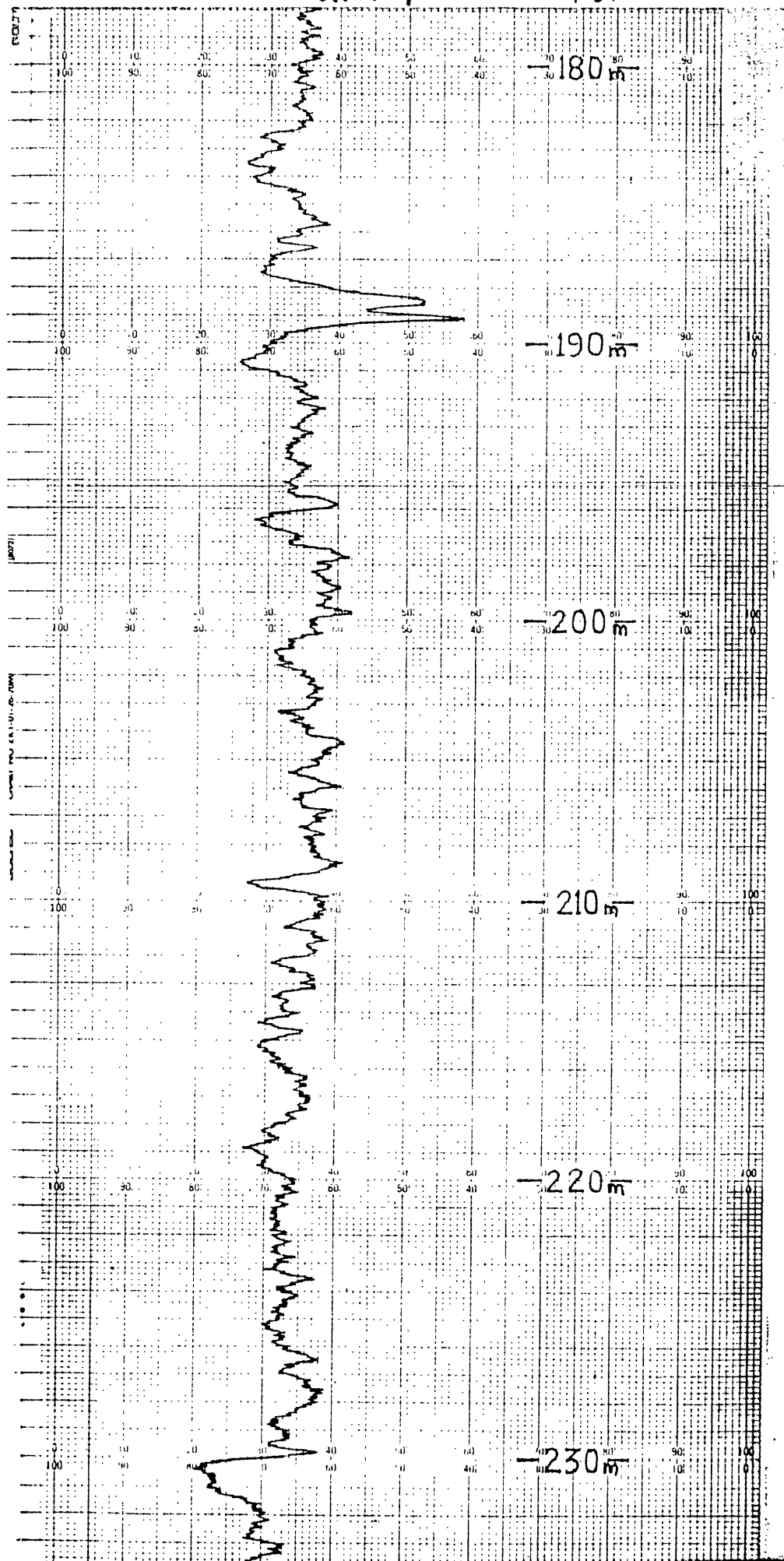
UAT-1

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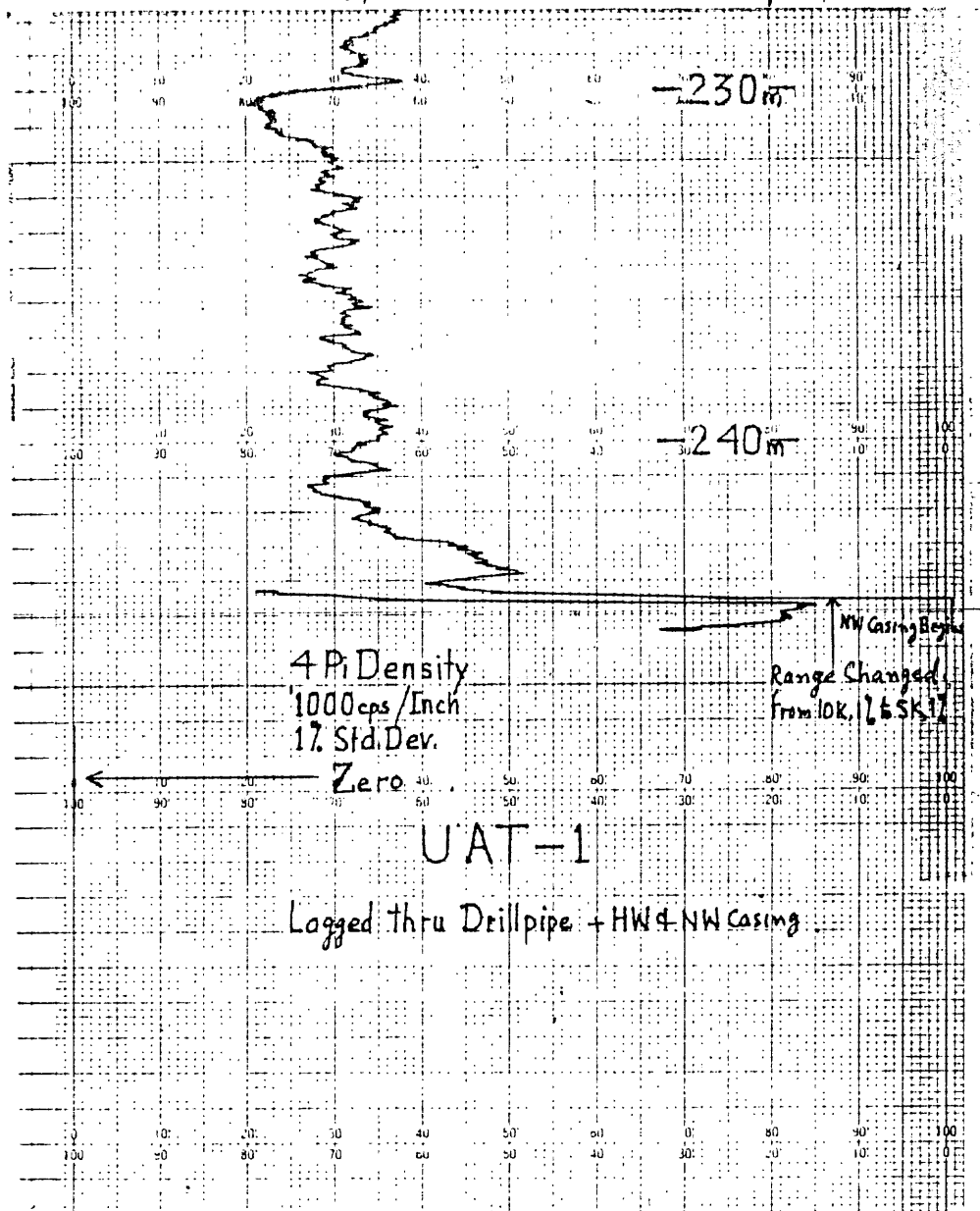
UAT-1

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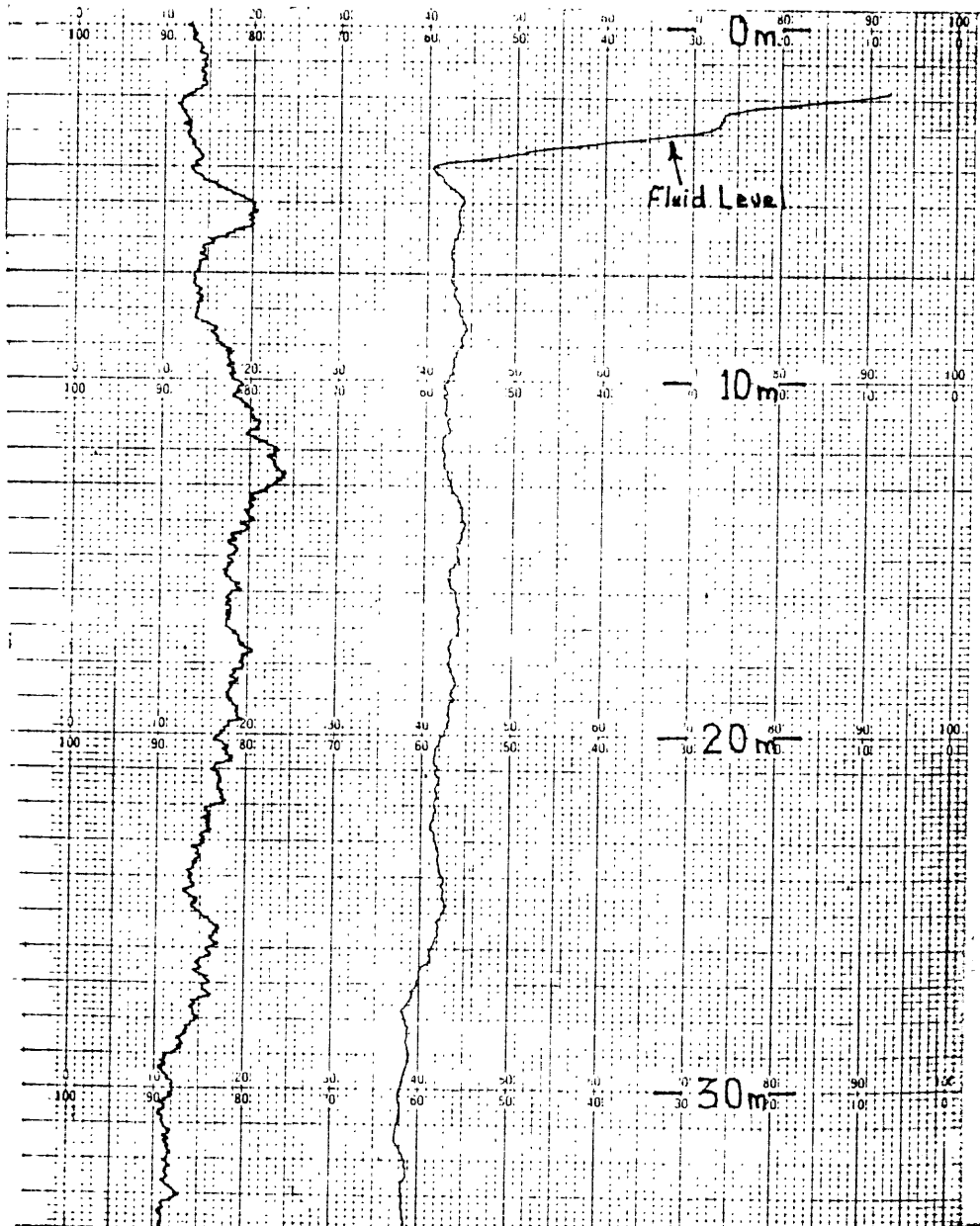
# GEOSCIENCE ASSOCIATES

HOLE NUMBER: **UAT-1**

**P.392**

DATE: **March 13, 1989 (Friday)**

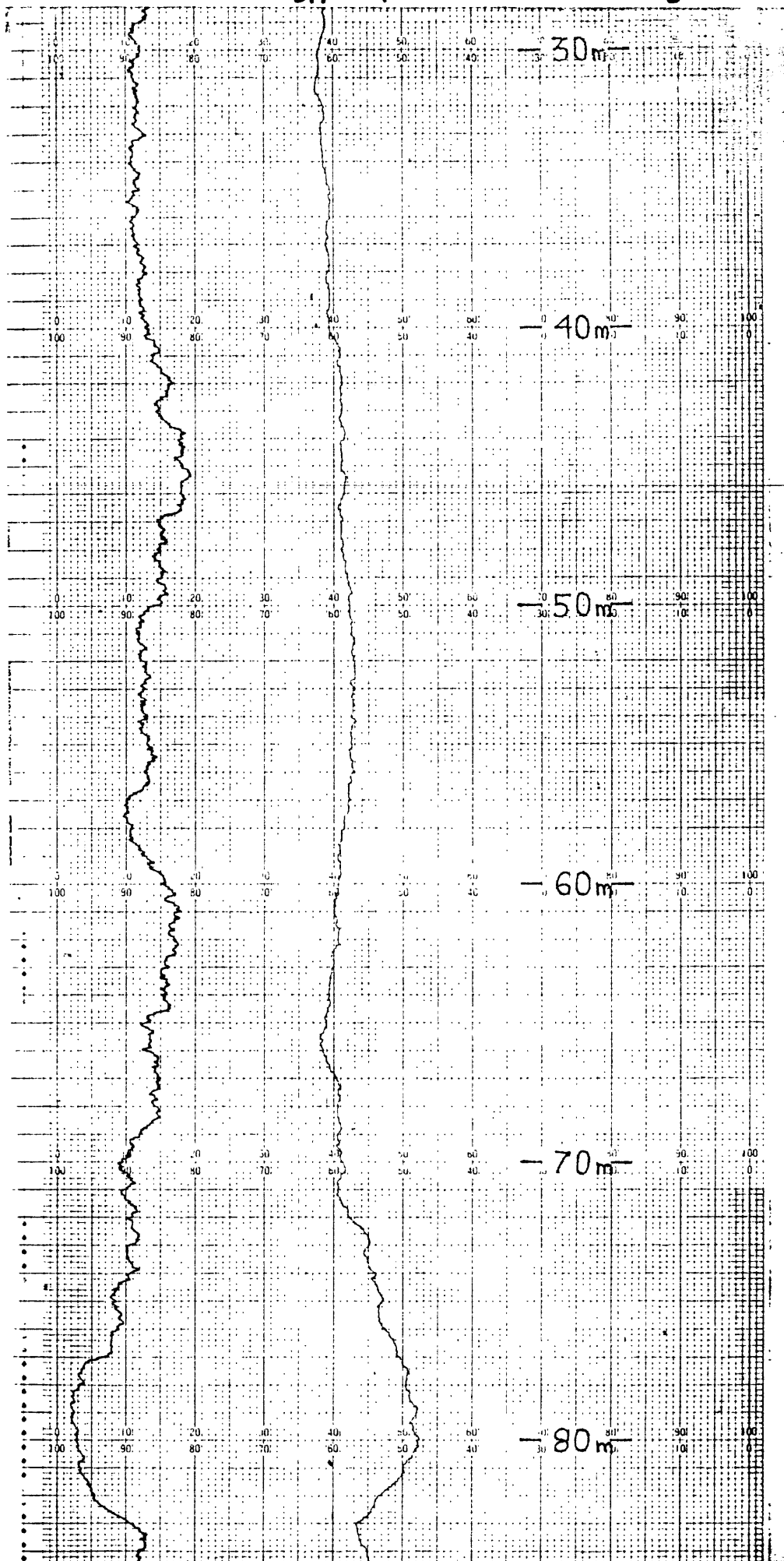
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sind - Pakistan		DEPTH DRILLED	250.50 m		CLIENT	GSP-4565-USAID	
REGION	Thatta		DEPTH LOGGED	245 m		GEOLOGIST	Shafiq	
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	Mujeeb - Ilyas	
PROSPECT			DIA	See Caliper	FROM TO	UNIT NO	PL-2	
SEC	TWP	RNG	DIA	10g	FROM TO	OFFICE	Boulder, Colorado	
DIA			DIA			ELECTRIC		
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH	243 m	245 m	FLUID LEVEL	4 m		LOGGED DEPTH	FT	FT
RANGE (1%)	100	500	CASING DATA			SCALE		
STD DEV	10%	1%	WALL SIZE	HW + NW		PAPER SPEED		
PAPER SPEED	1-1	1-1	ID	4" + 3"		LOG SPEED		
LOG SPEED	6-1	6-1	CASED FROM	See Remarks TO		FINE ADJ		
BKGND COUNT	64-2	64-2	CASING TYPE			CALIPER		
PROBE NO	1	1	SAMPLE DATA			LOGGED DEPTH	FT	
SIZE (DIB)	13/8	13/8	NON-CORED HOLE	CORED HOLE		SCALE		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		PAPER SPEED		
DEAD TIME	2.0	2.0				LOG SPEED		
STANDARD						ARM LENGTH	IN	
DIGITAL DATA			REMARKS			MAX DEF	IN	
PRINT INTERVAL			4W to 140.60 m			VERTICAL DEV.		
TIMEBASE			NW to 244.60 m			DEPTH		
			Logged Thru Drill Pipe			INCLIN		
DENSITY CALIBRATION						BEARING		
ALUMINUM								
LUCITE								





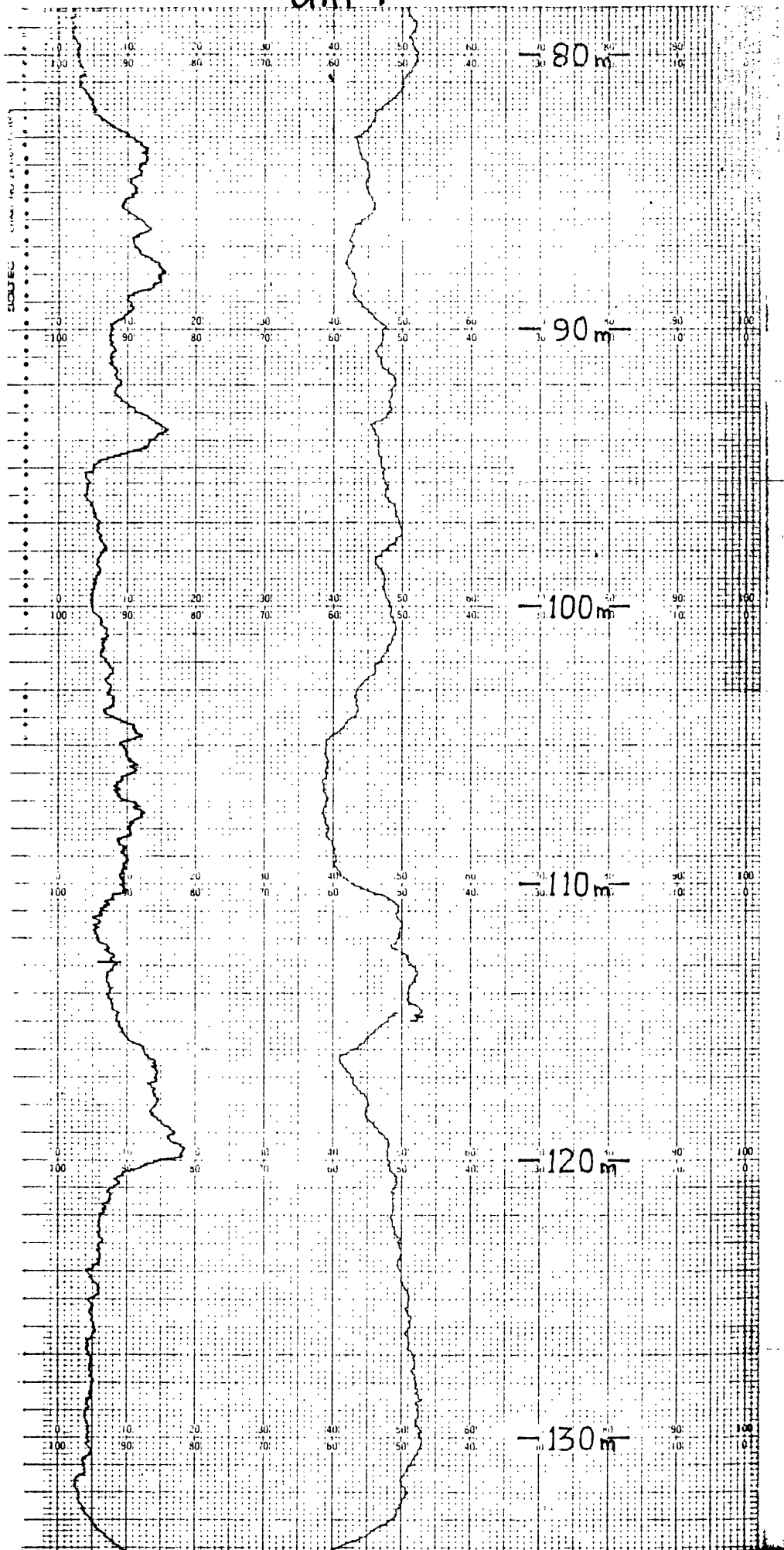
UNT-1

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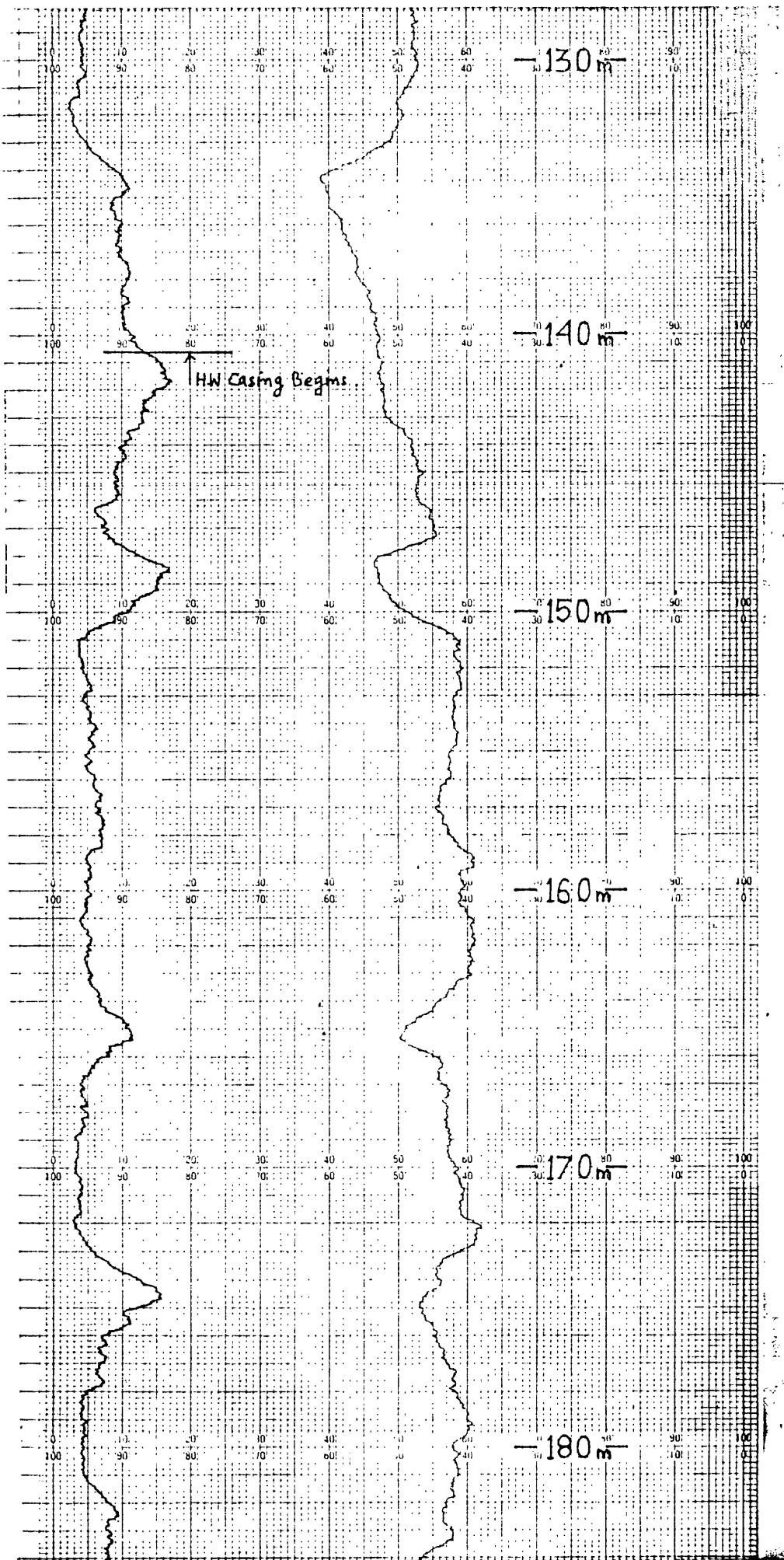
R394

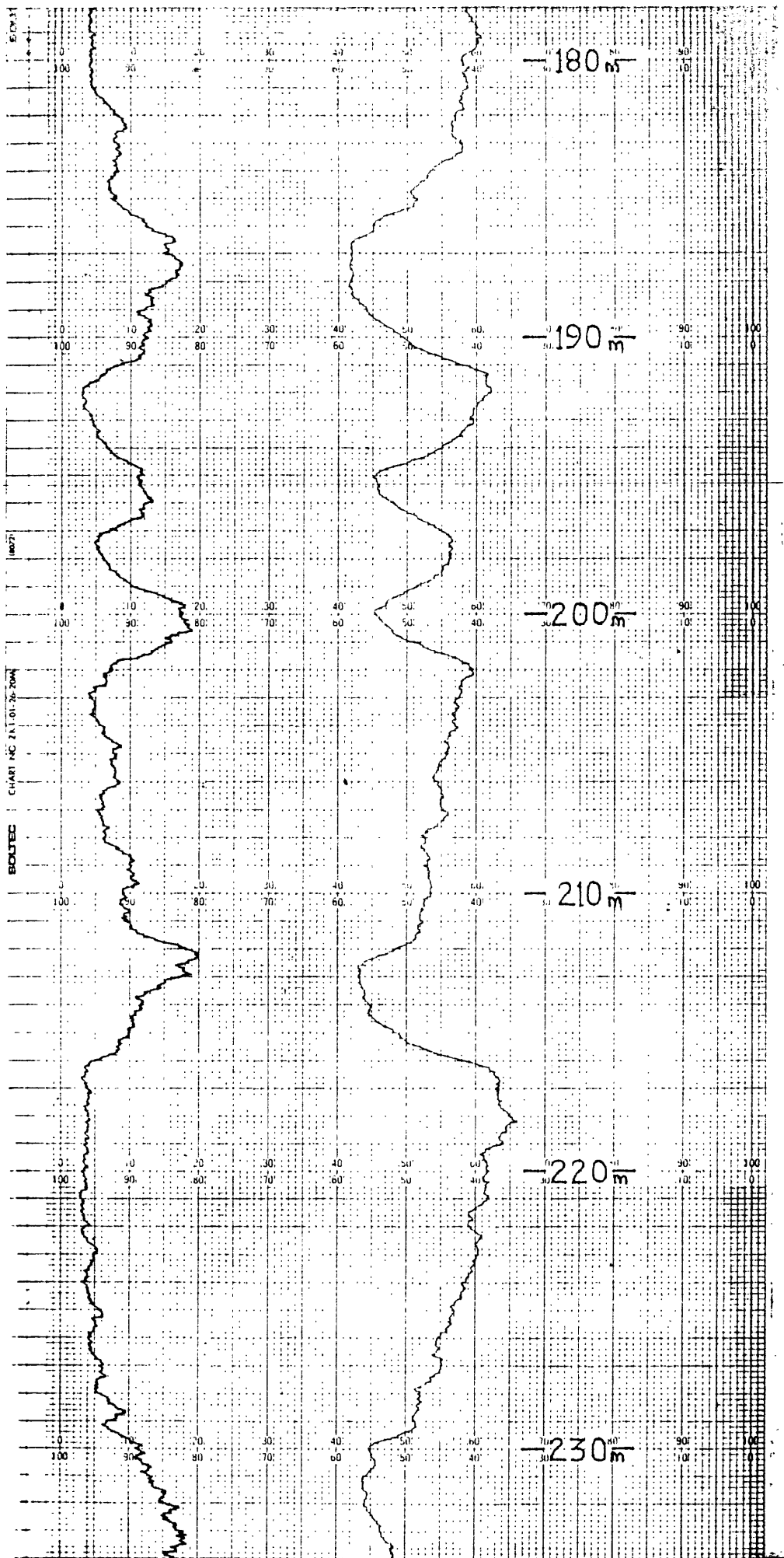


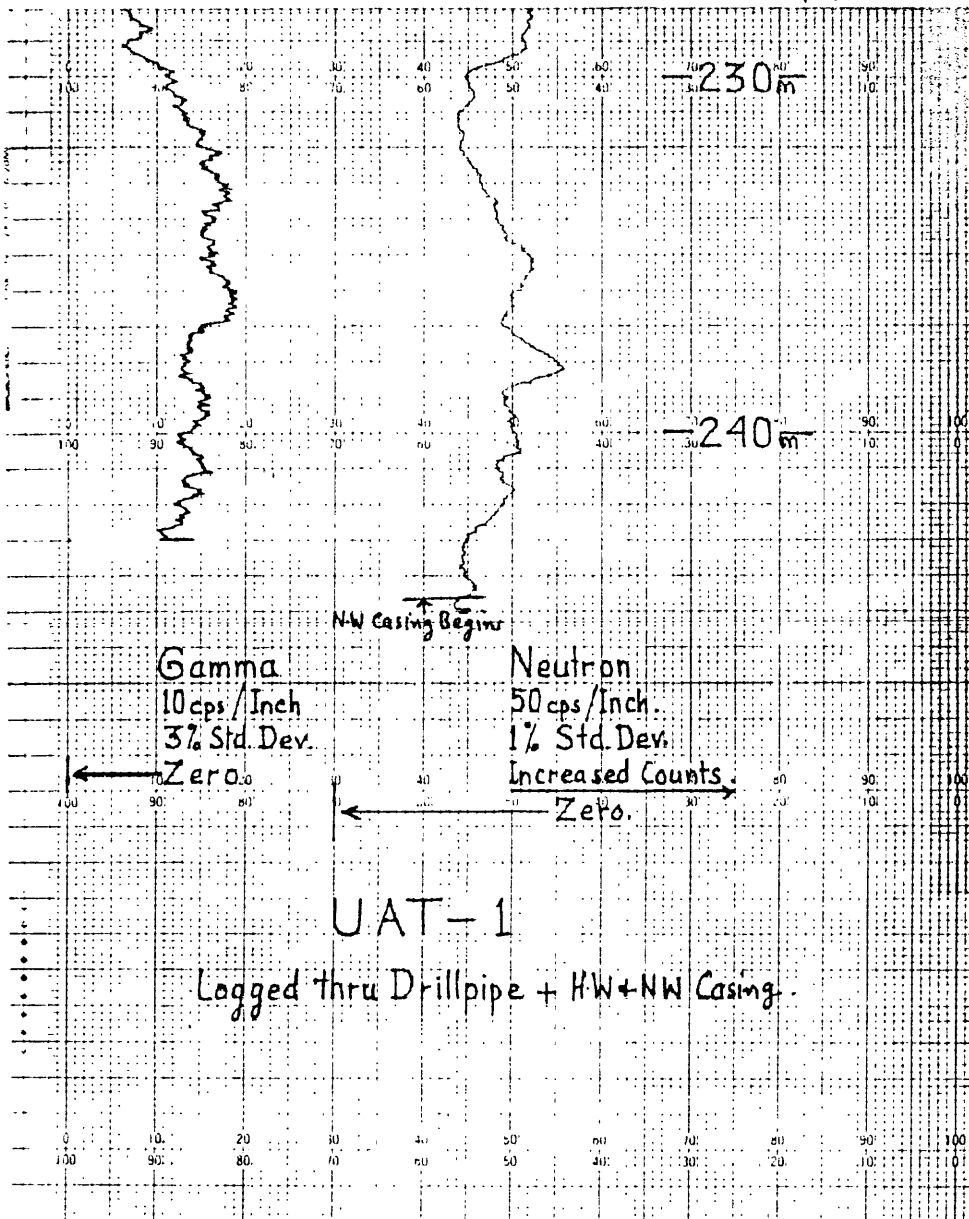
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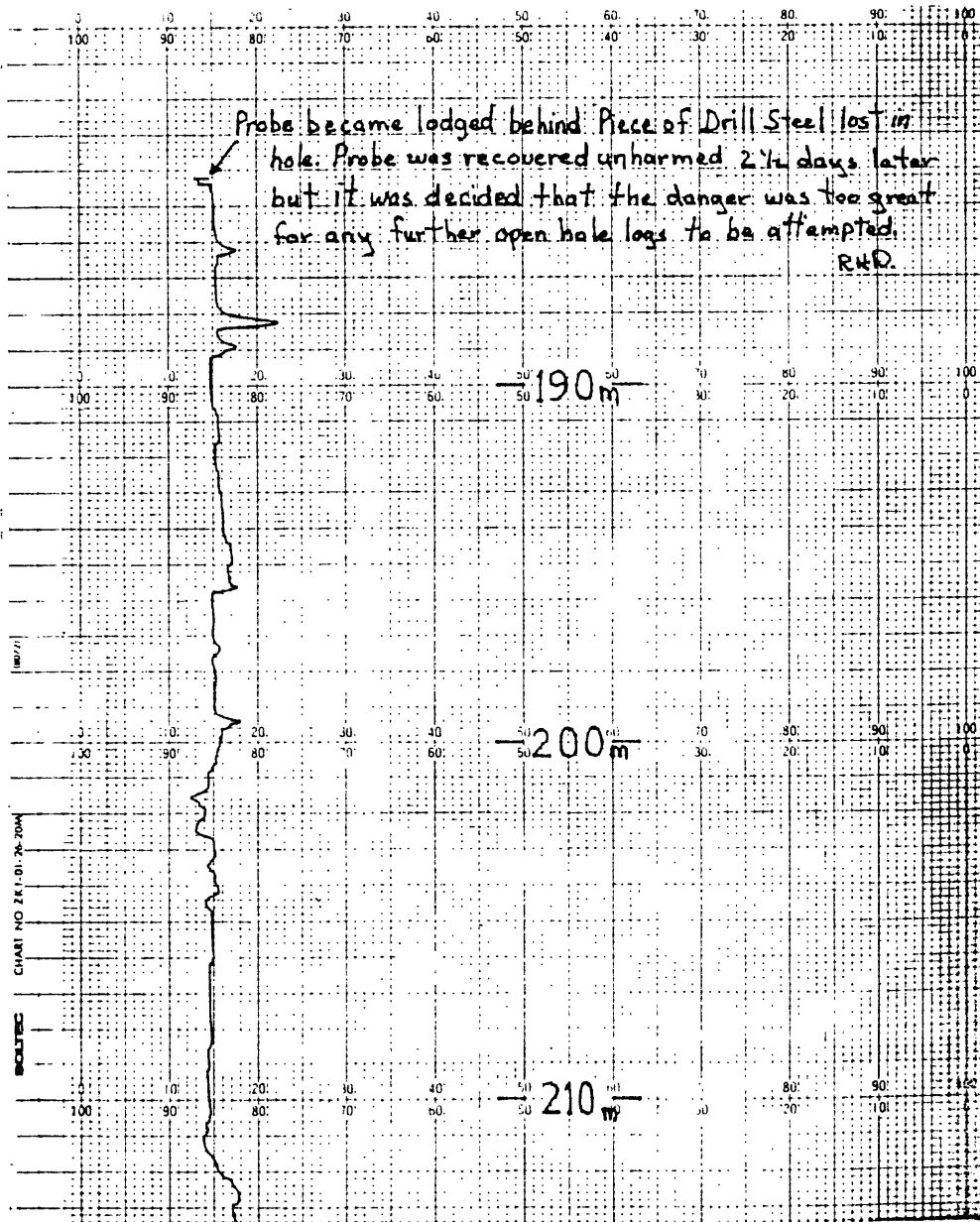
# GEOSCIENCE ASSOCIATES

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HOLE NUMBER: UAT-1

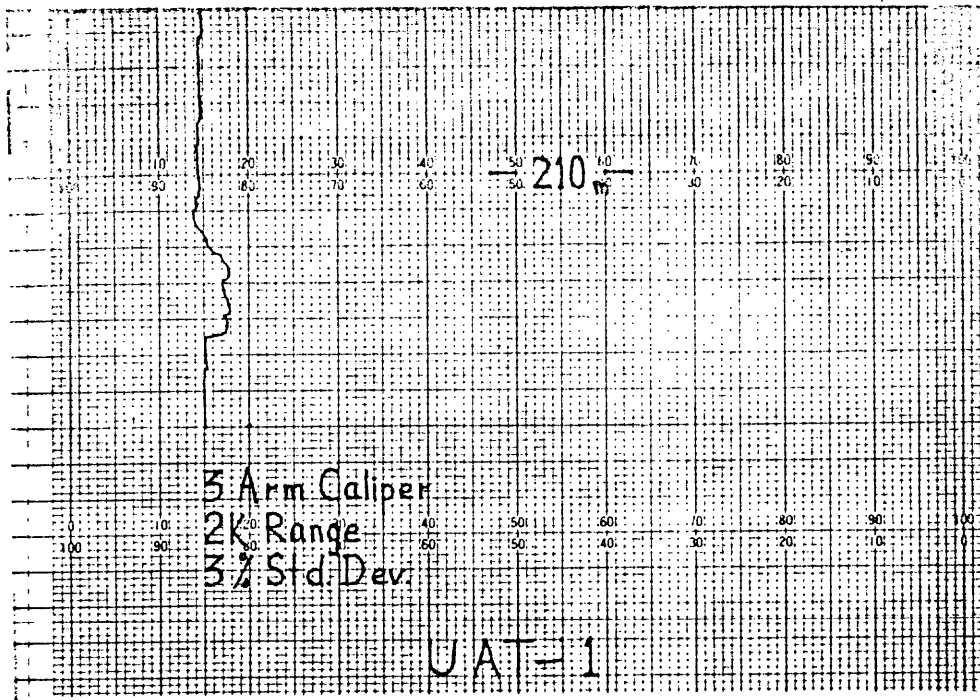
DATE: March 13, 1987 (Friday)

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh - Pakistan		DEPTH DRILLED	250.50 m		CLIENT	USP-U.S. - USAID	
REGION	Thatta		DEPTH LOGGED	217 m		GEOLOGIST	Shahid	
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	Mujeeb - Trainee	
PROSPECT			DIA	FROM	TO	UNIT NO	OFFICE	
SEC	TWP	RNG	DIA	FROM	TO	PL-2	Boulder, Colorado	
TYPE	GAM		BOREHOLE MEDIUM	H <sub>2</sub> O + mud		ELECTRIC		
LOGGED DEPTH			FLUID LEVEL			TYPE	RESIST	S.P.
RANGE (1st)			CASING DATA			LOGGED DEPTH	FT	FT
STD DEV			WALL SIZE	None		SCALE		
PAPER SPEED			ID			PAPER SPEED		
LOG SPEED			CASED FROM		TO	LOG SPEED		
BKGD COUNT			CASING TYPE			FINE ADJ		
PROBE NO			SAMPLE DATA			3-ARM CALIPER		
SIZE (dia)			NON-CORED HOLE		CORED HOLE	LOGGED DEPTH	217 m	
K-FACTOR			SAMPLED INTERVAL		SAMPLE TYPE	SCALE	4" = 1" Dia.	
DEAD TIME			REMARKS			PAPER SPEED		
STANDARD			3-Arm Caliper lodged in hole			LOG SPEED	6"	
DIGITAL DATA			behind piece of drill steel			ARM LENGTH	12"	
PRINT INTERVAL			lost in hole. Probe was found			MAX DEF	24"	
TIMEBASE			unharmed 2 1/2 days later but			VERTICAL DEV.		
DENSITY CALIBRATION			all further open hole logging			DEPTH		
ALUMINUM			was abandoned - too dangerous			INCLIN		
LUCITE			RWD			BEARING		



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DRILL HOLE UAT-2





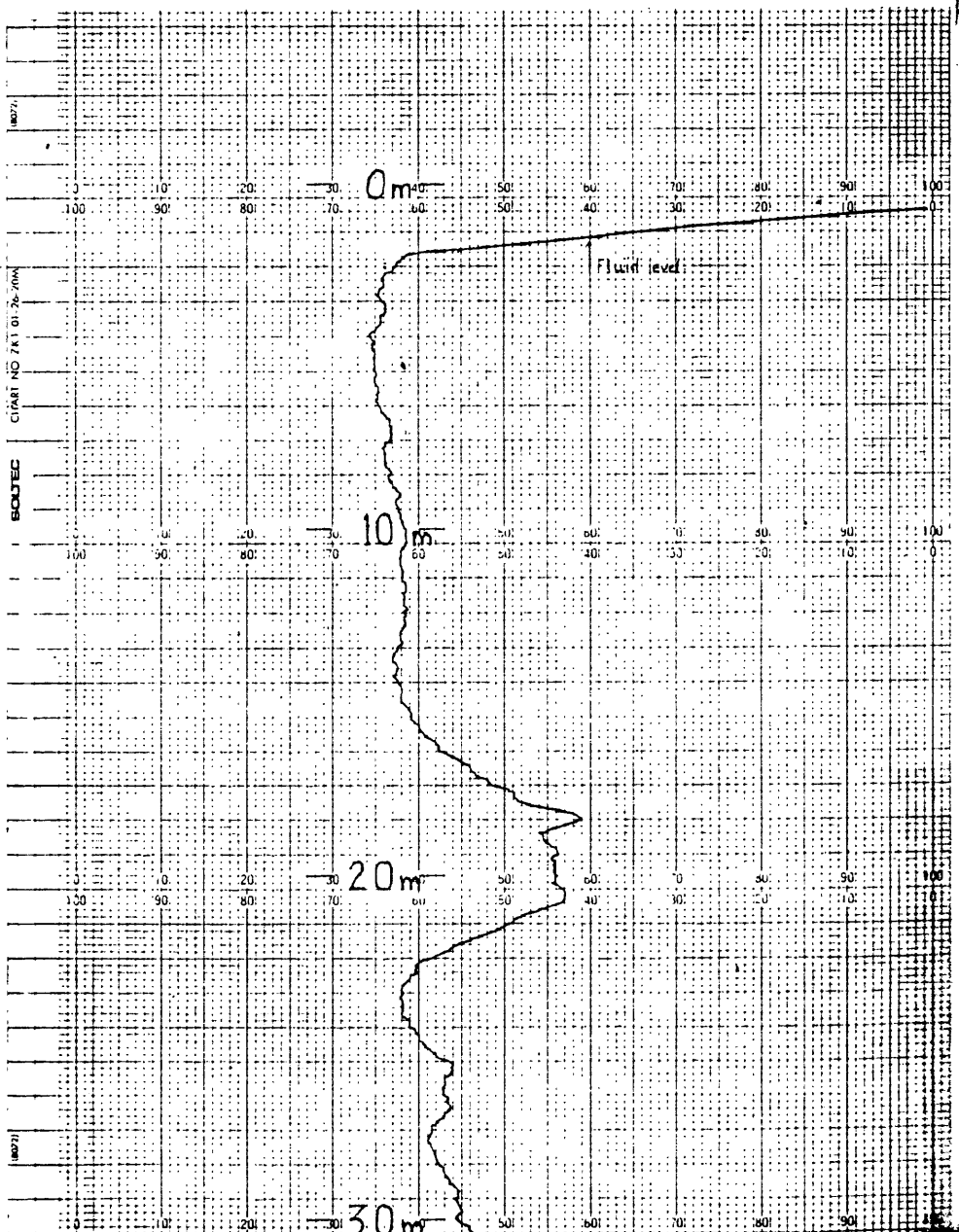
# GEOSCIENCE ASSOCIATES

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HOLE NUMBER: UAT-2

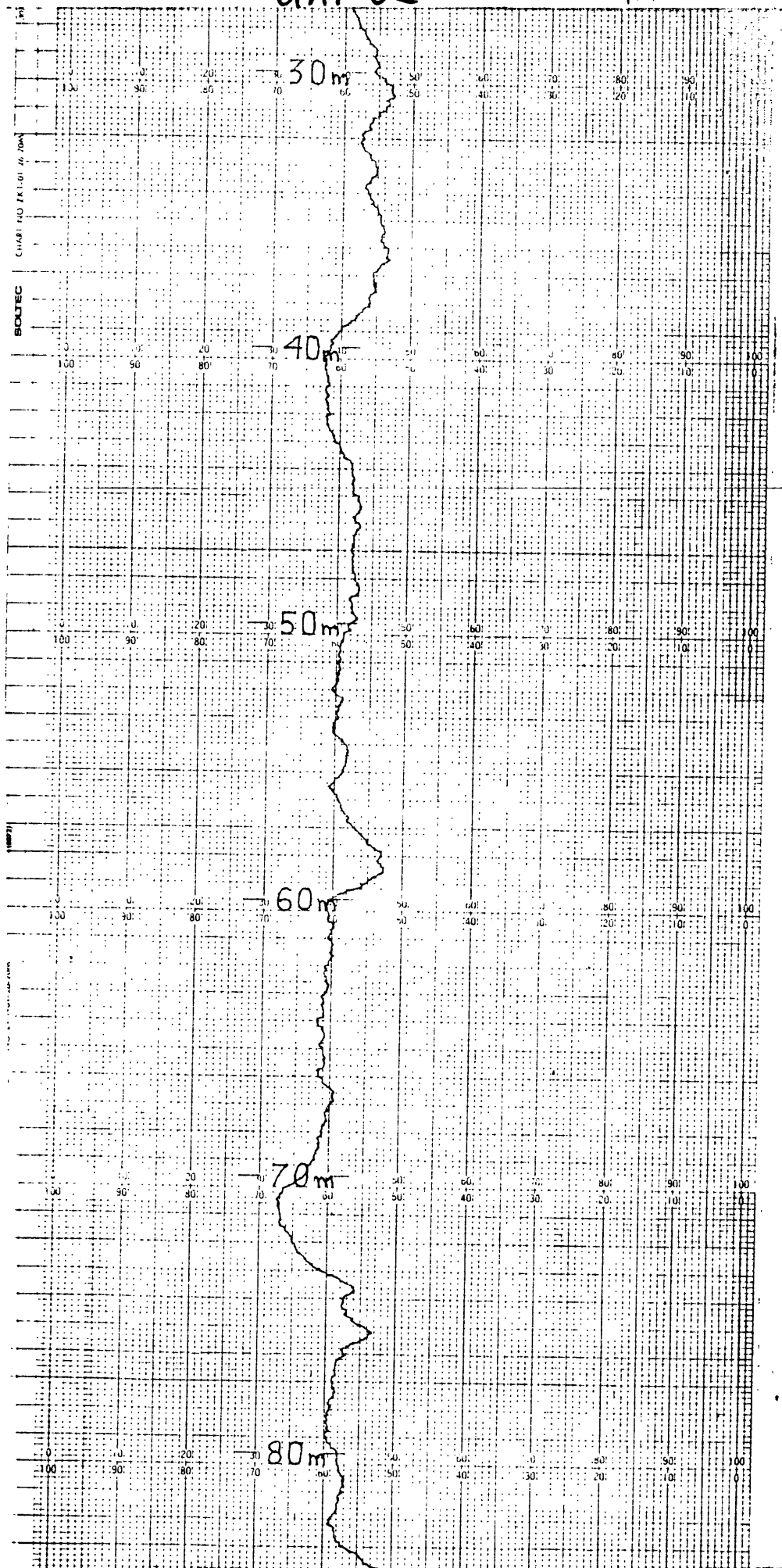
DATE: 25<sup>th</sup> March 1977

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh, Pakistan		DEPTH DRILLED	100.0 m		CLIENT	S.P. USGS	
REGION	Thatta		DEPTH LOGGED	101 m		GEOLOGIST		
PROJECT	Sindh Reup		COLLAR ELEV			UNIT OPERATOR	MUJEEB	
PROSPECT			DIA Size	FROM	TO	UNIT NO	PL-2	OFFICE
SEC	TWP	RNG	DIA Caliper	FROM	TO	Boulder Colorado USA		
			DIA Log	FROM	TO	ELECTRIC		
TYPE	GAM	4P Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH		26m	FLUID LEVEL			LOGGED DEPTH	FT	FT
RANGE (ft)		2K	CASING DATA			SCALE		
STD DEV		1.5	WALL SIZE	4		PAPER SPEED		
PAPER SPEED		1	10 mm H <sub>2</sub> O 4" 10 mm H <sub>2</sub> O 5"			LOG SPEED		
LOG SPEED		6-1	CASED FROM	see Remarks TO		FINE ADJ		
BKGND COUNT			CASING TYPE	H <sub>2</sub> O N.W.				
PROBE NO		60-1	SAMPLE DATA					
SIZE (dia)		1.5	NON-CORED HOLE	CORED HOLE				
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME		2	REMARKS					
STANDARD			H <sub>2</sub> O Cased from 0m to 51.2 m					
DIGITAL DATA			N.W. Cased from 2m to 235.4 m					
PRINT INTERVAL			Logged then Drilled 1 m at a time					
TIMEBASE								
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								
						CALIPER		
						LOGGED DEPTH		
						SCALE		
						PAPER SPEED		
						LOG SPEED		
						ARM LENGTH		
						MAX DEF		
						VERTICAL DEV.		
						DEPTH		
						INCLIN		
						BEARING		

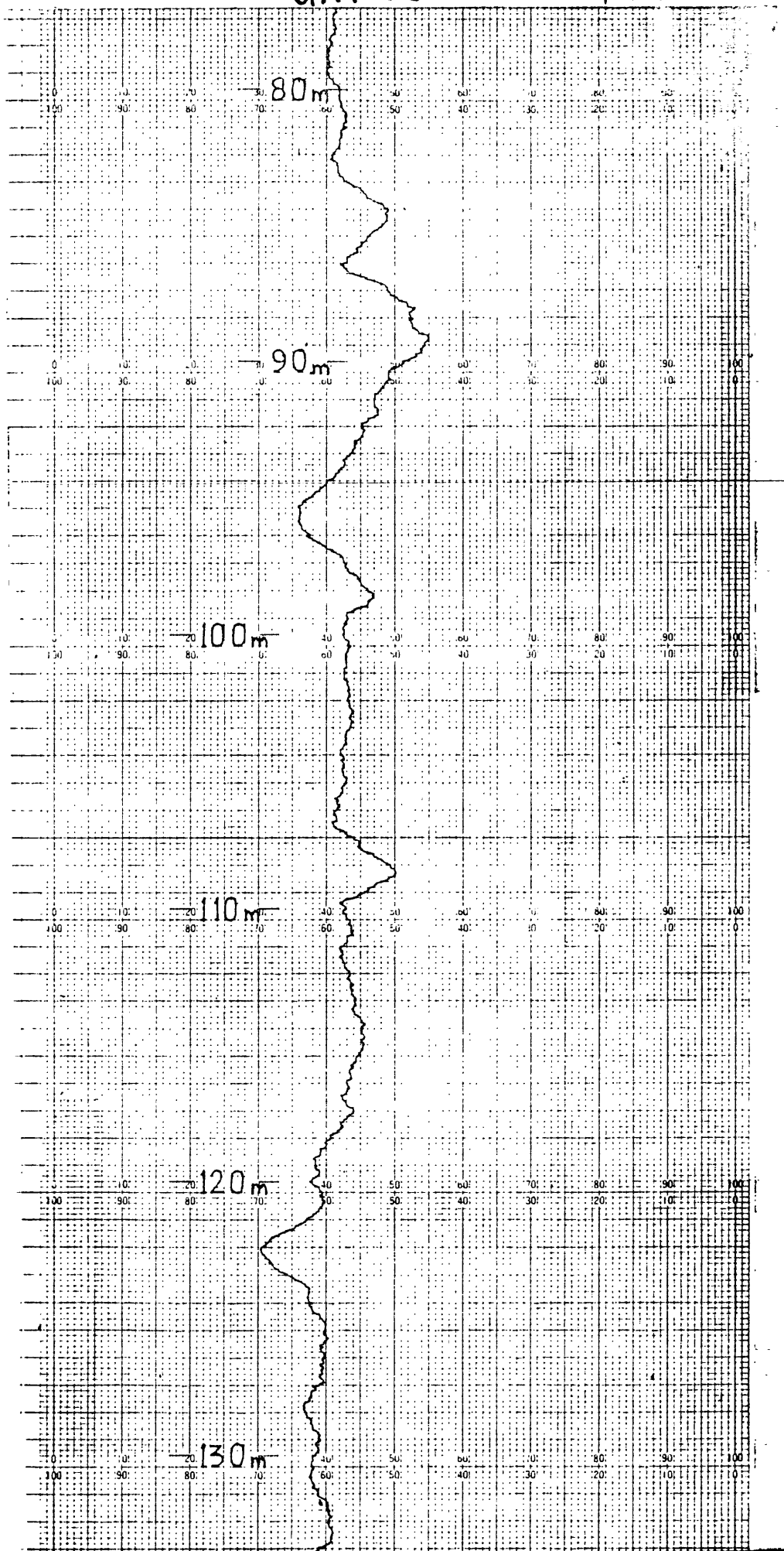


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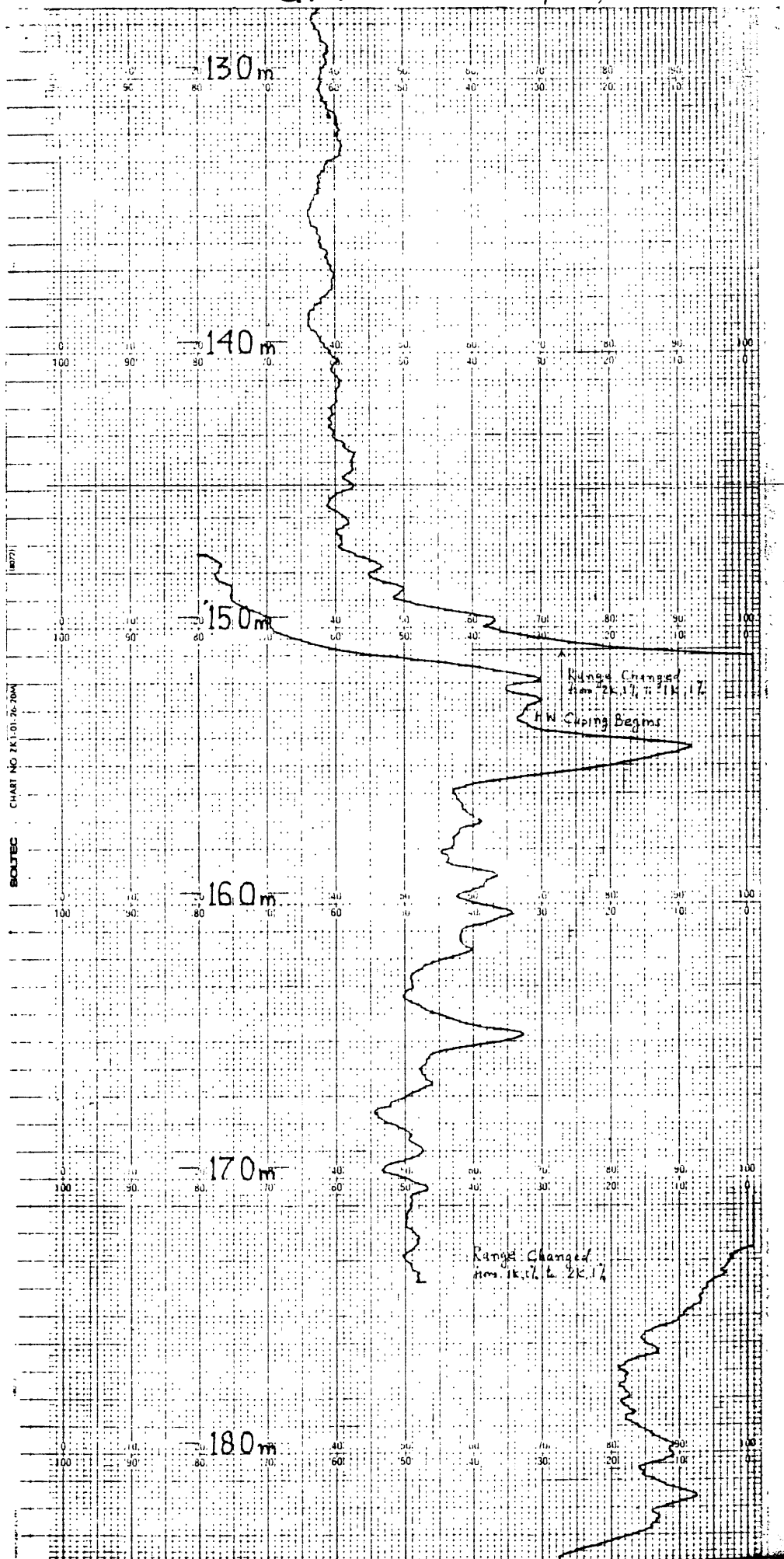
P.402



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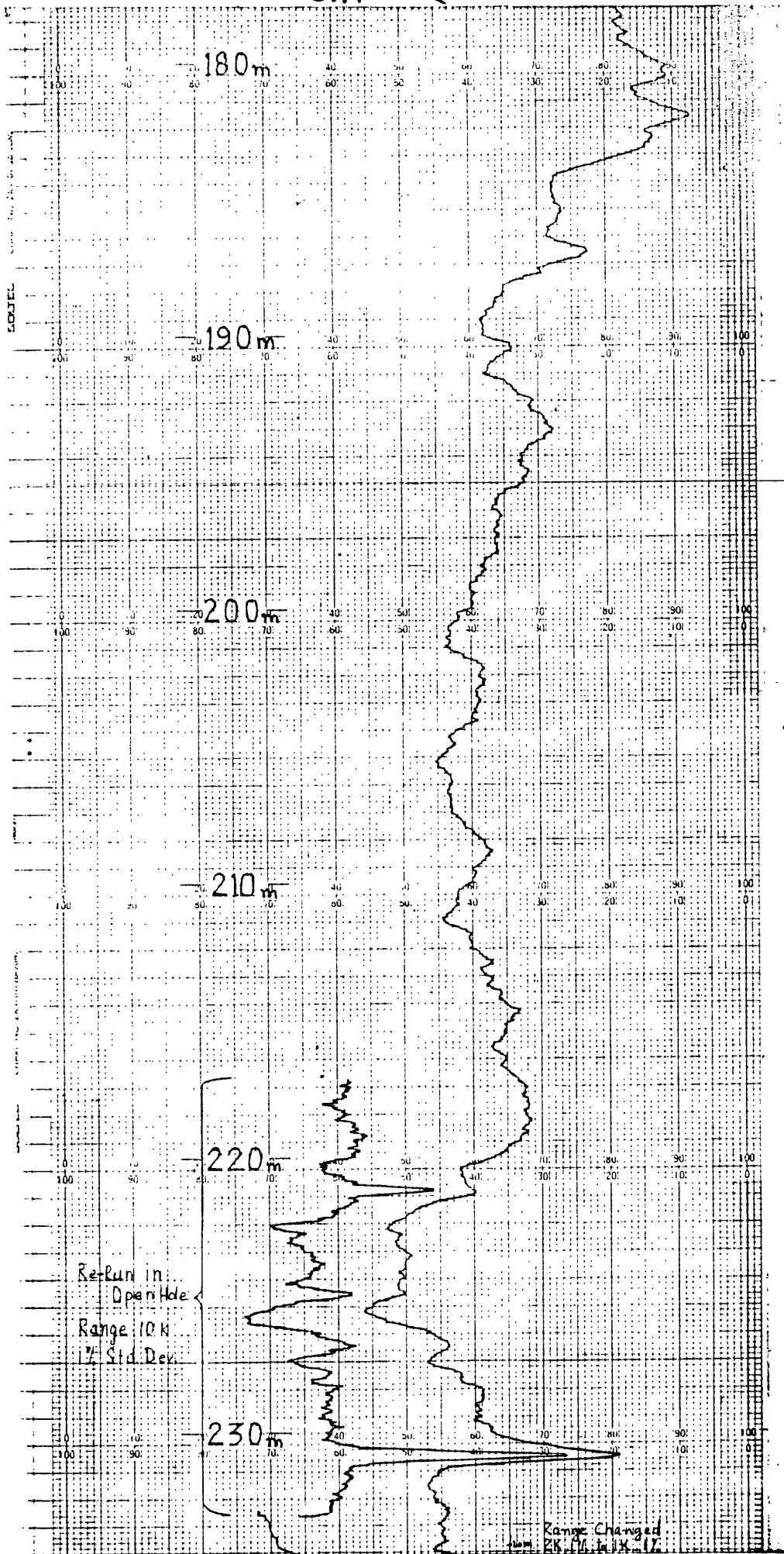


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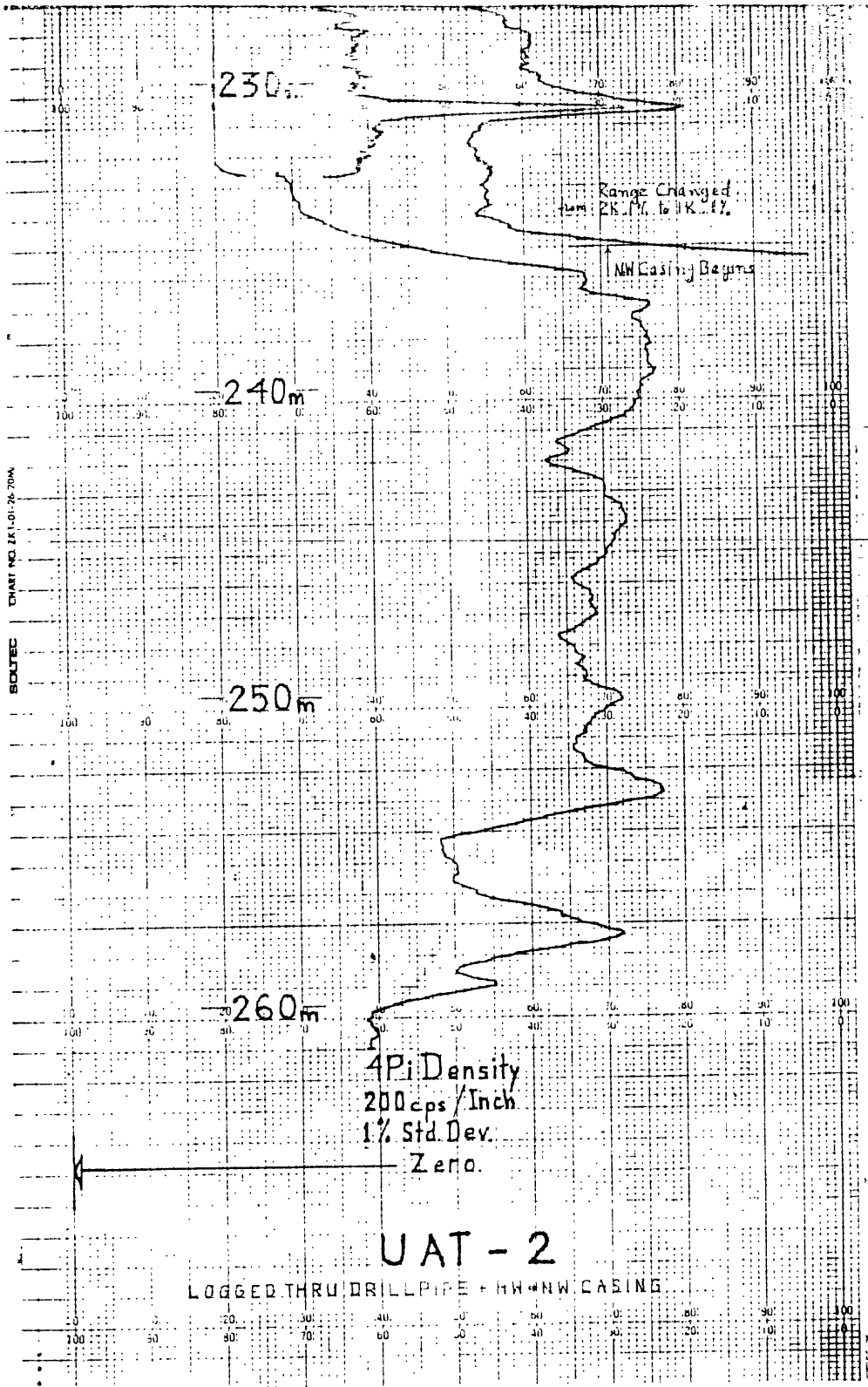
UAT-2

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# GEOSCIENCE ASSOCIATES

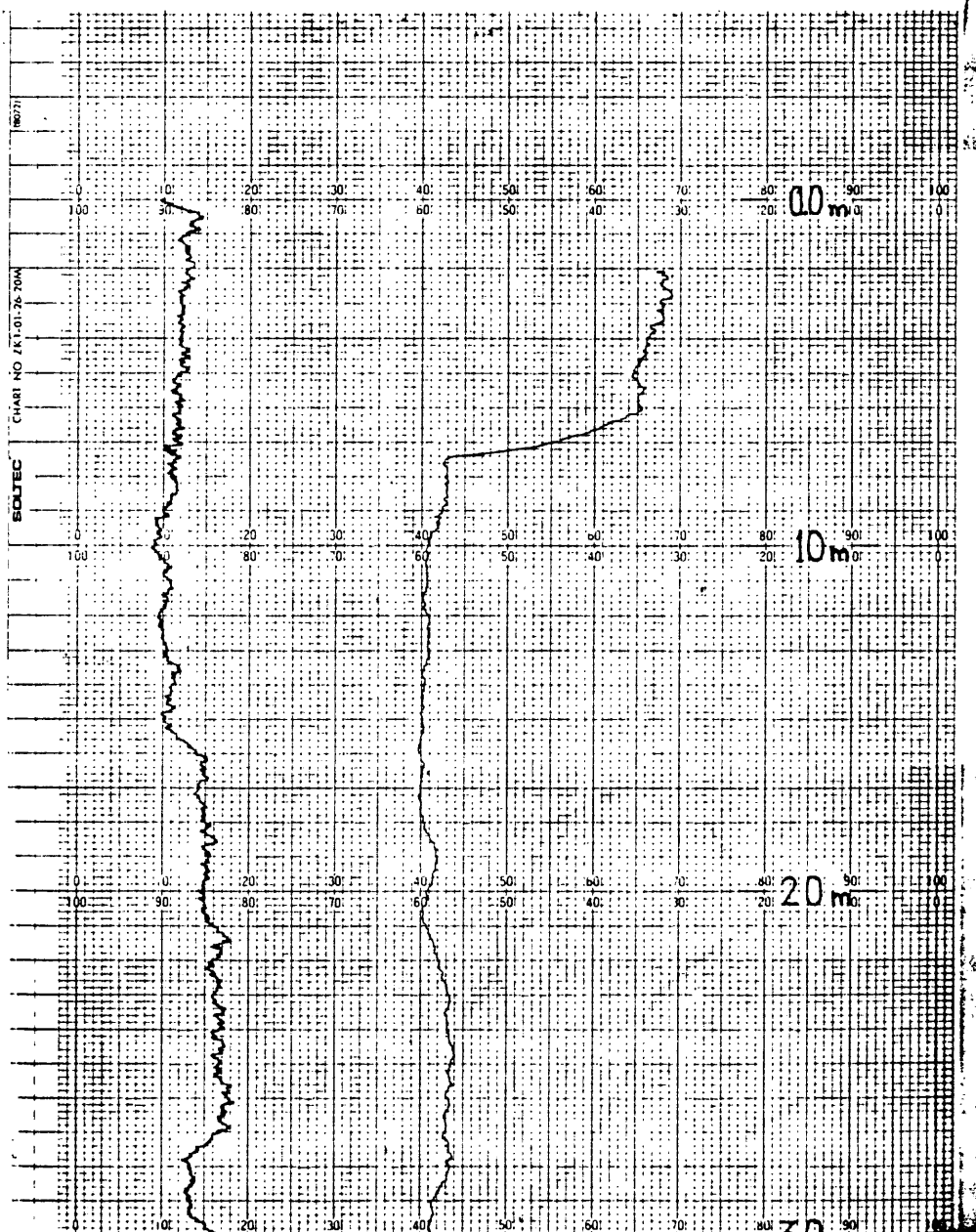
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HOLE NUMBER:

UAT-2

DATE: 28<sup>th</sup> March 1987

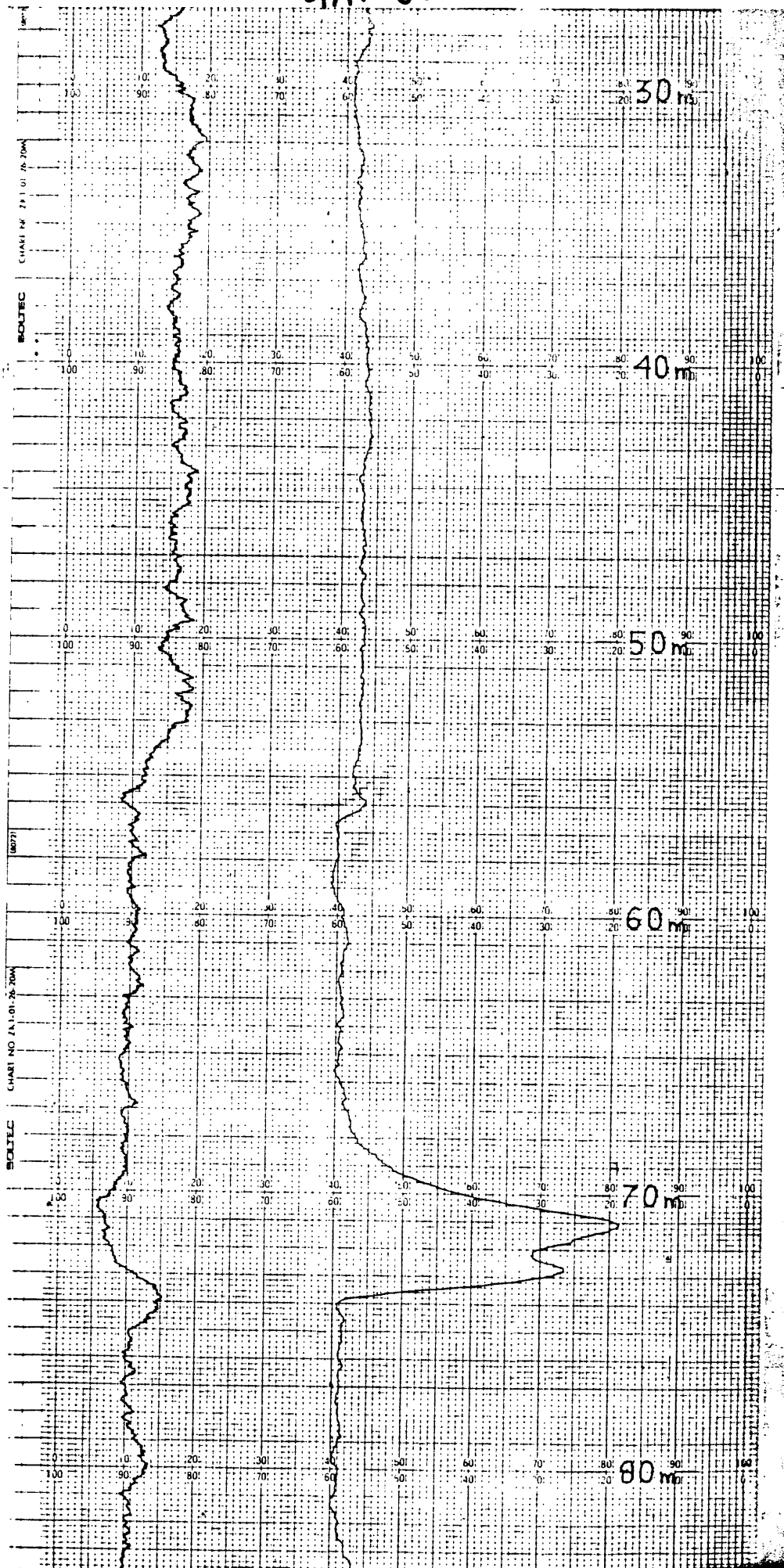
LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sind	Pakistan	DEPTH DRILLED	235 m	CLIENT	SSP U.S.G.S.
REGION	Thatta		DEPTH LOGGED	237 m	GEOLOGIST	
PROJECT	Soul Reup		COLLAR ELEV		UNIT OPERATOR	MUJEEB
PROSPECT			DIA	FROM TO	UNIT NO	PL 2
SEC	TWP	RNG	DIA	FROM TO	OFFICE	
			DIA	FROM TO	ADDRESS	SCOTTSDALE, ARIZONA U.S.A.
TYPE	GAM	Neul	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud	ELECTRIC	
LOGGED DEPTH	235 m	237 m	FLUID LEVEL		TYPE	RESIST
RANGE (ft)	150	550	CASING DATA		LOGGED DEPTH	FT
%STD DEV	3.2		WALL SIZE	4	SCALE	FT
PAPER SPEED	1		ID mm H.W. = 4.75 ID mm N.W. = 3.75		PAPER SPEED	
LOG SPEED	5		CASED FROM	4.75 H.W. TO	LOG SPEED	
BKGD COUNT	5		CASING TYPE	H.W. N.W.	FINE ADJ	
PROBE NO	6N-1	6N-1	SAMPLE DATA		CALIPER	
SIZE (dia)	1 3/8	1 3/8	NON-CORED HOLE	<input type="checkbox"/>	LOGGED DEPTH	FT
K FACTOR			SAMPLED INTERVAL		SCALE	FT
DEAD TIME	2	2	CORED HOLE	<input checked="" type="checkbox"/>	PAPER SPEED	
STANDARD			SAMPLE TYPE		LOG SPEED	
DIGITAL DATA			REMARKS		ARM LENGTH	IN
PRINT INTERVAL			Logged thru H.W. & N.W. casing		MAX DEF	IN
TIMEBASE			H.W. Cased from 2 m to 181.2 m		VERTICAL DEV.	
DENSITY CALIBRATION			N.W. Cased from 0 m to 235.4 m		DEPTH	
ALUMINUM					INCLIN	
LUCITE					BEARING	





UAT-2

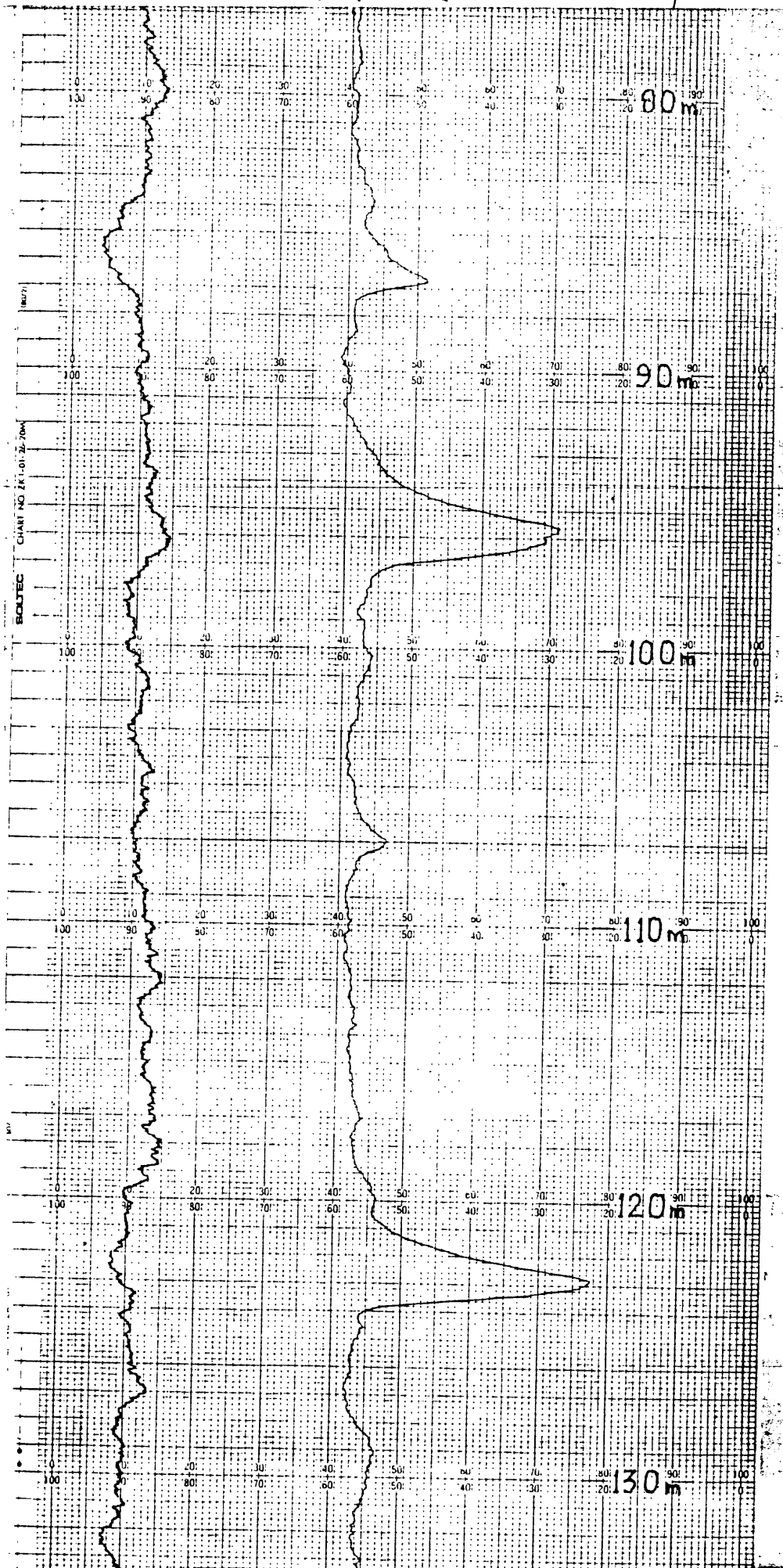
P.408





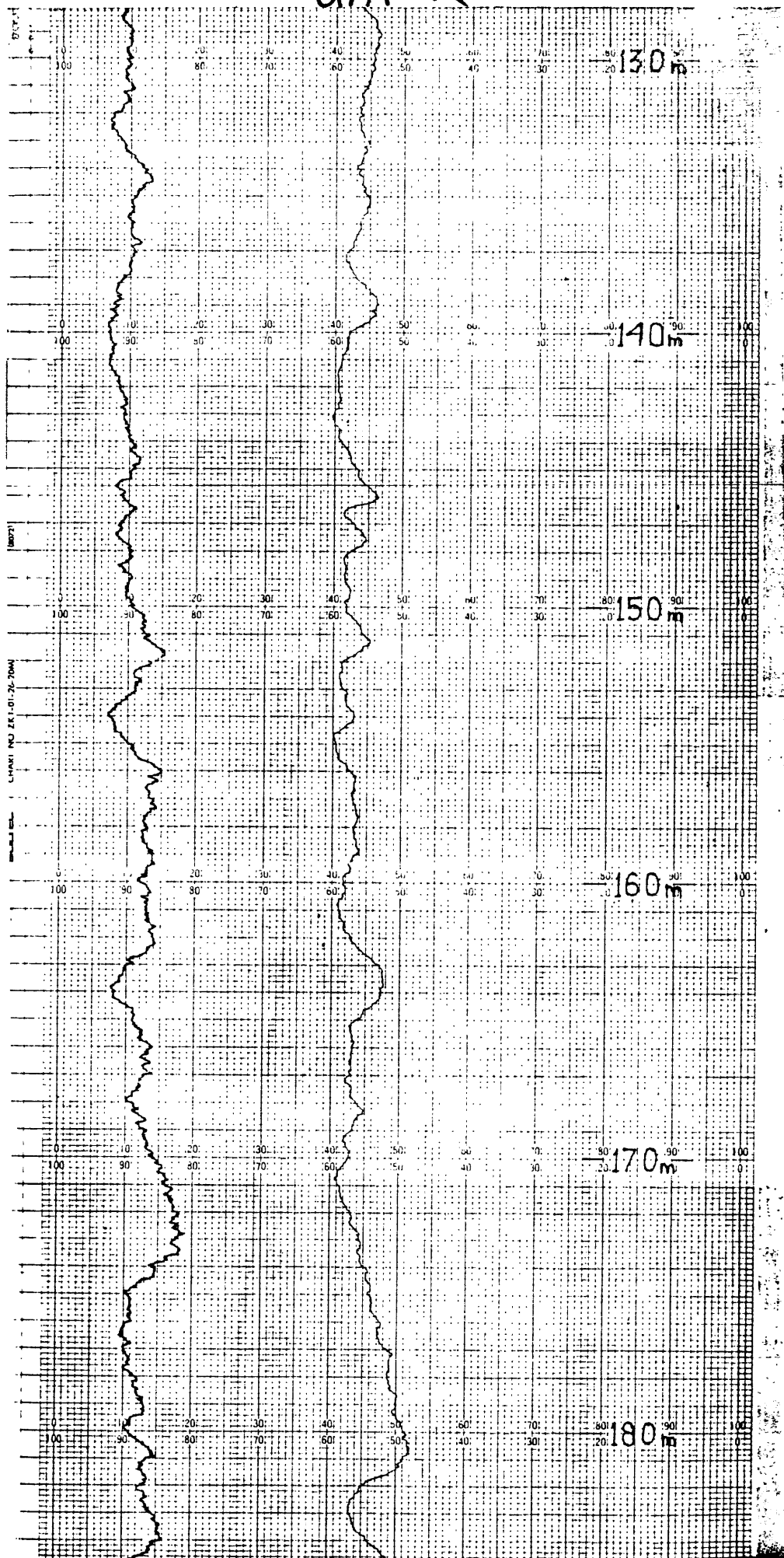
UAT-2

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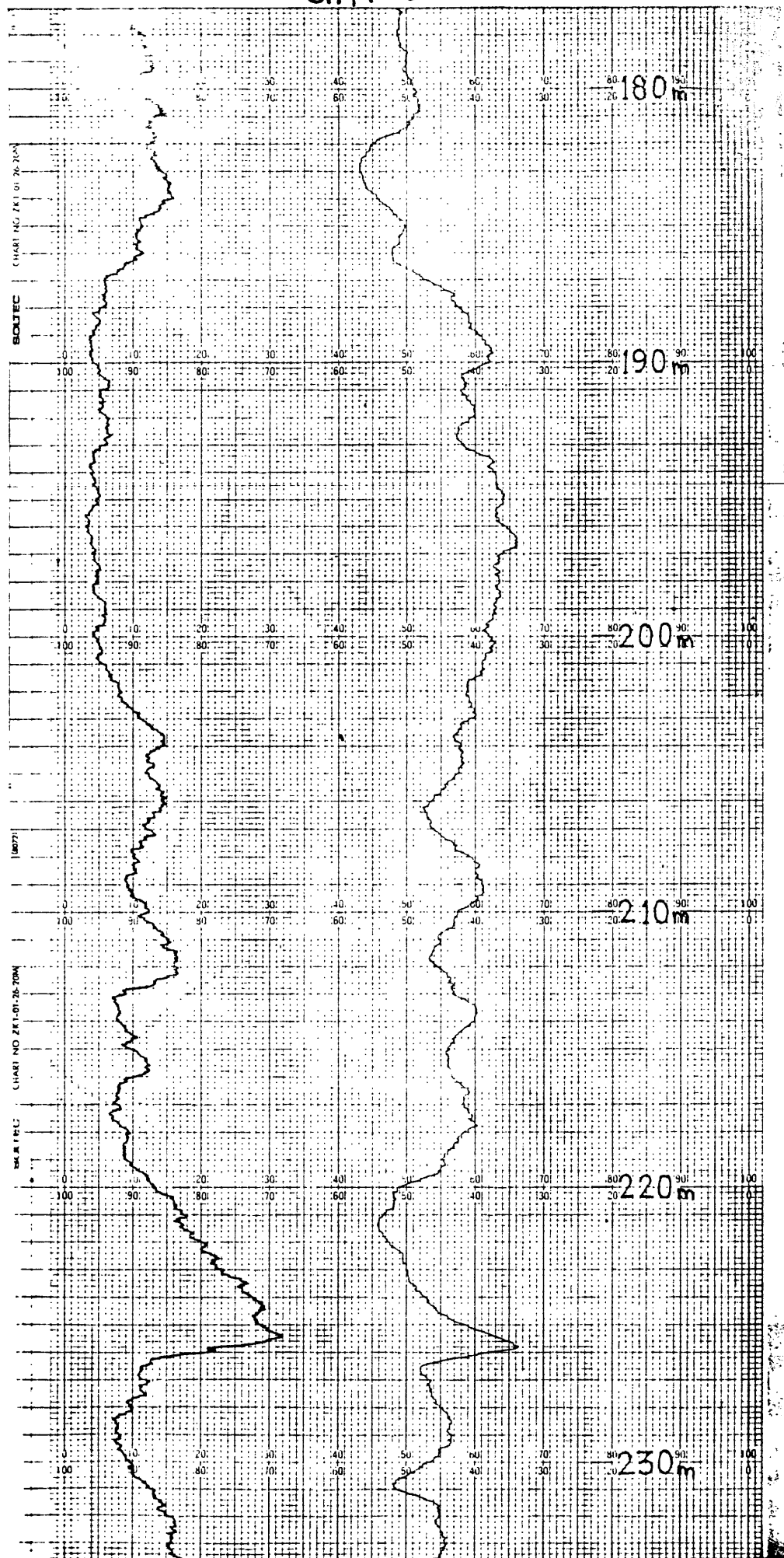
UAT-2

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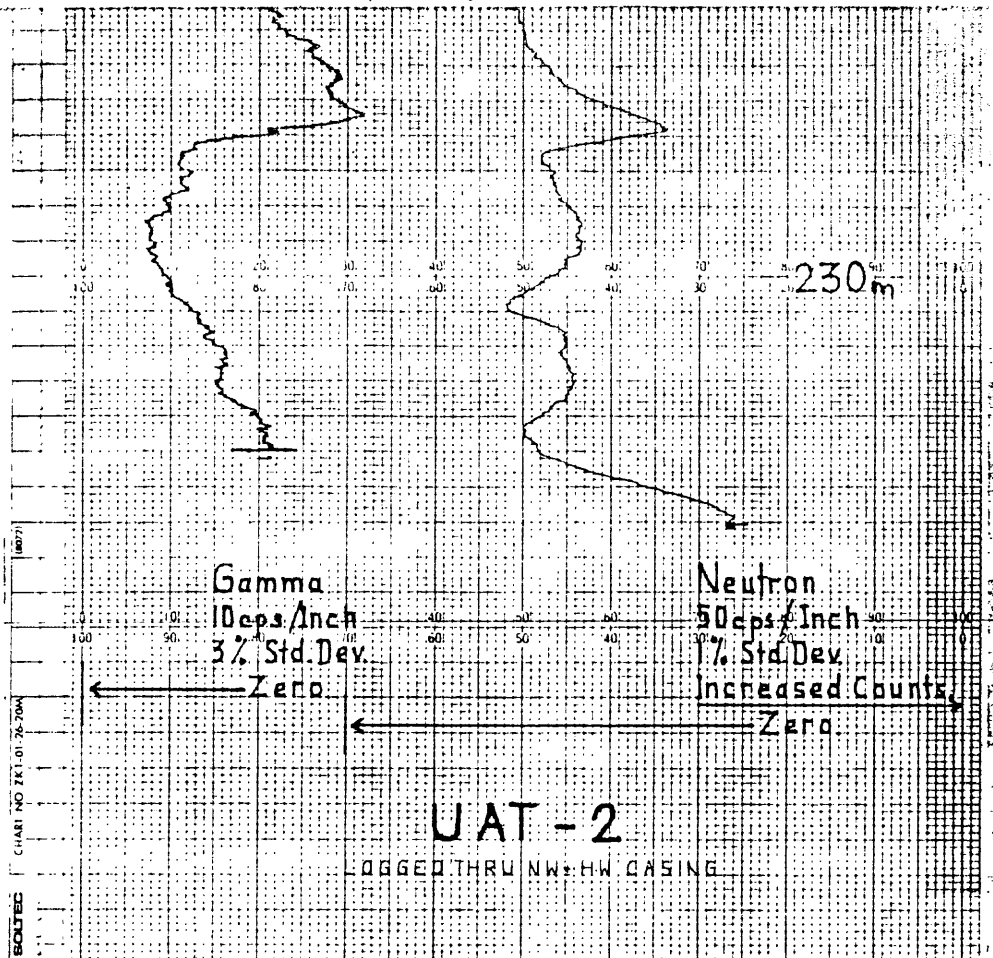
P. 411



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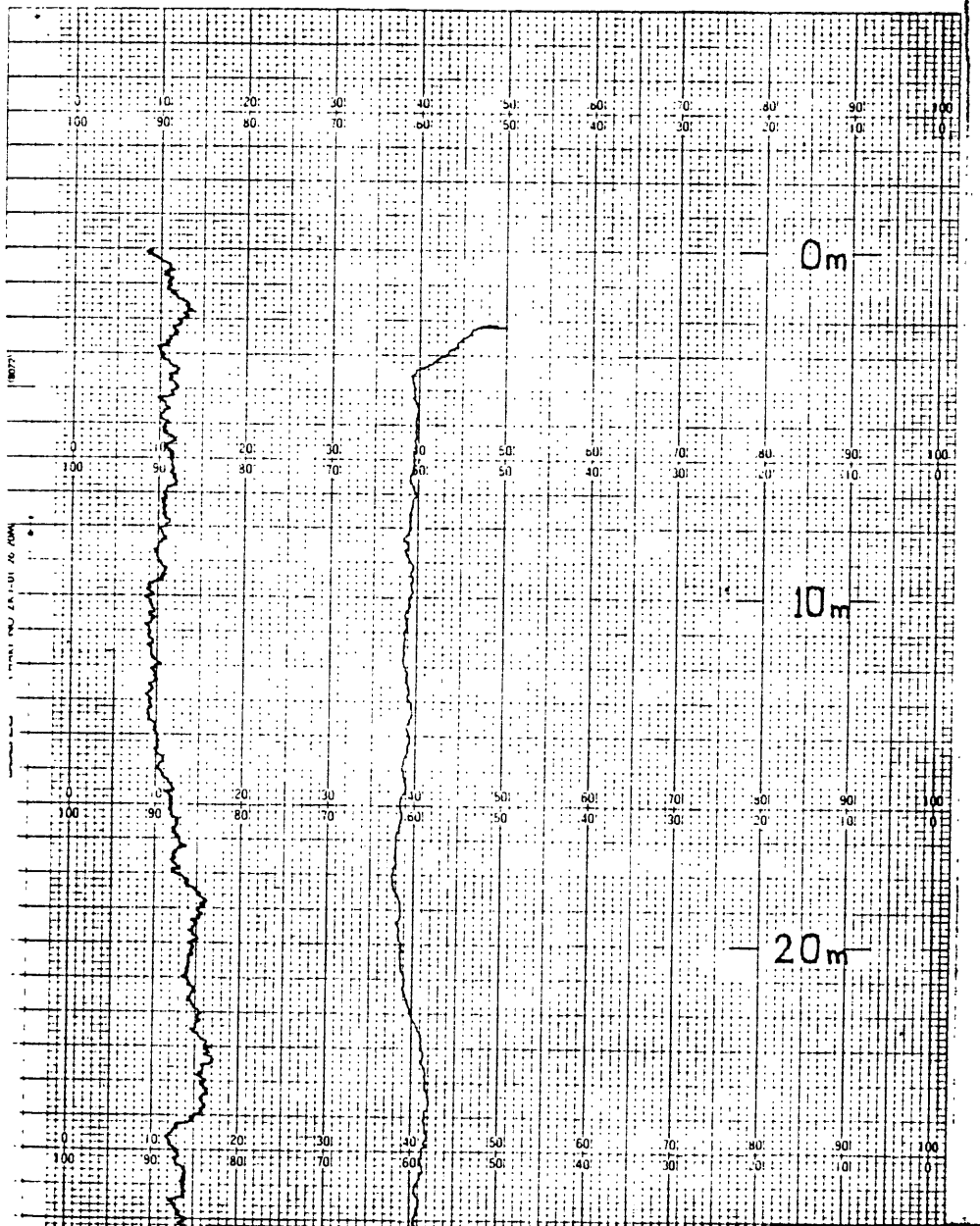
# GEOSCIENCE ASSOCIATES P.413

HOLE NUMBER:

UAT - 2

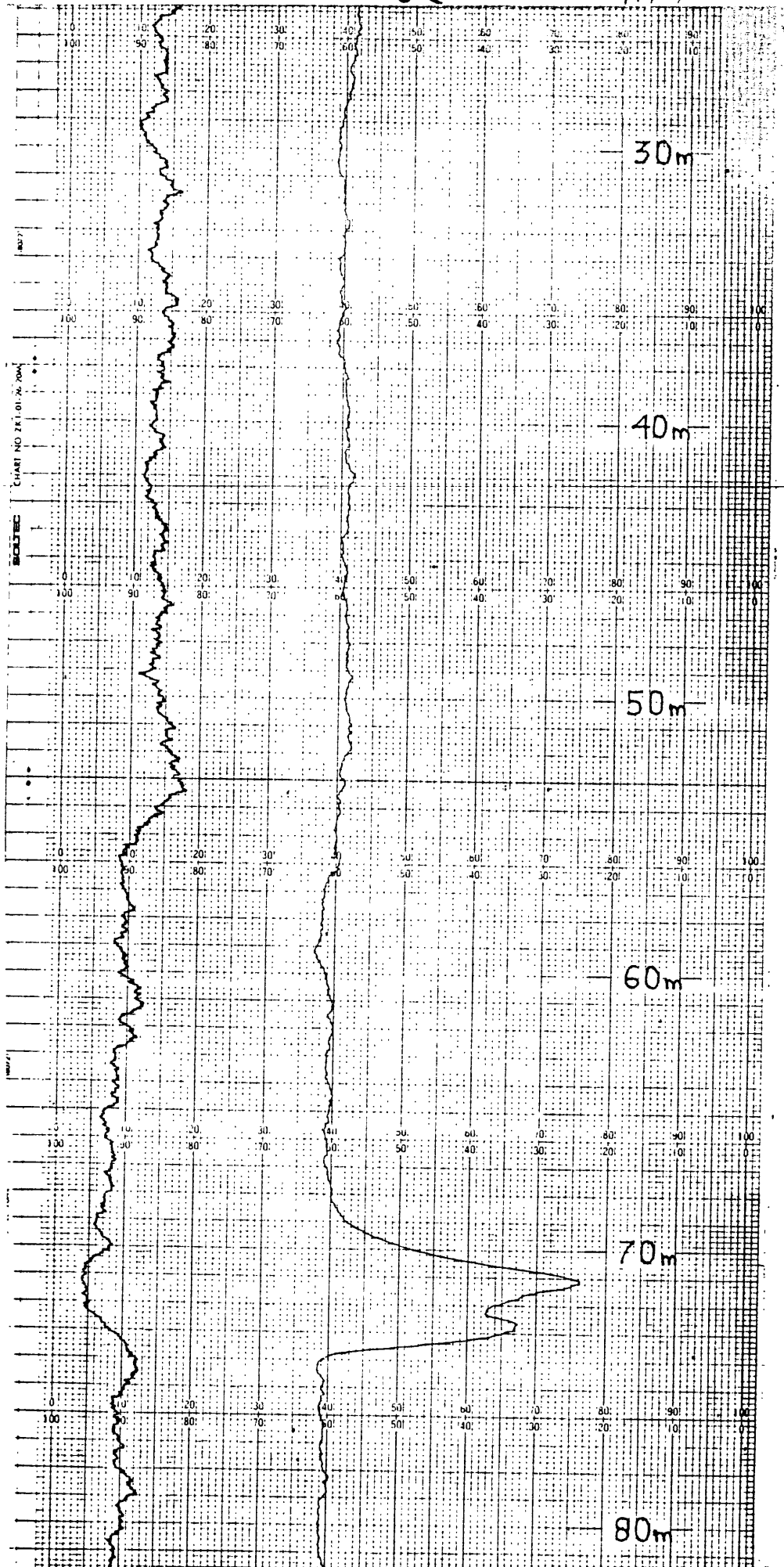
DATE: 28<sup>th</sup> March 1987

LOCATION			HOLE DATA		CLIENT					
STATE/COUNTY	Sind Pakistan		DEPTH DRILLED	268.6 m		CLIENT	U.S.P. / U.S.S.			
REGION	Thatta		DEPTH LOGGED	261 m		GEOLOGIST				
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	MUJEEB			
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2 OFFICE			
SEC	TWP	RNG	DIA	See	FROM TO	BOULDER COLORADO, U.S.A.				
TYPE	GAM	Neut	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		ELECTRIC				
LOGGED DEPTH	259 m	261 m	FLUID LEVEL			TYPE	RESIST	S.P.		
RANGE (I.S.)	100	500	CASING DATA			LOGGED DEPTH	FT	FT		
STD DEV	3%	1%	WALL SIZE	4" +		SCALE				
PAPER SPEED	1-1	1-1	I.D. for H.W. = 4" I.D. for N.W. = 3"			PAPER SPEED				
LOG SPEED	6-1	6-1	CASED FROM	See Remarks TO		LOG SPEED				
BKGND. COUNT			CASING TYPE	H.W. N.W.		FINE ADJ				
PROBE NO	GN-1	GN-1	SAMPLE DATA			CALIPER				
SIZE (dia)	13/8	13/8	NON CORED HOLE	CORED HOLE		LOGGED DEPTH	FT			
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		SCALE				
DEAD TIME	2	2	REMARKS			PAPER SPEED				
STANDARD			<i>logged from collar to 261 m casing</i> <i>H.W. cased from 0 m to 151.2 m</i> <i>N.W. cased from 0 m to 235.4 m</i>			LOG SPEED				
DIGITAL DATA						ARM LENGTH			IN	
PRINT INTERVAL						MAX DEF.			IN	
TIMEBASE						VERTICAL DEV.				
DENSITY CALIBRATION						DEPTH				
ALUMINUM						INCLIN.				
LUCITE						BEARING				



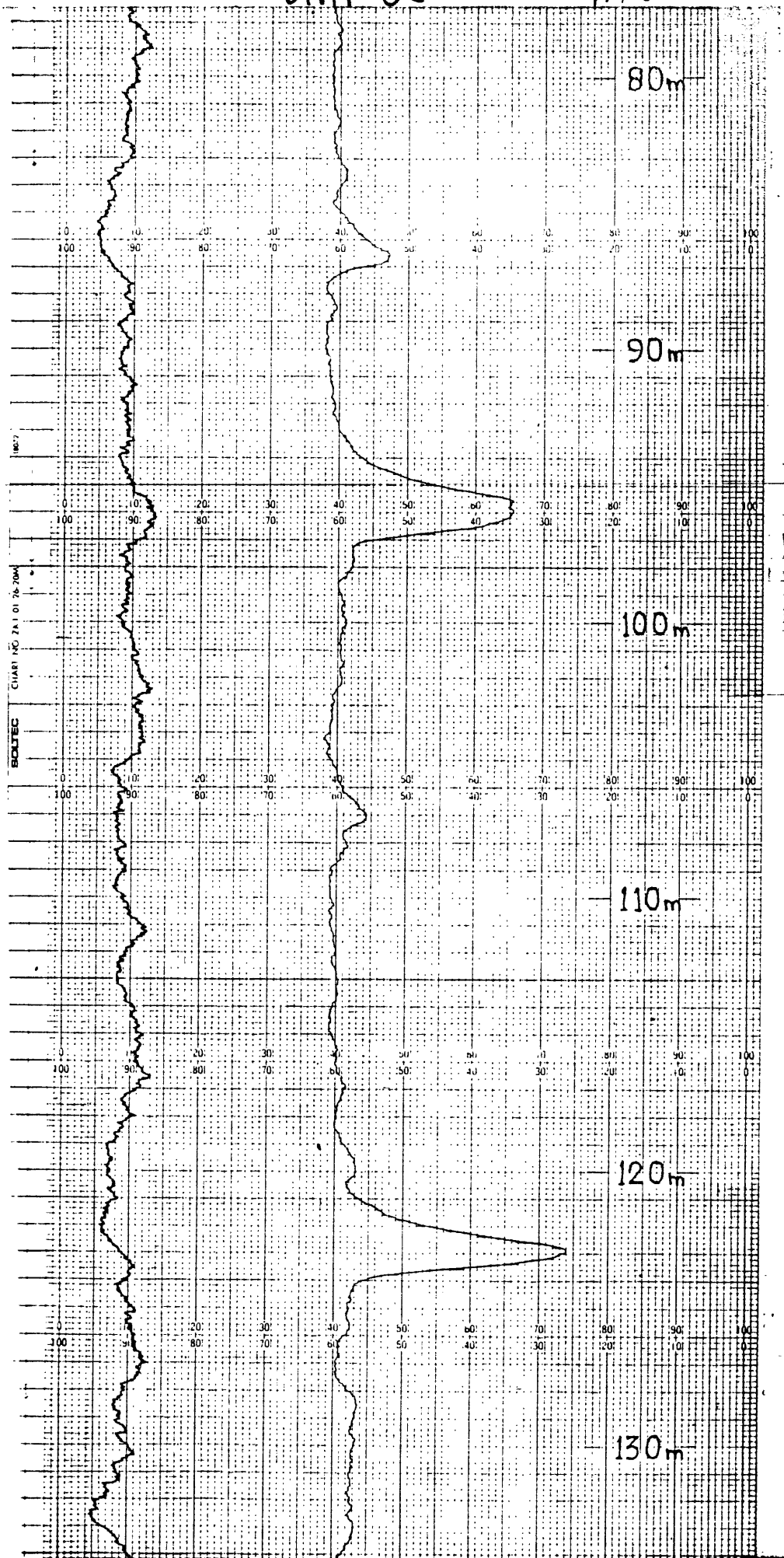
UAT-2

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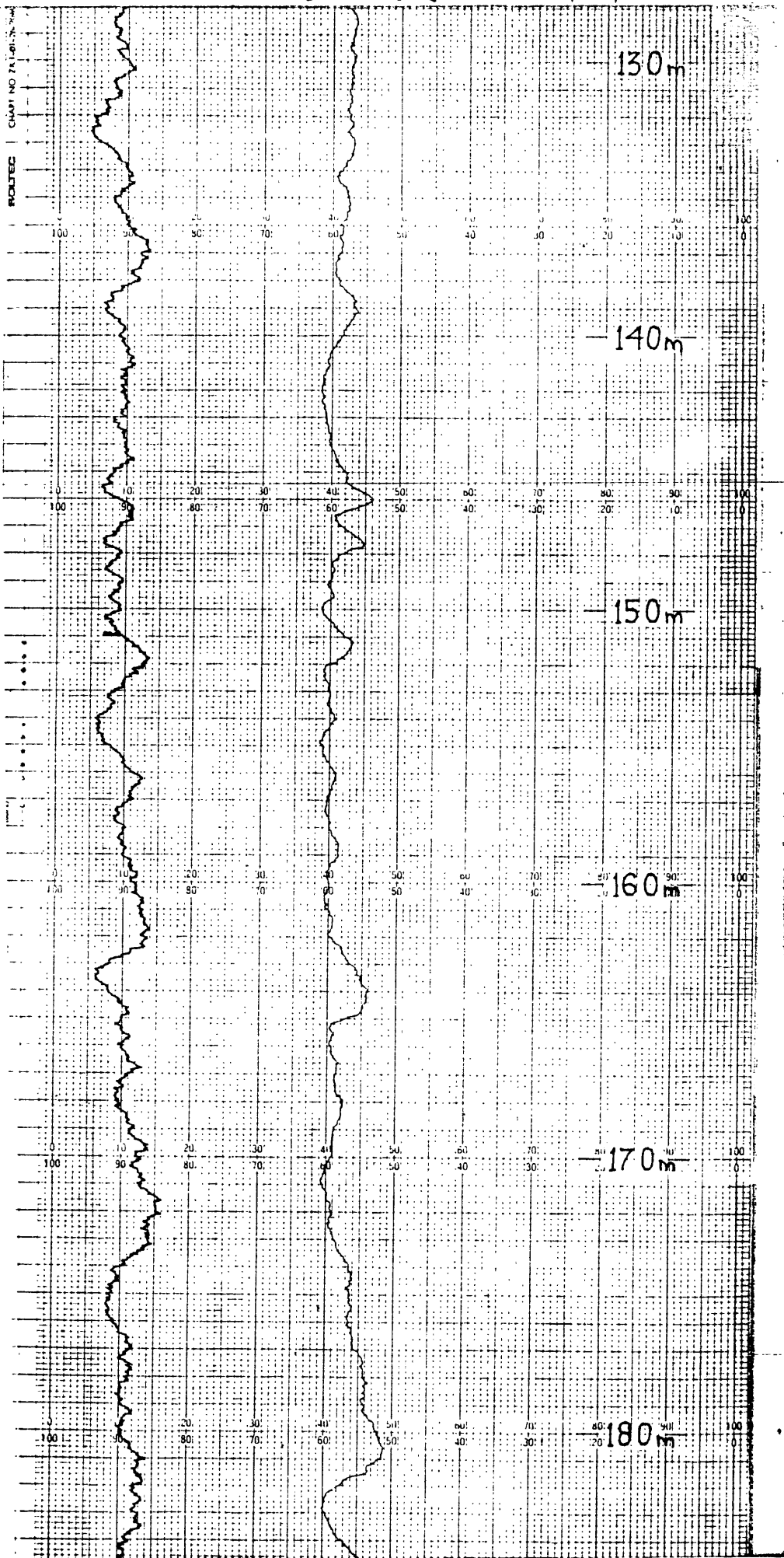
P.415





UAT-2

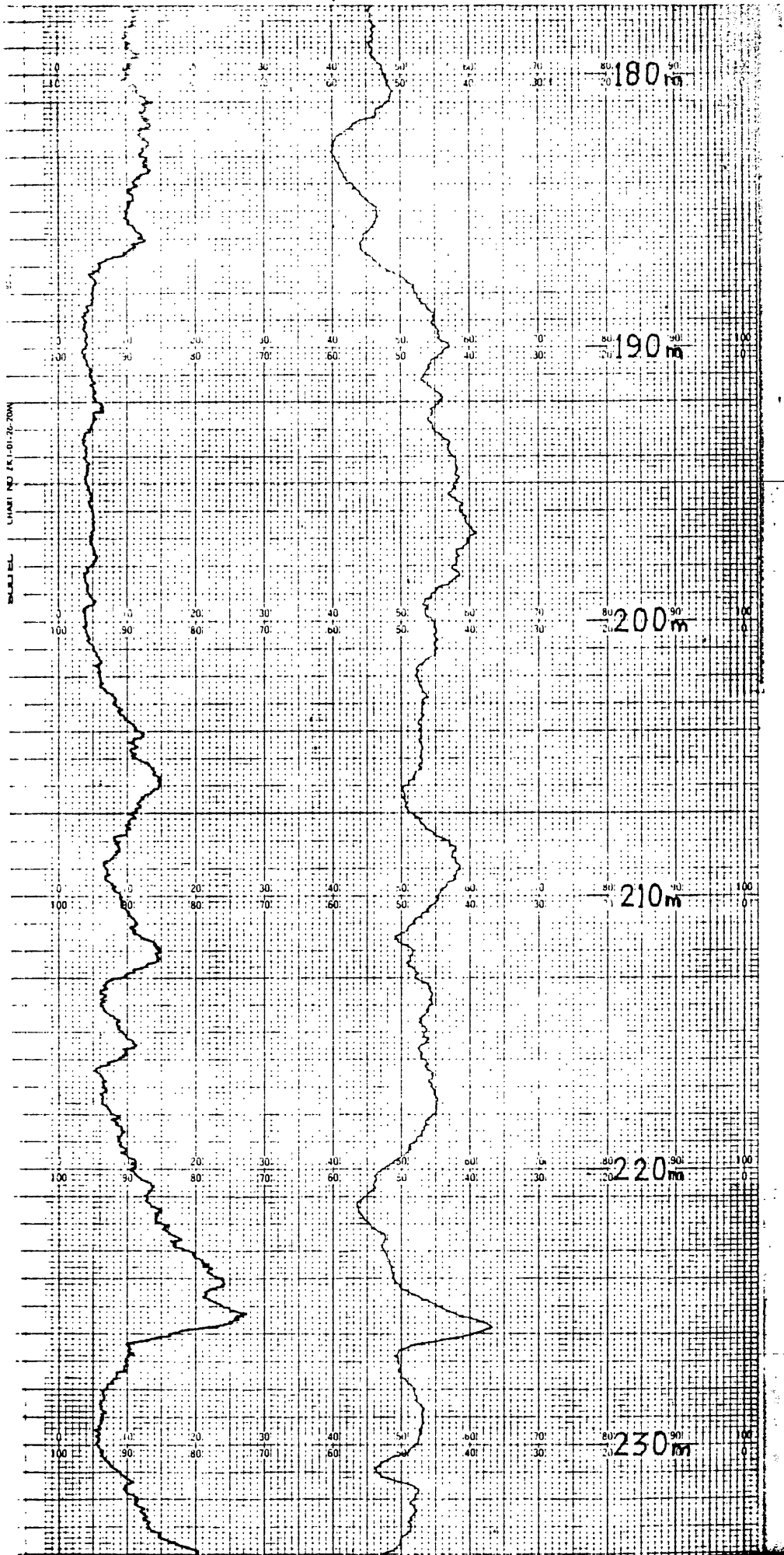
P. 416





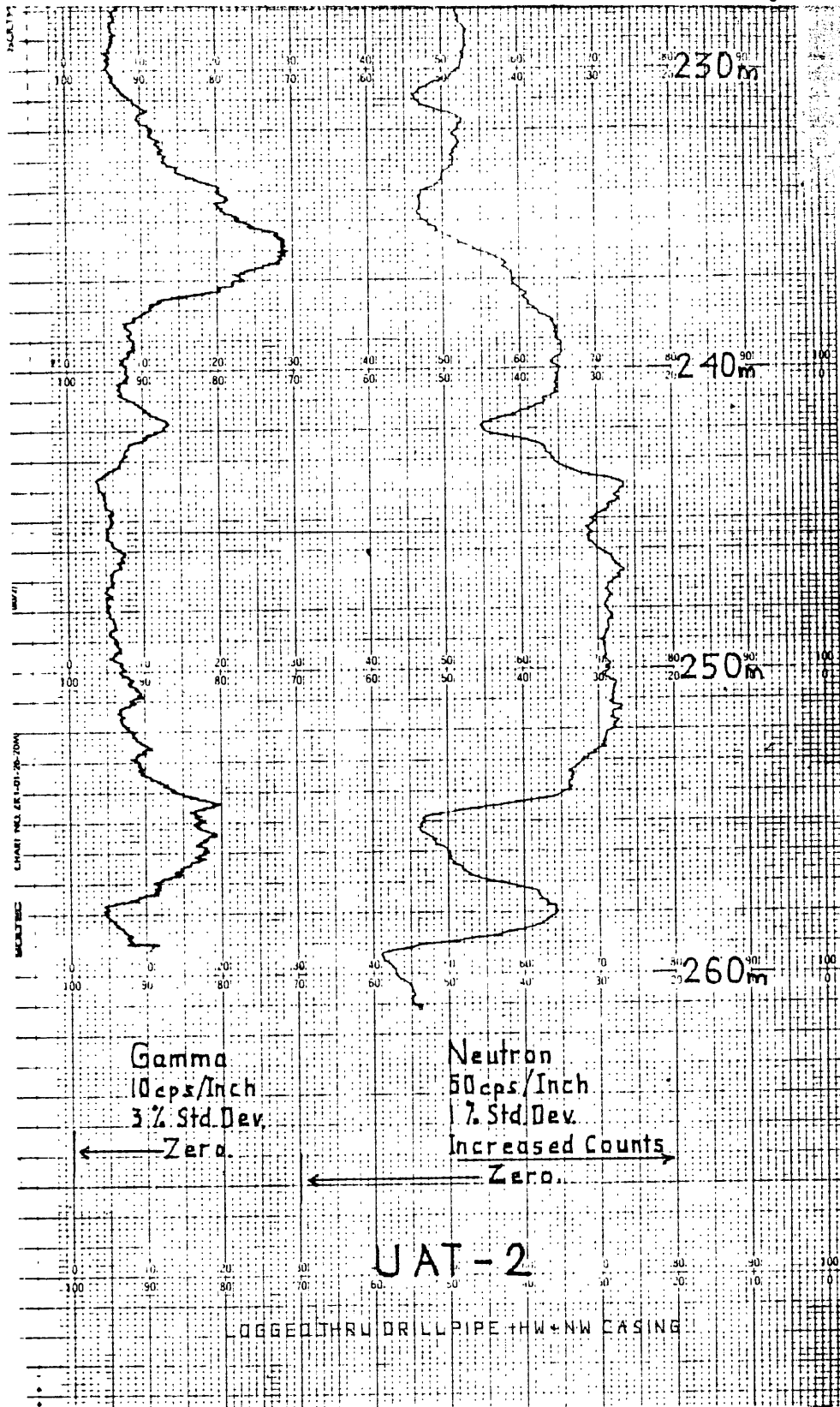
UAT-2

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# GEOSCIENCE ASSOCIATES

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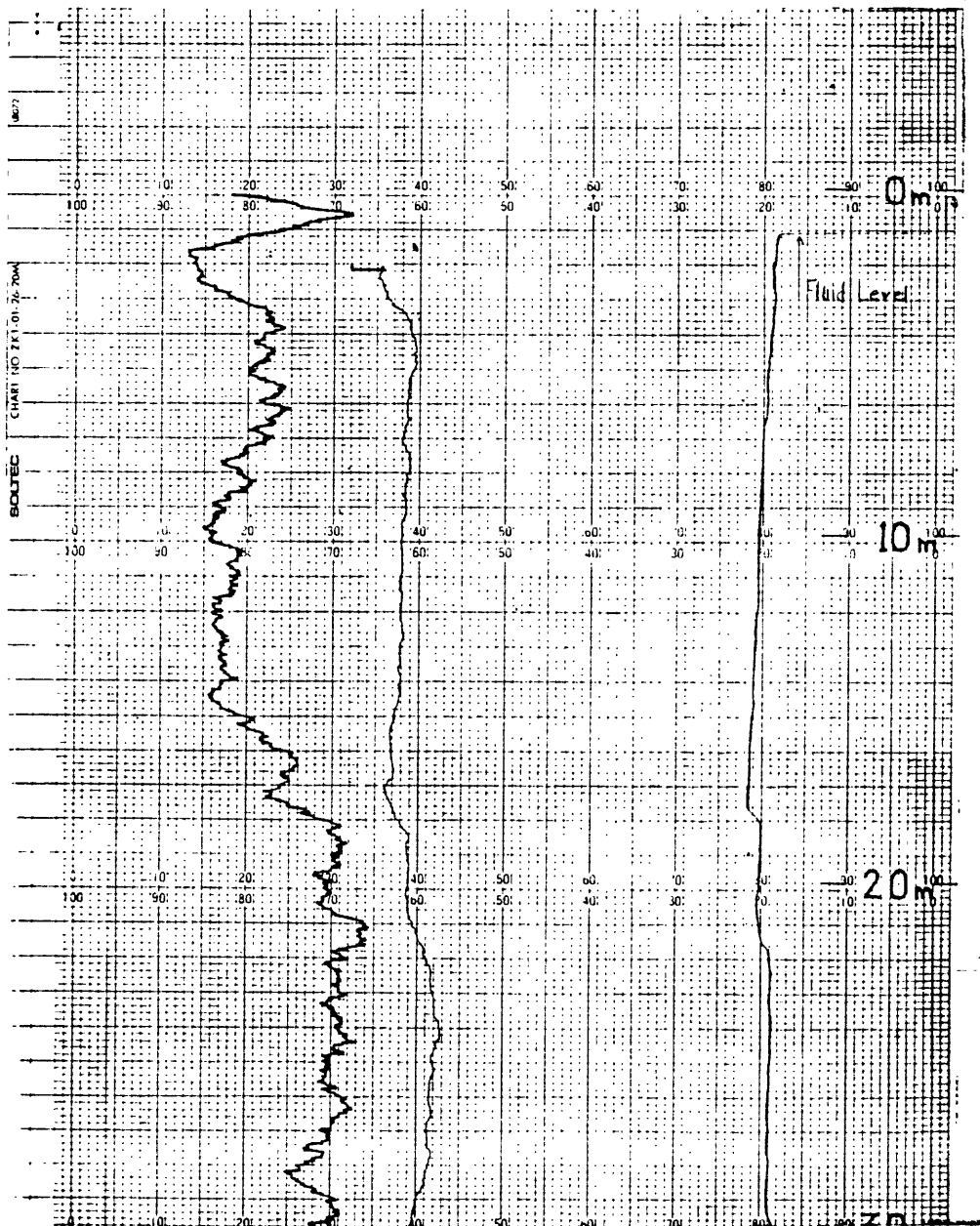
HOLE NUMBER

UAT - 2

DATE

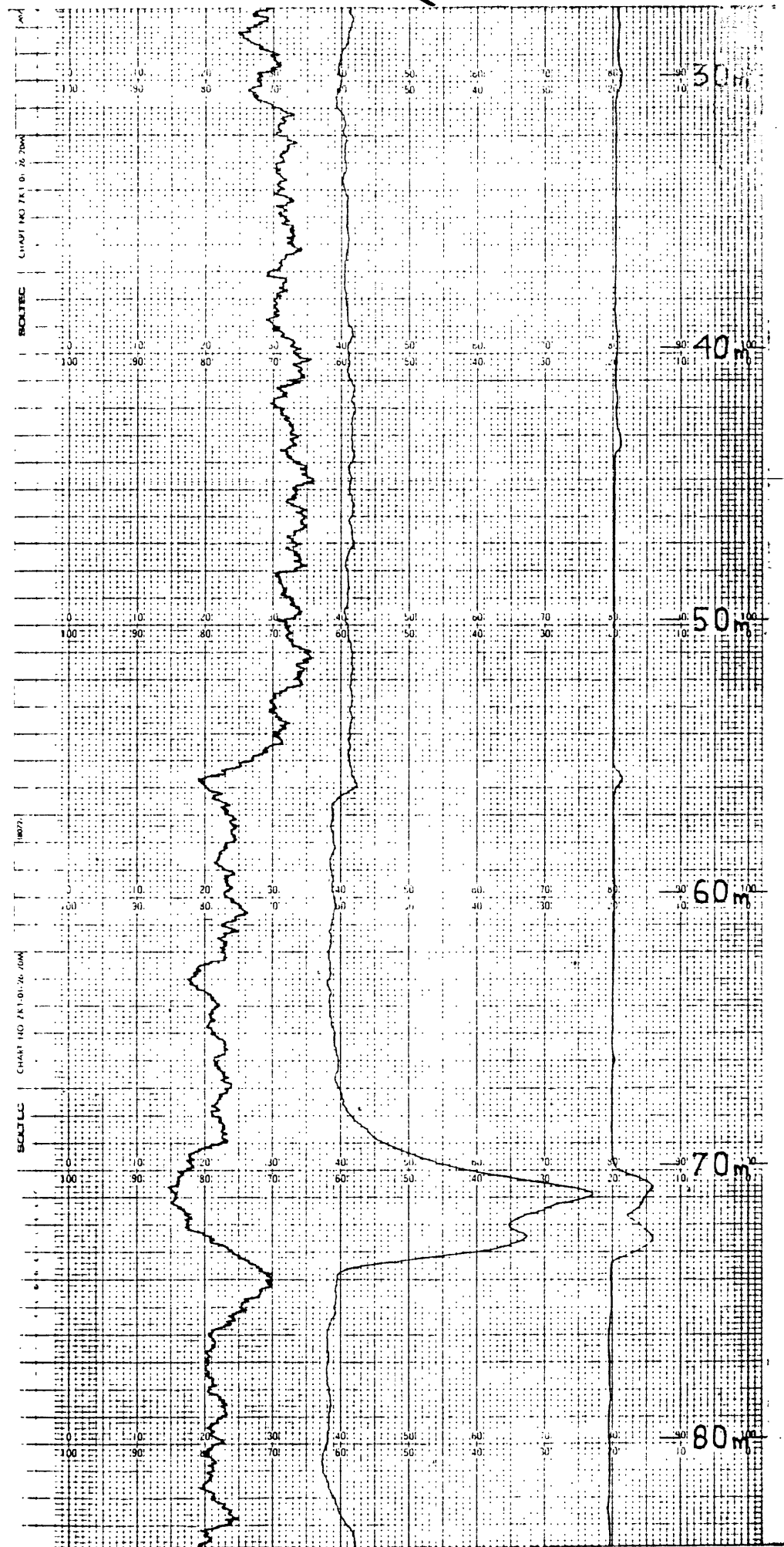
1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	IND. CAROLINA		DEPTH DRILLED	232.0 m		CLIENT	J. J. J. J. J. J.	
REGION	Thatta		DEPTH LOGGED	232.0 m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	J. J. J. J. J. J.	
PROSPECT			DIA	See	FROM TO	UNIT NO	J. J. J. J. J. J.	
SEC	TWP	RNG	DIA	See	FROM TO	OFFICE	J. J. J. J. J. J.	
TYPE	GAM	Neul	DIA	See	FROM TO	JOINT BEE	J. J. J. J. J. J.	
LOGGED DEPTH	232.0	234.0	BOREHOLE MEDIUM	Mud		ELECTRIC		
RANGE (ft)	100	1K	FLUID LEVEL	12 m		TYPE	RESIST	S.P.
%STD DEV	3.2	1.2	CASING DATA			LOGGED DEPTH	232.0	10
PAPER SPEED	6-1	6-1	WALL SIZE			SCALE	10	
LOG SPEED	6-1	6-1	ID			PAPER SPEED	6-1	
BKGND COUNT			CASED FROM	TO		LOG SPEED	6-1	
PROBE NO	GN-1	GN-1	CASING TYPE			FINE ADJ	1000 B103	
SIZE (dia)	3/8	3/8	SAMPLE DATA			CALIPER		
K-FACTOR			NON-CORED HOLE	CORED HOLE		LOGGED DEPTH	FT	
DEAD TIME	2	2	SAMPLED INTERVAL	SAMPLE TYPE		SCALE	IN	
STANDARD			REMARKS			PAPER SPEED	IN	
DIGITAL DATA						LOG SPEED	IN	
PRINT INTERVAL						ARM LENGTH	IN	
TIMEBASE						MAX DEF	IN	
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN		
						BEARING		



UAT-2

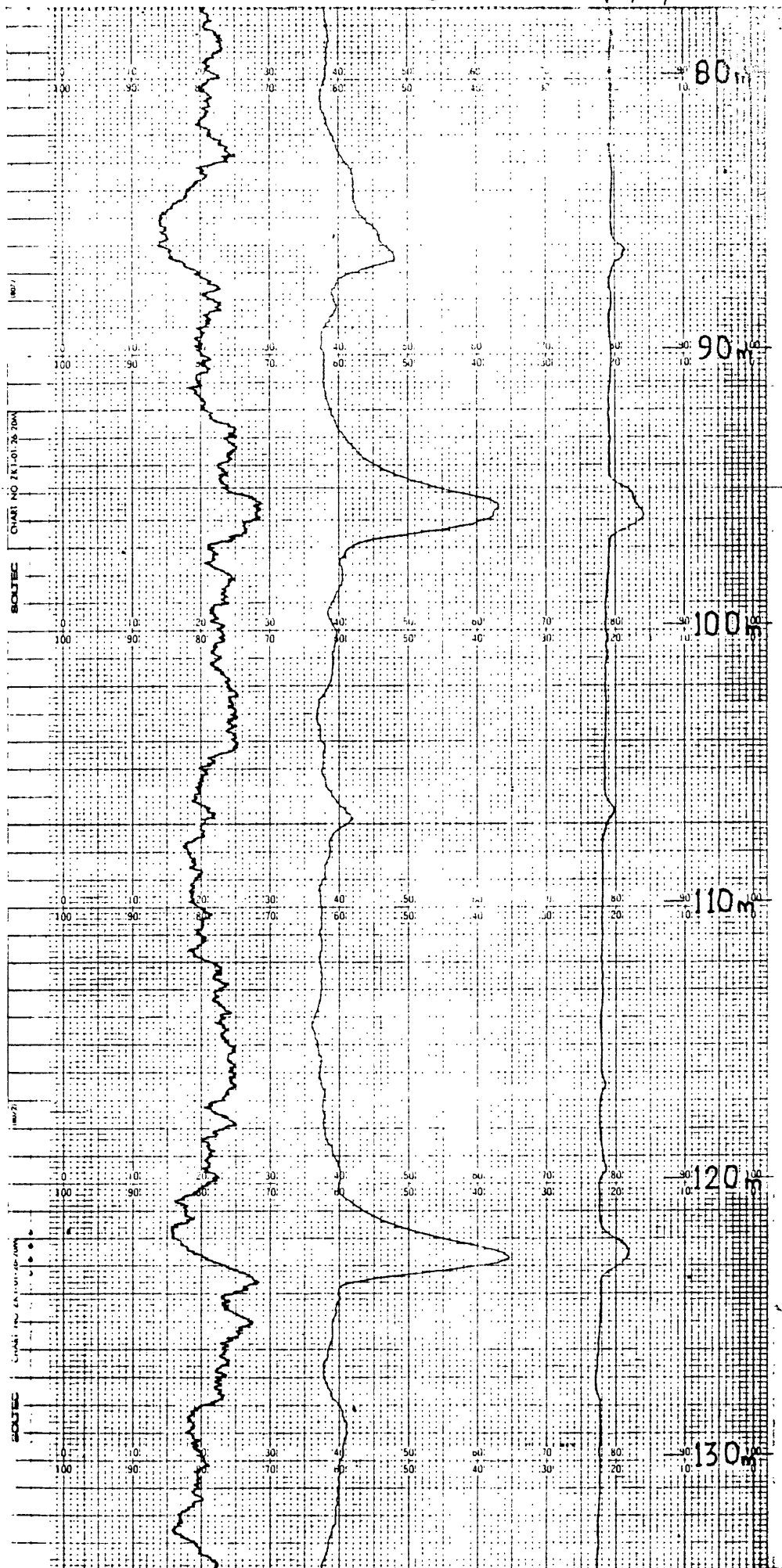
P. 420



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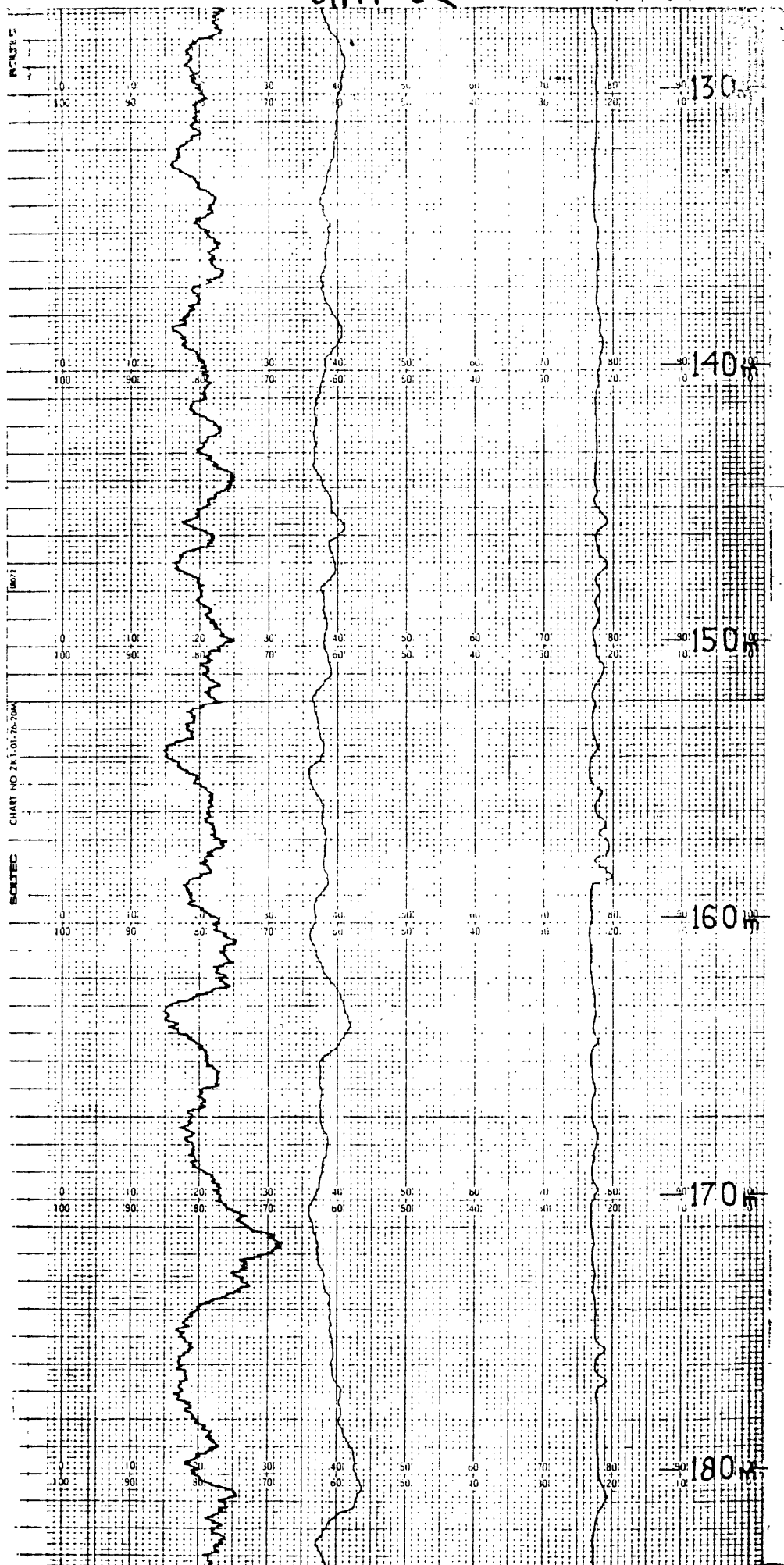
UAT-2

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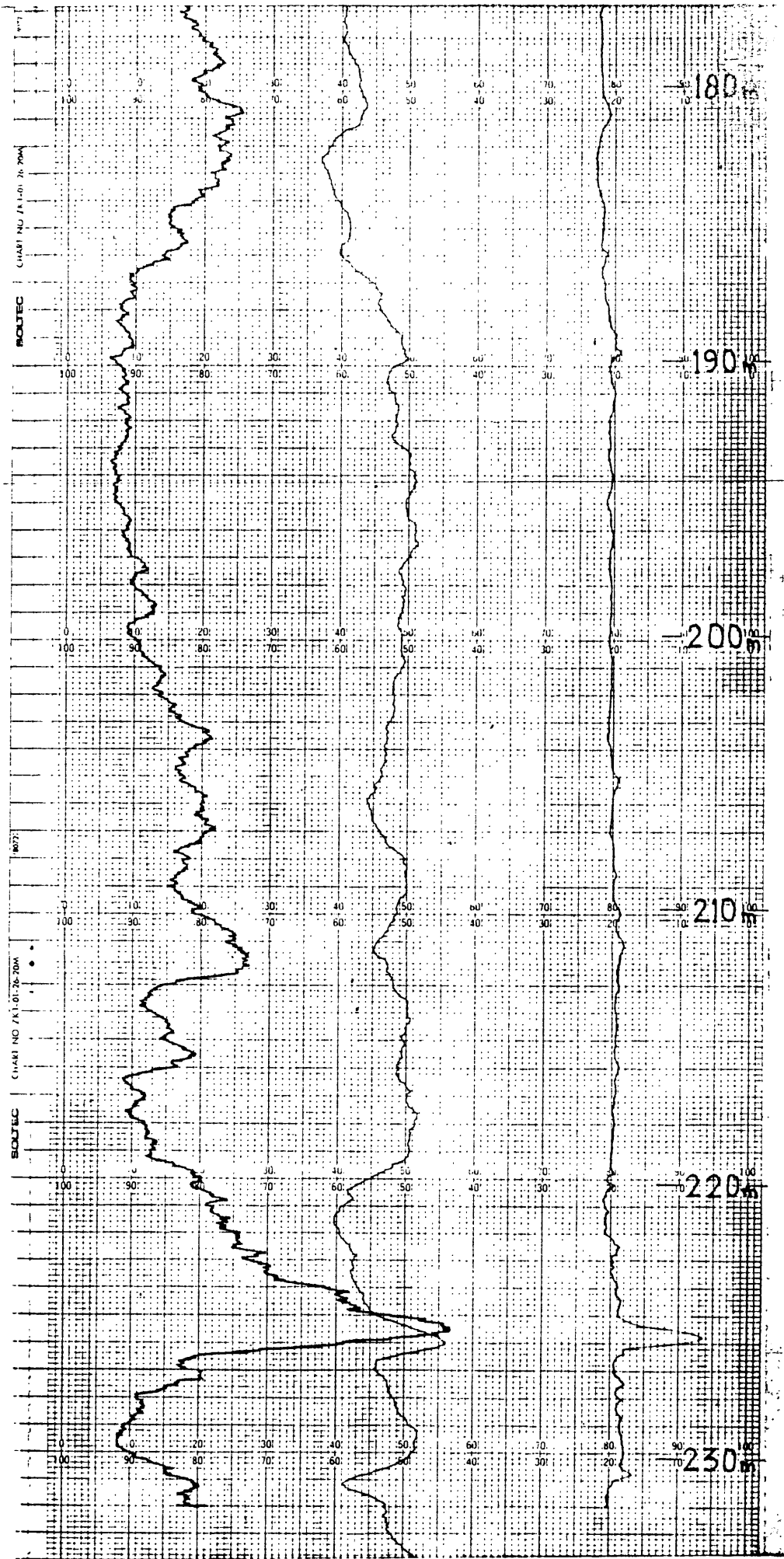
UAT-2

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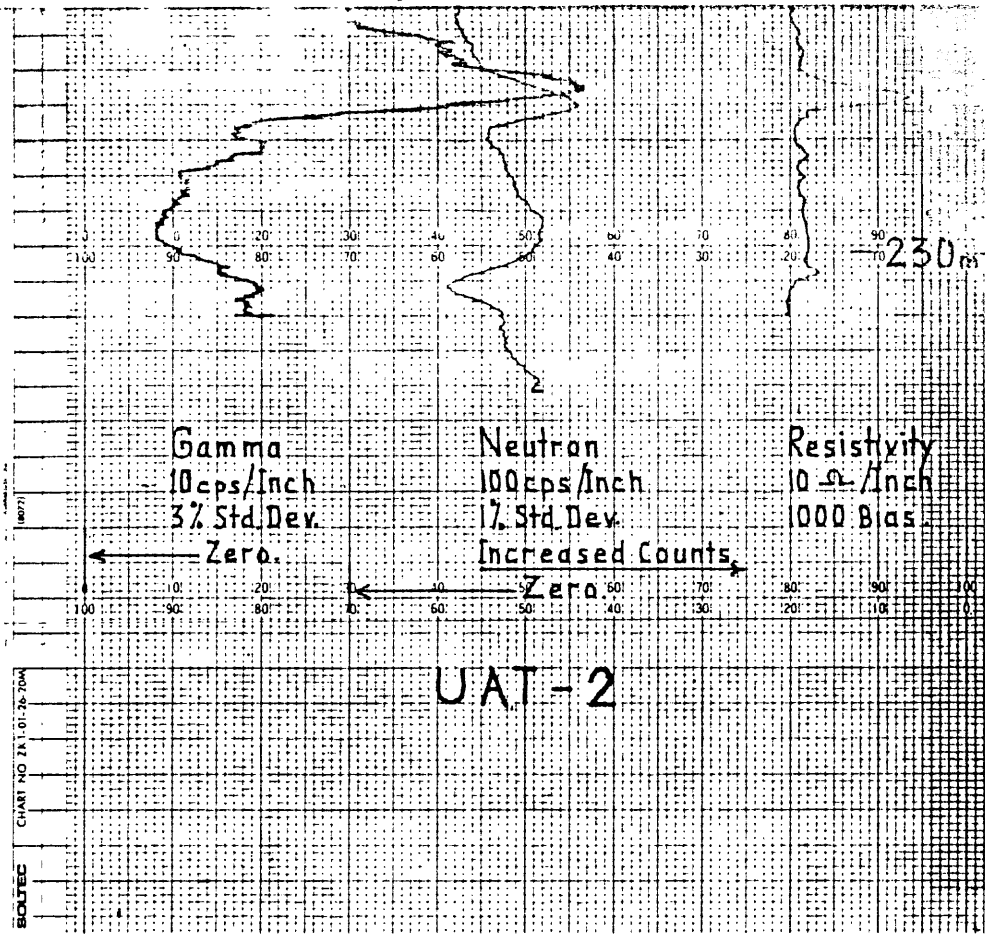
P.423





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# GEOSCIENCE ASSOCIATES

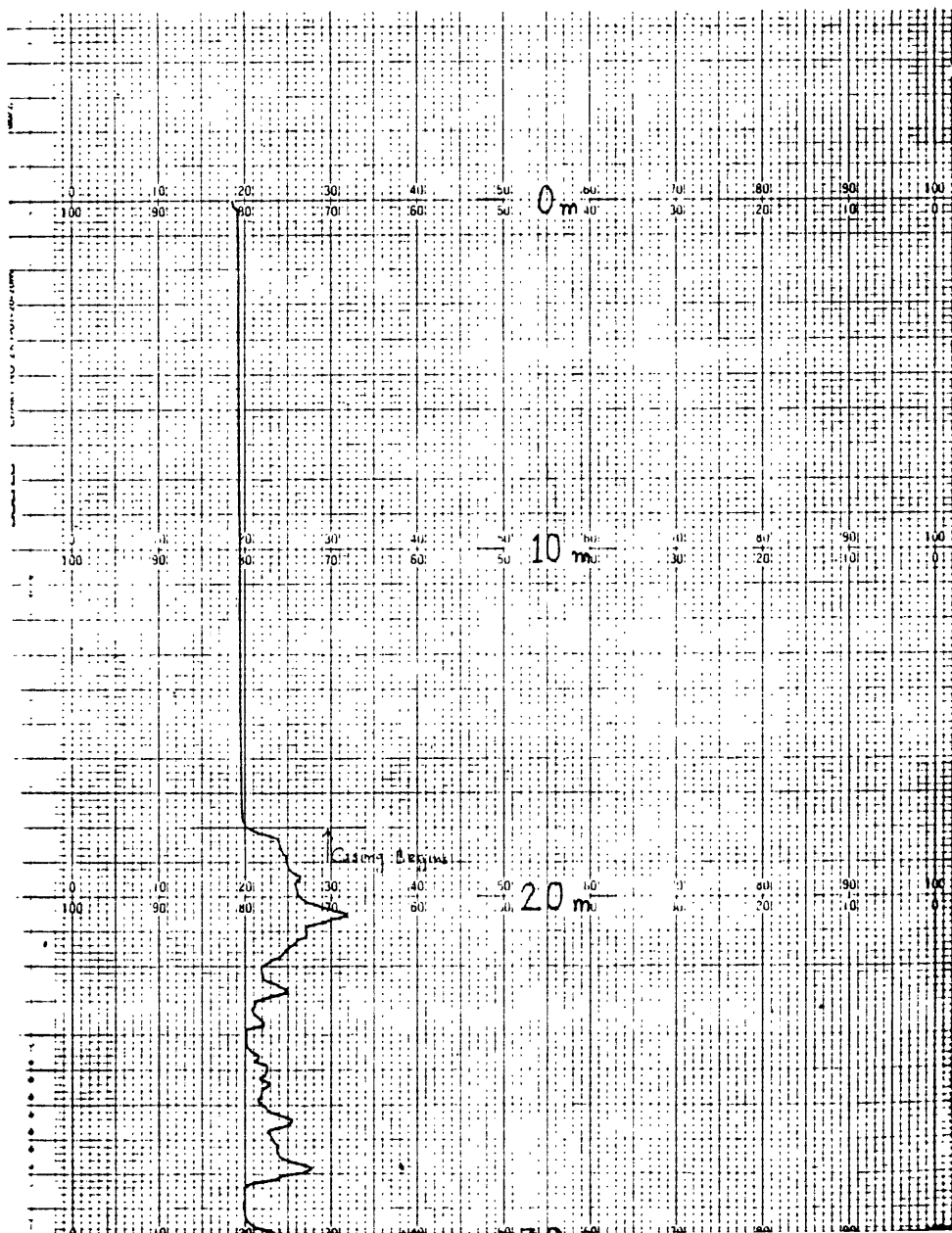
HOLE NUMBER.

UAT-2

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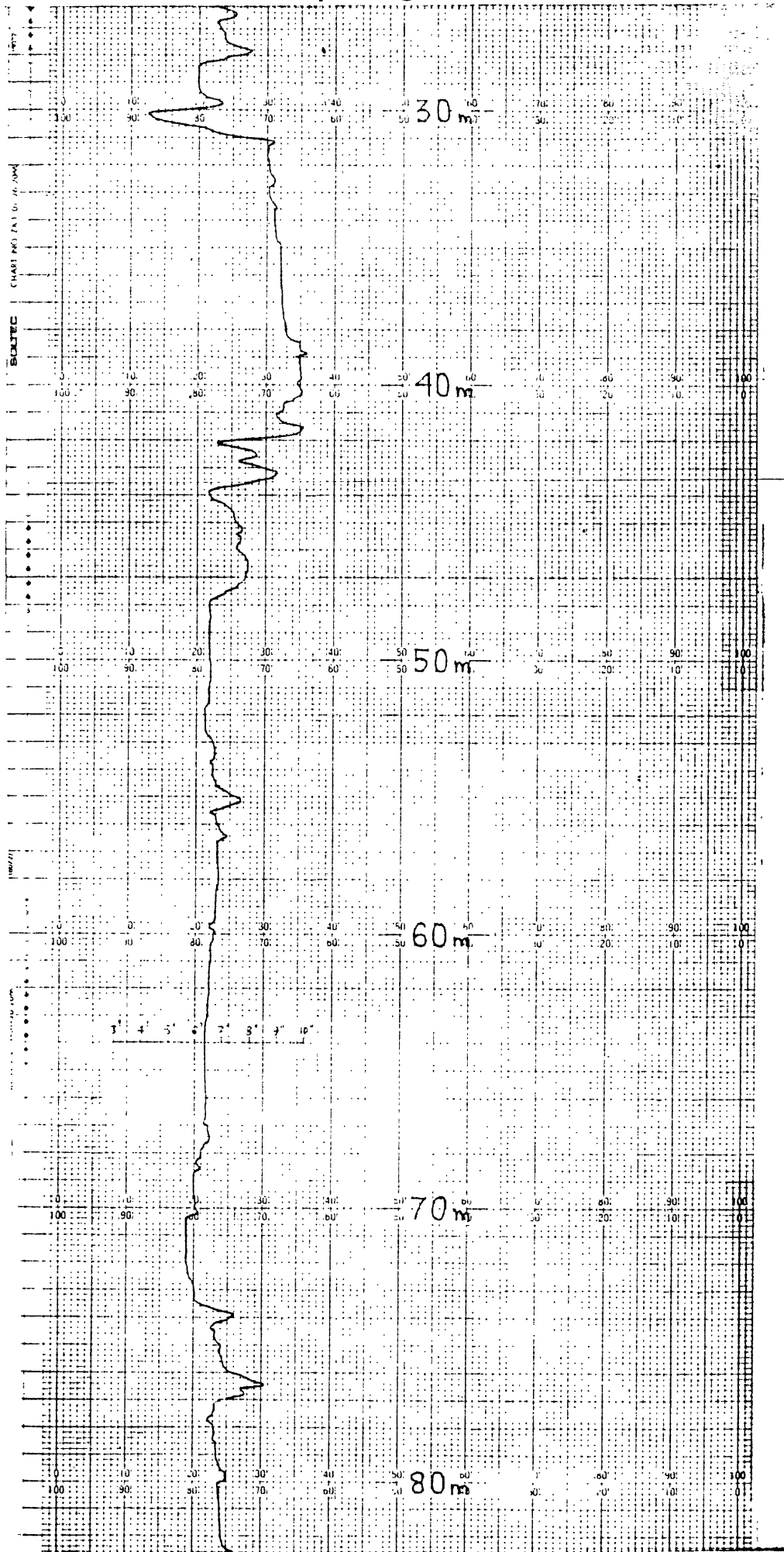
DATE: 29<sup>th</sup> March 1987

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sindh, Pakistan		DEPTH DRILLED	134 m	CLIENT	SSPUGS
REGION	Thatta		DEPTH LOGGED	134 m	GEOLOGIST	
PROJECT	COAL REAP		COLLAR ELEV		UNIT OPERATOR Malik / Ali Gull / Mujib	
PROSPECT			DIA	FROM 10	UNIT NO	PL-2
SEC	TWP	RNG	DIA	FROM 10	OFFICE	
			DIA	FROM 10	SENIOR SURVEILLOR	U.S.A.
TYPE	GAM	Neut	BOREHOLE MEDIUM		ELECTRIC	
LOGGED DEPTH			FLUID LEVEL		TYPE	RESIST
RANGE (ft)			CASING DATA		LOGGED DEPTH	FT
STD DEV			WALL SIZE		SCALE	FT
PAPER SPEED			ID		PAPER SPEED	
LOG SPEED			CASED FROM	TO	LOG SPEED	
BKGND COUNT			CASING TYPE		FINE ADJ	
PROBE NO			SAMPLE DATA		3 Arm CALIPER	
SIZE (dia)			NON CORED HOLE	CORED HOLE	LOGGED DEPTH	134 m
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE	SCALE	4" Dia = 1" Dia
DEAD TIME			REMARKS		PAPER SPEED	1-1
STANDARD			3 Arm Caliper		LOG SPEED	6-1
DIGITAL DATA					ARM LENGTH	12" IN
PRINT INTERVAL					MAX DEF	24" IN
TIMEBASE					VERTICAL DEV.	
DENSITY CALIBRATION					DEPTH	
ALUMINUM					INCLIN	
LUCITE					BEARING	



UAT-2

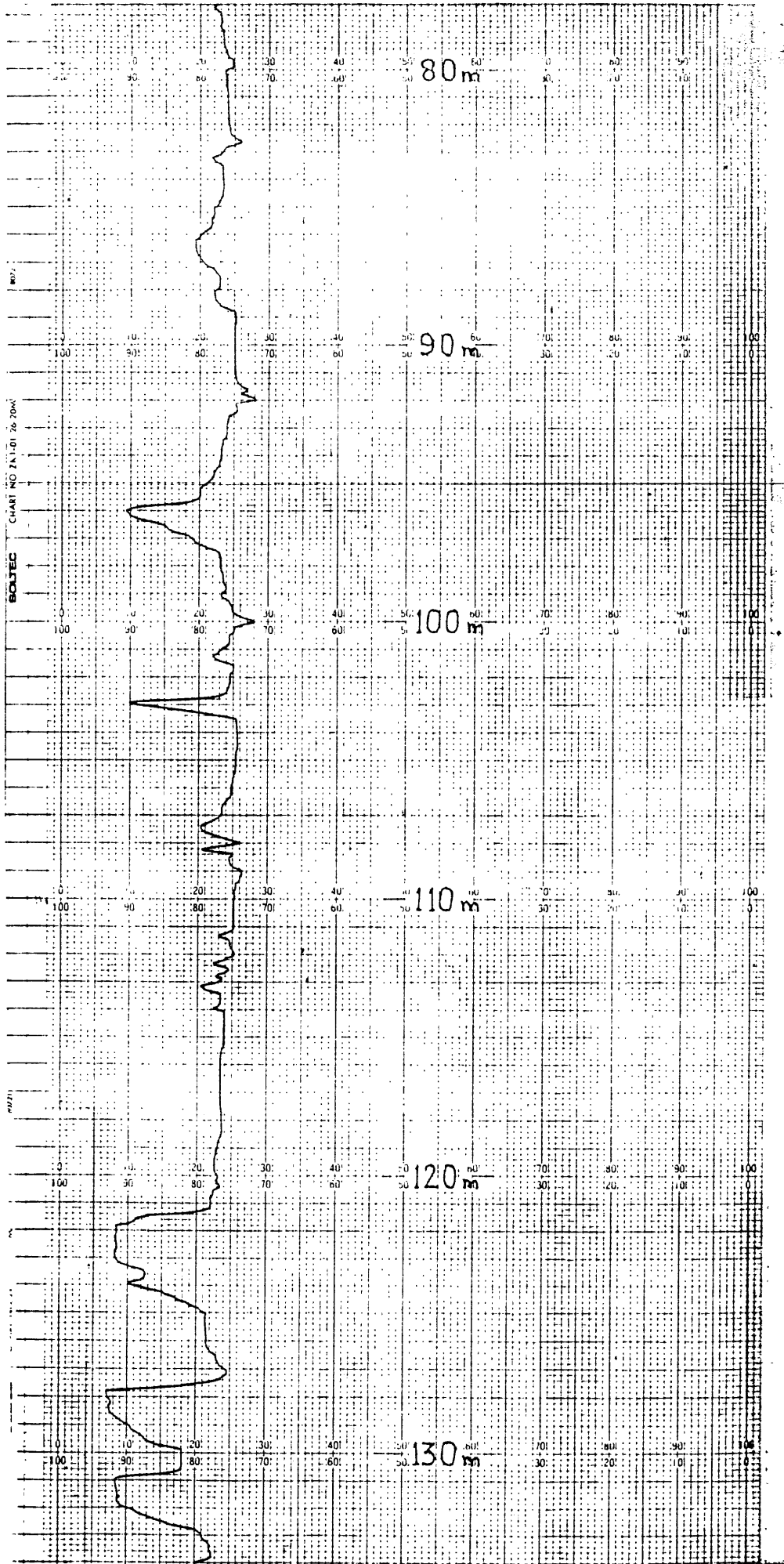
R426



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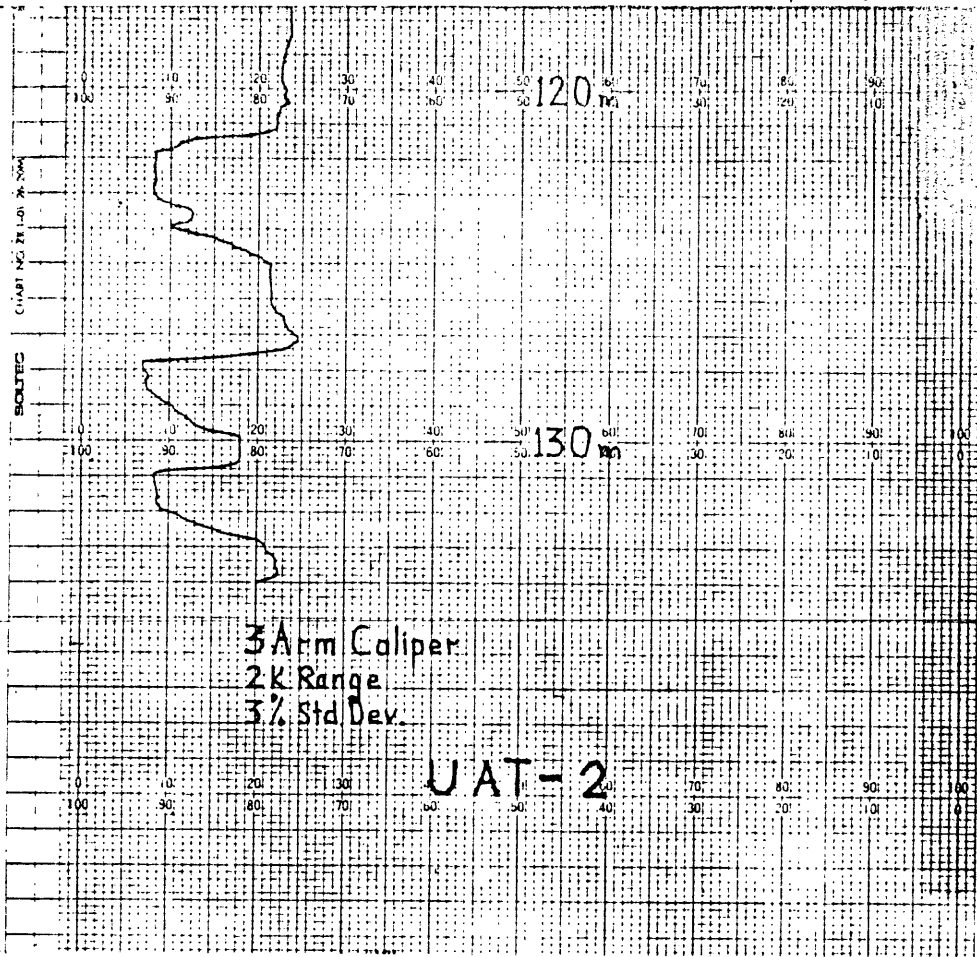
UAT-2

R427



UAT-2

R428





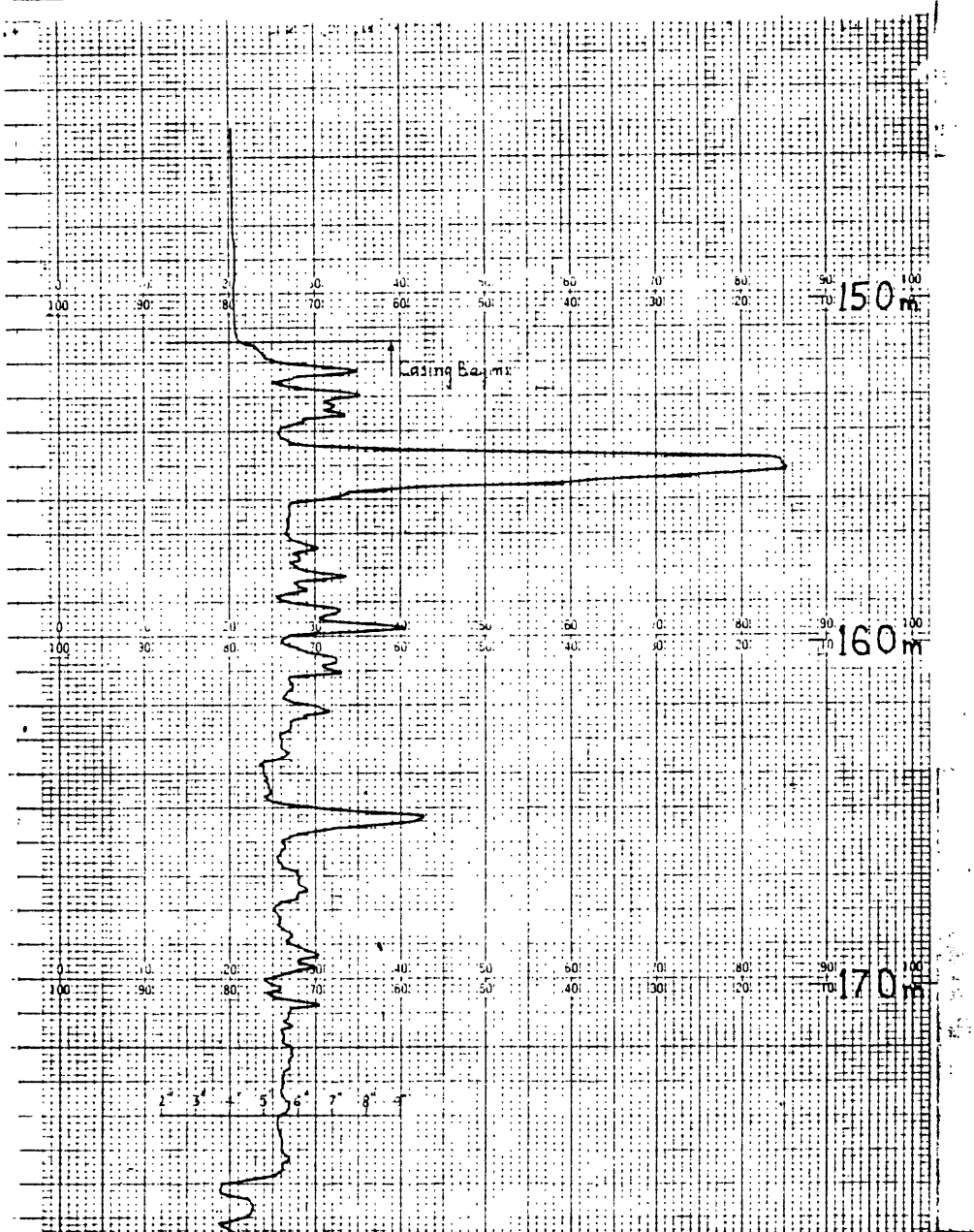
SCIENCE ASSOCIATES

P.429

JUL NUMBER:

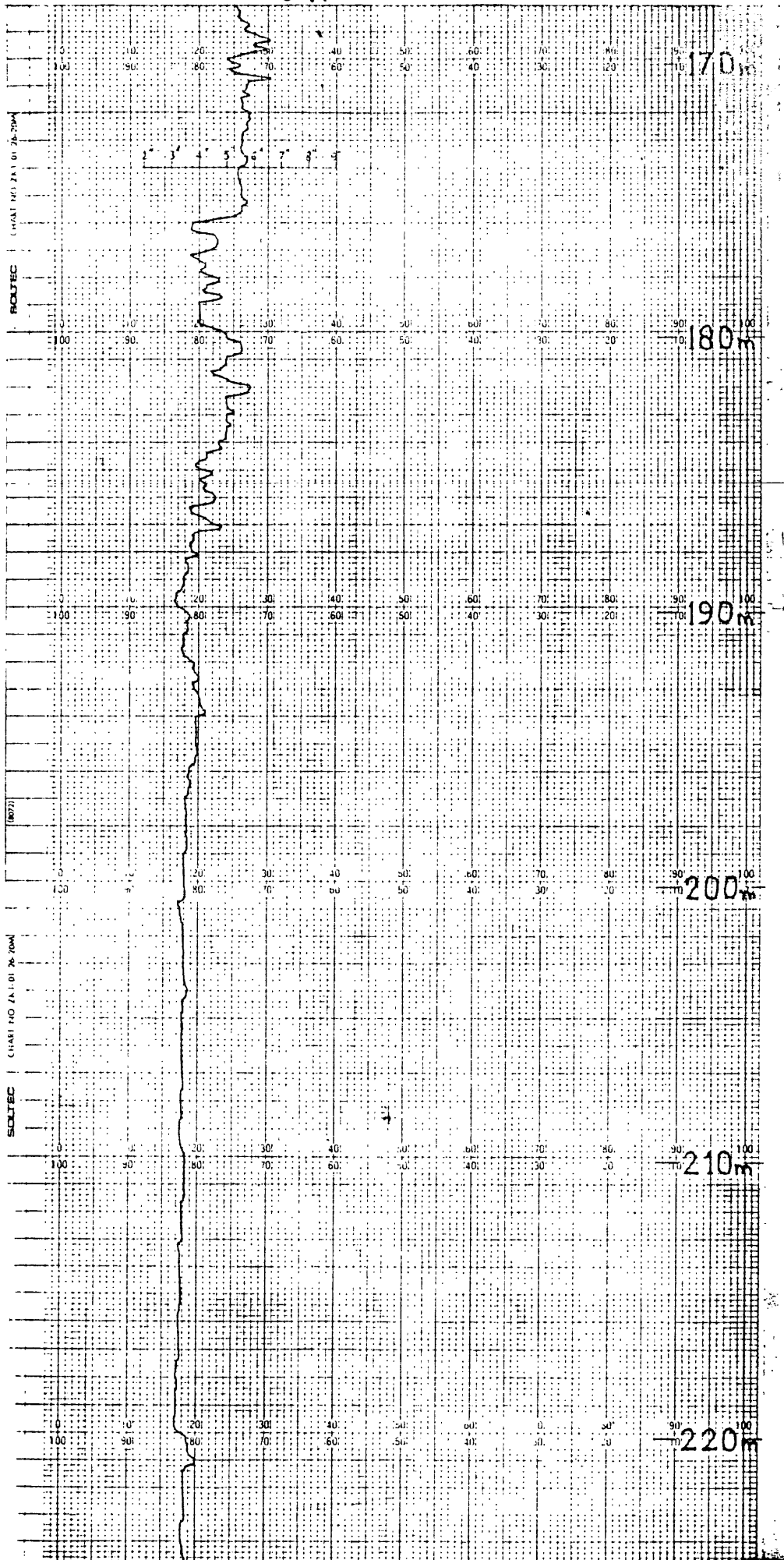
UAT - 2

DATE			28 <sup>th</sup> March 1957					
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY			DEPTH DRILLED			CLIENT		
REGION			DEPTH LOGGED			GEOLOGIST		
PROJECT			COLLAR ELEV			UNIT OPERATOR		
PROSPECT			DIA. See FROM TO			UNIT NO. 122 OFFICE		
SEC TWP. RANG			DIA. 1 1/2" FROM TO			3001 PER 11492 U.A.A.		
TYPE			BOREHOLE MEDIUM			ELECTRIC		
LOGGED DEPTH			FLUID LEVEL			TYPE RESIST SP		
RANGE (15)			CASING DATA			LOGGED DEPTH FT FT		
STD DEV			WALL SIZE			SCALE		
PAPER SPEED			10 4			PAPER SPEED		
LOG SPEED			CASED FROM TO 15.2m			LOG SPEED		
BKGND COUNT			CASING TYPE			FINE ADJ		
PROBE NO.			SAMPLE DATA			3 Arm CALIPER		
SIZE (DIA.)			NON-CORED HOLE CORED HOLE *			LOGGED DEPTH 135 m		
K-FACTOR			SAMPLED INTERVAL SAMPLE TYPE			SCALE 4" Depth x 1 Dia		
DEAD TIME						PAPER SPEED		
STANDARD						LOG SPEED		
DIGITAL DATA			REMARKS			ARM LENGTH 12 inches IN		
PRINT INTERVAL			3 Arm Caliper			MAX DEF 14 IN		
TIMEBASE						VERTICAL DEV.		
DENSITY CALIBRATION						DEPTH		
ALUMINUM						INCLIN.		
LUCITE						BEARING		



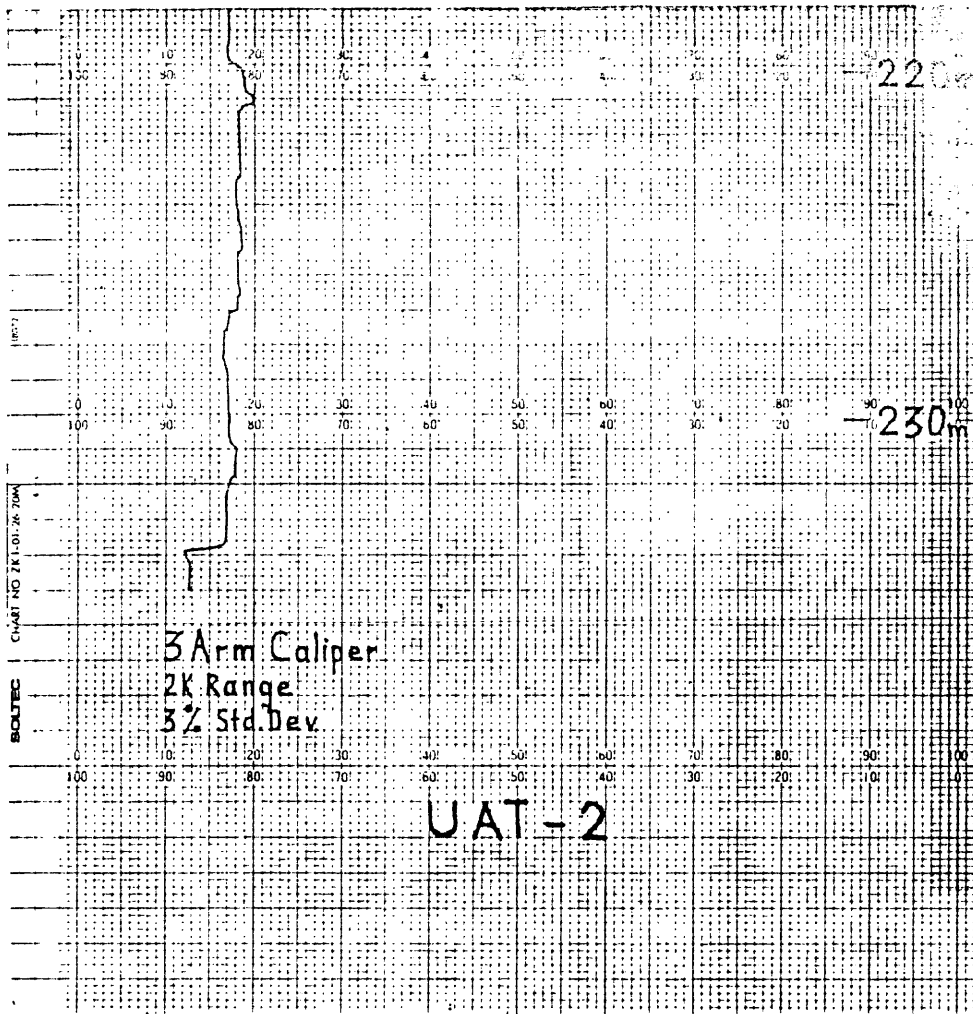
UAT-2

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R431



DRILL HOLE UAT-3





# GEOSCIENCE ASSOCIATES

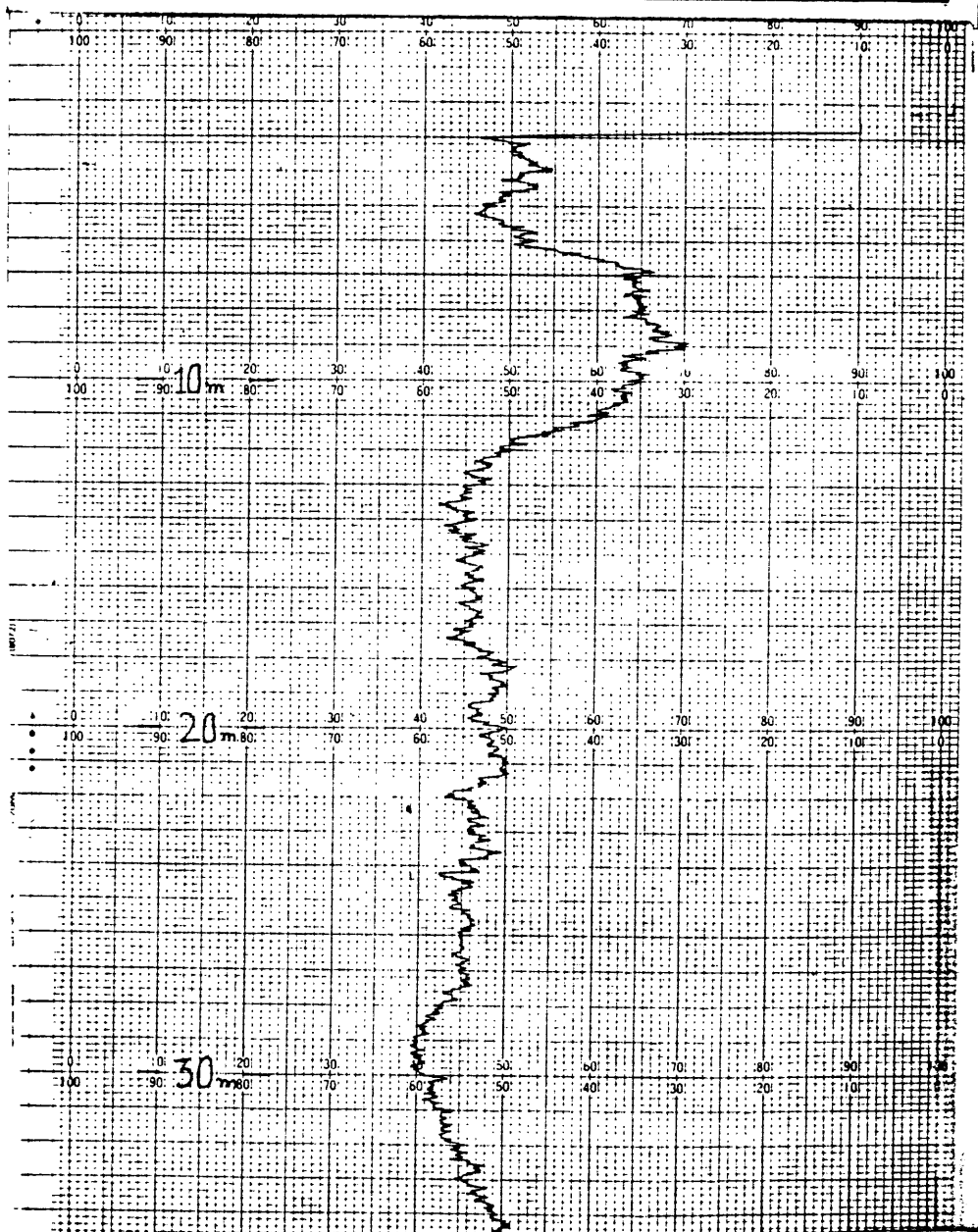
P433

HOLE NUMBER:

UAT-3

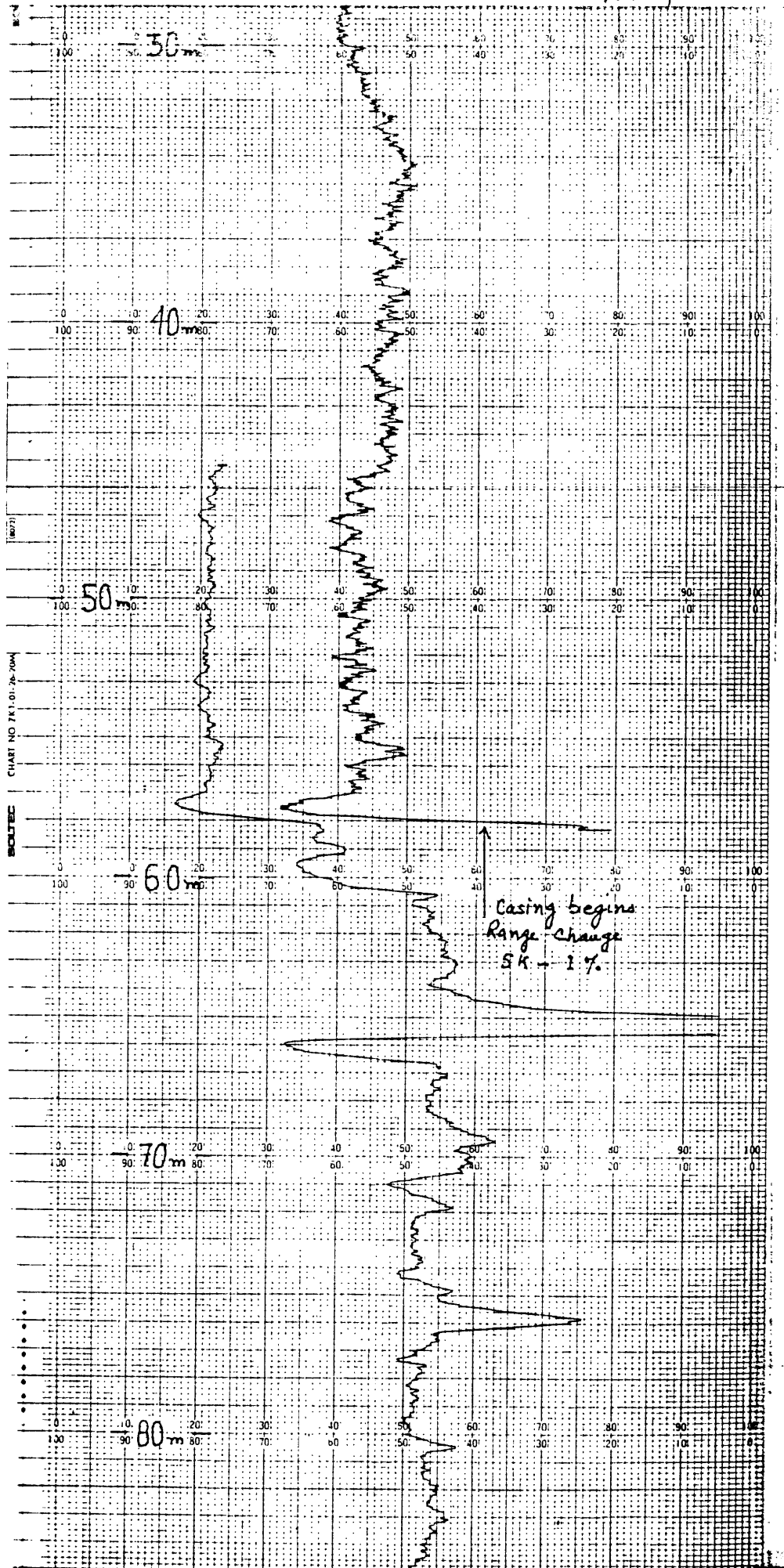
DATE: 2nd Feb - 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sind Paistan		DEPTH DRILLED	302 m		CLIENT	USGS IGSP	
REGION	Thatta		DEPTH LOGGED	298 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	SYN/KHURHID/MAN	
PROSPECT			DIA	Sea	FROM TO	UNIT NO	PL-2 OFFICE	
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER	COLORADO USA	
TYPE	QAM	1P Density	DIA	Log	FROM TO	ELECTRIC		
LOGGED DEPTH		298 m	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
RANGE (ft)		10k	FLUID LEVEL			LOGGED DEPTH	FT	FT
%STD DEV		17	CASING DATA			SCALE		
PAPER SPEED		1-1	WALL SIZE	1/4"		PAPER SPEED		
LOG SPEED		6-1	ID	4"		LOG SPEED		
BKGD COUNT			CASED FROM	0 TO 58 m		LOG SPEED		
PROBE NO.		40-1	CASING TYPE	HW		FINE ADJ		
SIZE (dia)		1 3/4"	SAMPLE DATA			CALIPER		
K-FACTOR			NON-CORED HOLE	CORED HOLE		LOGGED DEPTH	FT	
DEAD TIME		2	SAMPLED INTERVAL	SAMPLE TYPE		SCALE		
STANDARD			REMARKS			PAPER SPEED		
DIGITAL DATA			(OPEN HOLE)			LOG SPEED		
PRINT INTERVAL						ARM LENGTH	IN	
TIMEBASE						MAX DEF	IN	
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN		
						BEARING		



UAT-3

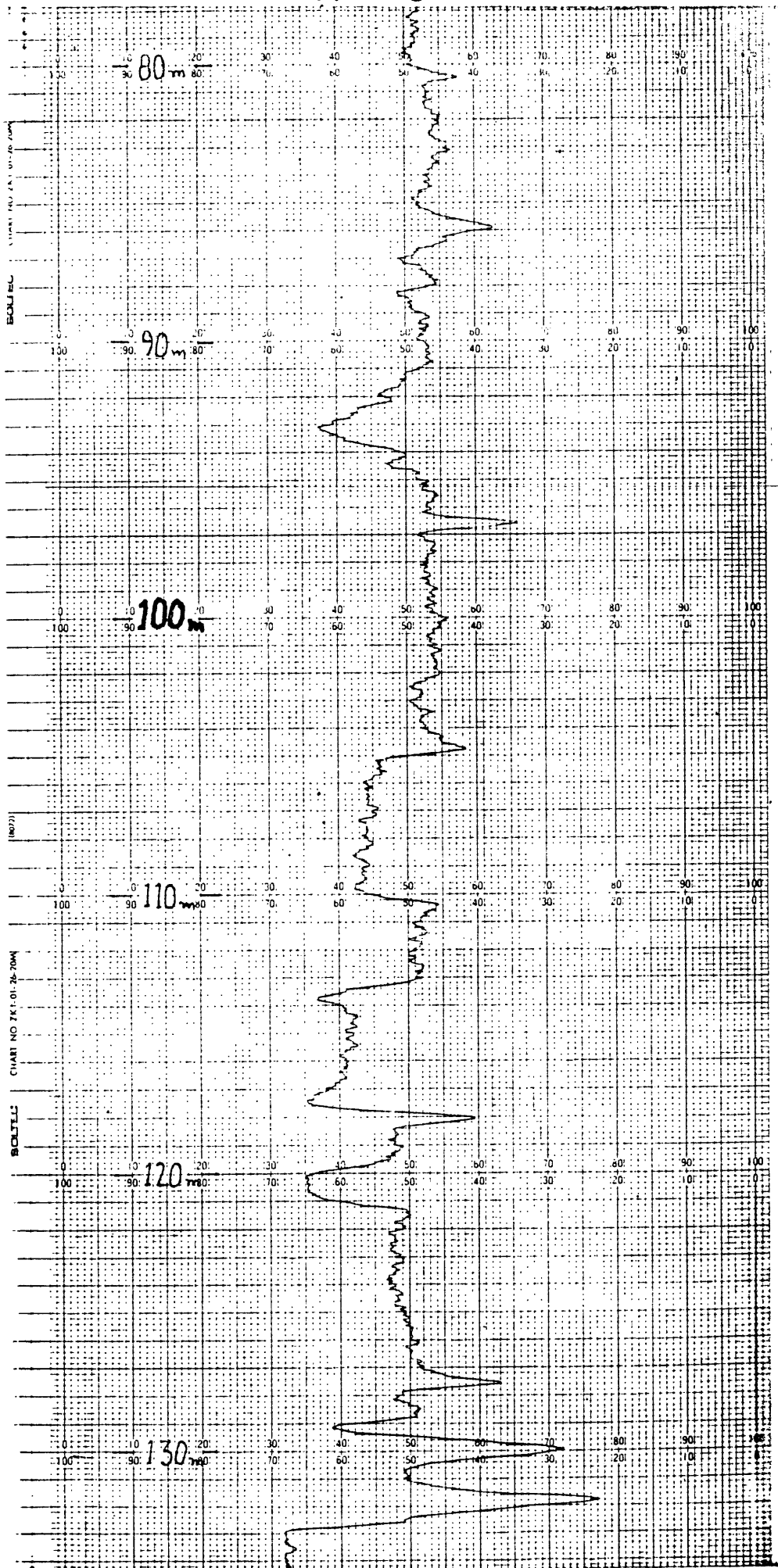
P.434



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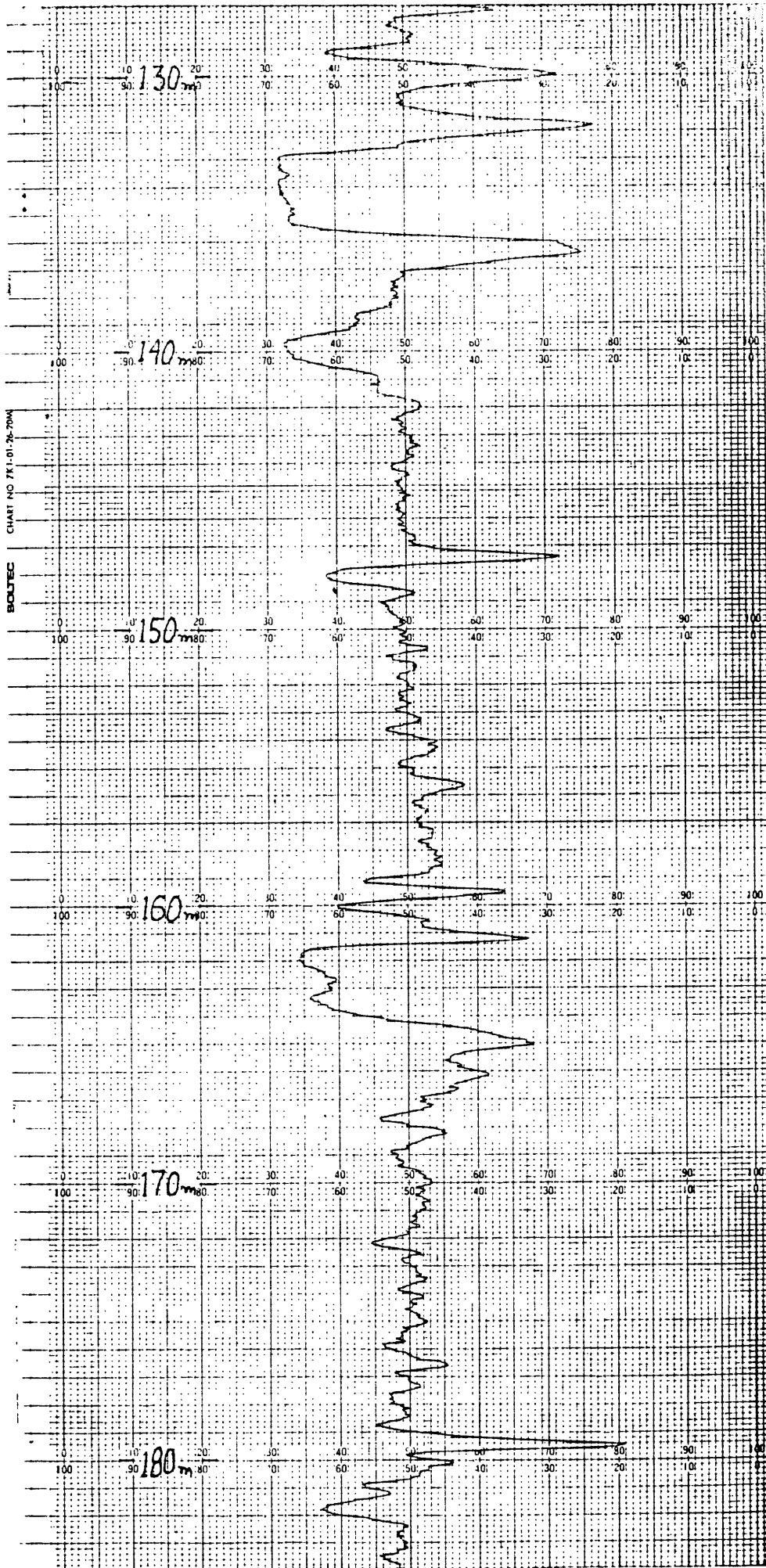
UAT-3

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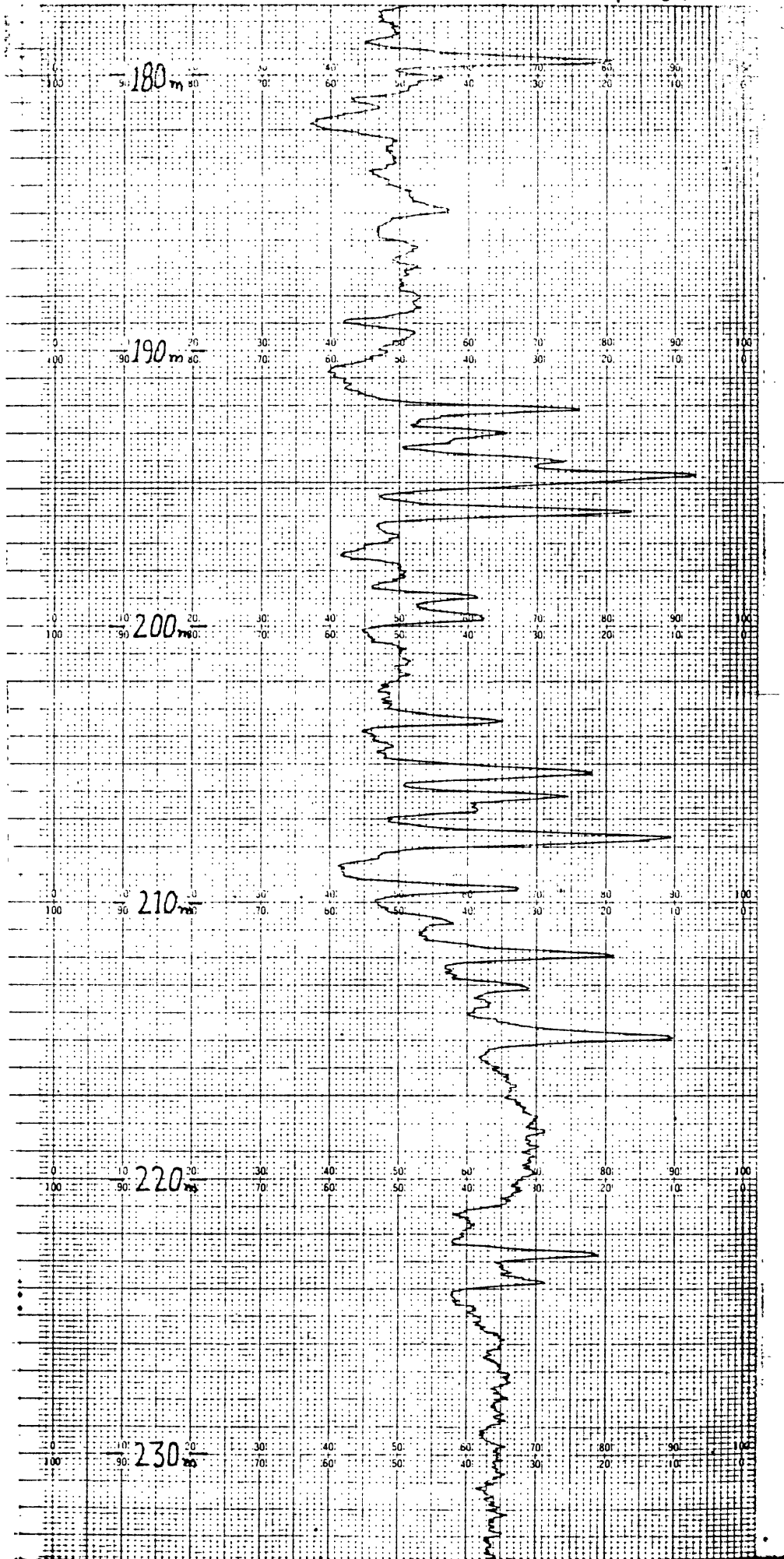


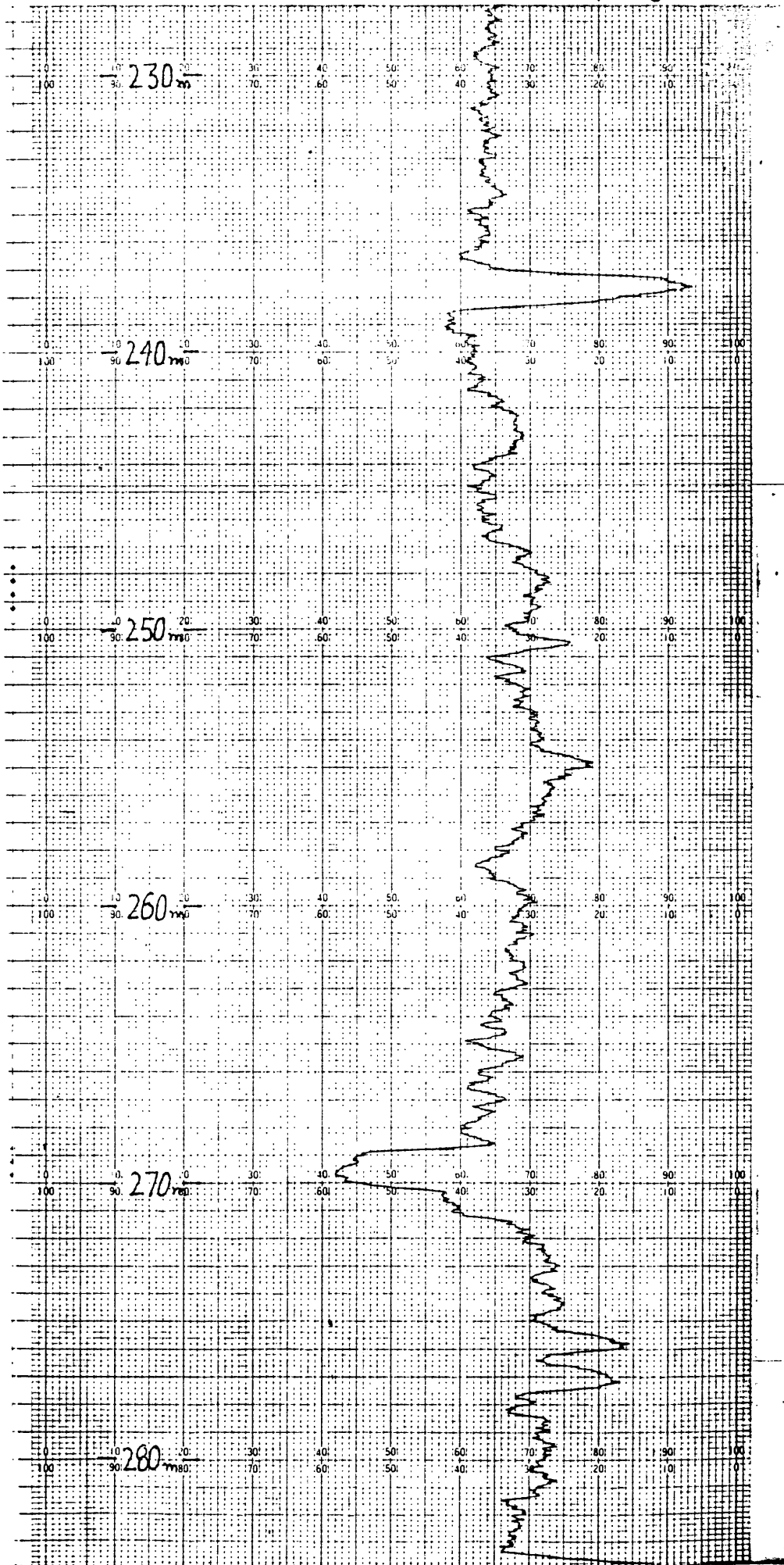
UAT-3

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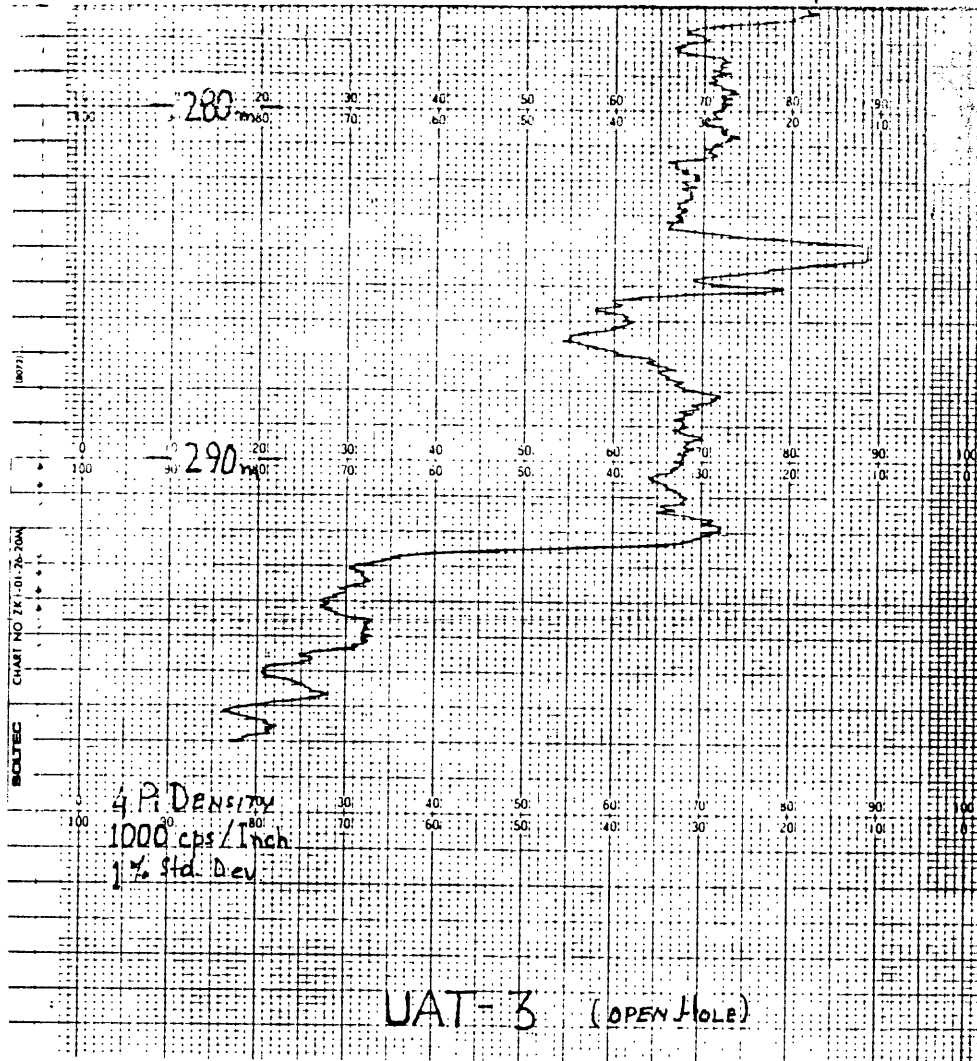
43b





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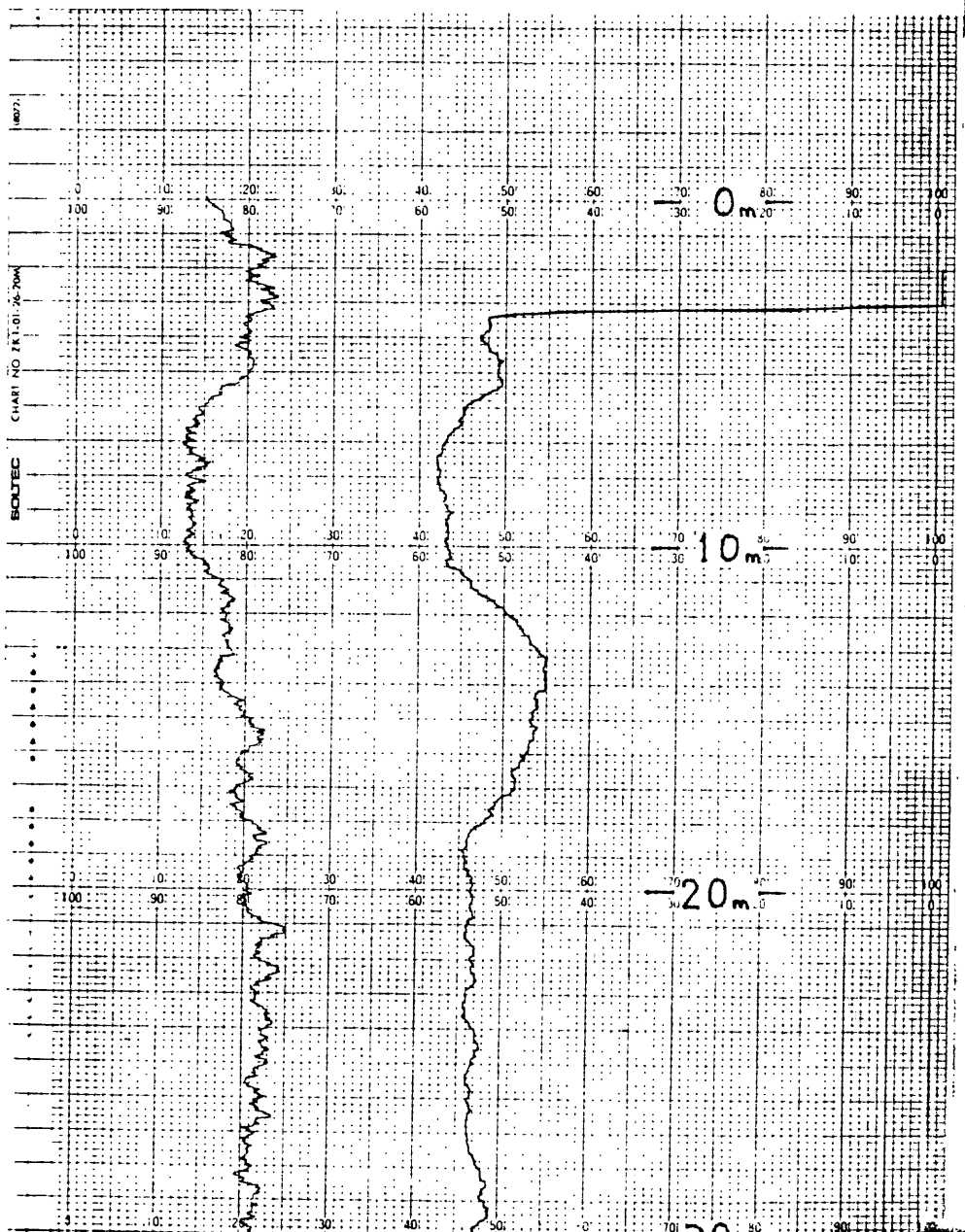
# GEOSCIENCE ASSOCIATES

HOLE NUMBER:

UAT-3

P.440

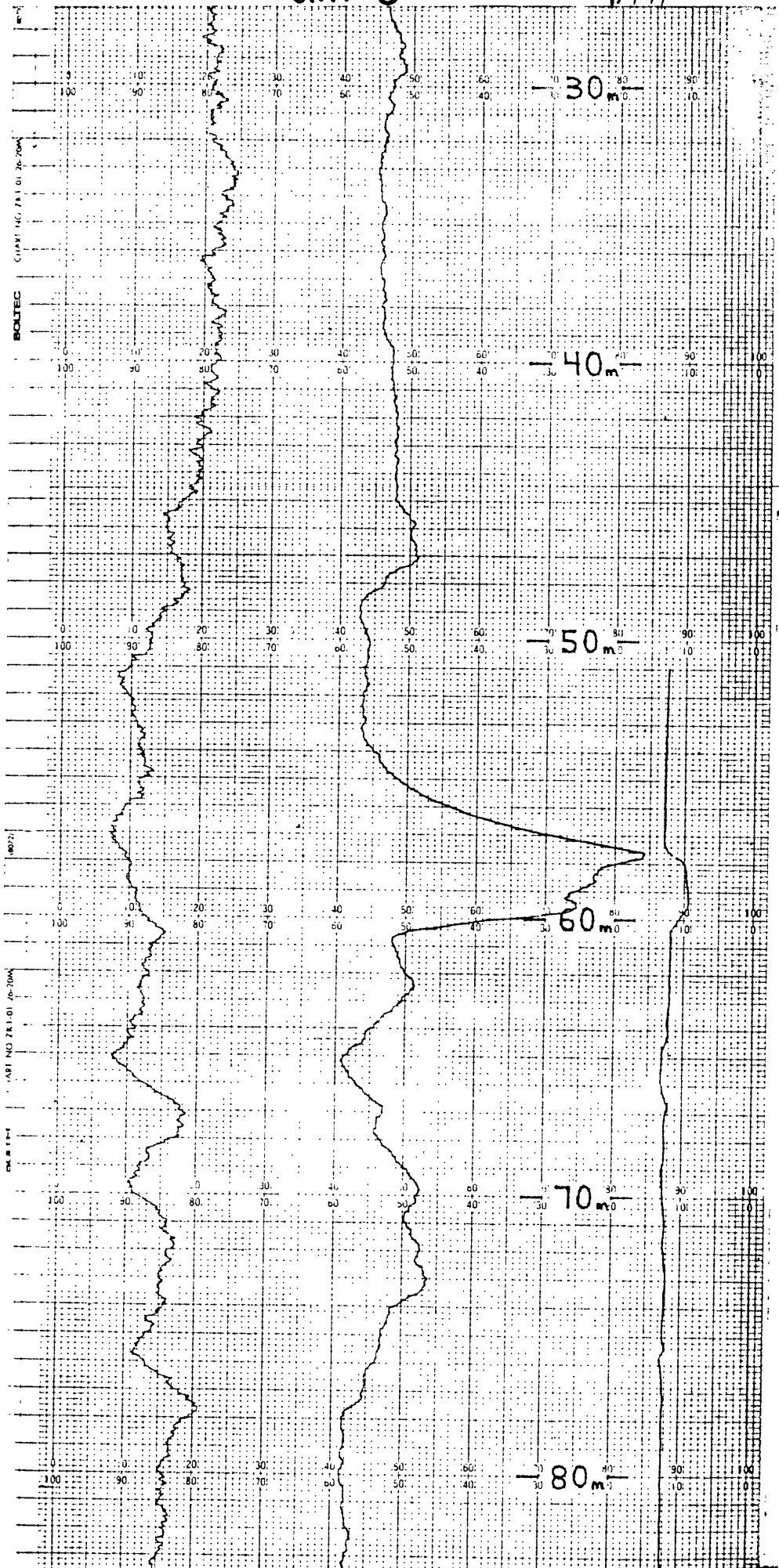
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sm. Pakistan		DEPTH DRILLED	302.6 m		CLIENT	USSS/GSP	
REGION	Thatta		DEPTH LOGGED	297 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	Korshad/Mahmud/Muhammad	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2	
SEC	TWP	RNG	DIA	Caliper	FROM TO	OFFICE	Boulder Colorado USA	
			DIA	Log	FROM TO	ELECTRIC		
TYPE	GAM Neutron		BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		LOGGED DEPTH	RESIST	S.P.
LOGGED DEPTH	295 m 297 m		FLUID LEVEL	3 m		SCALE	295 m	
RANGE (ft)	100 500		CASING DATA			PAPER SPEED	1-1	
STD DEV	5 1		WALL SIZE	1 1/4		LOG SPEED	6-1	
PAPER SPEED	1-1 1-1		ID	4		ARM LENGTH	IN	
LOG SPEED	6-1 6-1		CASED FROM	0 TO 58 m		MAX DEF	IN	
BKGD COUNT			CASING TYPE	HW		VERTICAL DEV.		
PROBE NO.	GM-1 GM-1		SAMPLE DATA			DEPTH		
SIZE (dia)	1 3/8 1 3/8		NON-CORED HOLE	CORED HOLE		INCLIN		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		BEARING		
DEAD TIME	2 2		REMARKS	Open Hole				
STANDARD								
DIGITAL DATA								
PRINT INTERVAL								
TIMEBASE								
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								





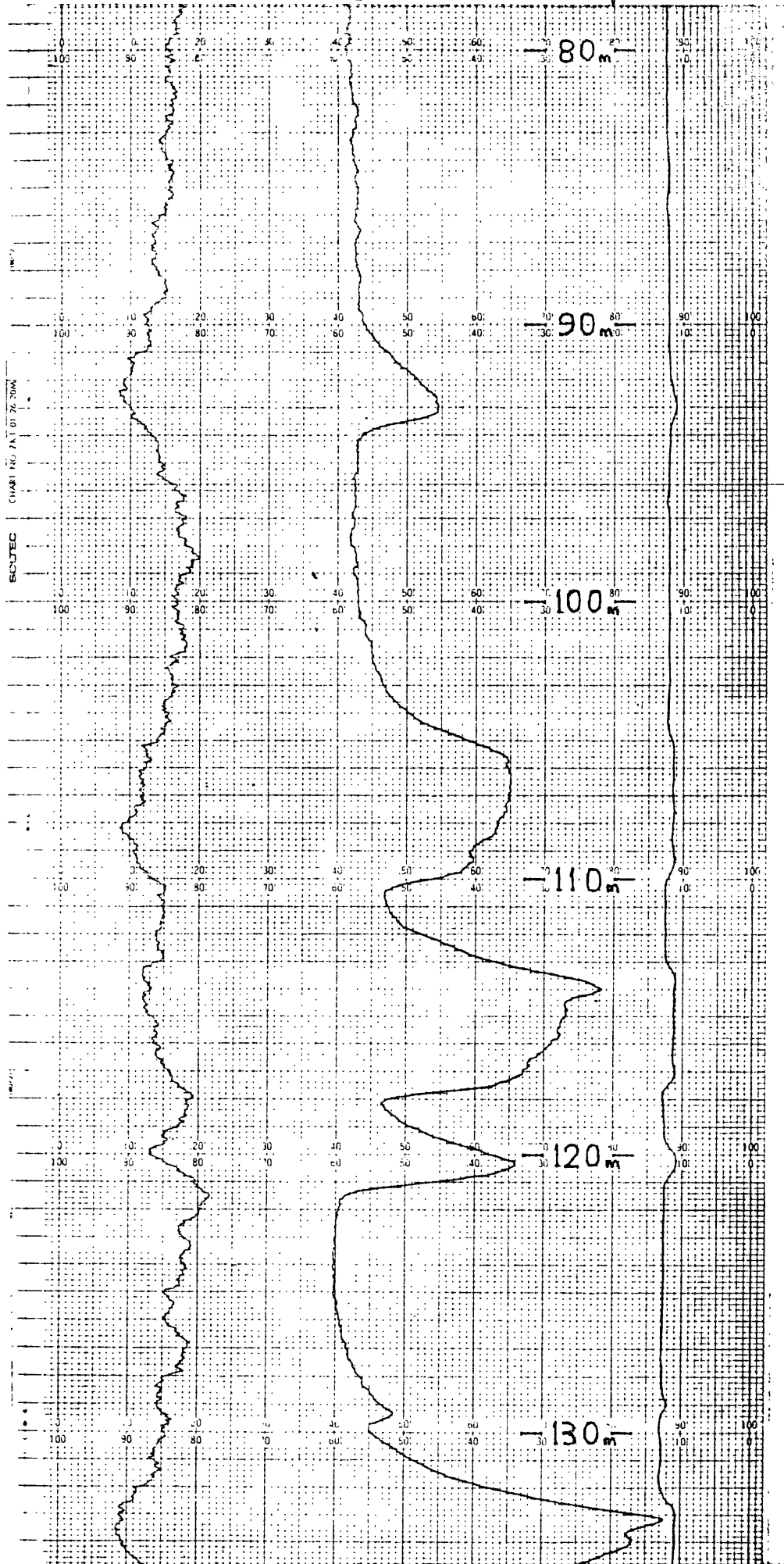
UAT-3

8441



URT-3

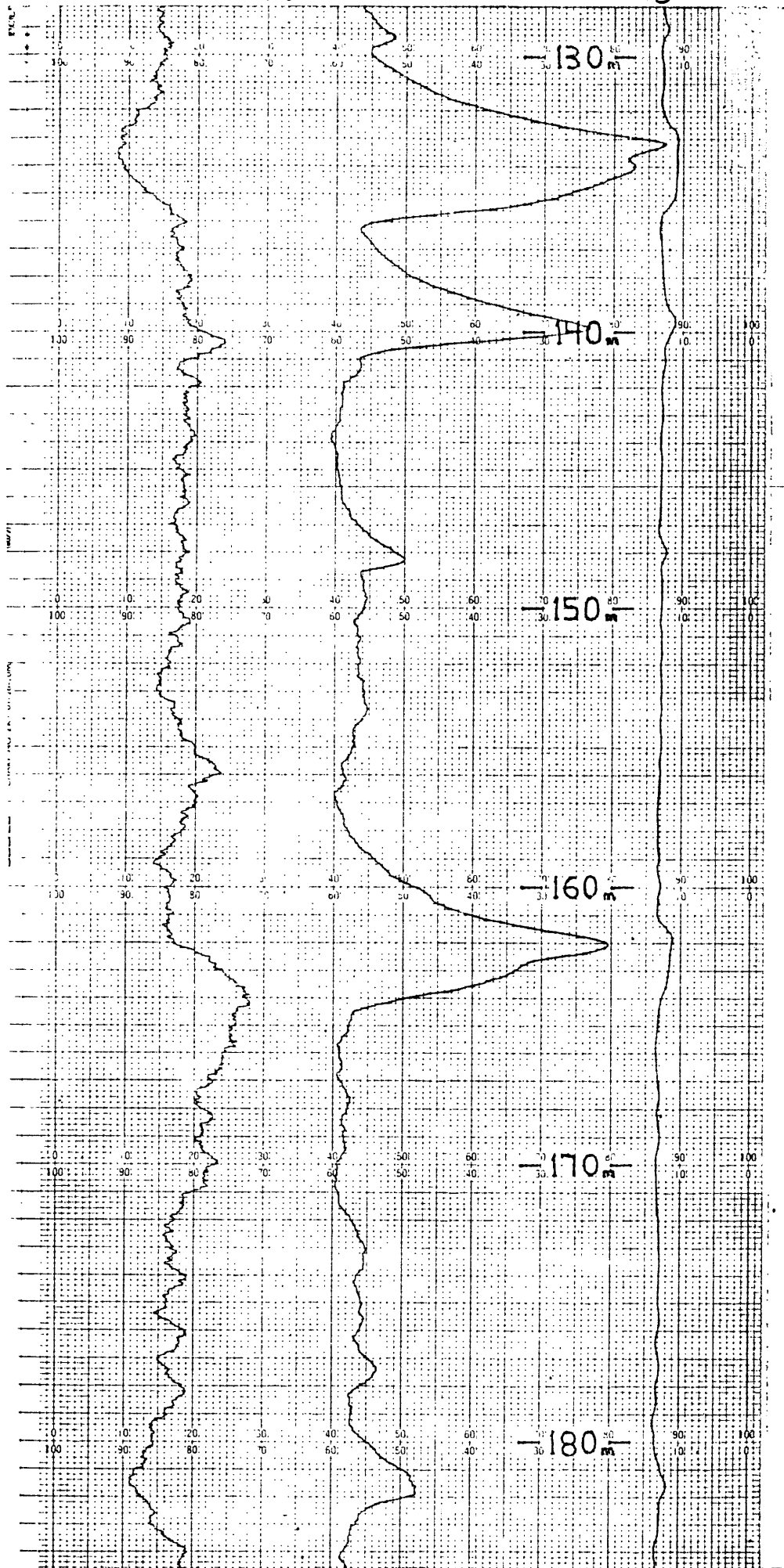
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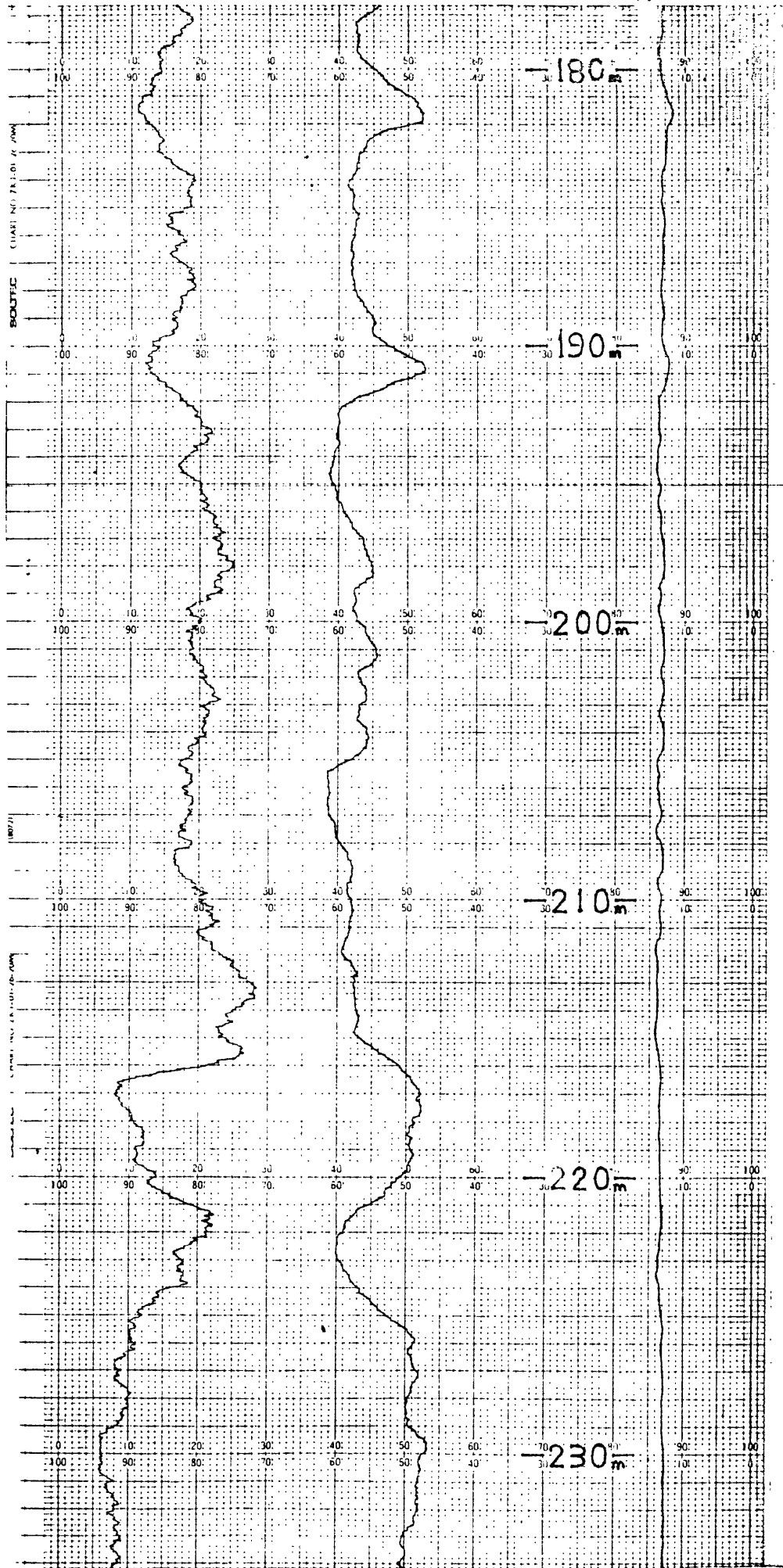
1443



1443

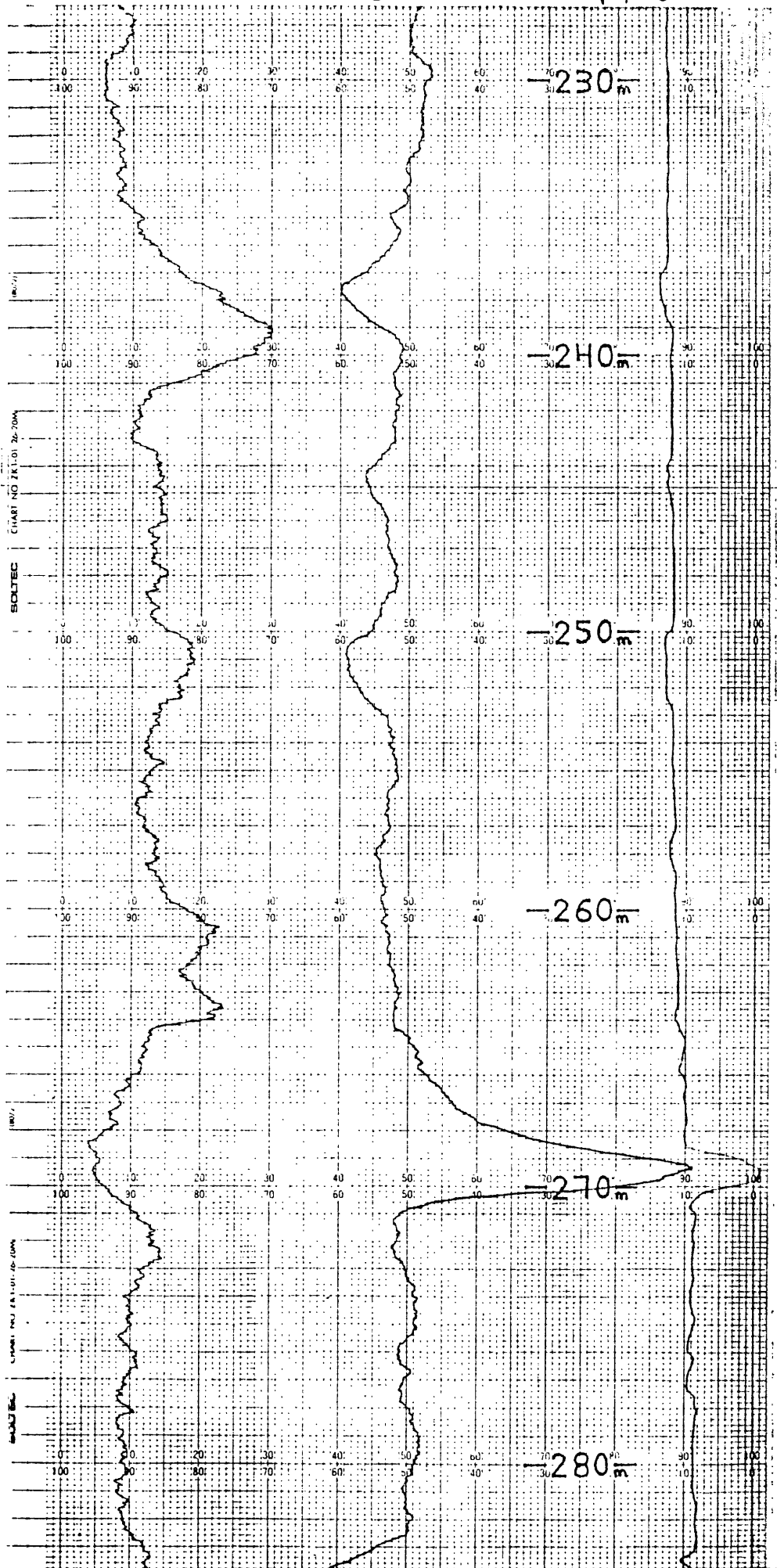
UAT-3

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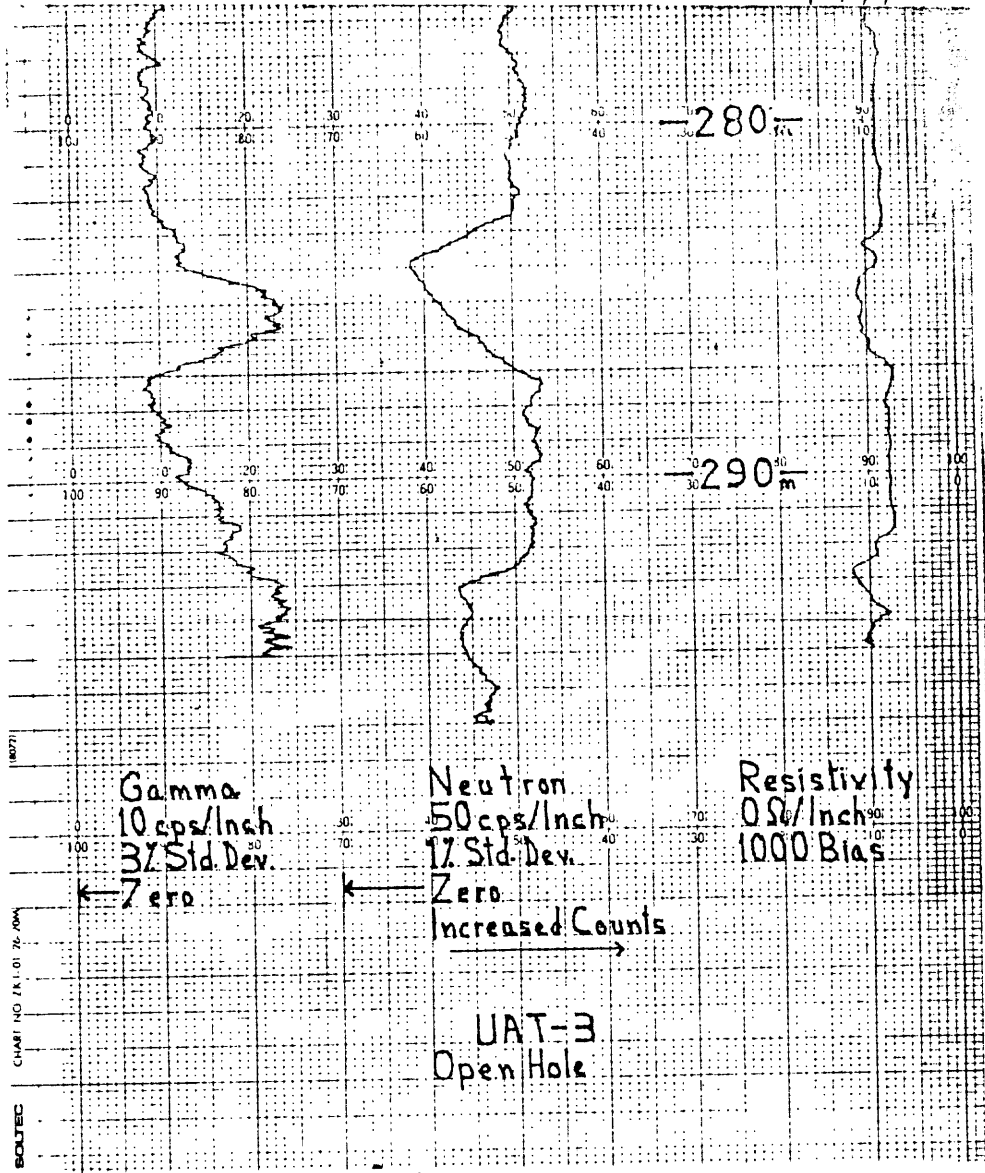
UAT-3

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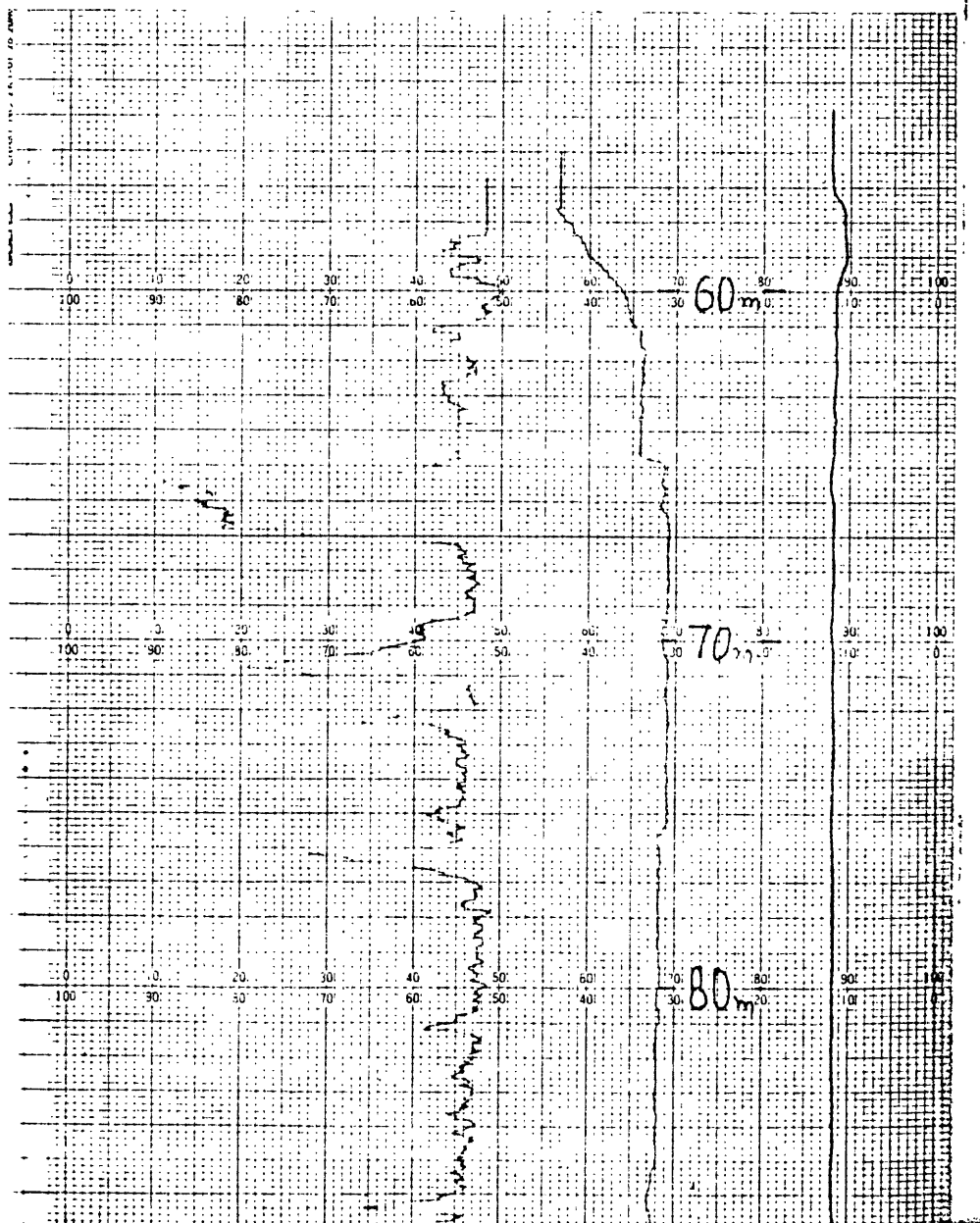
# GEOSCIENCE ASSOCIATES

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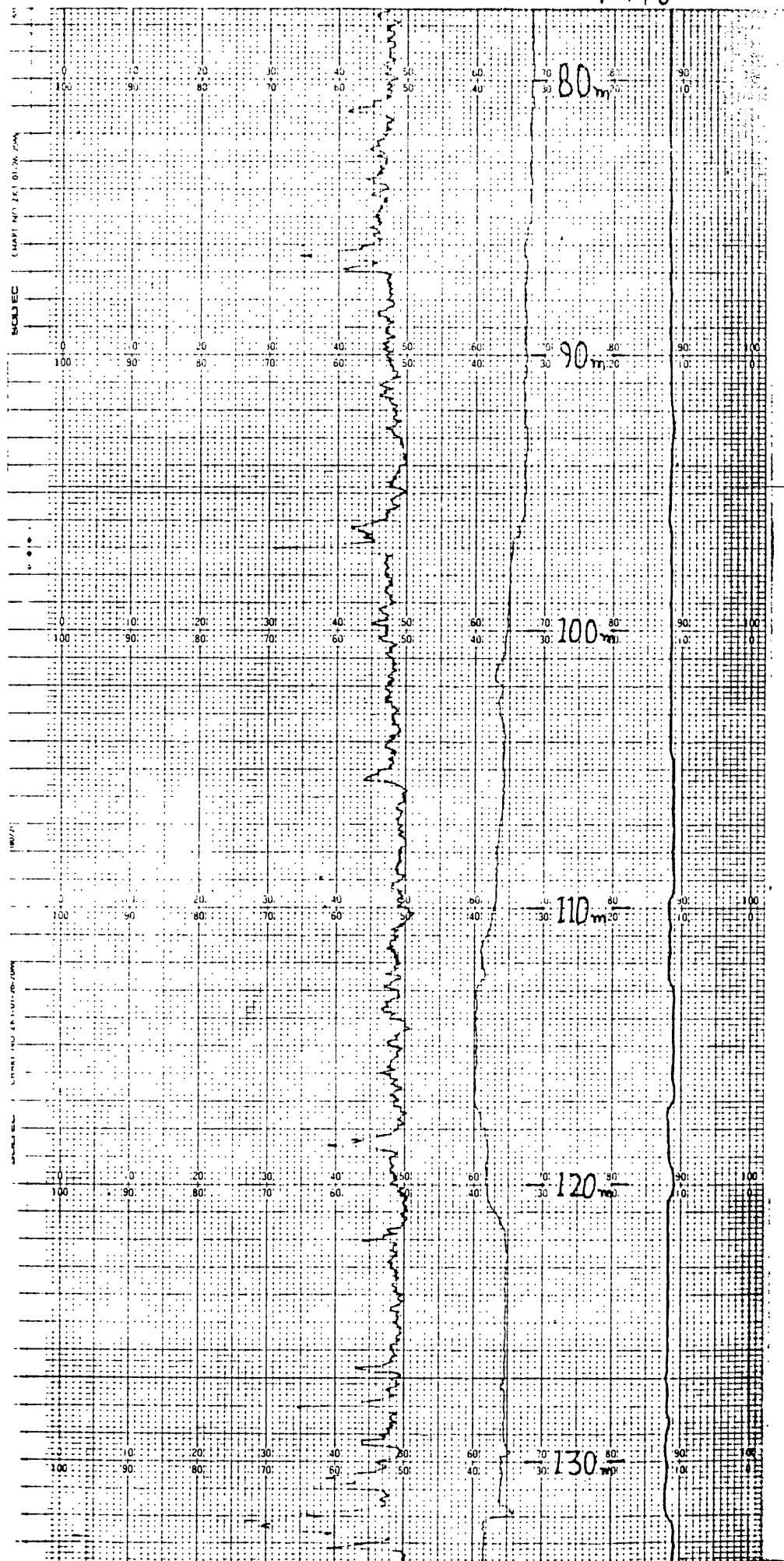
HOLE NUMBER: UAT-3

DATE: 12-1987

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	Sind Paki	1	DEPTH DRILLED	22 m	CLIENT	USGS 7 GSP
REGION	Thatta		DEPTH LOGGED	21 m	GEOLOGIST	
PROJECT	CPA REAP		COLLAR ELEV		UNIT OPERATOR	Slyas / KHURSHID
PROSPECT			DIA	See the FROM TO	UNIT NO	PL-2 OFFICE
SEC.	TWP	RNG	DIA	Caliber FROM TO	BOHREX	CELEBRAS USA
			DIA	Log FROM TO		
TYPE	GAM	H2O	BOREHOLE MEDIUM	H2O + Mud	ELECTRIC	
LOGGED DEPTH	29 m		FLUID LEVEL		TYPE	RESIST S P
RANGE (H.S.)	10K		CASING DATA		LOGGED DEPTH	290.77 FT
%STD DEV	1.7		WALL SIZE	4" 4"	SCALE	0
PAPER SPEED	1-1		I.D.	4" 4"	PAPER SPEED	1-1
LOG SPEED	3-1		CASED FROM	0 TO 56 m	LOG SPEED	3-1
BKGD. COUNT			CASING TYPE	H1	FINE ADJ	500 bias
PROBE NO.	H20		SAMPLE DATA			
SIZE (dis.)	2"		NON-CORED HOLE	<input checked="" type="checkbox"/>	CALIPER	
K-FACTOR			CORED HOLE	<input type="checkbox"/>	LOGGED DEPTH	291 m FT
DEAD TIME	2		SAMPLED INTERVAL	SAMPLE TYPE	SCALE	
STANDARD					PAPER SPEED	1" = 1"
DIGITAL DATA			REMARKS		LOG SPEED	3-1
PRINT INTERVAL			(OPEN HOLE)		ARM LENGTH	9"
TIMED. SE					MAX DEF	30 IN
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN.	
					BEARING	



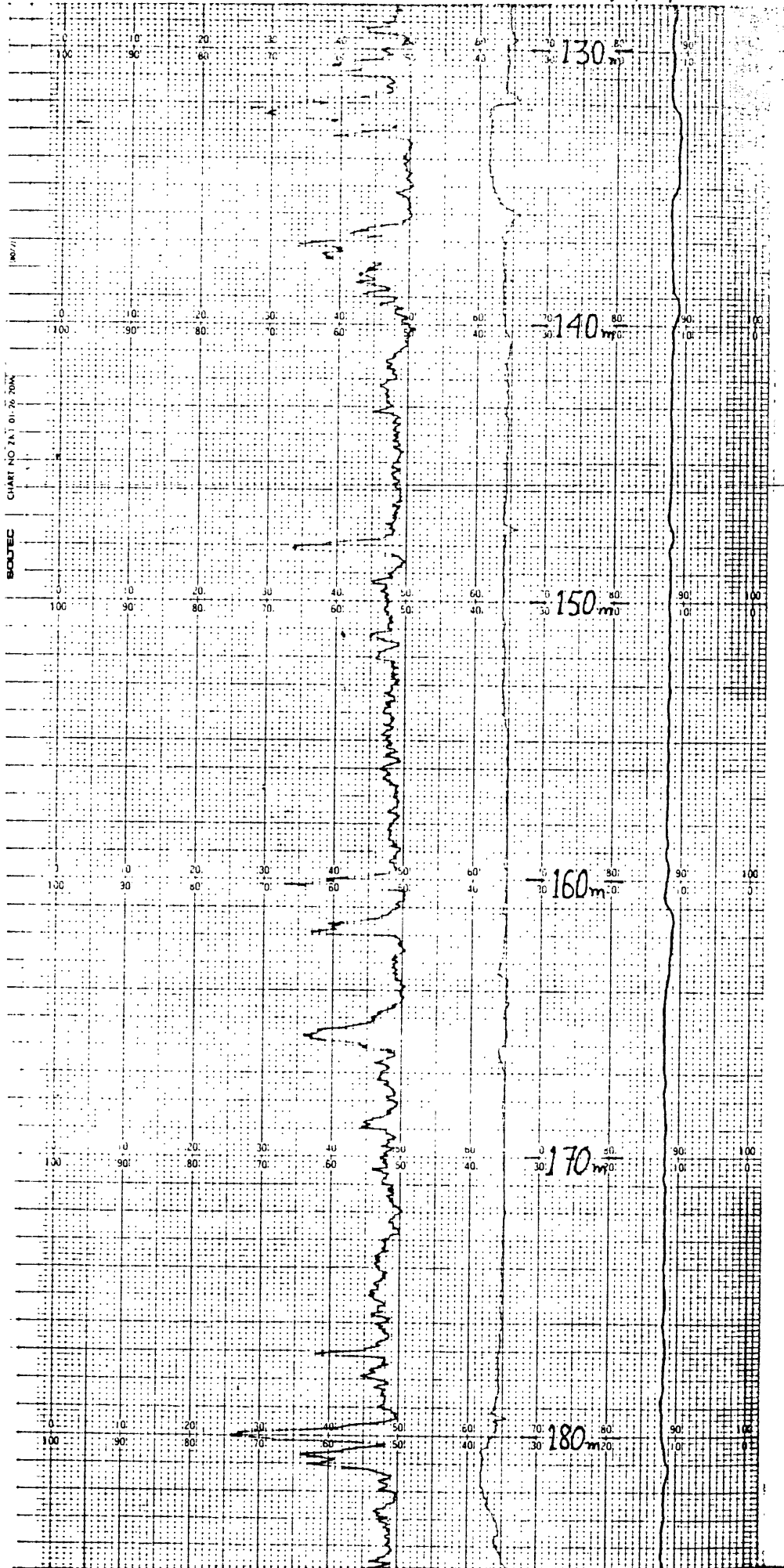
P. 448



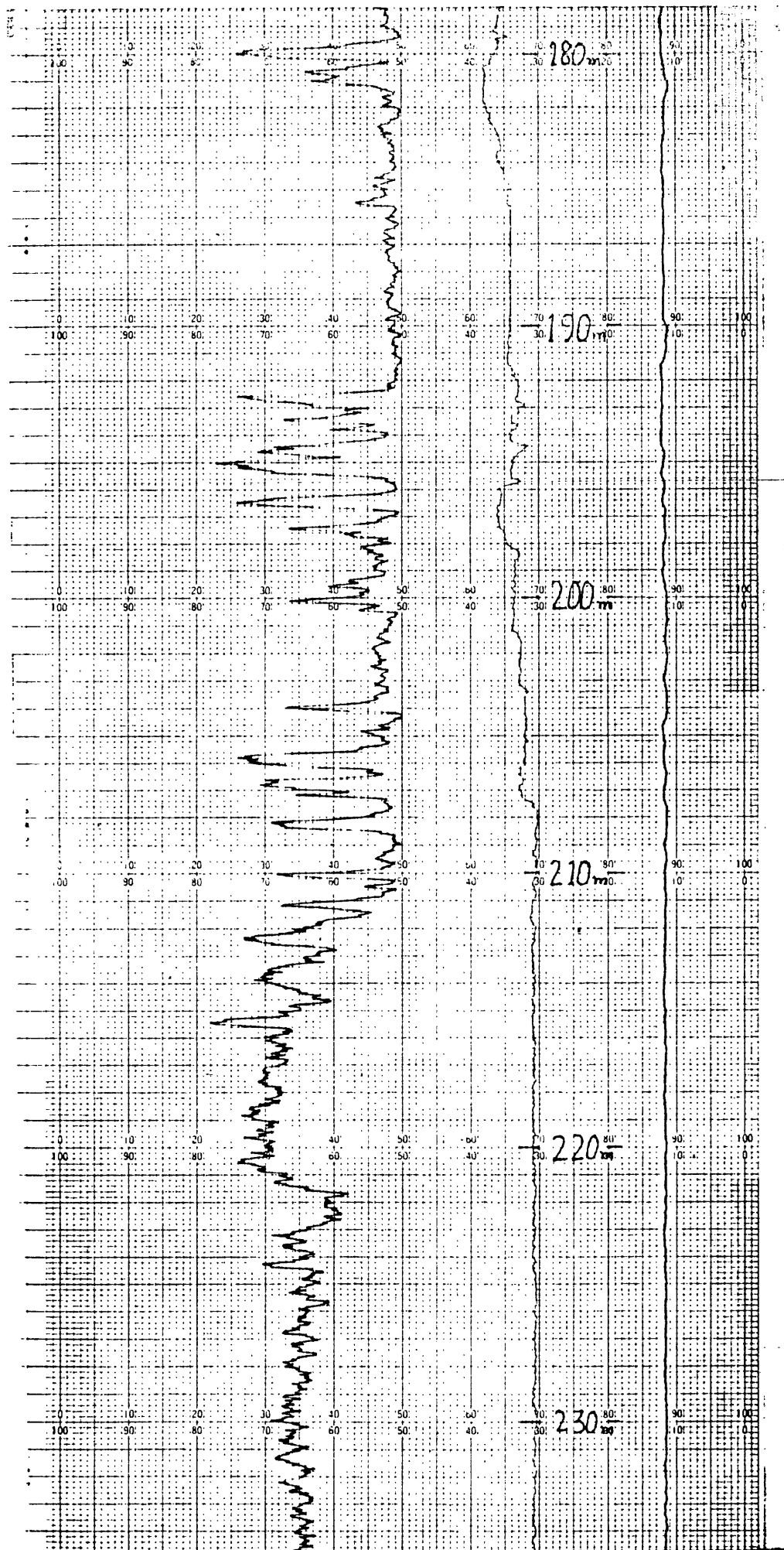


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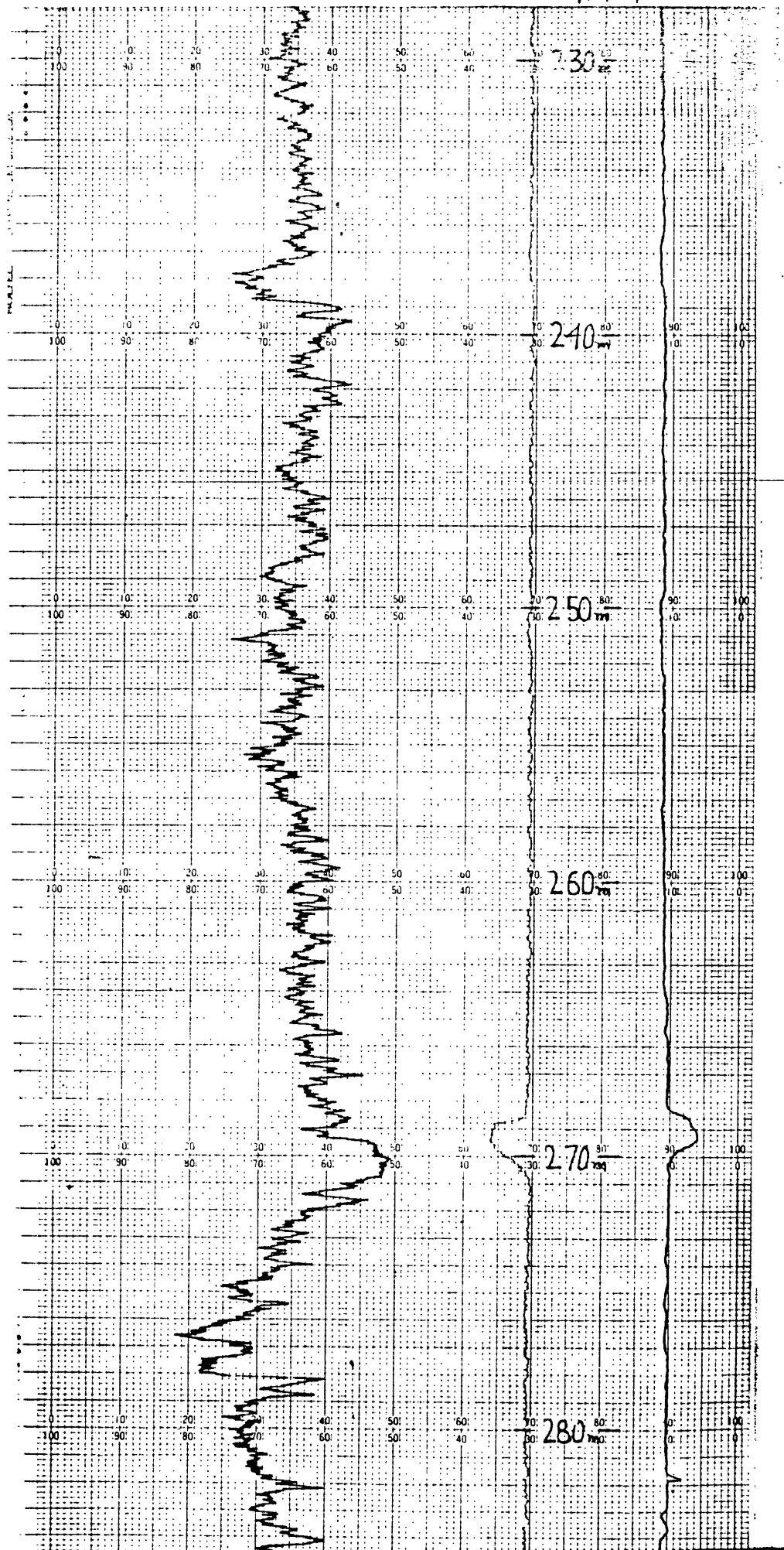
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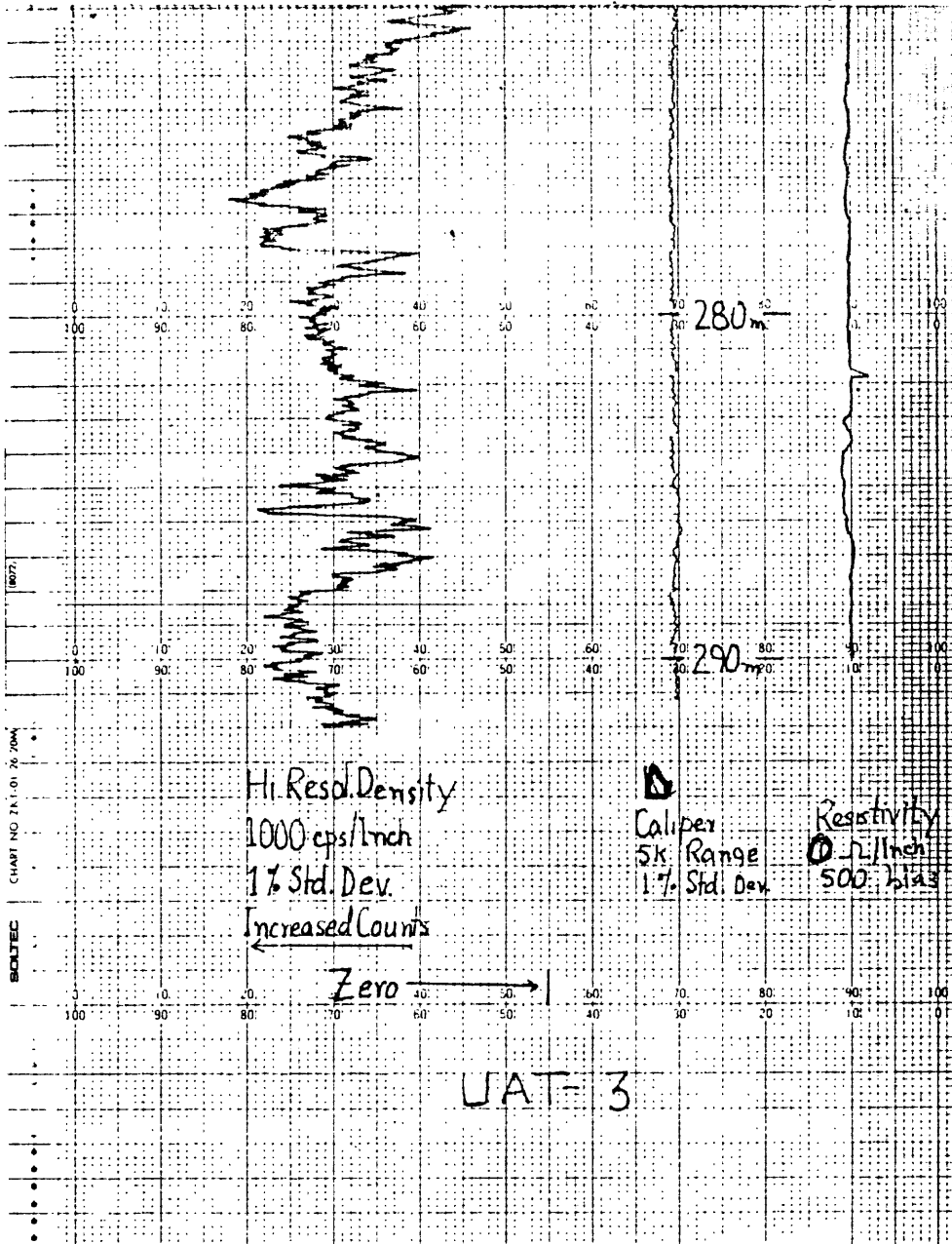
ИАТ-3

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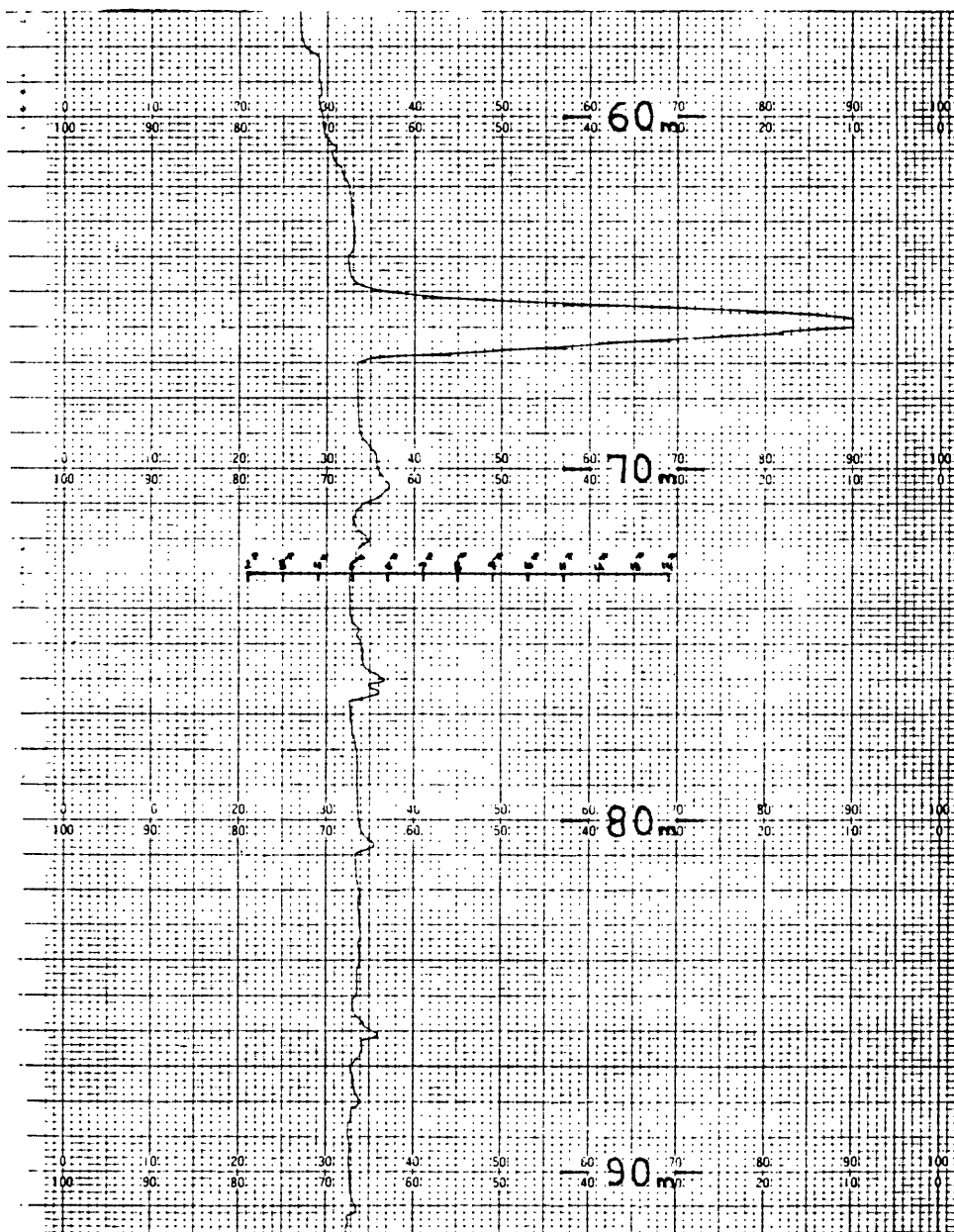
# GEOSCIENCE ASSOCIATES P.453

HOLE NUMBER:

UAT-3

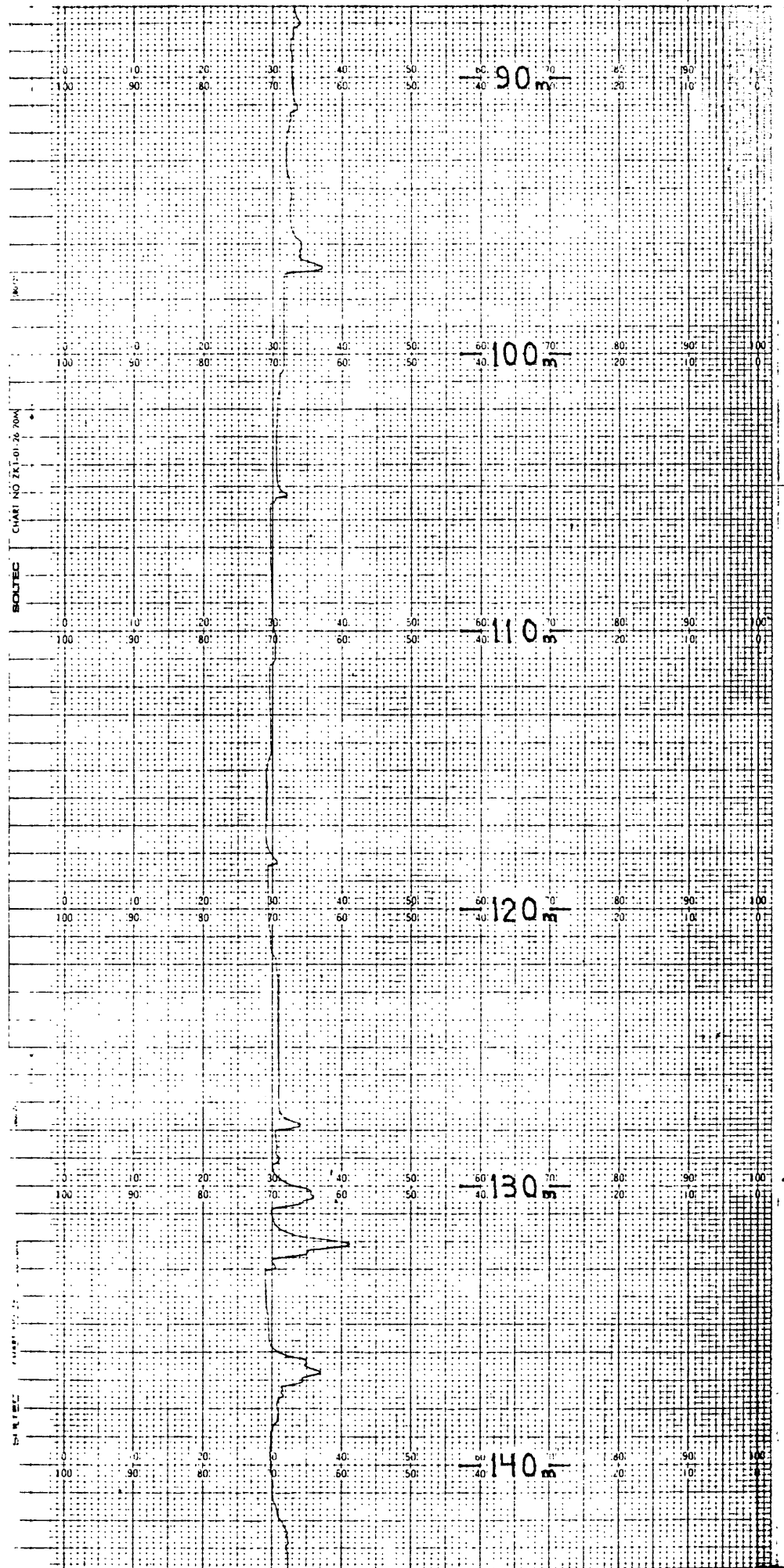
DATE: Feb 2, 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sindh Pakistan		DEPTH DRILLED	302.6 m		CLIENT	USGS GSP	
REGION	Thatta		DEPTH LOGGED	290 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	Wurshaid/Hayas/Mahmud	
PROSPECT			DIA See	FROM	TO	UNIT NO	PL-2	OFFICE
SEC	TWP	RNG	DIA Caliper	FROM	TO	Revider	Colorado USA	
TYPE	GAM		DIA Log	FROM	TO	ELECTRIC		
LOGGED DEPTH			BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
RANGE (ft.)			FLUID LEVEL	3 m		LOGGED DEPTH	FT.	FT.
%STD DEV			CASING DATA			SCALE		
PAPER SPEED			WALL SIZE	1/4"		PAPER SPEED		
LOG SPEED			I.D.	4"		LOG SPEED		
BKGD. COUNT			CASED FROM	0 TO 58 m		FINE ADJ.		
PROBE NO.			CASING TYPE	HW				
SIZE (dia.)			SAMPLE DATA			3 Arm CALIPER		
K-FACTOR			NON-CORED HOLE	<input checked="" type="checkbox"/>	CORED HOLE	LOGGED DEPTH	290 m	
DEAD TIME			SAMPLED INTERVAL		SAMPLE TYPE	SCALE	4" def = 1" dia	
STANDARD			REMARKS			PAPER SPEED	1-1	
DIGITAL DATA						LOG SPEED	6-1	
PRINT INTERVAL						ARM LENGTH	12 IN	
TIMEBASE						MAX DEF	24 IN	
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN		
						BEARING		



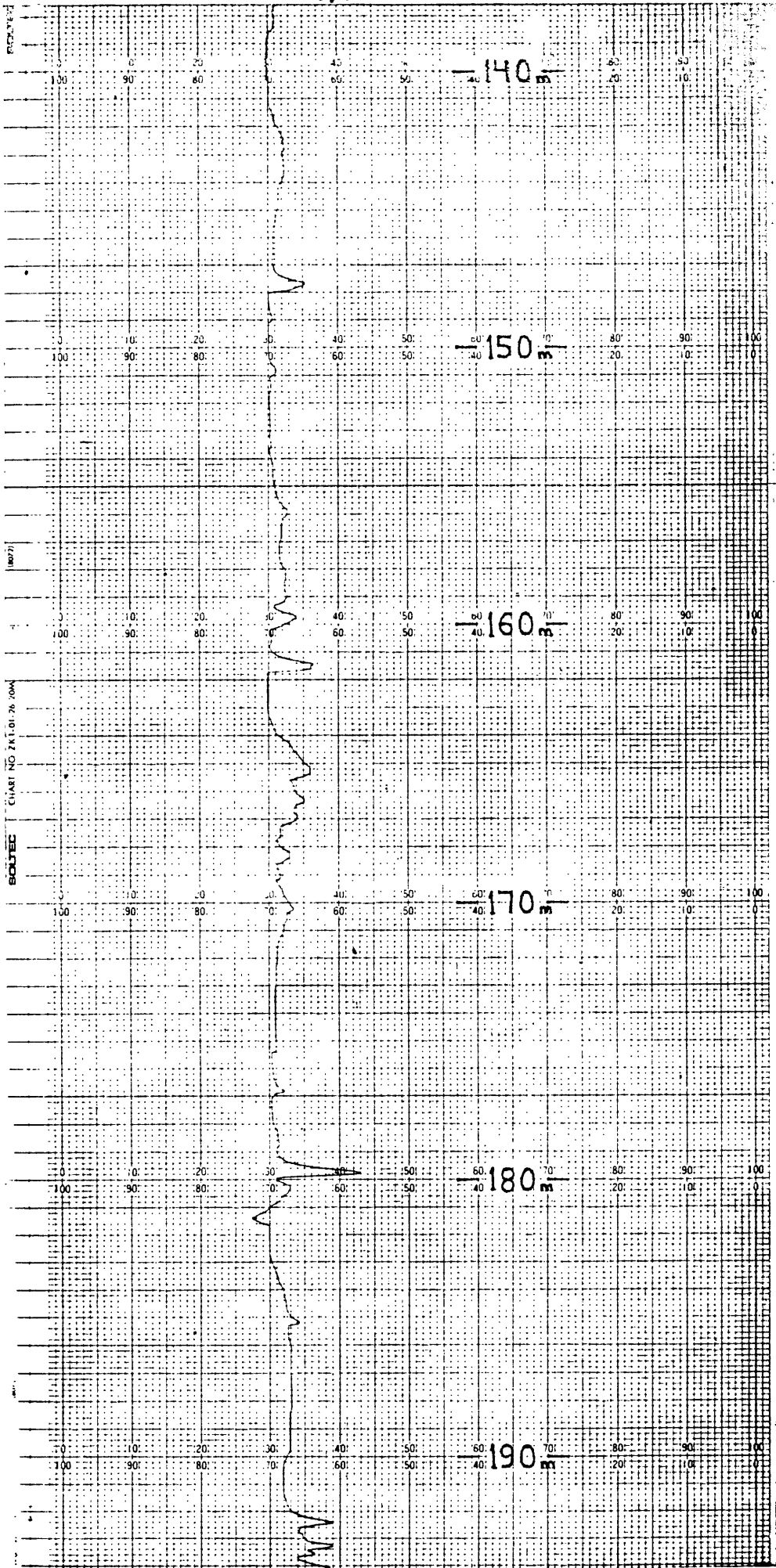
UAT-3

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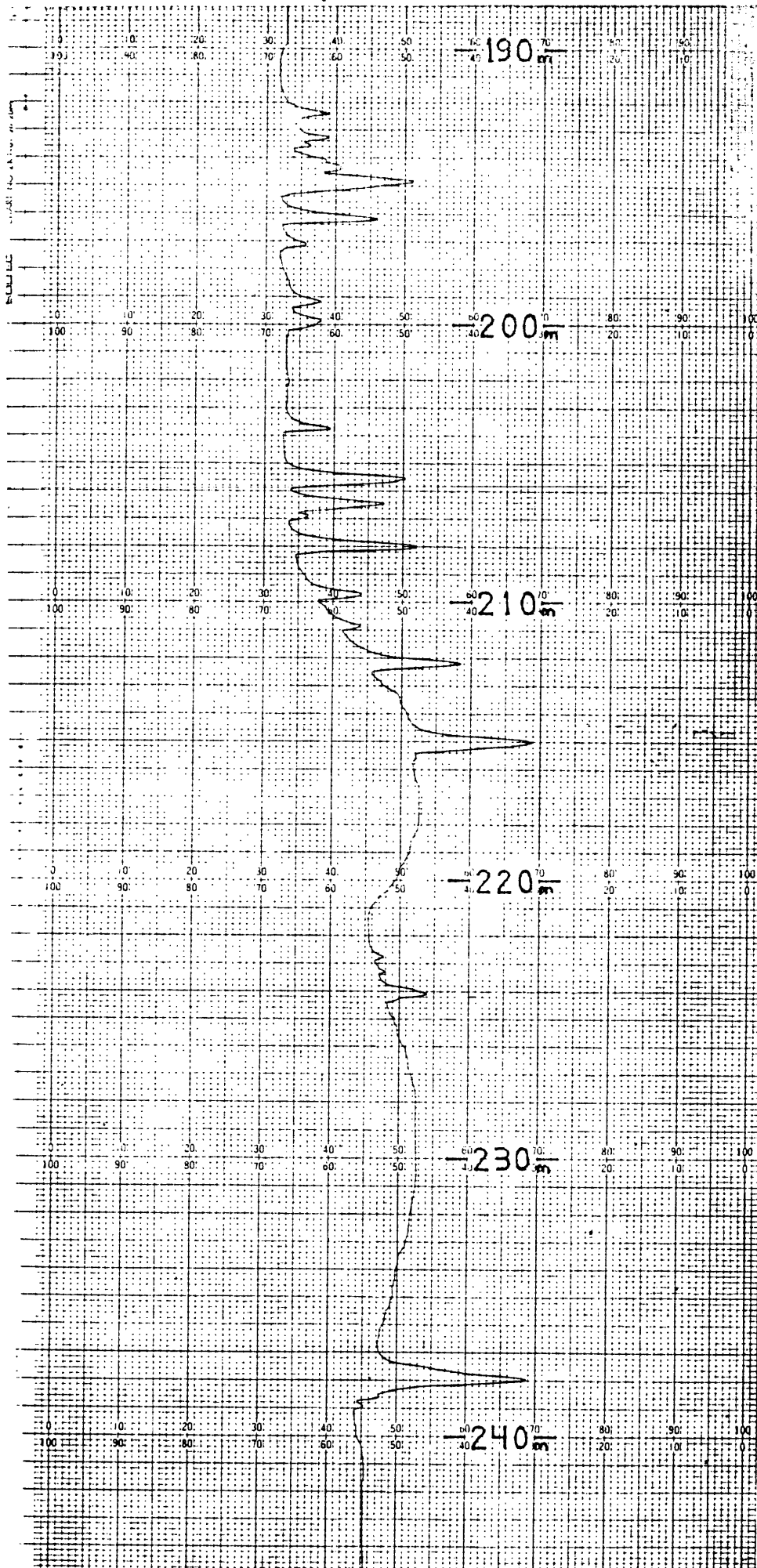
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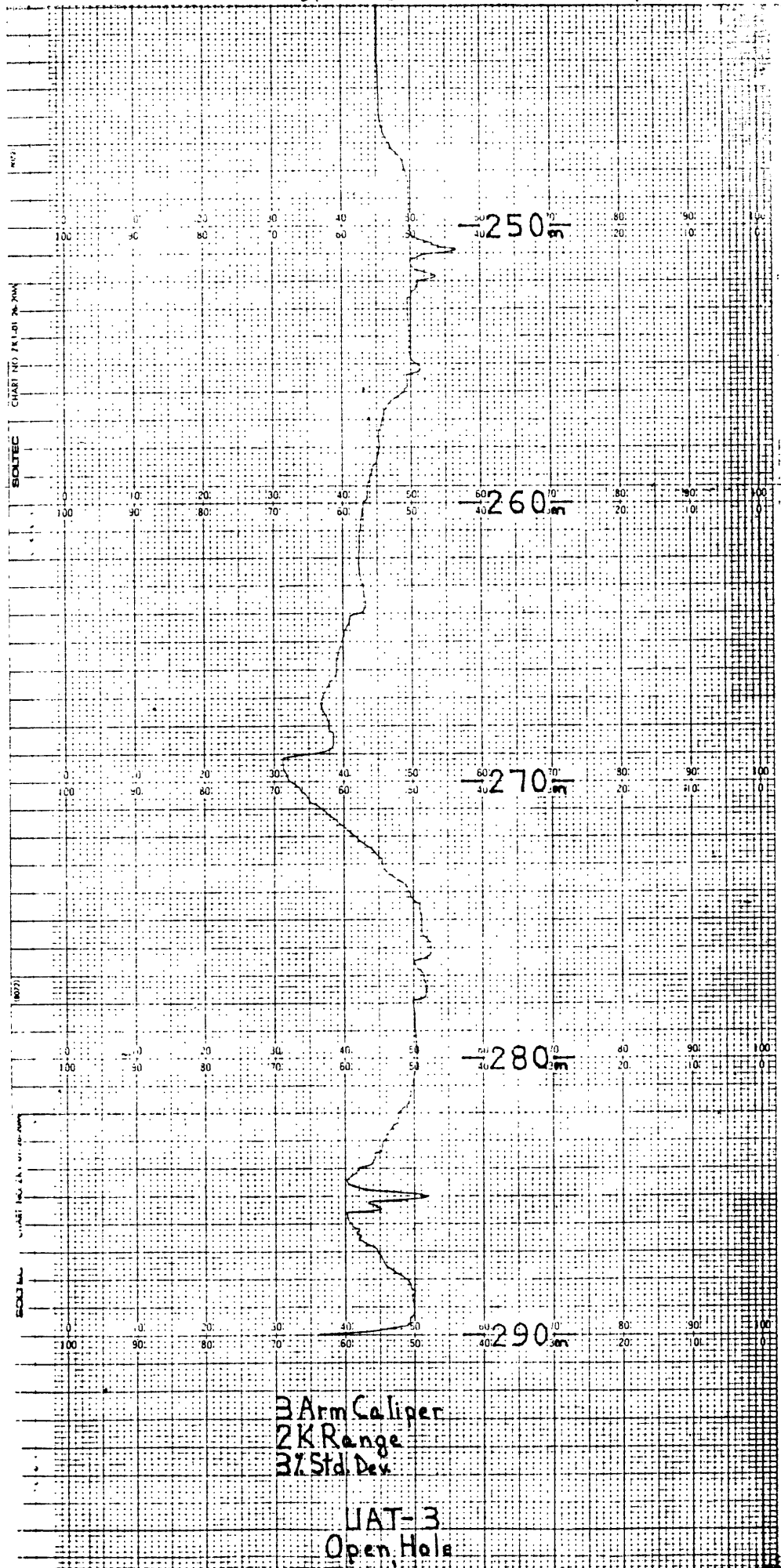
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DRILL HOLE UAT-4



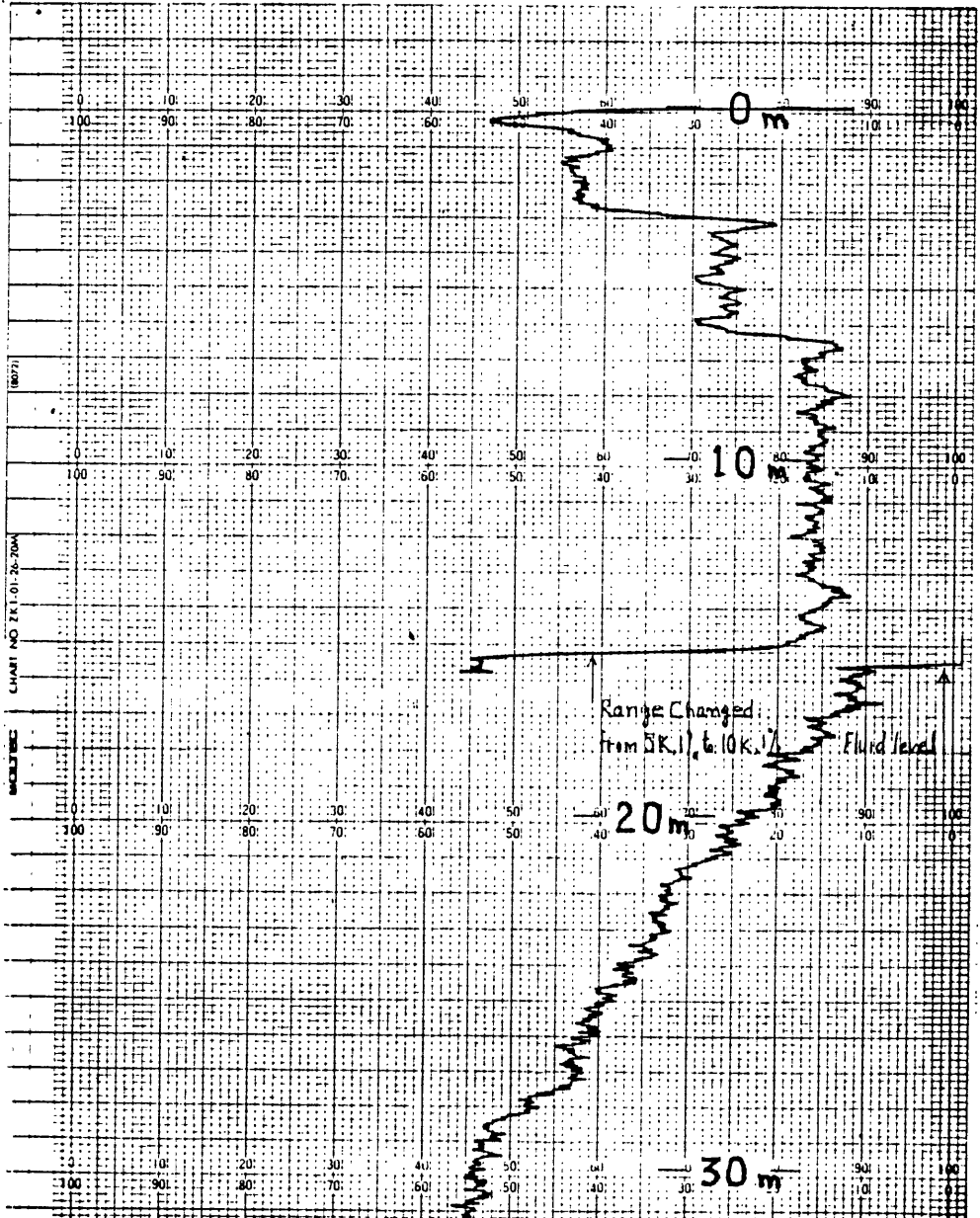
# GEOSCIENCE ASSOCIATES p.459

HOLE NUMBER:

UAT-4

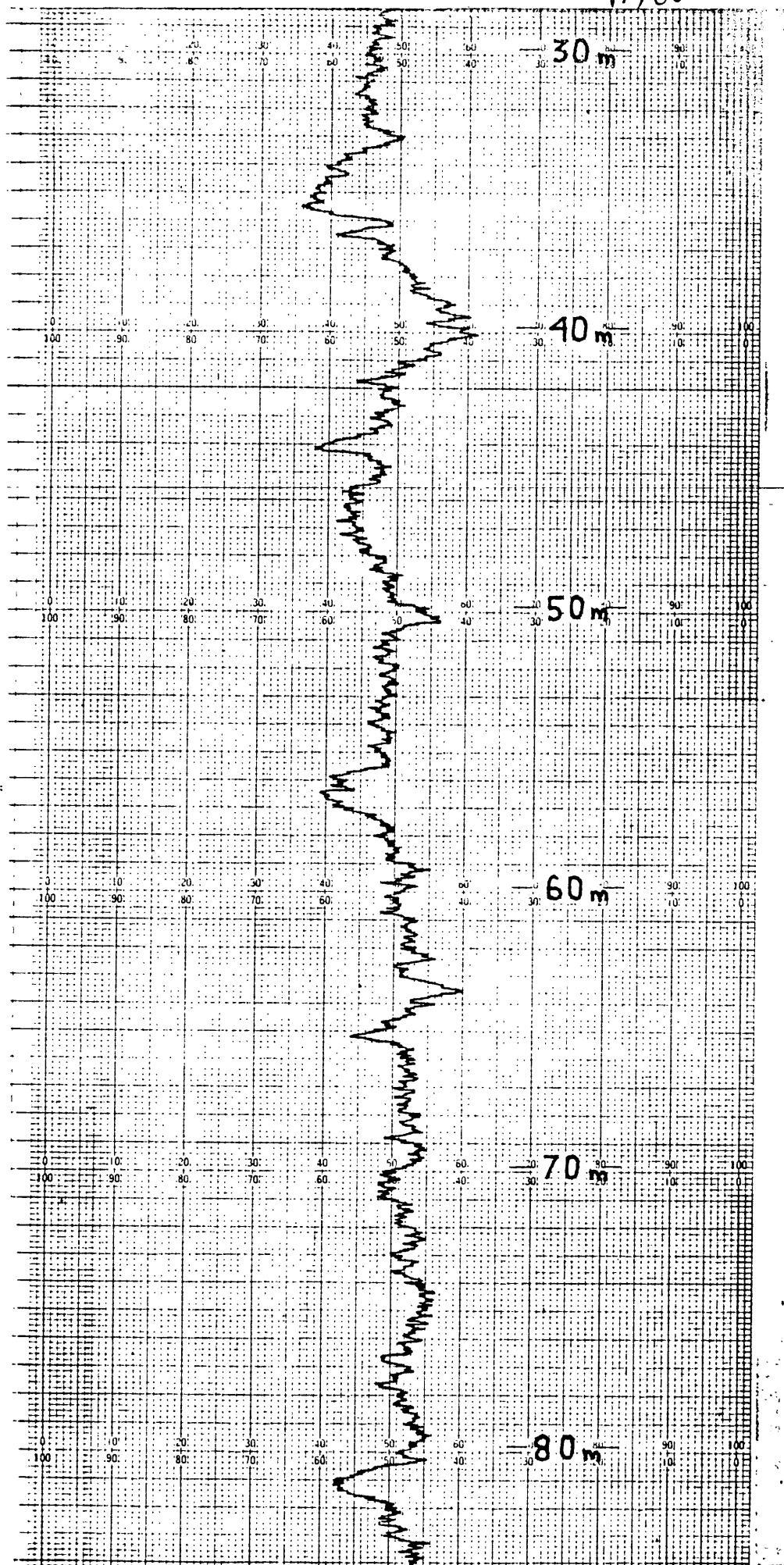
DATE: 21<sup>st</sup> March 1987

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sind Pakistan		DEPTH DRILLED	309 m	CLIENT	G S P U S G S
REGION	Thatta		DEPTH LOGGED	192 m	GEOLOGIST	
PROJECT	Coal Reap		COLLAR ELEV		UNIT OPERATOR	MUTEEB AHMAD
PROSPECT			DIA	See FROM TO	UNIT NO	PL-2 OFFICE
SEC	TWP	RNG	DIA	Caliper FROM TO	BOULDER COLORADO USA	
			DIA	Log FROM TO		
TYPE	GAM	4 P. Density	BOREHOLE MEDIUM	H.O. + Mu. 1		
LOGGED DEPTH	192 m		FLUID LEVEL	15.6 m		
RANGE (ft.)	5K		ELECTRIC			
%STD DEV	1.7		TYPE			
PAPER SPEED	1-1		LOGGED DEPTH			
LOG SPEED	6-1		RESIST			
BKGND. COUNT			SCALE			
PROBE NO.	GD-1		PAPER SPEED			
SIZE (dia)	1 3/8		LOG SPEED			
K-FACTOR			FINE ADJ			
DEAD TIME	2					
STANDARD						
DIGITAL DATA			CALIPER			
PRINT INTERVAL			LOGGED DEPTH			
TIMEBASE			SCALE			
			PAPER SPEED			
			LOG SPEED			
			ARM LENGTH			
			MAX DEF			
DENSITY CALIBRATION			VERTICAL DEV.			
ALUMINUM			DEPTH			
LUCITE			INCLIN.			
			BEARING			



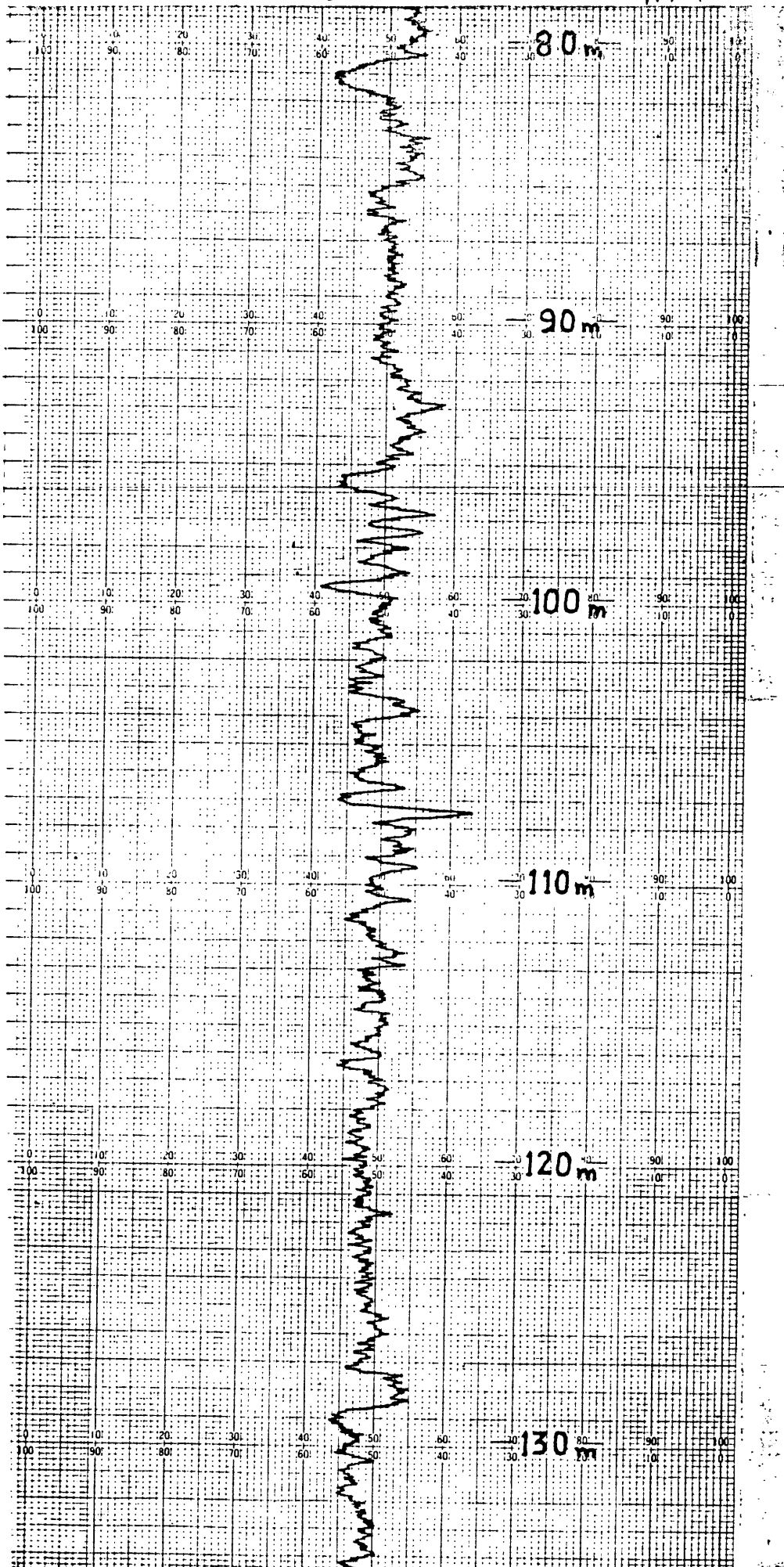
UAT-4

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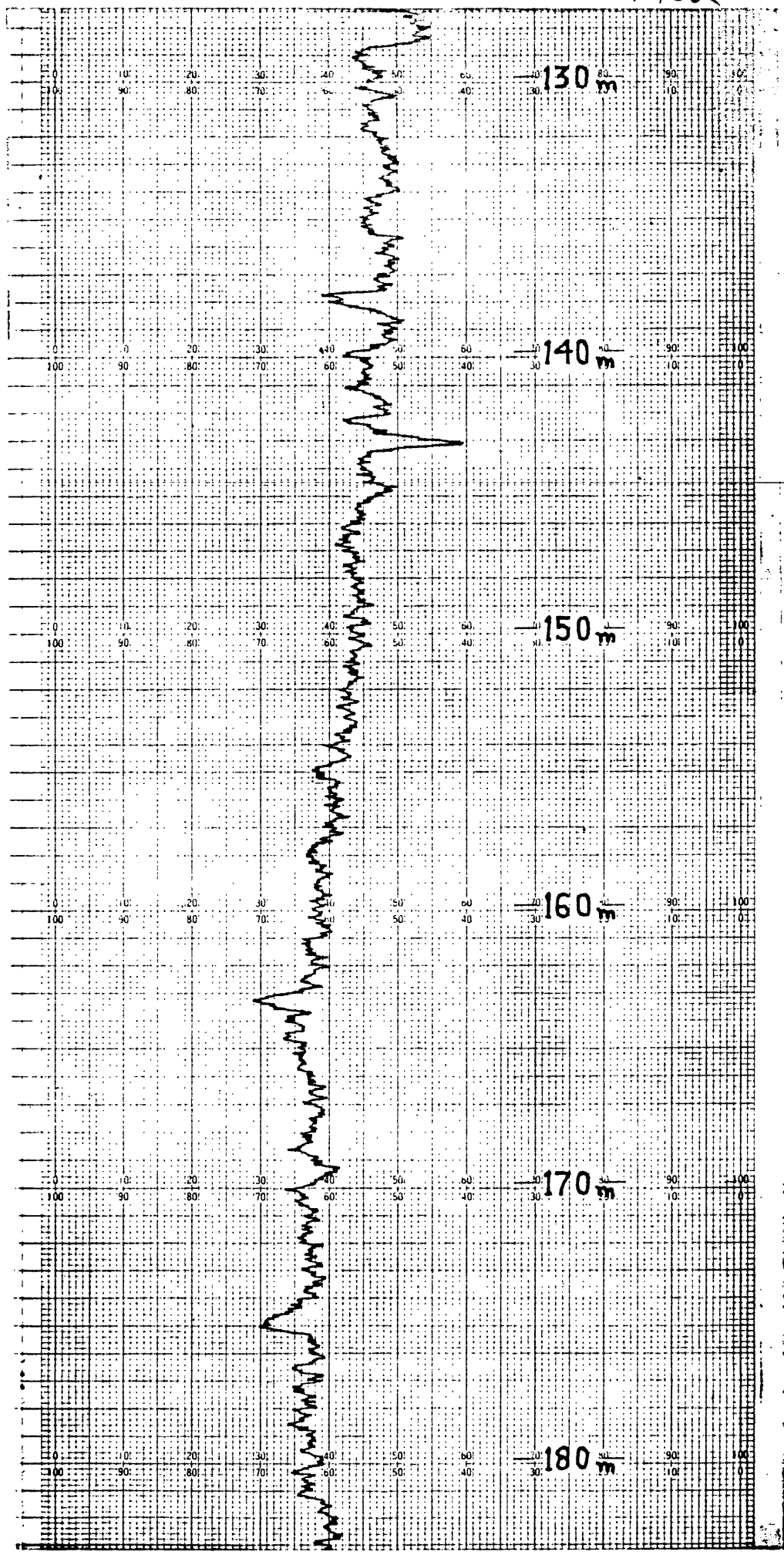
UAT-4

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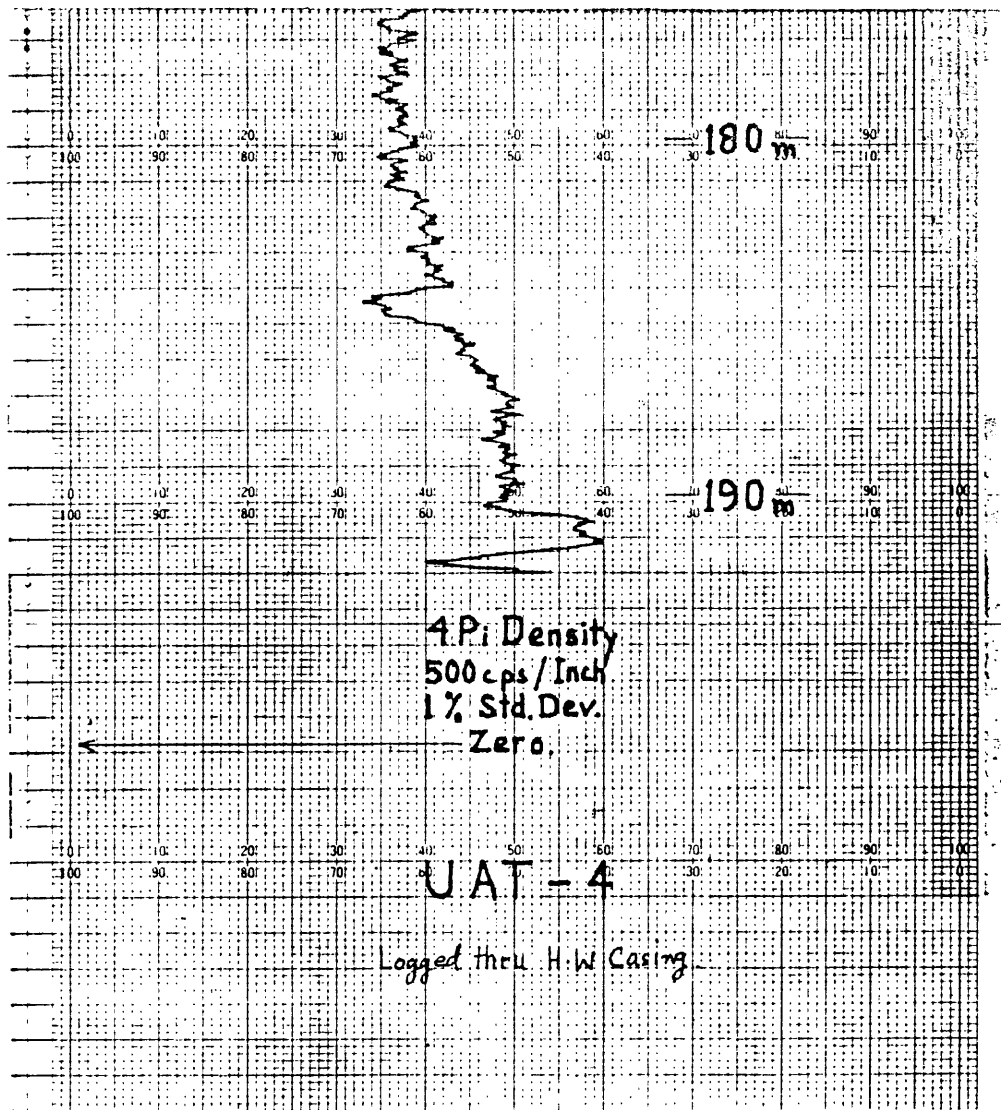
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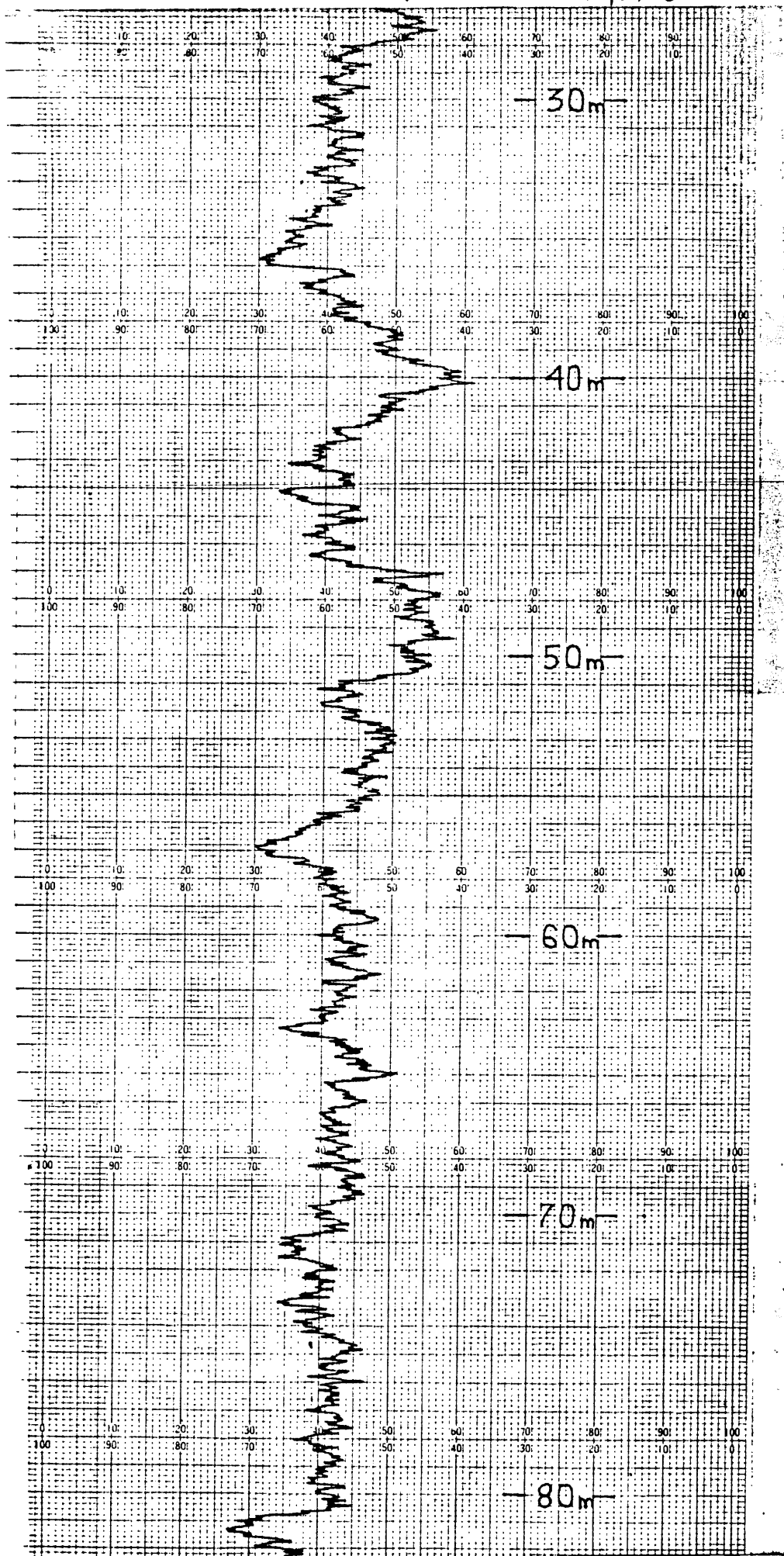
P.463







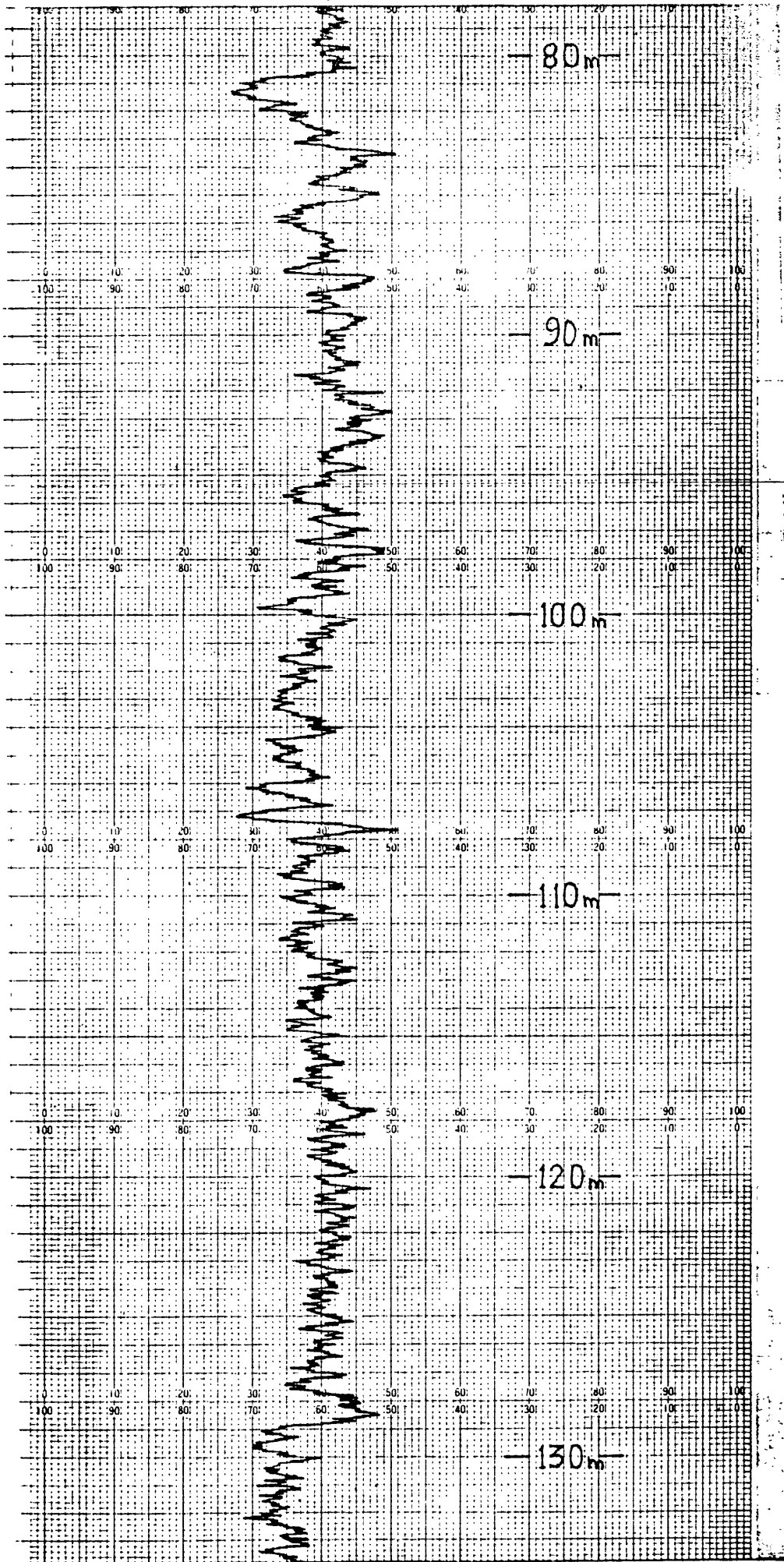
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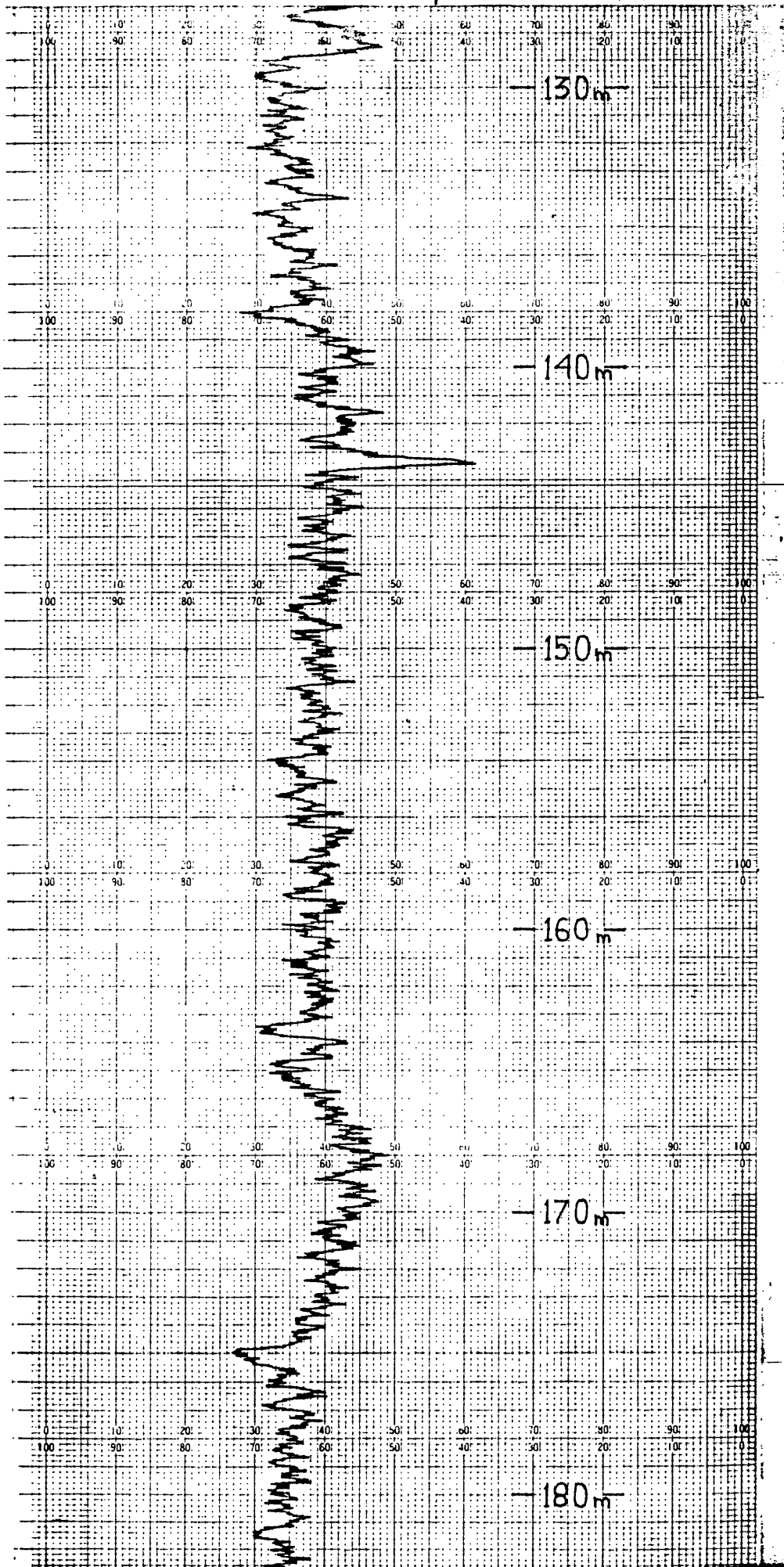
P. 466



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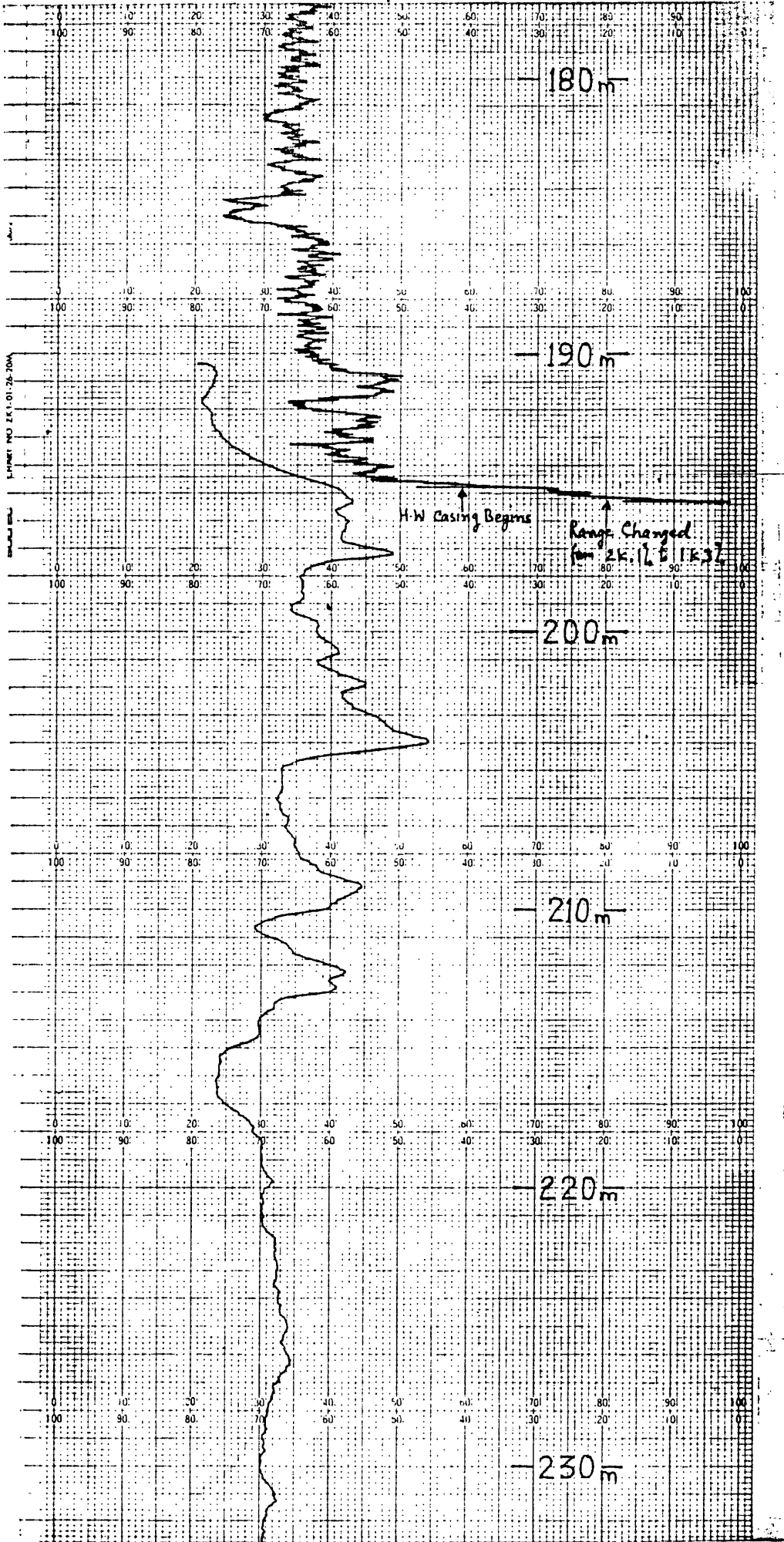
UAT-4

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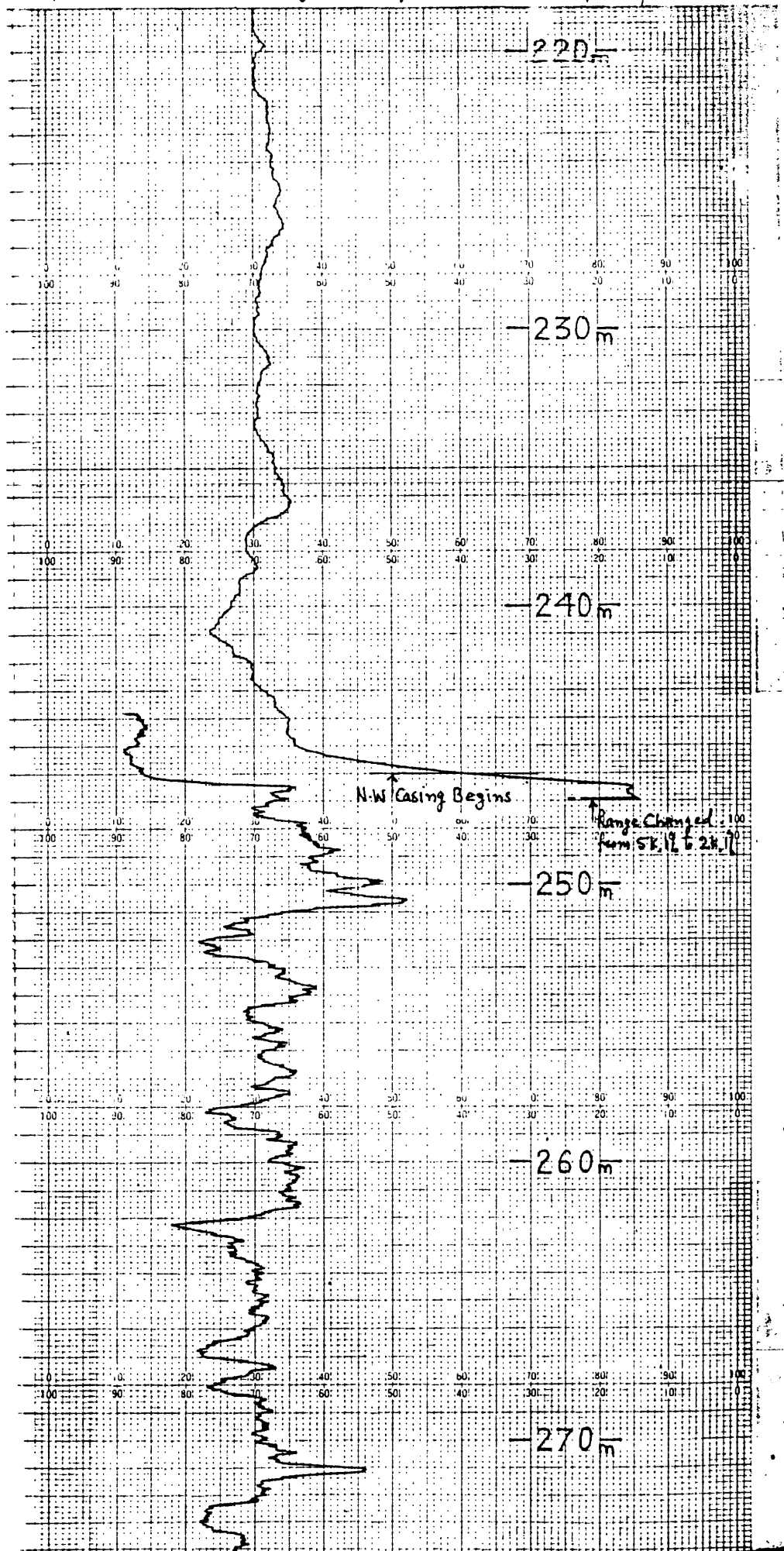
UAT-4

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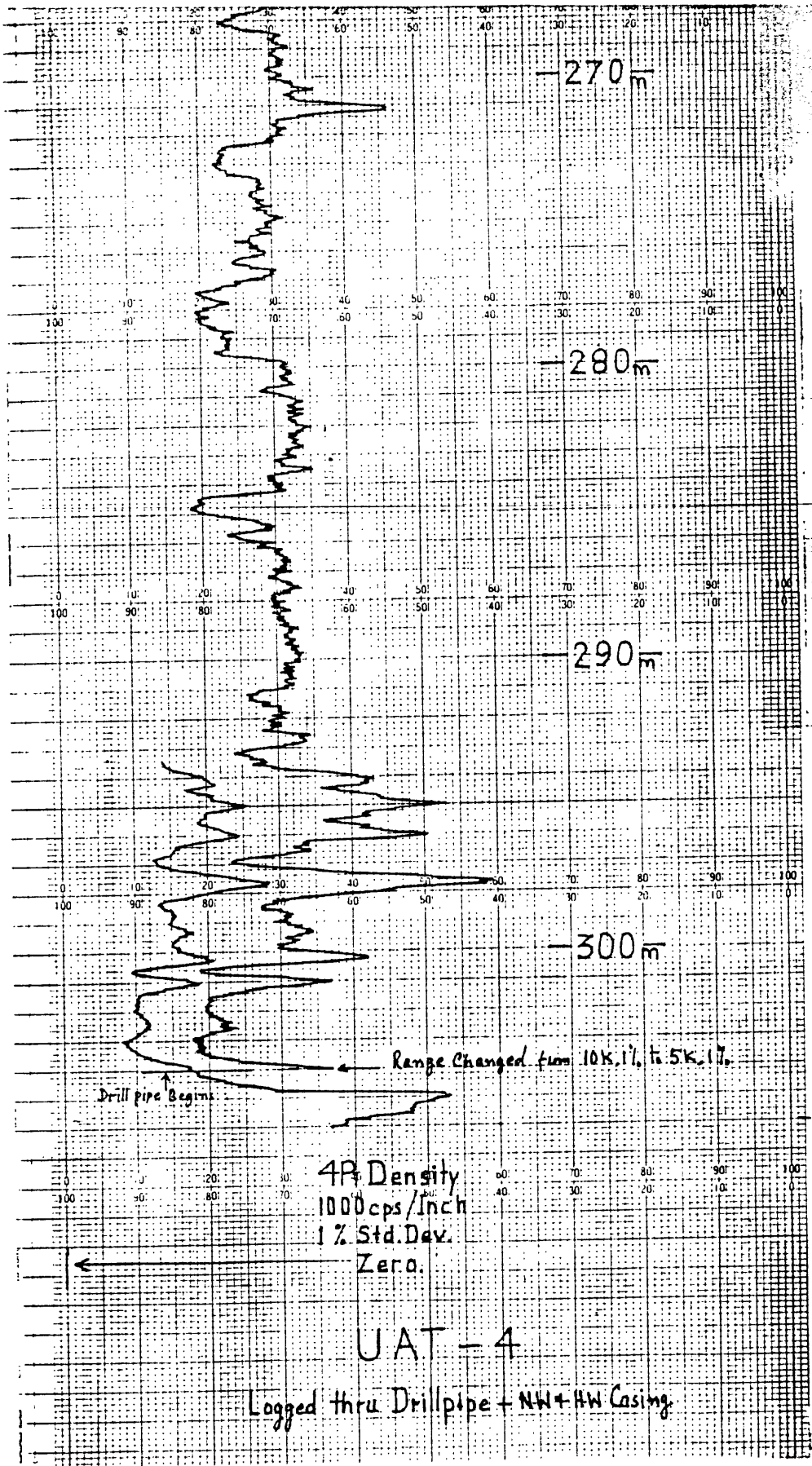
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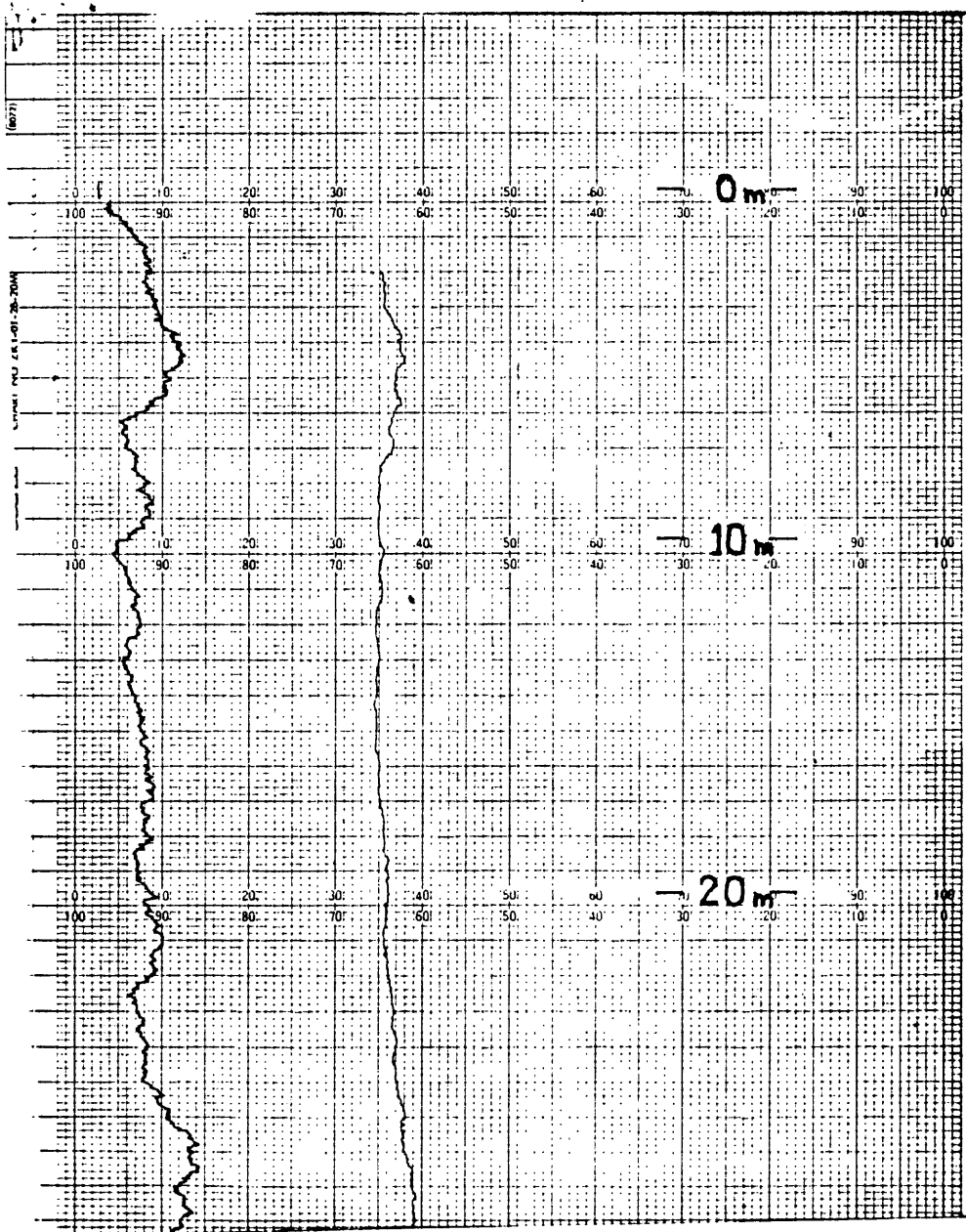
# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAT-4

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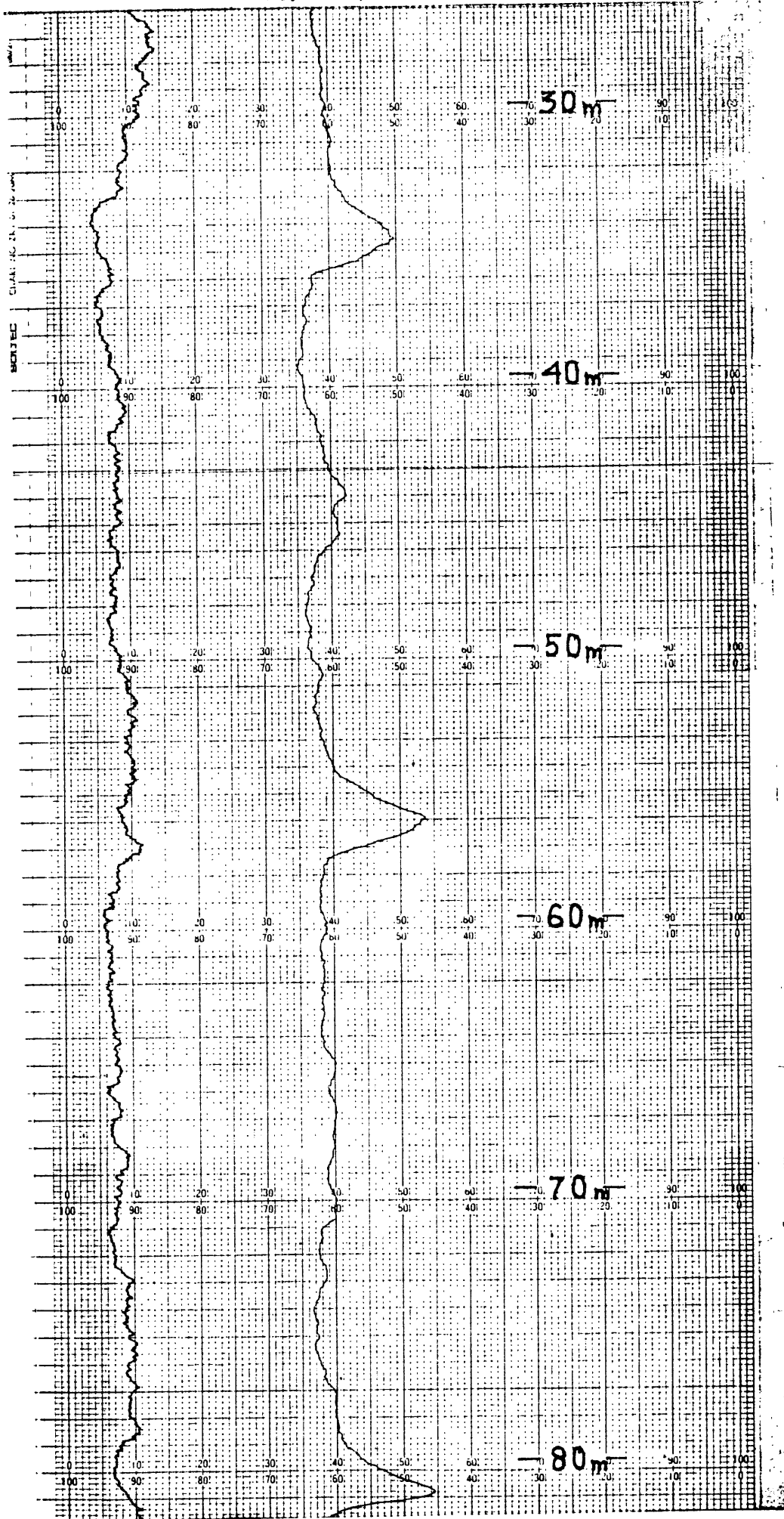
DATE: March - 16 - 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh Pakistan		DEPTH DRILLED	309 m		CLIENT	UGS/GSP	
REGION	The Ra		DEPTH LOGGED	308.5 m		GEOLOGIST		
PROJECT	Coal Reap.		COLLAR ELEV			UNIT OPERATOR	MUTTER / ILYAS	
PROSPECT			DIA	Sea	FROM TO	UNIT NO	PL-2	OFFICE
SEC	TWP	RNG.	DIA	Caliper	FROM TO	SOULDER	Southern	USA
			DIA	Log	FROM TO	ELECTRIC		
TYPE	GAM	Neutron	HOH/HOME MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH	306.5 m	308.5 m	FLUID LEVEL	703. (0 m)		LOGGED DEPTH	FT	FT
RANGE (f.s.)	100	500	CASING DATA			SCALE		
STD DEV	3%	1%	WALL SIZE	1/4"		PAPER SPEED		
PAPER SPEED	1-1	1-1	ID NN = 3"	HN = 4"		LOG SPEED		
LOG SPEED	6-1	6-1	CASED FROM	0 TO 246 m		FINE ADJ.		
BKGD COUNT			CASING TYPE	NW HN		CALIPER		
PROBE NO.	GAM-1	GAM-1	SAMPLE DATA			LOGGED DEPTH	FT	
SIZE (dia.)	1 3/8"	1 3/8"	NON-CORED HOLE	<input type="checkbox"/>		SCALE		
K-FACTOR			CORED HOLE	<input checked="" type="checkbox"/>		PAPER SPEED		
DEAD TIME	2	2	SAMPLED INTERVAL	SAMPLE TYPE		LOG SPEED		
STANDARD			REMARKS			ARM LENGTH	IN	
DIGITAL DATA			DEPTH of CASING			MAX DEF	IN	
PRINT INTERVAL			NN = 246 m			VERTICAL DEV.		
TIMEBASE			HN = 194.8 m			DEPTH		
DENSITY CALIBRATION			Logged through drill pipes			INCLIN		
ALUMINUM						BEARING		
LUCITE								



UAT-4

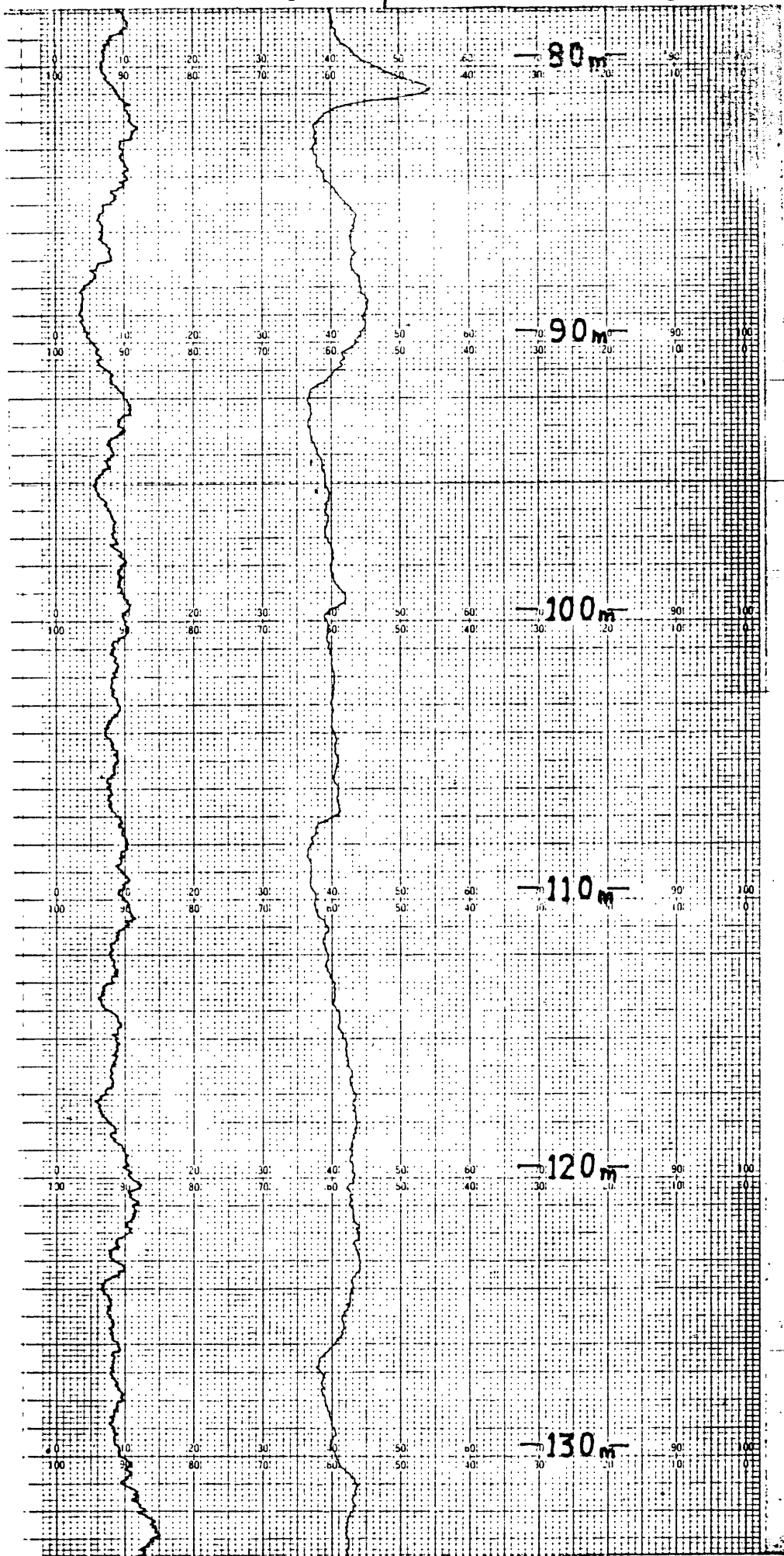
P.472





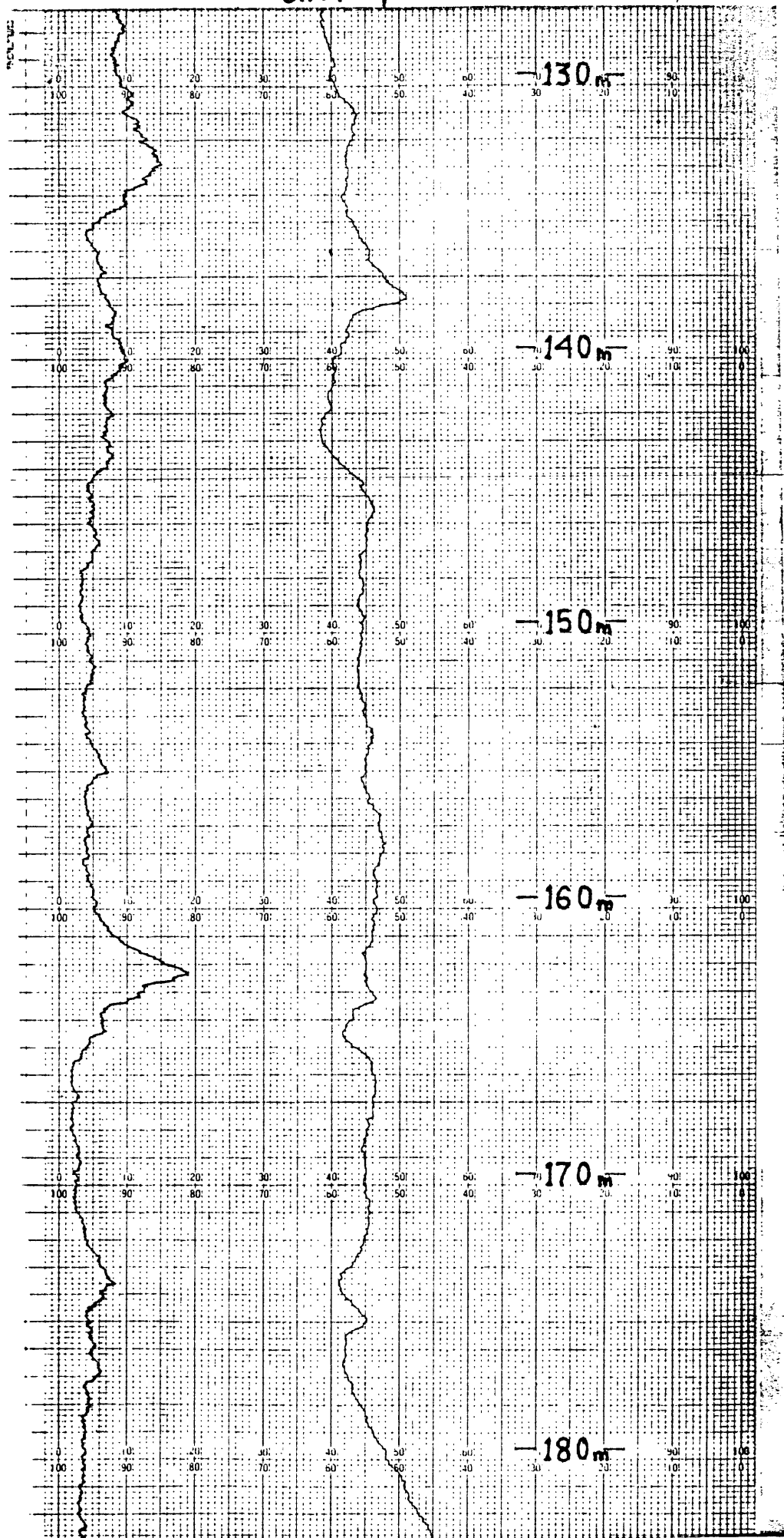
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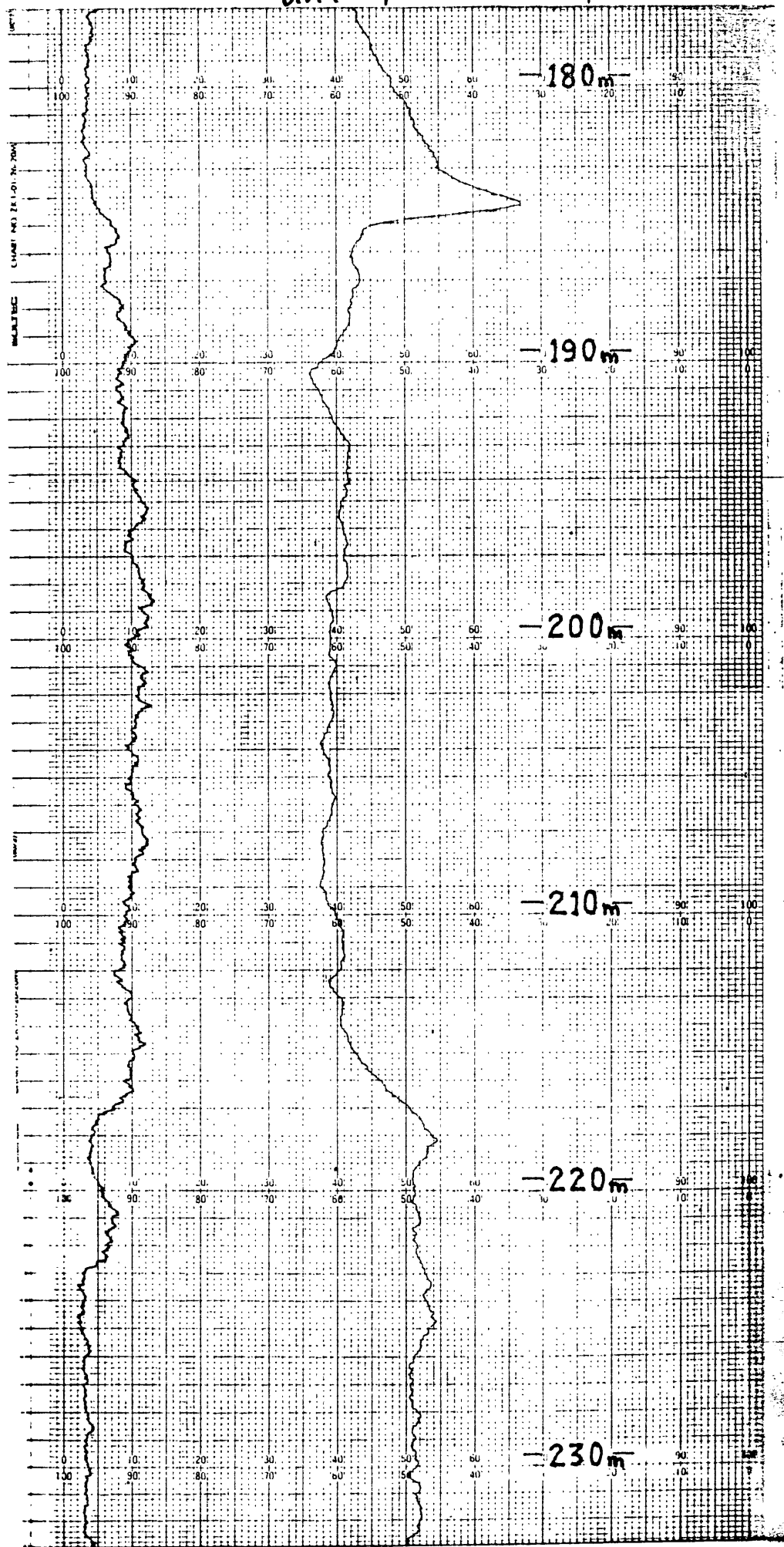
478

R.474

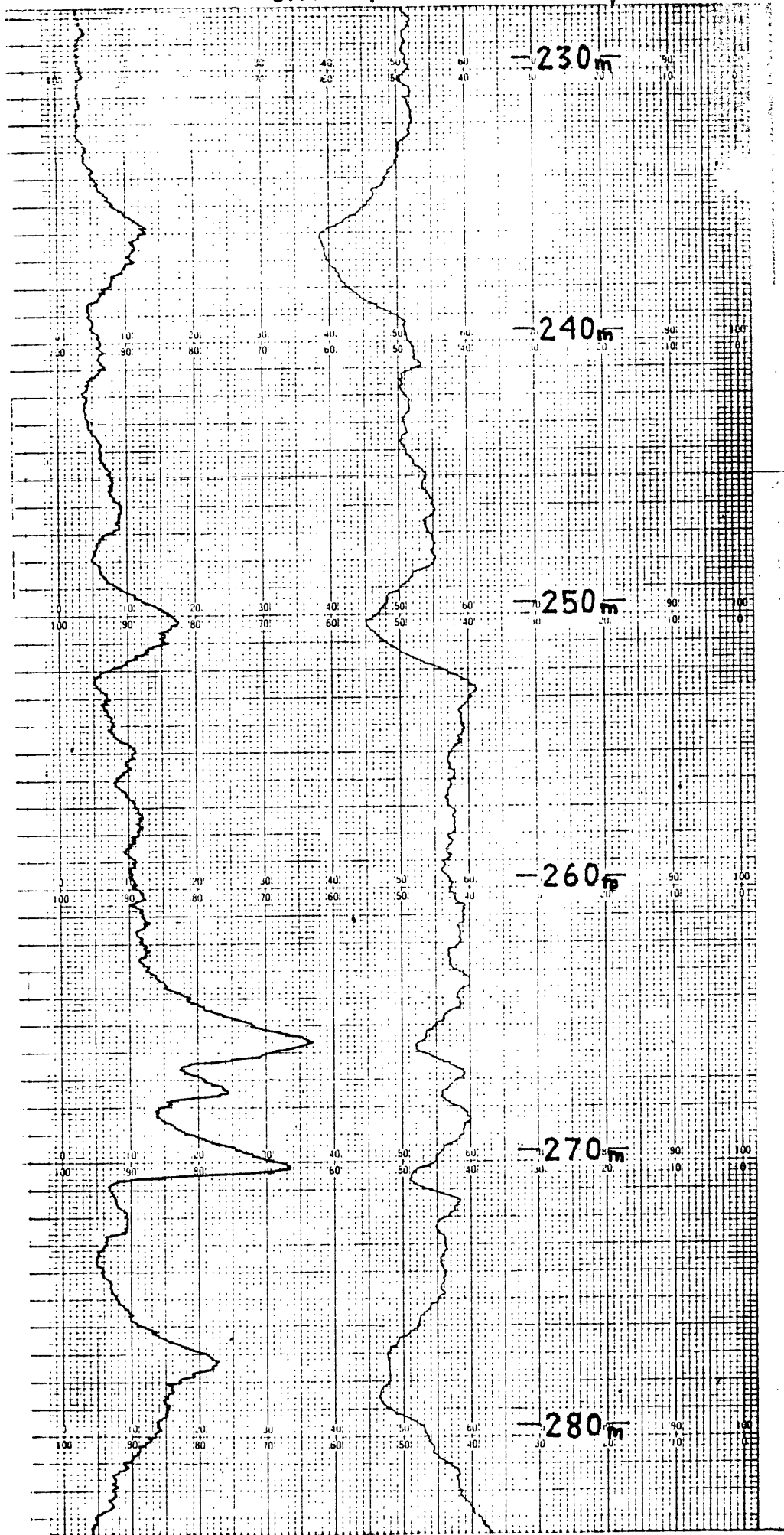


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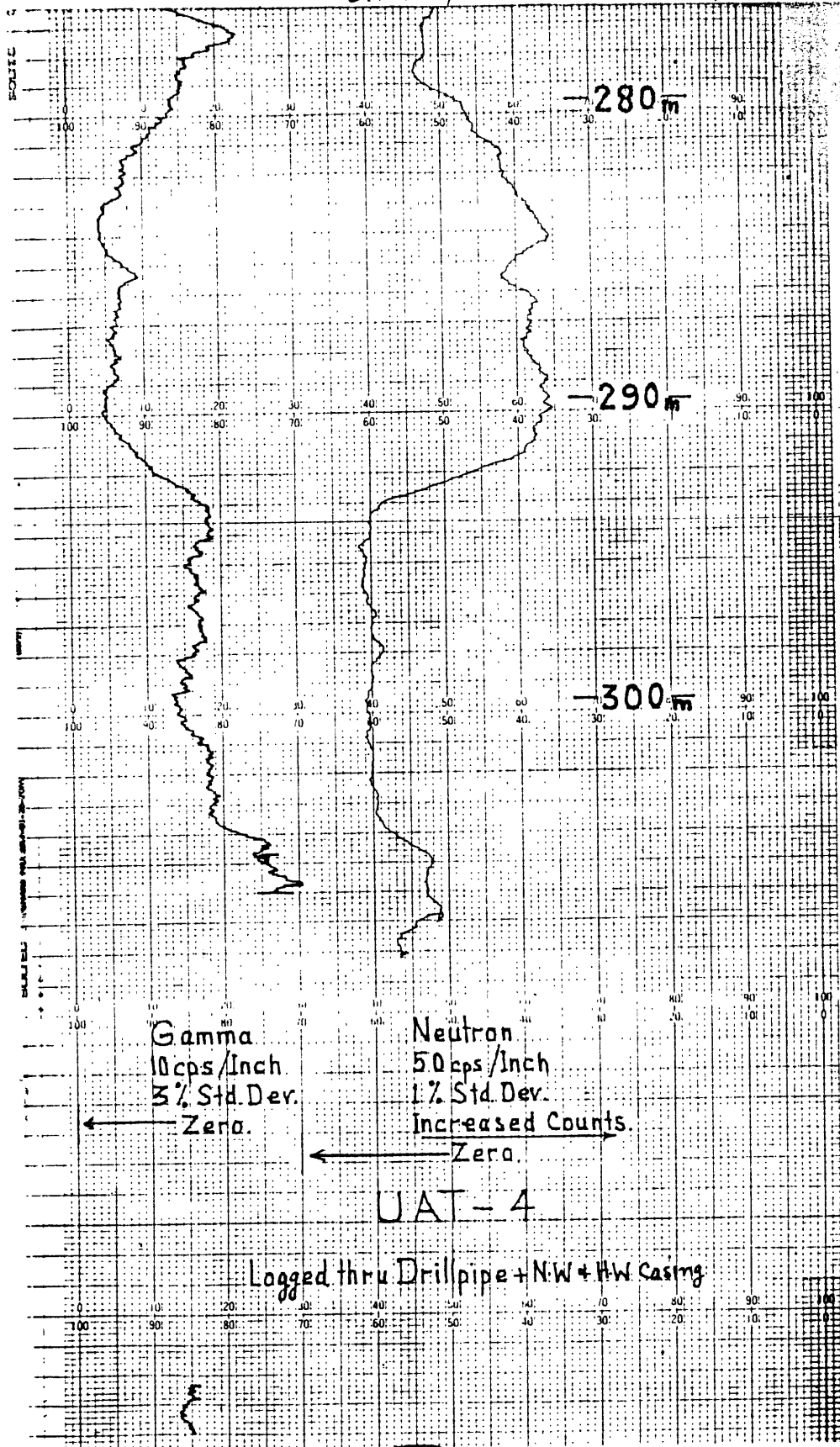
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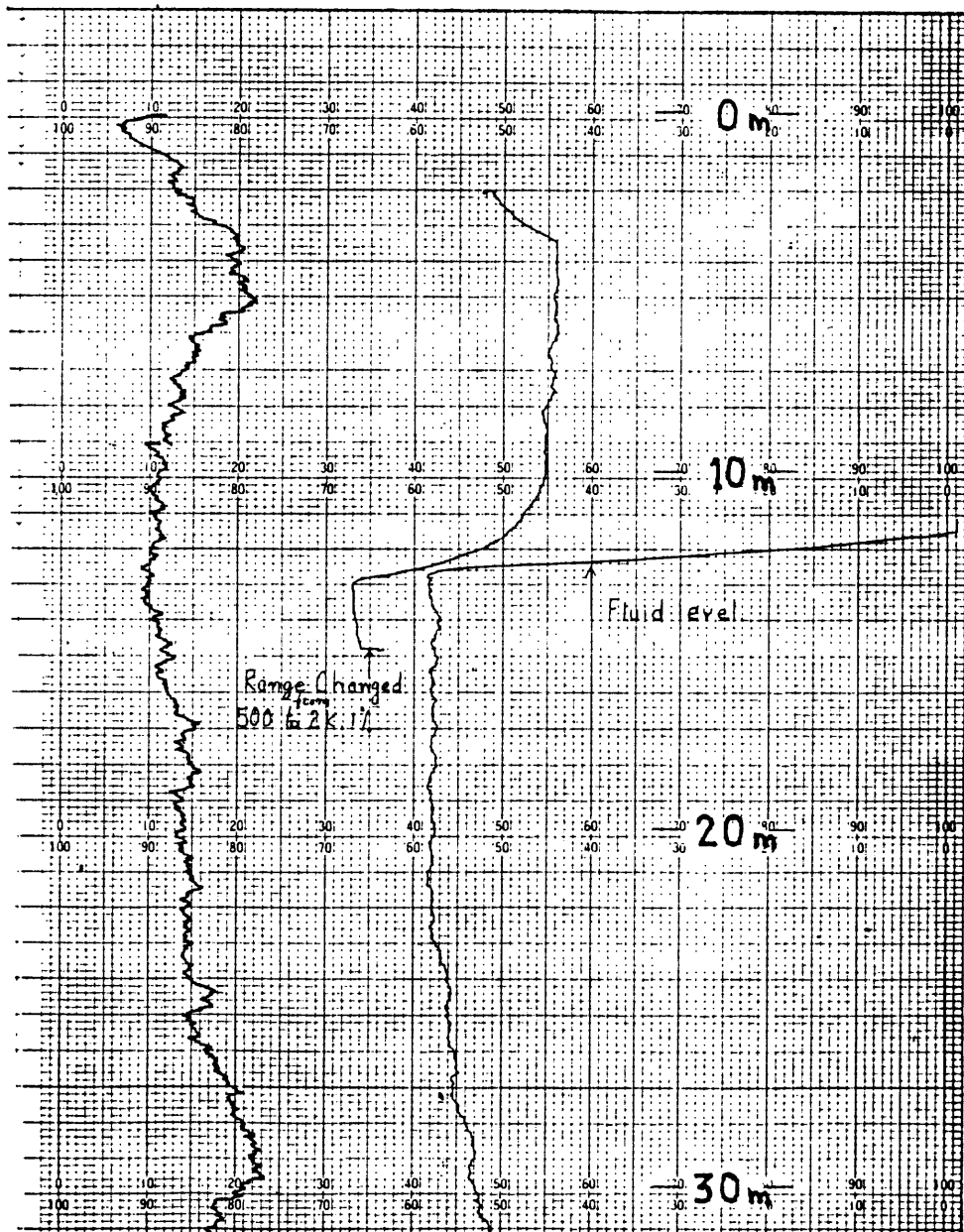


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HOLE NUMBER: UAT-4

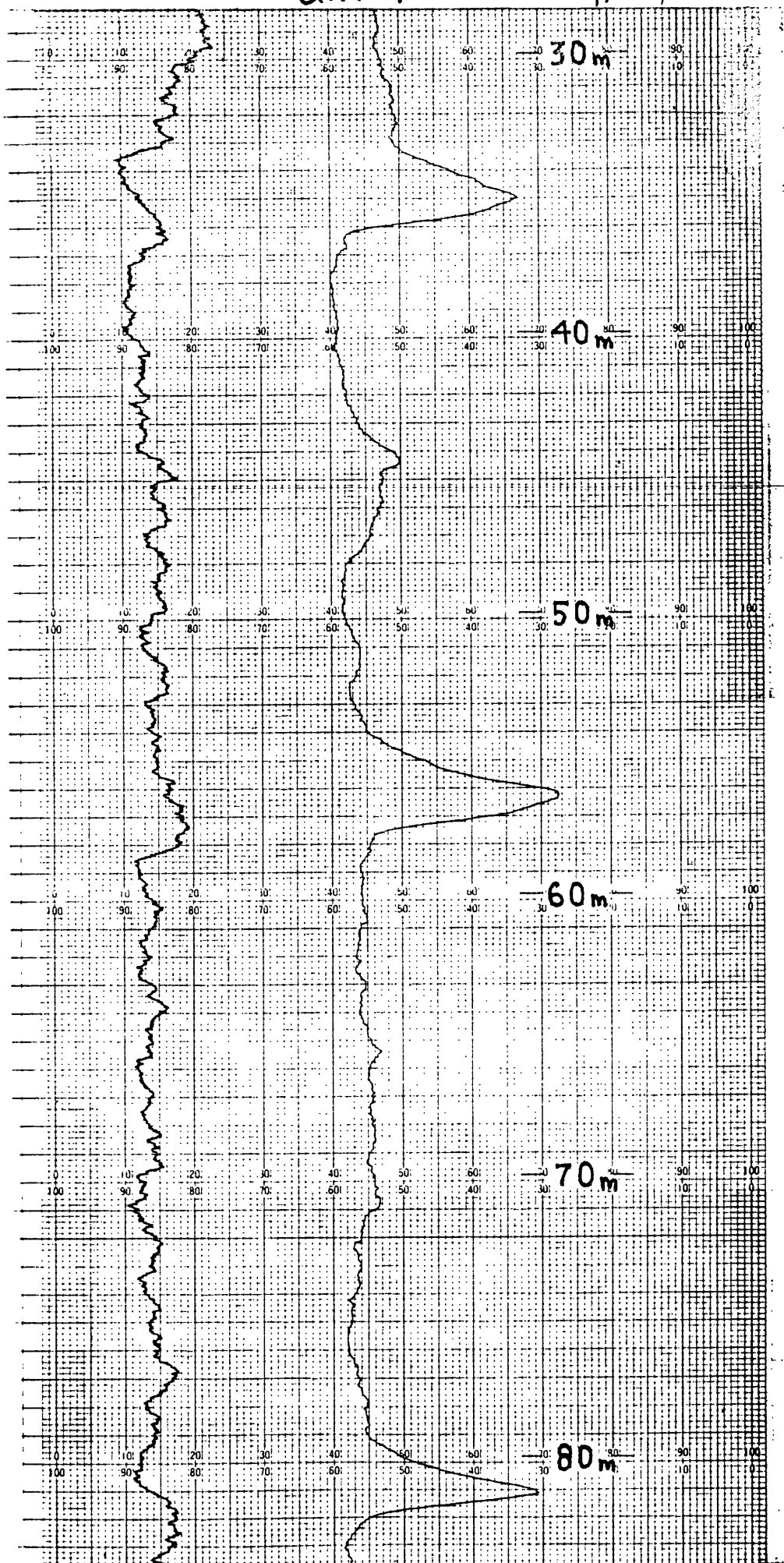
DATE: 21<sup>st</sup> March, 1987

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sind. Pakistan		DEPTH DRILLED	309 m	CLIENT	G S P U S G S
REGION	Thatta		DEPTH LOGGED	191 m	GEOLOGIST	
PROJECT	Coal Reap		COLLAR ELEV		UNIT OPERATOR	MUJEEB AHMAD
PROSPECT			DIA. See	FROM TO	UNIT NO	PL-2
SEC	TWP	RNG	DIA. Caliper	FROM TO	OFFICE	BOULDER, COLORADO
			DIA. Log	FROM TO	ELECTRIC	
TYPE	QAM	Neut	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud	LOGGED DEPTH	FT. FT.
LOGGED DEPTH	189 m	191 m	FLUID LEVEL	12.4 m	SCALE	
RANGE (I.S.)	100	500	CASING DATA		PAPER SPEED	
ASTD DEV	3%	1%	WALL SIZE	1/4"	LOG SPEED	
PAPER SPEED	1-1	1-1	ID	4"	FINE ADJ	
LOG SPEED	6-1	6-1	CASED FROM	0 TO 246 m		
BKGD COUNT			CASING TYPE	H W		
PROBE NO.	GN-1	GN-1	SAMPLE DATA			
SIZE (dia)	1 3/8"	1 3/8"	NON CORED HOLE	<input type="checkbox"/>	CORED HOLE	<input checked="" type="checkbox"/>
K-FACTOR			SAMPLED INTERVAL		SAMPLE TYPE	
DEAD TIME	2	2	REMARKS			
STANDARD			Logged thru H-W casing			
DIGITAL DATA					CALIPER	
PRINT INTERVAL					LOGGED DEPTH	
TIMEBASE					SCALE	
					PAPER SPEED	
					LOG SPEED	
					ARM LENGTH	
					MAX DEF.	
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN	
					BEARING	



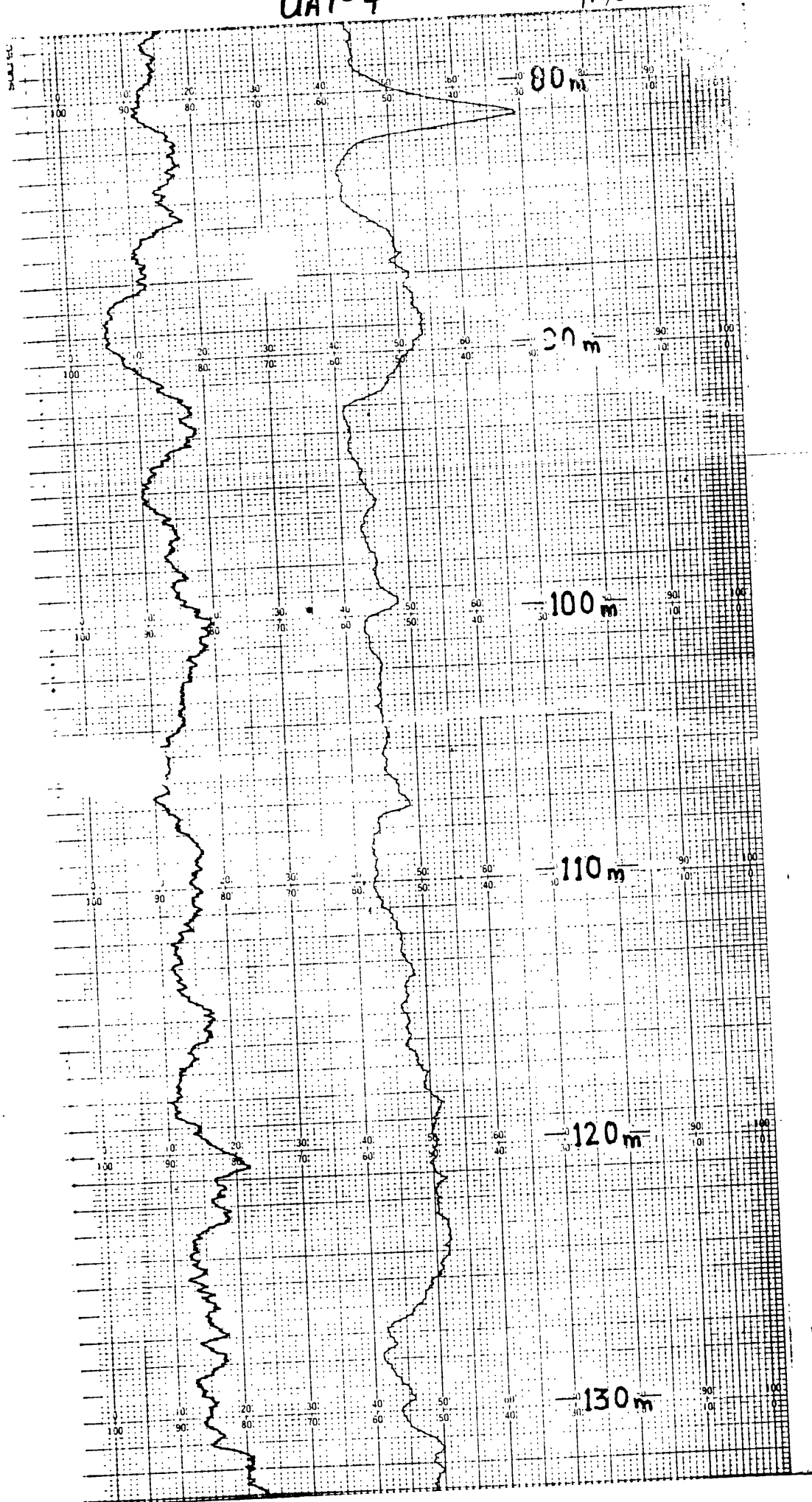


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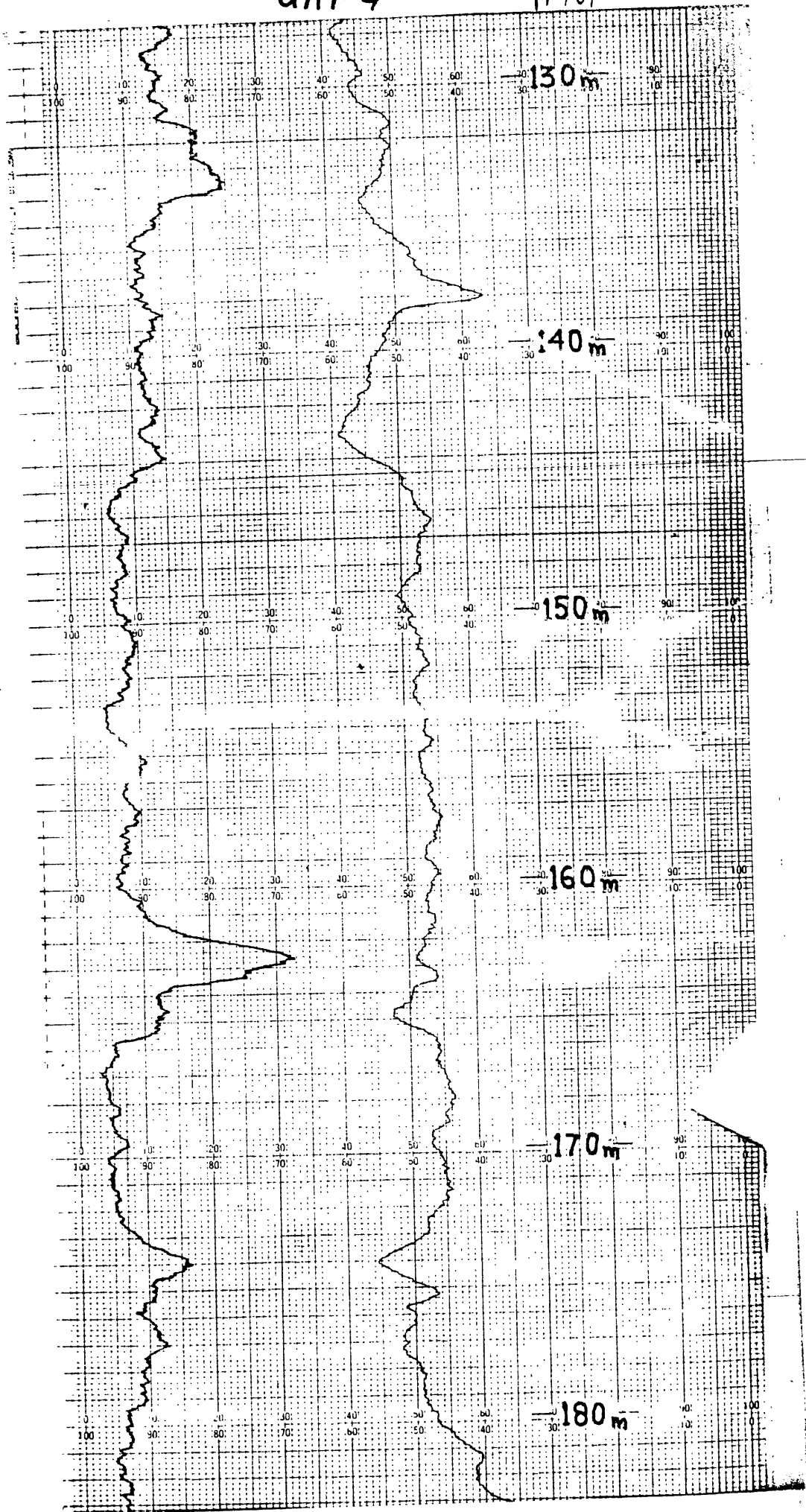
479

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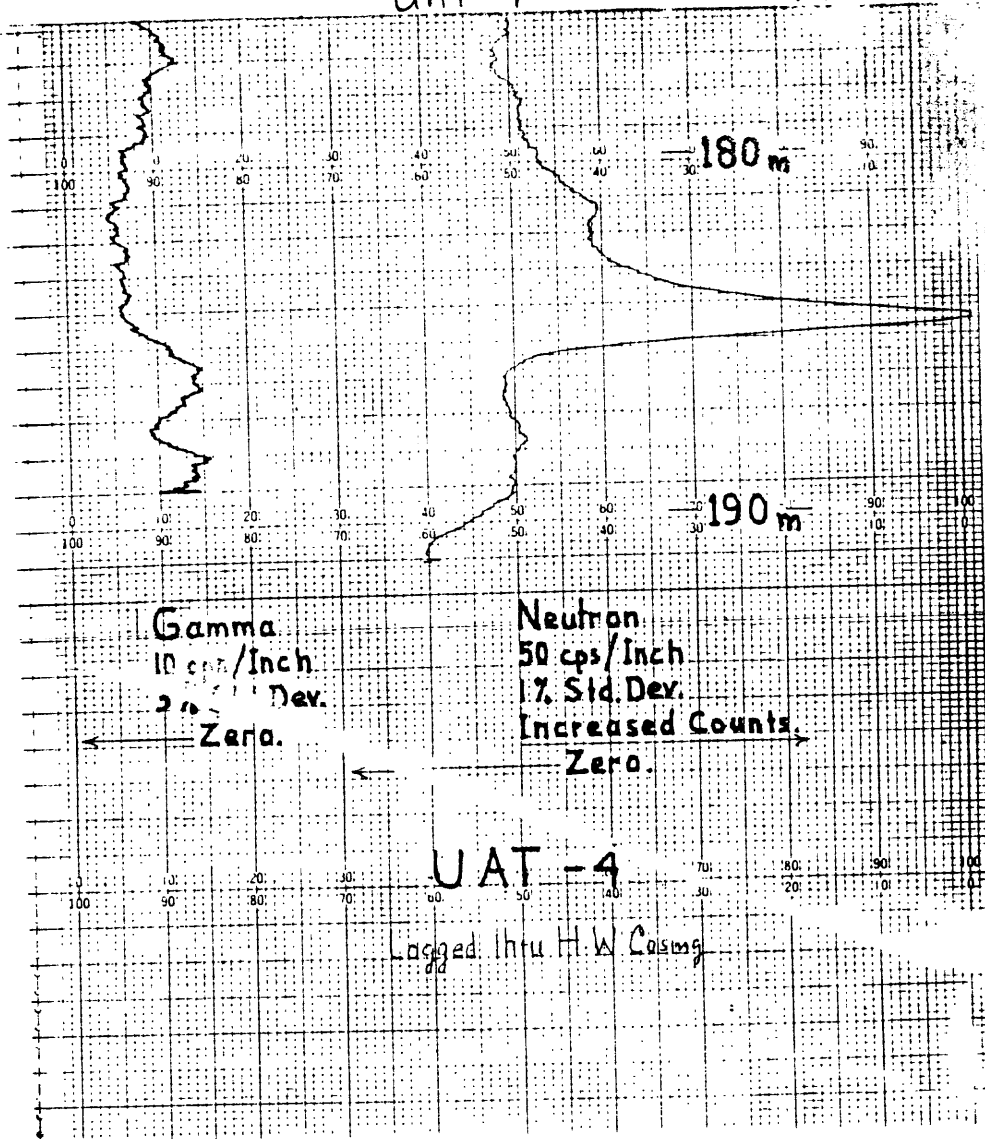
480





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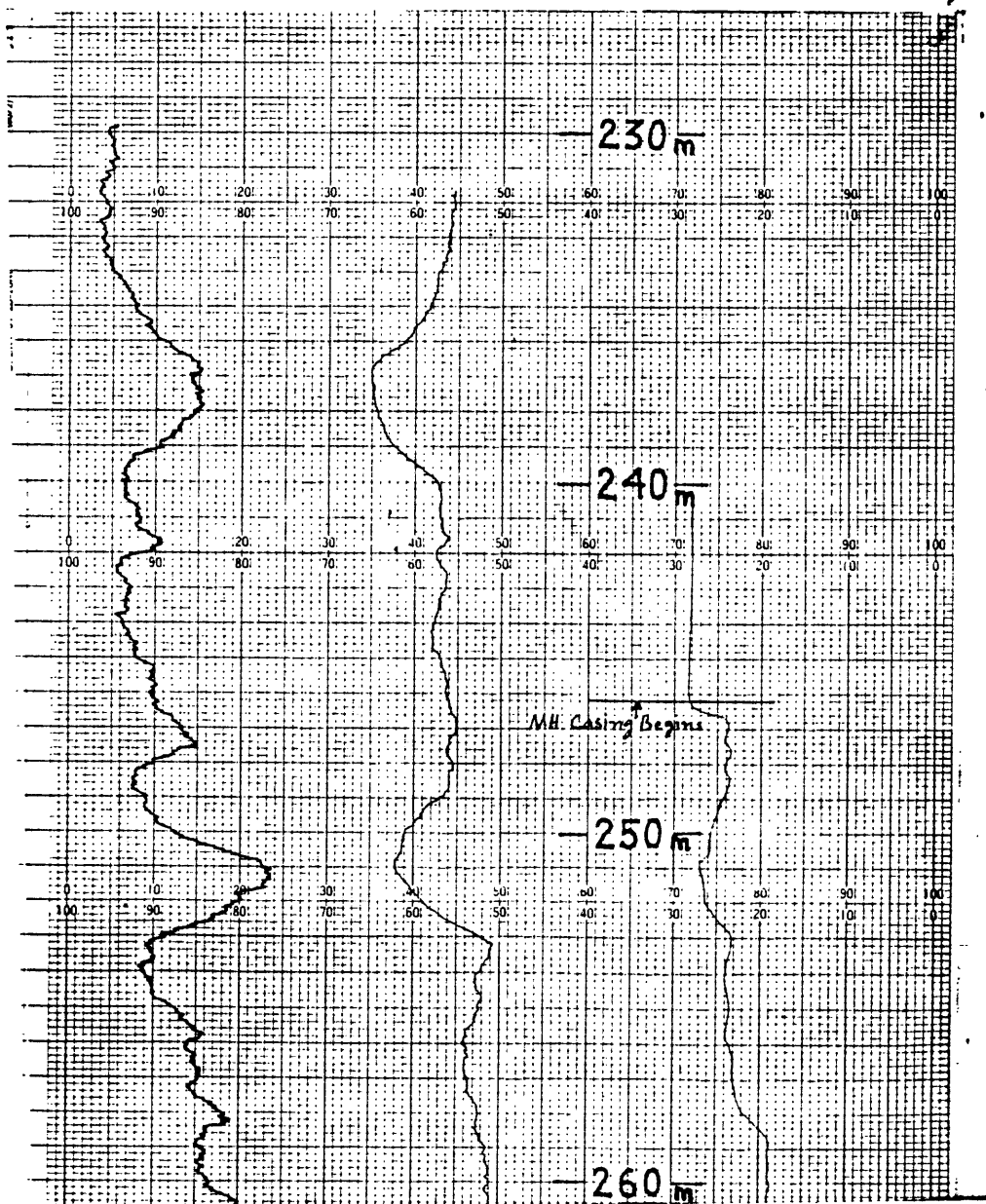
# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAT-4

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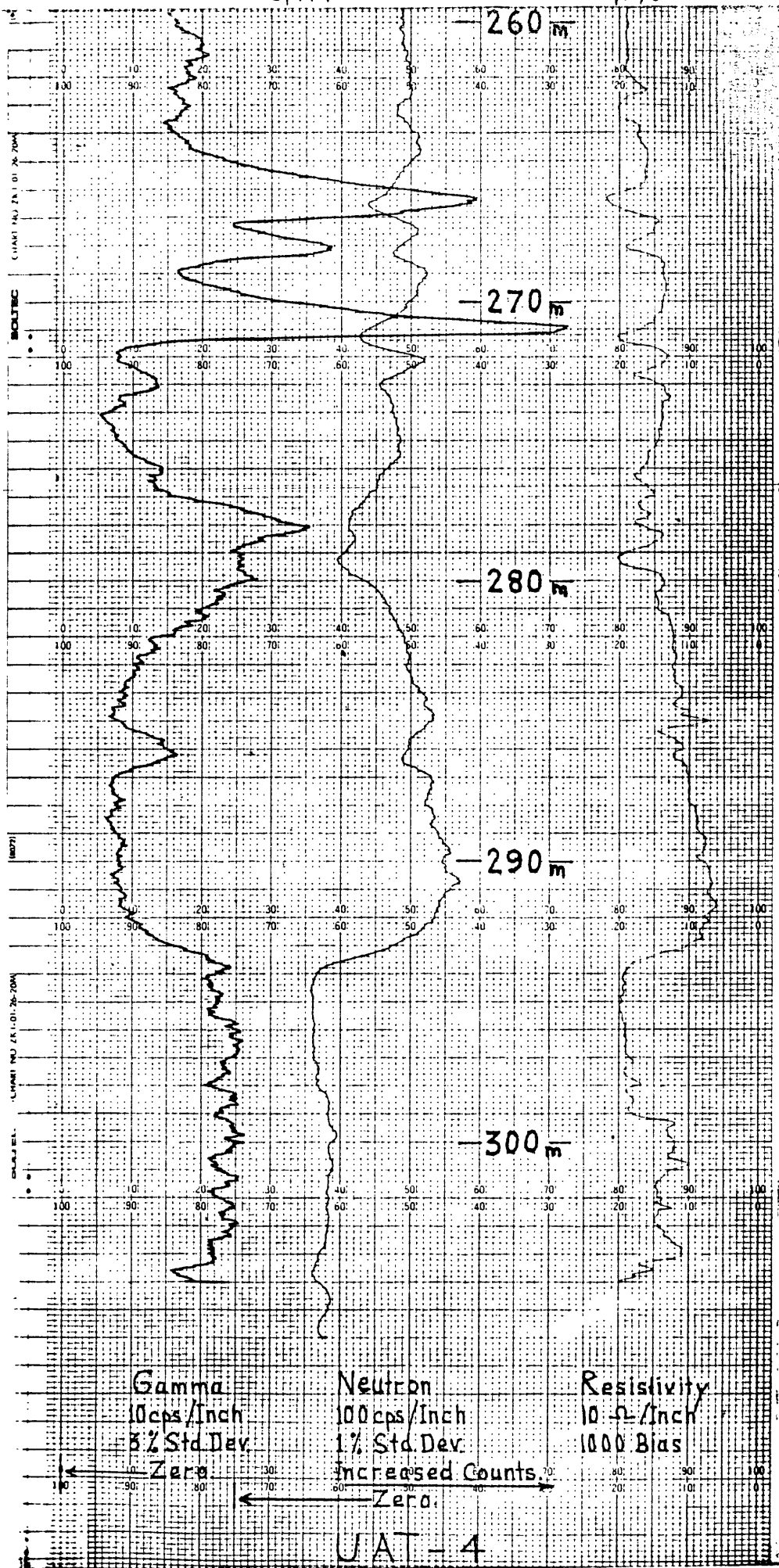
DATE: March - 16 - 1982

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sind Pakistan		DEPTH DRILLED	309 m		CLIENT	USGS / GSP	
REGION	Thatta		DEPTH LOGGED	307 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	M. ILYAS / M. UDEED	
PROSPECT			DIA	FROM	TO	UNIT NO	21-2 CALAPADA LISA	
SEC	TWP	RNG	DIA	FROM	TO	OFFICE		
			DIA	FROM	TO			
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		ELECTRIC		
LOGGED DEPTH	305 m	307 m	FLUID LEVEL			TYPE	RESIST	S.P
RANGE (1-5)	100	1000				LOGGED DEPTH	305 m	
%STD DEV	3	1	CASING DATA			SCALE	10	
PAPER SPEED	1-1	1-1	WALL SIZE	174		PAPER SPEED	1-1	
LOG SPEED	6-1	6-1	ID NH = 3" HW = 4"			LOG SPEED	6-1	
BKGD. COUNT			CASED FROM	0 TO 246 m		FINE ADJ.	1000	500
PROBE NO.	GN-1	GN-1	CASING TYPE	NW HW				
SIZE (dia)	1 3/8	1 3/8	SAMPLE DATA					
K-FACTOR			NON-CORED HOLE	<input type="checkbox"/>	CORED HOLE	<input checked="" type="checkbox"/>		
DEAD TIME	2	2	SAMPLED INTERVAL	SAMPLE TYPE				
STANDARD			REMARKS					
DIGITAL DATA			CASING DEPTH					
PRINT INTERVAL			NW = 246 m					
TIMEBASE			HW = 194 m					
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								



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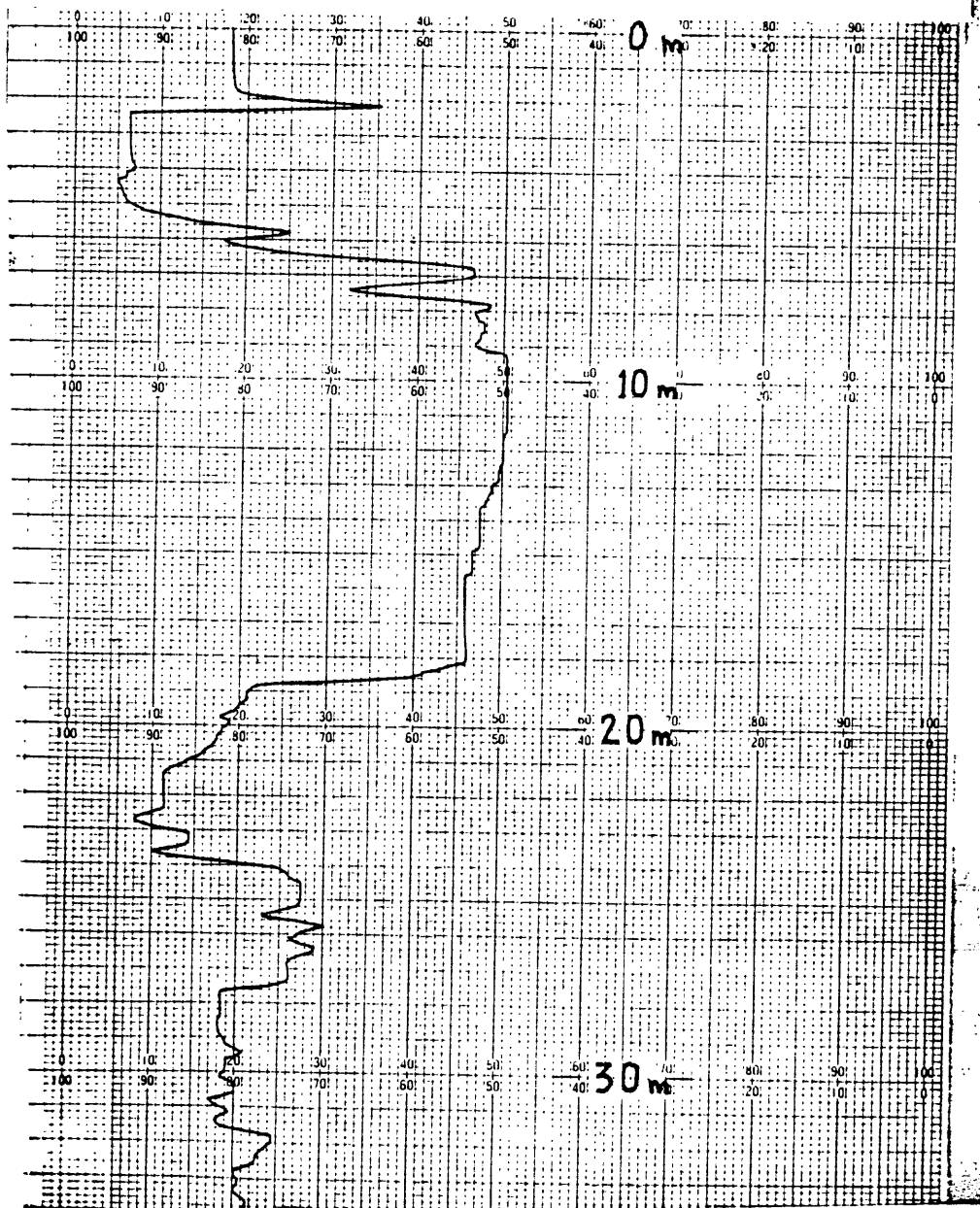


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HOLE NUMBER: UAT-4

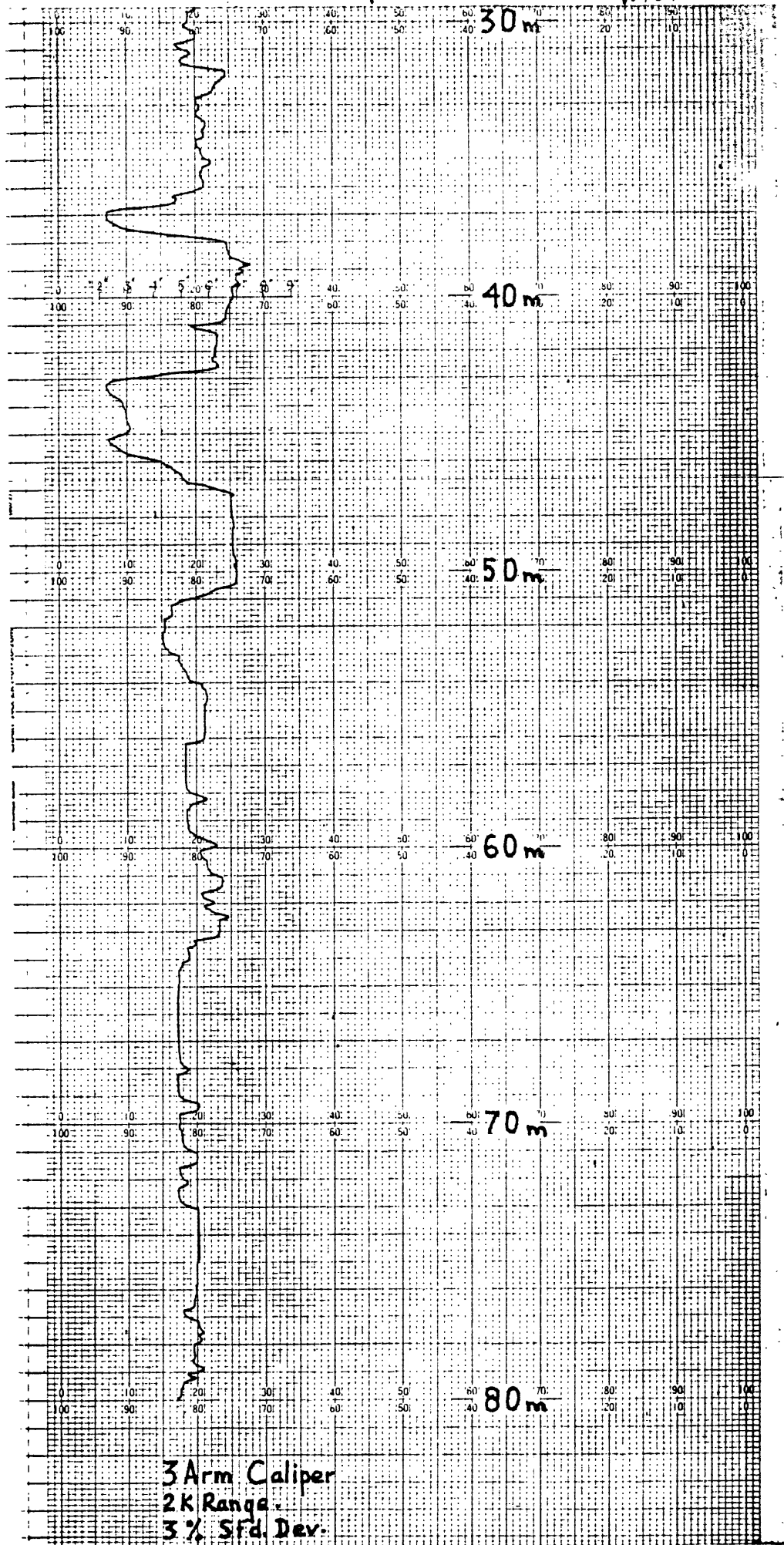
DATE: 21<sup>st</sup> March 1987

DATE: 21 March 1981		HOLE DATA		CLIENT	
<b>LOCATION</b>		DEPTH DRILLED: 30.9 m		CLIENT G S P / U S G S	
STATE/COUNTY Sindh, Pakistan		DEPTH LOGGED: 30 m		GEOLOGIST.	
REGION Thatta		COLLAR ELEV		UNIT OPERATOR ILYAS	
PROJECT Coal Seap		DIA See FROM TO		UNIT NO. OFFICE	
PROSPECT		DIA Caliper FROM TO			
SEC TWP RNG		DIA Log FROM TO			
TYPE GAM		BOREHOLE MEDIUM H <sub>2</sub> O - MUD		<b>ELECTRIC</b>	
LOGGED DEPTH		<b>CASING DATA</b>		TYPE RESIST S.P.	
RANGE (L.S.)		WALL SIZE		LOGGED DEPTH FT FT	
%STD DEV		ID		SCALE " = 1" Dia	
PAPER SPEED		CASED FROM TO		PAPER SPEED 1-1	
LOG SPEED		CASING TYPE		LOG SPEED 6-1	
BKGND. COUNT		<b>SAMPLE DATA</b>		ARM LENGTH 12	
PROBE NO		NON-CORED HOLE CORED HOLE		MAX DEF 24	
SIZE (dia)		SAMPLED INTERVAL SAMPLE TYPE		<b>CALIPER</b>	
K-FACTOR				LOGGED DEPTH 80 m	
DEAD TIME				SCALE " = 1" Dia	
STANDARD				PAPER SPEED 1-1	
<b>DIGITAL DATA</b>		<b>REMARKS</b>		LOG SPEED 6-1	
PRINT INTERVAL		3 dm Caliper		ARM LENGTH 12	
TIMEBASE				MAX DEF 24	
				<b>VERTICAL DEV.</b>	
<b>DENSITY CALIBRATION</b>				DEPTH	
ALUMINUM				INCLIN.	
LUCITE				BEARING	



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8.486



3 Arm Caliper  
2 K Range  
3 % Std. Dev.

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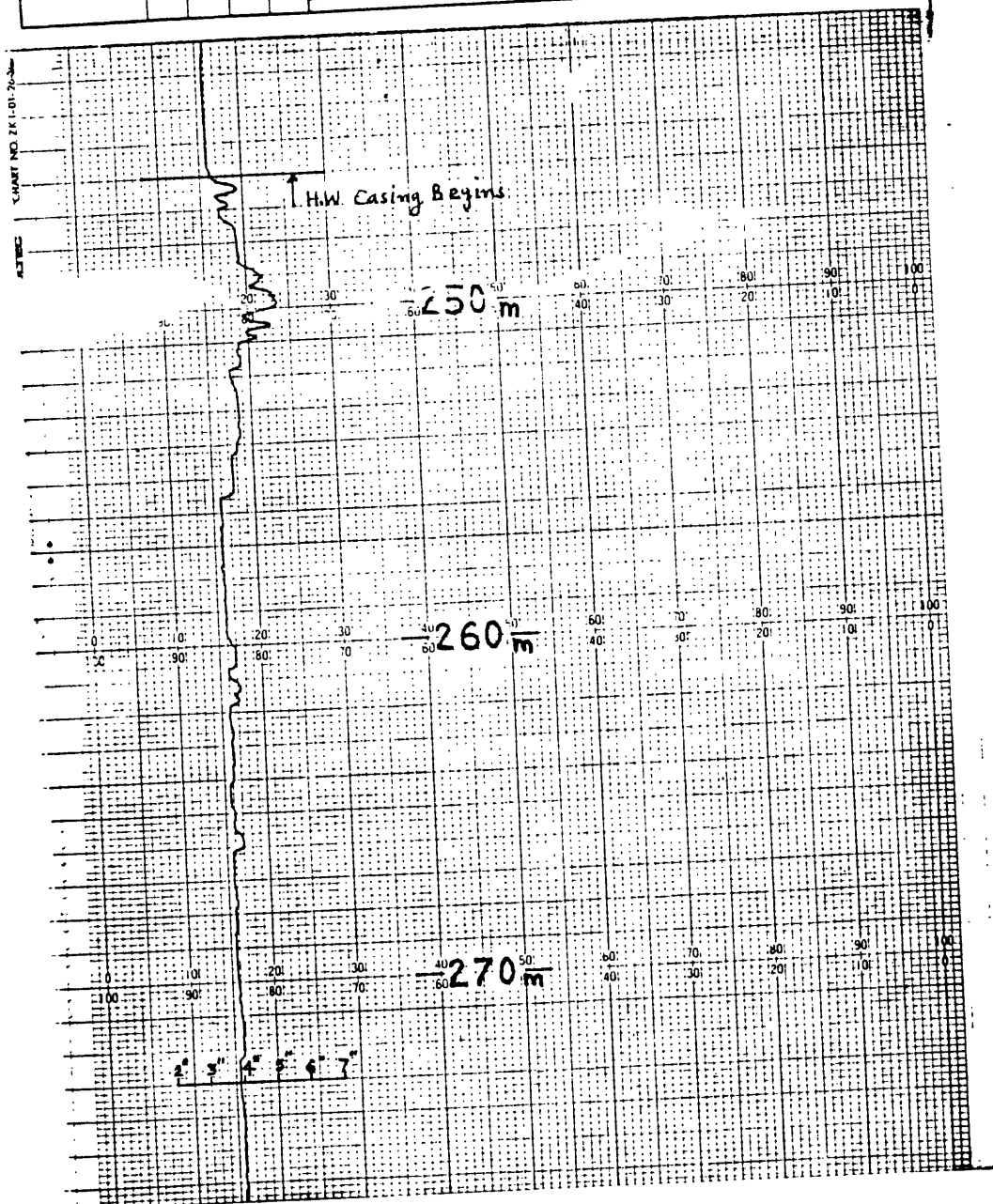
# GEOSCIENCE ASSOCIATES

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HOLE NUMBER:

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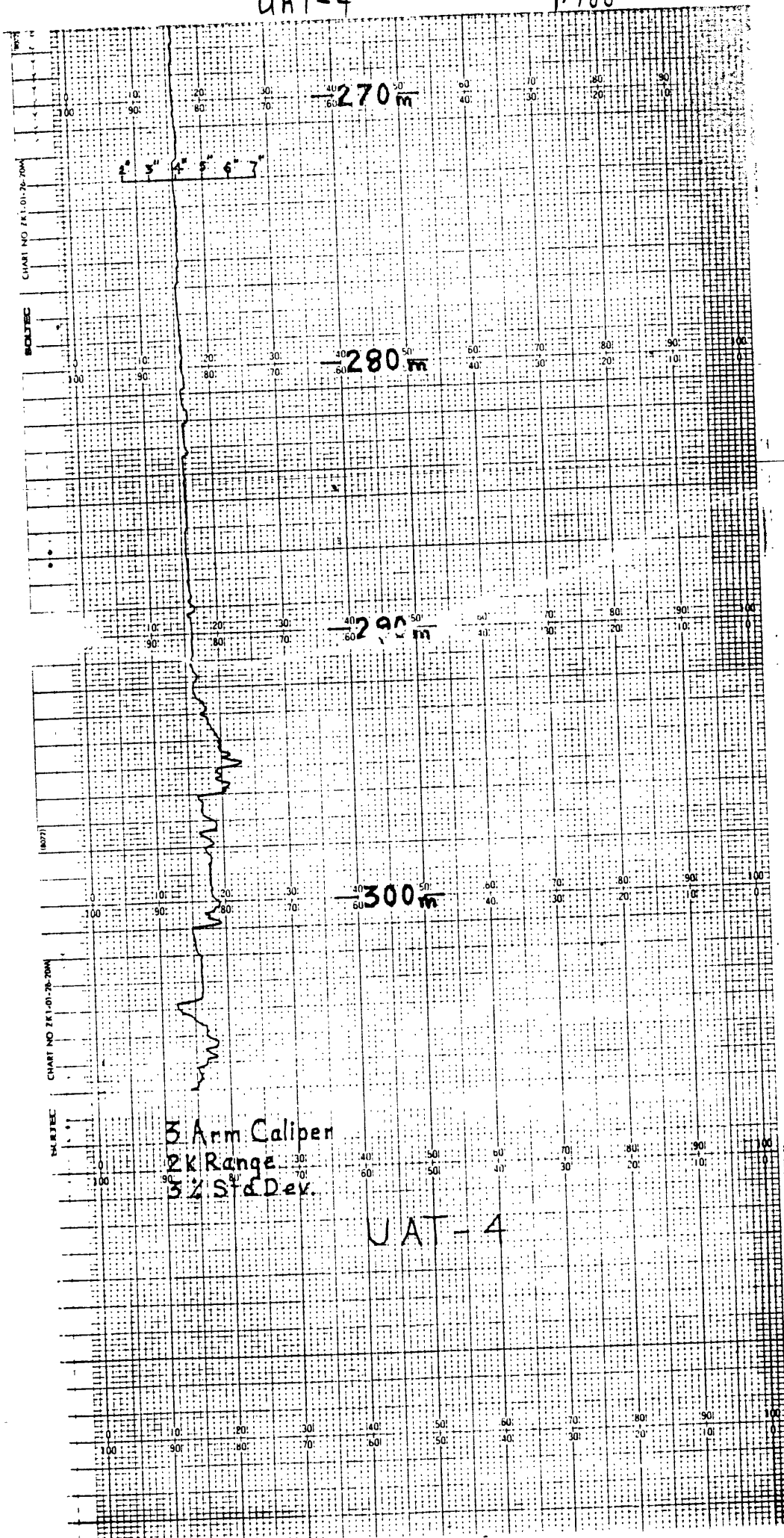
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind Pakistan		DEPTH DRILLED	309 m		CLIENT	USGS / GSP	
REGION	Thatta		DEPTH LOGGED	307 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	MUSTA / ILIAS	
PROSPECT			DIA	FROM	TO	UNIT NO	21-2	
SEC.	TWP	RNG	DIA	FROM	TO	OFFICE	USA	
			DIA	FROM	TO			
TYPE	GAM		BOREHOLE MEDIUM			ELECTRIC		
LOGGED DEPTH			FLUID LEVEL			TYPE	RESIST	SP
RANGE (F.S.)			CASING DATA			LOGGED DEPTH	FT	FT
%STD DEV			WALL SIZE			SCALE		
PAPER SPEED			ID			PAPER SPEED		
LOG SPEED			CASED FROM	TO		LOG SPEED		
BKGD COUNT			CASING TYPE			FINE ADJ		
PROBE NO.			SAMPLE DATA					
SIZE (GIB.)			NON-CORED HOLE	CORED HOLE		CALIPER		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		LOGGED DEPTH	307 m	
DEAD TIME			REMARKS			SCALE	4" x 1" Dia	
STANDARD			OPEN HOLE PORTION			PAPER SPEED	1-1	
DIGITAL DATA						LOG SPEED	6-1	
PRINT INTERVAL						ARM LENGTH	12"	
TIMEBASE						MAX DEF	24"	
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN.		
						BEARING		





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DRILL HOLE UAT-7



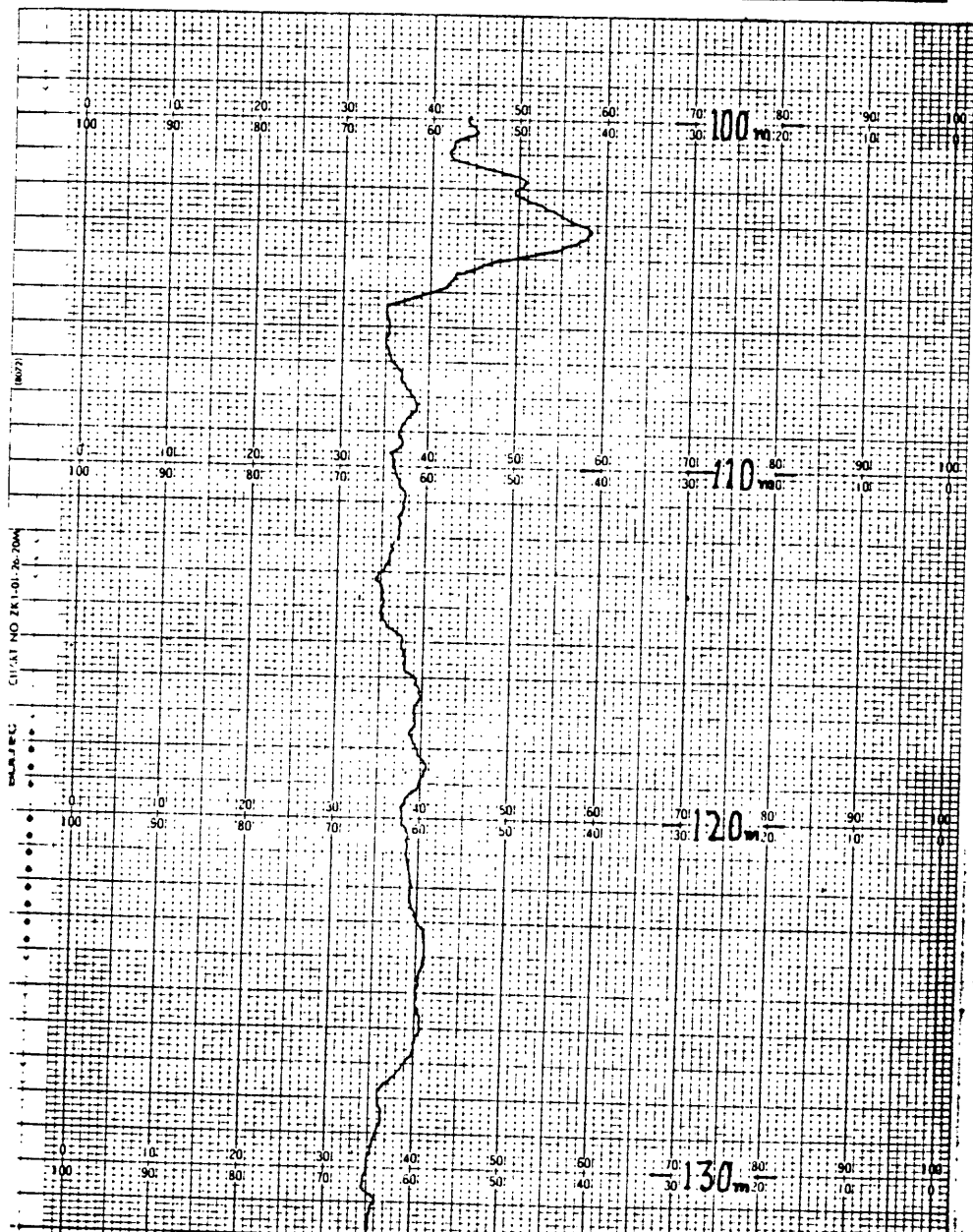
# GEOSCIENCE ASSOCIATES

P.490

HOLE NUMBER: UAT-7(R)

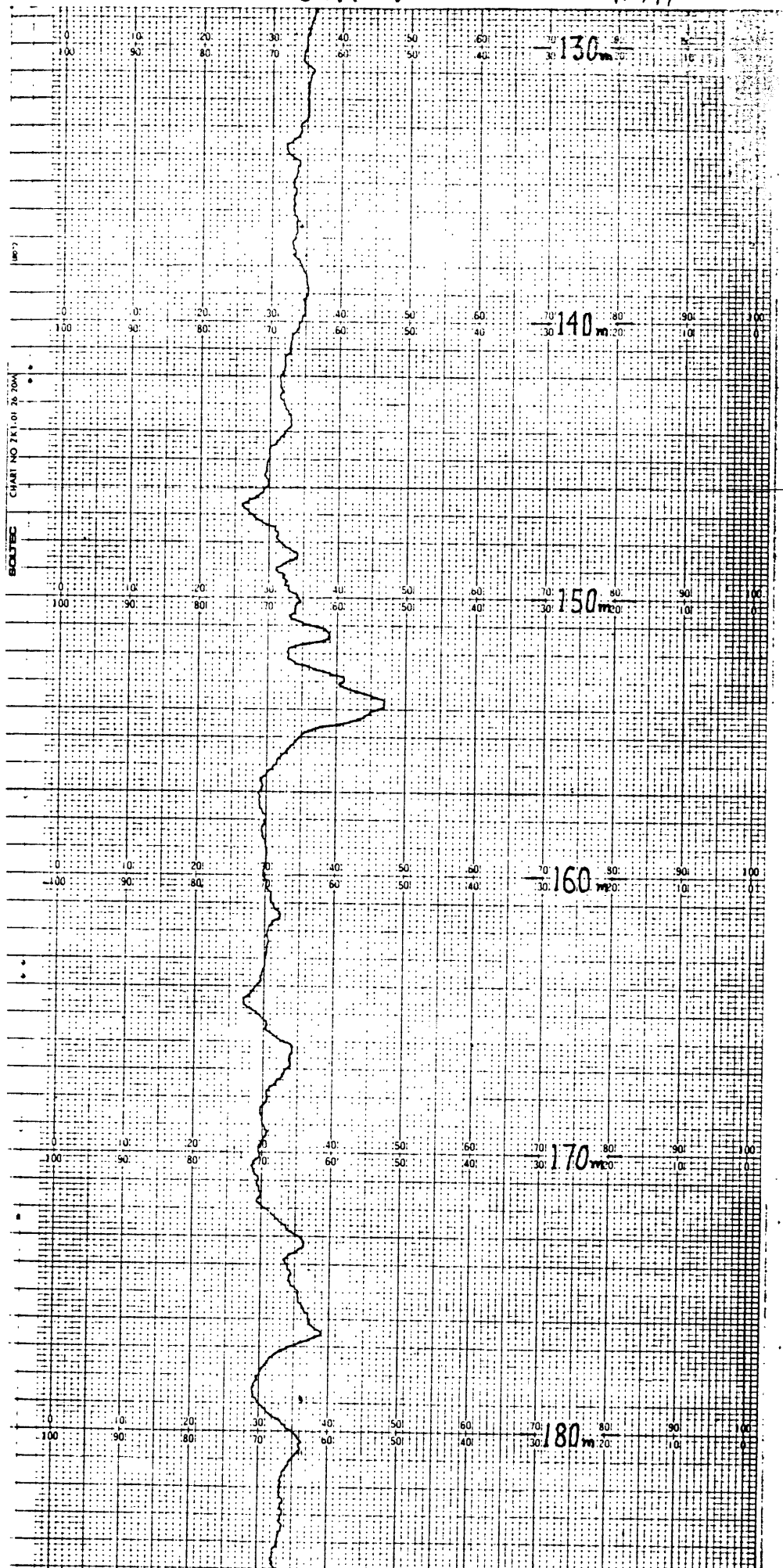
DATE: Feb. 2 - 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Pakistan		DEPTH DRILLED	245 m		CLIENT	USGS/GSP	
REGION	Thatta		DEPTH LOGGED	242 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	Khurshood/Slyas	
PROSPECT			DIA	See in	FROM TO	UNIT NO	PL-2	
SEC	TWP	RNG	DIA	Caliper Log	FROM TO	OFFICE	COLORADO USA	
			DIA		FROM TO			
TYPE	GAM	AP Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		ELECTRIC		
LOGGED DEPTH	242m		FLUID LEVEL			TYPE	RESIST	SP
RANGE (11.5)	2K		CASING DATA			LOGGED DEPTH	FT	FT
%STD DEV	1%		WALL SIZE	4 1/4		SCALE		
PAPER SPEED	1-1		ID	4 1/4		PAPER SPEED		
LOG SPEED	6-1		CASED FROM	0 to 205 m		LOG SPEED		
BKGND. COUNT			CASING TYPE	HW x 58 m		FINE ADJ		
PROBE NO.	60-1		SAMPLE DATA			CALIPER		
SIZE (dia.)	1 3/4		NON-CORED HOLE	CORED HOLE		LOGGED DEPTH	FT	
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		SCALE	X	
DEAD TIME	2		REMARKS			PAPER SPEED	X	
STANDARD						LOG SPEED	X	
DIGITAL DATA						ARM LENGTH	IN	
PRINT INTERVAL						MAX DEF.	IN	
TIMEBASE						VERTICAL DEV.		
DENSITY CALIBRATION						DEPTH		
ALUMINUM						INCLIN		
LUCITE						BEARING		



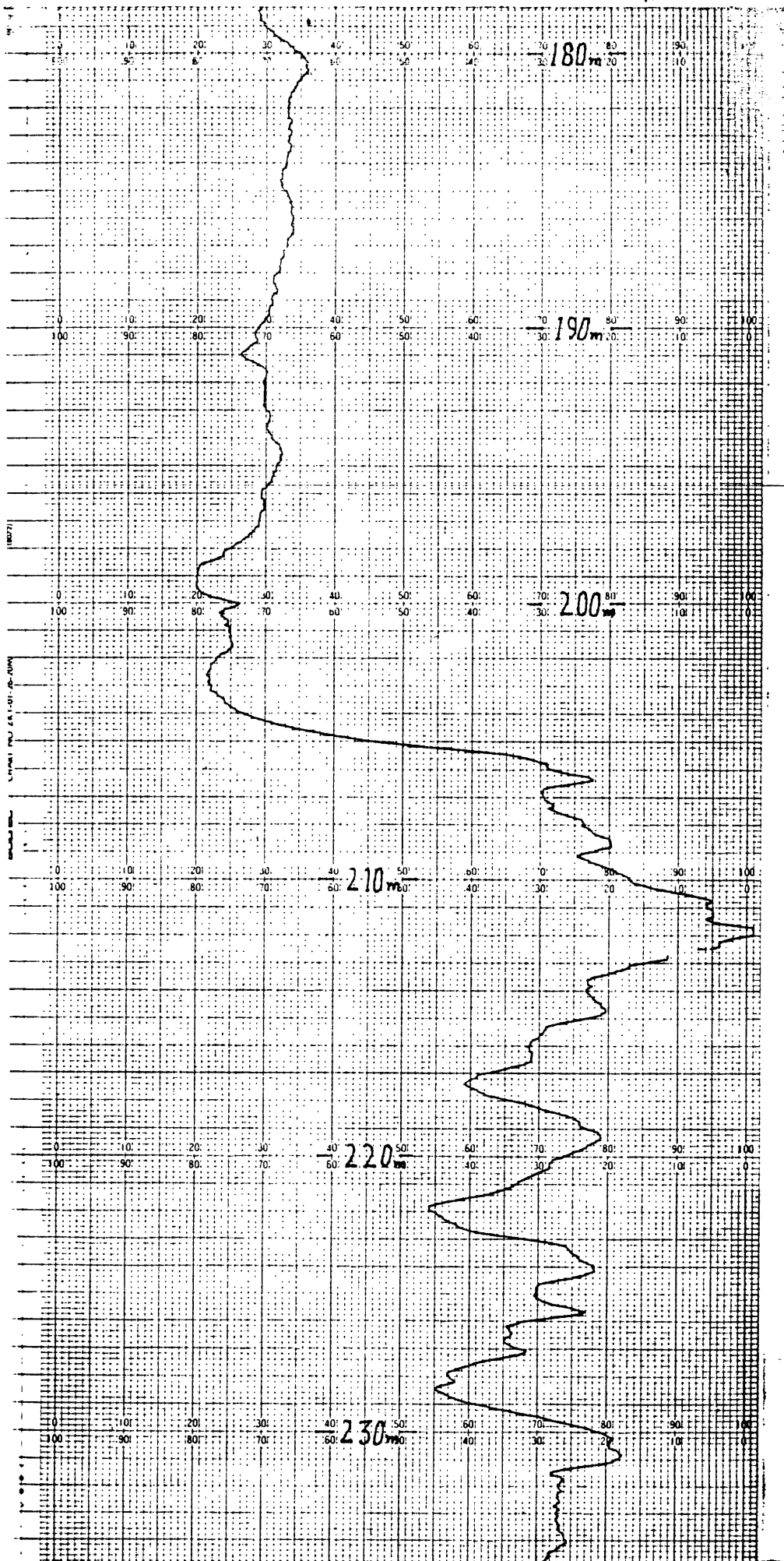
UAT-7

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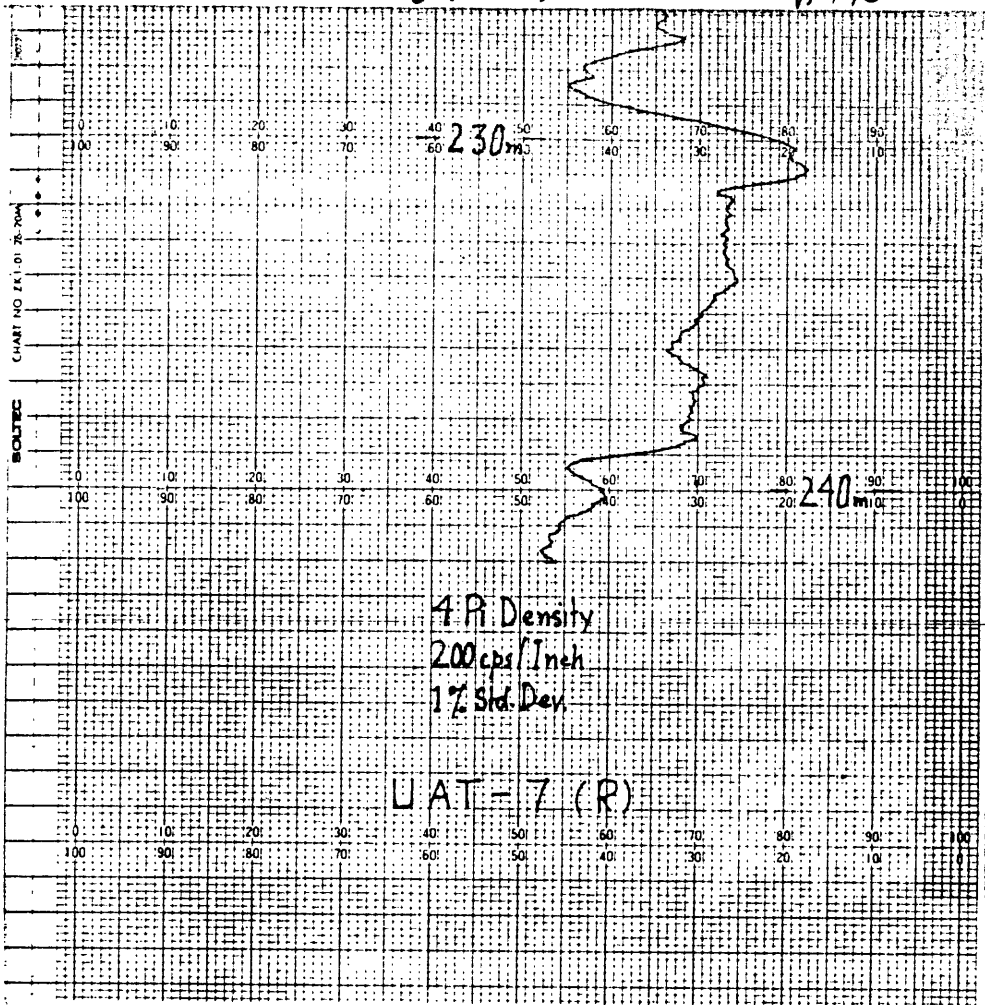
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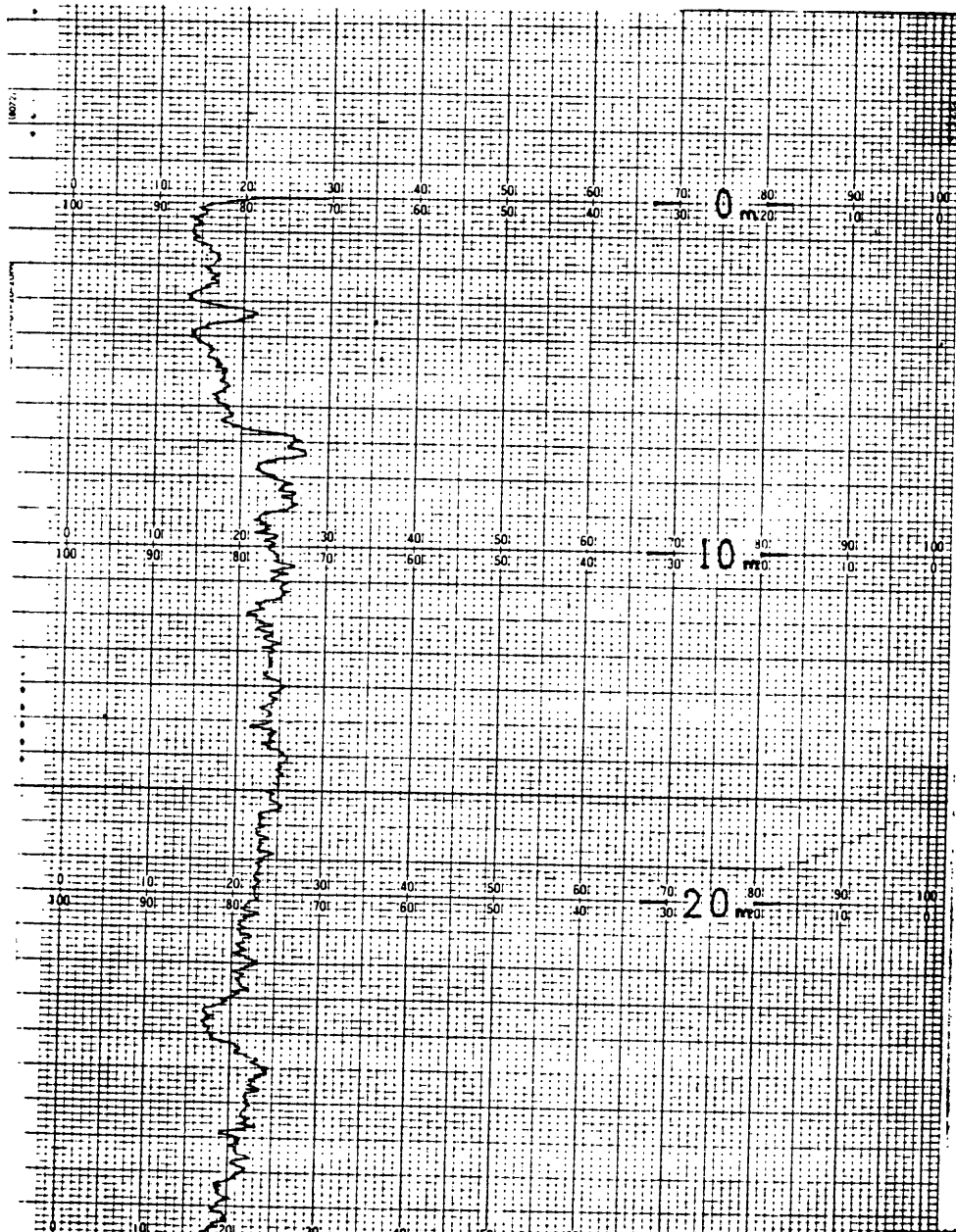
MOLE NUMBER:

UAT-7(R)

DATE:

Feb. 1, 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sindh Pakistan		DEPTH DRILLED	245 m		CLIENT	USGS/GSP	
REGION	Thatta		DEPTH LOGGED	233 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	Mehrab/Muhammad/Hydr	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2 OFFICE	
SEC	TWP	RNG	DIA	Caliper	FROM TO	Boulder Colorado, USA		
			DIA	Log	FROM TO	ELECTRIC		
TYPE	GAM	4 ft Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	REBIST	S.P.
LOGGED DEPTH	233 m		FLUID LEVEL	0 m		LOGGED DEPTH	FT	FT
RANGE (I.S.)	10 K		CASING DATA			SCALE		
STD DEV	1		WALL SIZE	1 1/2"		PAPER SPEED		
PAPER SPEED	1-1		I.D.	HW = 4" NW = 3"		LOG SPEED		
LOG SPEED	6-1		CASED FROM	0 TO 205 m		ARM LENGTH		
BKGND. COUNT			CASING TYPE	NW, HW = 58 m		MAX DEF.		
PROBE NO	60-1		SAMPLE DATA			VERTICAL DEV.		
SIZE (dia.)	1 3/8"		NON-CORED HOLE	CORED HOLE		DEPTH		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		INCLIN.		
DEAD TIME	2					BEARING		
STANDARD								
DIGITAL DATA			REMARKS					
PRINT INTERVAL			Logged thru casing					
TIMEBASE			HW = to 58 m					
			NW = to 205 m					
DENSITY CALIBRATION								
ALUMINUM								
LUCITE								

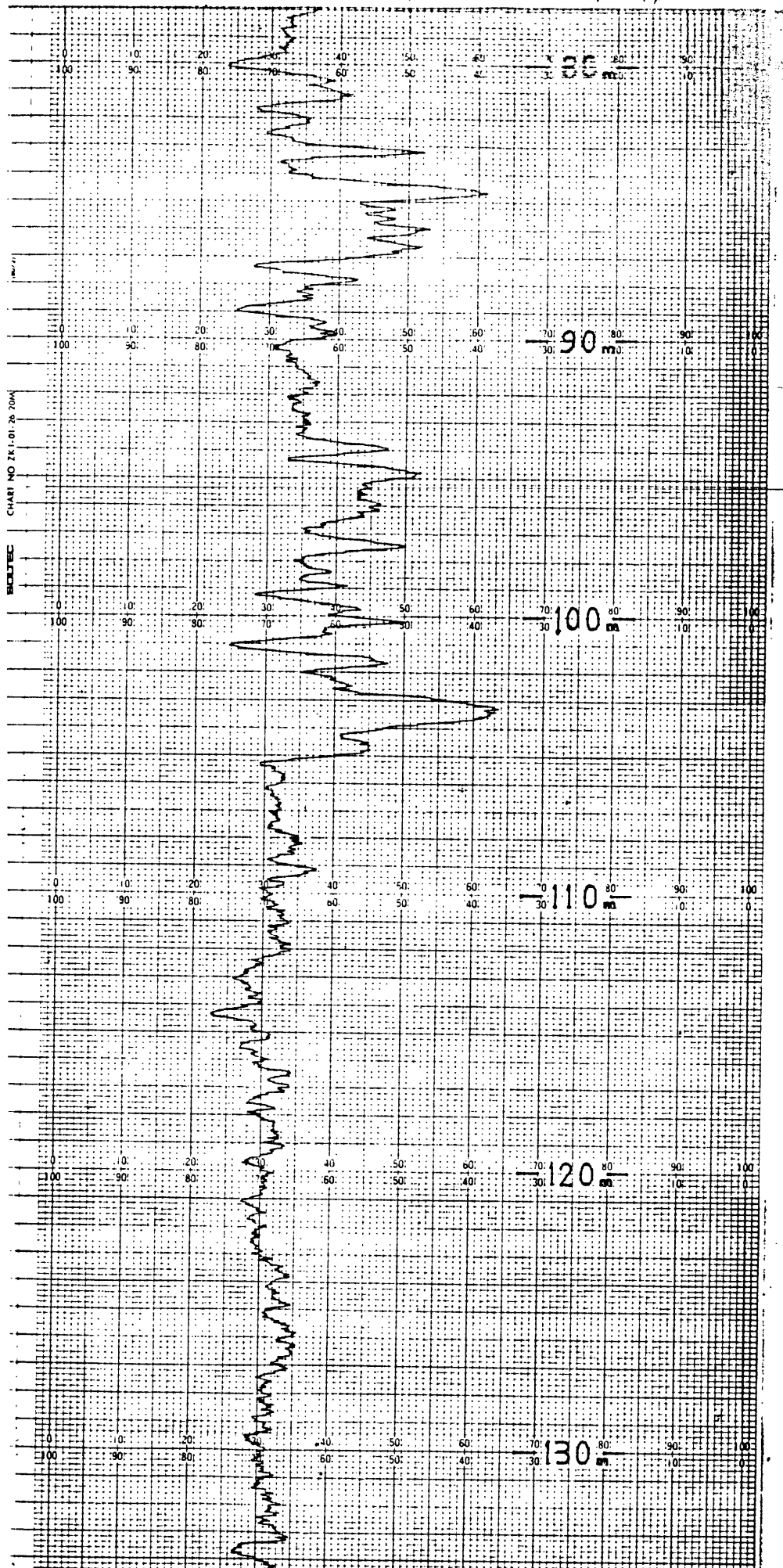






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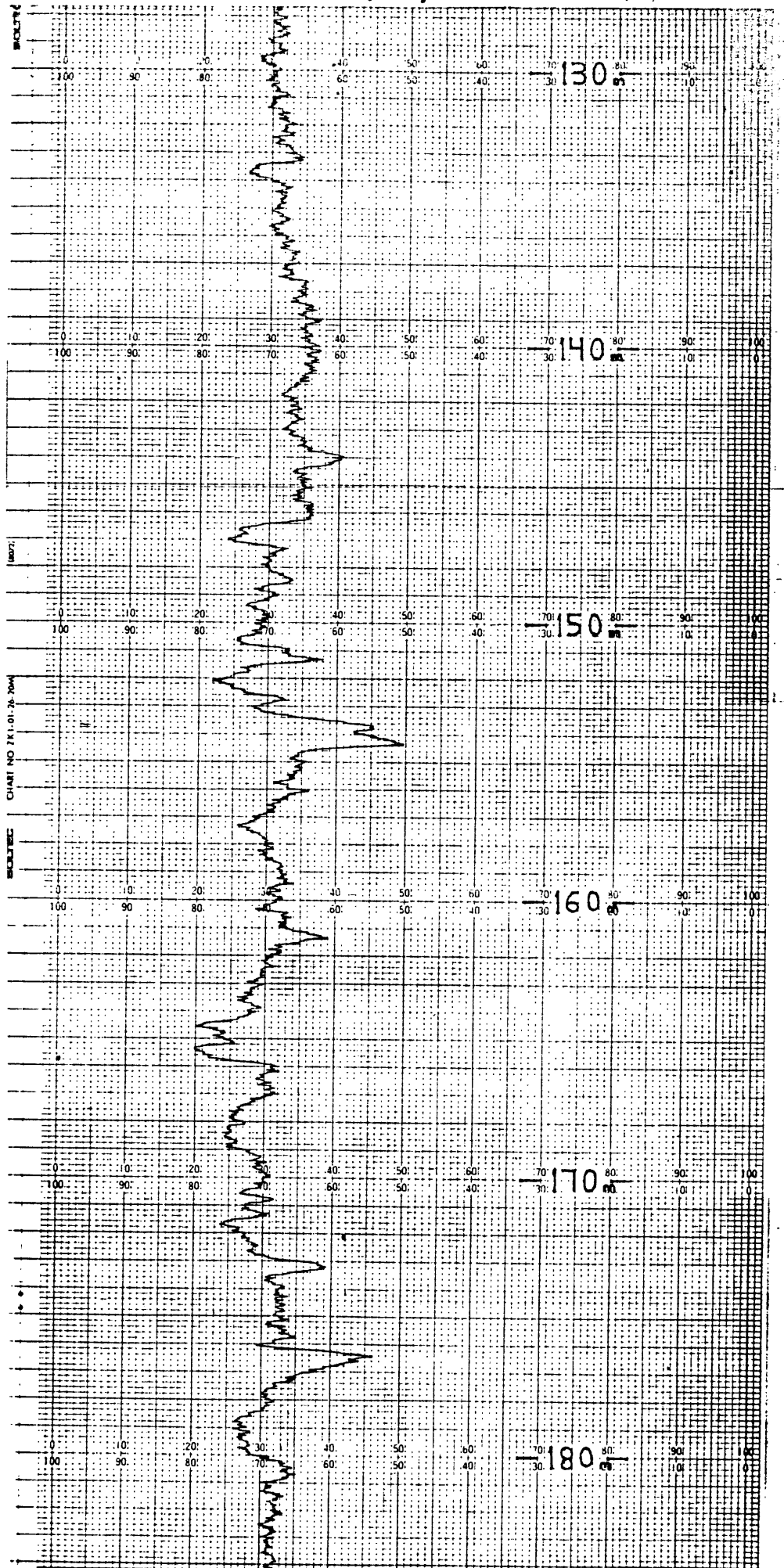
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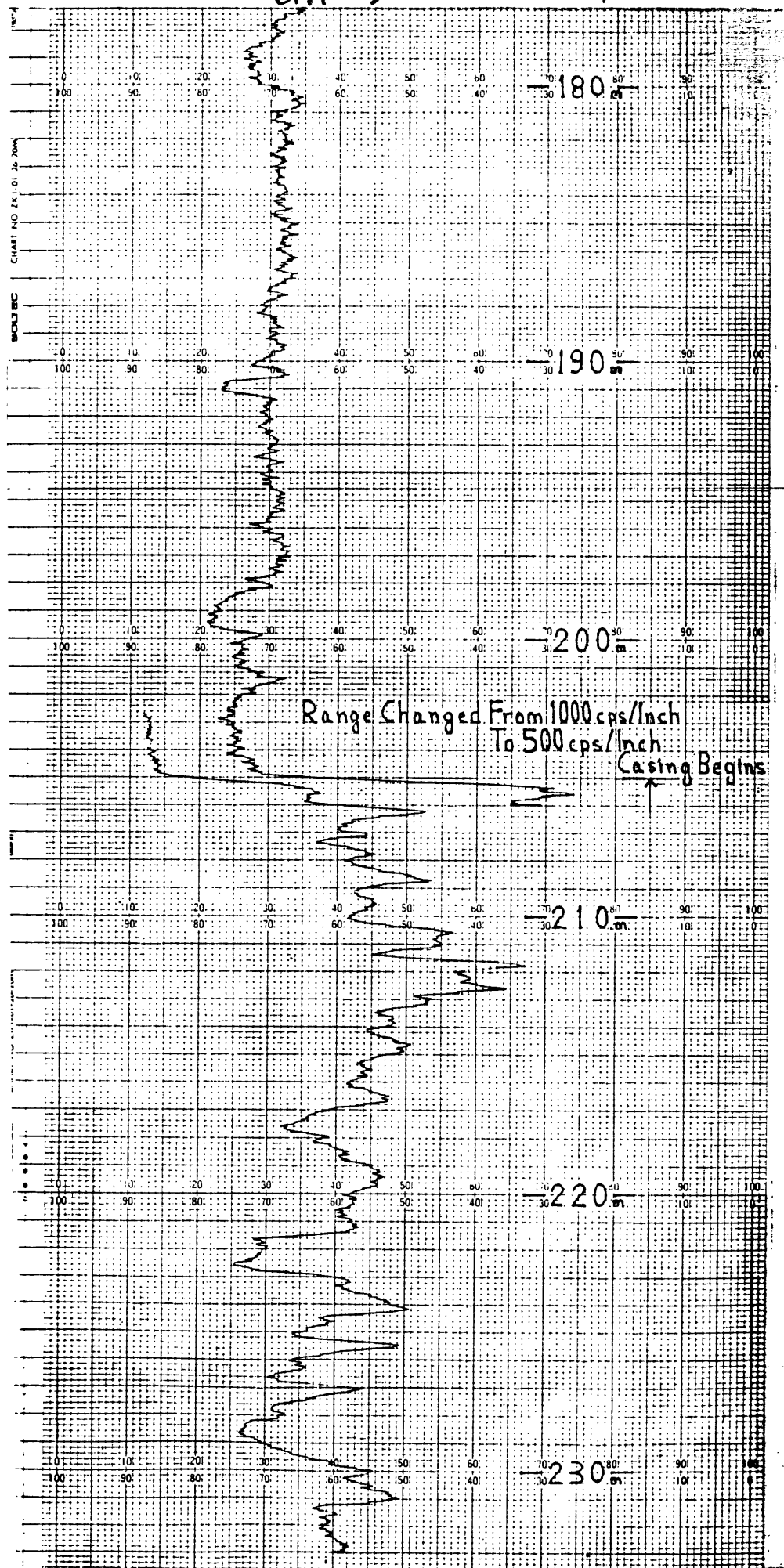
UAT-7

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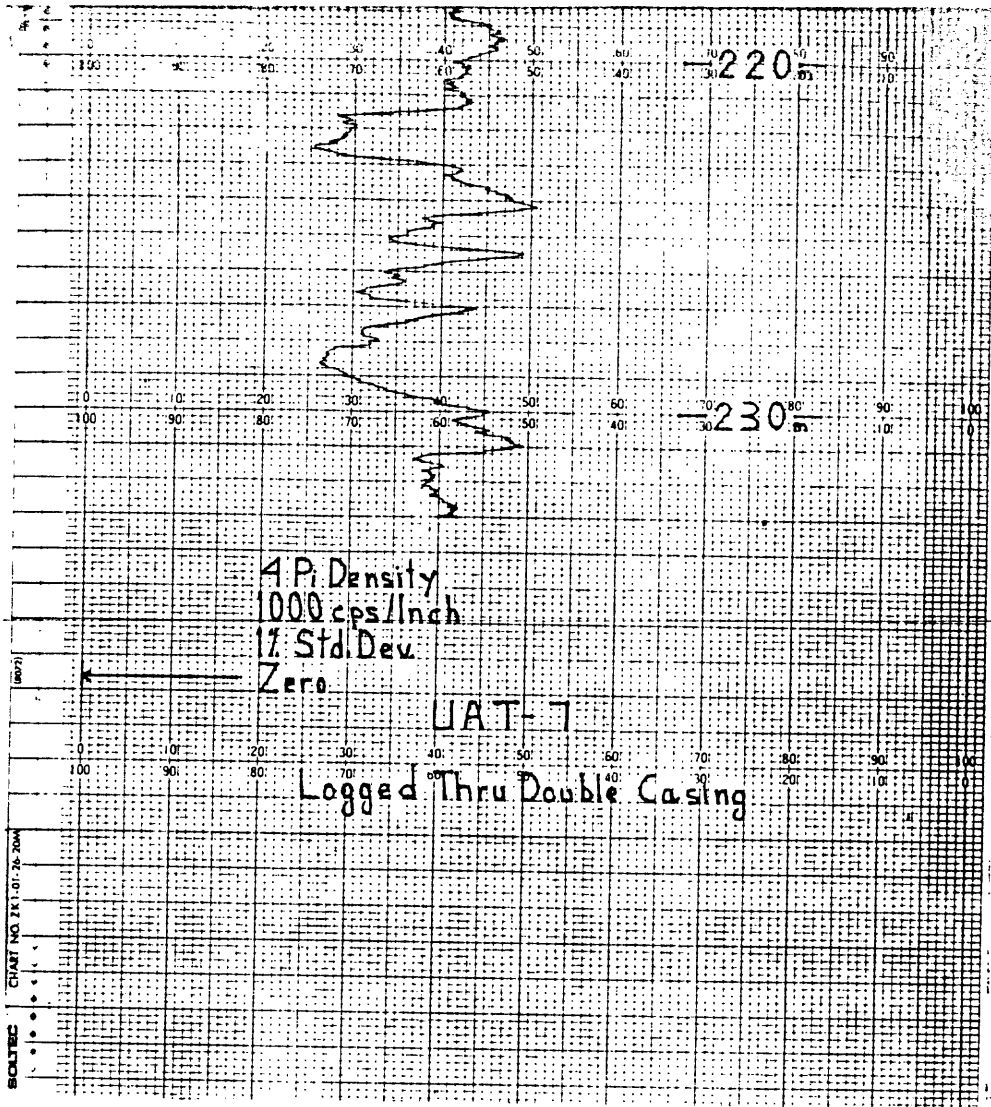
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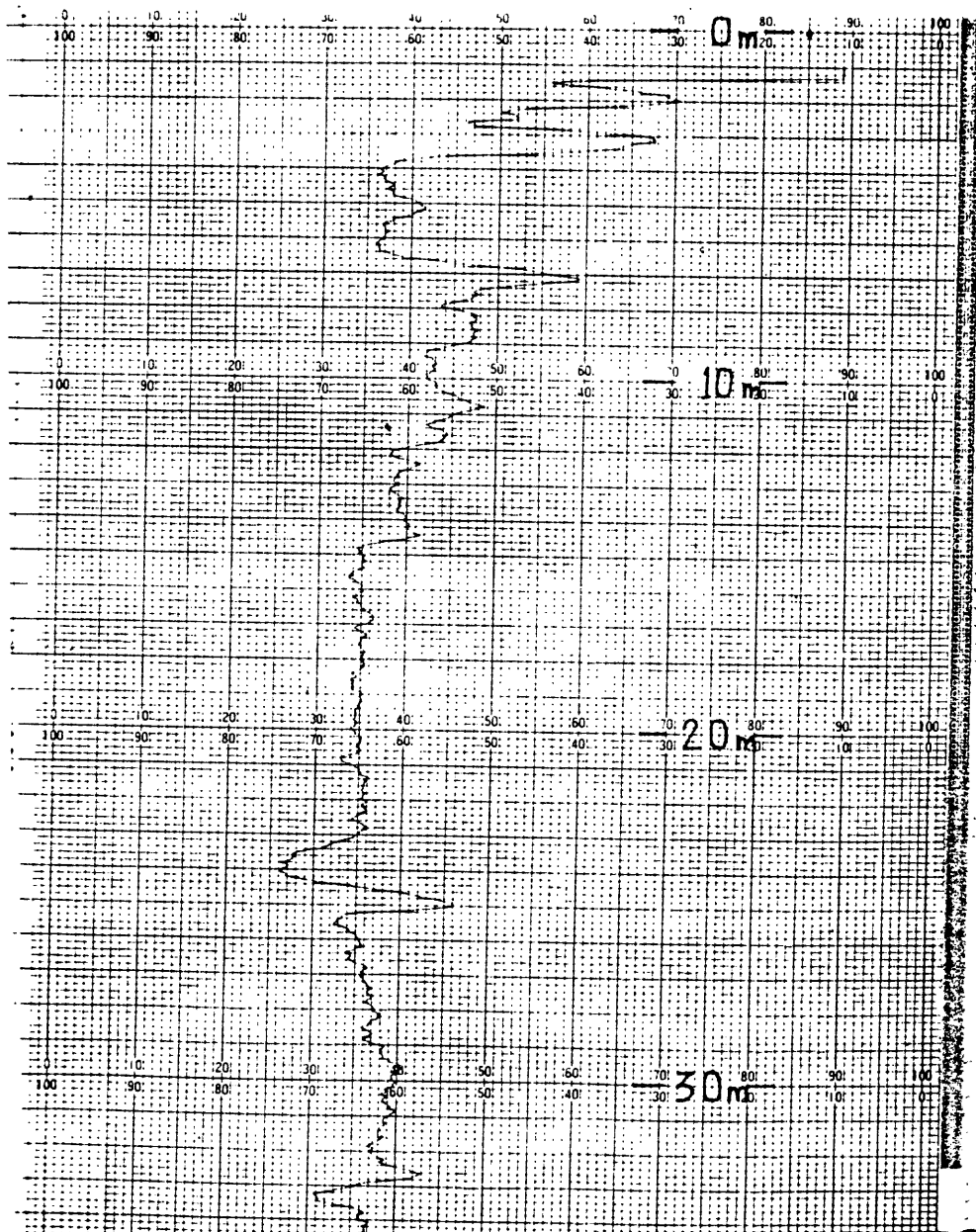
HOLE NUMBER:

UAT-7

DATE:

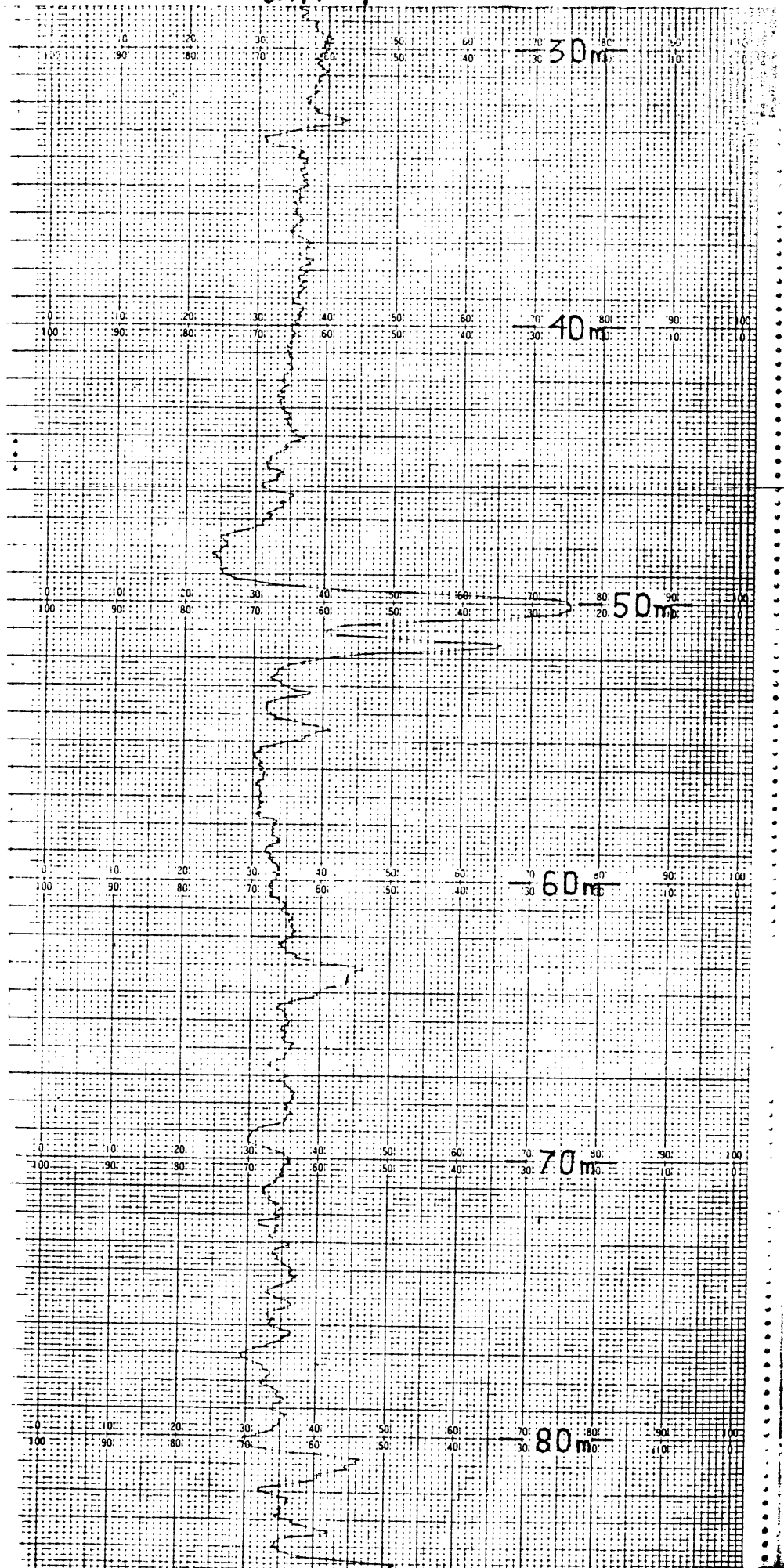
18th January, 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind Pakistan		DEPTH DRILLED:	225m		CLIENT	U.S.G.S. - G.S.P.	
REGION	Sonda		DEPTH LOGGED:	192m		GEOLOGIST:		
PROJECT	COAL REAP.		COLLAR ELEV			UNIT OPERATOR	MUJIB/MENTAS	
PROSPECT			DIA	Sec	FROM TO	UNIT NO	PL-2 OFFICE	
SEC	TWP.	RNG	DIA	1.5	FROM TO	BOULDER	GOLDROAD U.S.A.	
TYPE	GAM	4 PI Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		ELECTRIC		
LOGGED DEPTH	192m		FLUID LEVEL			TYPE	RESIST	S.P.
RANGE (ft)	20K		CASING DATA			LOGGED DEPTH	FT	FT
%STD DEV	1%		WALL SIZE			SCALE		
PAPER SPEED	1-1		I.D.			PAPER SPEED		
LOG SPEED	6-1		CASED FROM TO			LOG SPEED		
BKGND. COUNT			CASING TYPE			FINE ADJ		
PROBE NO.	6D-1		SAMPLE DATA			LOGGED DEPTH	FT	FT
SIZE (dia.)	13/8"		NON-CORED HOLE	CORED HOLE		SCALE		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		PAPER SPEED		
DEAD TIME	2		REMARKS			LOG SPEED		
STANDARD			Open Hole			ARM LENGTH	IN	IN
DIGITAL DATA						MAX DEF.	IN	IN
PRINT INTERVAL						VERTICAL DEV.		
TIMEBASE						DEPTH		
DENSITY CALIBRATION						INCLIN.		
ALUMINUM						BEARING		
LUCITE								



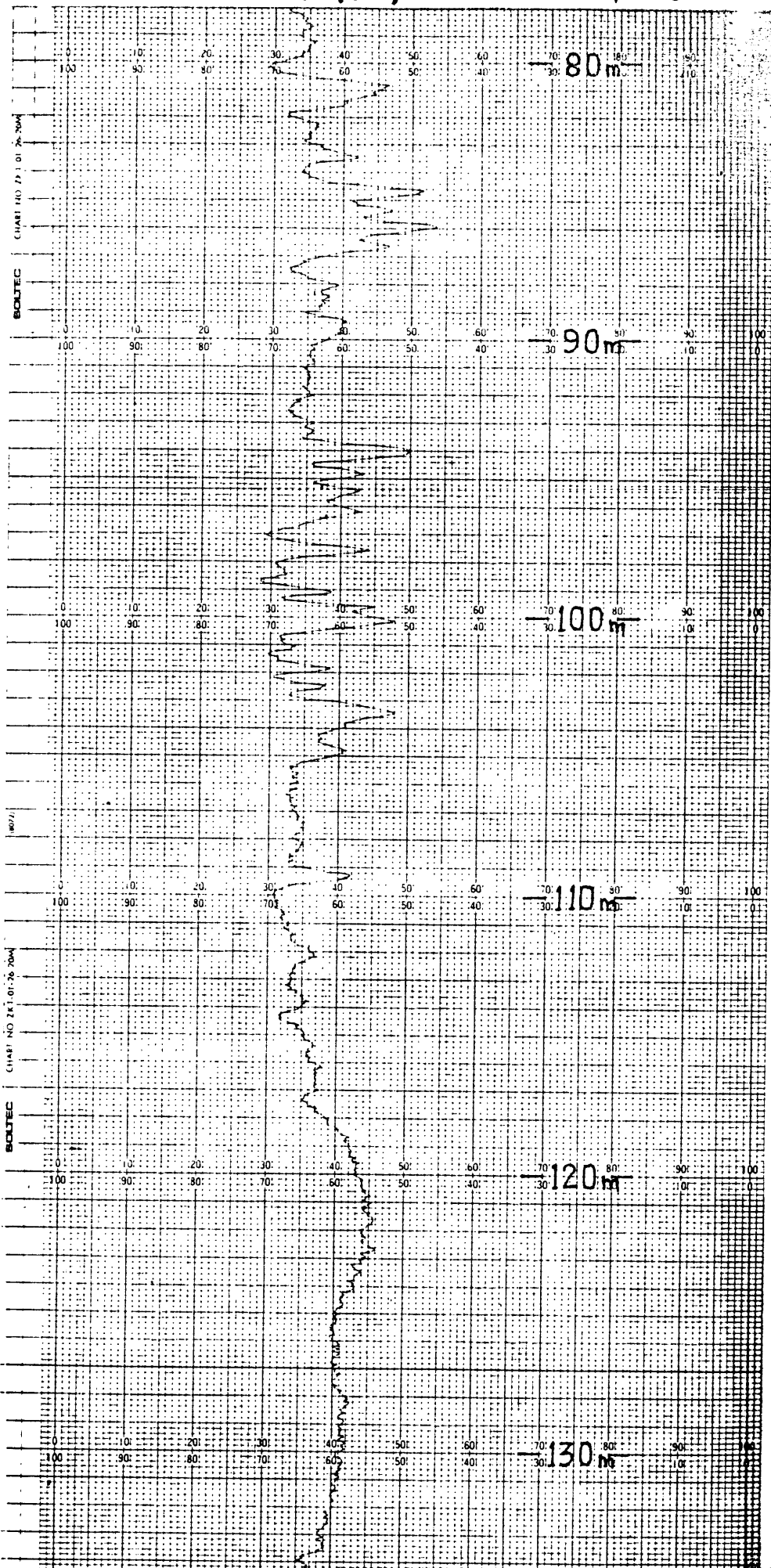
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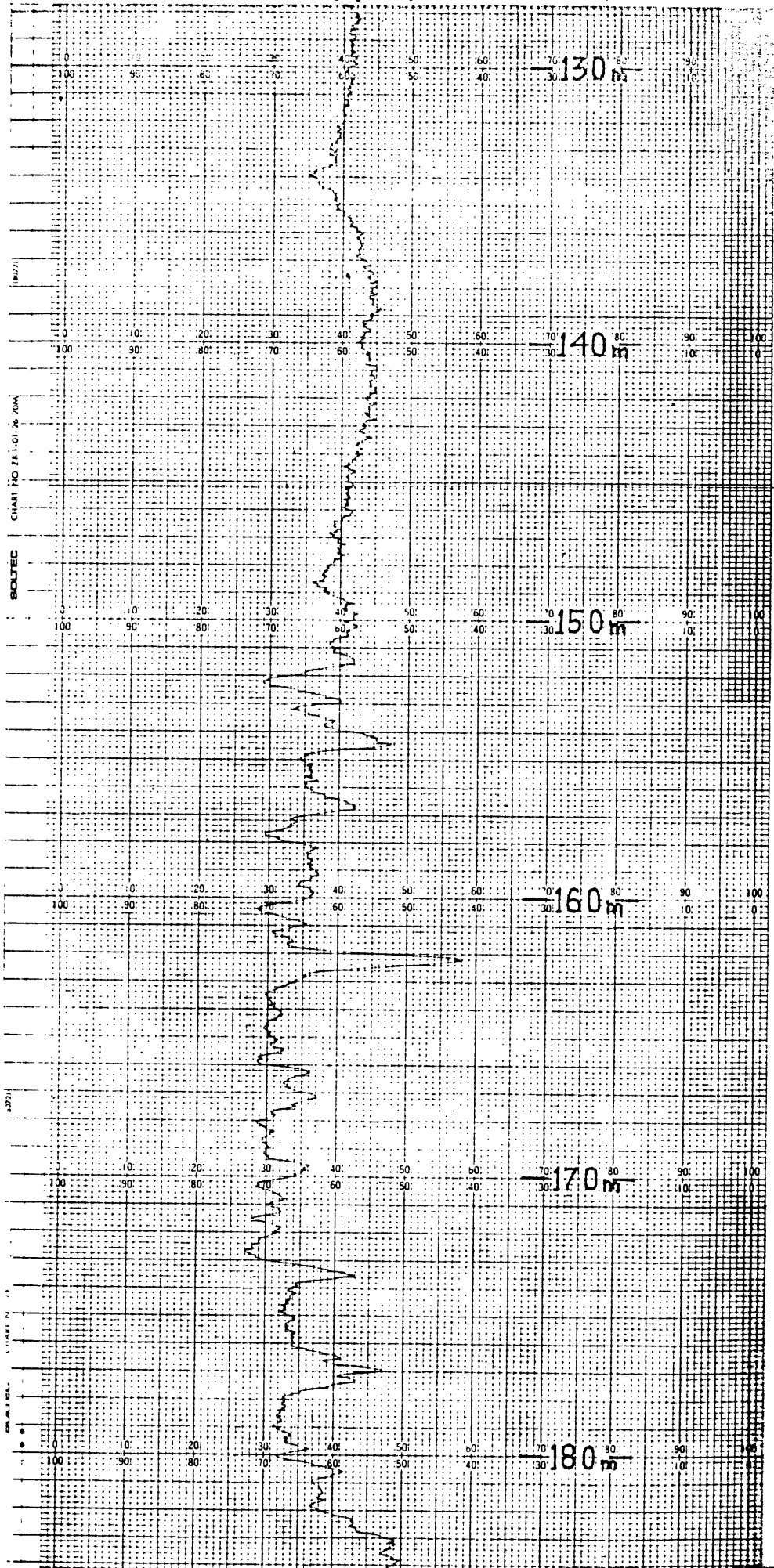


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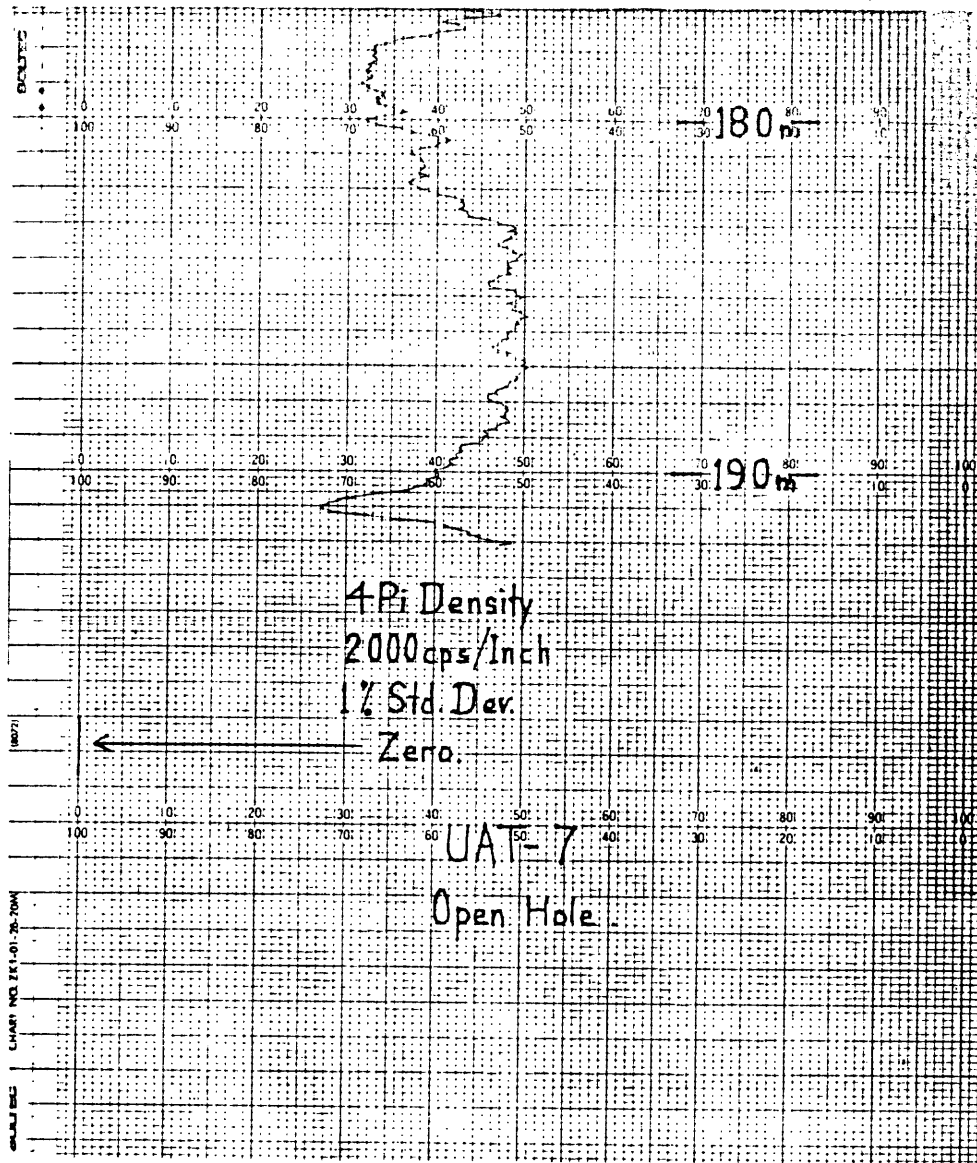
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# GEOSCIENCE ASSOCIATES

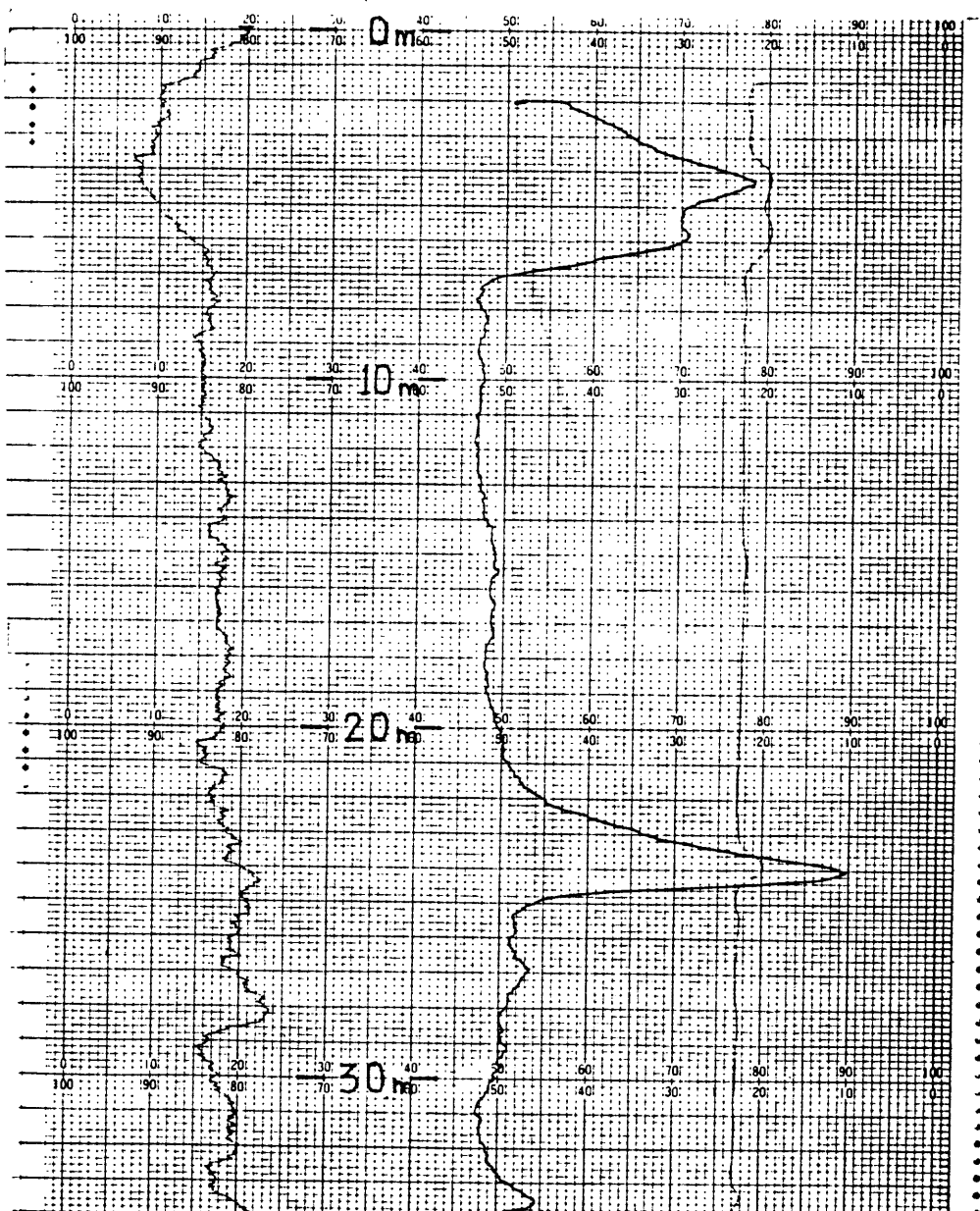
P.505  
3-10

HOLE NUMBER:

UAT-7

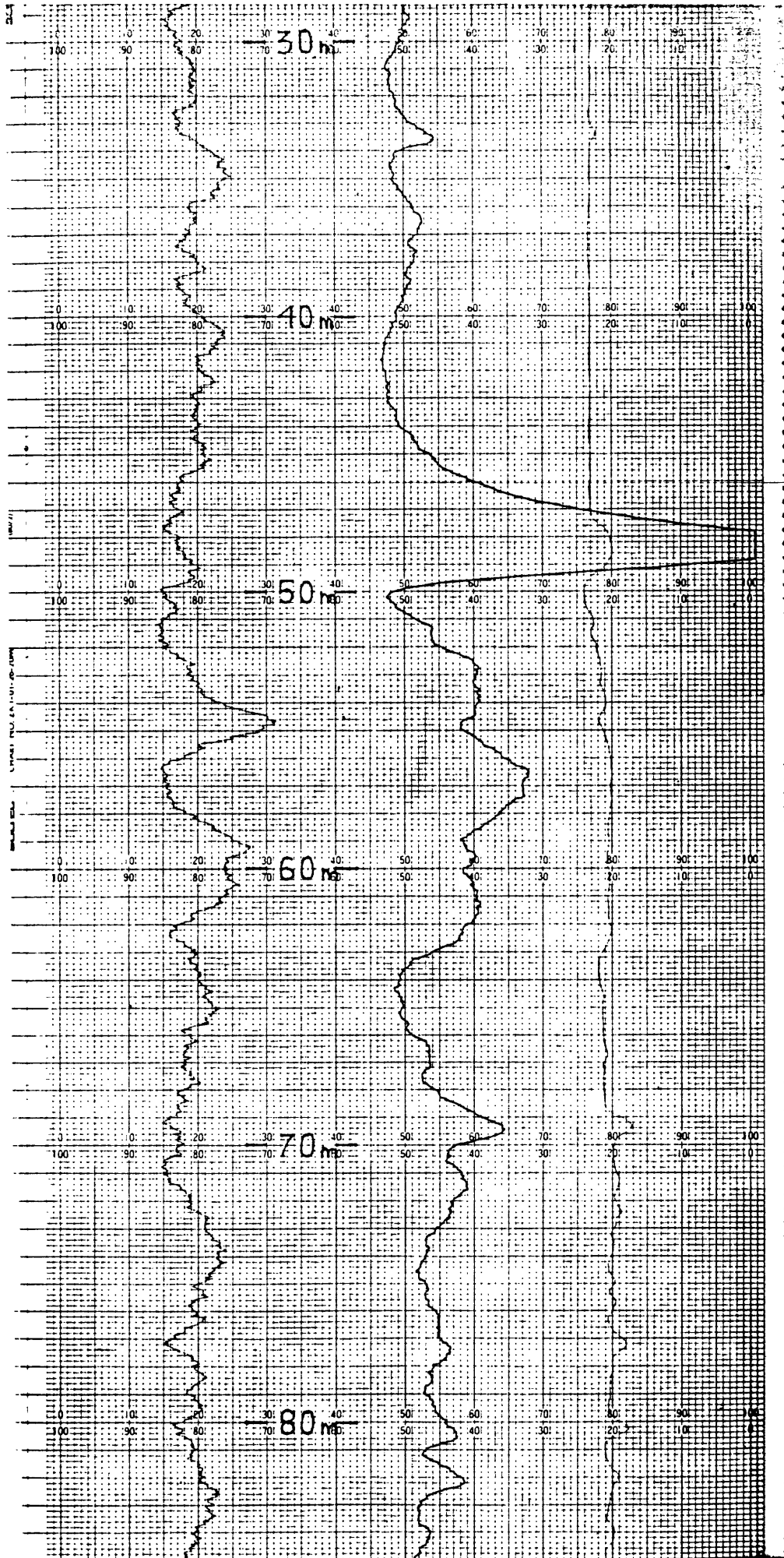
DATE: 18th January, 1987.

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sind Pakistan		DEPTH DRILLED	225 m	CLIENT	U.S.G.S. - G.S.P.
REGION	Sonda		DEPTH LOGGED	192 m	GEOLOGIST	
PROJECT	COAL REAP		COLLAR ELEV			
PROSPECT			DIA.	Sec FROM TO	UNIT OPERATOR	MUTIB/MEHTAB
SEC	TWP.	RNG.	DIA.	Caliper FROM TO	UNIT NO	PL-2
			DIA.	1.8 FROM TO	OFFICE	BOULDER COLORADO U.S.A.
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud	ELECTRIC	
LOGGED DEPTH	190 m	192 m	FLUID LEVEL		TYPE	RESIST
RANGE (F.S.)	100	500	CASING DATA		LOGGED DEPTH	190 m
%STD DEV	3%	1%	WALL SIZE		SCALE	10 2
PAPER SPEED	1-1	1-1	I.D.		PAPER SPEED	1-1 2
LOG SPEED	6-1	6-1	CASED FROM	TO	LOG SPEED	6-1 2
BKGND. COUNT			CASING TYPE		LOG SPEED	6-1 2
PROBE NO.	GN-1	GN-1	SAMPLE DATA		FINE ADJ.	1000 R. (as)
SIZE (dia.)	13/8"	13/8"	NON-CORED HOLE	<input checked="" type="checkbox"/> CORED HOLE		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		
DEAD TIME	2	2	REMARKS			
STANDARD			Open Hole			
DIGITAL DATA					CALIPER	
PRINT INTERVAL					LOGGED DEPTH	FT.
TIMEBASE					SCALE	2
					PAPER SPEED	2
					LOG SPEED	2
					ARM LENGTH	10
					MAX DEF	10
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN.	
					BEARING	



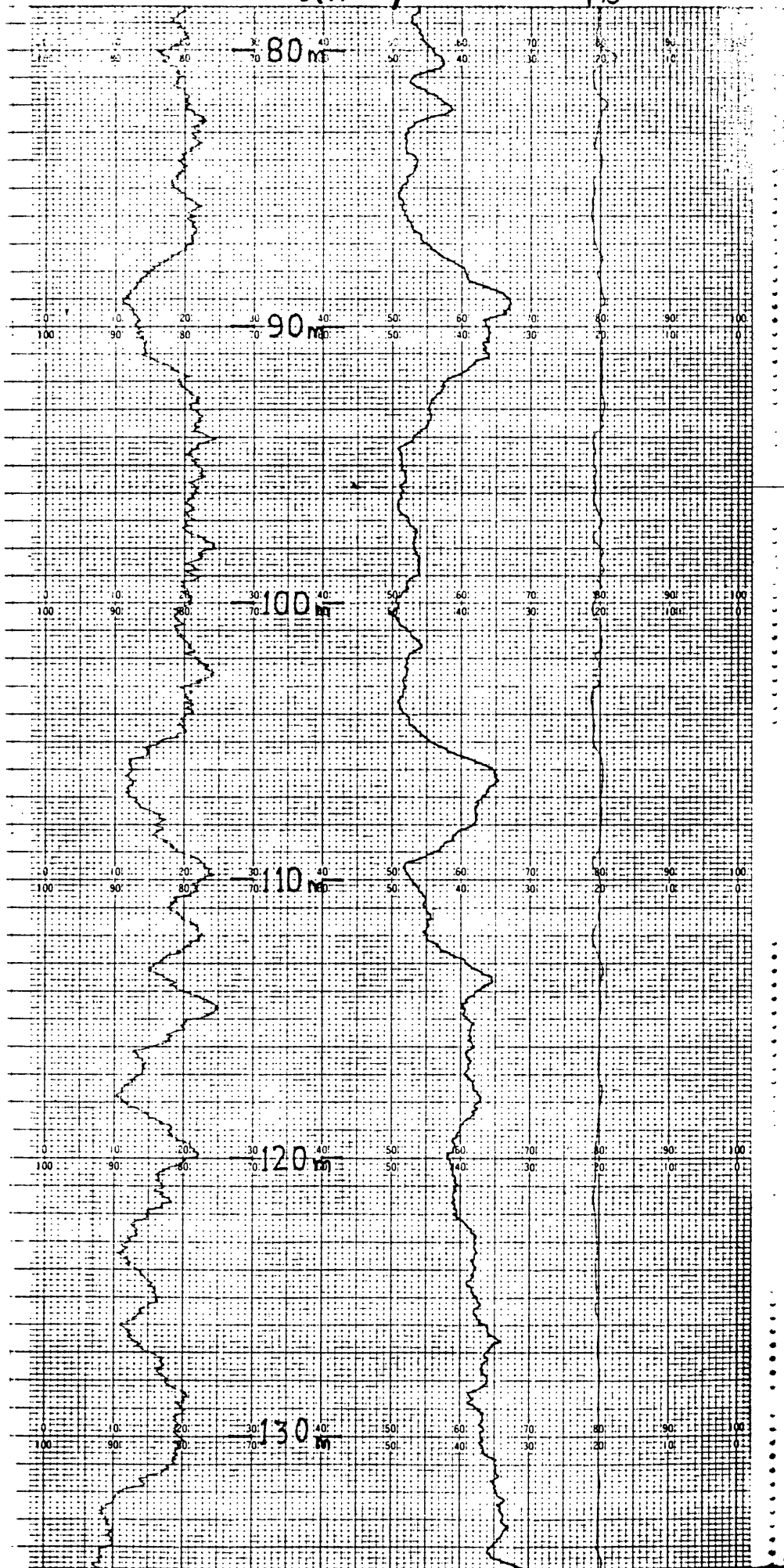
UAT-7

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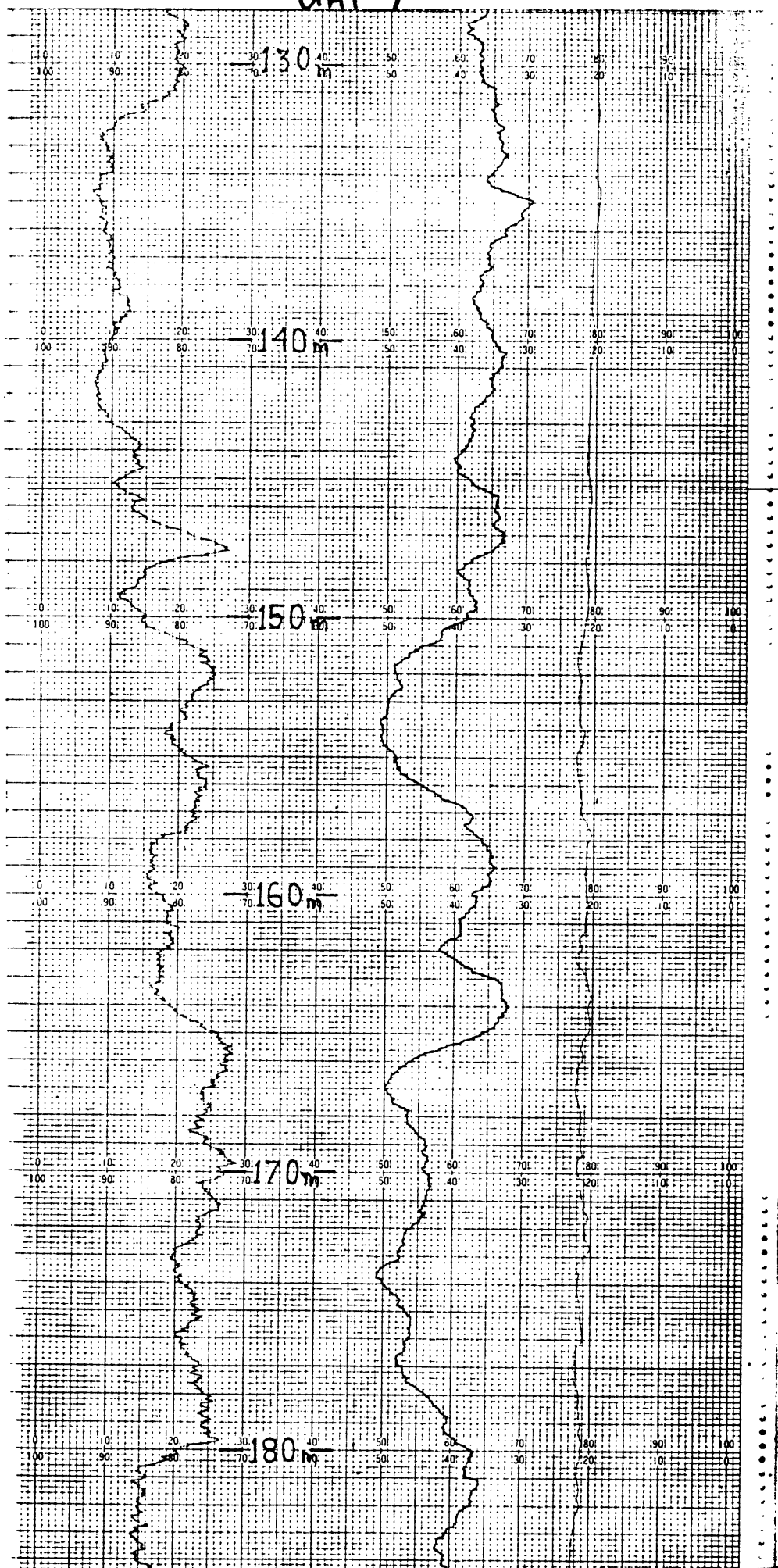


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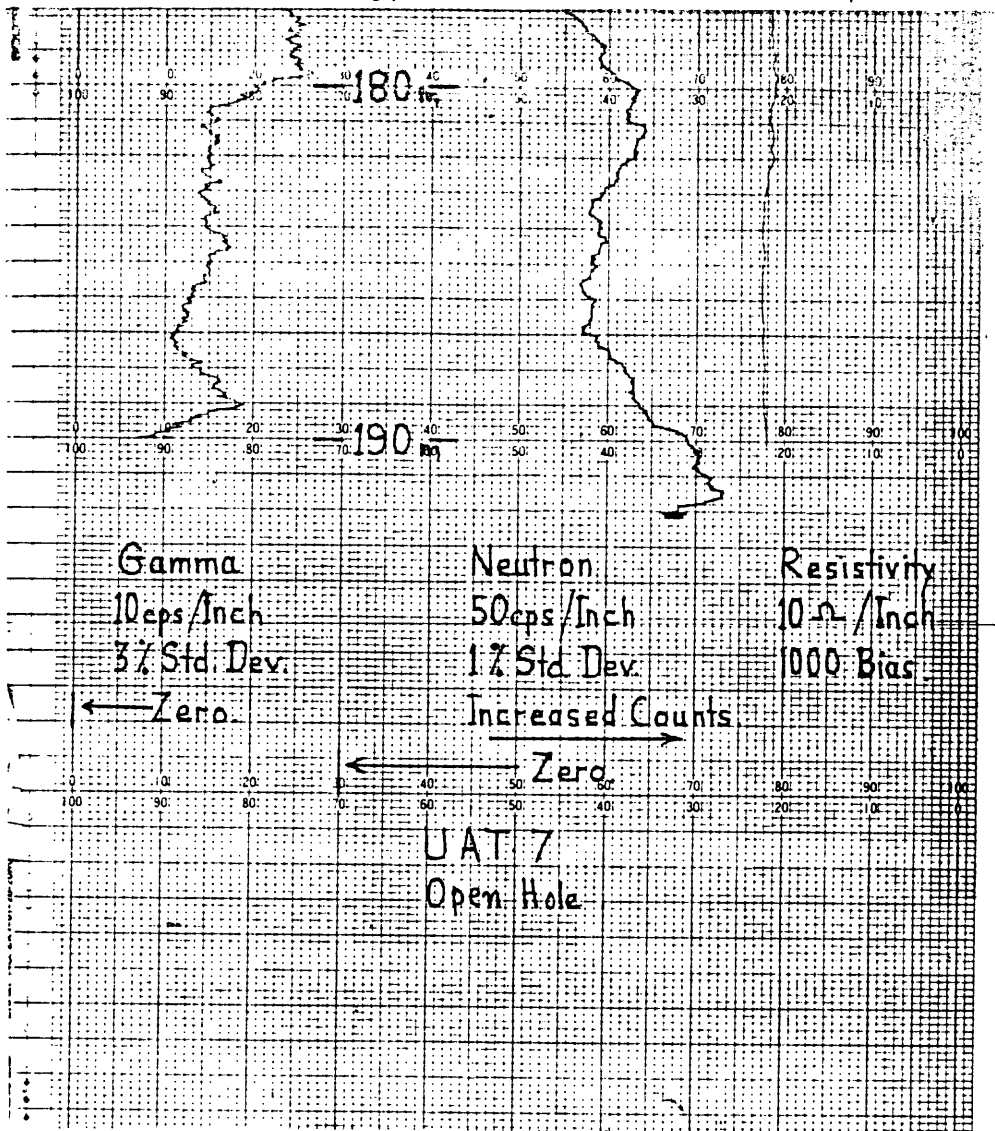


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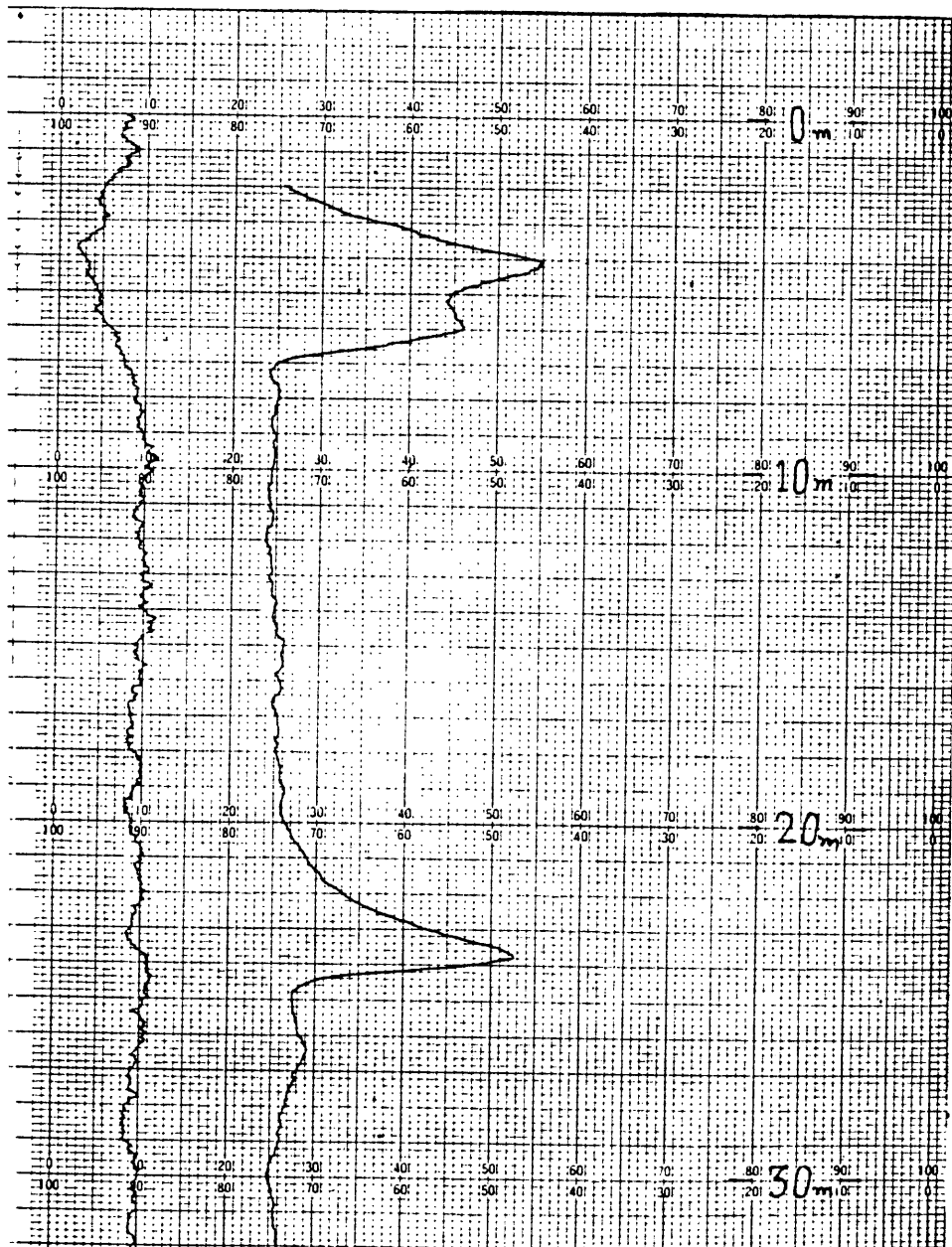
# GEOSCIENCE ASSOCIATES P.510

HOLE NUMBER:

UAT-7(R)

DATE: Feb - 2 - 1987

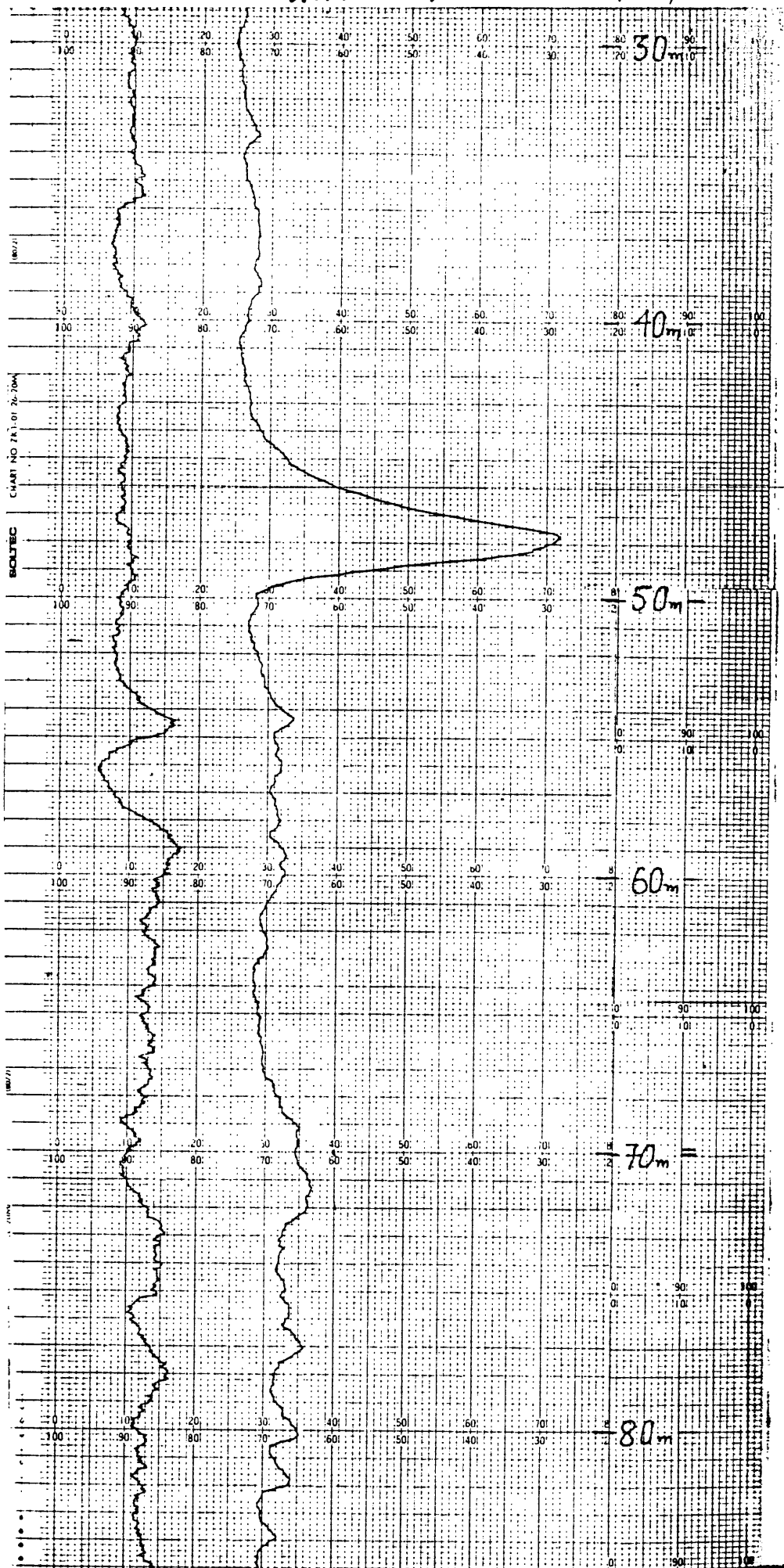
LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	Pakistan		DEPTH DRILLED	245m	CLIENT	USGS / G.S.P.
REGION	Thatta		DEPTH LOGGED	242m	GEOLOGIST	
PROJECT	Coal Reap.		COLLAR ELEV		UNIT OPERATOR	MAHFOOZ KHURSHID
PROSPECT			DIA	See in FROM TO	UNIT NO	PL-2
SEC	TWP	RNG	DIA	Log FROM TO	OFFICE	BOULDER COLORADO USA.
TYPE	GAM	Newk	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.	ELECTRIC	
LOGGED DEPTH	242m	240m	FLUID LEVEL		TYPE	
RANGE (1 to 2)	50	500	CASING DATA		LOGGED DEPTH	240m
STD DEV	3%	1%	WALL SIZE	1/4"	SCALE	10
PAPER SPEED	1-1	1-1	ID	HW = 4" NW = 3"	PAPER SPEED	1-1
LOG SPEED	1-6	1-6	CASED FROM	0 TO 205m	LOG SPEED	1-6
BKGD COUNT			CASING TYPE	NW HW = 3"	FINE ADJ	900
PROBE NO	GM-1	GM-1	SAMPLE DATA			
SIZE (dia)	13/16	13/16	NON-CORED HOLE	<input checked="" type="checkbox"/>	CORED HOLE	<input type="checkbox"/>
K-FACTOR			SAMPLED INTERVAL		SAMPLE TYPE	
DEAD TIME	2	2				
STANDARD						
DIGITAL DATA			REMARKS			
PRINT INTERVAL						
TIMEBASE						
DENSITY CALIBRATION						
ALUMINUM						
LUCITE						





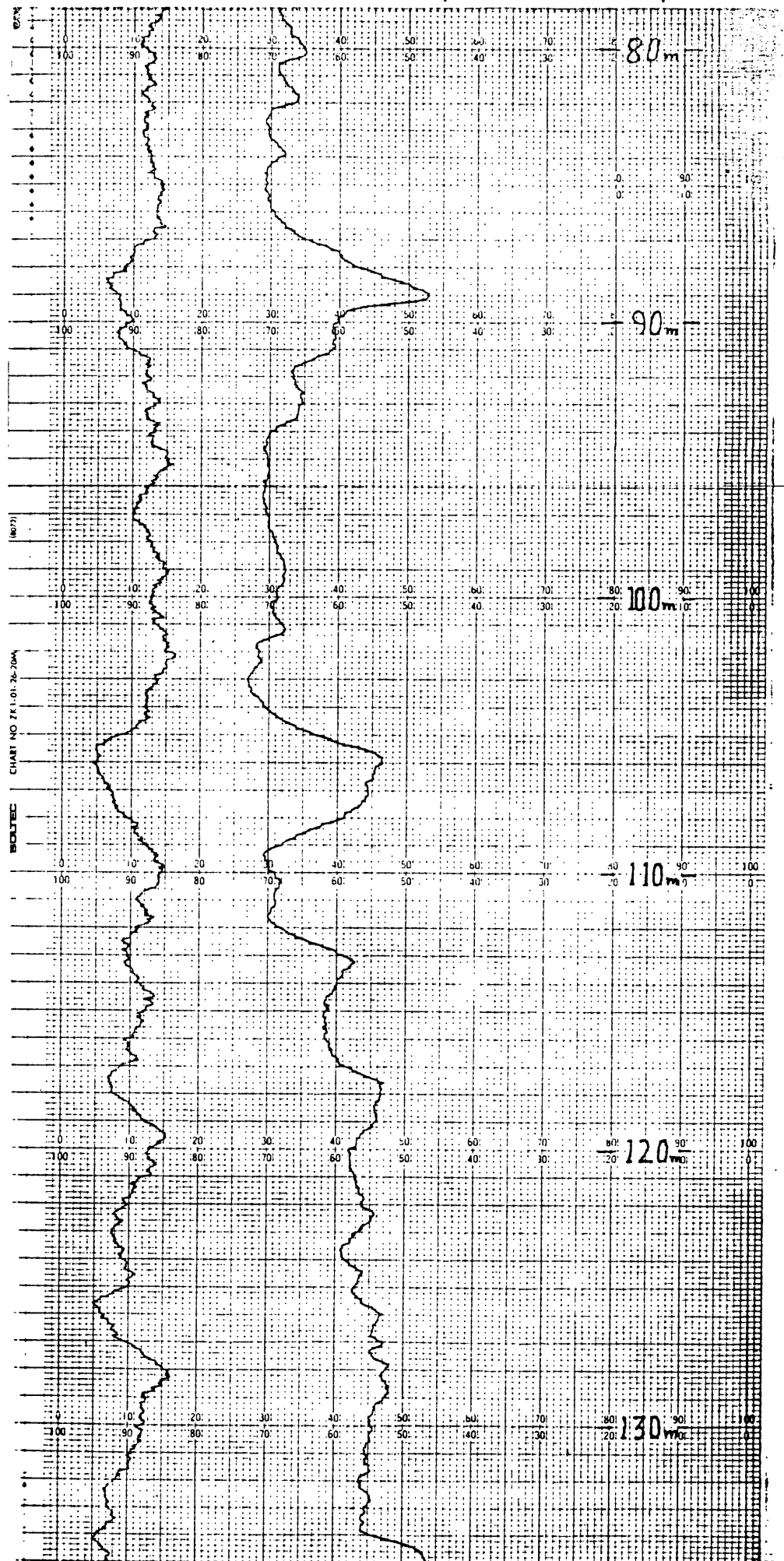
UAT-7(R)

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UAT-7(R)

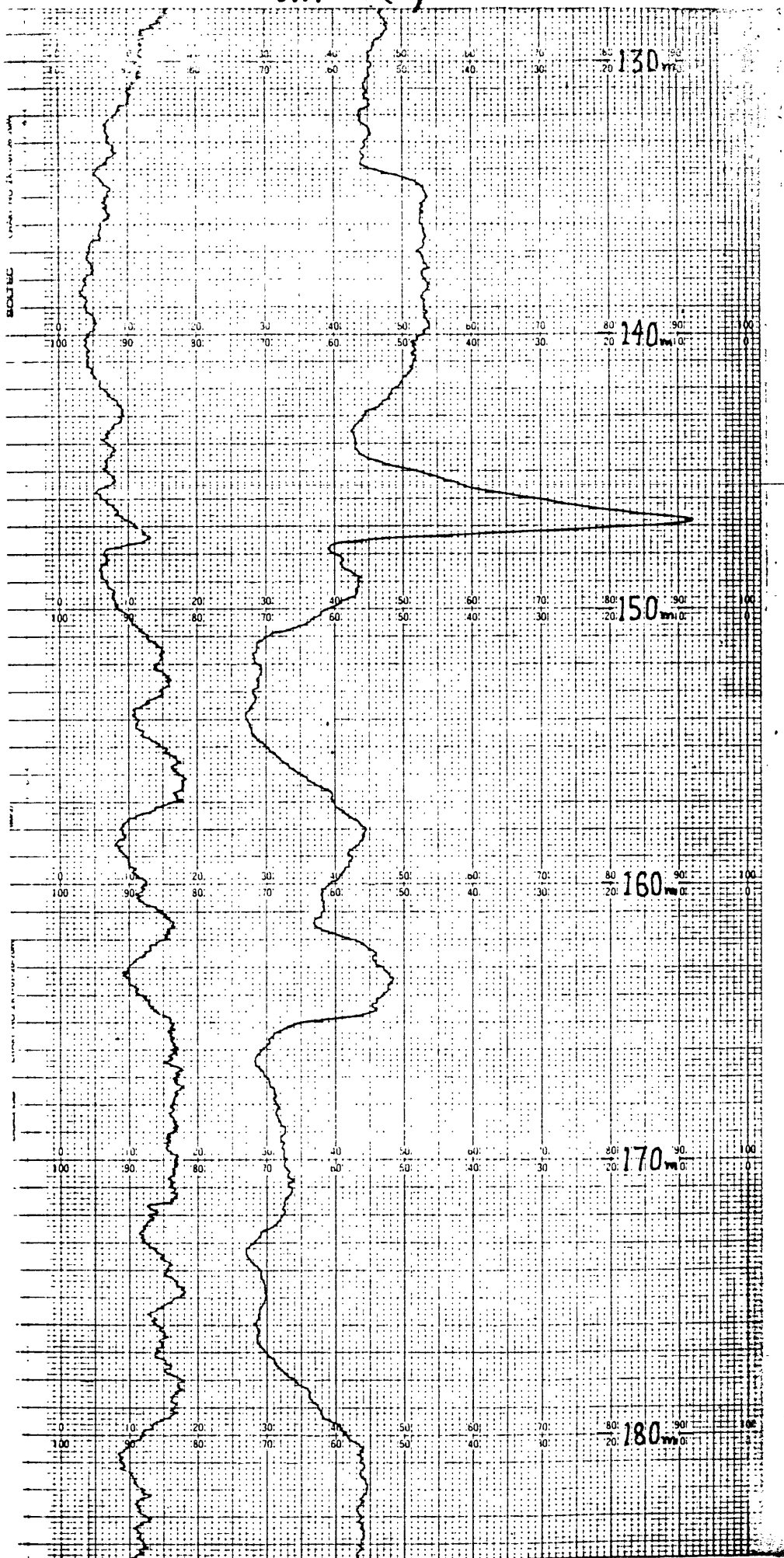
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UAT-7(R)

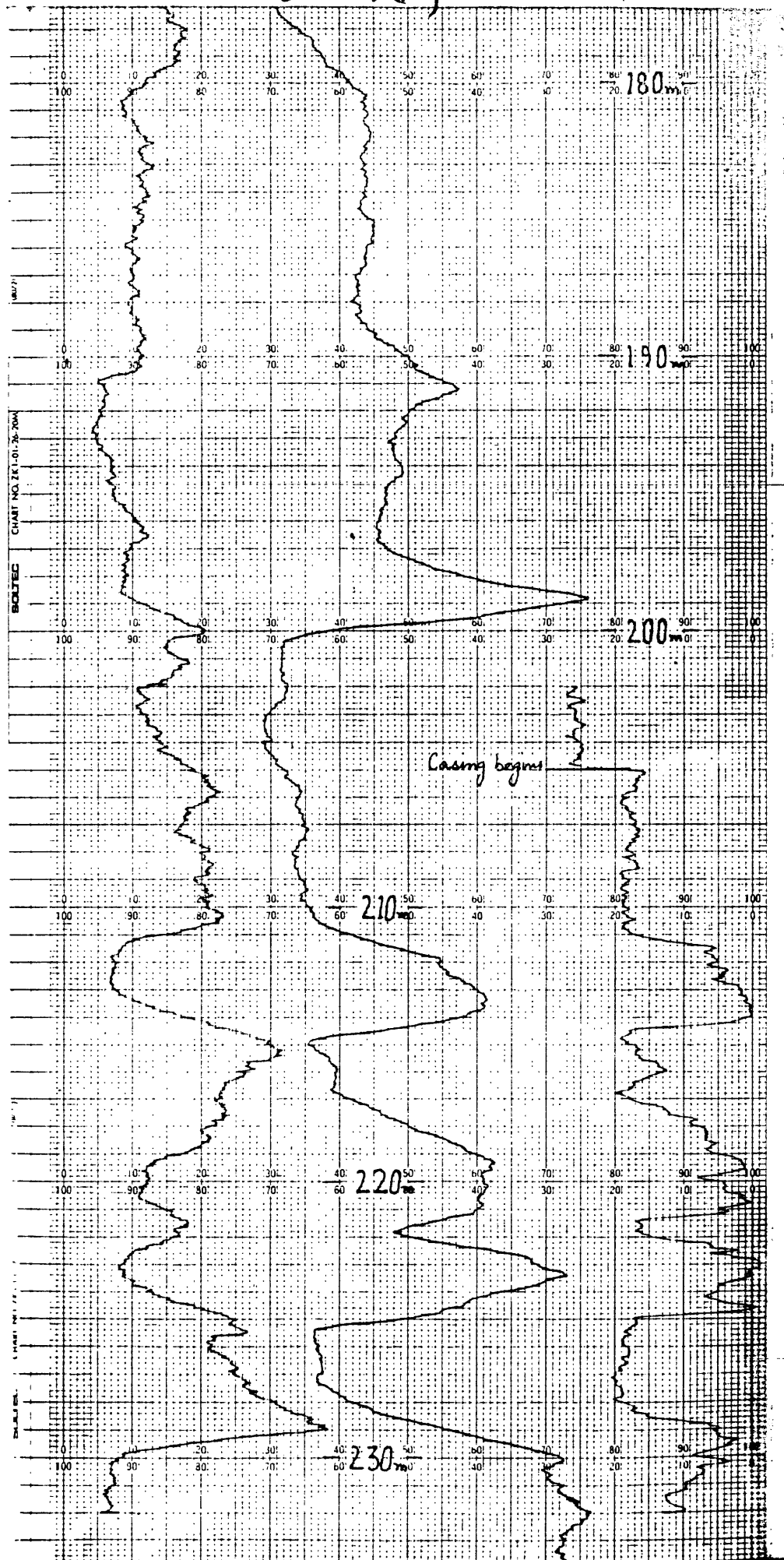
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03

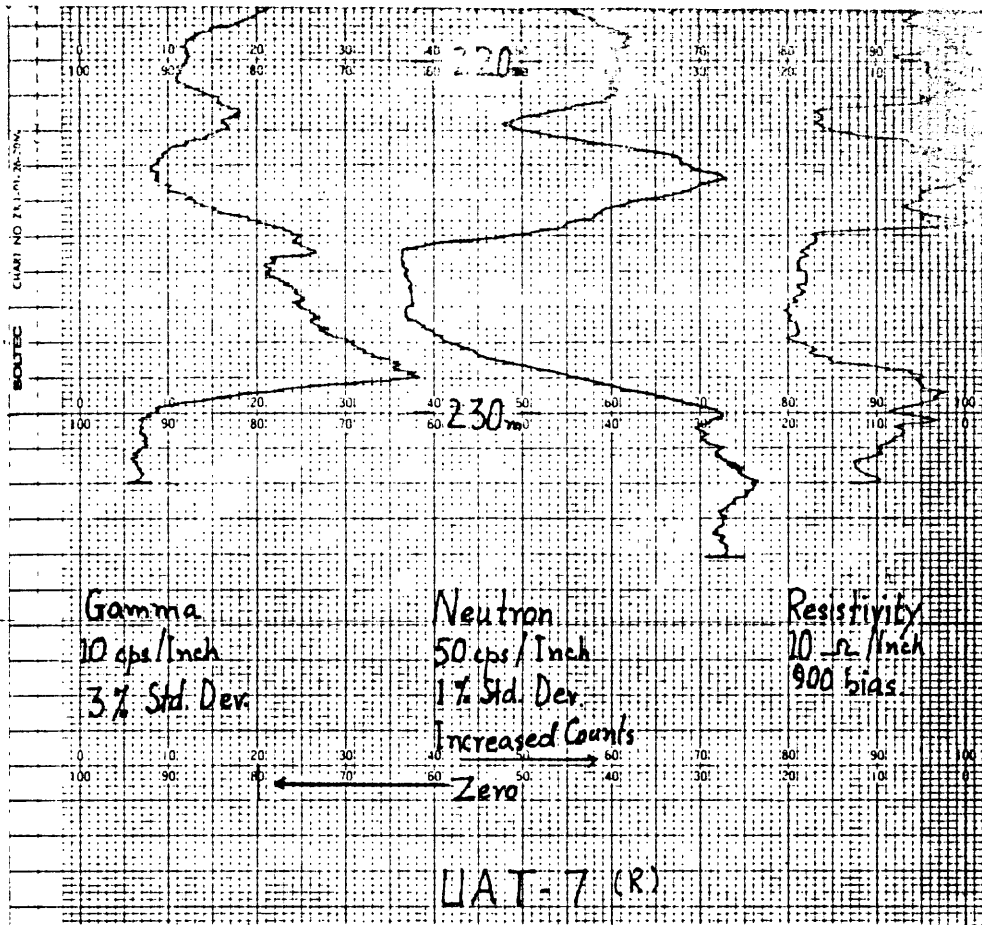
UAT-7(R)

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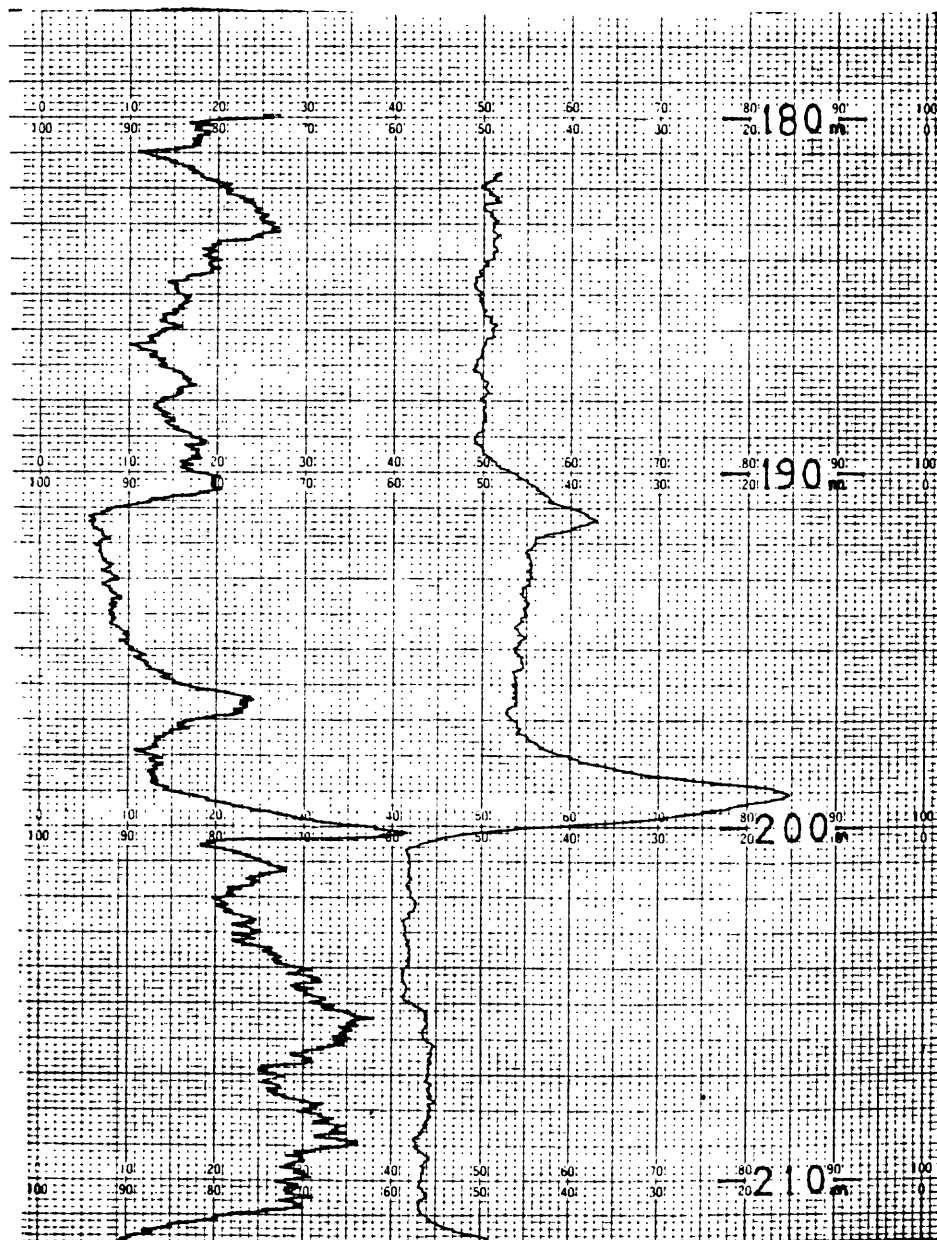
# GEOSCIENCE ASSOCIATES p.516

HOLE NUMBER:

UAT-7(R)

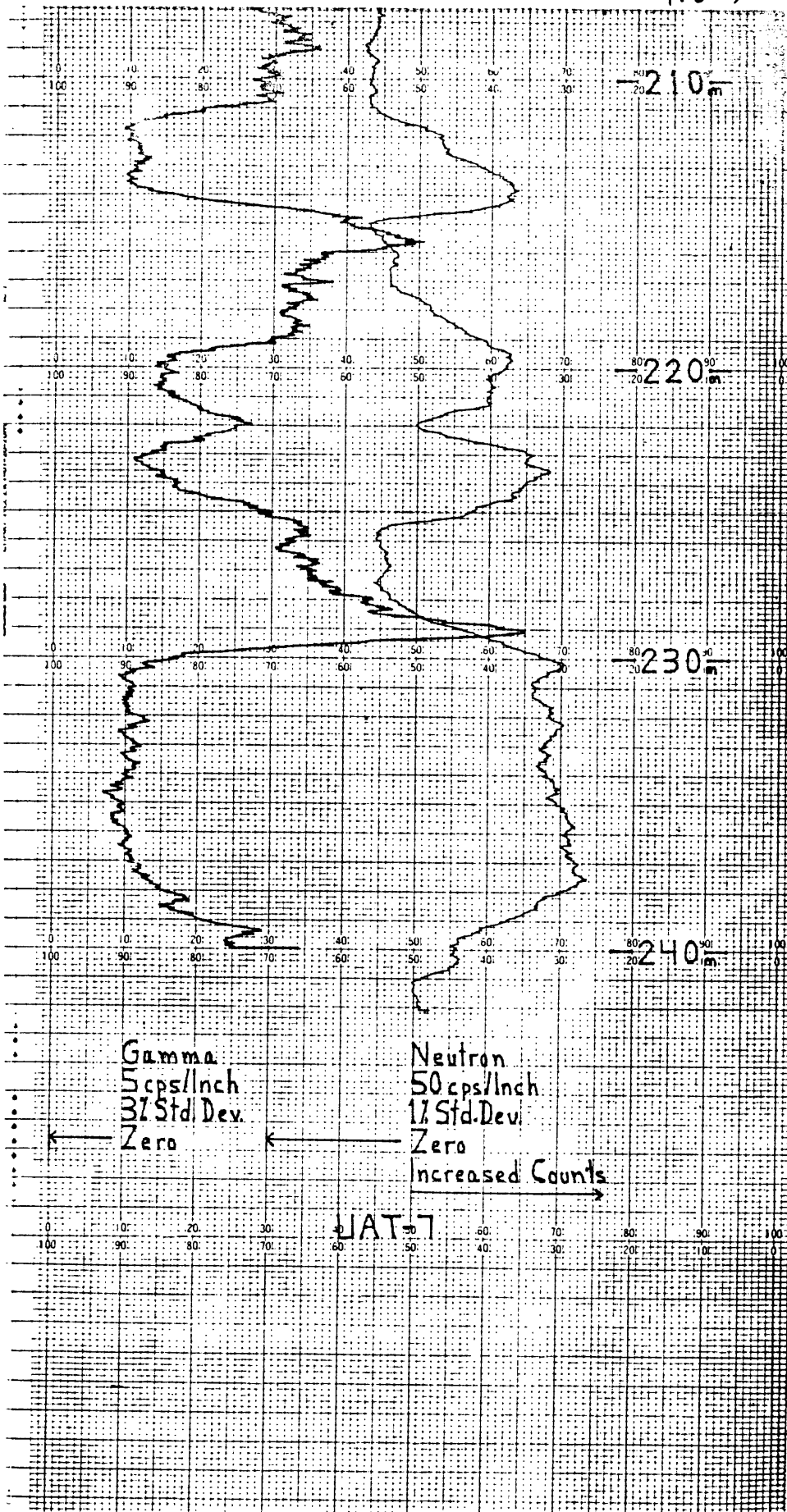
DATE: Feb. 2, 1987

LOCATION			HOLE DATA		CLIENT			
STATE/COUNTY	Sindh Pakistan		DEPTH DRILLED	245 m	CLIENT	USGS/GSP		
REGION	Thatta		DEPTH LOGGED	242 m	GEOLOGIST			
PROJECT	Coal Reap		COLLAR ELEV		UNIT OPERATOR	Khwahid/Imam/Munir		
PROSPECT			DIA. See FROM TO		UNIT NO	PL-2 OFFICE		
SEC	TWP	RNG	DIA. Caliper FROM TO		BOULDER	Colorado USA		
TYPE	GAM	New Ar	DIA. Log FROM TO		ELECTRIC			
LOGGED DEPTH	240m	242m	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud	TYPE	RESIST	S.P.	
RANGE (f.s.)	50	500	FLUID LEVEL		LOGGED DEPTH	FT	FT	
%STD DEV	3	1	WALL SIZE	1/4"	SCALE			
PAPER SPEED	6-1	1-1	ID	NW=3" HW=4"	PAPER SPEED			
LOG SPEED	6-1	6-1	CASED FROM	0 TO 205m	LOG SPEED			
BKGND. COUNT			CASING TYPE	NW, HW=58m	FINE ADJ.			
PROBE NO.	GN-1	GN-1	SAMPLE DATA					
SIZE (dia.)	1 3/8	1 3/8	NON-CORED HOLE	<input checked="" type="checkbox"/> CORED HOLE				
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME	2	2	REMARKS					
STANDARD			Logged thru casing and drill pipes					
DIGITAL DATA					CALIPER			
PRINT INTERVAL					LOGGED DEPTH			FT
TIMEBASE					SCALE			
DENSITY CALIBRATION					PAPER SPEED			
ALUMINUM					LOG SPEED			
LUCITE					ARM LENGTH			IN
					MAX DEF			IN
					VERTICAL DEV.			
					DEPTH			
					INCLIN			
					BEARING			



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# GEOSCIENCE ASSOCIATES

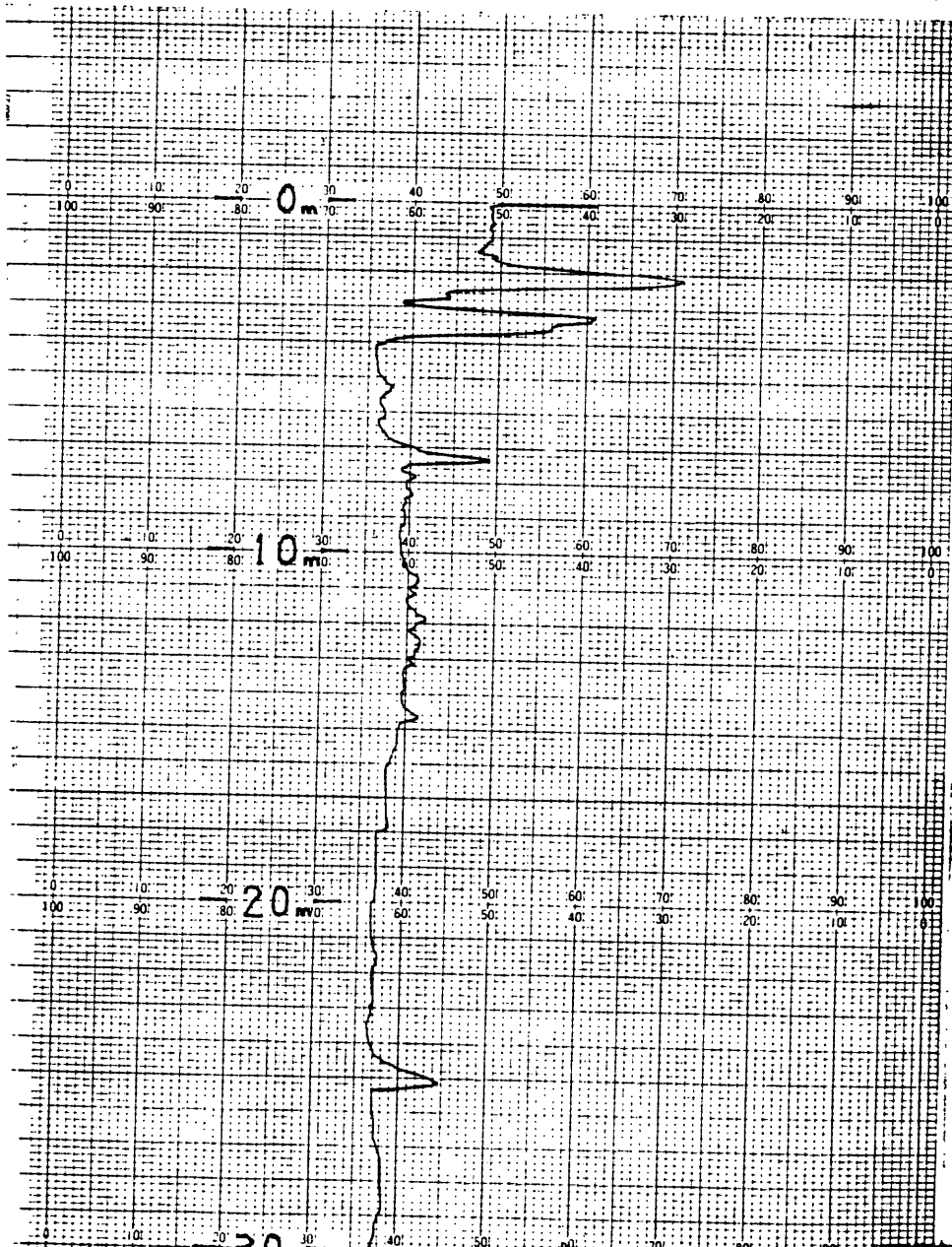
HOLE NUMBER:

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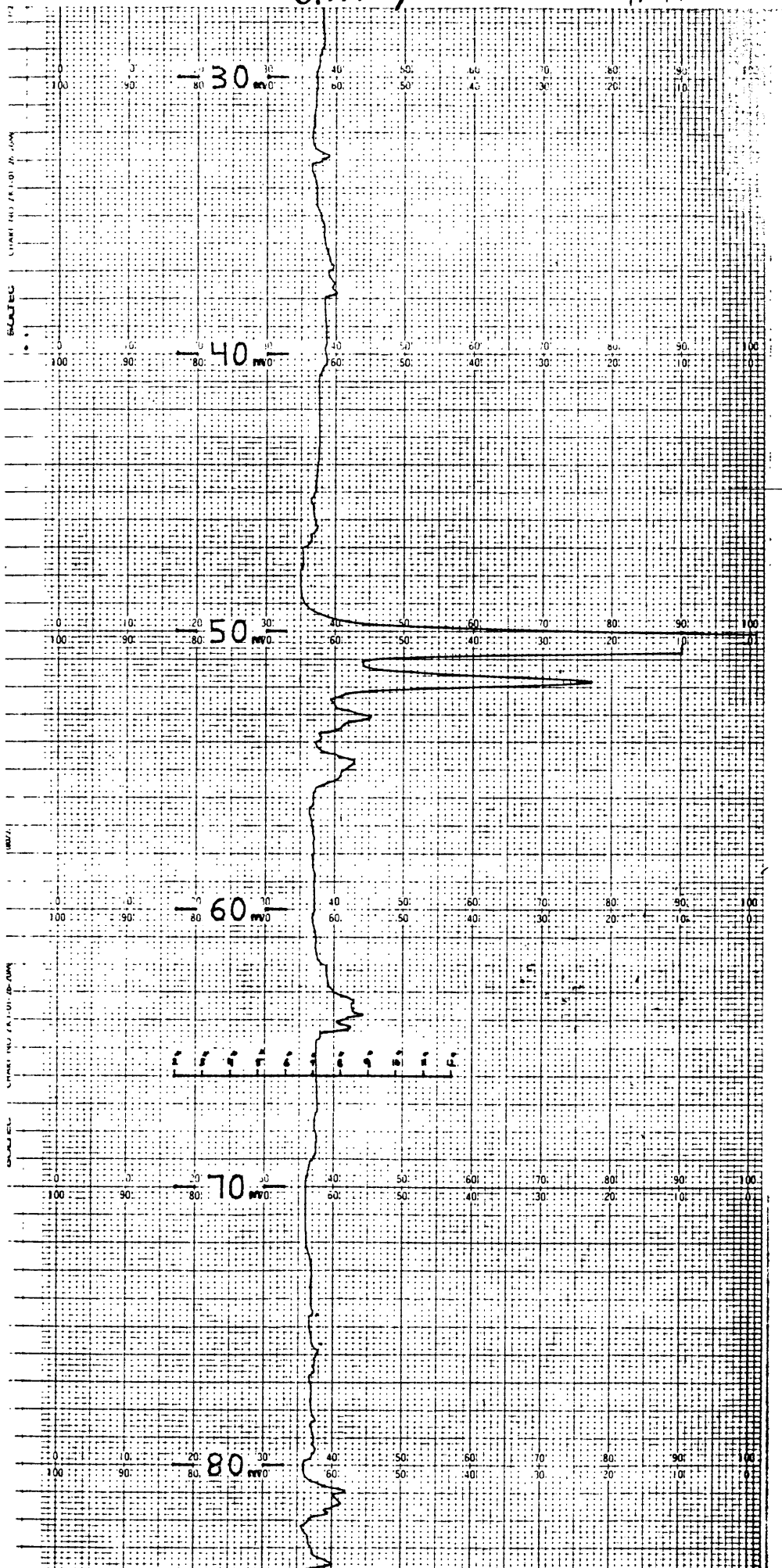
DATE: Jan. 21, 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sindh, Pakistan		DEPTH DRILLED:	225 m		CLIENT	U.S. G.S.P.	
REGION	Thatta		DEPTH LOGGED:	112 m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	KHURSHID	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2	OFFICE
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOULDER COLORADO USA		
TYPE	GAM		DIA	Log	FROM TO	ELECTRIC		
LOGGED DEPTH			BOREHOLE MEDIUM			TYPE	RESIST	S.P.
RANGE (f.s.)			FLUID LEVEL			LOGGED DEPTH	FT	FT
%STD DEV			CASING DATA			SCALE		
PAPER SPEED			WALL SIZE			PAPER SPEED		
LOG SPEED			I.D.			LOG SPEED		
BKGND. COUNT			CASED FROM TO			FINE ADJ.		
PROBE NO.			CASING TYPE					
SIZE (dia.)			SAMPLE DATA					
K-FACTOR			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input type="checkbox"/>					
DEAD TIME			SAMPLED INTERVAL			3 ARM CALIPER		
STANDARD			SAMPLE TYPE			LOGGED DEPTH 142 m		
DIGITAL DATA			REMARKS			SCALE 4" reflects 1" dia		
PRINT INTERVAL						PAPER SPEED 1-1		
TIMEBASE						LOG SPEED 6-1		
DENSITY CALIBRATION						ARM LENGTH 12 IN		
ALUMINUM						MAX DEF. 24 IN		
LUCITE						VERTICAL DEV.		
						DEPTH		
						INCLIN.		
						BEARING		



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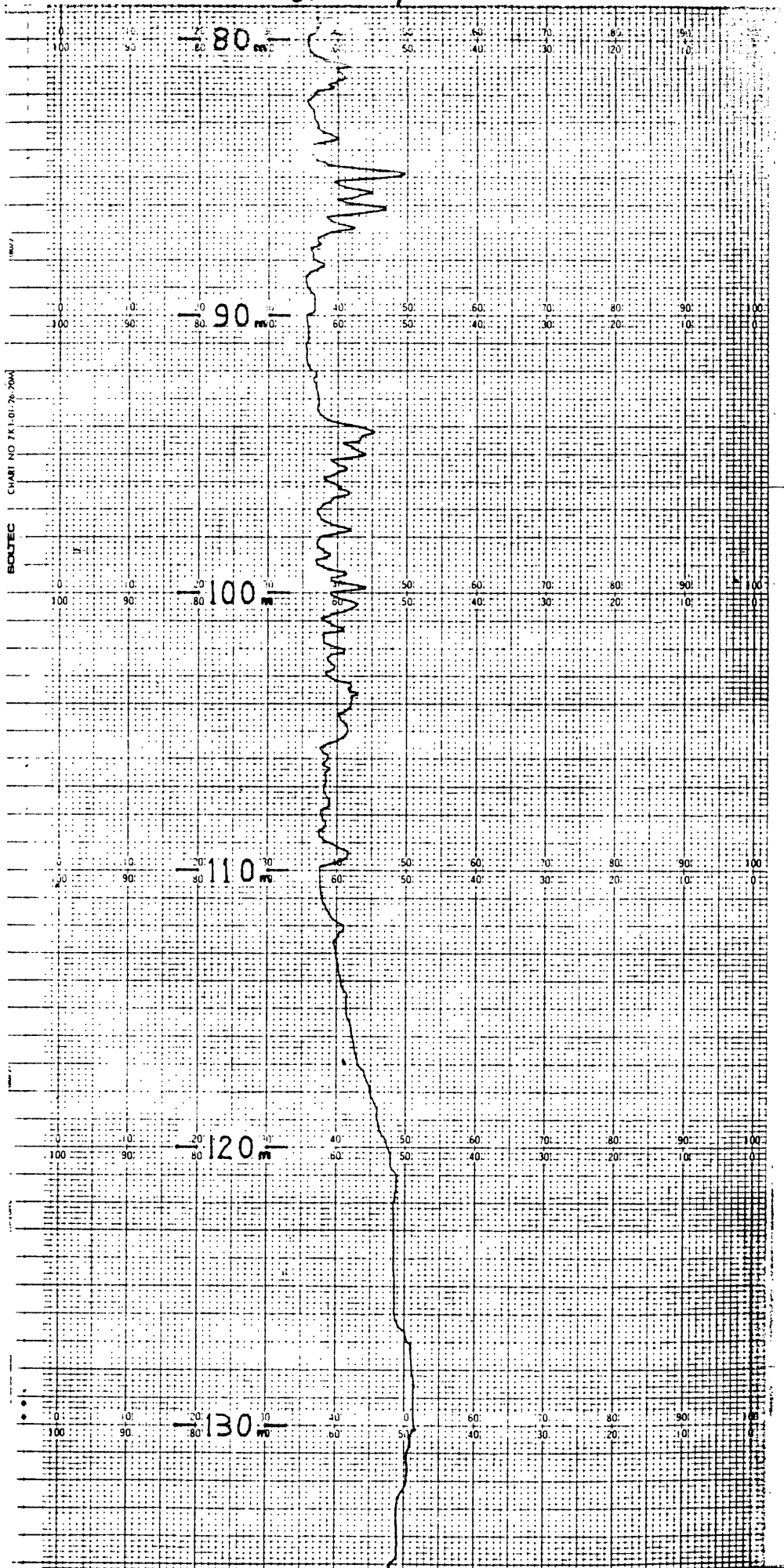
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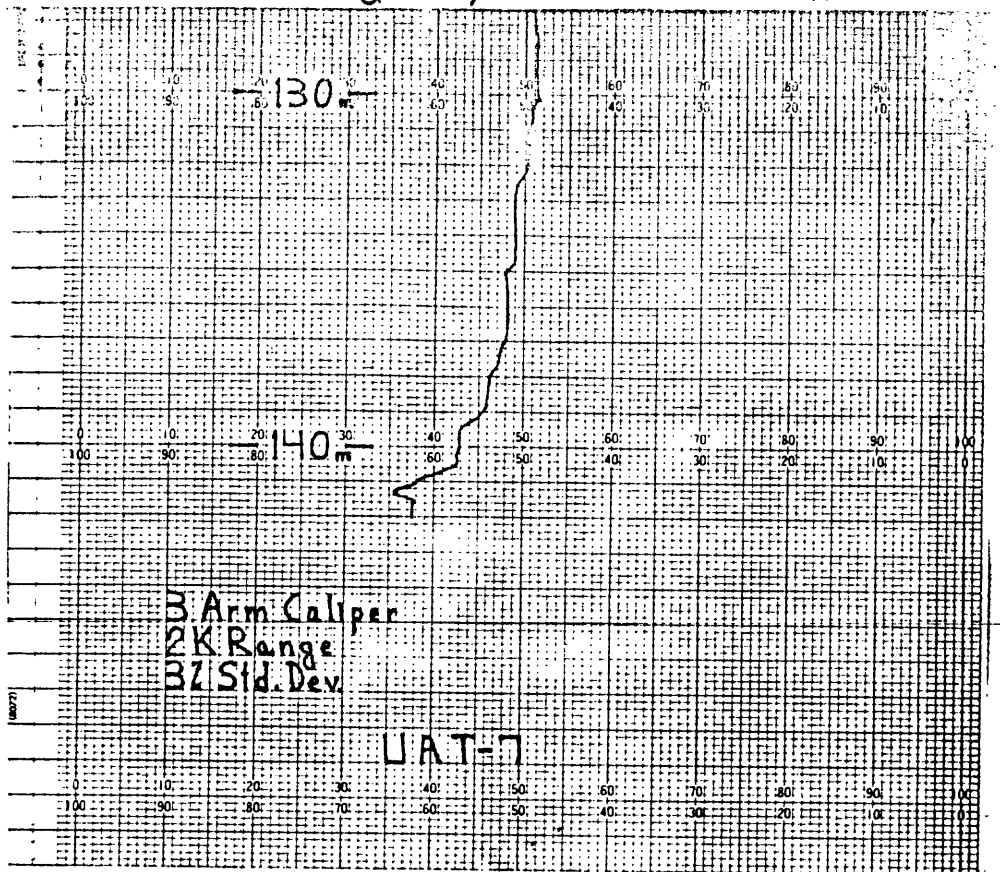
P520





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# GEOSCIENCE ASSOCIATES

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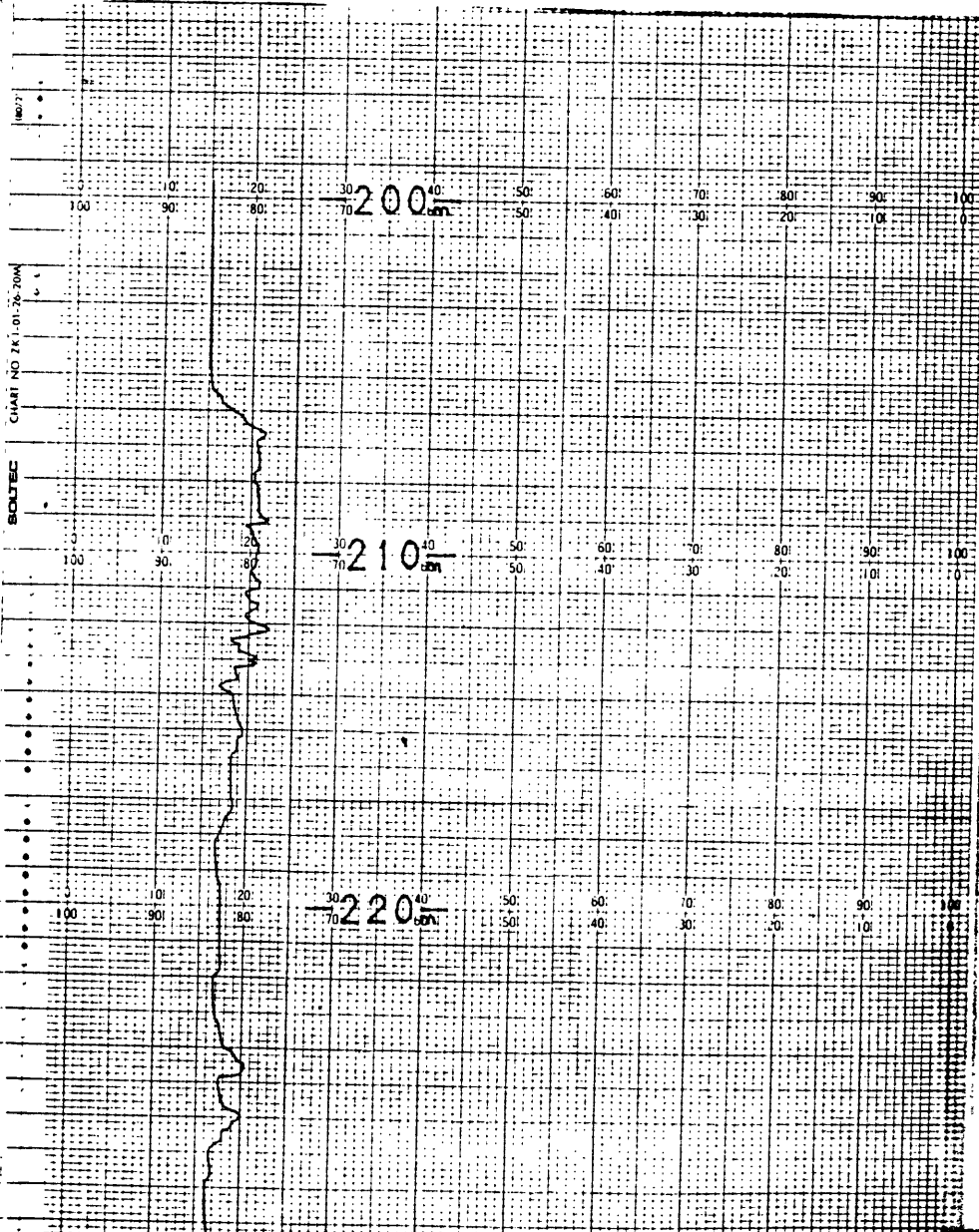
HOLE NUMBER:

UAT-7(R)

DATE:

Feb. 1, 1987

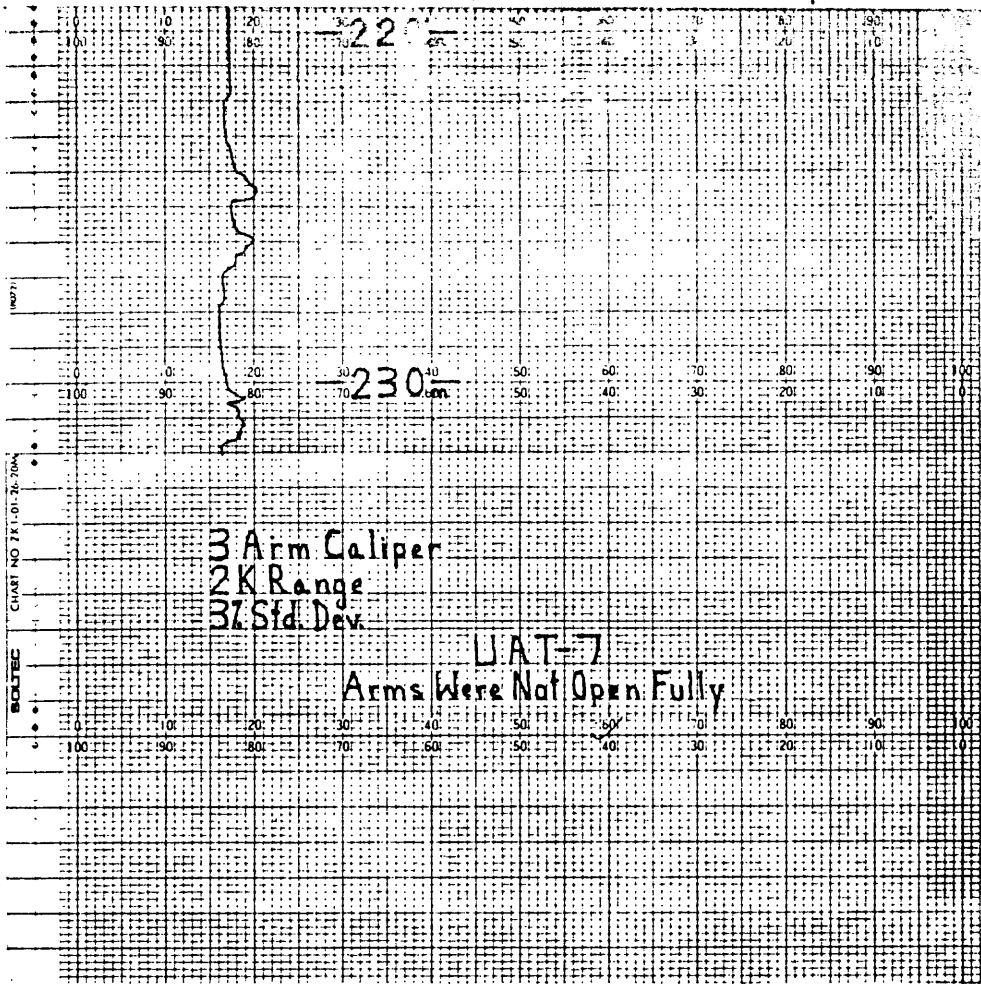
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sind Pakistan		DEPTH DRILLED	245 m		CLIENT	USGS/GSP	
REGION	Thatta		DEPTH LOGGED	232 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	Muzb/Ilhas/Khurshed	
PROSPECT			DIA. See	FROM	TO	UNIT NO.	PL-2	
SEC	TWP.	RNG	DIA. Caliper	FROM	TO	OFFICE	Boulder Colorado USA	
			DIA	FROM	TO	ELECTRIC		
TYPE	GAM		BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH			FLUID LEVEL	0 m		LOGGED DEPTH	FT.	FT.
RANGE (F.S.)			CASING DATA			SCALE		
STD DEV			WALL SIZE	1/4"		PAPER SPEED		
PAPER SPEED			I.D. HW=4" NW=3"			LOG SPEED		
LOG SPEED			CASED FROM	0 TO 205 m		LOG SPEED		
BKGND. COUNT			CASING TYPE	NW HW=58 m		FINE ADJ		
PROBE NO.			SAMPLE DATA					
SIZE (dia.)			NON-CORED HOLE	CORED HOLE				
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME								
STANDARD								
DIGITAL DATA			REMARKS			3 Arm CALIPER		
PRINT INTERVAL						LOGGED DEPTH	232 m	
TIMEBASE						SCALE	4" dia. = 1" Dia	
						PAPER SPEED	1-1	
						LOG SPEED	6-1	
						ARM LENGTH	12	
						MAX DEF.	24	
						VERTICAL DEV.		
DENSITY CALIBRATION						DEPTH		
ALUMINUM						INCLIN.		
LUCITE						BEARING		



DRILL HOLE UAT-8

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# GEOSCIENCE ASSOCIATES

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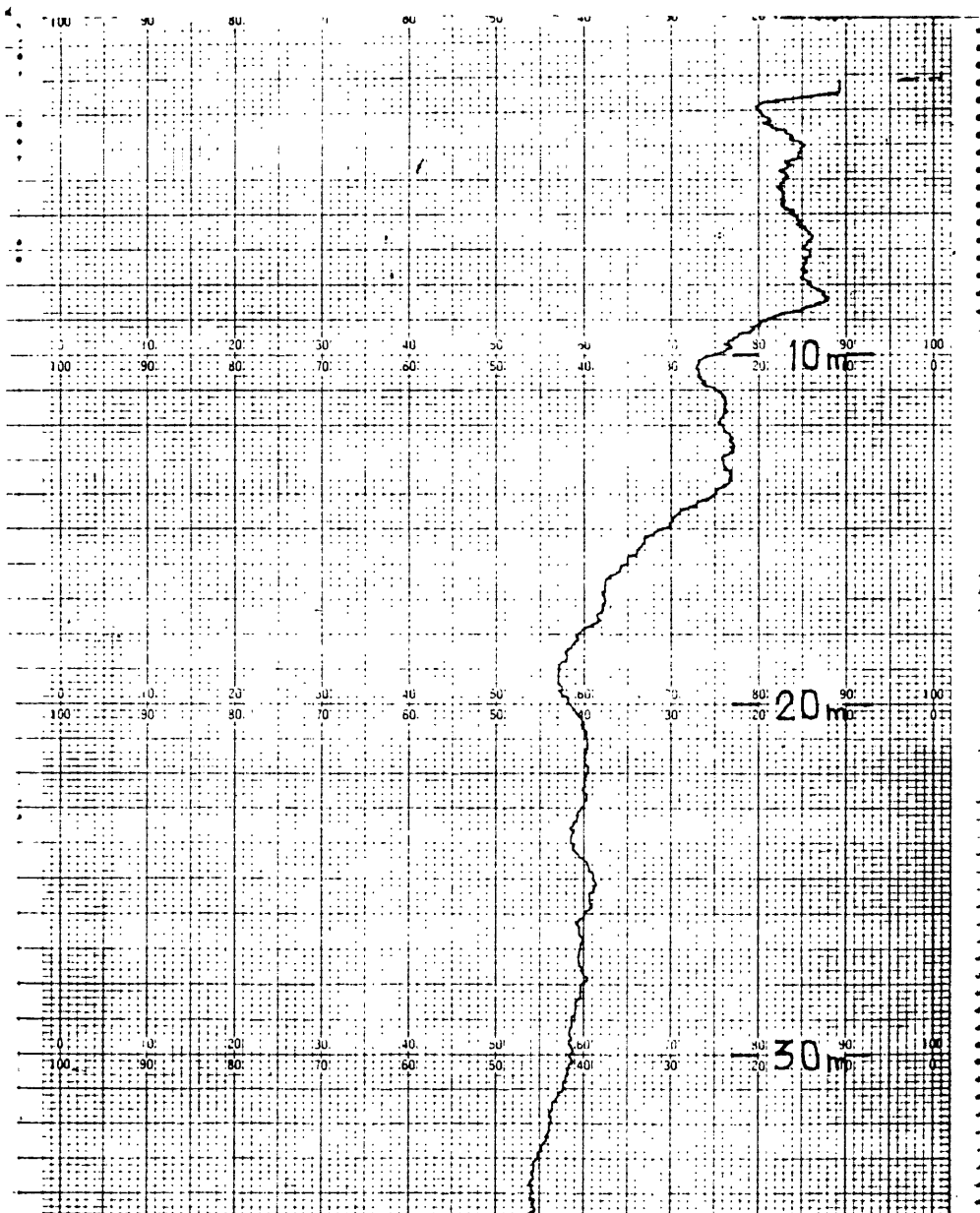
HOLE NUMBER.

UAT-8

DATE:

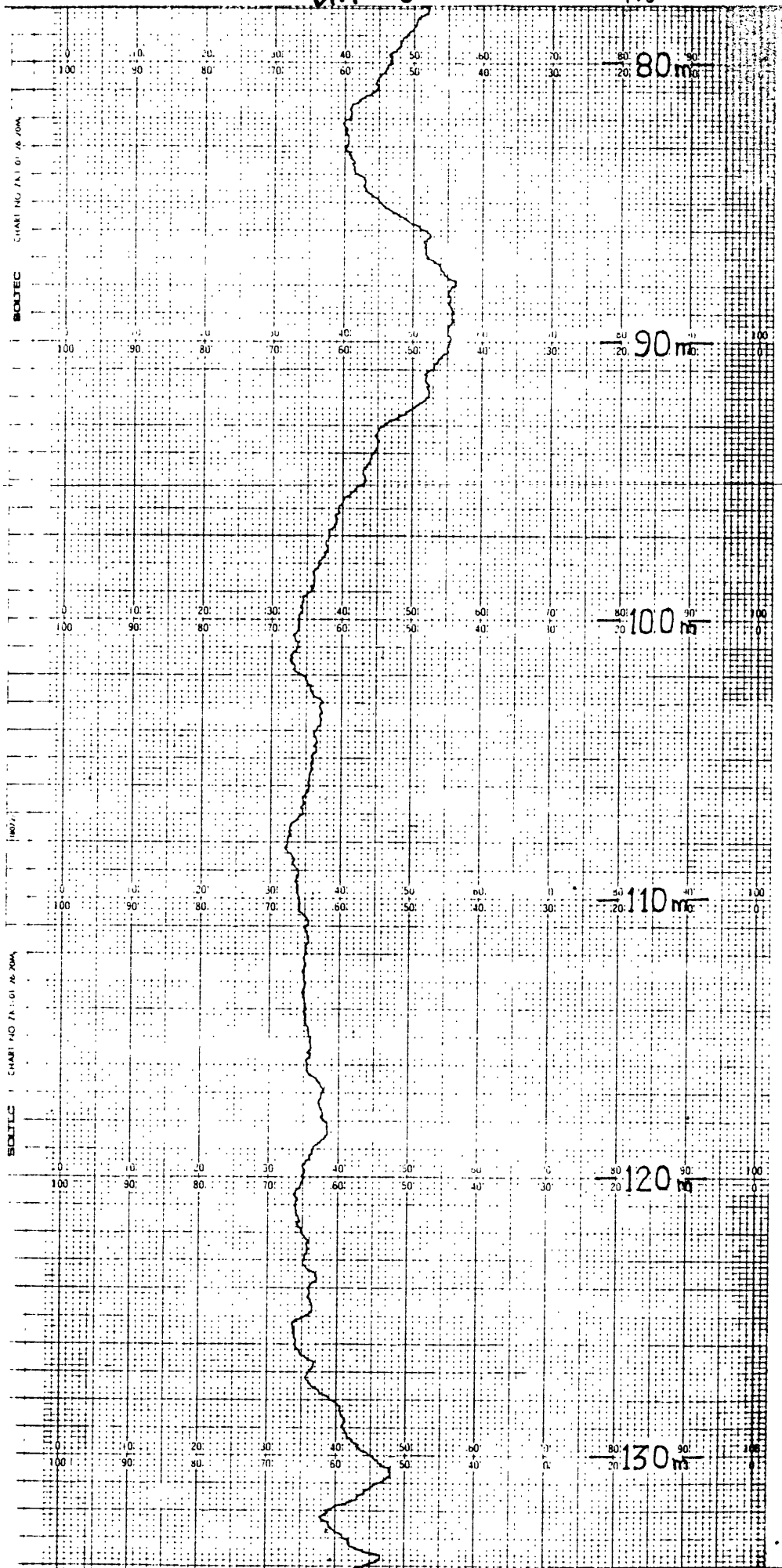
23rd Feb 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	SIND PAKISTAN		DEPTH DRILLED	338 m		CLIENT	U.S. G.S. / G.S.P.	
REGION	THATTA		DEPTH LOGGED	333 m		GEOLOGIST		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR	Mujeeb / MENTAD	
PROSPECT			DIA Sec	FROM	TO	UNIT NO	PL-2	OFFICE
SEC	TWP	RNG	DIA Caliper	FROM	TO	BOULDER COLORADO U.S.A.		
			DIA Log	FROM	TO	ELECTRIC		
TYPE	OAM	4A dms	BOREHOLE MEDIUM	H <sub>2</sub> O + mud				
LOGGED DEPTH	333m		FLUID LEVEL					
RANGE (ft)	10K		CASING DATA					
STD DEV	1%		WALL SIZE	1/4"				
PAPER SPEED	1-1		ID NW = 3"	HW = 4"				
LOG SPEED	6-1		CASED FROM	See remarks				
BKGD. COUNT			CASING TYPE	HW and NW				
PROBE NO	40-		SAMPLE DATA					
SIZE (in)	1 3/4		NON-CORED HOLE	CORED HOLE X				
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME	2							
STANDARD								
DIGITAL DATA			REMARKS					
PRINT INTERVAL			Logged through drill pipe					
TIMEBASE			and casing					
DENSITY CALIBRATION			Drill pipe ID = 2 3/4"					
ALUMINUM			N.W. Cased from 0 to 233m					
LUCITE			H.W. Cased from 0 to 181m					
						CALIPER		
						LOGGED DEPTH FT.		
						SCALE		
						PAPER SPEED		
						LOG SPEED		
						ARM LENGTH IN		
						MAX DEF IN		
						VERTICAL DEV.		
						DEPTH		
						INCLIN		
						BEARING		



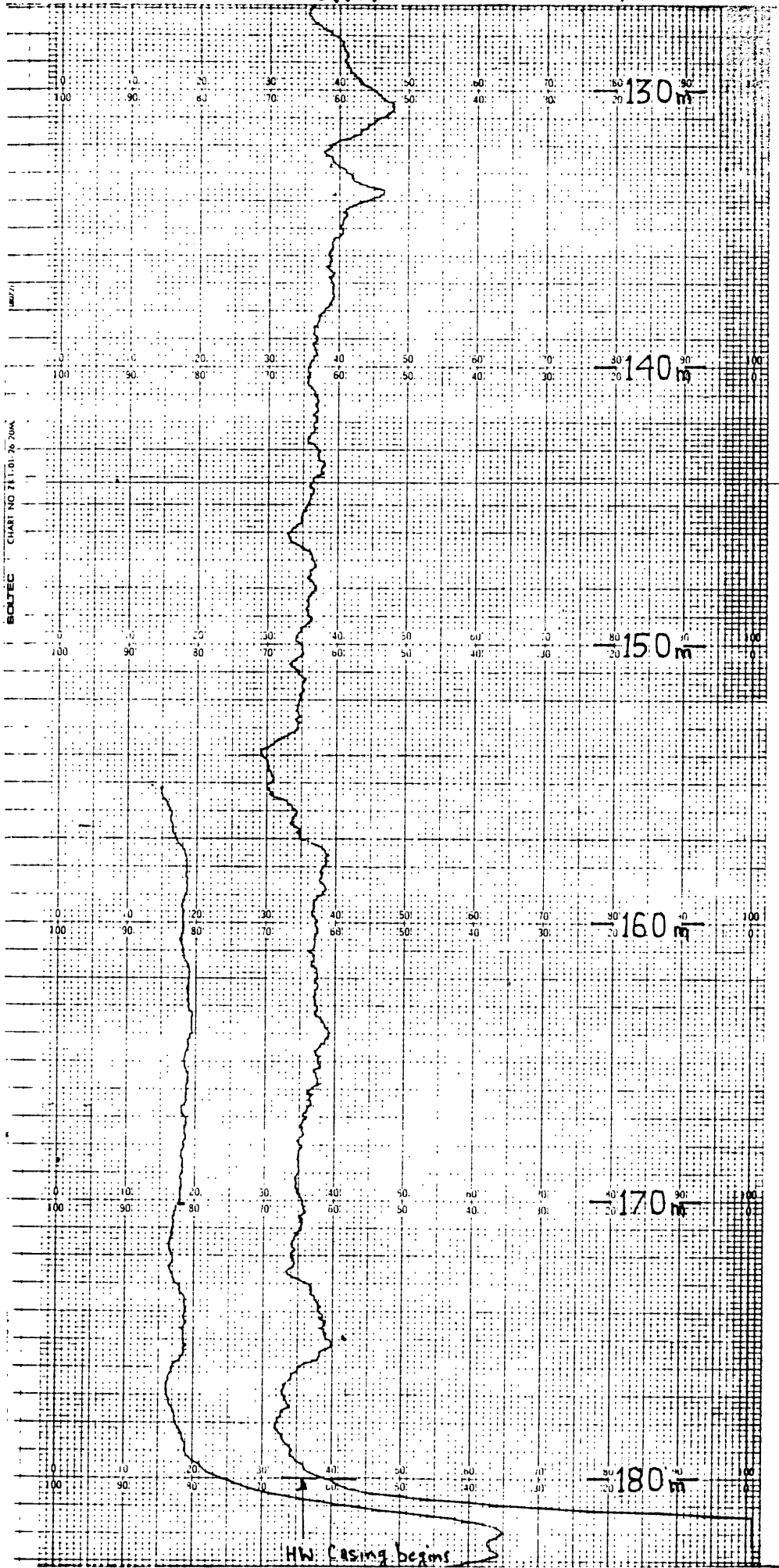
UAT-8

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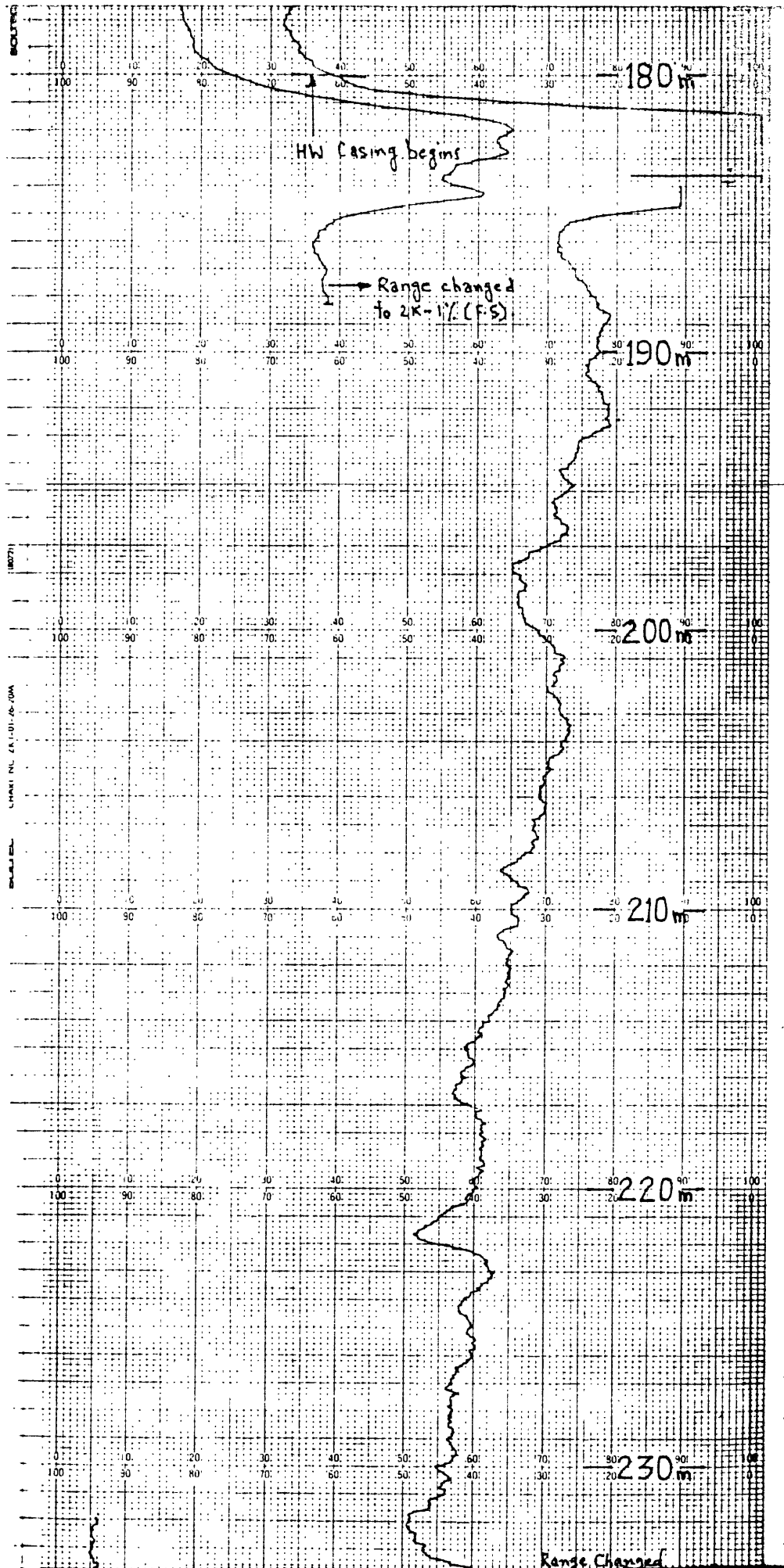
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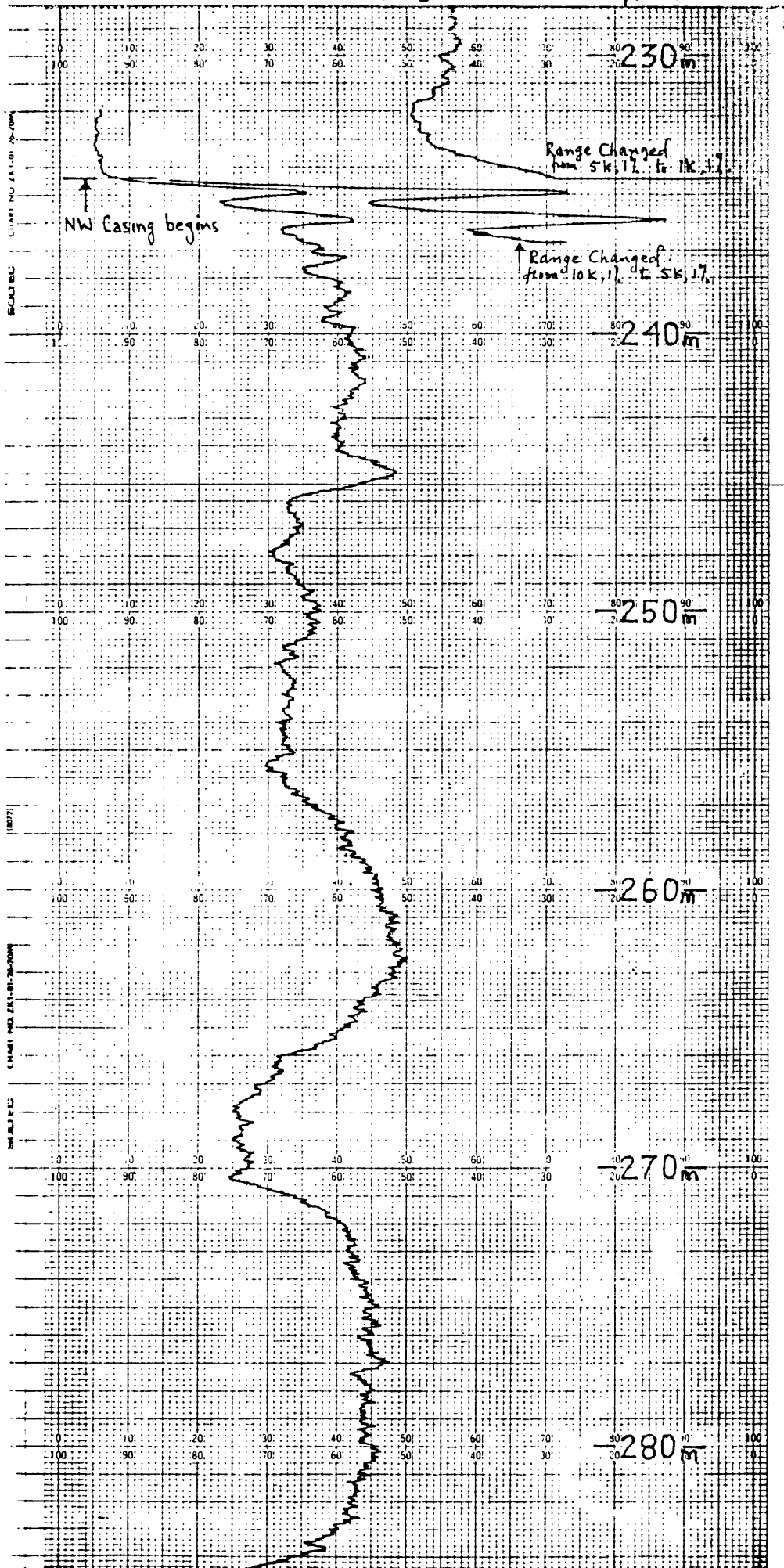
K52)





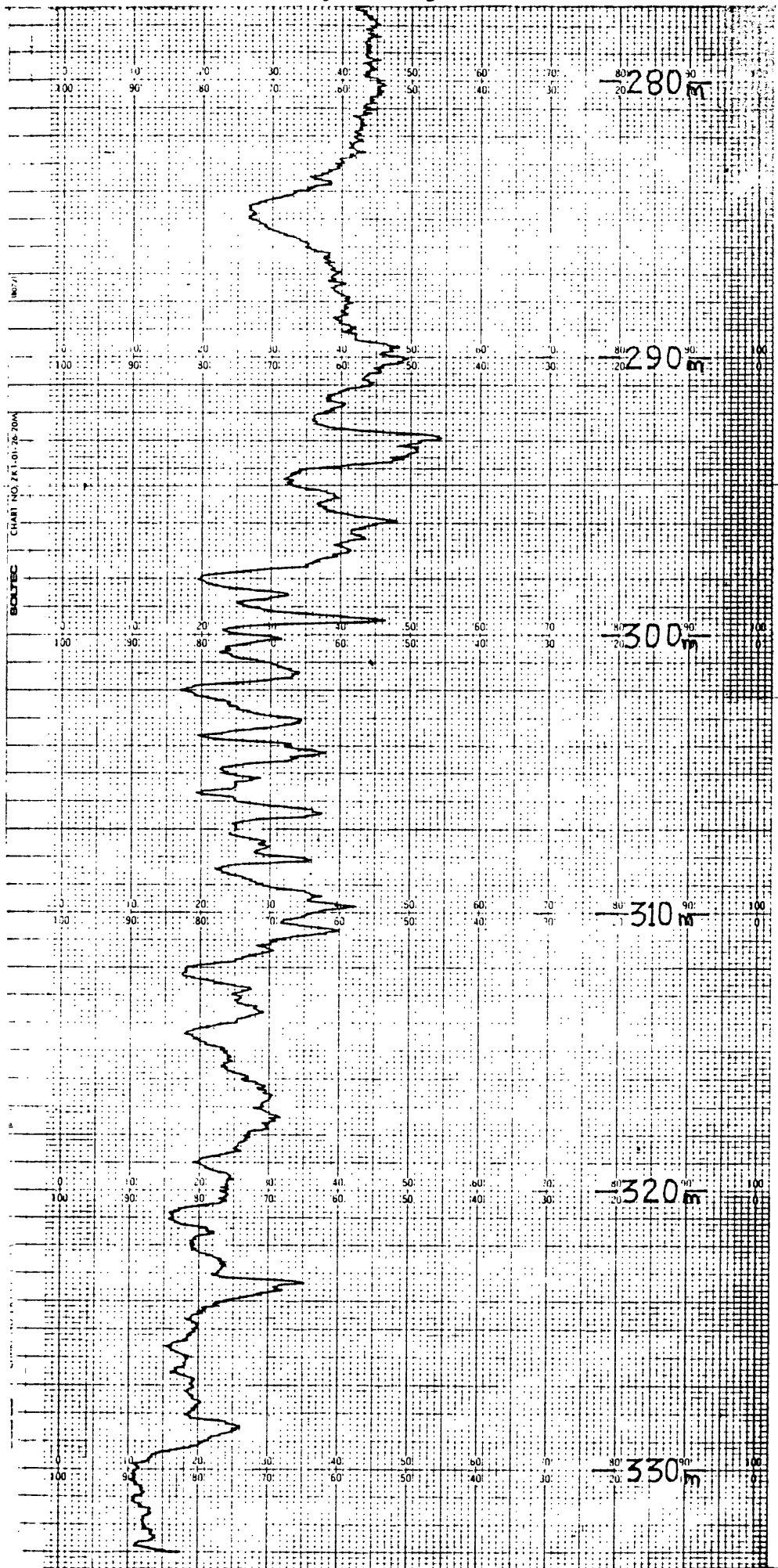
UAT-8

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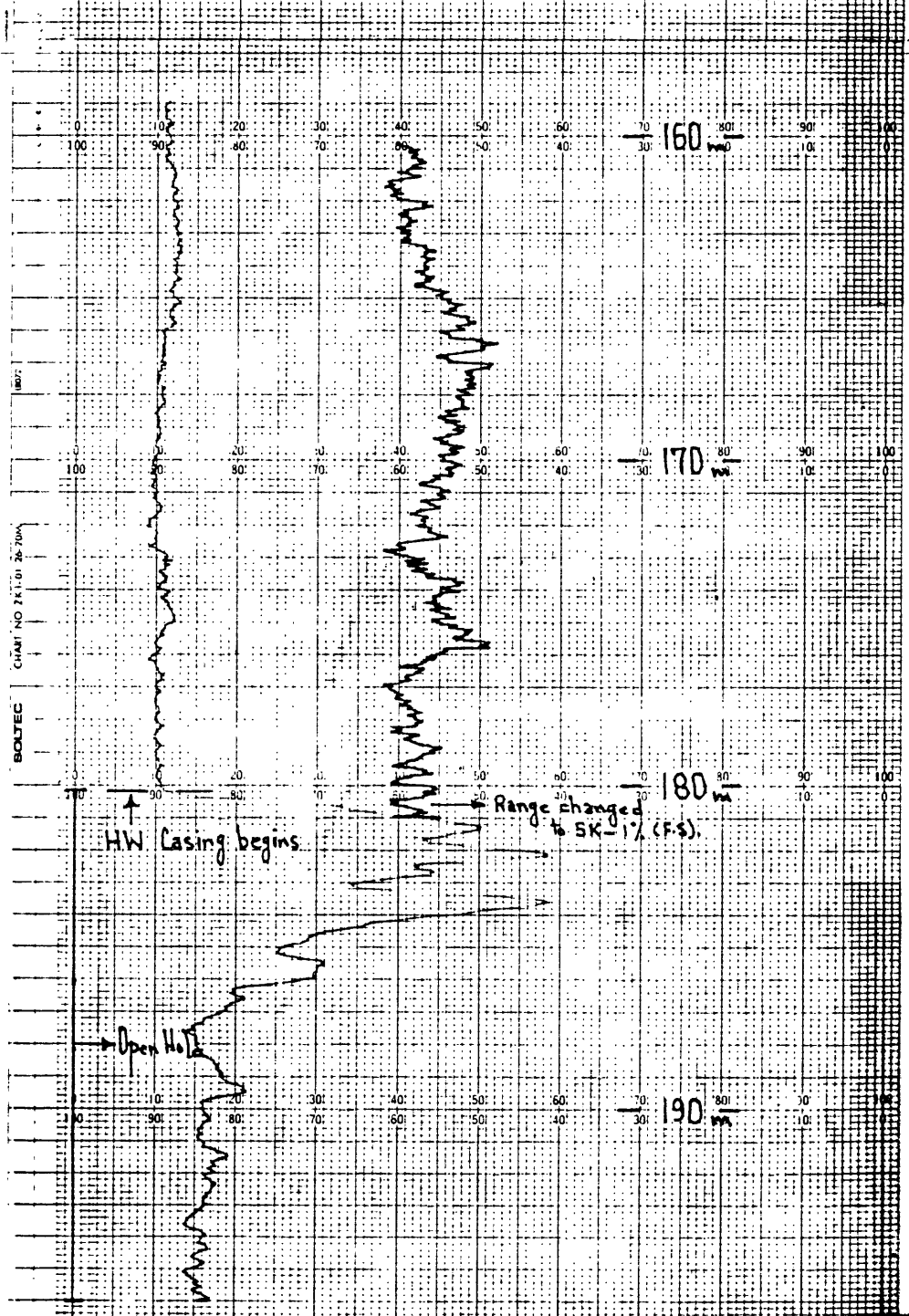
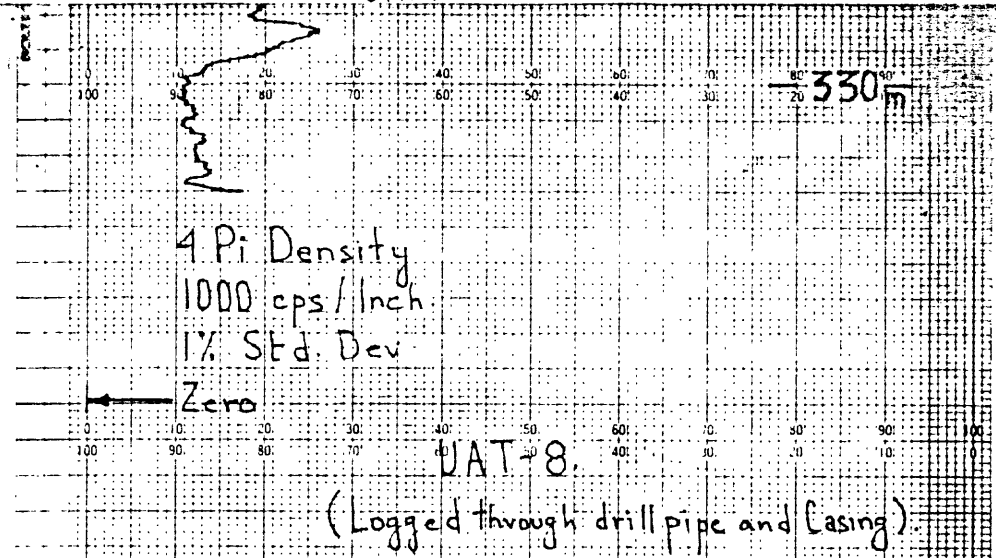
UAI-8

P.529



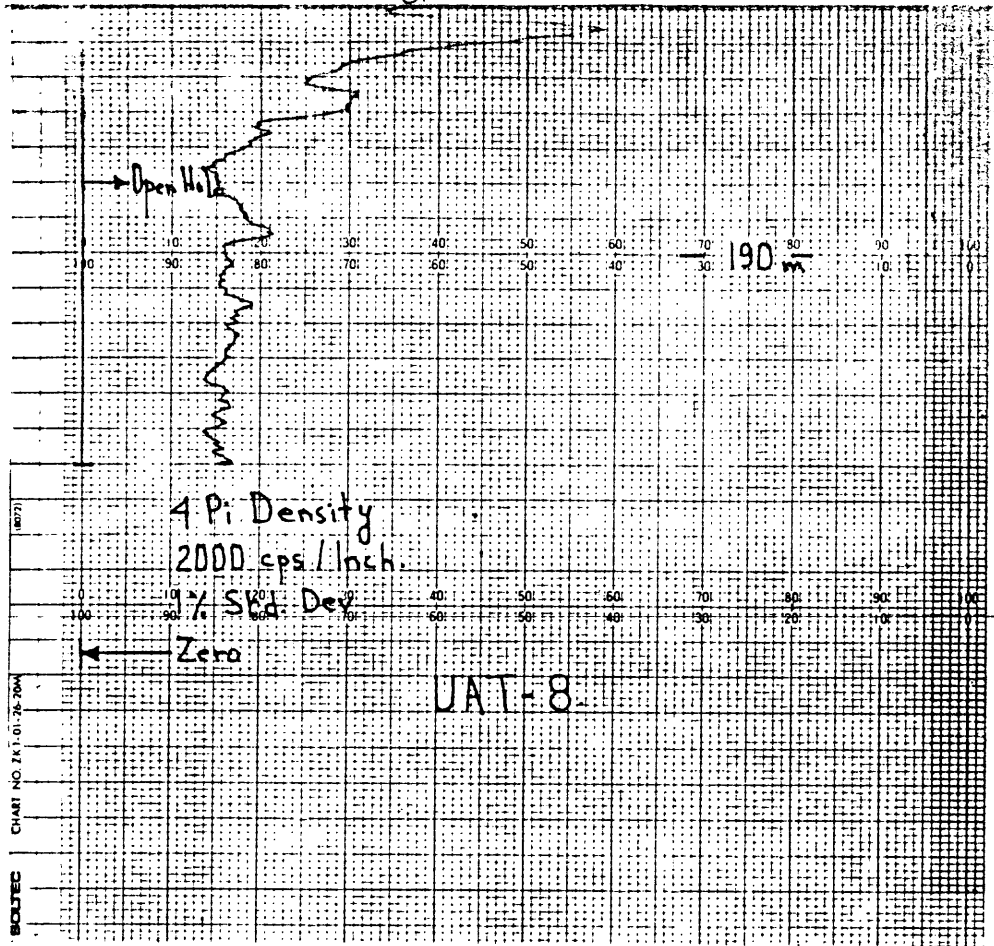
UAT-8

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R531





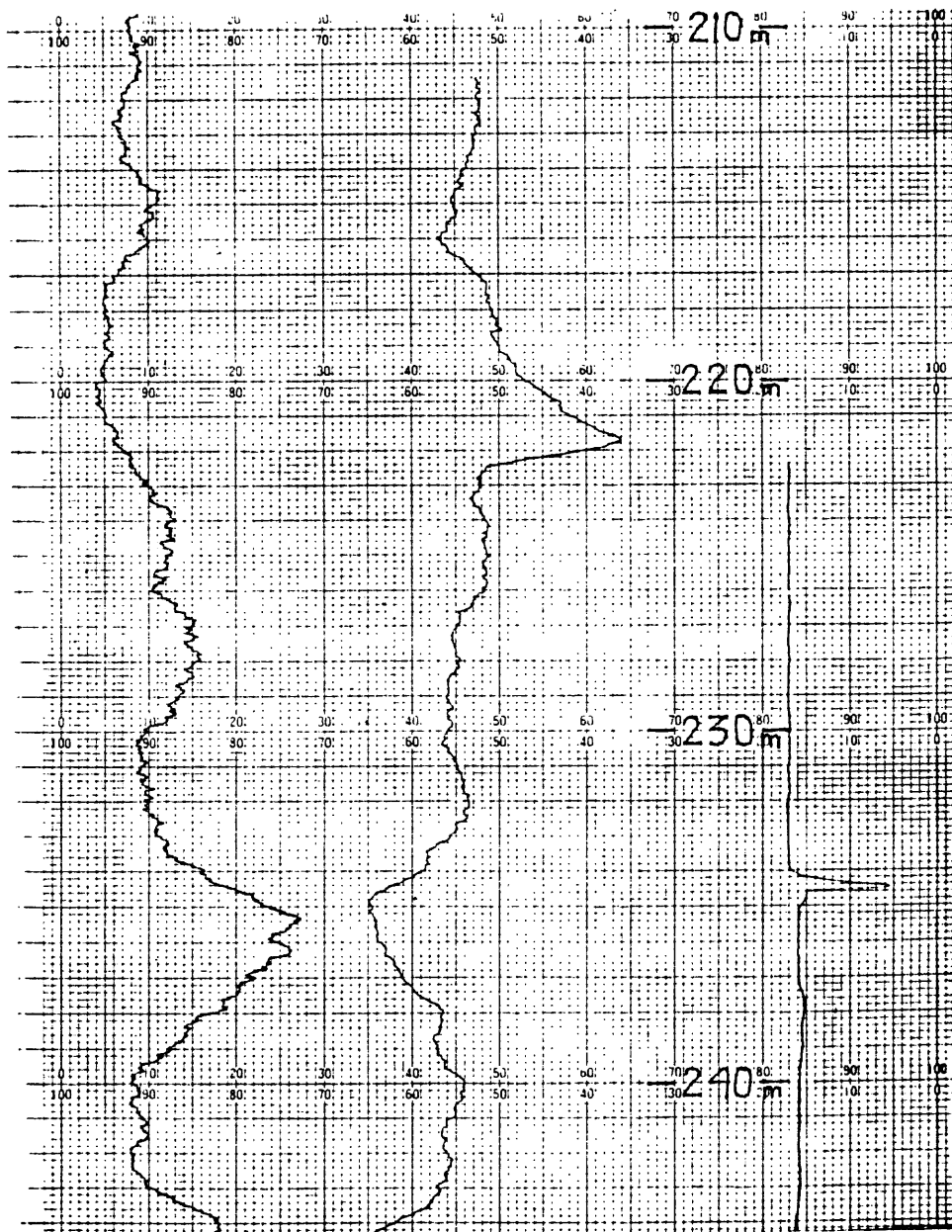
# GEOSCIENCE ASSOCIATES P532

HOLE NUMBER:

U.A.T-8

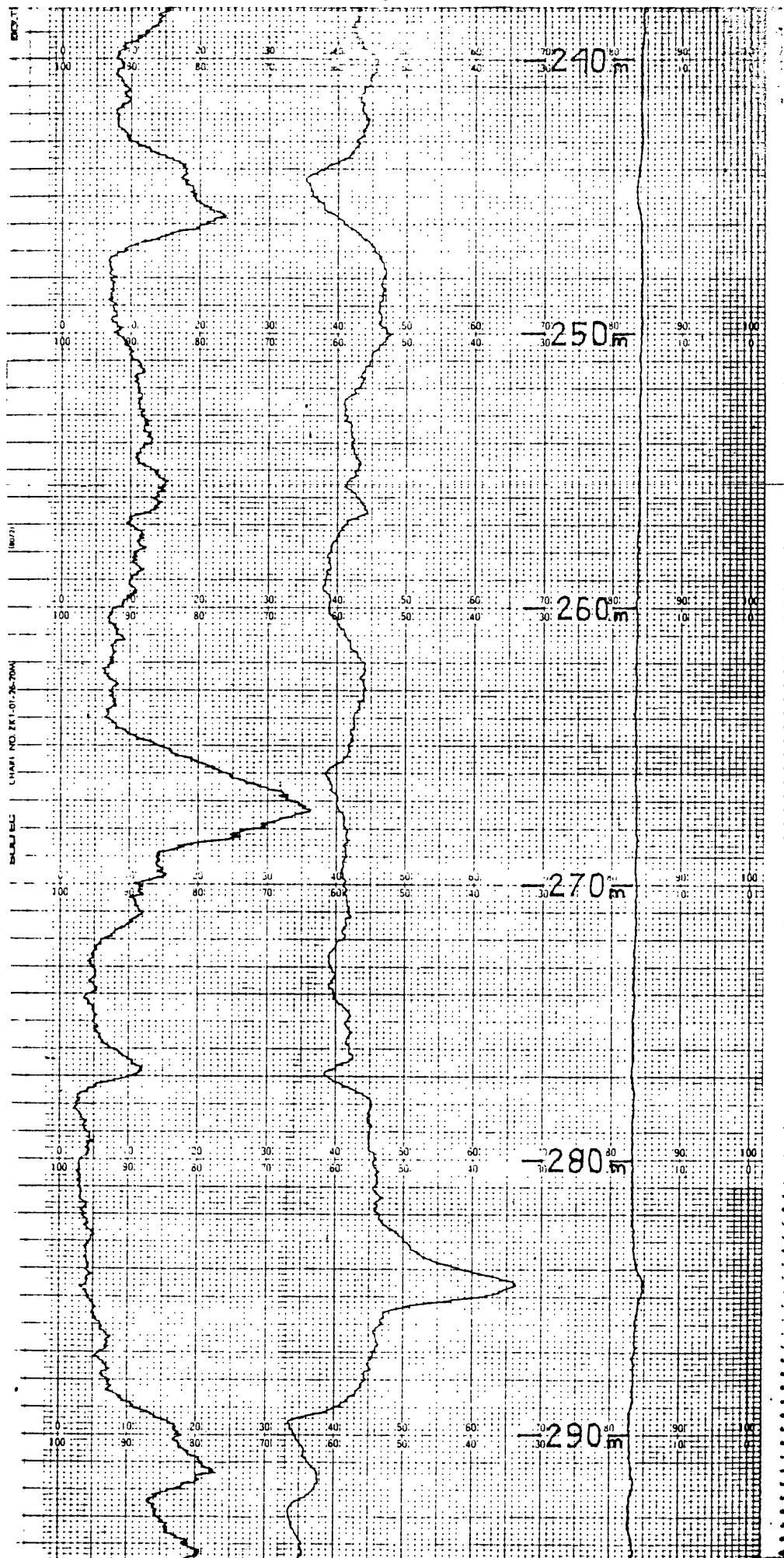
DATE: 23rd February, 1987.

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sind	Pakistan	DEPTH DRILLED	338 m	CLIENT	U.S.G.S. - G.S.P.
REGION	THALIA		DEPTH LOGGED	332 m	GEOLOGIST	
PROJECT	COAL REAP.		COLLAR ELEV		UNIT OPERATOR	MEHTAG/MUSIB
PROSPECT			DIA	See FROM TO	UNIT NO	PL-2 OFFICE
SEC	TWP	RNG	DIA	Caliper FROM TO	BOULDER COLORADO	U.S.A.
			DIA	103 FROM TO	ELECTRIC	
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + Mvd.		
LOGGED DEPTH	330m	332m	FLUID LEVEL		TYPE	RESIST SP
RANGE (I.S.)	100	500			LOGGED DEPTH	330m
STD DEV	3 1/2	1 1/2	CASING DATA		SCALE	10
PAPER SPEED	1	1	WALL SIZE	1 1/4"	PAPER SPEED	1
LOG SPEED	6-1	6-1	ID NW = 3" HW = 4"		LOG SPEED	6-1
BKGD COUNT			CASED FROM See Remarks		FINE ADJ.	1000 Bias
PROBE NO	6N-1	6N-1	CASING TYPE	HW and NW		
SIZE (dia)	1 3/4	1 3/4	SAMPLE DATA			
K-FACTOR			NON-CORED HOLE	CORED HOLE		
DEAD TIME	2	2	SAMPLED INTERVAL	SAMPLE TYPE		
STANDARD						
DIGITAL DATA			REMARKS		CALIPER	
PRINT INTERVAL			NW Cased from 0-233 m		LOGGED DEPTH	
TIMEBASE			HW Cased from 0-181 m		SCALE	
					PAPER SPEED	
					LOG SPEED	
					ARM LENGTH	
					MAX DEP.	
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN	
					BEARING	

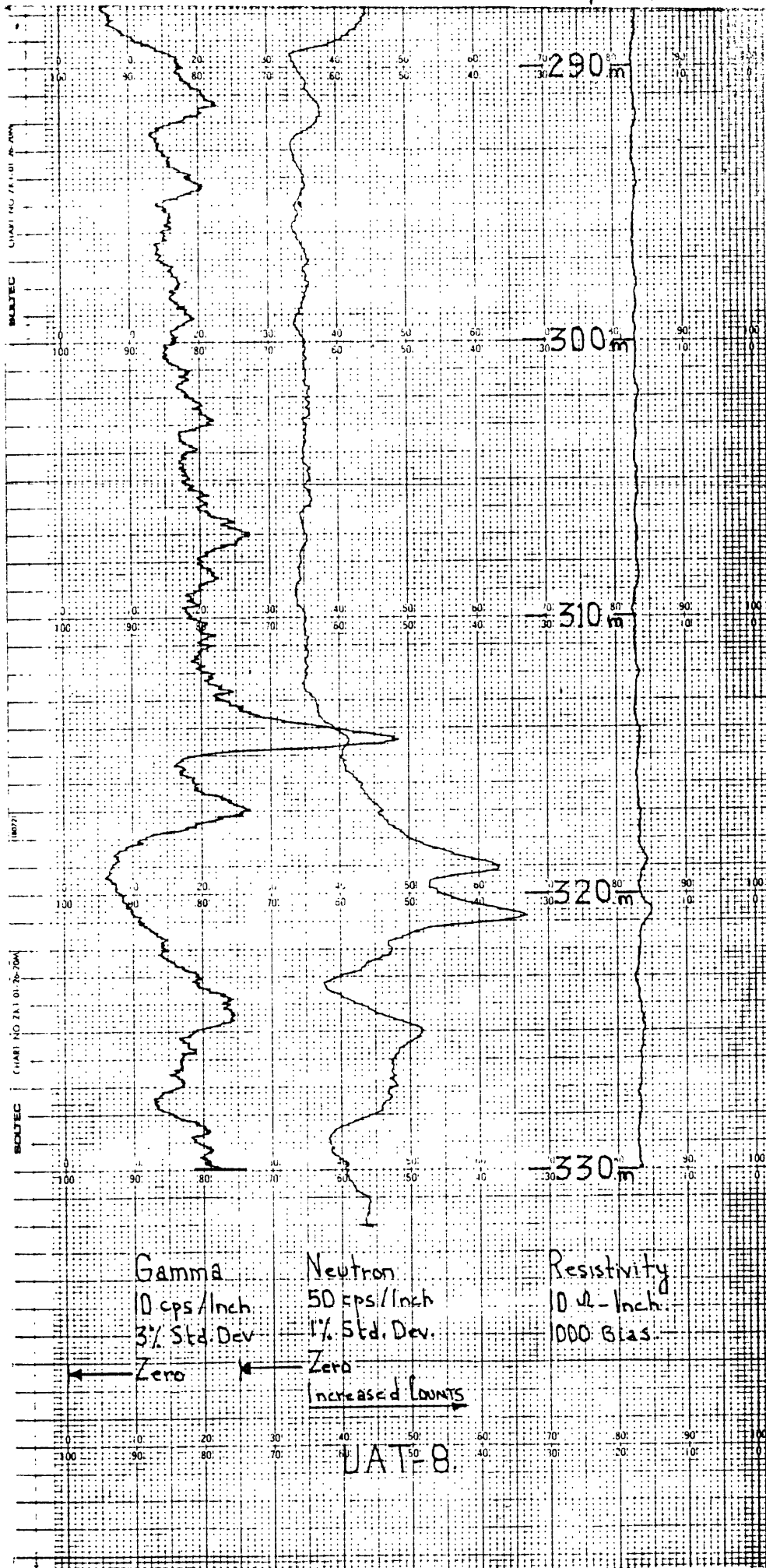


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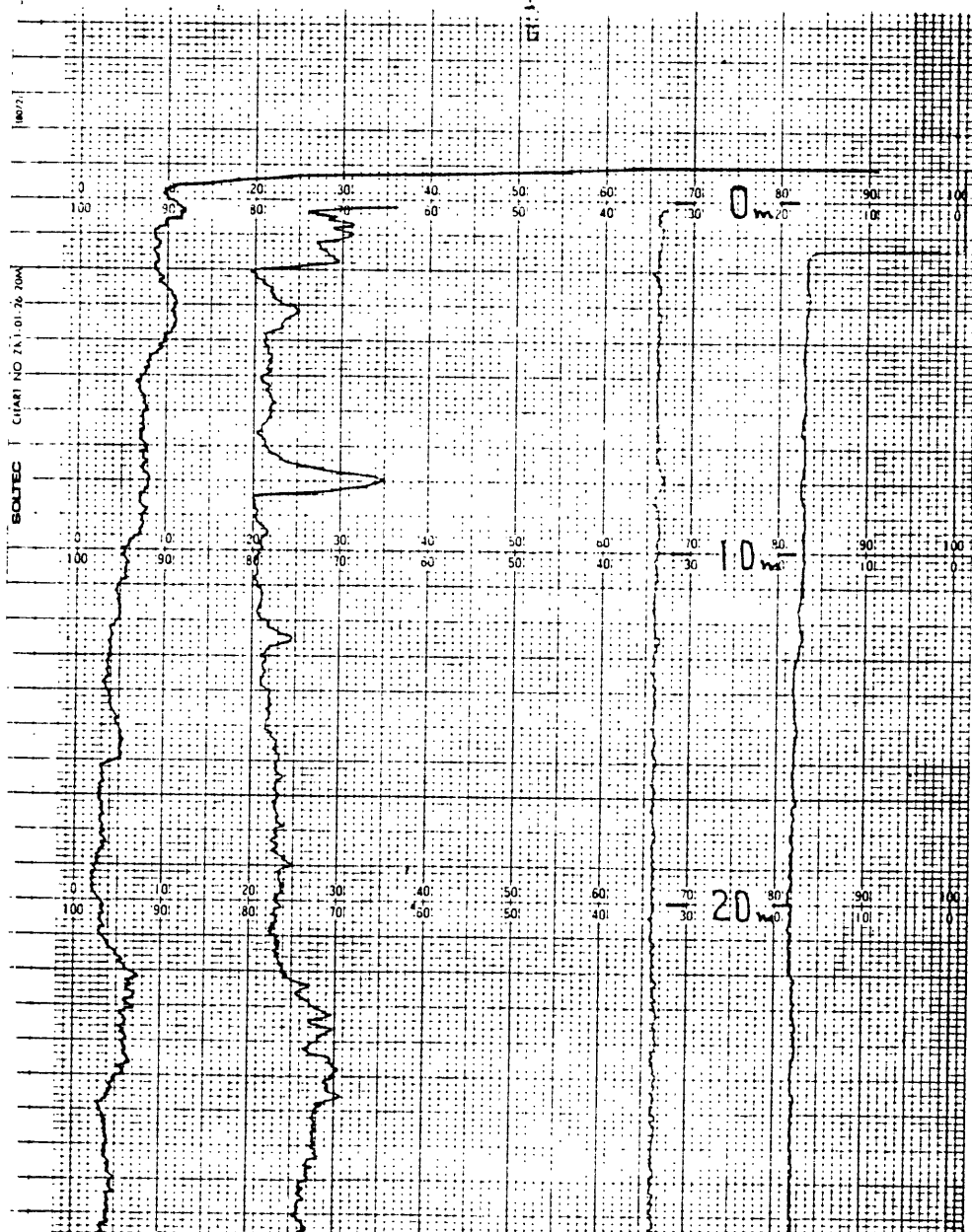
# GEOSCIENCE ASSOCIATES

HOLE NUMBER:

U.A.T-8

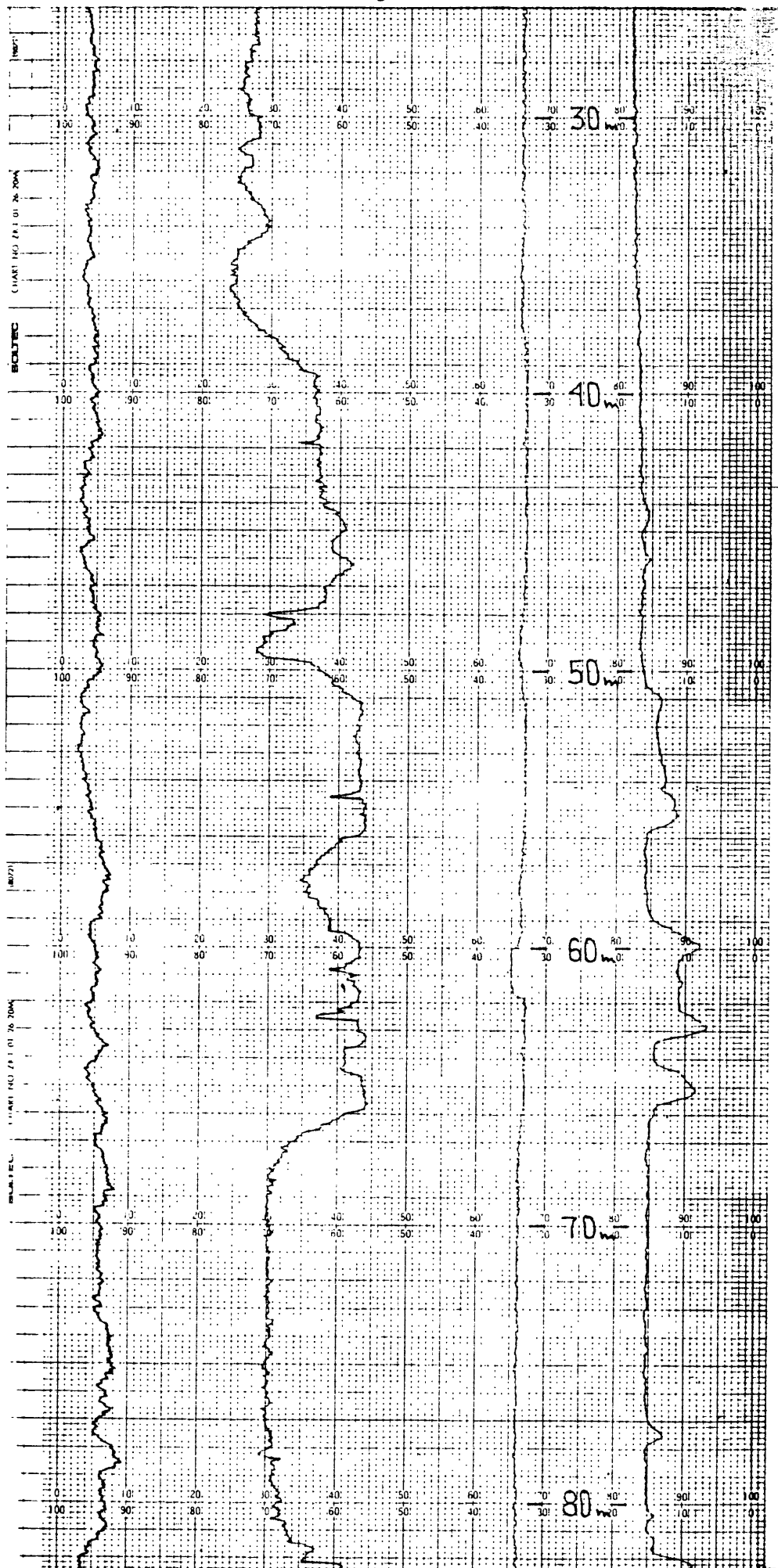
DATE: 24th February 1987

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY	Sind Pakistan		DEPTH DRILLED	338m	CLIENT	J.S.G.S. G.S.P.
REGION	HATTA		DEPTH LOGGED	105m	GEOLOGIST	
PROJECT	COAL REAP		COLLAR ELEV		UNIT OPERATOR	MENTAG / MUSIG
PROSPECT			UIA	See FROM TO	UNIT NO	PL-2 OFFICE
SEC	TWP	RNG	DIA	Caliper FROM TO	BOULDER COLORADO	U.S.A.
			DIA	log FROM TO	ELECTRIC	
TYPE	GAM	HRD	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		
LOGGED DEPTH	104m	105m	FLUID LEVEL			
RANGE (1/8")	100	200	CASING DATA			
STD DEV	3/4	1/4	WALL SIZE			
PAPER SPEED	1-1	1-1	ID			
LOG SPEED	3-1	3-1	CASED FROM	TO		
BKGD COUNT			CASING TYPE			
PROBE NO	HRD-1	HRD-1	SAMPLE DATA			
SIZE (1/8")	2	2	NON-CORED HOLE	CORED HOLE		
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		
DEAD TIME	2	2	REMARKS			
STANDARD						
DIGITAL DATA						
PRINT INTERVAL						
TIMEBASE						
DENSITY CALIBRATION						
ALUMINUM						
LUCITE						
			CALIPER			
			LOGGED DEPTH			
			SCALE			
			PAPER SPEED			
			LOG SPEED			
			ARM LENGTH			
			MAX DEF			
			VERTICAL DEV.			
			DEPTH			
			INCLIN			
			BEARING			



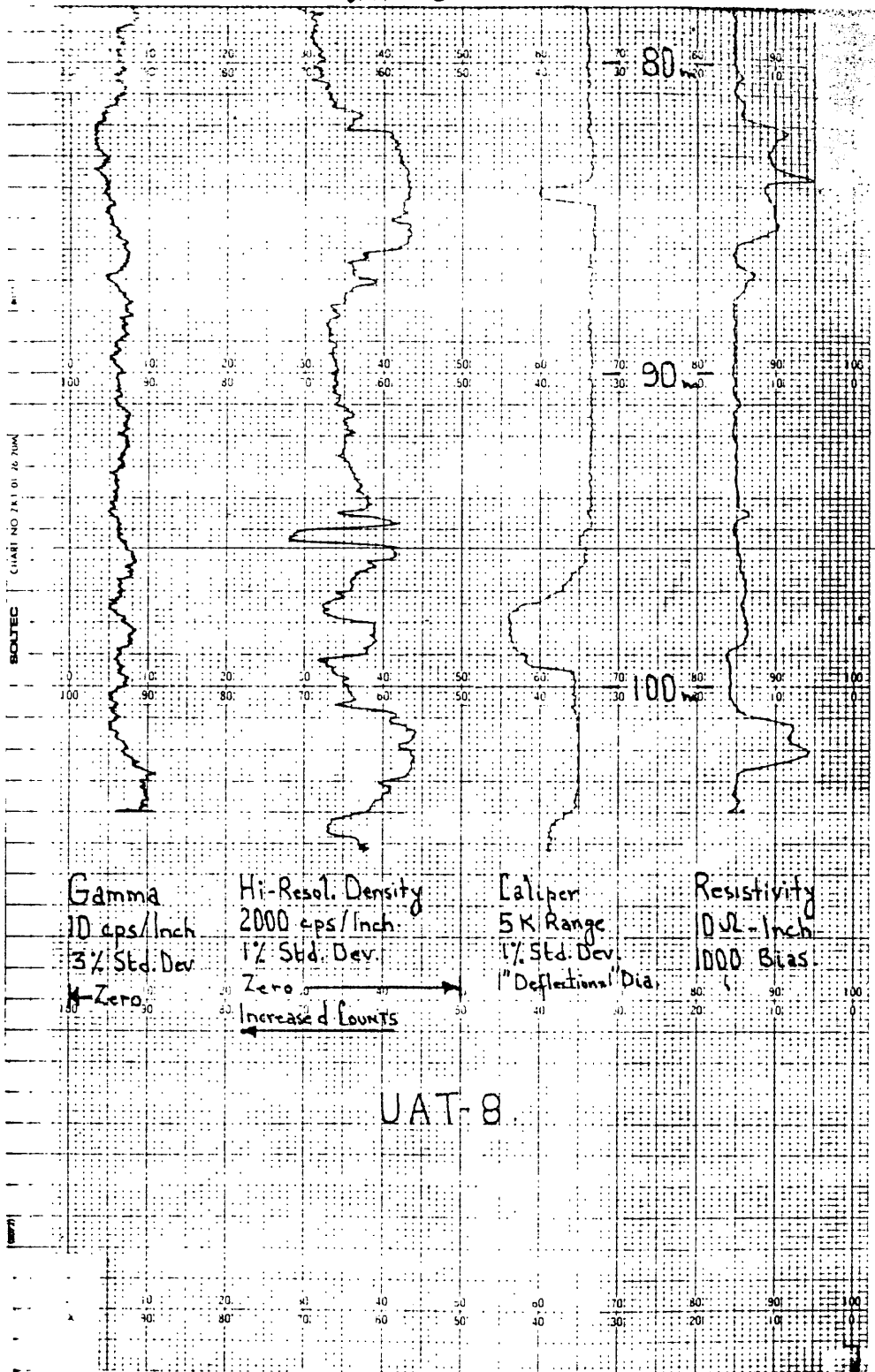


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# GEOSCIENCE ASSOCIATES

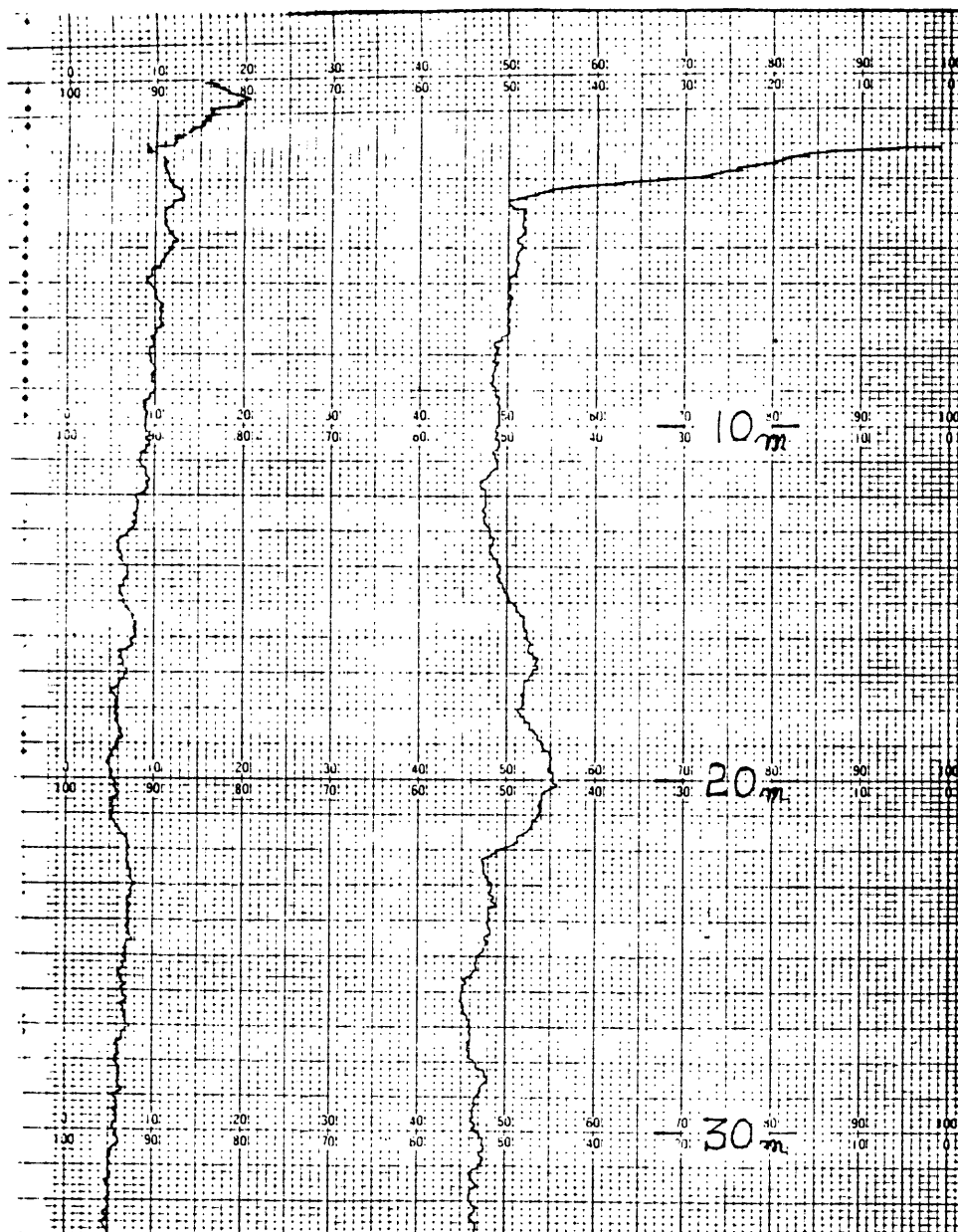
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HOLE NUMBER:

U.A.T-8

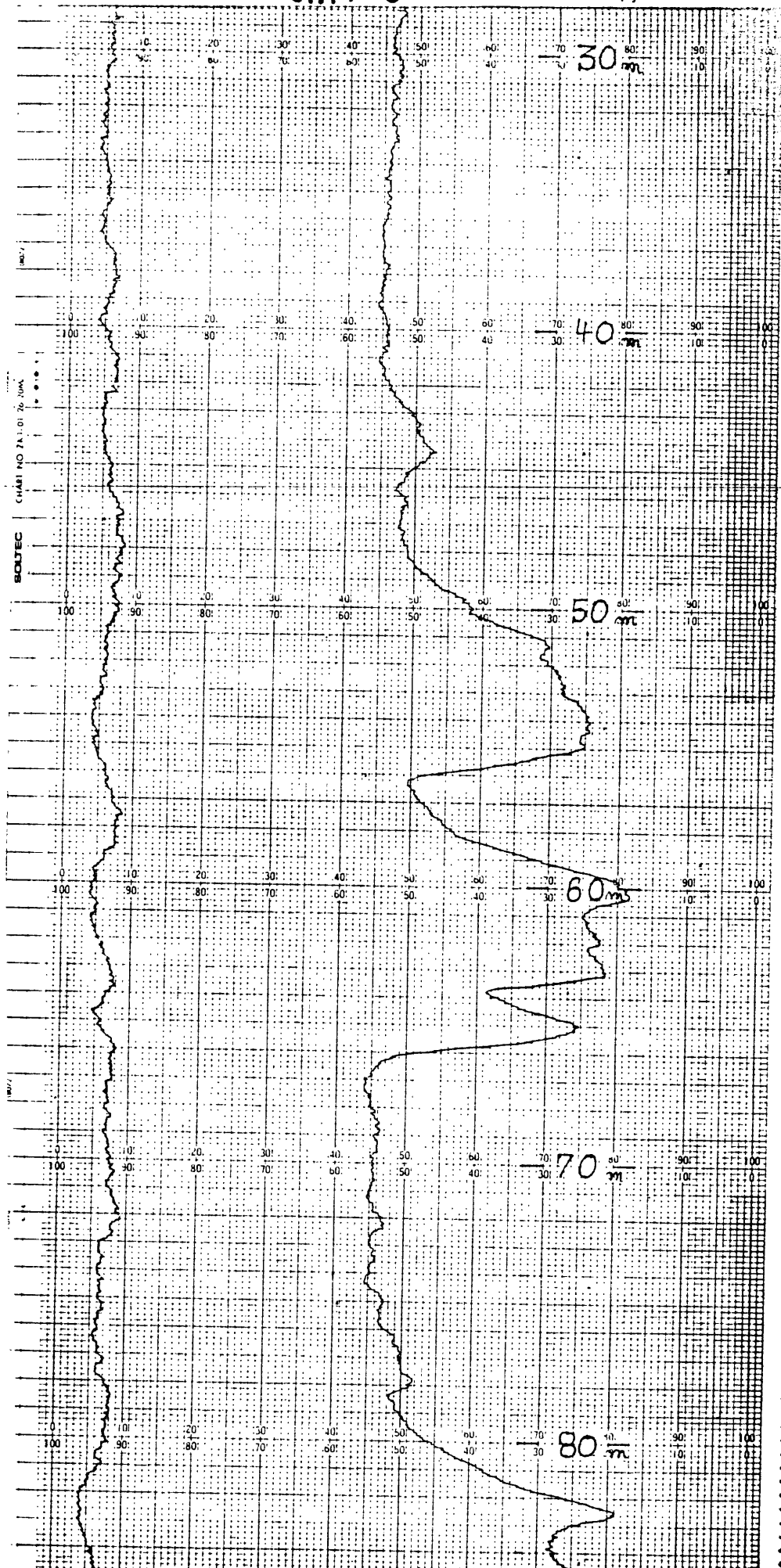
DATE: 23rd Feb. 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY SIND PAKISTAN			DEPTH DRILLED: 338 m			CLIENT U.S. G.S. / G.S.P.		
REGION THAITA			DEPTH LOGGED 333 m			GEOLOGIST		
PROJECT COAL REAP			COLLAR ELEV			UNIT OPERATOR MUJEEB / MENTAB		
PROSPECT			DIA See FROM TO			UNIT NO. PL-2 OFFICE		
SEC TWP RRG			DIA Calip FROM TO			BOULDER COLORADO USA		
			DIA 6.1 FROM TO			ELECTRIC		
TYPE			BOREHOLE MEDIUM H <sub>2</sub> O + mud			TYPE		
LOGGED DEPTH 331 m			FLUID LEVEL			RESIST		
RANGE (11.5)			CASING DATA			S.P.		
STO DEV 37			WALL SIZE 1 1/4"			LOGGED DEPTH		
PAPER SPEED 1-1			ID HW 3" HW 4"			SCALE		
LOG SPEED 6-1			CASED FROM See remarks to			PAPER SPEED		
BKGND. COUNT			CASING TYPE HW and NW			LOG SPEED		
PROBE NO. G-1			SAMPLE DATA			FINE ADJ		
SIZE (1018) 1 3/4			NON CORED HOLE			LOGGED DEPTH		
K-FACTOR			CORED HOLE			SCALE		
DEAD TIME 2			SAMPLED INTERVAL			PAPER SPEED		
STANDARD			SAMPLE TYPE			LOG SPEED		
DIGITAL DATA			REMARKS			ARM LENGTH		
PRINT INTERVAL			logged through drill pipe			MAX DEF		
TIMEBASE			and casing			VERTICAL DEV.		
DENSITY CALIBRATION			Drill pipe I.P. 2 3/4"			DEPTH		
ALUMINUM			NW Cased from 0 to 233 m			INCLIN		
LUCITE			HW Cased from 0 to 181 m			BEARING		



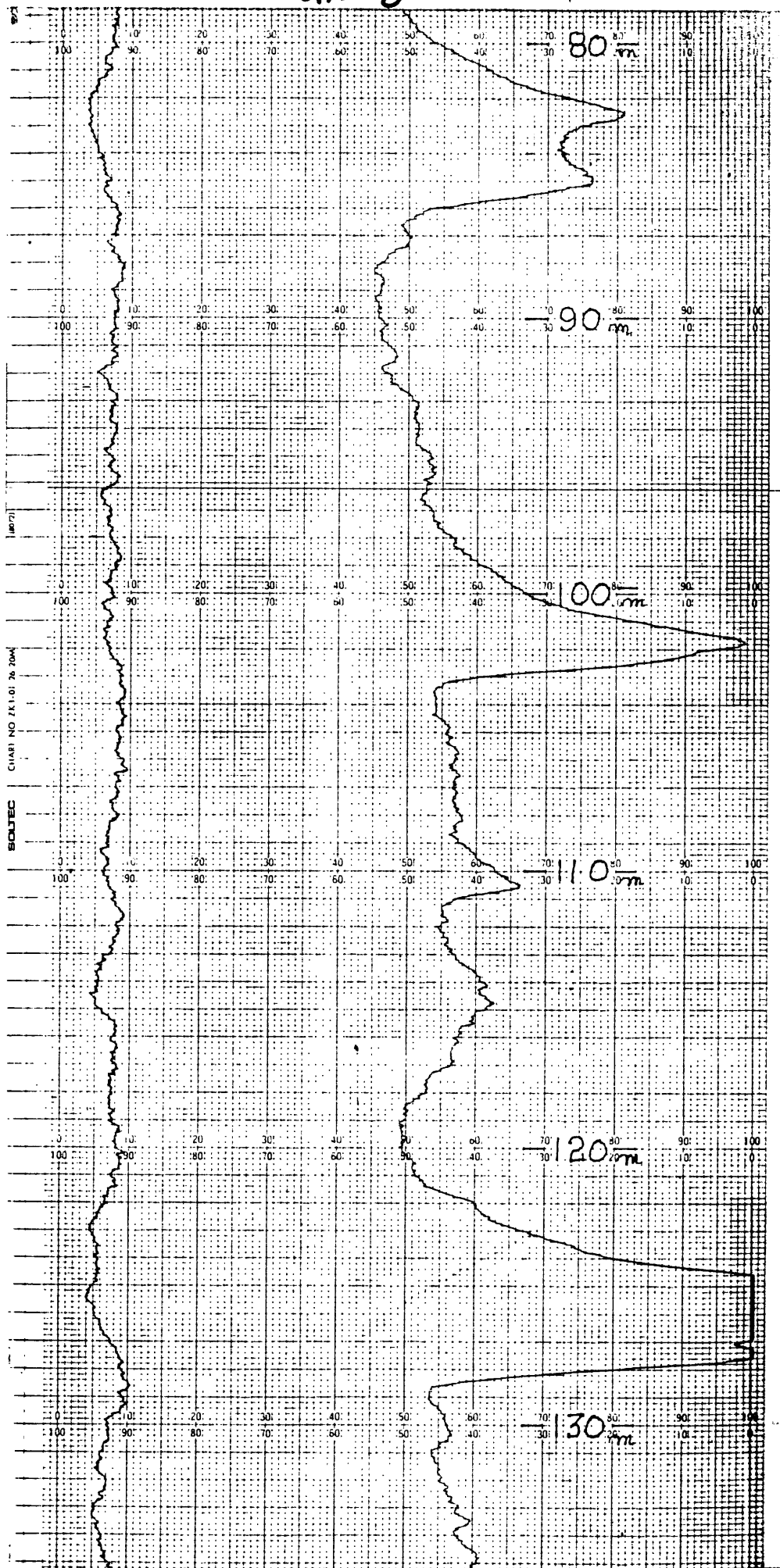
UAT-8

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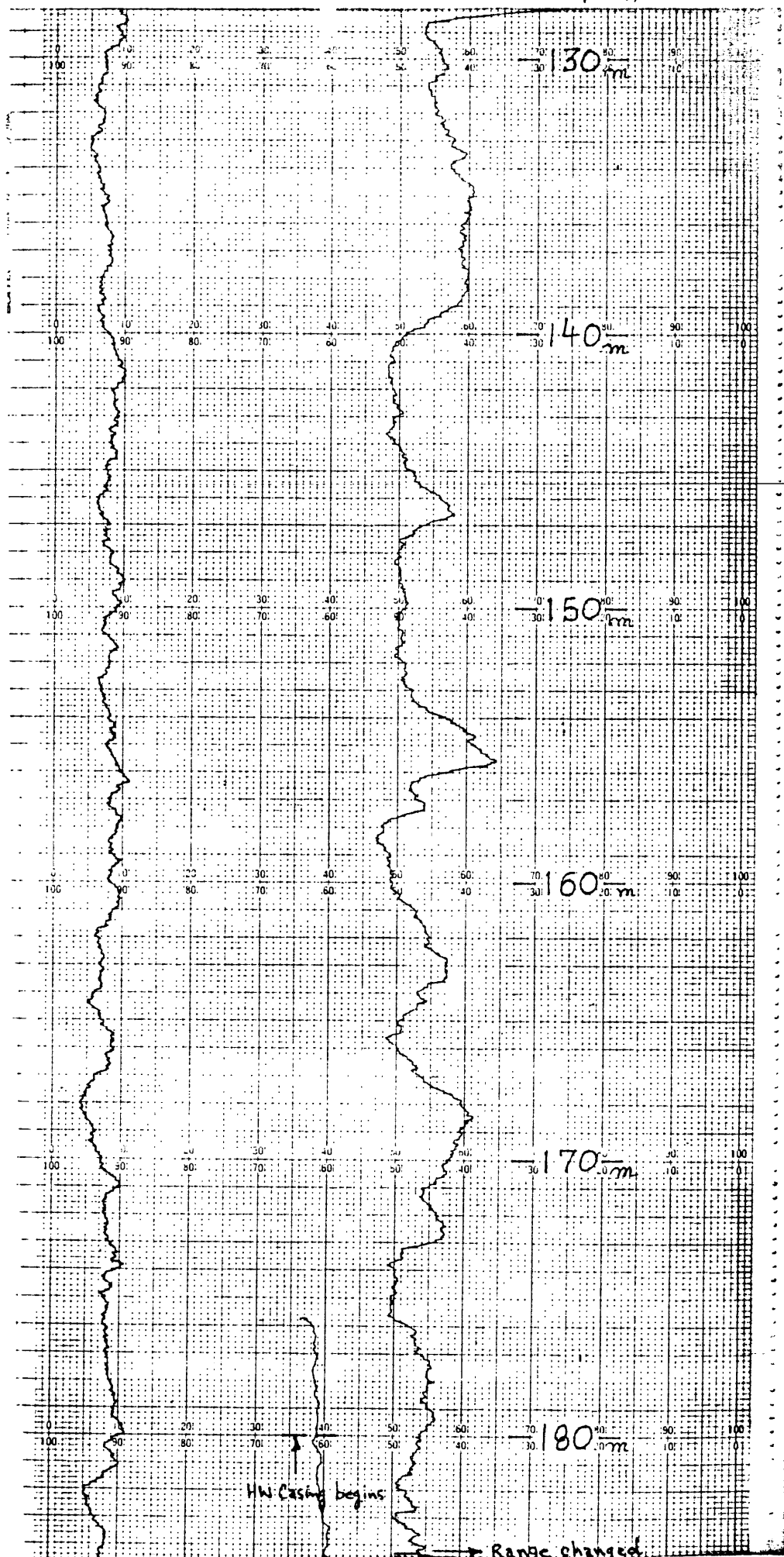
UAT-8

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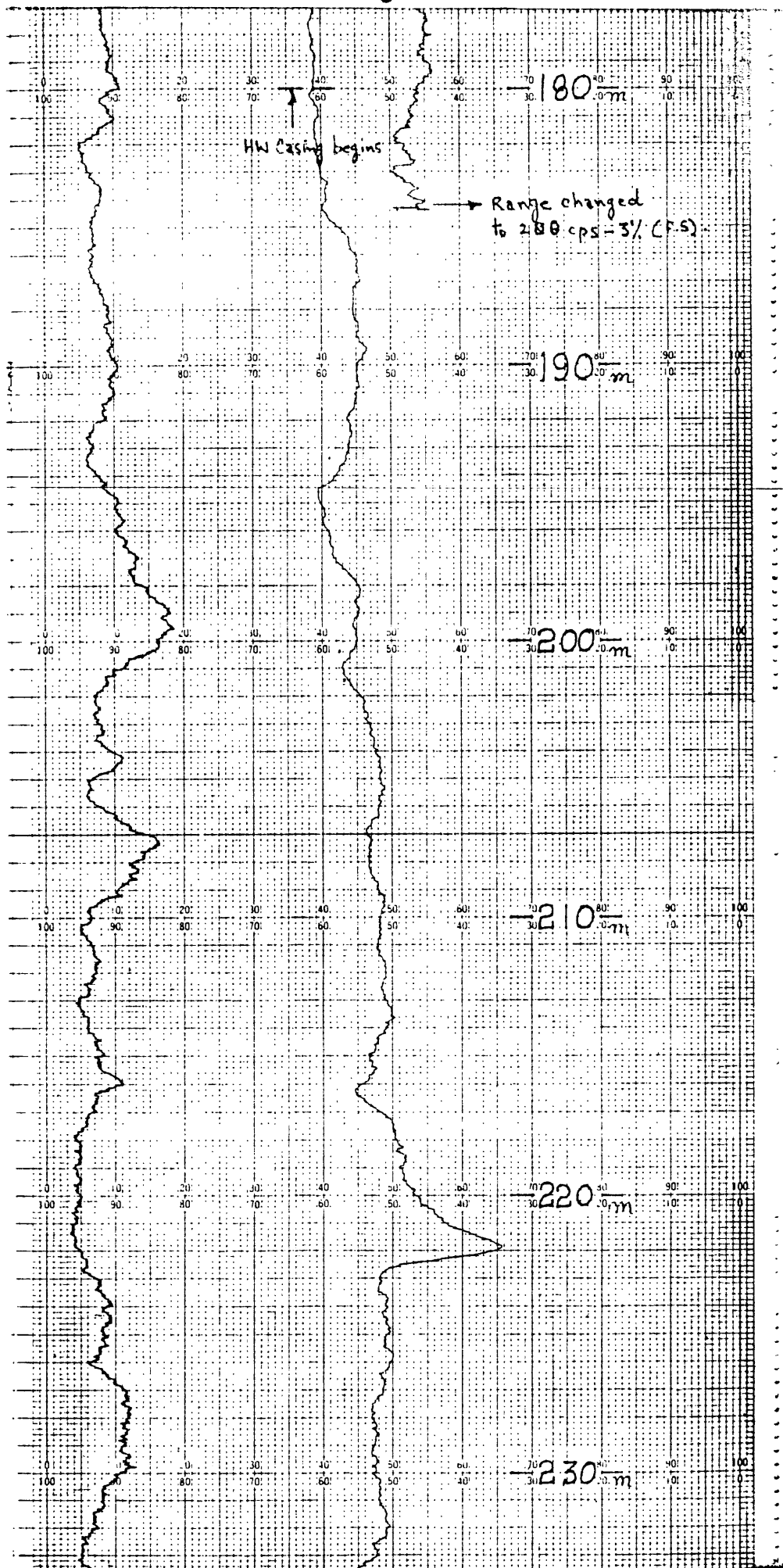
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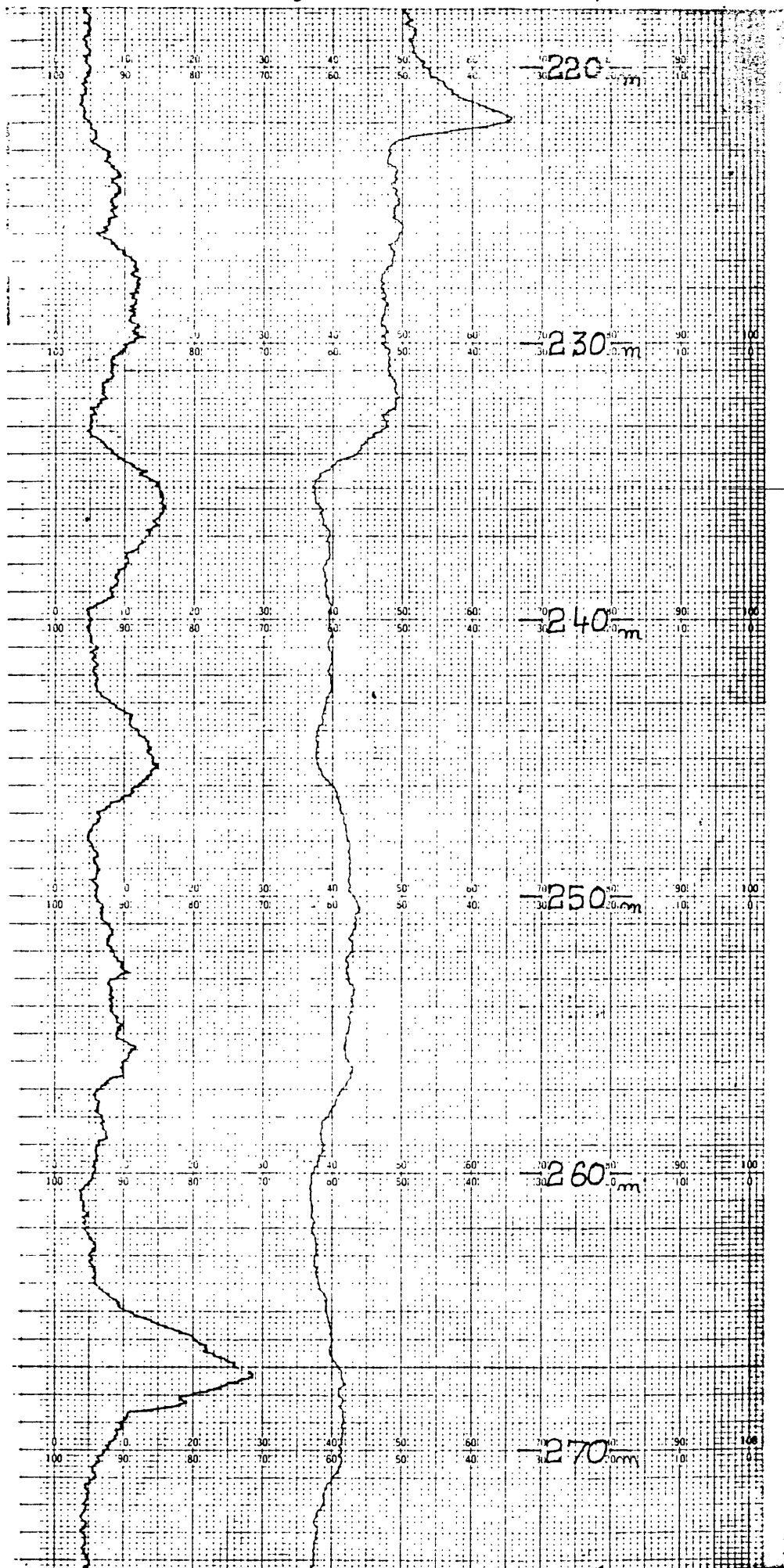
1.542





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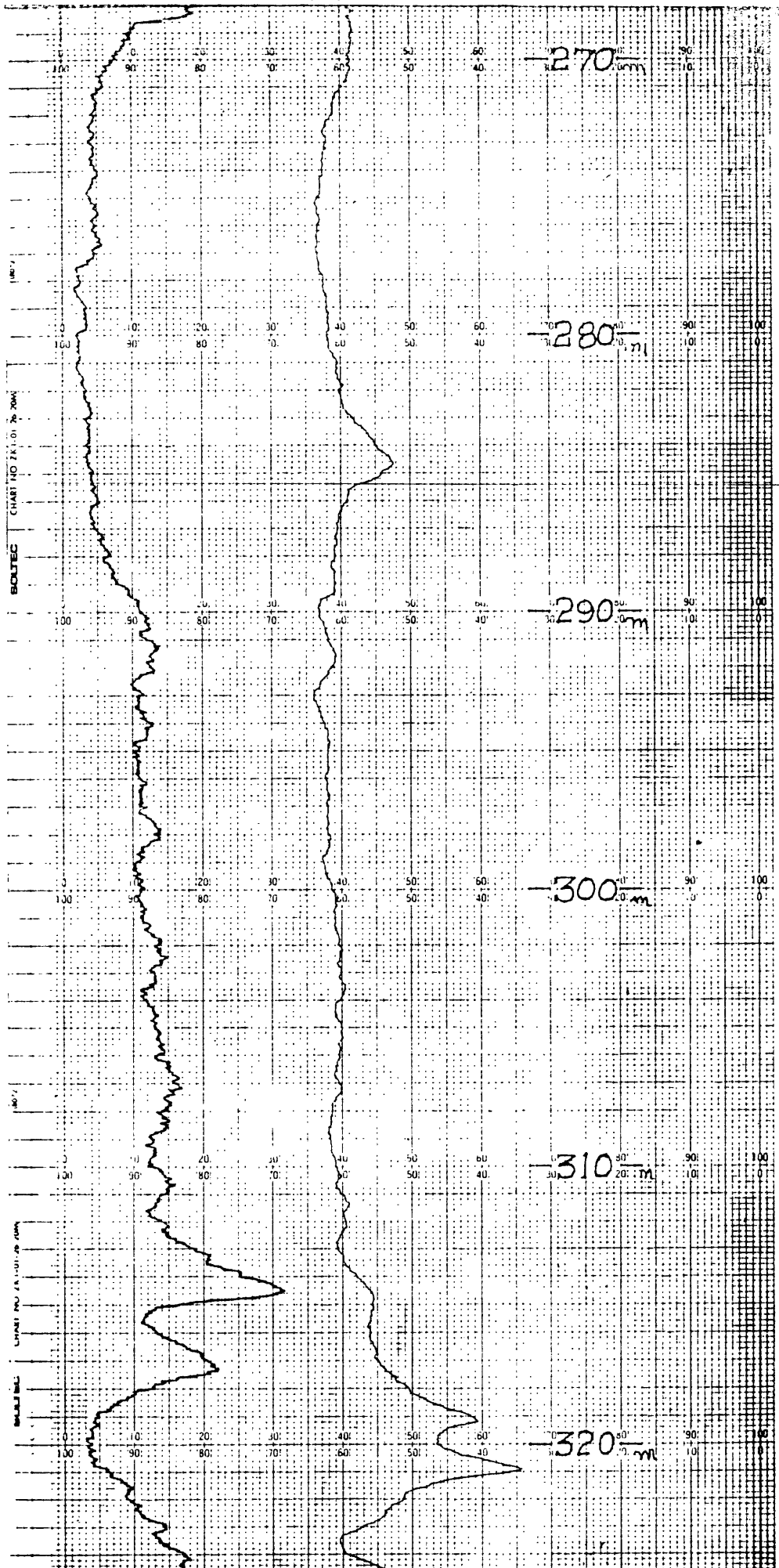
P.543





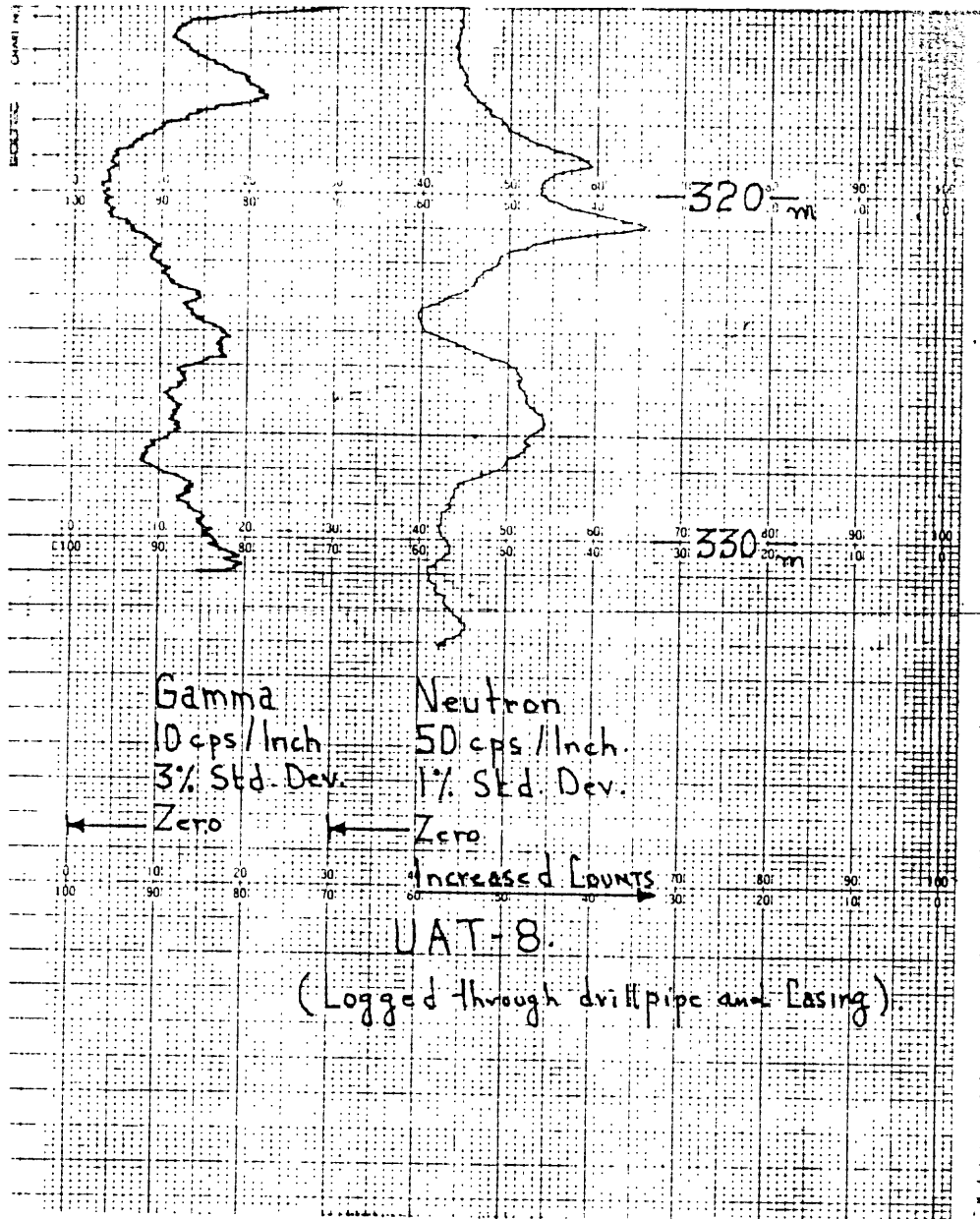
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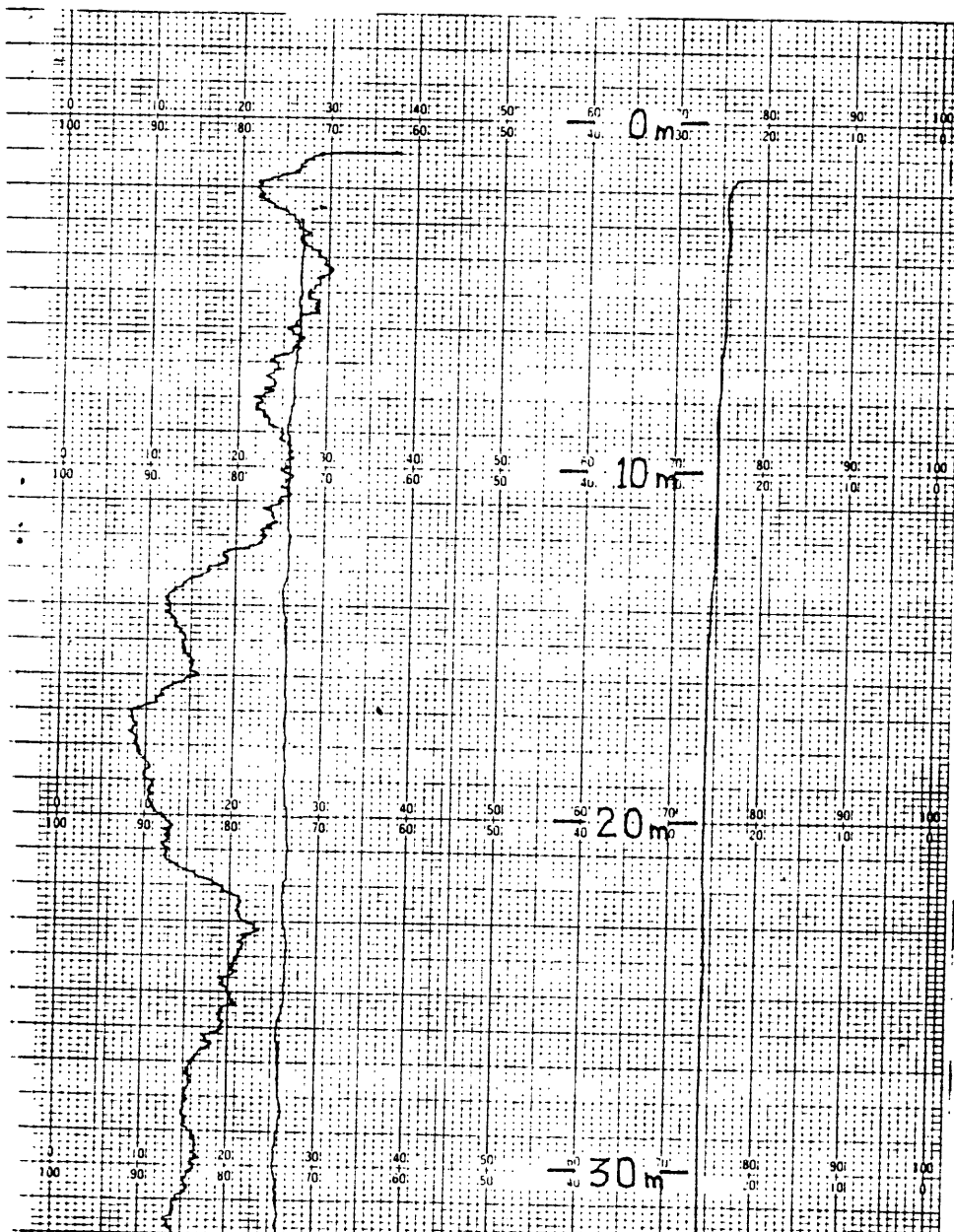
# GEOSCIENCE ASSOCIATES

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HOLE NUMBER: UAT-8

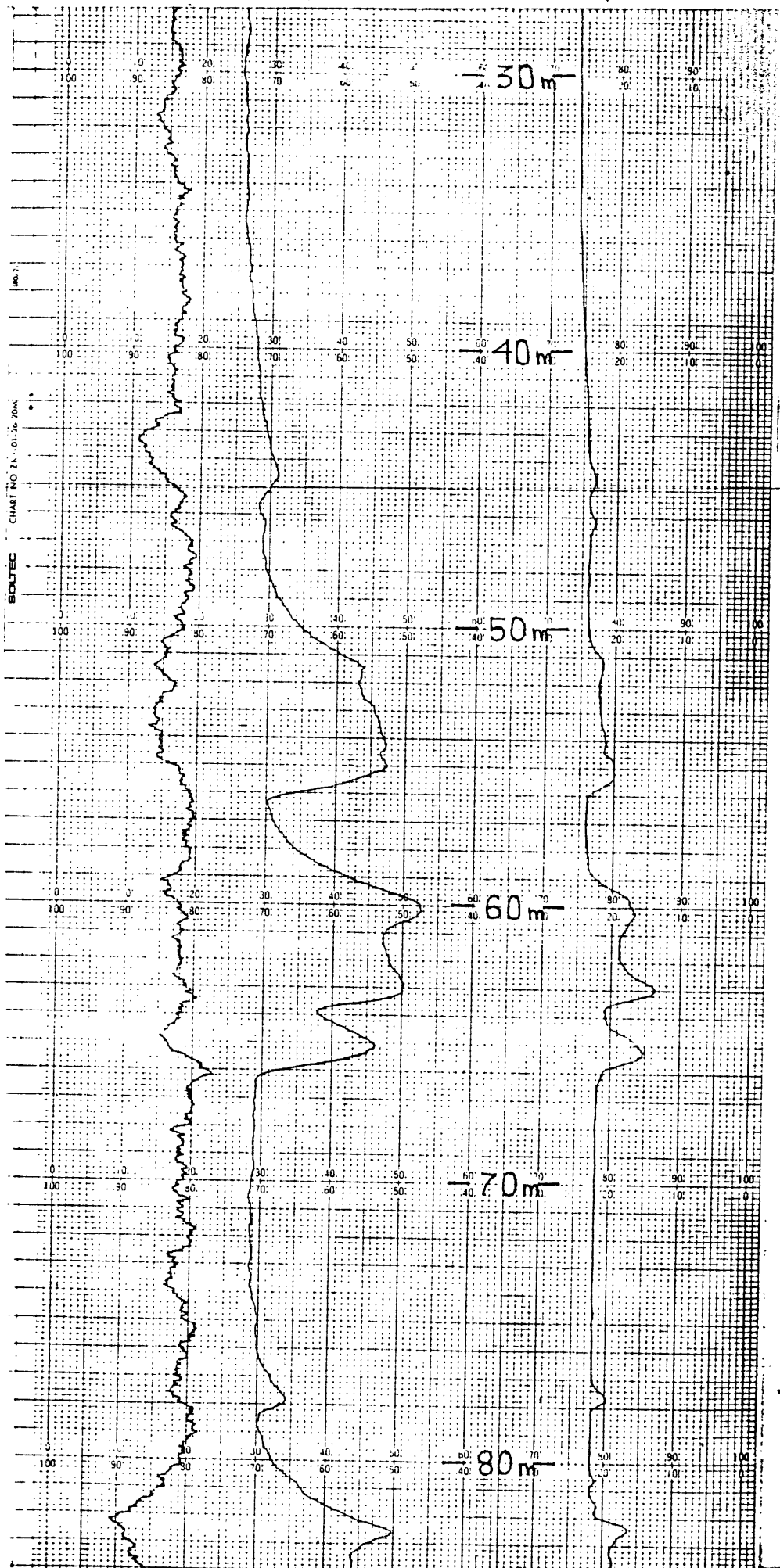
DATE: 26<sup>th</sup> Feb. 1987

LOCATION			HOLE DATA		CLIENT	
STATE-COUNTY	Sind. Pakistan		DEPTH DRILLED	338 m	CLIENT	U.S.G.S / G.S.P.
REGION	Thatta		DEPTH LOGGED	103 m	GEOLOGIST	
PROJECT	COAL REAP		COLLAR ELEV		UNIT OPERATOR	Mujeeb Ahmad
PROSPECT			DIA	50c	UNIT NO	PL-2
SEC	TWP	RNG	DIA	Caliper	OFFICE	Boulder Colorado U.S.A.
TYPE	GAM	Neut	DIA	Log	ELECTRIC	
LOGGED DEPTH	101 m	103 m	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud	TYPE	RESIST
RANGE (I.S.)	100	1K	FLUID LEVEL		LOGGED DEPTH	101 m
STD DEV	3%	1%	CASING DATA		SCALE	10
PAPER SPEED	1-1	1-1	WALL SIZE		PAPER SPEED	1-1
LOG SPEED	6-1	6-1	ID		LOG SPEED	6-1
BKGND. COUNT			CASED FROM	TO	FINE ADJ	1000 Bias
PROBE NO	6N-1	6N-1	CASING TYPE		CALIPER	
SIZE (dia.)	1 3/4	1 3/8	SAMPLE DATA		LOGGED DEPTH	FT
K-FACTOR			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>		SCALE	
DEAD TIME	2	2	SAMPLED INTERVAL	SAMPLE TYPE	PAPER SPEED	
STANDARD			REMARKS		LOG SPEED	
DIGITAL DATA					ARM LENGTH	IN
PRINT INTERVAL					MAX DEF	IN
TIMEBASE					VERTICAL DEV.	
DENSITY CALIBRATION					DEPTH	
ALUMINUM					INCLIN	
LUCITE					BEARING	



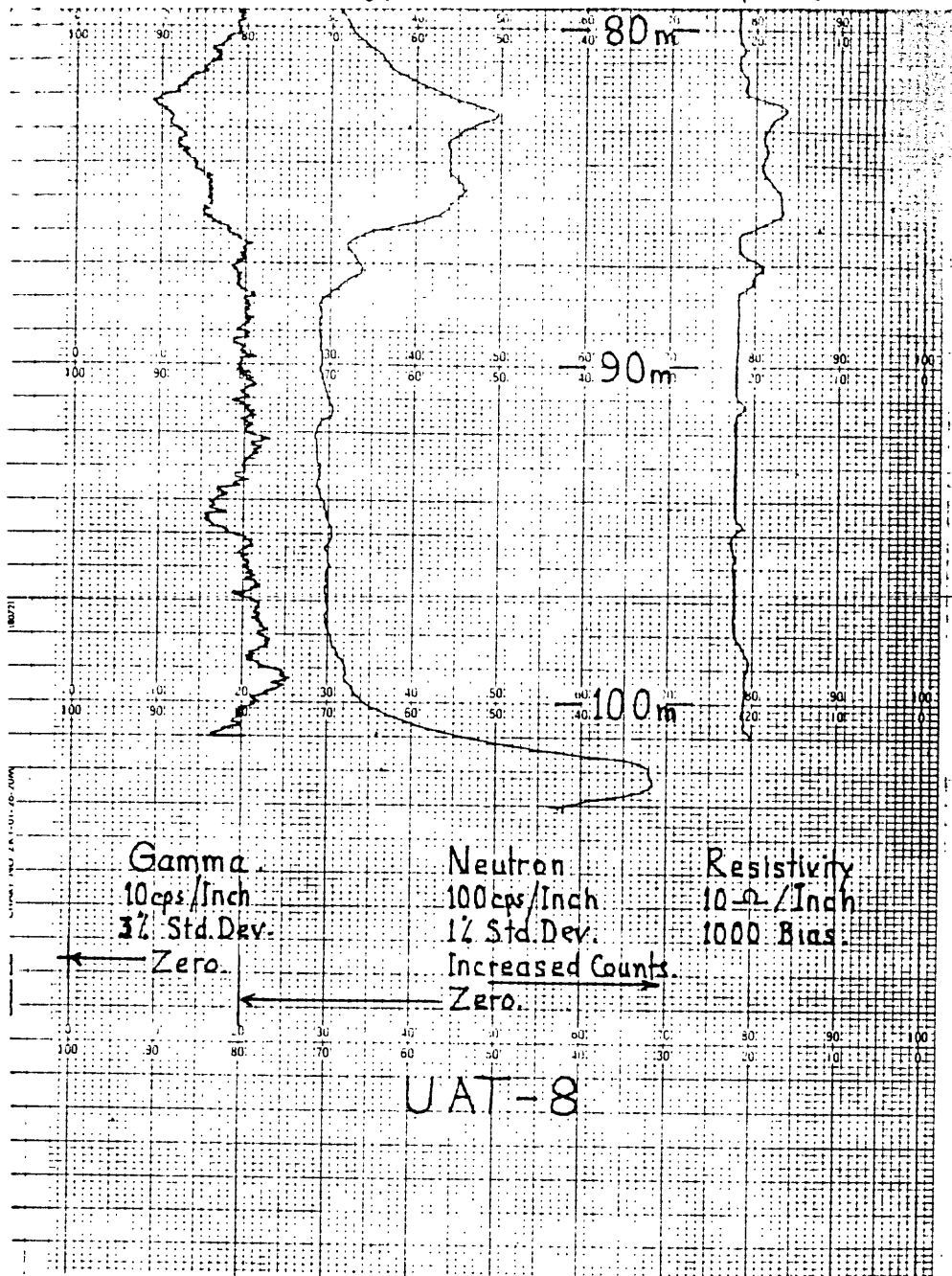
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# GEOSCIENCE ASSOCIATES

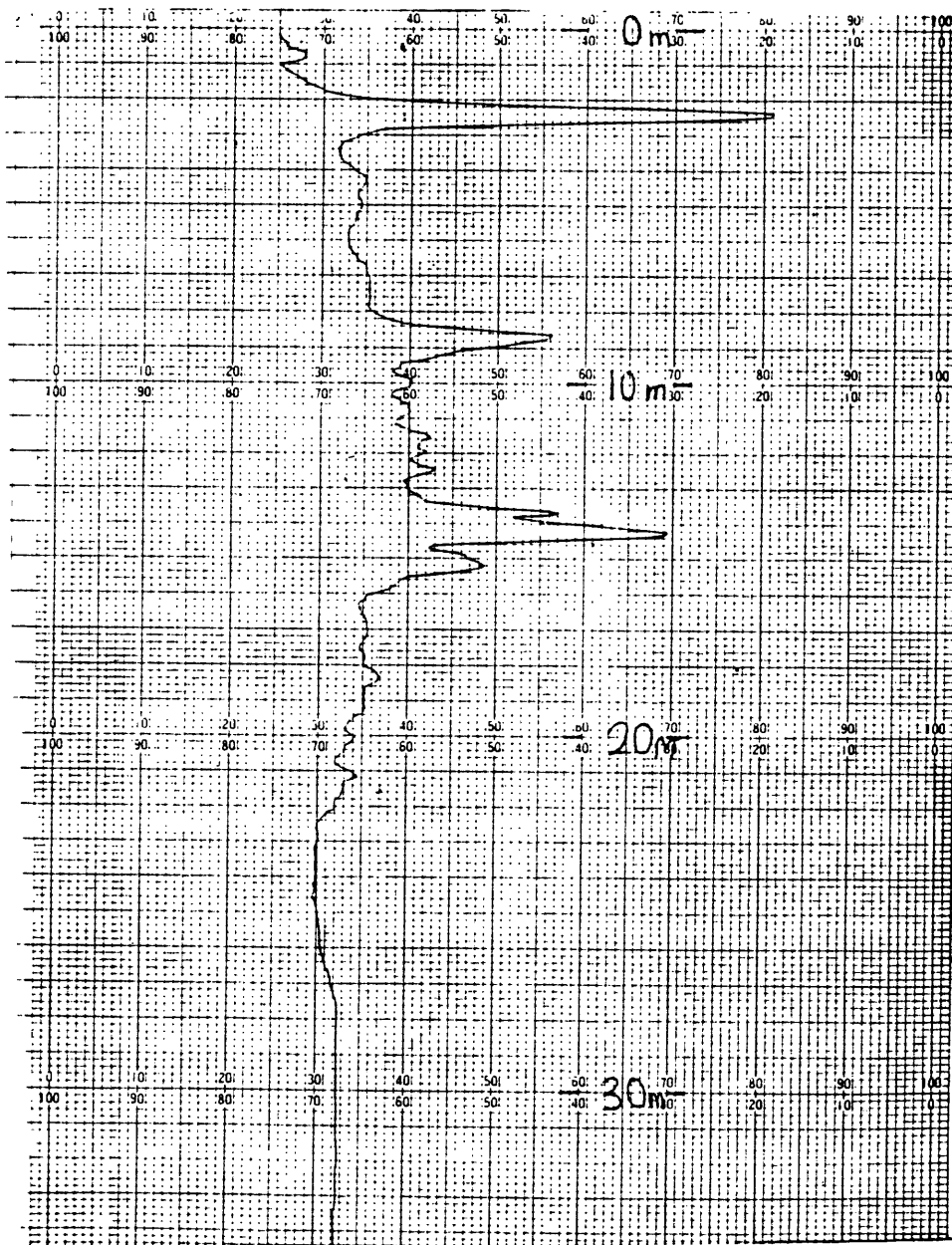
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HOLE NUMBER:

U.A.T-8

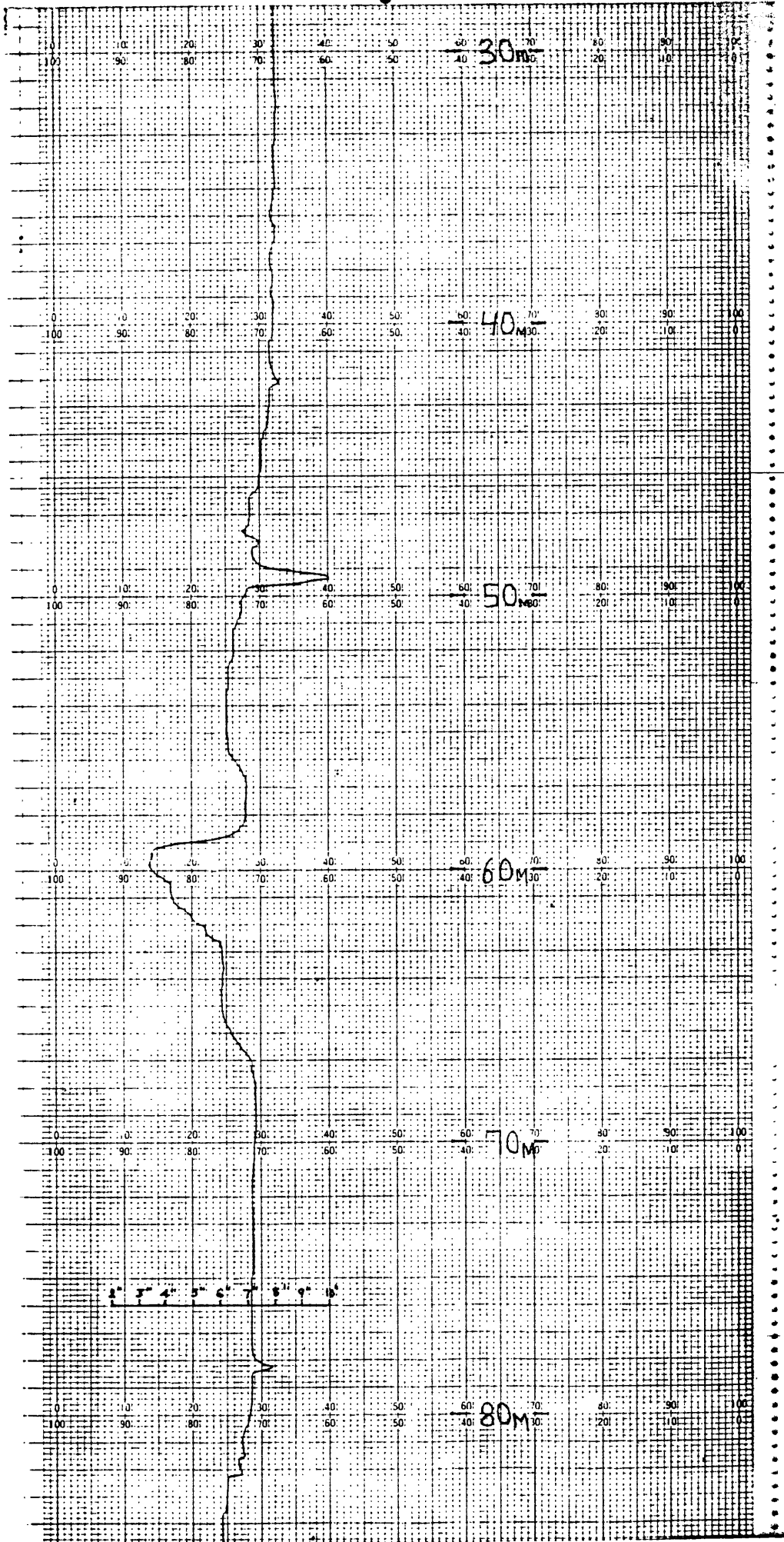
DATE: 24th February, 1987.

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY <u>Sind Pakistan</u>				DEPTH DRILLED: <u>338m</u>				CLIENT <u>U.S.G.S.-G.S.P.</u>			
REGION <u>THATTA</u>				DEPTH LOGGED: <u>134m</u>				GEOLOGIST:			
PROJECT <u>COAL REAP.</u>				COLLAR ELEV				UNIT OPERATOR <u>MENTAB/MUTIB</u>			
PROSPECT				DIA <u>Sec</u> FROM TO				UNIT NO <u>PL-2</u> OFFICE			
SEC TWP ANG.				DIA <u>Caliper</u> FROM TO				<u>BOULDER COLORADO U.S.A.</u>			
				DIA <u>1.5</u> FROM TO				ELECTRIC			
TYPE				BOREHOLE MEDIUM <u>H<sub>2</sub>O+Mud</u>				TYPE RESIST S.P.			
LOGGED DEPTH				FLUID LEVEL				LOGGED DEPTH FT FT			
RANGE (ft.)				CASING DATA				SCALE			
STD DEV				WALL SIZE				PAPER SPEED			
PAPER SPEED				I.D.				LOG SPEED			
LOG SPEED				CASED FROM TO				FINE ADJ			
BKGND. COUNT				CASING TYPE							
PROBE NO.				SAMPLE DATA							
SIZE (dia.)				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>							
K-FACTOR				SAMPLED INTERVAL SAMPLE TYPE				3 Arm CALIPER			
DEAD TIME								LOGGED DEPTH <u>134m</u> FT.			
STANDARD								SCALE <u>.4" Deflection = 1" Dia</u>			
DIGITAL DATA				REMARKS				PAPER SPEED <u>1-1</u>			
PRINT INTERVAL								LOG SPEED <u>6-1</u>			
TIMEBASE								ARM LENGTH <u>12</u> IN			
								MAX DEF. <u>2.4</u> IN			
DENSITY CALIBRATION								VERTICAL DEV.			
ALUMINUM								DEPTH			
LUCITE								INCLIN.			
								BEARING			



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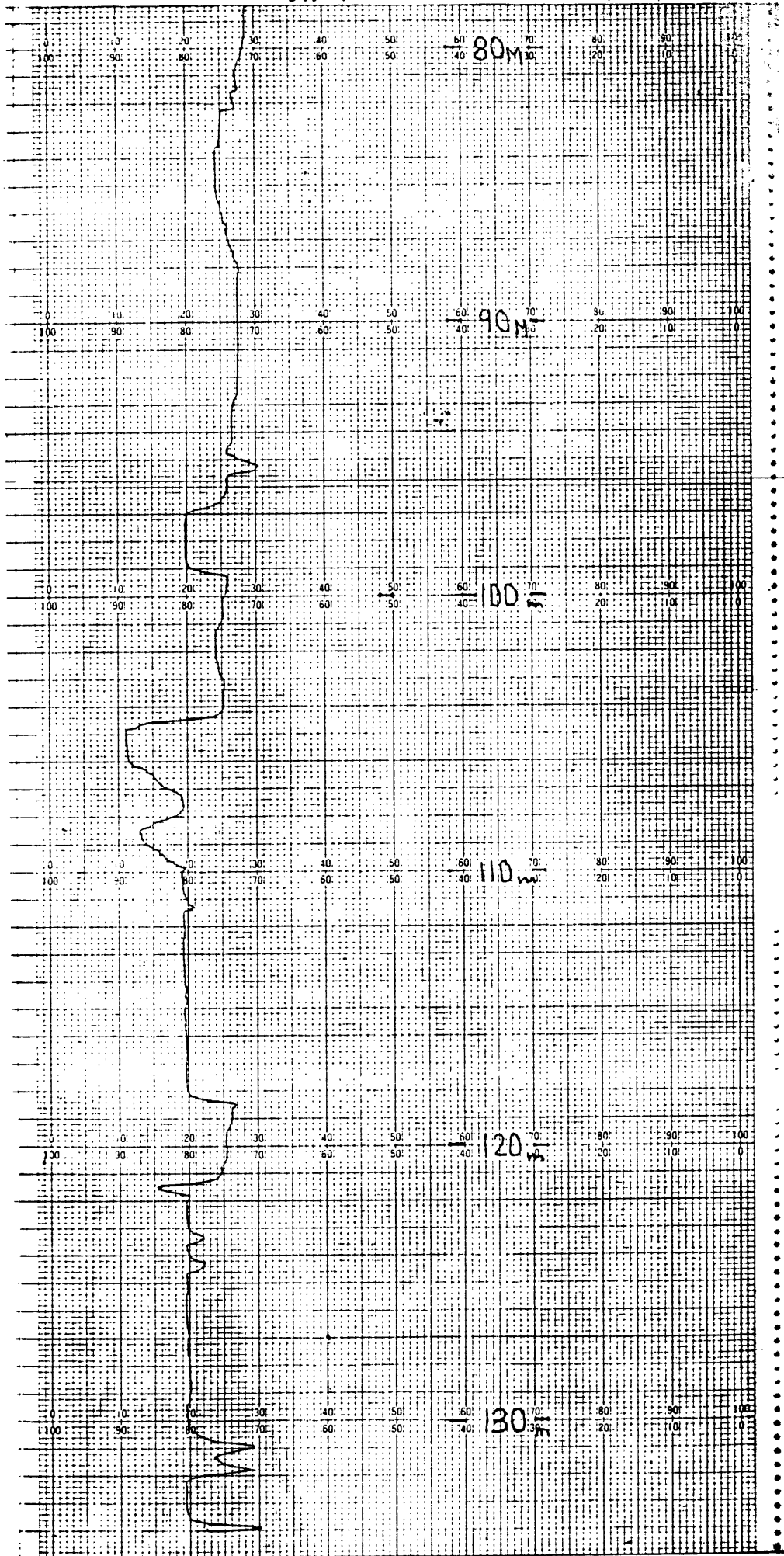
P.550





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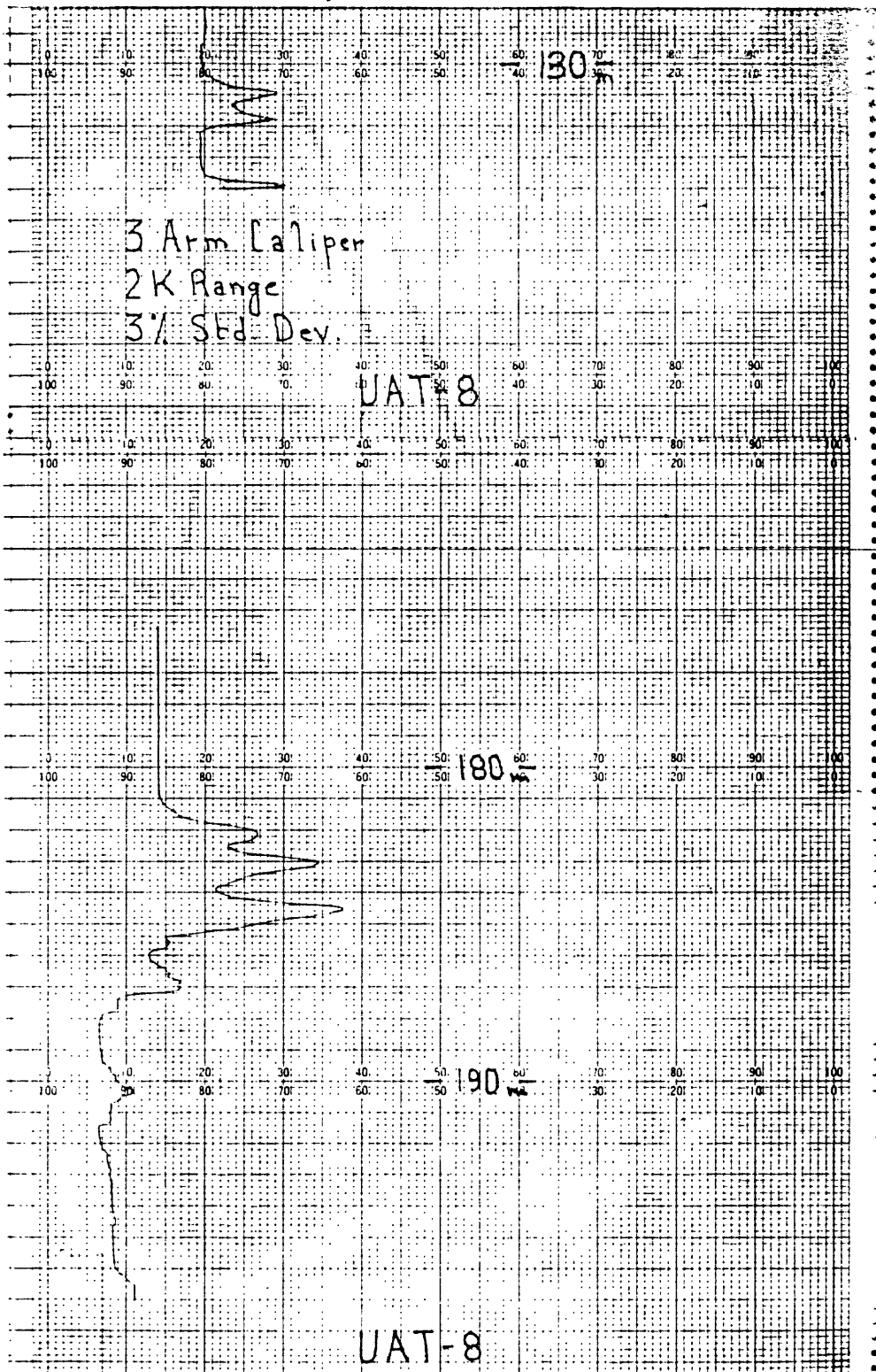
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# GEOSCIENCE ASSOCIATES P.553

HOLE NUMBER:

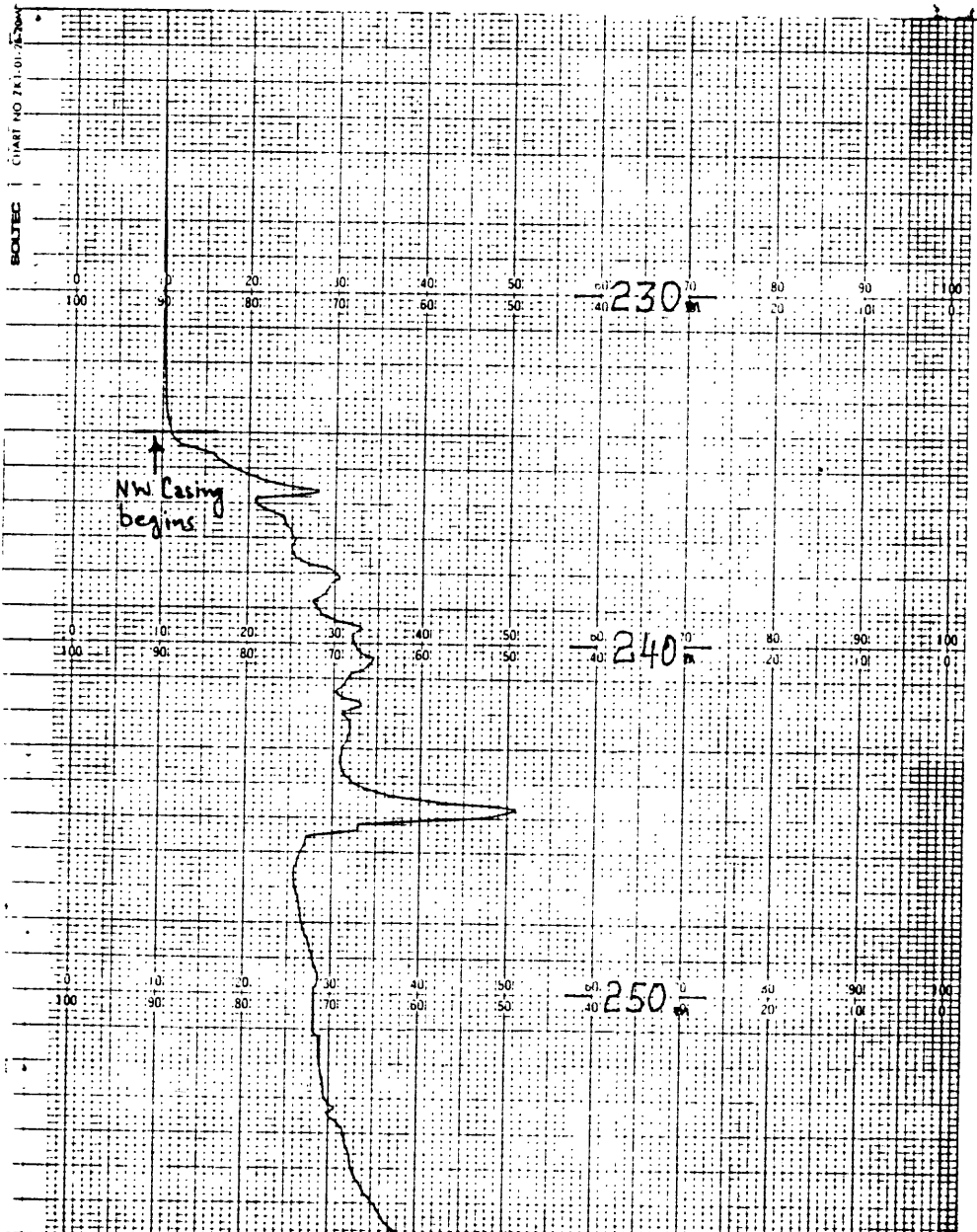
U.A.T.-8

DATE: 23rd Feb: 1987

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	SIND PAKISTAN		DEPTH DRILLED	338m	CLIENT	USGS / GSP
REGION	THATA		DEPTH LOGGED	329.5m	GEOLOGIST	
PROJECT	Cool Reap		COLLAR ELEV		UNIT OPERATOR	Muhammad Iqbal
PROSPECT			DIA FROM TO		UNIT NO	PL-2 OFFICE
SEC	TWP	RNG	DIA FROM TO		SOULDEV	Colorado USA
TYPE	GAM		HOREHOLE MEDIUM		ELECTRIC	
LOGGED DEPTH			FLUID LEVEL		TYPE	RESIST
RANGE (I.S.)					LOGGED DEPTH	FT
%STD DEV			CASING DATA		SCALE	FT
PAPER SPEED			WALL SIZE		PAPER SPEED	
LOG SPEED			I.D.		LOG SPEED	
BKGD. COUNT			CASED FROM TO		FINE ADJ	
PROBE NO.			CASING TYPE			
SIZE (dia)			SAMPLE DATA			
K-FACTOR			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input type="checkbox"/>			
DEAD TIME			SAMPLED INTERVAL	SAMPLE TYPE		
STANDARD						
DIGITAL DATA			REMARKS			
PRINT INTERVAL						
TIMEBASE						
DENSITY CALIBRATION						
ALUMINUM						
LUCITE						

VERTICAL DEV.		
DEPTH		
INCLIN		
BEARING		

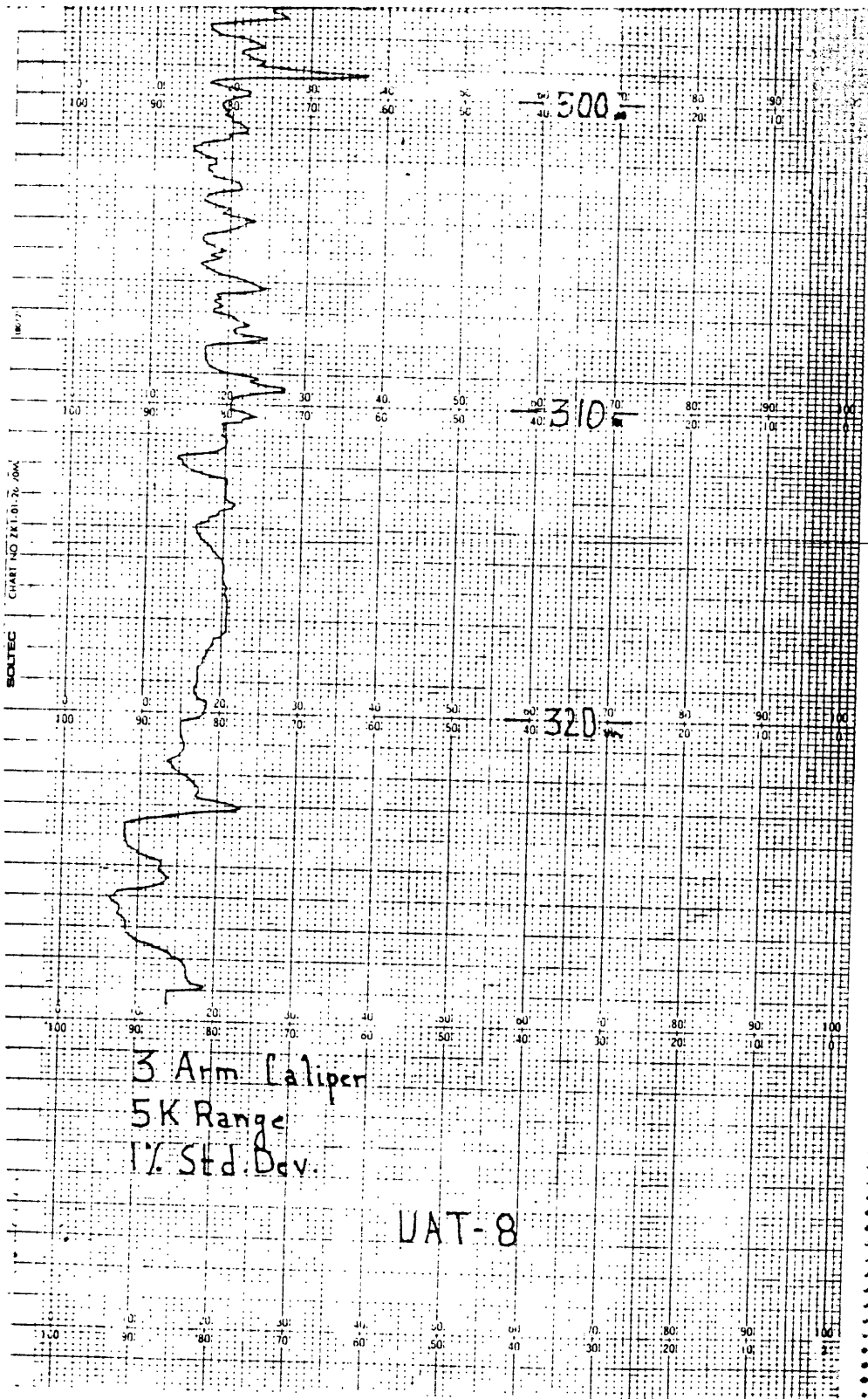
3 Arm CALIPER		
LOGGED DEPTH	329.5	
SCALE	4" dial 1" dia	
PAPER SPEED	1-1	
LOG SPEED	6-1	
ARM LENGTH	12	IN
MAX DEF	24	IN





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DRILL HOLE UAT-9



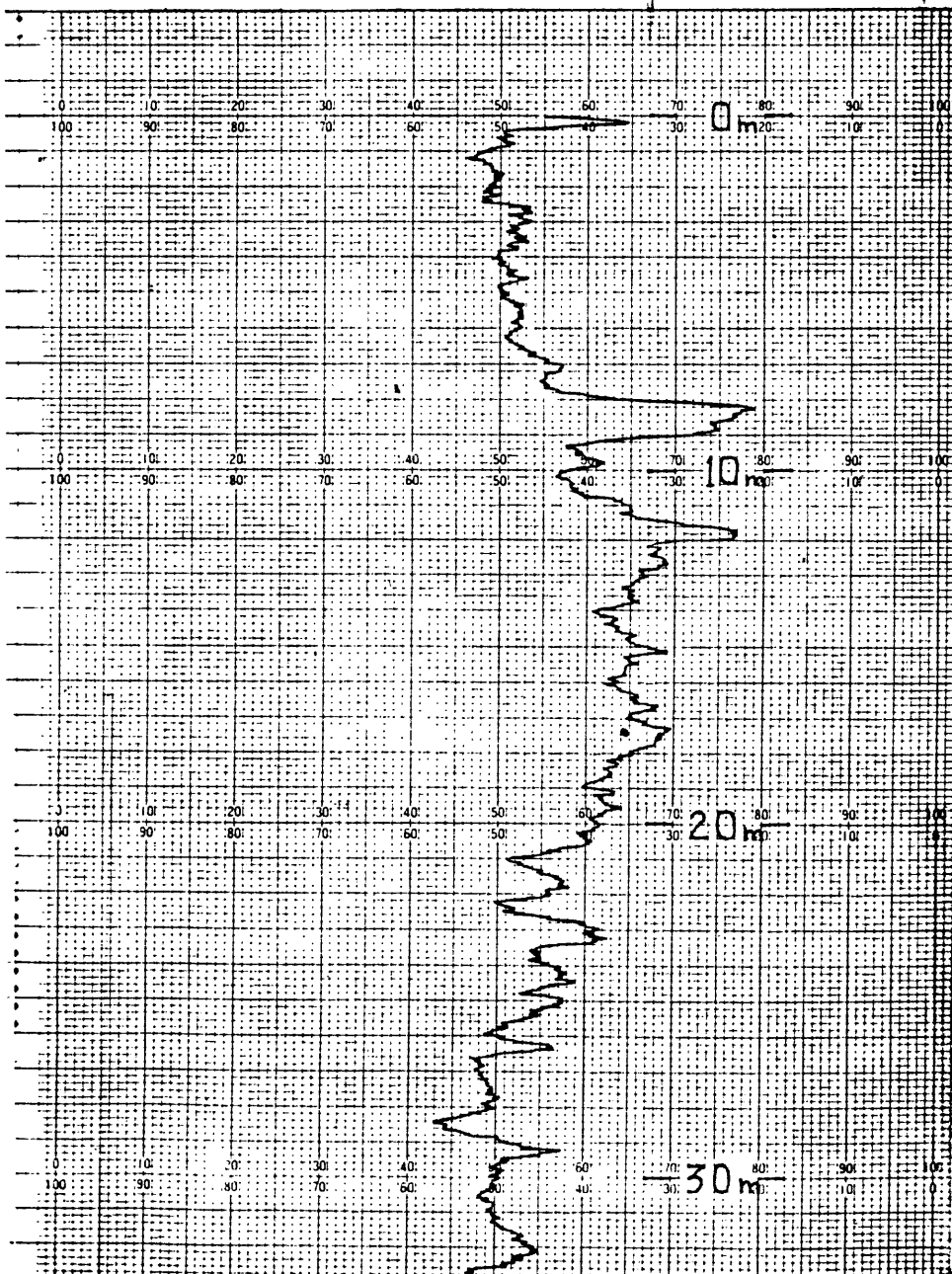
HOLE NUMBER:

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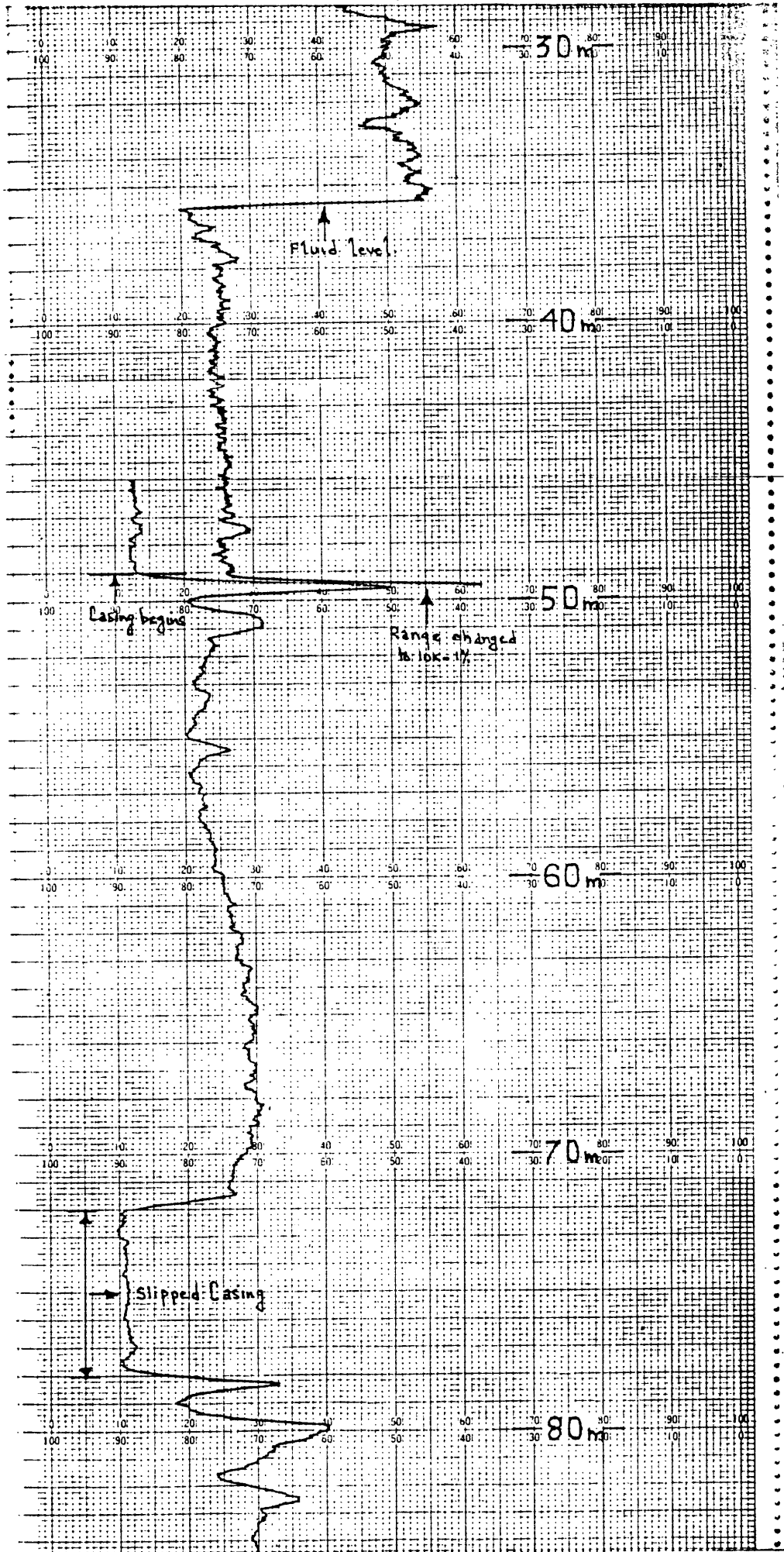
DATE: 23rd January, 1987.

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY Sind Pakistan			DEPTH DRILLED: 345m			CLIENT U.S.G.S. - G.S.P.		
REGION Thatta			DEPTH LOGGED: 345m			GEOLOGIST:		
PROJECT CDAL REAP			COLLAR ELEV.					
PROSPECT			DIA. See FROM TO			UNIT OPERATOR MUJIB / MENTAB		
SEC. TWP. RING.			DIA. Caliper FROM TO			UNIT NO PL-2 OFFICE		
			DIA. log FROM TO			BOULDER COLORADO U.S.A.		
TYPE GAN 4 P Density			BOREHOLE MEDIUM H <sub>2</sub> O + Mud			ELECTRIC		
LOGGED DEPTH 345m			FLUID LEVEL 35.6m			TYPE RESIST S.P.		
RANGE (I.S.) 20K			CASING DATA			LOGGED DEPTH FT FT		
%STD DEV 1%			WALL SIZE 1/4"			SCALE 2 2		
PAPER SPEED 1-1			ID 4"			PAPER SPEED 2 2		
LOG SPEED 6-1			CASED FROM 0 TO 49m			LOG SPEED 2 2		
BKGD. COUNT			CASING TYPE HW			FINE ADJ.		
PROBE NO. 6D-1			SAMPLE DATA					
SIZE (dia.) 13/4"			NON-CORED HOLE <input checked="" type="checkbox"/> CORED HOLE <input type="checkbox"/>					
K FACTOR			SAMPLED INTERVAL SAMPLE TYPE					
DEAD TIME 2								
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL			Coring = 4-94m Non-Coring = 94-345m			LOGGED DEPTH FT		
TIMEBASE						SCALE 2 2		
						PAPER SPEED 2 2		
						LOG SPEED 2 2		
						ARM LENGTH IN		
						MAX DEF IN		
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN.		
						BEARING		



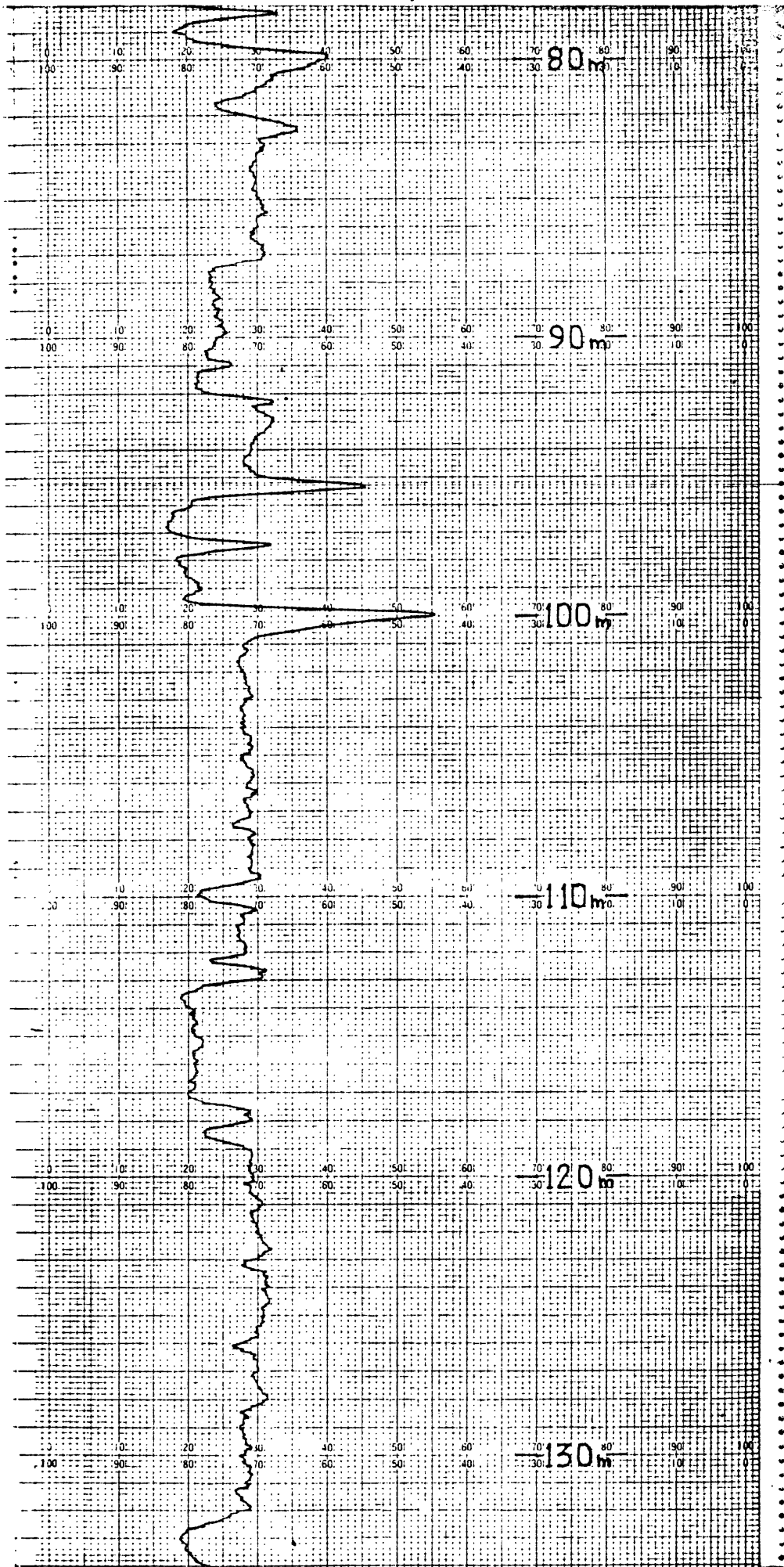
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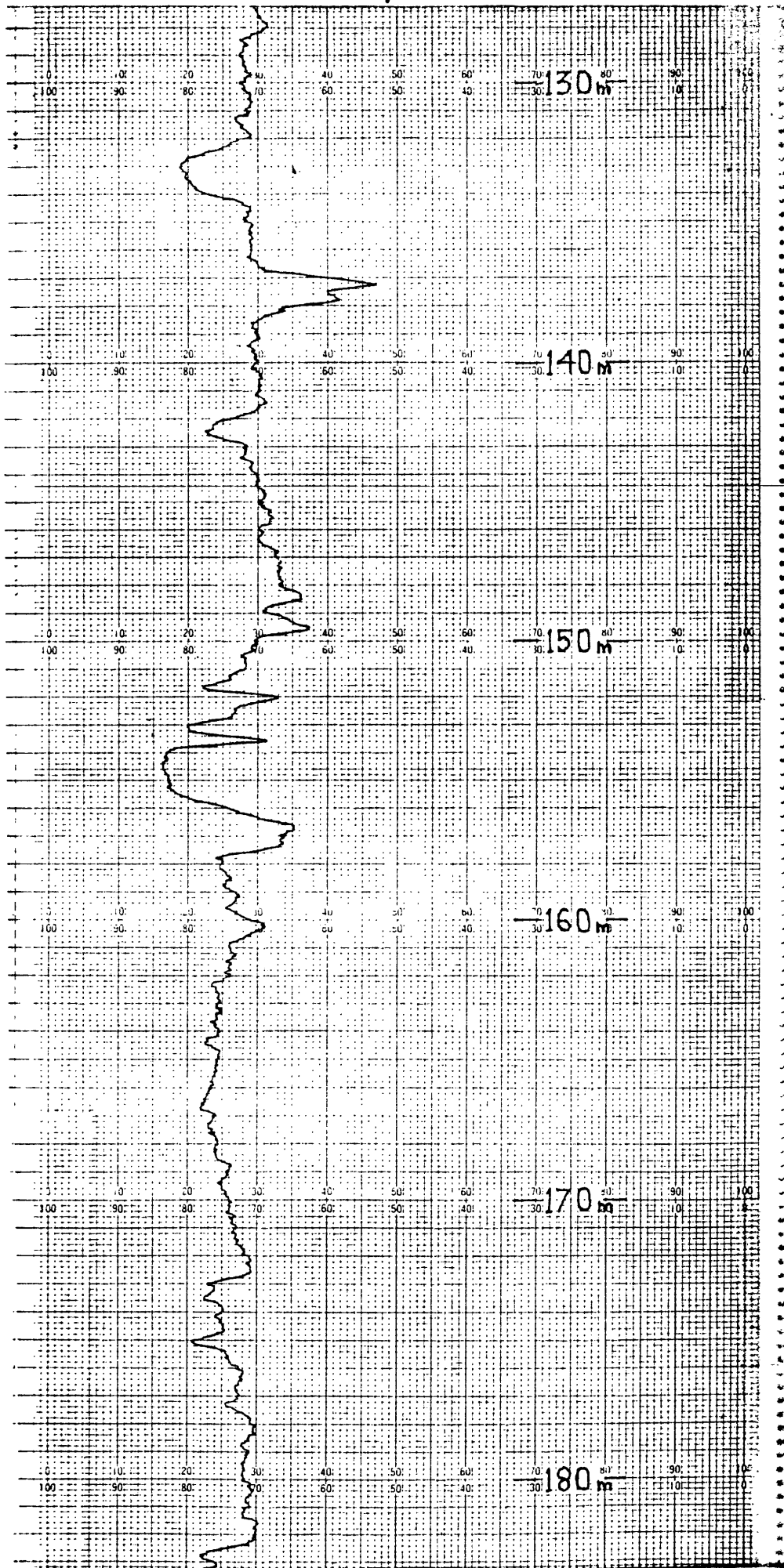
UAT-7

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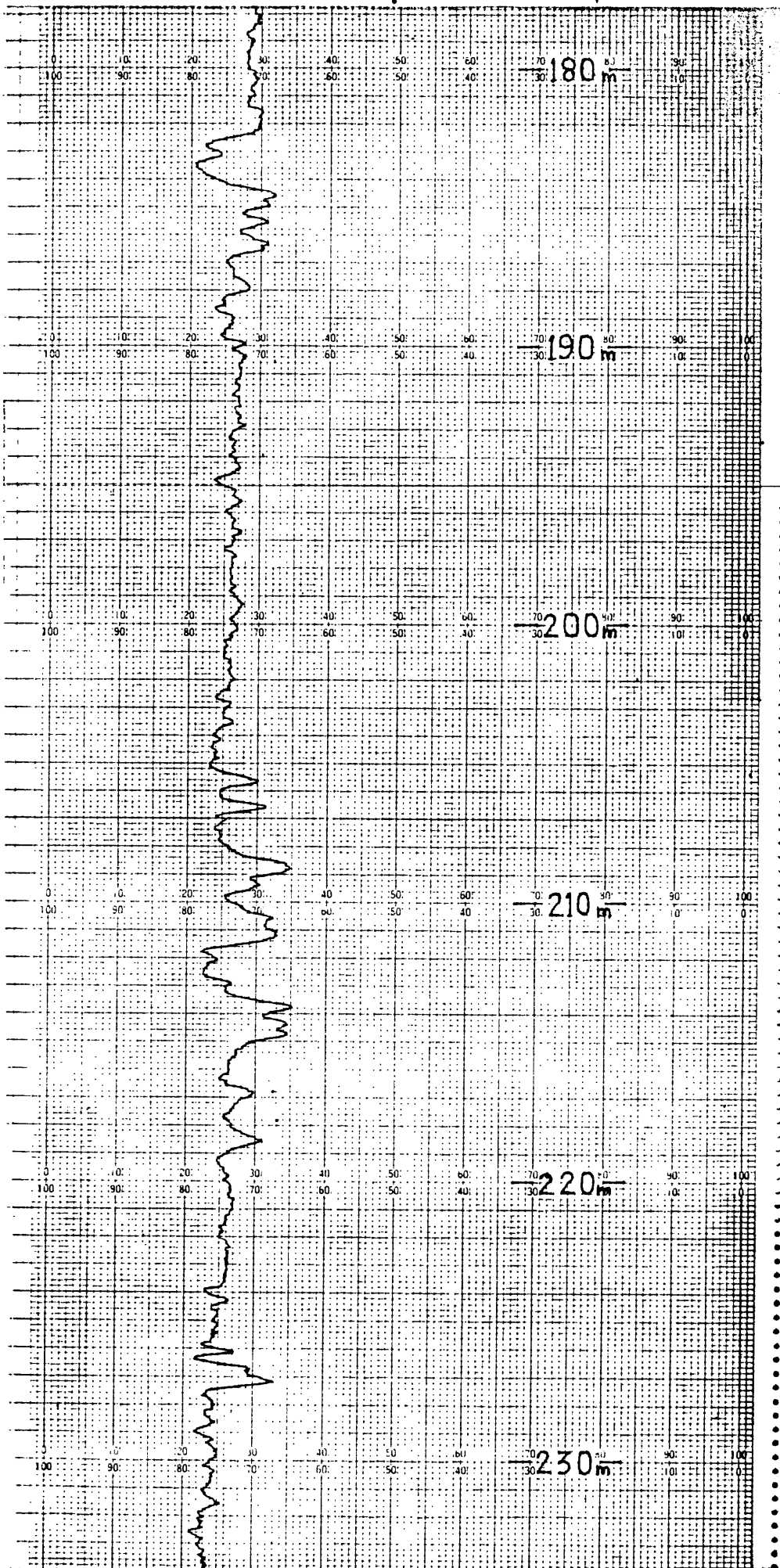


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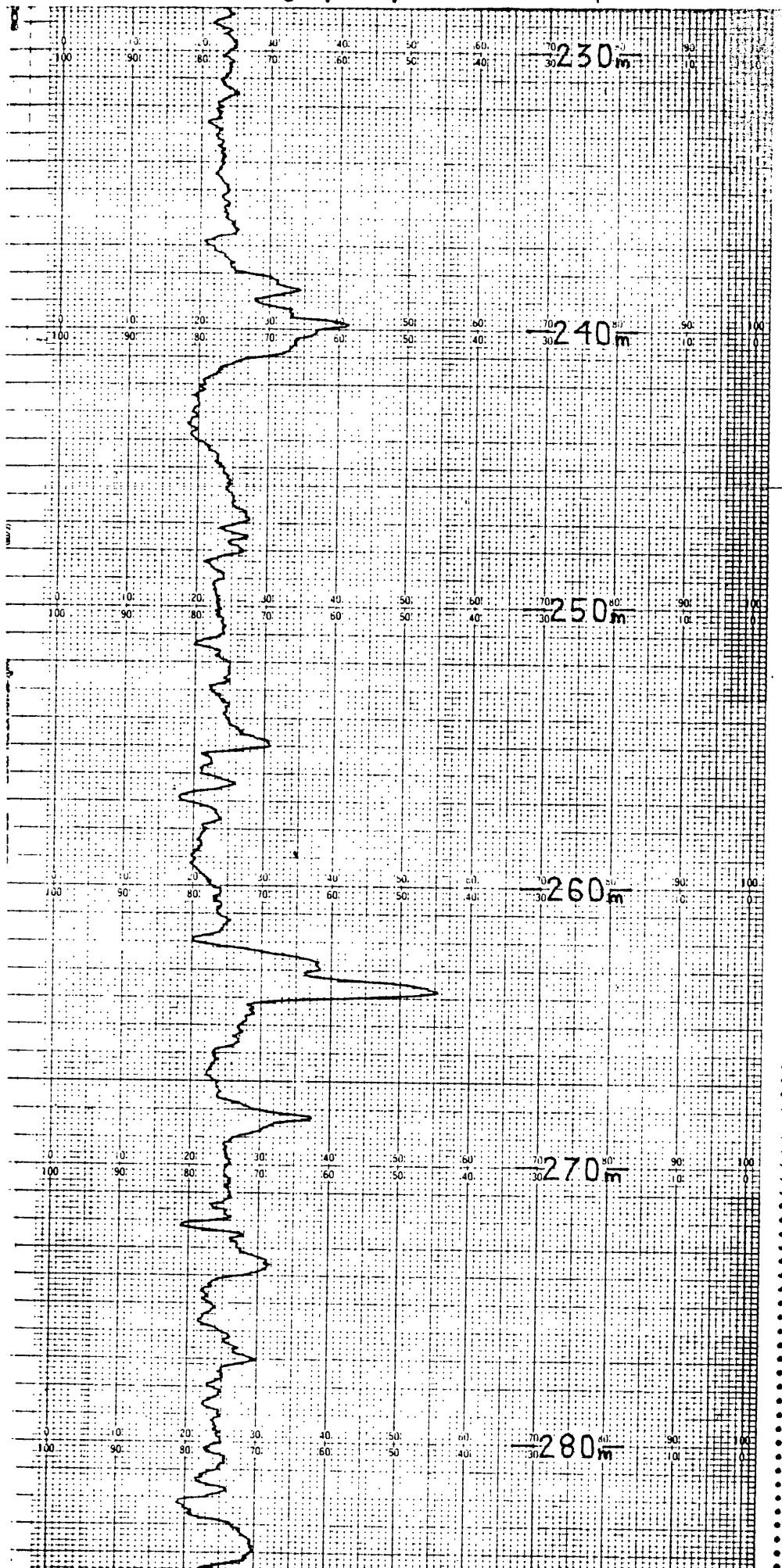
UAT-9

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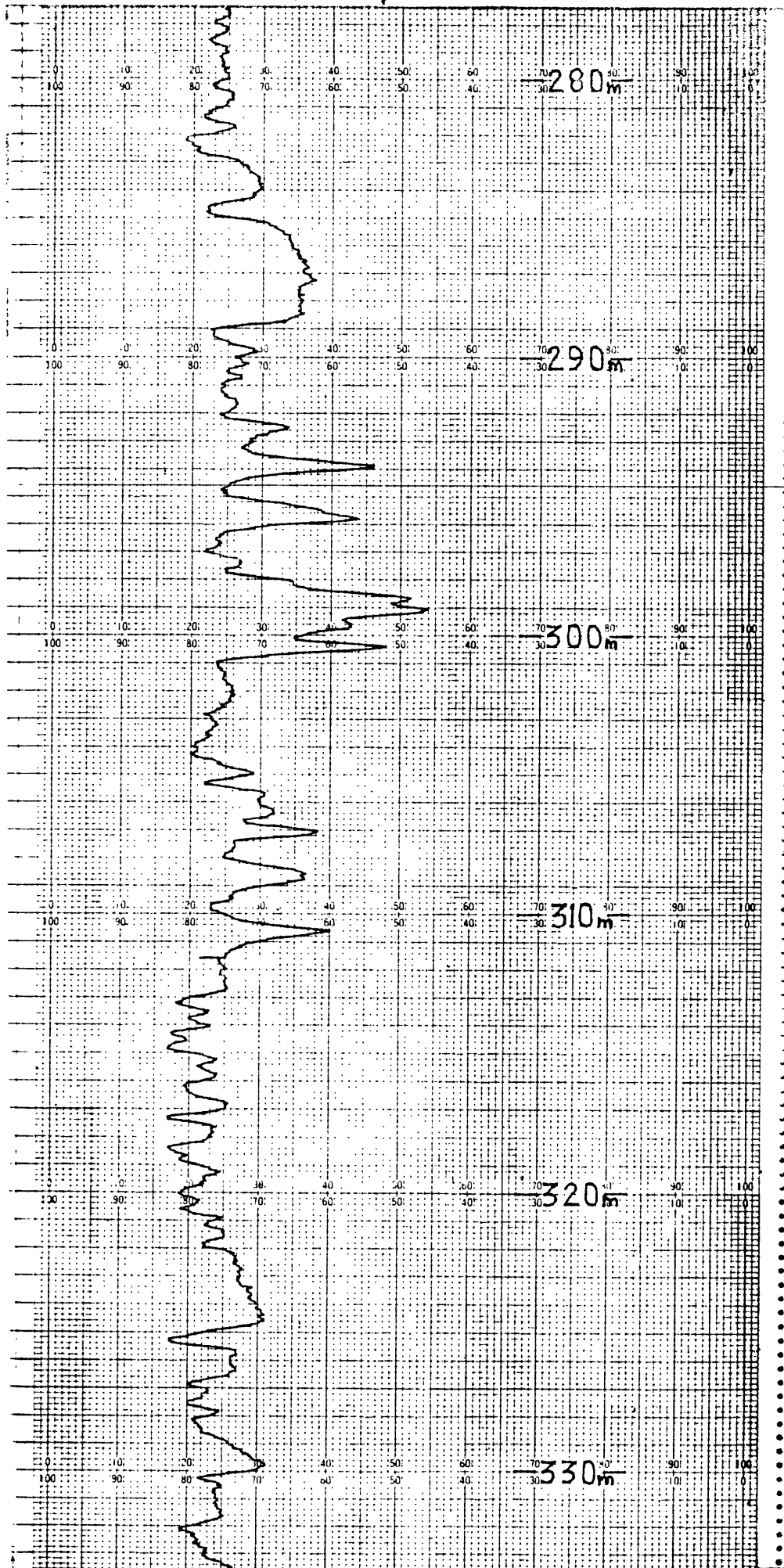
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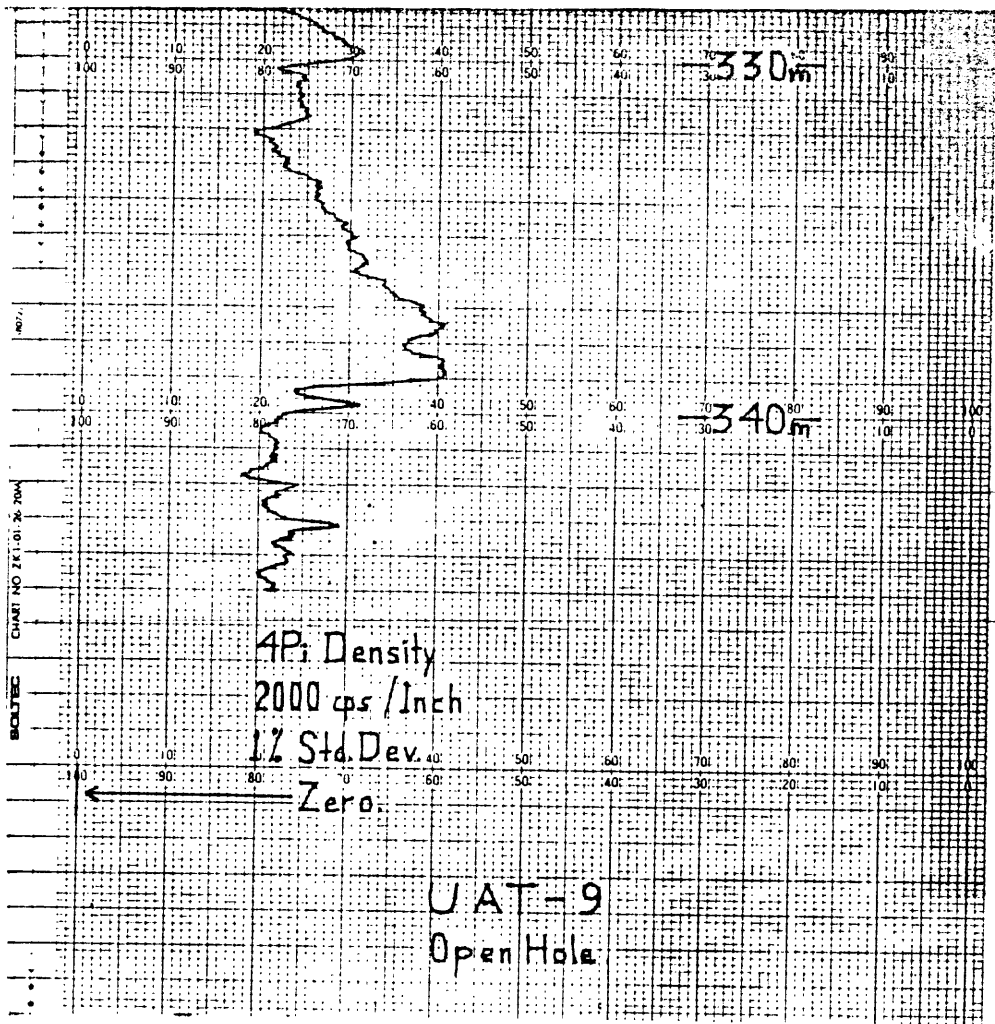
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GEOSCIENCE ASSOCIATES

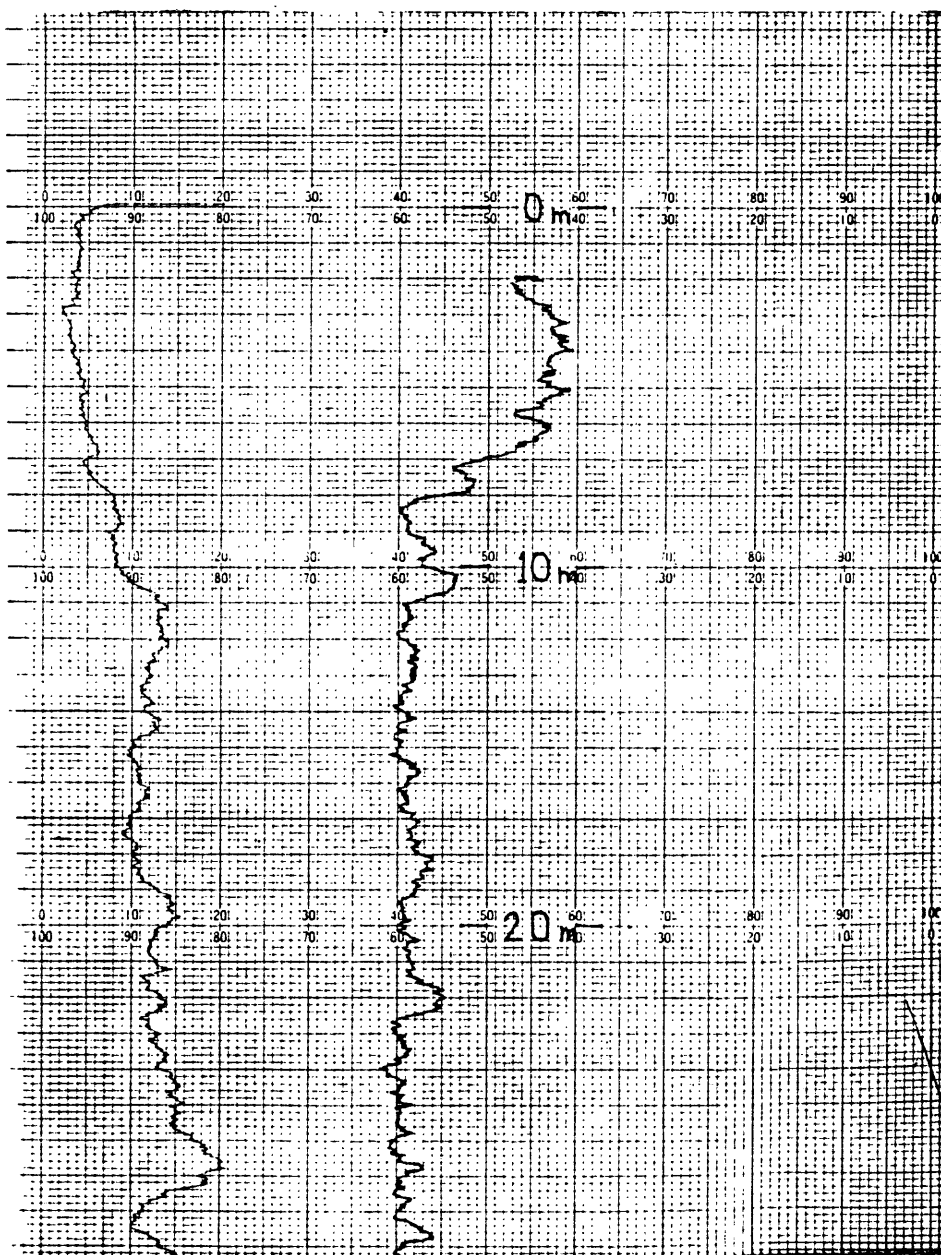
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HOLE NUMBER:

UAT-9

DATE: 23rd January, 1987

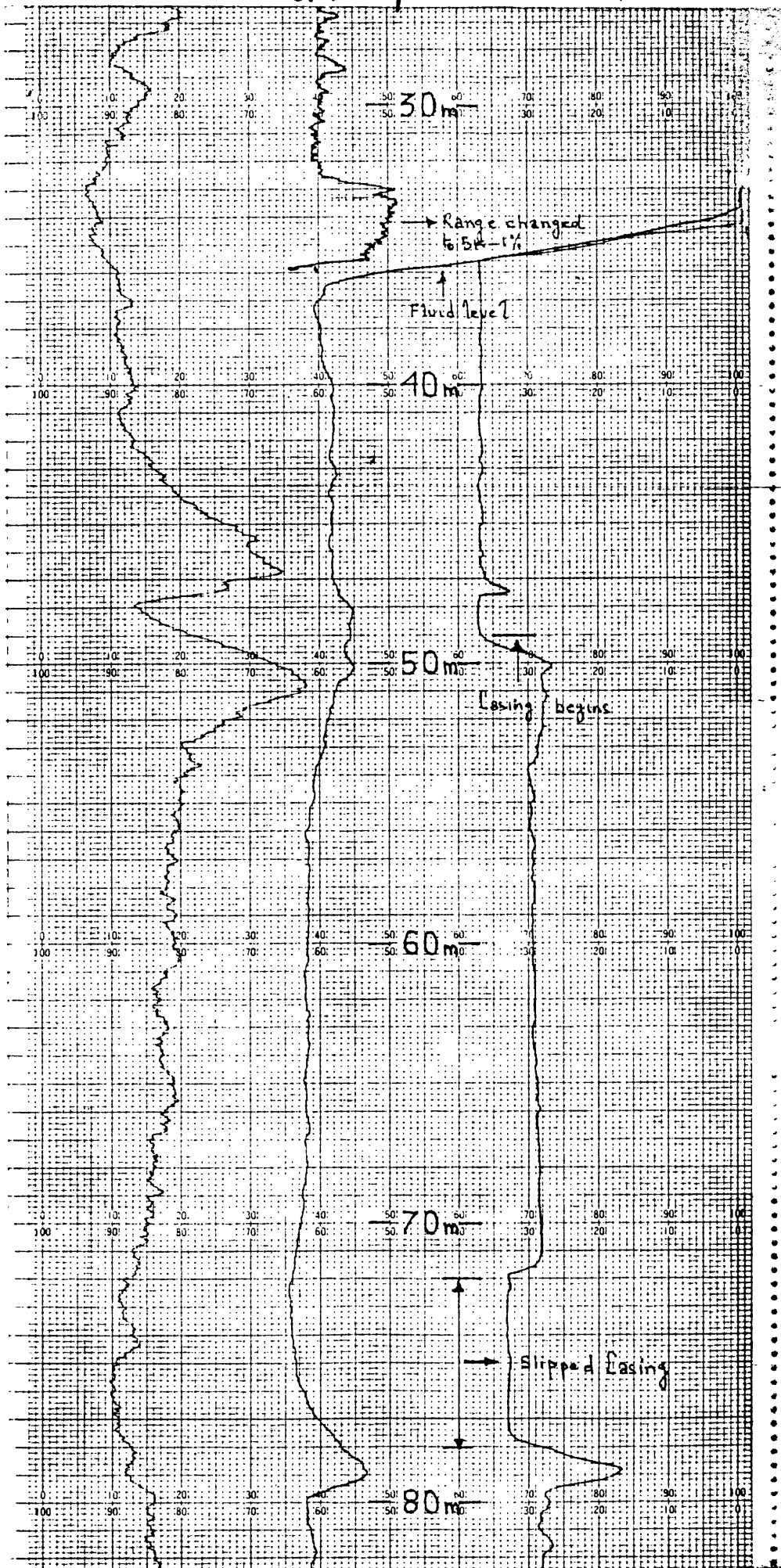
LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY Sind Pakistan			DEPTH DRILLED: 345m		CLIENT U.S.G.S. - G.S.P.	
REGION Thakhs			DEPTH LOGGED: 345m		GEOLOGIST.	
PROJECT CDPL REAP.			COLLAR ELEV			
PROSPECT			DIA. Sec FROM TO		UNIT OPERATOR MUTIG/MENTAB	
SEC TW/ RNO.			DIA. Caliper FROM TO		UNIT NO PL-1 OFFICE	
			DIA. 10.2 FROM TO		BOULDER COLD RADD U.S.A.	
TYPE OAM Newton			BOREHOLE MEDIUM H <sub>2</sub> O + Mud.		ELECTRIC	
LOGGED DEPTH 343m 345m			FLUID LEVEL 35.6m		TYPE RESIST S.P.	
RANGE (F.S.) 100 1K			CASING DATA		LOGGED DEPTH 343m FT	
%STD DEV 3% 1%			WALL SIZE 1/4"		SCALE 10	
PAPER SPEED 1-1 1-1			ID = 4"		PAPER SPEED 1-1	
LOG SPEED 6-1 6-1			CASED FROM 0 TO 49m		LOG SPEED 6-1	
BKGD COUNT			CASING TYPE HW		FINE ADJ 500 R.A.S.	
PROBE NO. GN-1 GN-1			SAMPLE DATA			
SIZE (dia.) 13/8 13/4			NON-CORED HOLE <input checked="" type="checkbox"/> CORED HOLE <input type="checkbox"/>			
K-FACTOR			SAMPLED INTERVAL SAMPLE TYPE			
DEAD TIME 2 2						
STANDARD						
DIGITAL DATA			REMARKS		CALIPER	
PRINT INTERVAL			Laying = 9-94m		LOGGED DEPTH FT	
TIMEBASE			Non Casing = 94-345m		SCALE	
					PAPER SPEED	
					LOG SPEED	
					ARM LENGTH	
					MAX DEF.	
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN	
					BEARING	





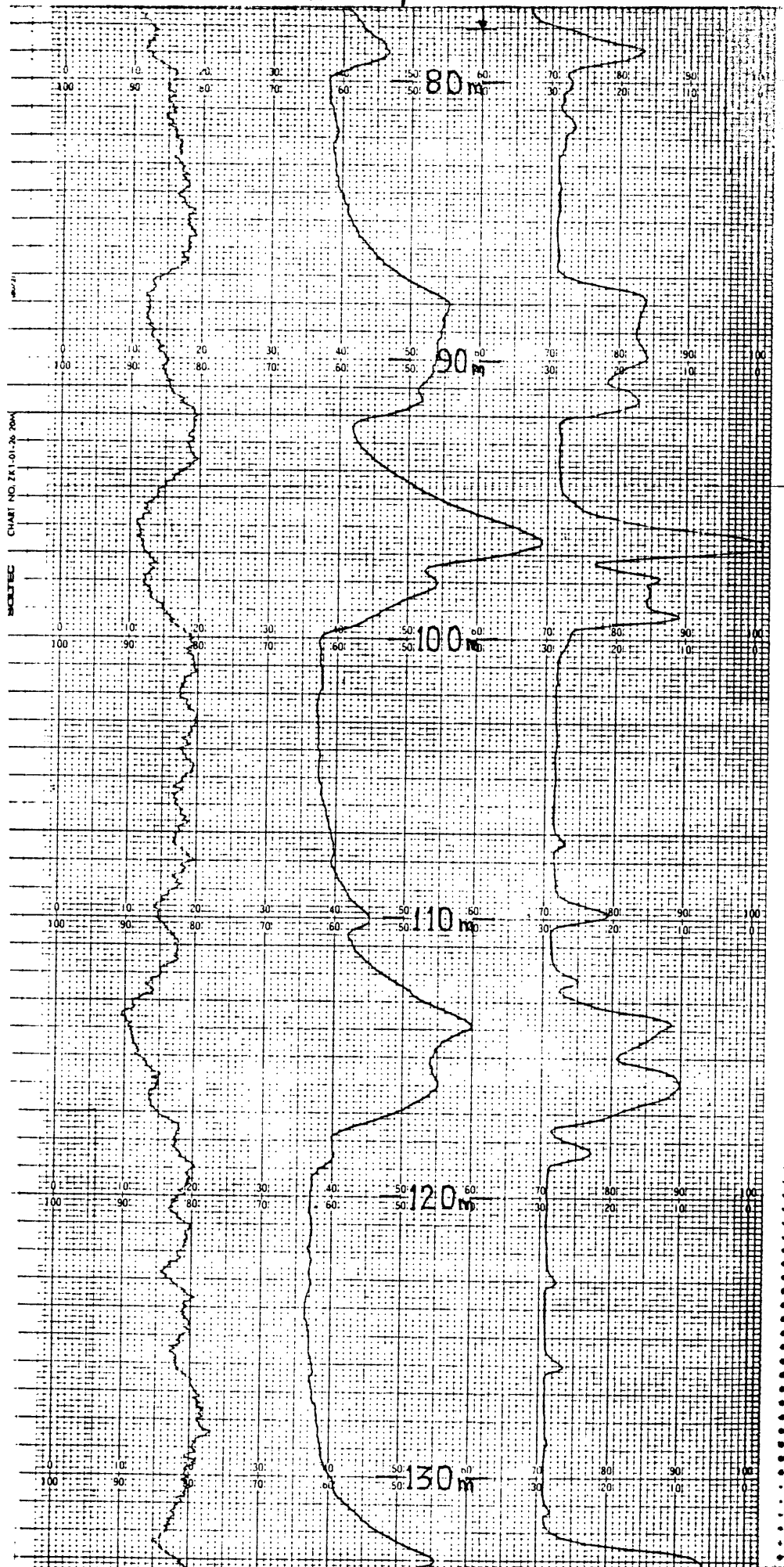
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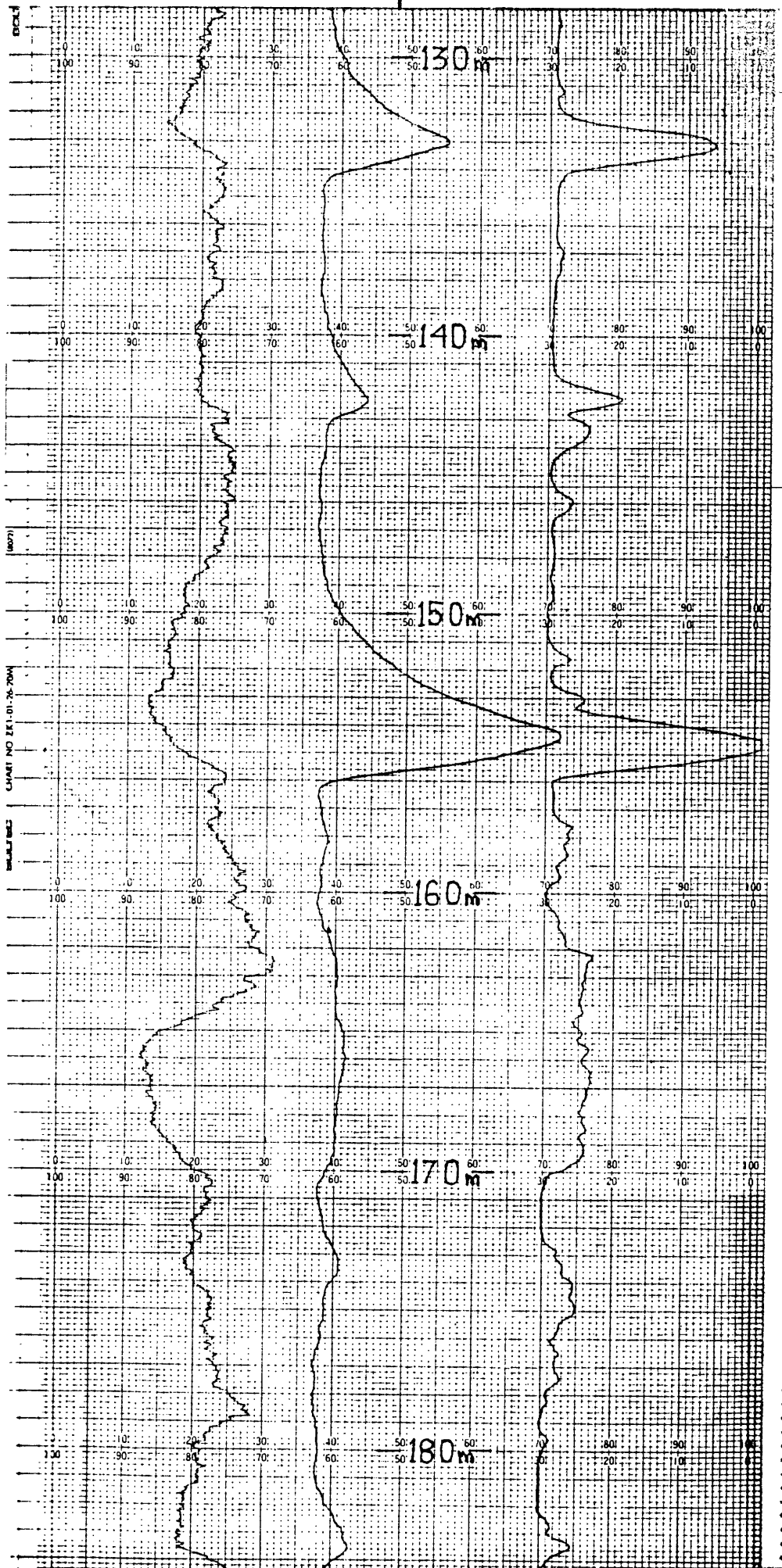
P.567



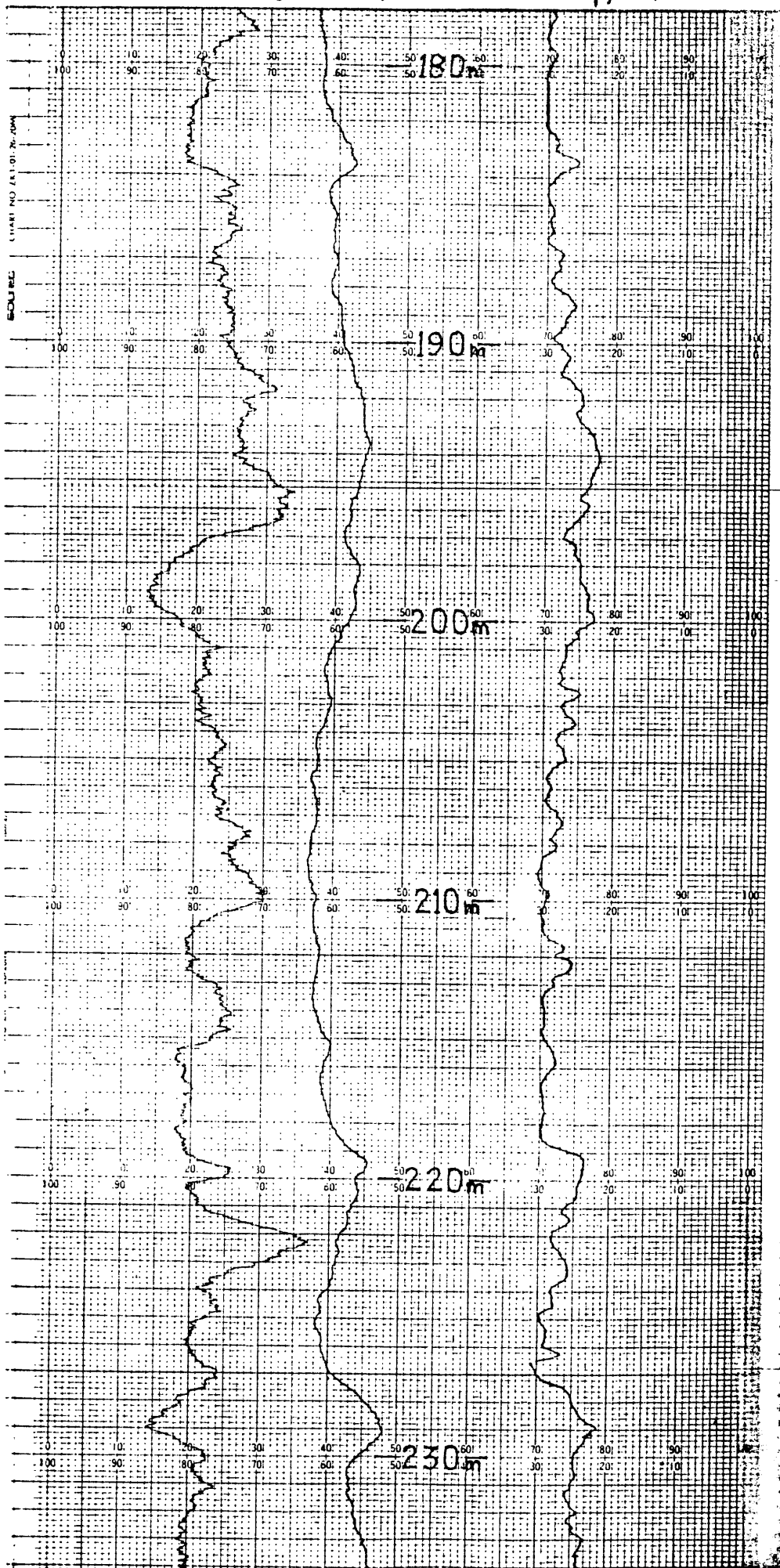


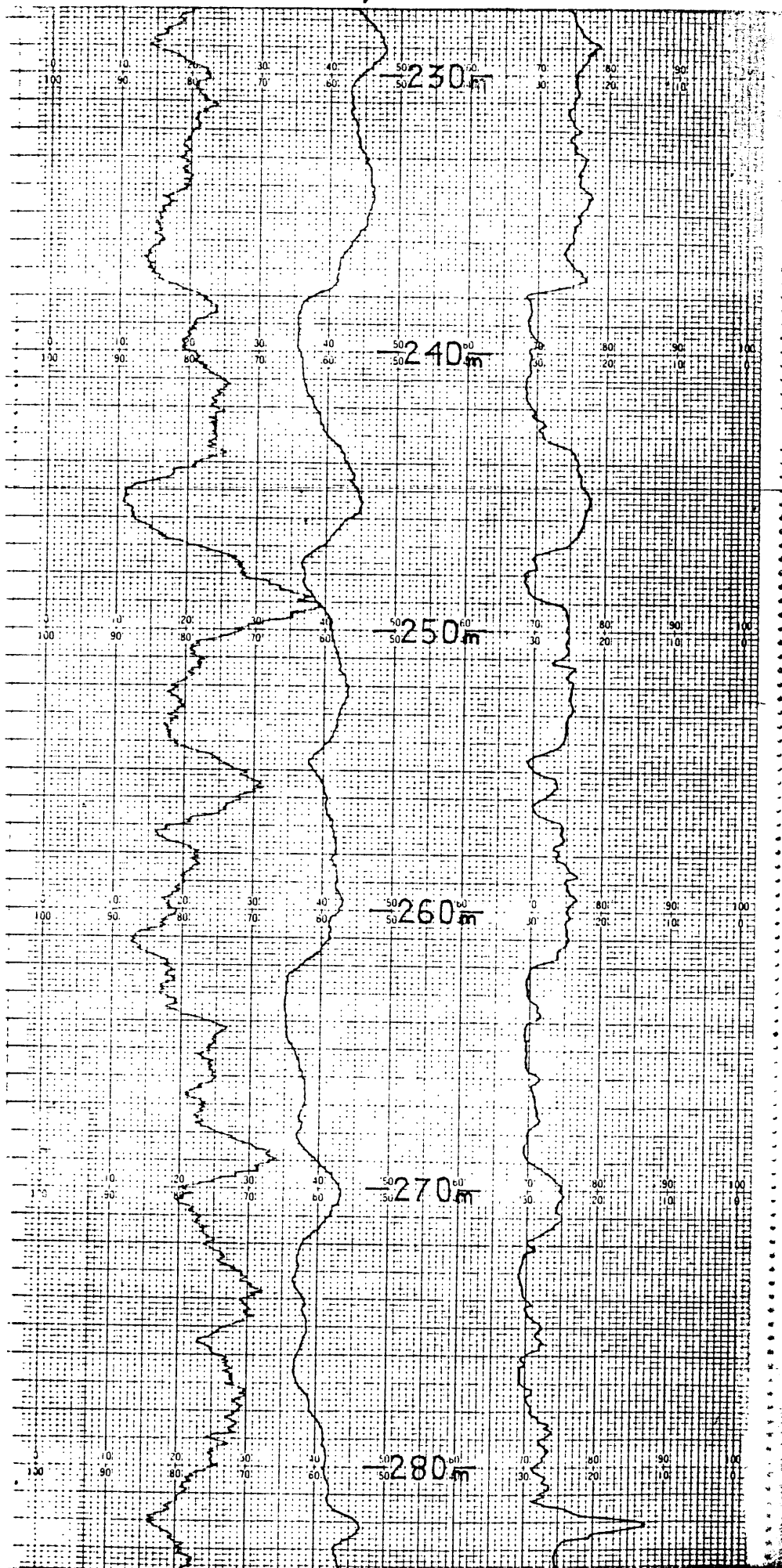
UAT-9

R568



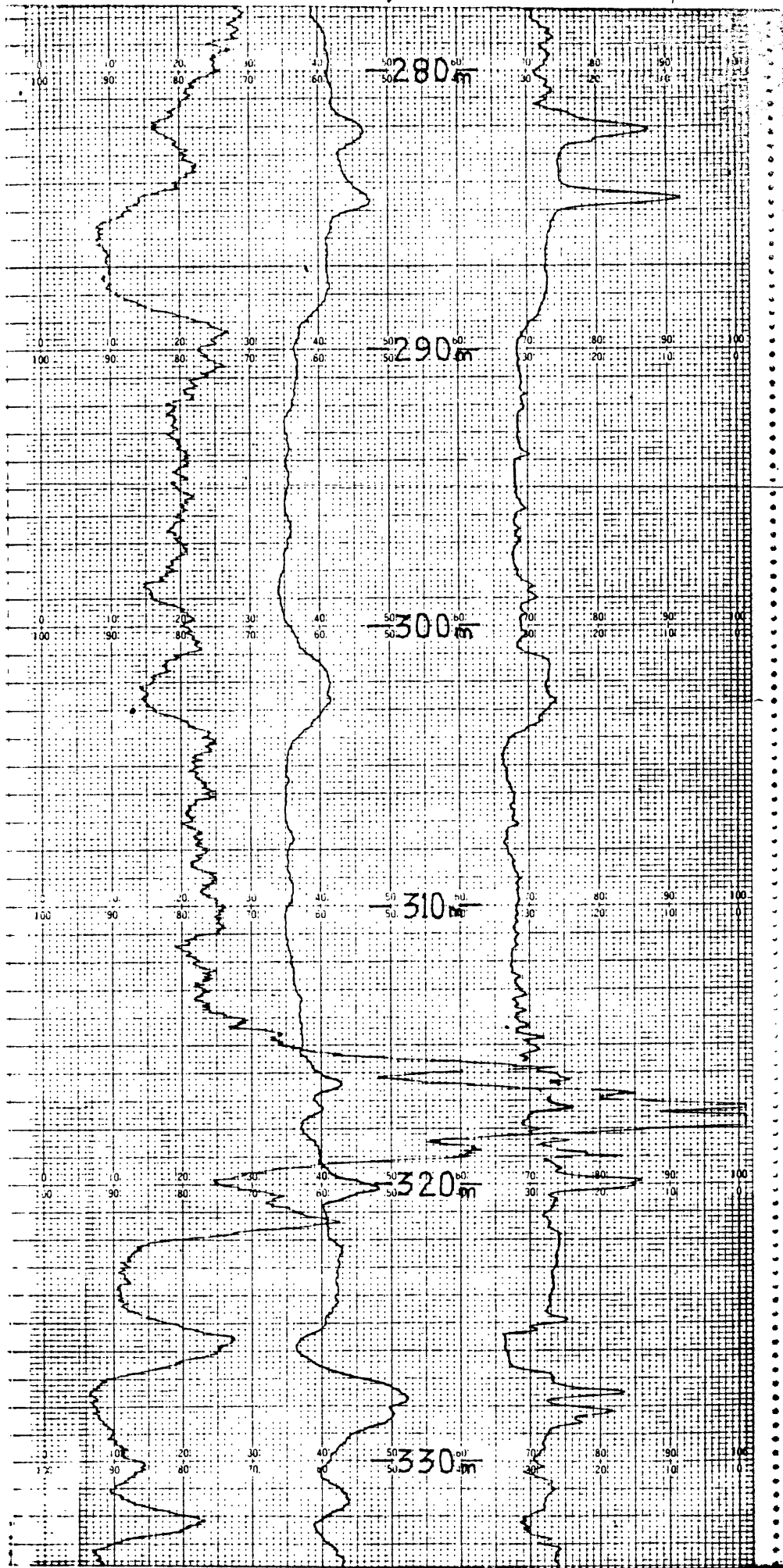
P.569





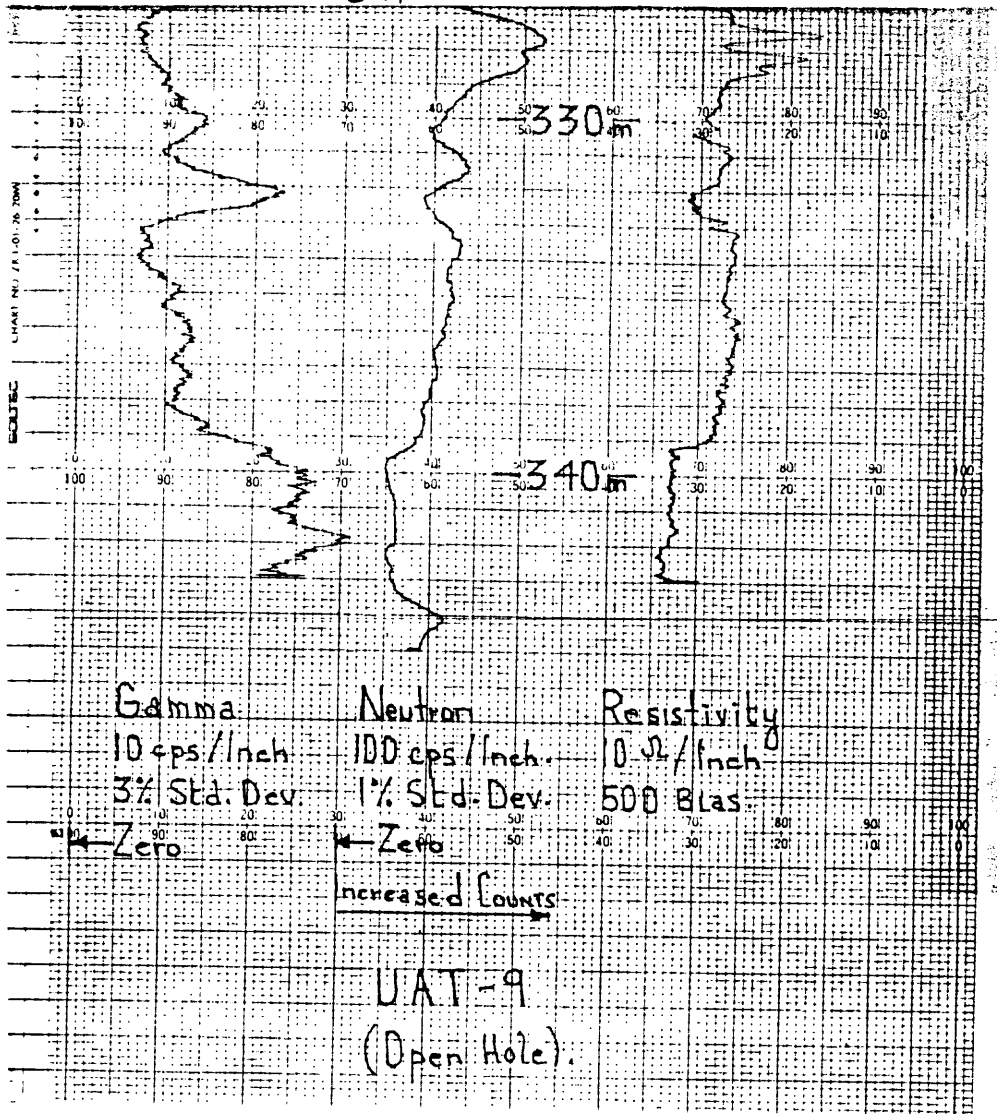
UAT-9

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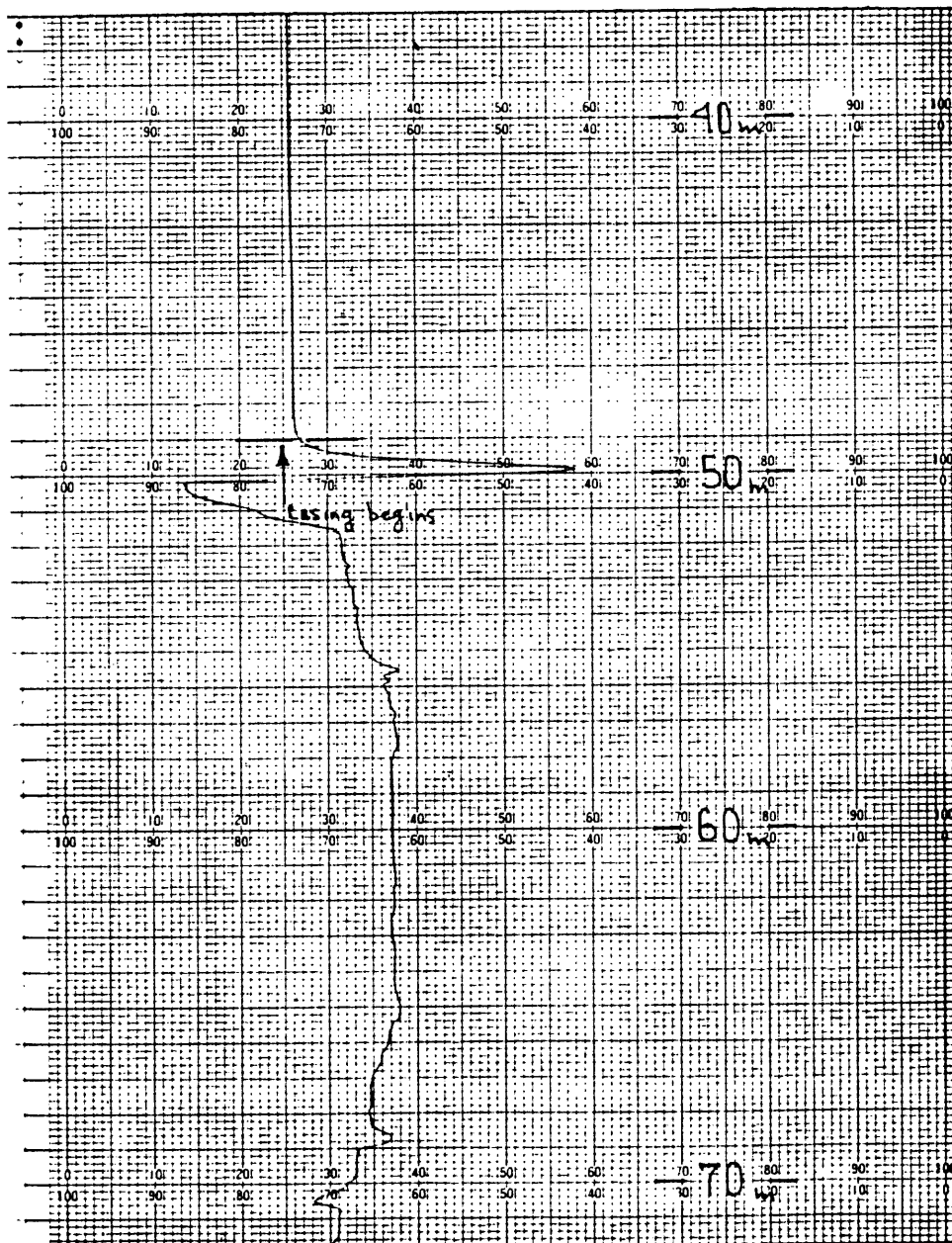
HOLE NUMBER:

UAT-9

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DATE: 23rd January, 1987

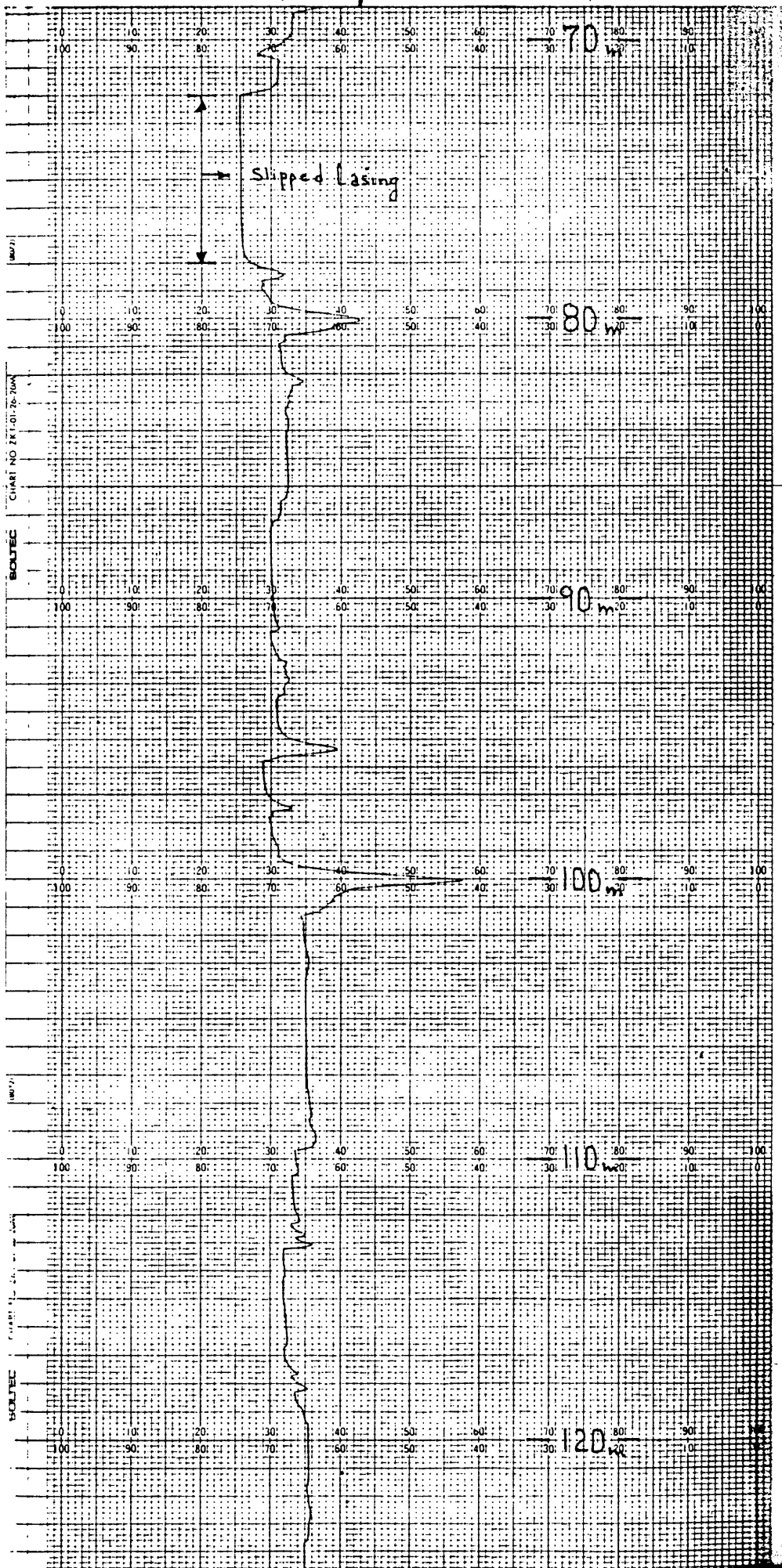
LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY Sind Pakistan				DEPTH DRILLED: 345m				CLIENT U.S.G.S. - G.S.P.			
REGION Thatta				DEPTH LOGGED: 342m				GEOLOGIST:			
PROJECT COAL REAP.				COLLAR ELEV.				UNIT OPERATOR MUJIB/MEHTAB			
PROSPECT				DIA. See FROM TO				UNIT NO PL-2 OFFICE			
SEC. TWP. RING.				DIA. Caliper FROM TO				800 DEK CALABADO U.S.A			
				DIA. 1-3 FROM TO				ELECTRIC			
TYPE				BOREHOLE MEDIUM H <sub>2</sub> O + Mud				TYPE			
LOGGED DEPTH				FLUID LEVEL				LOGGED DEPTH			
RANGE (I.S.)				CASING DATA				RESIST			
STD DEV				WALL SIZE 1/4"				S.P.			
PAPER SPEED				I.D. = 4"				FT			
LOG SPEED				CASED FROM 0 TO 49m				SCALE			
BKOND. COUNT				CASINO TYPE HW				PAPER SPEED			
PROBE NO.				SAMPLE DATA				LOG SPEED			
SIZE (dia.)				NON-CORED HOLE <input checked="" type="checkbox"/> CORED HOLE <input type="checkbox"/>				FINE ADJ.			
K-FACTOR				SAMPLED INTERVAL							
DEAD TIME				SAMPLE TYPE							
STANDARD											
DIGITAL DATA				REMARKS				3 Avm CALIPER			
PRINT INTERVAL				Logging = 4-94m				LOGGED DEPTH 342m			
TIMEBASE				Non Logging = 94-345m				SCALE .4 Div = 1" Dia.			
DENSITY CALIBRATION								PAPER SPEED 1-1			
ALUMINUM								LOG SPEED 6-1			
LUCITE								ARM LENGTH 12			
								MAX DEF. 24			
								VERTICAL DEV.			
								DEPTH			
								INCLIN.			
								BEARING			





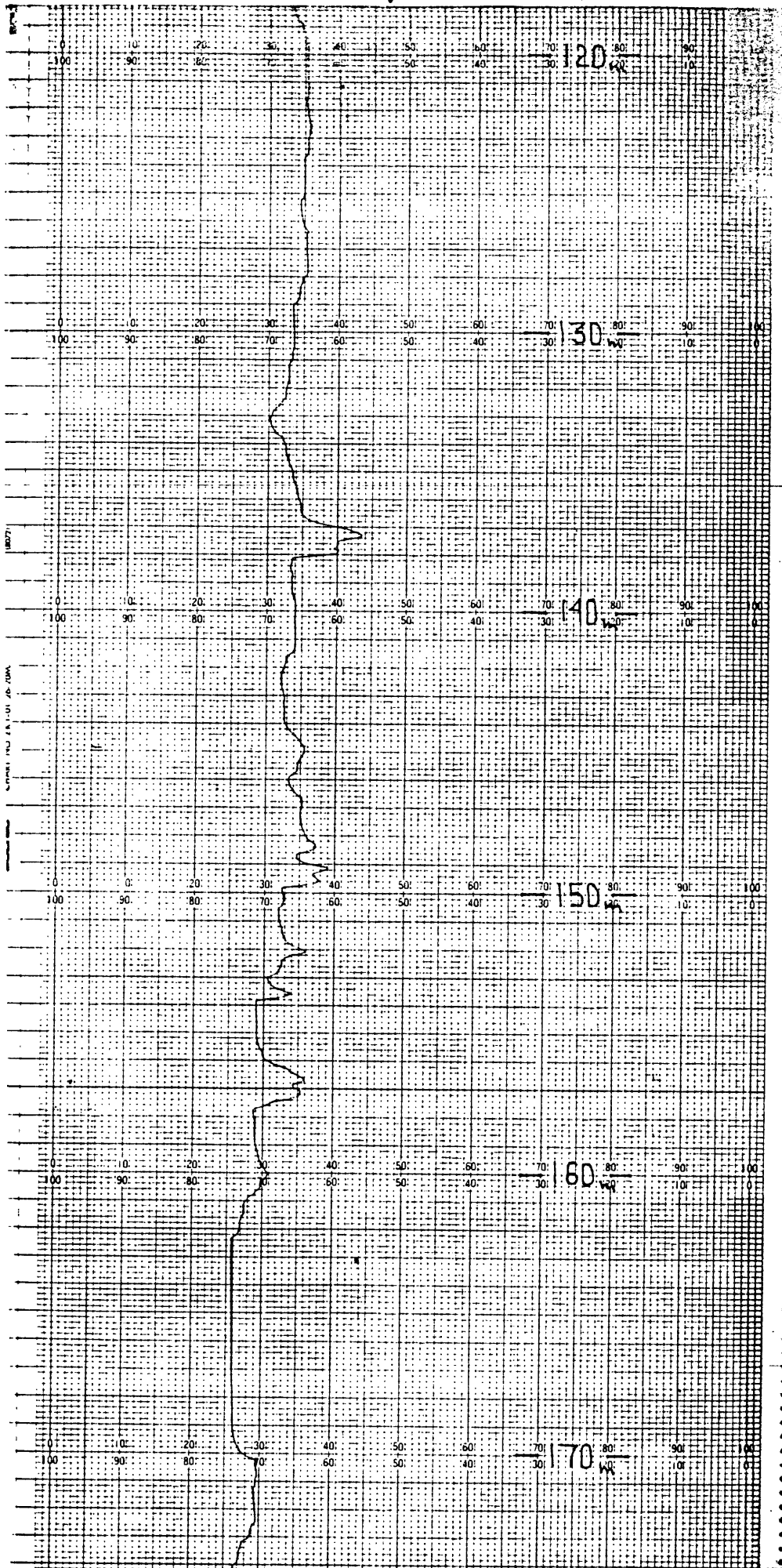
UAT-9

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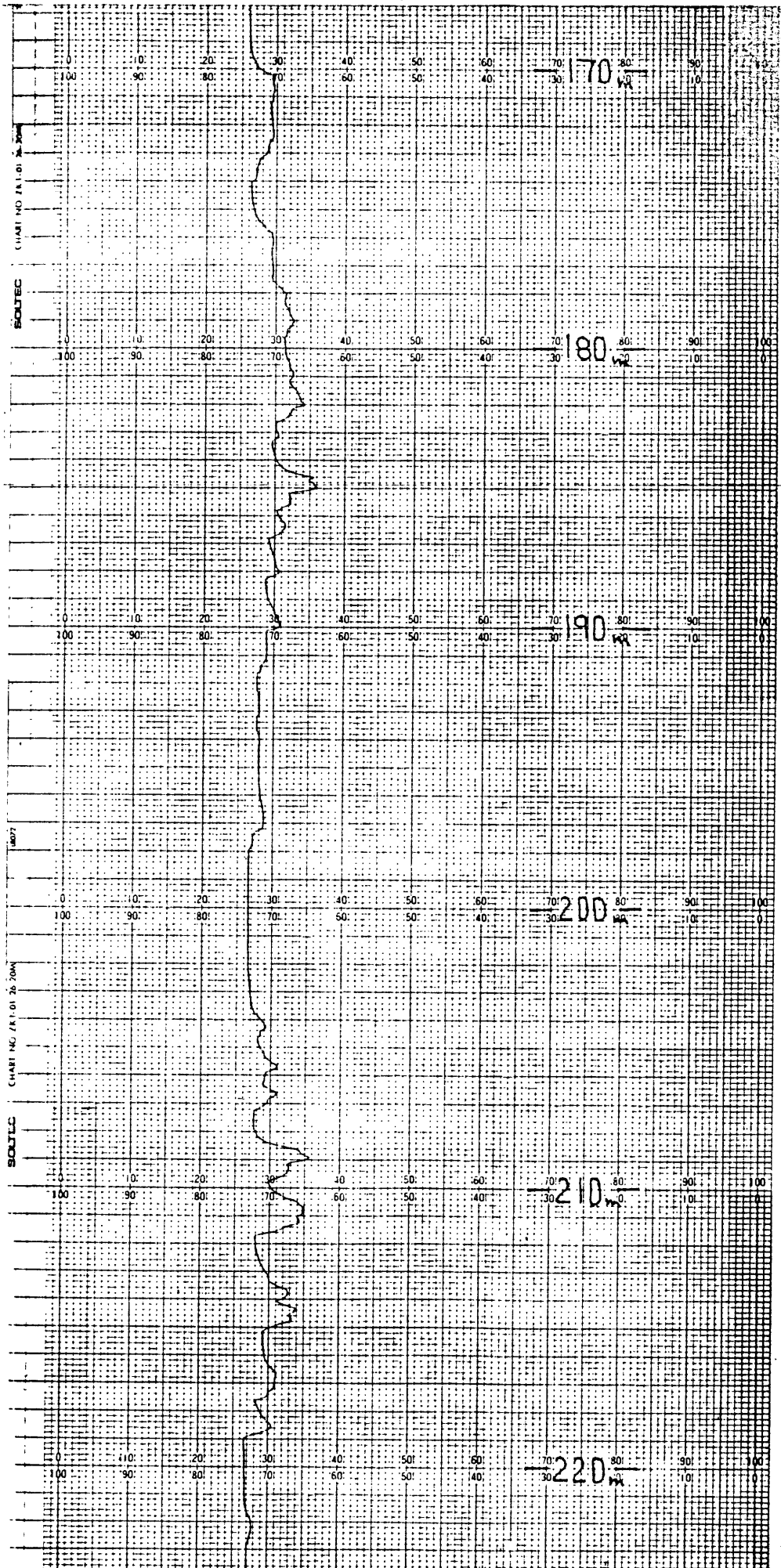
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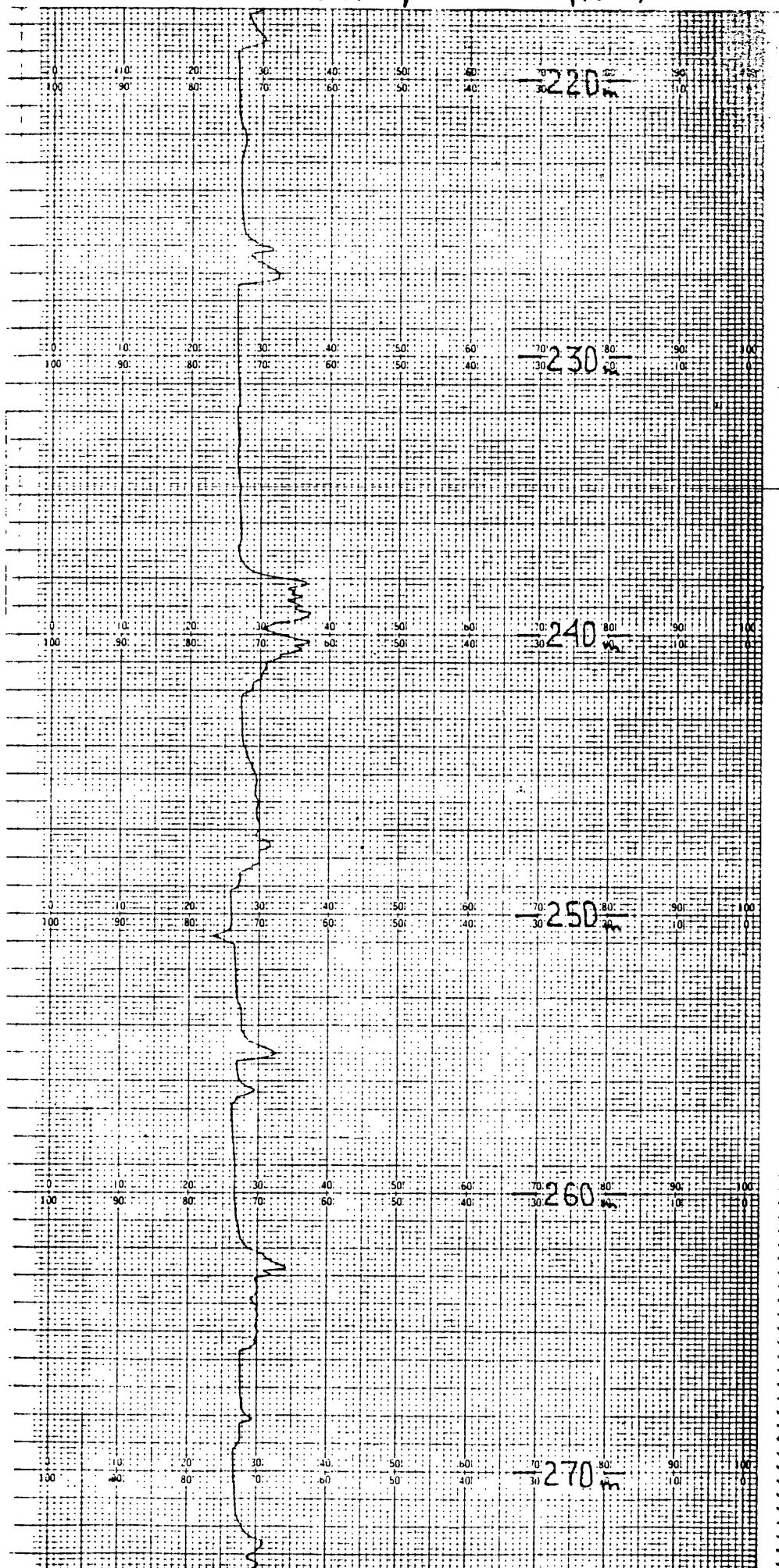


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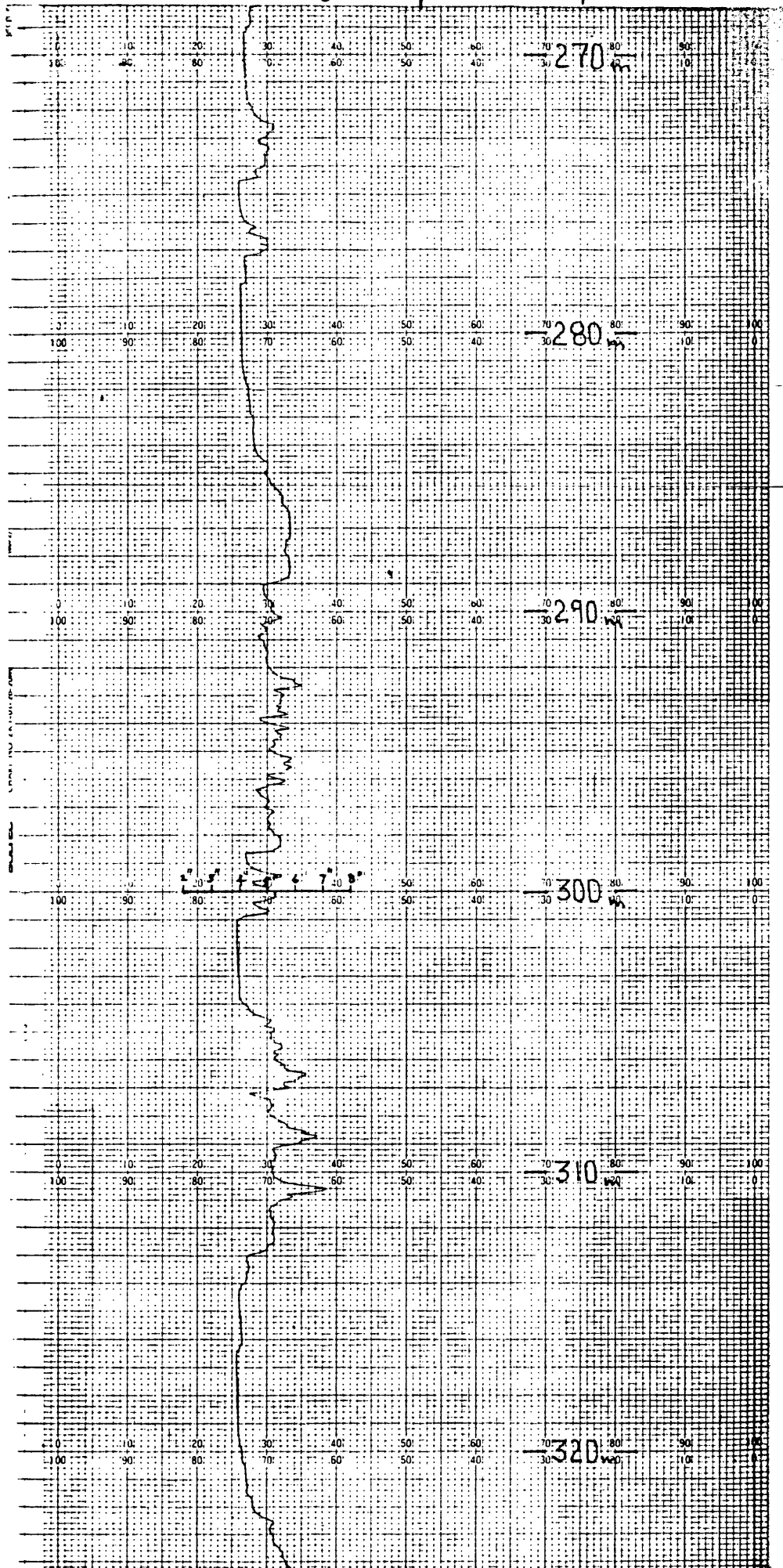


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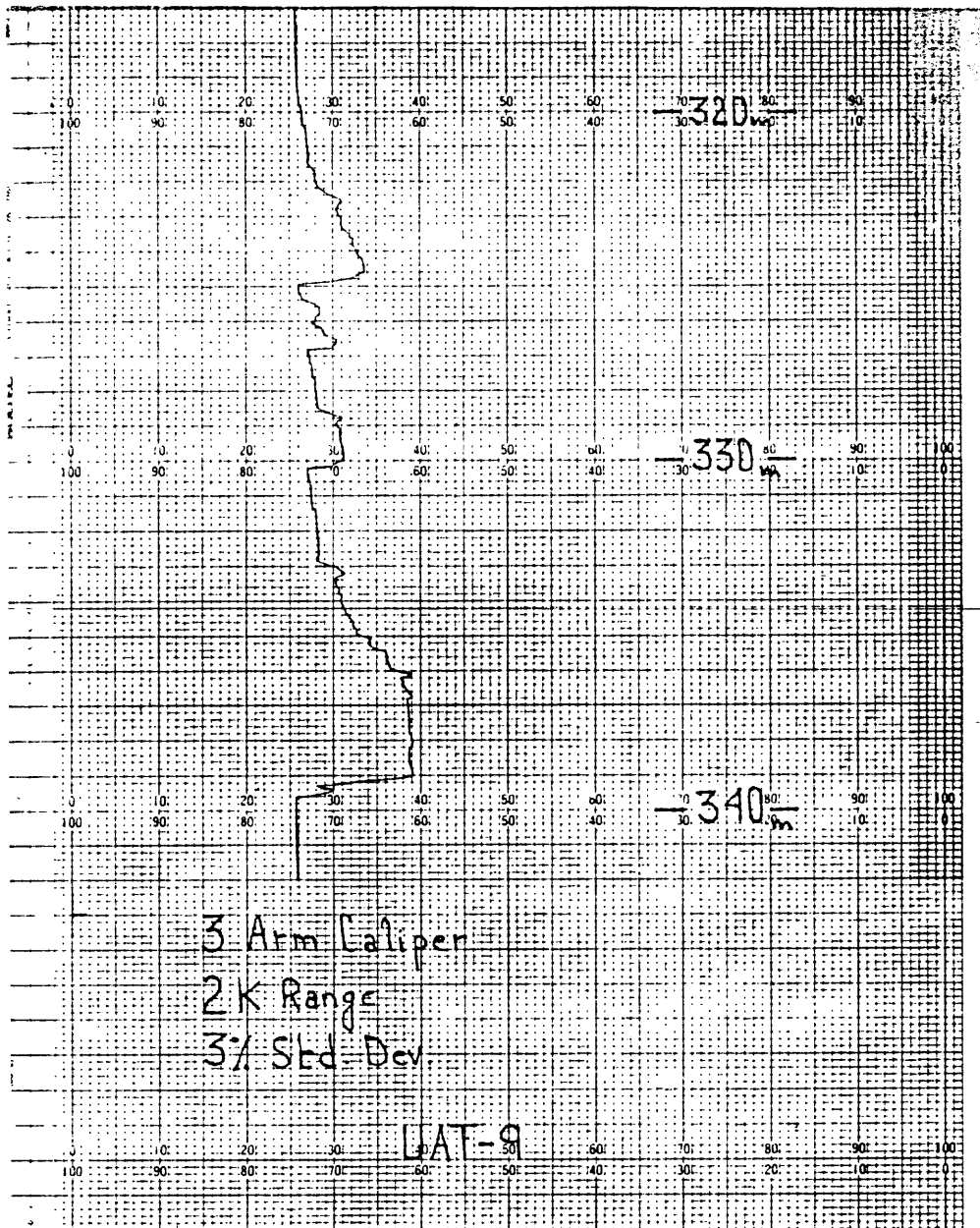
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DRILL HOLE UAT-10

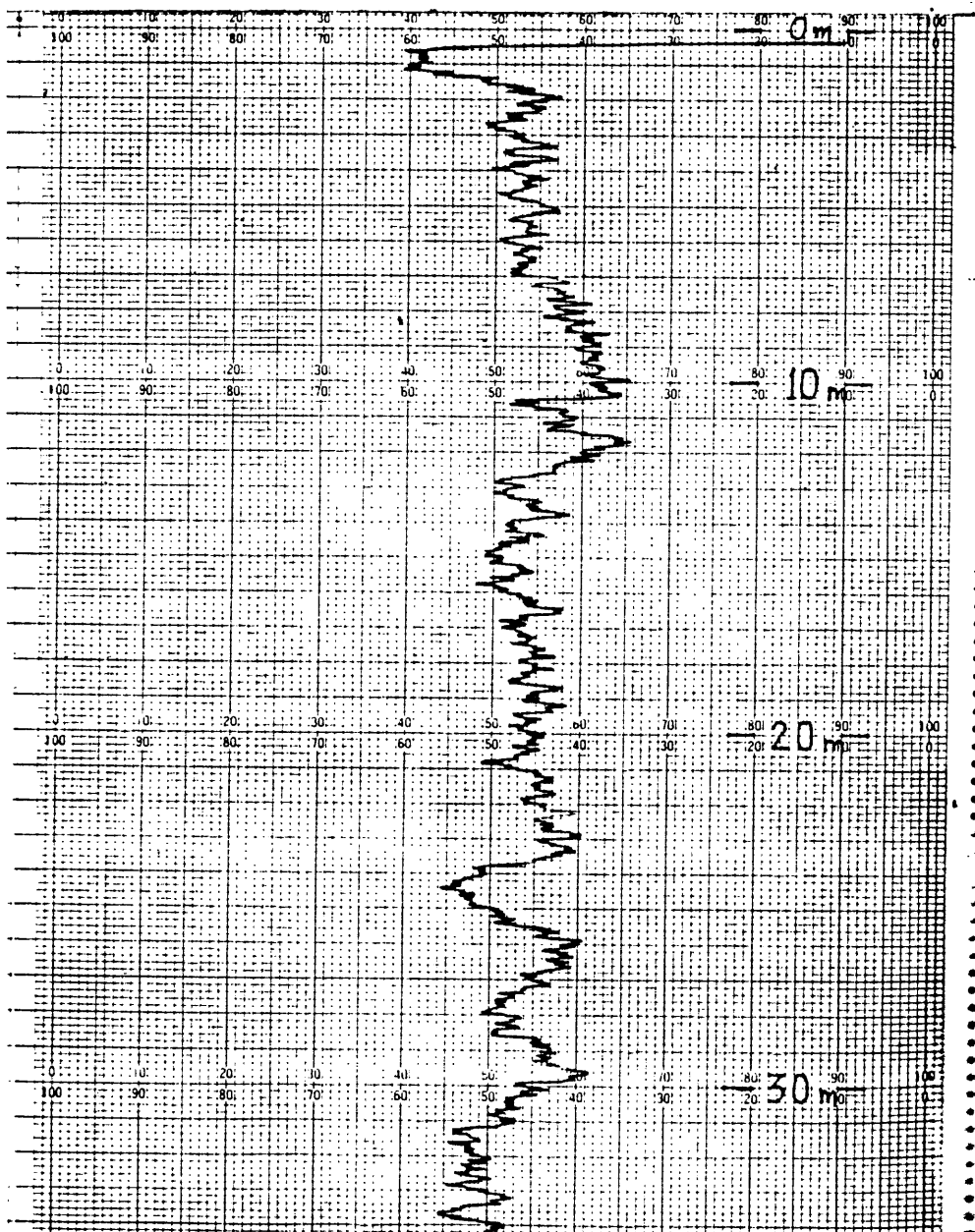


HOLE NUMBER:

UAT-10

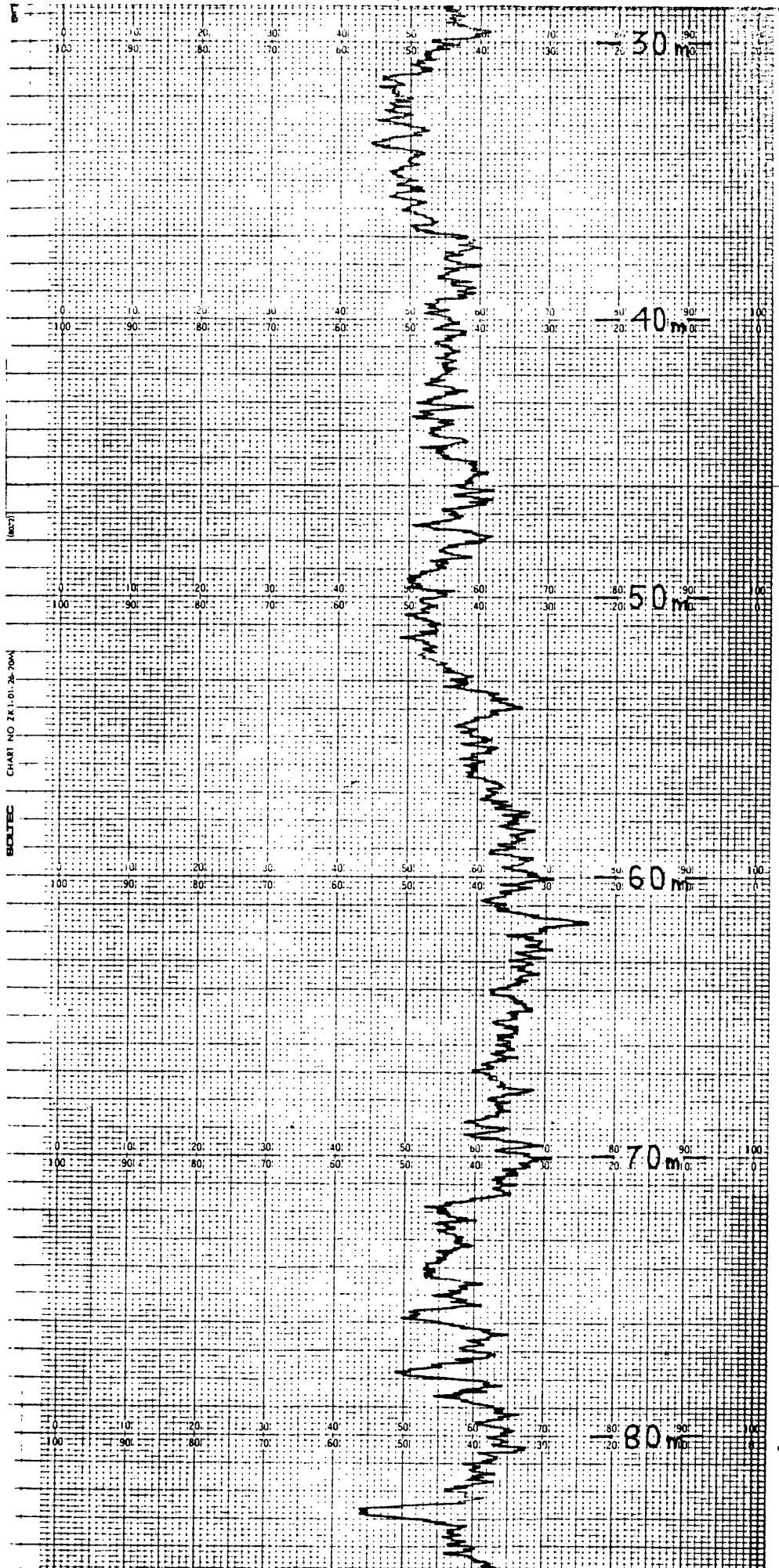
DATE: 16th January, 1987

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY <u>Sind Pakistan</u>			DEPTH DRILLED <u>22.5 m</u>		CLIENT <u>U.S.G.S. - G.S.P.</u>	
REGION <u>Sonda</u>			DEPTH LOGGED <u>22.2 m</u>		GEOLOGIST	
PROJECT <u>COAL REAP.</u>			COLLAR ELEV.		UNIT OPERATOR <u>MUJIB/Khushid</u>	
PROSPECT			DIA <u>See</u> FROM TO		UNIT NO <u>PL-2</u> OFFICE	
SEC TWP RRG.			DIA <u>Caliper</u> FROM TO		<u>BOULDER COLORADO U.S.A.</u>	
TYPE			BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud.</u>		ELECTRIC	
LOGGED DEPTH <u>22.2 m</u>			FLUID LEVEL		TYPE	
RANGE (f.s.) <u>5K</u>			CASING DATA		LOGGED DEPTH	
WSTD DEV <u>1%</u>			WALL SIZE <u>1/4"</u>		SCALE	
PAPER SPEED <u>1-1</u>			ID <u>4"</u>		PAPER SPEED	
LOG SPEED <u>6-1</u>			CASED FROM <u>0 TO 14.6 m</u>		LOG SPEED	
BKGND. COUNT			CASING TYPE <u>HW</u>		FINE ADJ.	
PROBE NO <u>GD-1</u>			SAMPLE DATA		CALIPER	
SIZE (dia.) <u>1 3/8"</u>			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>		LOGGED DEPTH	
K-FACTOR			SAMPLED INTERVAL		SCALE	
DEAD TIME <u>2</u>			SAMPLE TYPE		PAPER SPEED	
STANDARD			REMARKS		LOG SPEED	
DIGITAL DATA			Logged through drillpipe and casing		ARM LENGTH	
PRINT INTERVAL			Drill pipe I.D. = <u>1 3/8"</u>		MAX DEF.	
TIMEBASE			O.D. = <u>2 5/8"</u>		VERTICAL DEV.	
DENSITY CALIBRATION					DEPTH	
ALUMINUM					INCLIN.	
LUCITE					BEARING	



UAT-10

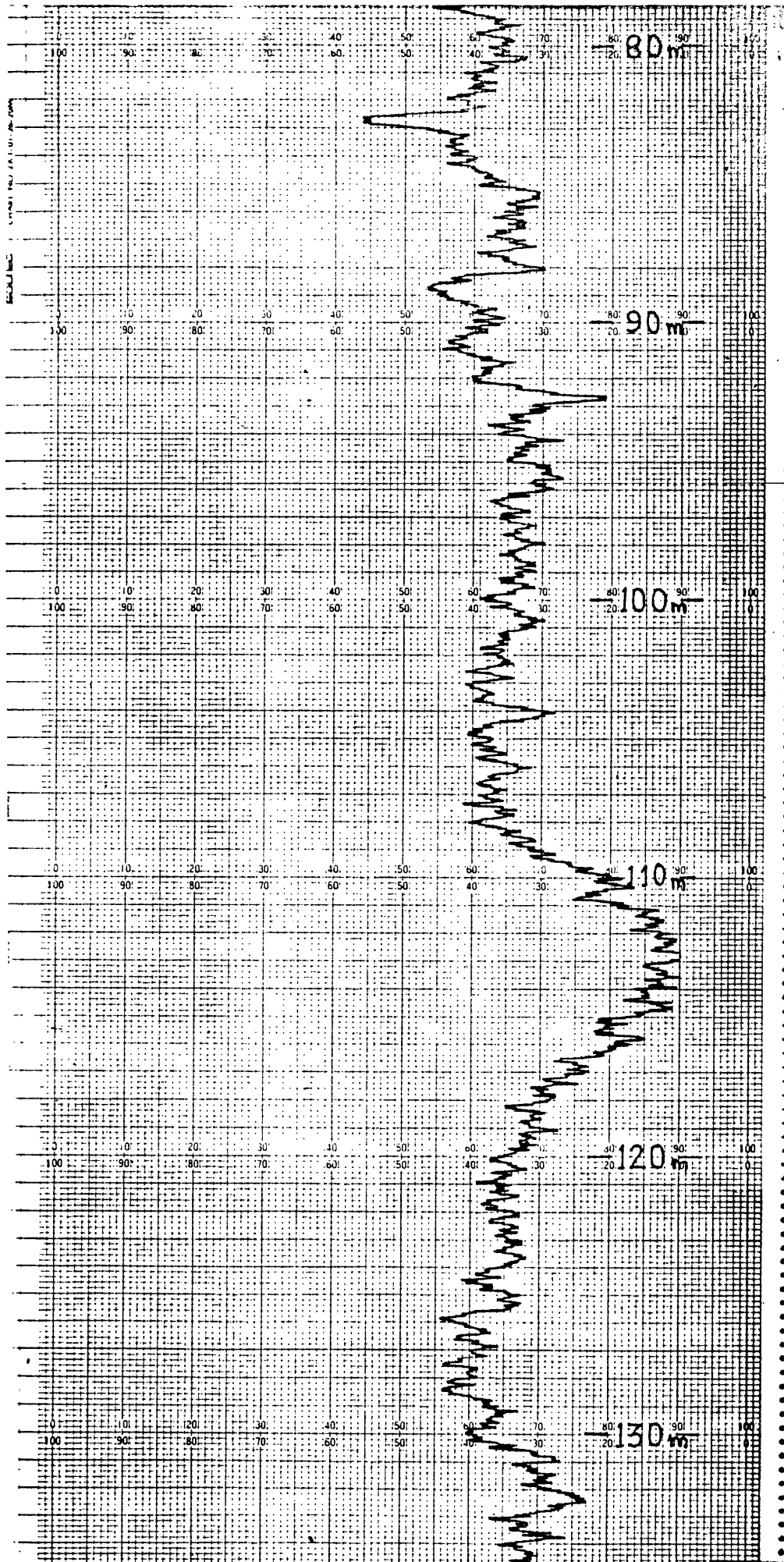
P.582





UAT-10

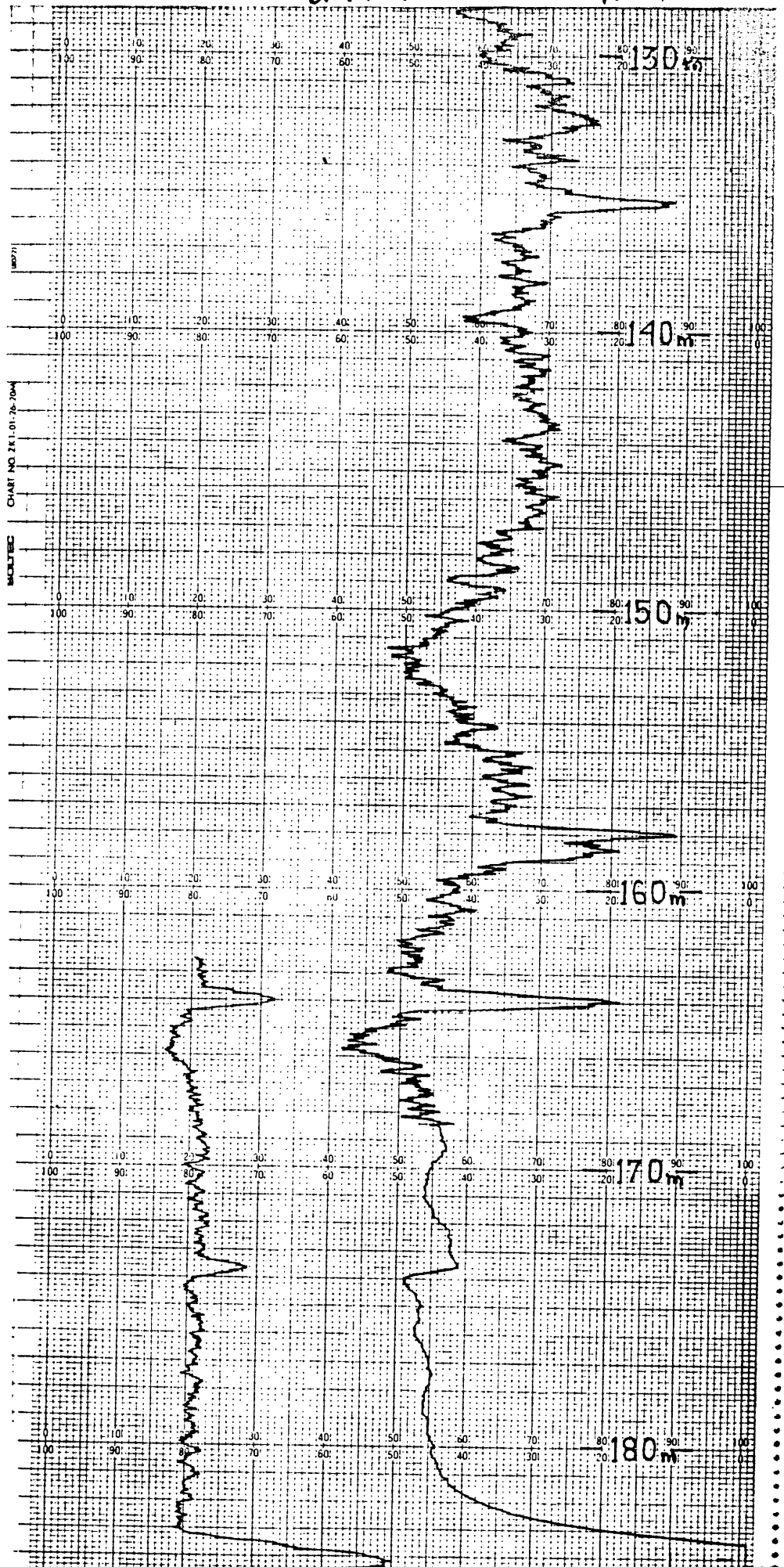
P.583





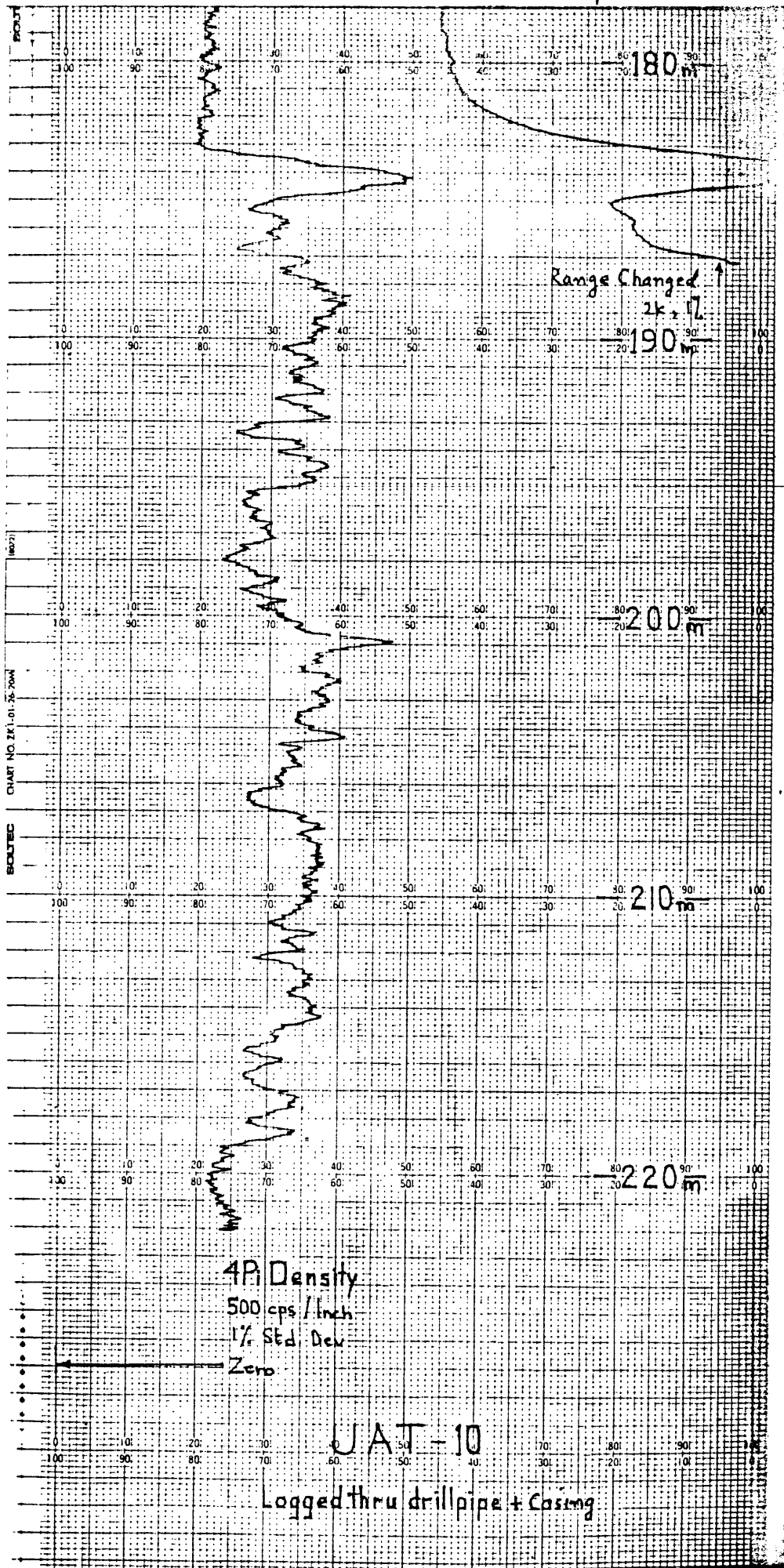
UAT-10

P.584



UAT-10

P.585





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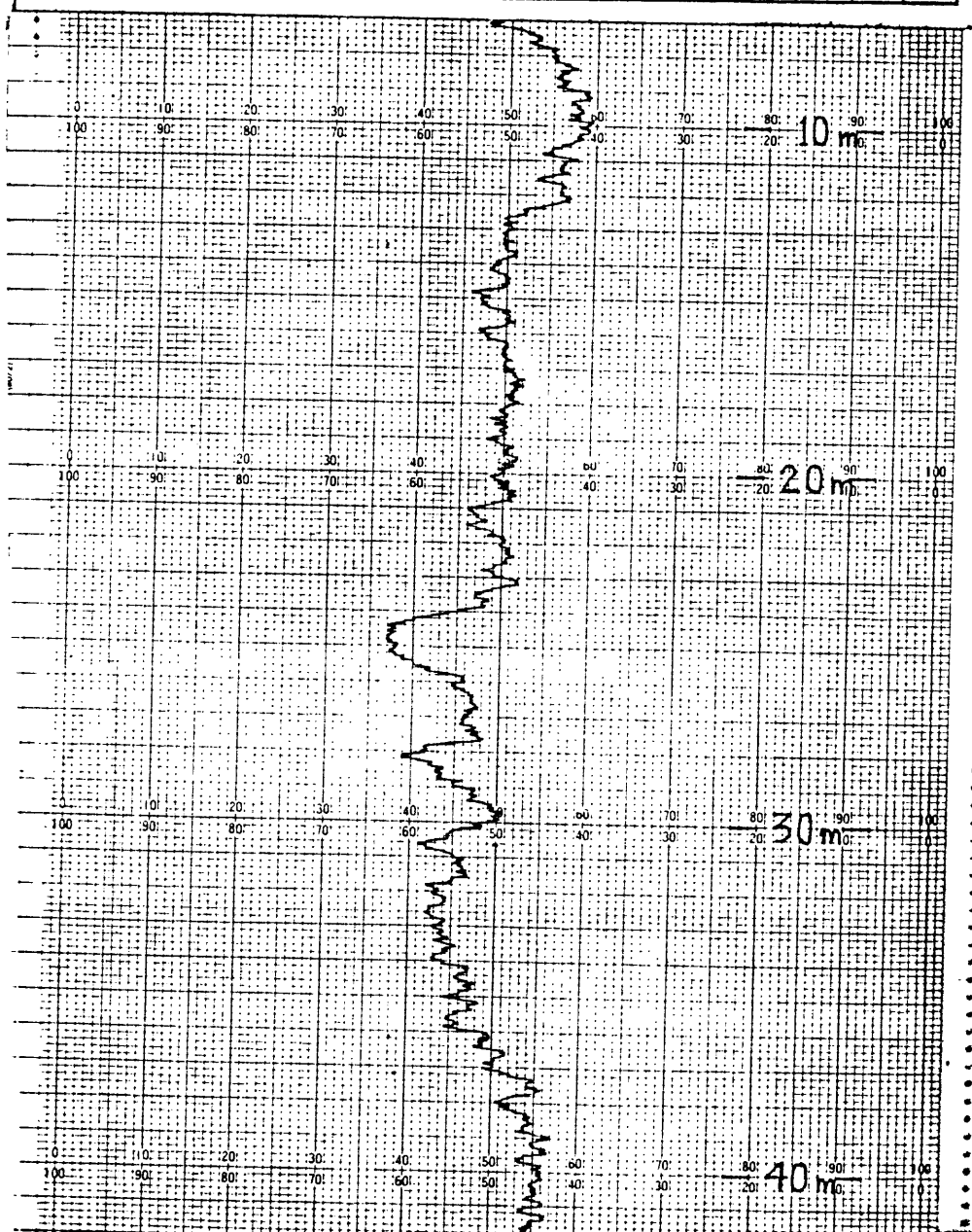
HOLE NUMBER:

UAT-10

DATE:

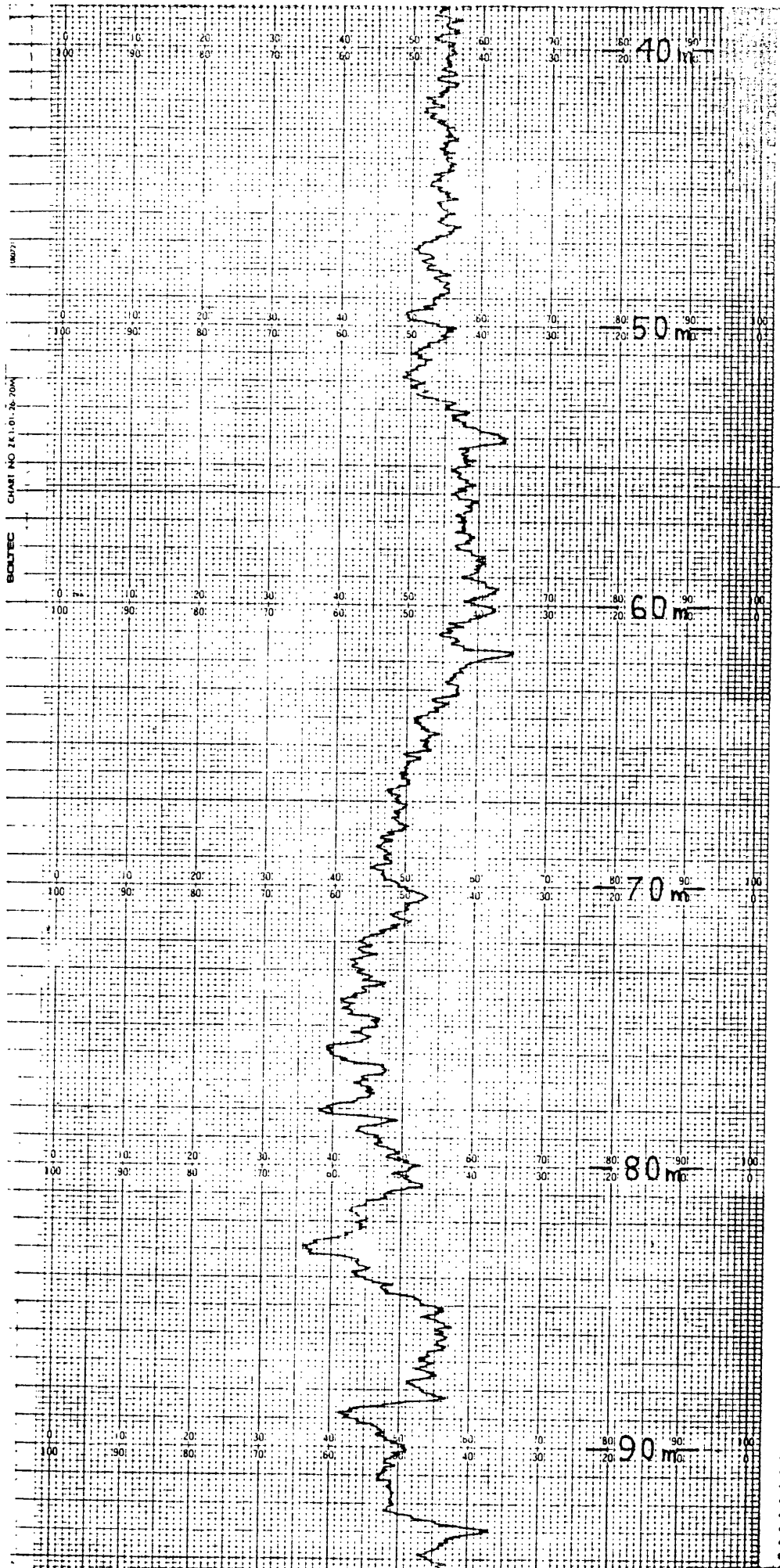
17 January 1987

LOCATION				HOLE DATA				CLIENT			
STATE/COUNTY Sind Pakistan				DEPTH DRILLED 22.5 m				CLIENT U.S.G.S. - G.S.P.			
REGION Thatta				DEPTH LOGGED 200 m				GEOLOGIST:			
PROJECT COAL REAP.				COLLAR ELEV							
PROSPECT				DIA Sec FROM TO				UNIT OPERATOR MUIB/NEPAB			
SEC TWP RNG				DIA Caliper FROM TO				UNIT NO PL-2 OFFICE			
				DIA Lug FROM TO				BOULDER COLORADO U.S.A.			
TYPE				BOREHOLE MEDIUM H <sub>2</sub> O - Mvd				ELECTRIC			
LOGGED DEPTH				FLUID LEVEL				TYPE			
RANGE (ft.)				CASING DATA				LOGGED DEPTH			
STD DEV				WALL SIZE 1/4"				RESIST			
PAPER SPEED				ID 4"				FT			
LOG SPEED				CASED FROM 0 TO 145.6				SCALE			
BKGND. COUNT				CASING TYPE HW				PAPER SPEED			
PROBE NO.				SAMPLE DATA				LOG SPEED			
SIZE (dia.)				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>				FINE ADJ.			
K-FACTOR				SAMPLED INTERVAL							
DEAD TIME				SAMPLE TYPE							
STANDARD				REMARKS							
DIGITAL DATA								CALIPER			
PRINT INTERVAL								LOGGED DEPTH			
TIMEBASE								SCALE			
								PAPER SPEED			
								LOG SPEED			
								ARM LENGTH			
								MAX DEF.			
DENSITY CALIBRATION								VERTICAL DEV.			
ALUMINUM								DEPTH			
LUCITE								INCLIN.			
								BEARING			



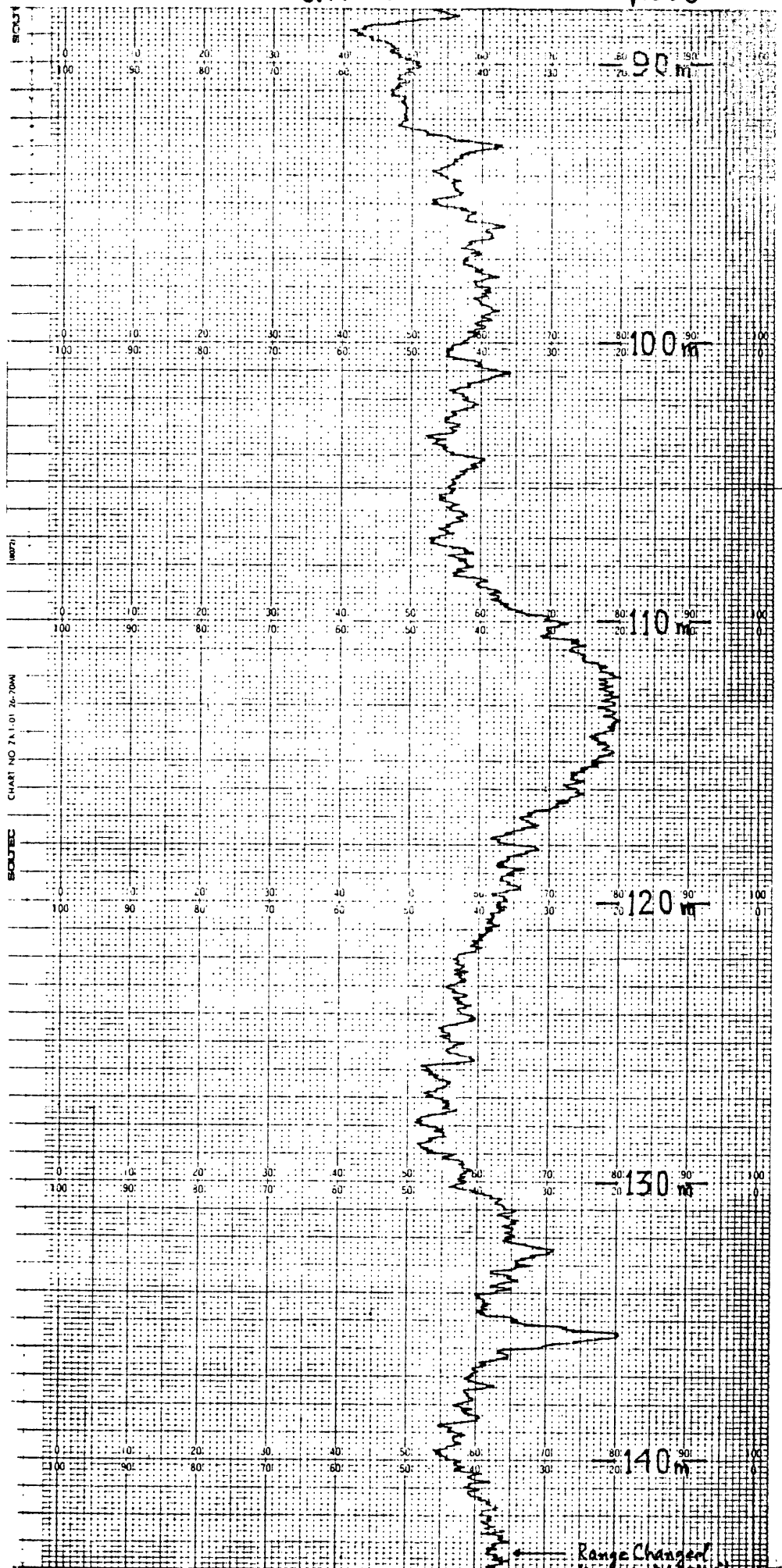
UAT-10

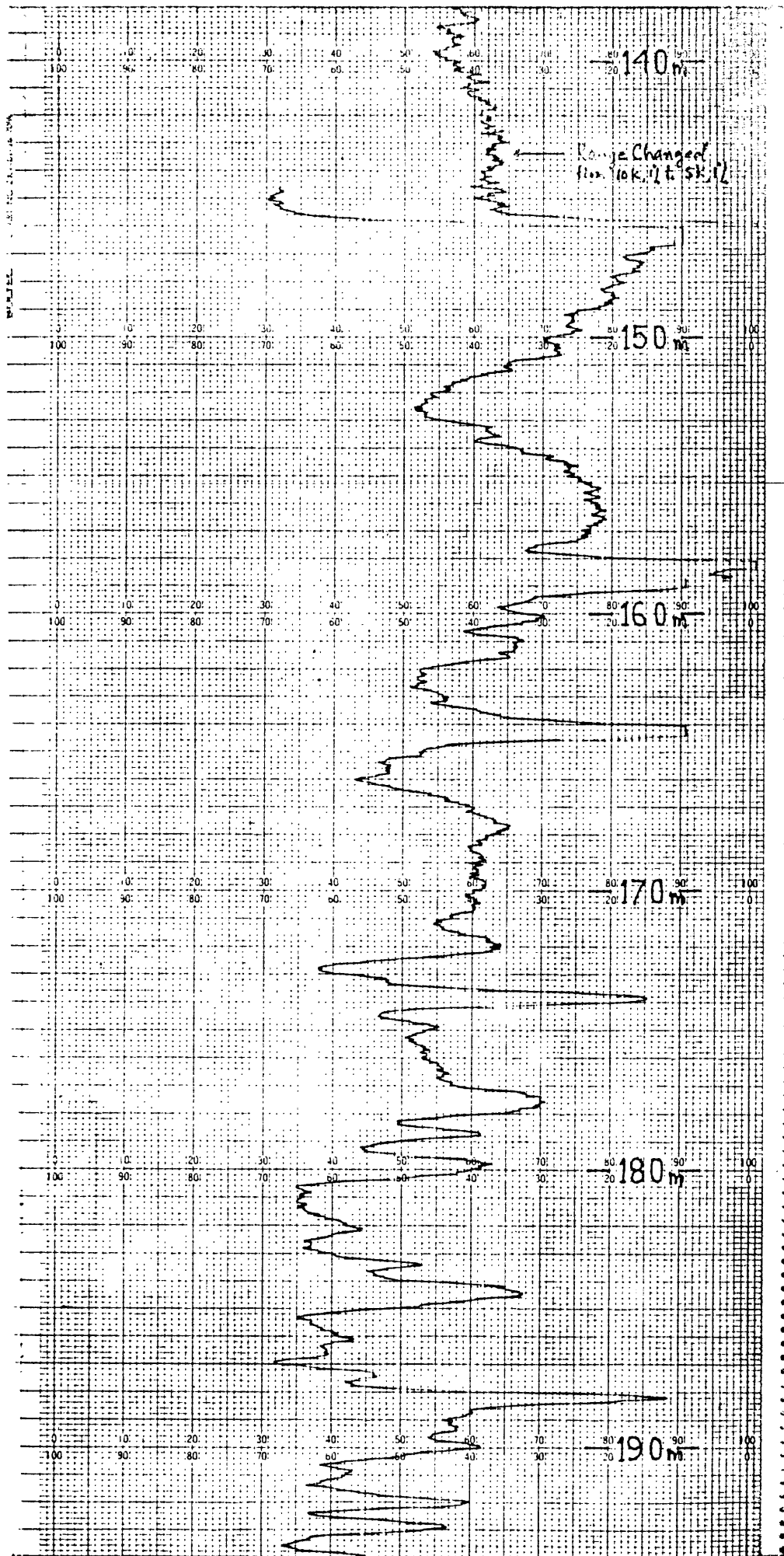
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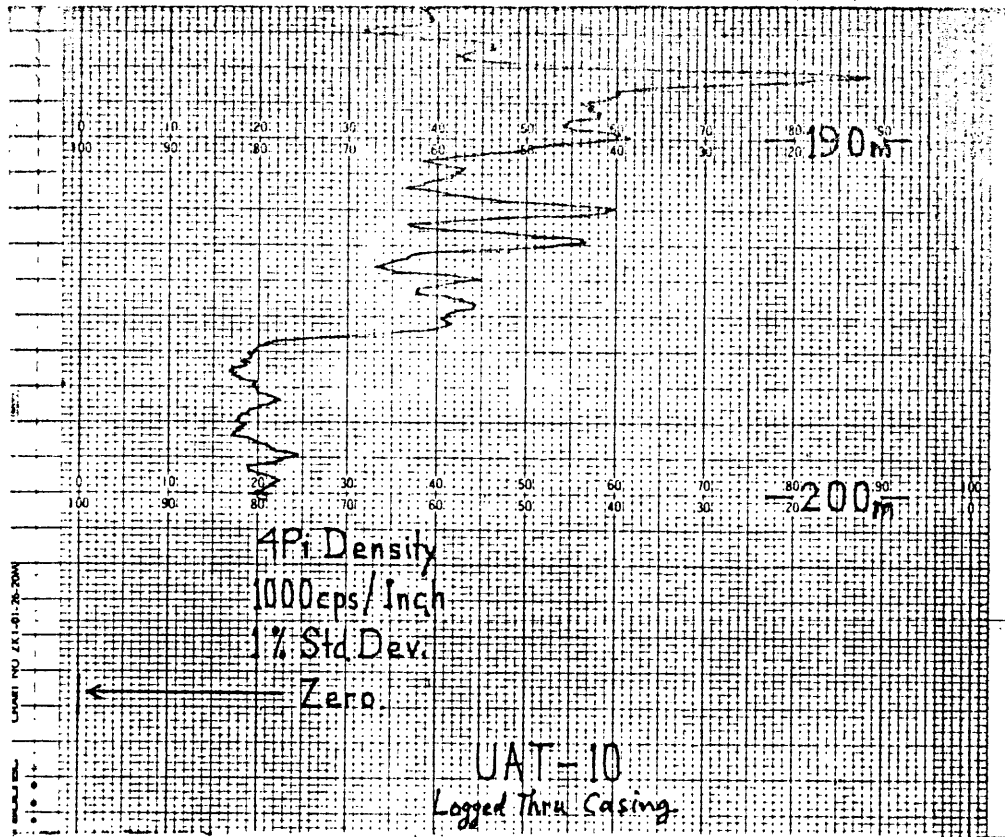






UAT-10

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# GEOSCIENCE ASSOCIATES

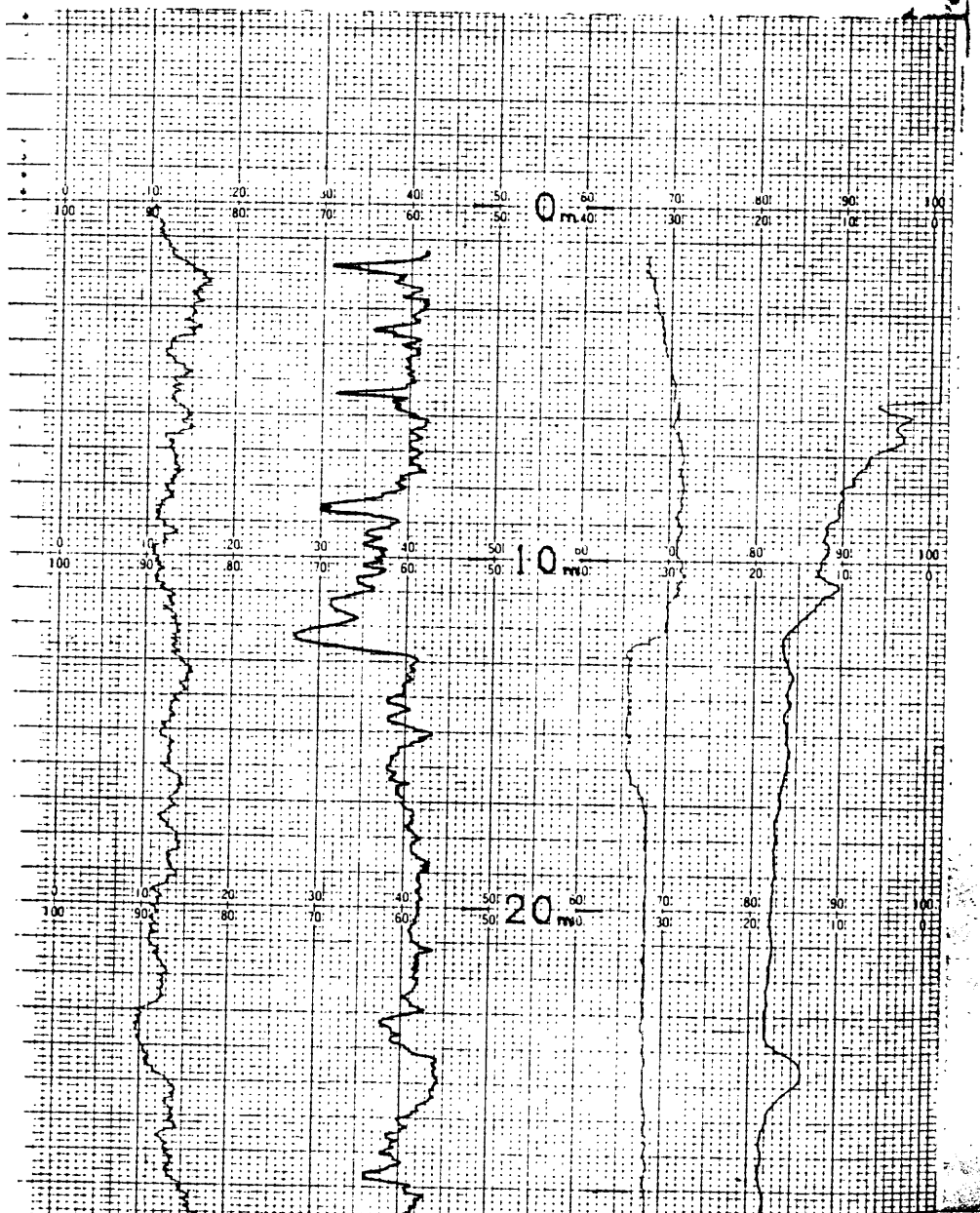
P.591

HOLE NUMBER:

UAT-10

DATE: 19th January, 1987

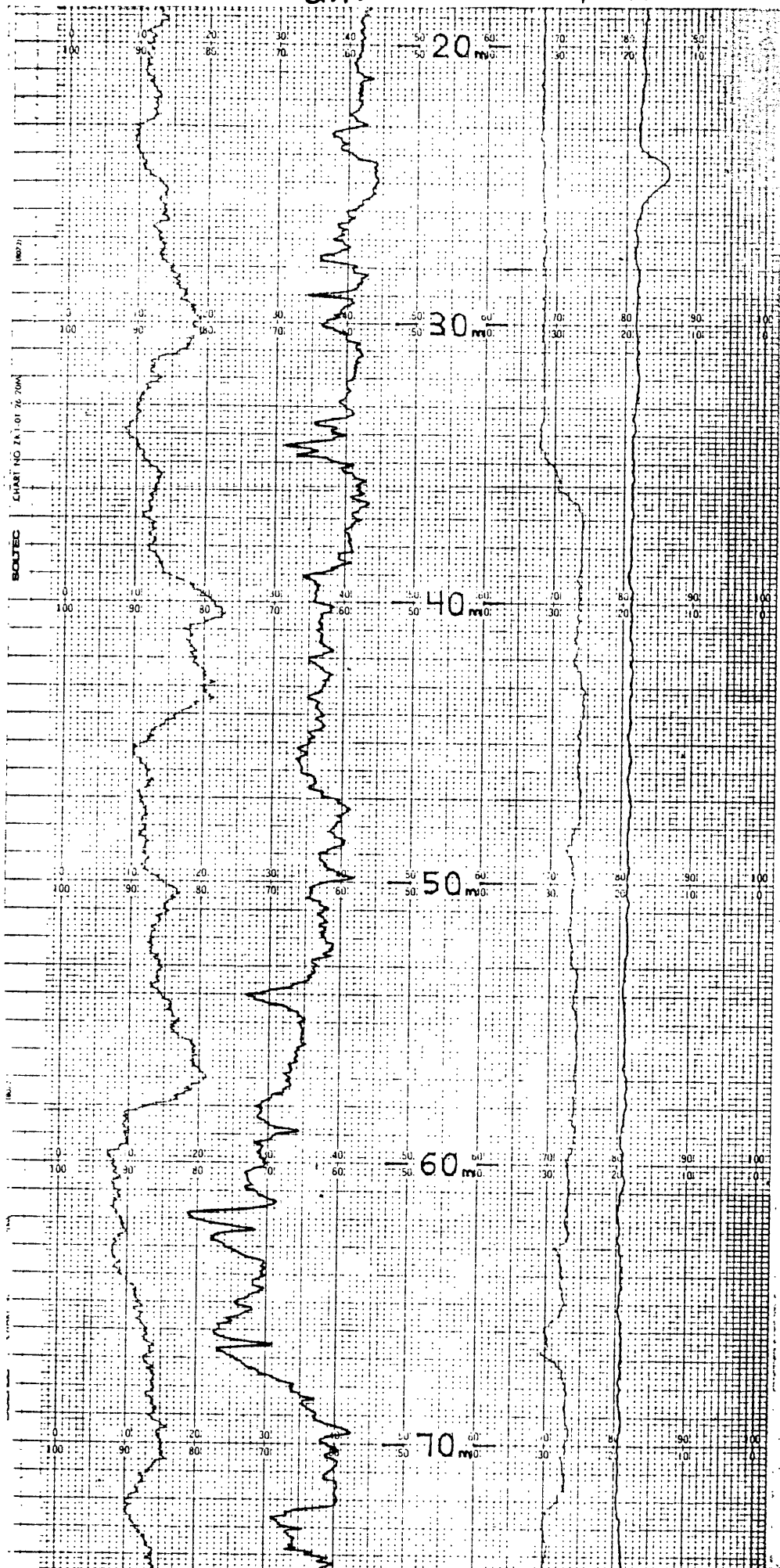
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY Sind Pakistan			DEPTH DRILLED 225m			CLIENT U.S.G.S. - G.S.P.		
REGION Thatta			DEPTH LOGGED 170m			GEOLOGIST		
PROJECT COAL REAP			COLLAR ELEV			UNIT OPERATOR ILYAS / Khurshid		
PROSPECT			DIA Sec FROM TO			UNIT NO PL-2 OFFICE		
SEC TWP RNG			DIA Caliper FROM TO			BOULDER COLLEGE U.S.A.		
TYPE			DIA 1.5" FROM TO			ELECTRIC		
LOGGED DEPTH 169m			BOREHOLE MEDIUM Hard Mud			TYPE		
RANGE (F.S.) 100 200			FLUID LEVEL			RESIST		
STD DEV 3 1/2 1 1/2			CASING DATA			S.P.		
PAPER SPEED 1-1 1-1			WALL SIZE			LOGGED DEPTH 169m		
LOG SPEED 3-1 3-1			I.D.			SCALE 10		
BKND. COUNT			CASED FROM TO			PAPER SPEED 1-1		
PROBE NO. H8D-1 H8D-1			CASING TYPE			LOG SPEED 3-1		
SIZE (dia.) 2 2			SAMPLE DATA			FINE ADJ. 1000 Bxas		
K-FACTOR			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			CALIPER		
DEAD TIME 2 2			SAMPLED INTERVAL SAMPLE TYPE			LOGGED DEPTH 170m		
STANDARD			REMARKS			SCALE 1" Deflection = 1" Dia		
DIGITAL DATA						PAPER SPEED 1-1		
PRINT INTERVAL						LOG SPEED 3-1		
TIMEBASE						ARM LENGTH 30		
						MAX DEF 7		
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN		
						BEARING		





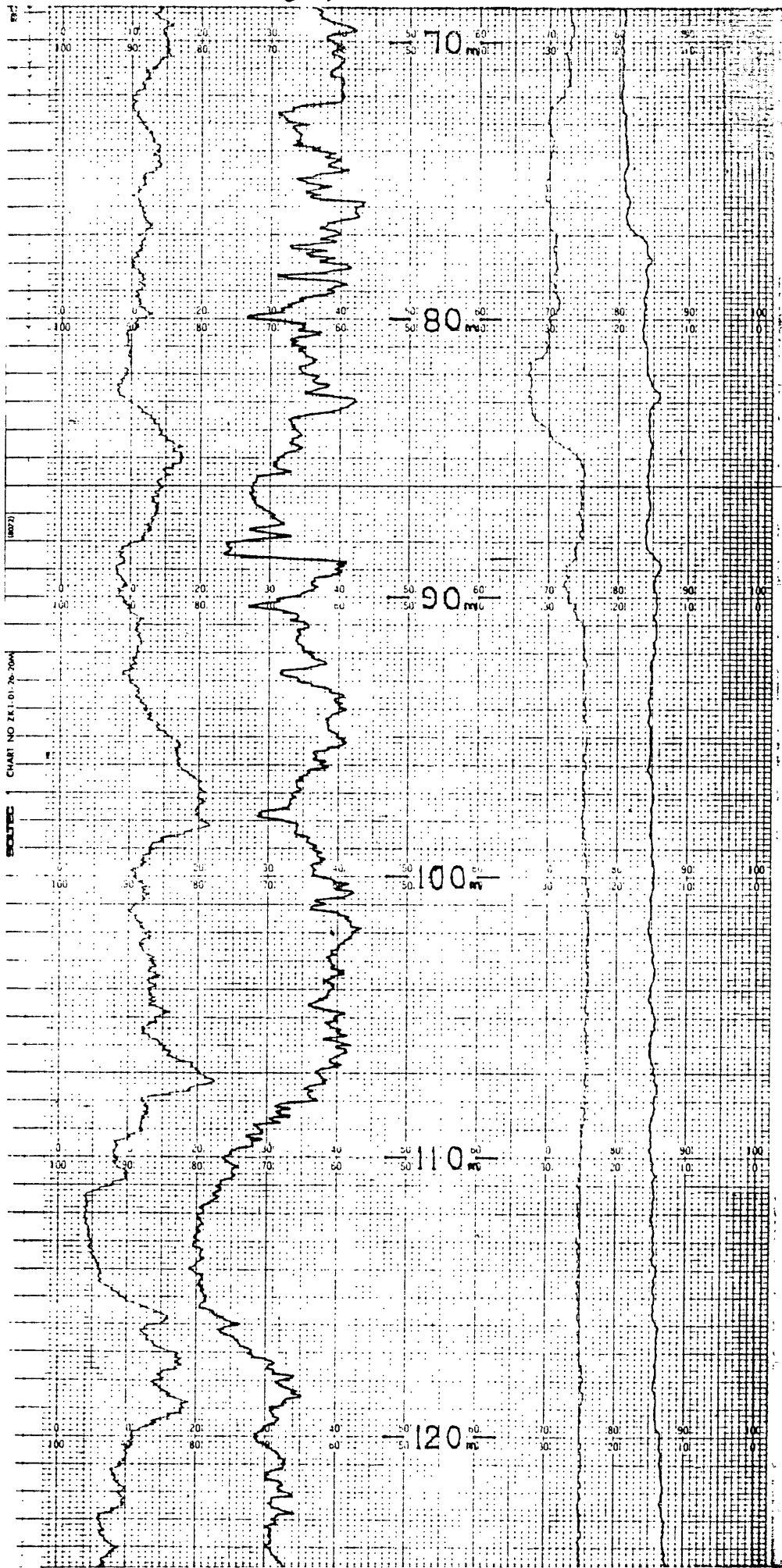
UAT-10

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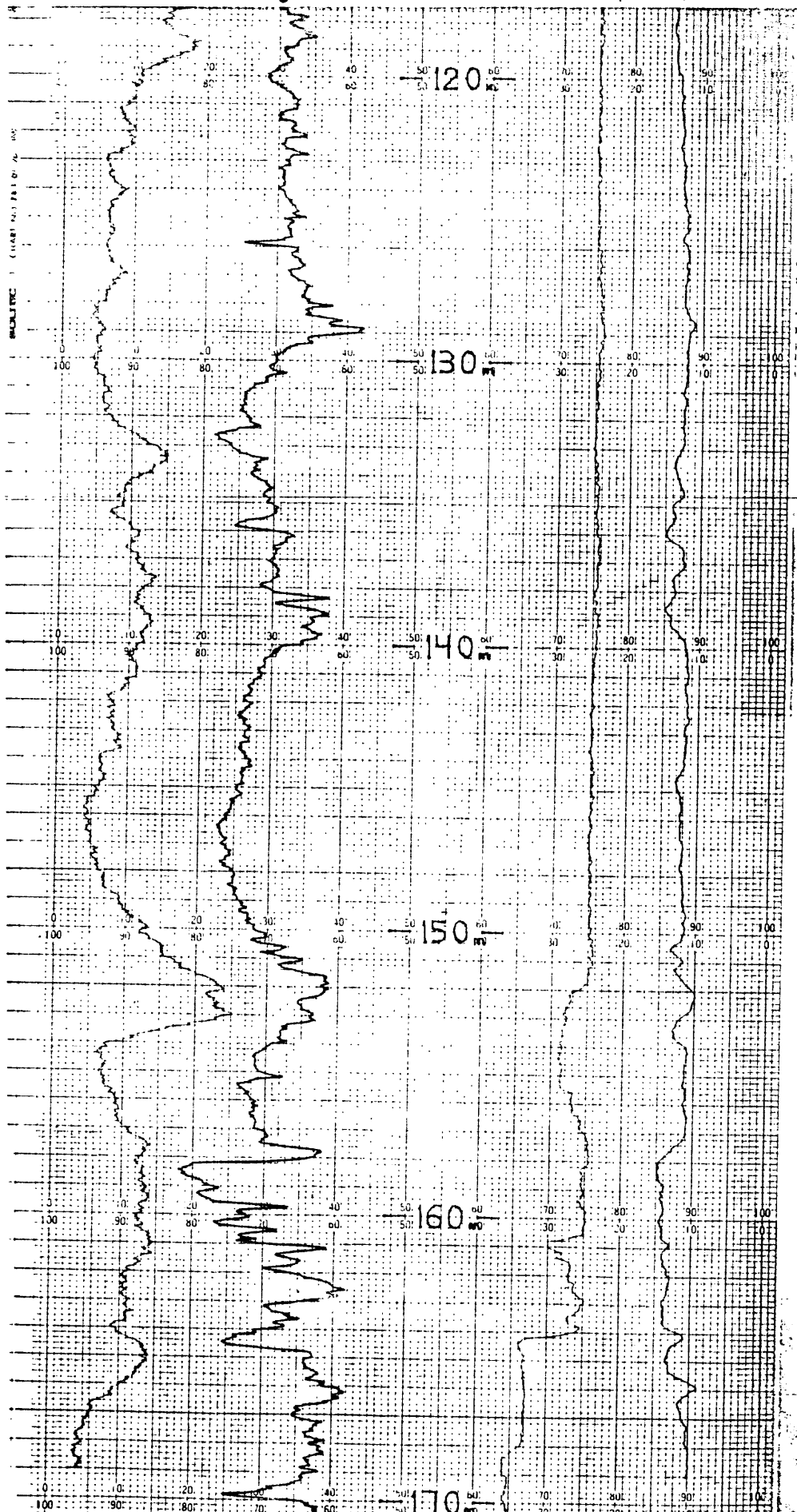
UAT-10

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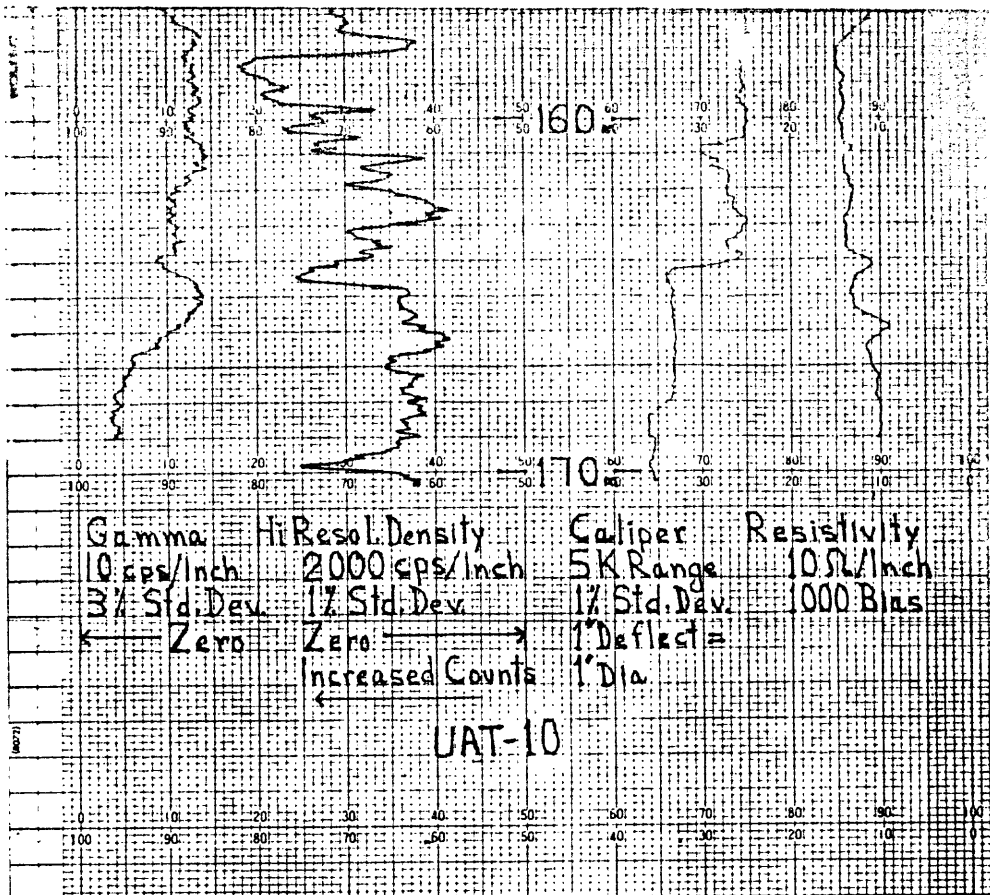


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Gamma	Hi Resol. Density	Caliper	Resistivity
10 cps/Inch	2000 cps/Inch	5K Range	10 $\Omega$ /Inch
3.5 Sec. Delay	1.7 Sec. Delay	1.7 Sec. Delay	1000 D





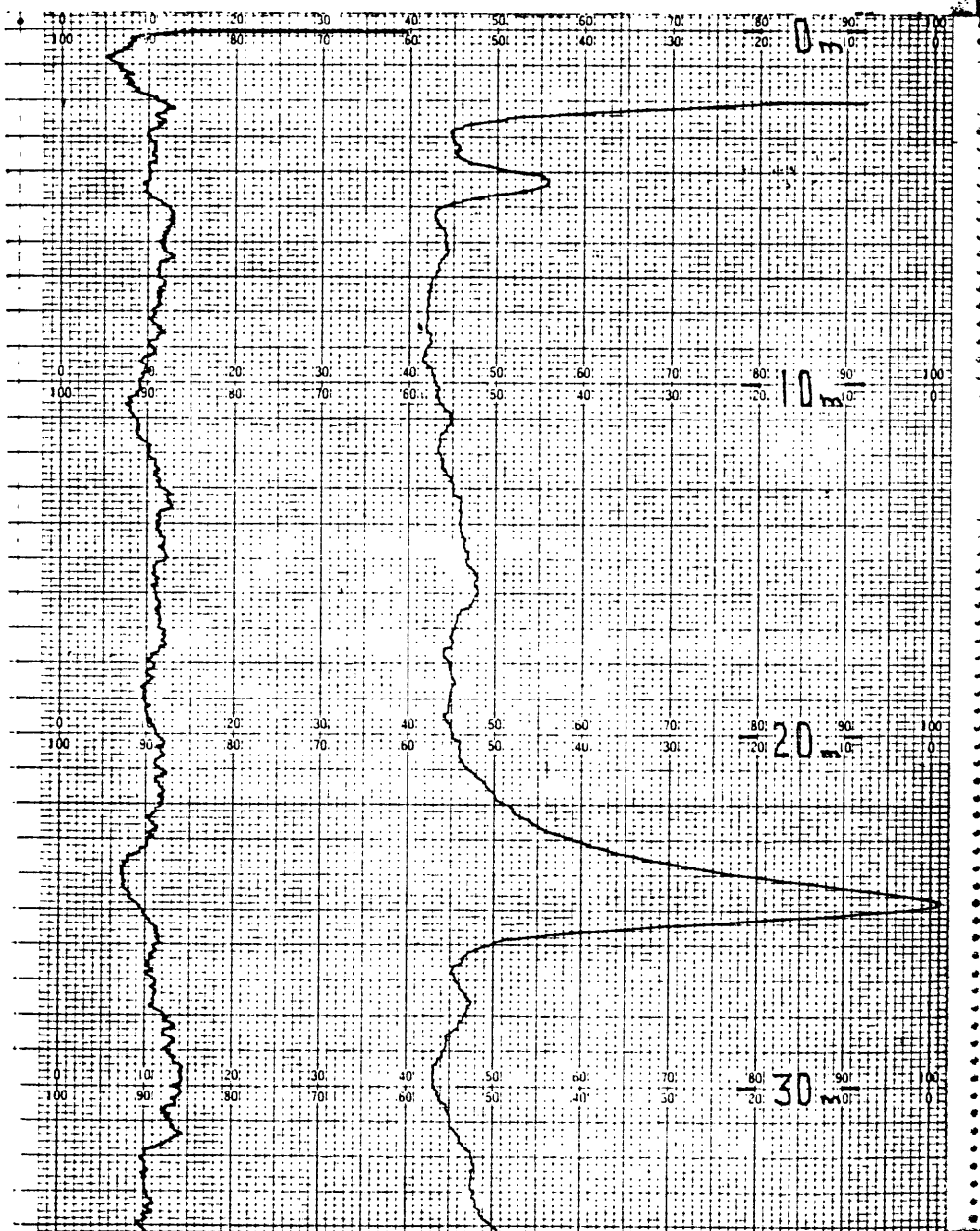
HOLE NUMBER:

UAT-10

P.596

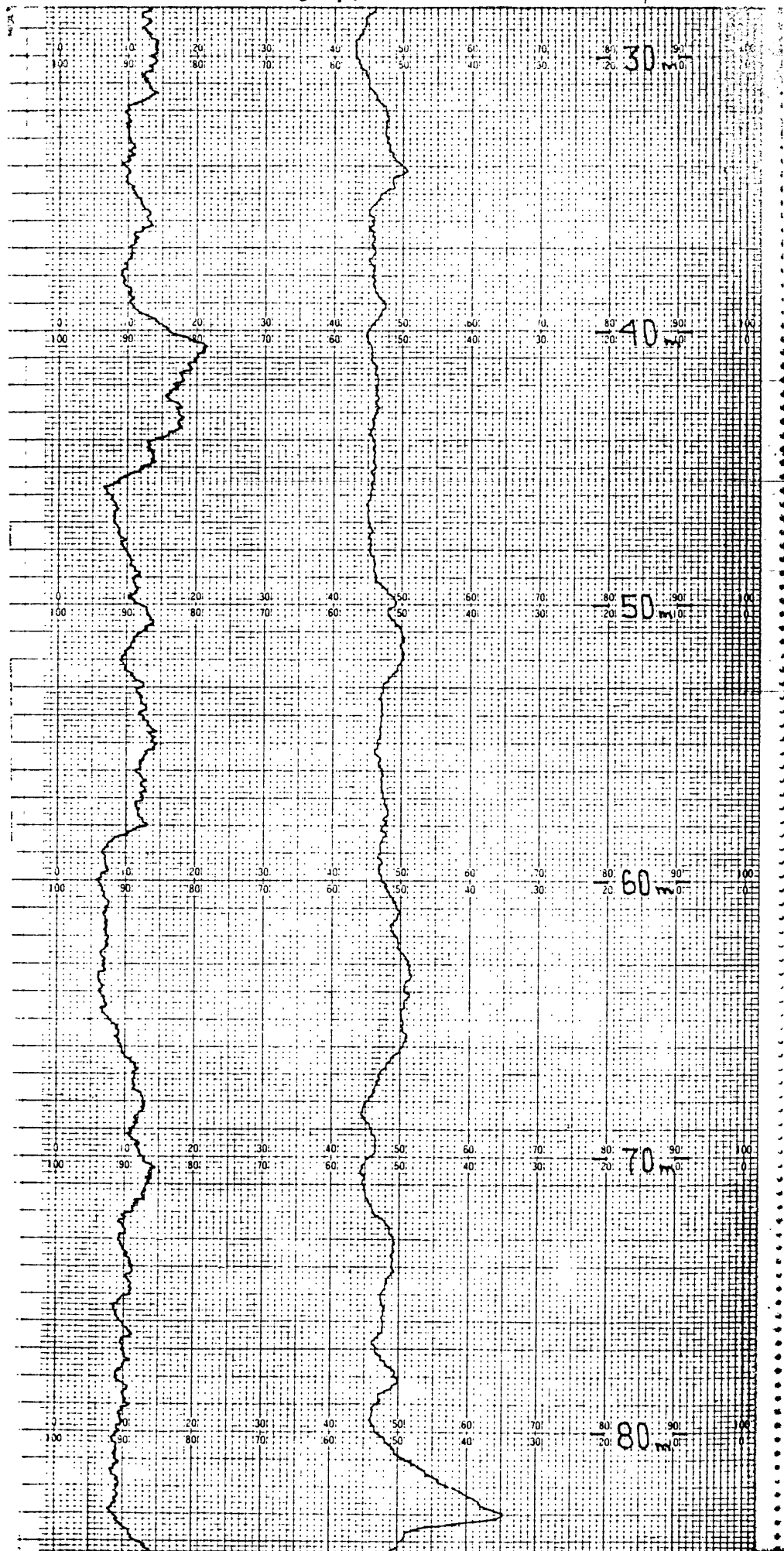
DATE: 16th January, 1987.

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	Sind	Pakistan	DEPTH DRILLED	225m	CLIENT	U.S.G.S. - G.S.P.
REGION	Sindh		DEPTH LOGGED	222m	GEOLOGIST	
PROJECT	COAL SEAP		COLLAR ELEV		UNIT OPERATOR	MUJIB / MENTAB
PROSPECT			DIA	See FROM TO	UNIT NO	PL-2 OFFICE
SEC	TWP	RNG.	DIA	Caliper FROM TO	BOLDER	ELABADO U.S.A.
			DIA	1-2 FROM TO		
TYPE	GAM	Neutron	BOREHOLE MEDIUM	H <sub>2</sub> O + MUD	ELECTRIC	
LOGGED DEPTH	220m	222m	FLUID LEVEL		TYPE	RESIST
RANGE (1 ft.)	100	500	CASING DATA		LOGGED DEPTH	FT.
%STD DEV	3%	1%	WALL SIZE	1/4"	SCALE	2
PAPER SPEED	1-1	1-1	ID	4"	PAPER SPEED	2
LOG SPEED	6-1	6-1	CASED FROM	0 TO 145.6m	LOG SPEED	2
BKGND. COUNT			CASING TYPE	HW	FINE ADJ.	
PROBE NO.	GN-1	GN-1	SAMPLE DATA		CALIPER	
SIZE (dia.)	13/8"	13/8"	NON-CORED HOLE	<input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>	LOGGED DEPTH	FT.
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE	SCALE	2
DEAD TIME	2	2			PAPER SPEED	2
STANDARD					LOG SPEED	2
DIGITAL DATA			REMARKS		ARM LENGTH	100
PRINT INTERVAL			Logged through drill pipe and casing Drill pipe I.D. = 1 3/8" O.D. = 2 5/8"		MAX DEF	100
TIMEBASE					VERTICAL DEV.	
DENSITY CALIBRATION					DEPTH	
ALUMINUM					INCLIN.	
LUCITE					BEARING	



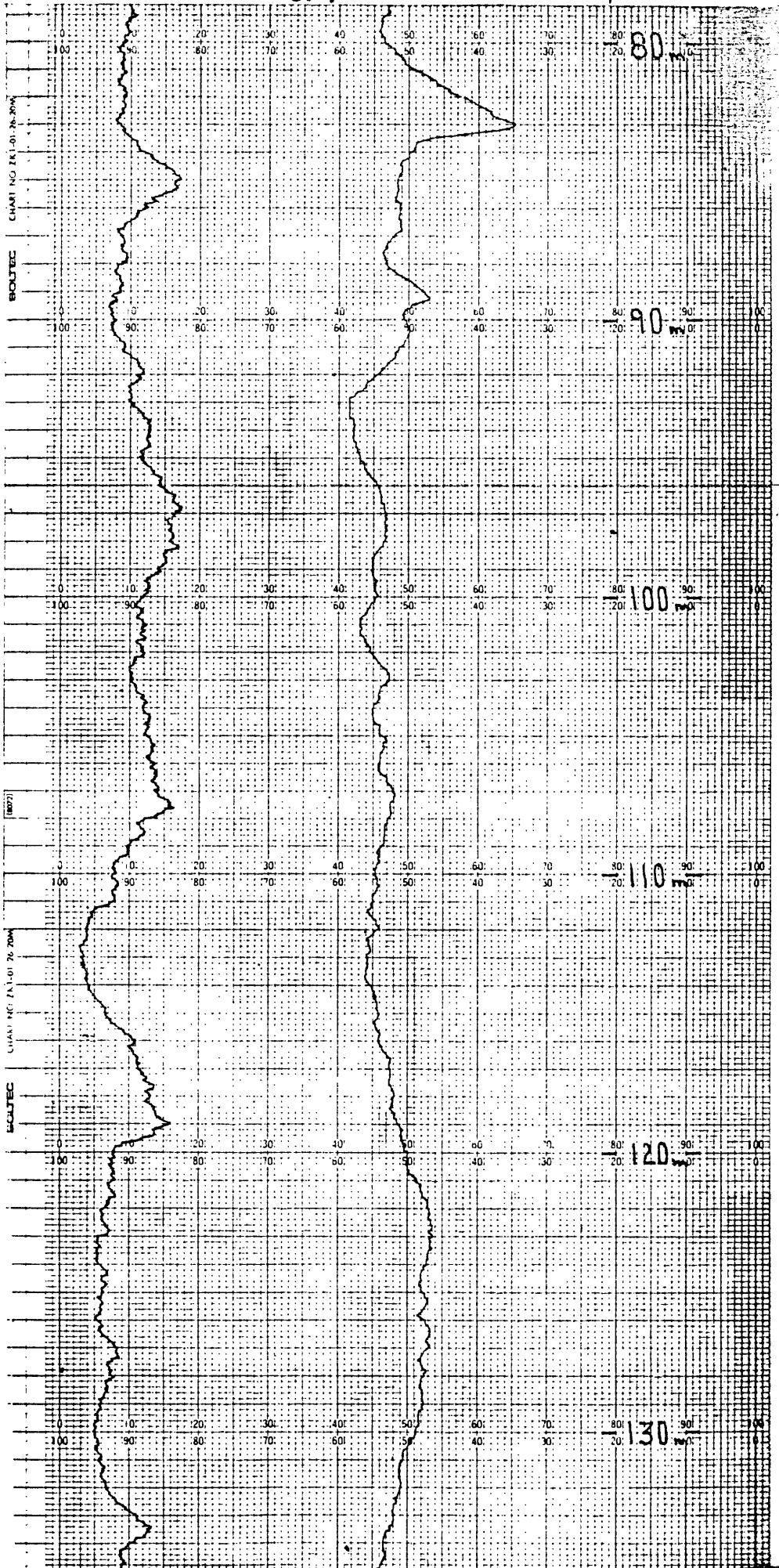
UAT-10

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UAT-10

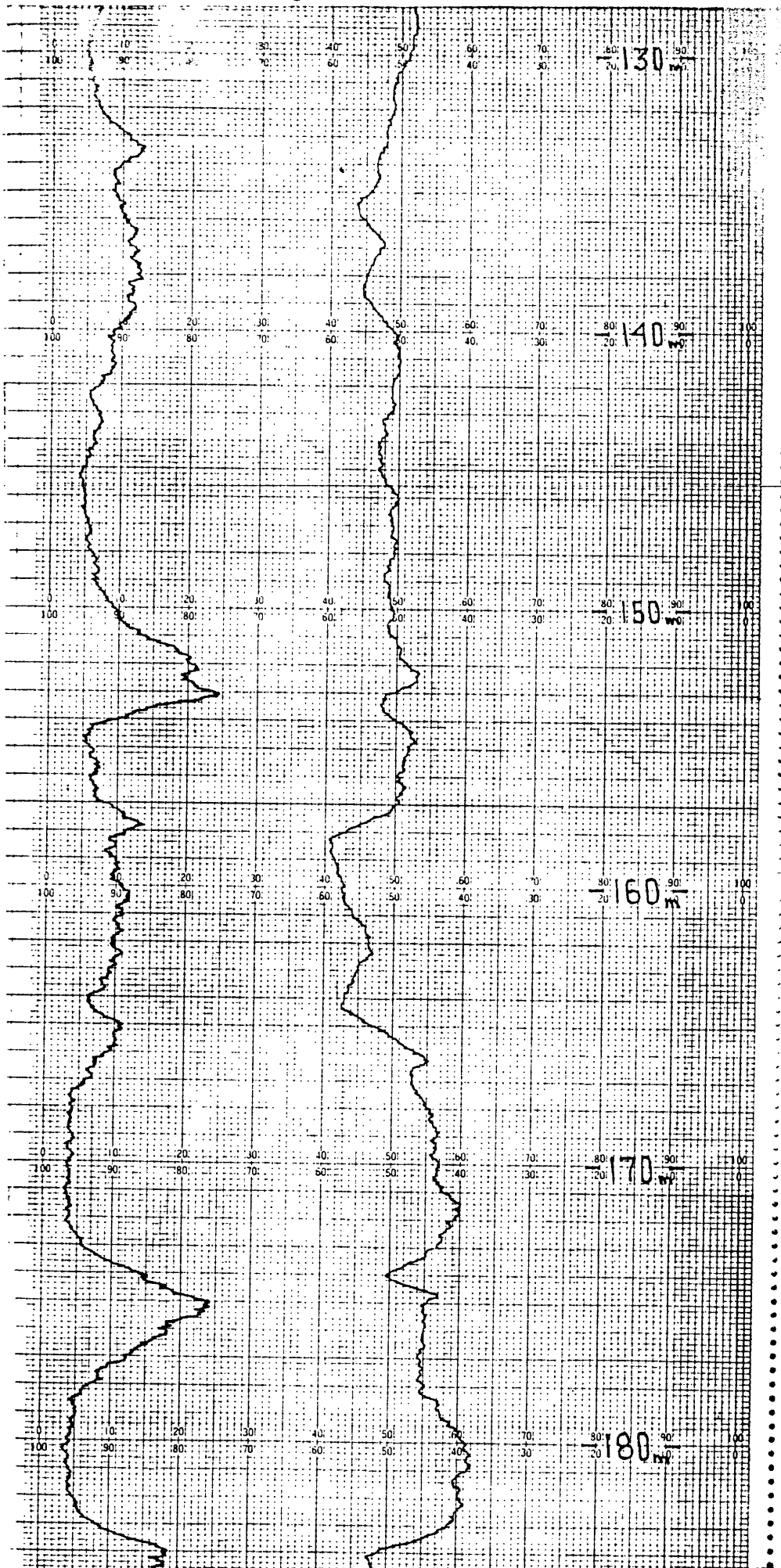
P 598





UAT-10

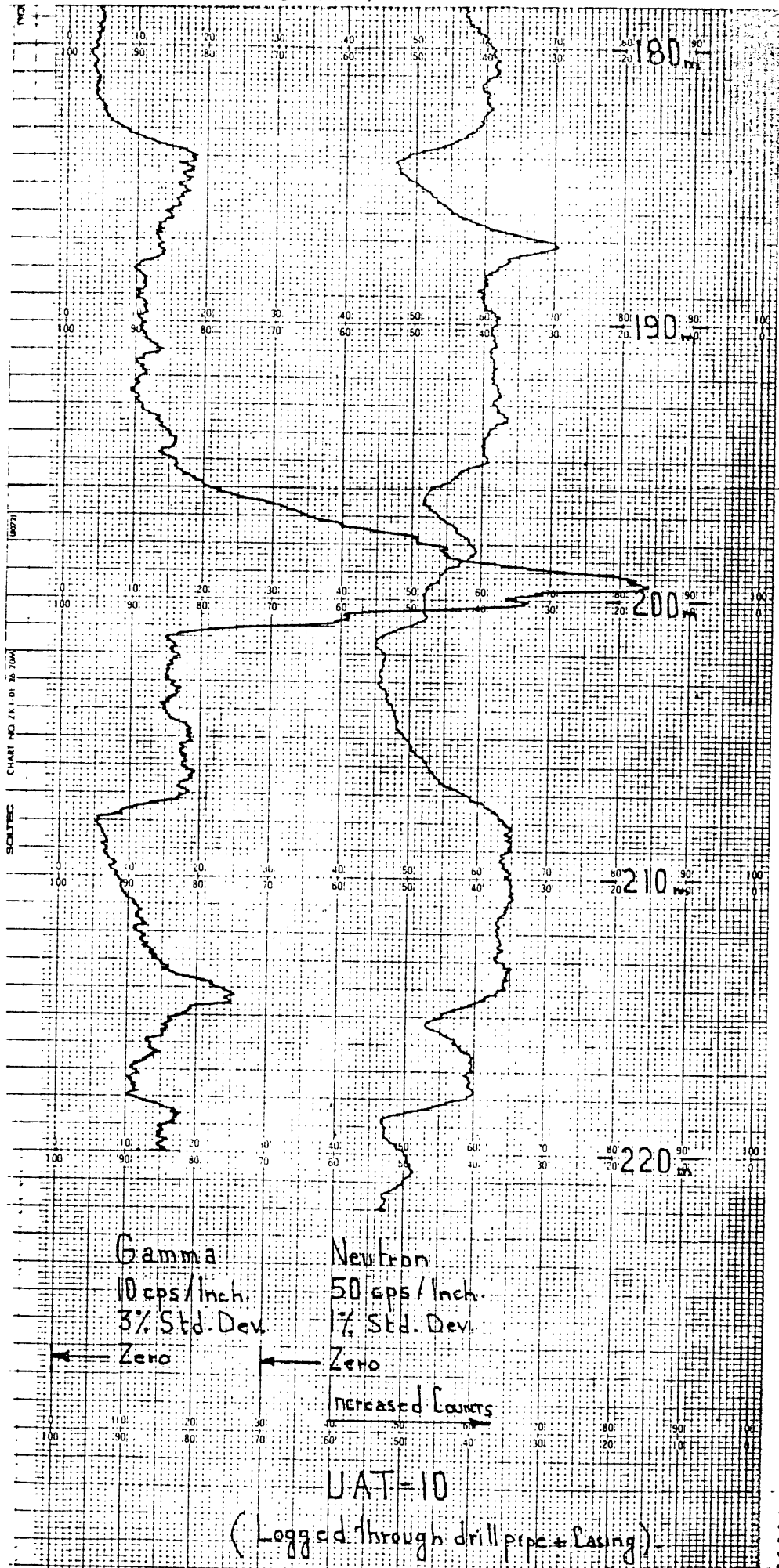
P.599





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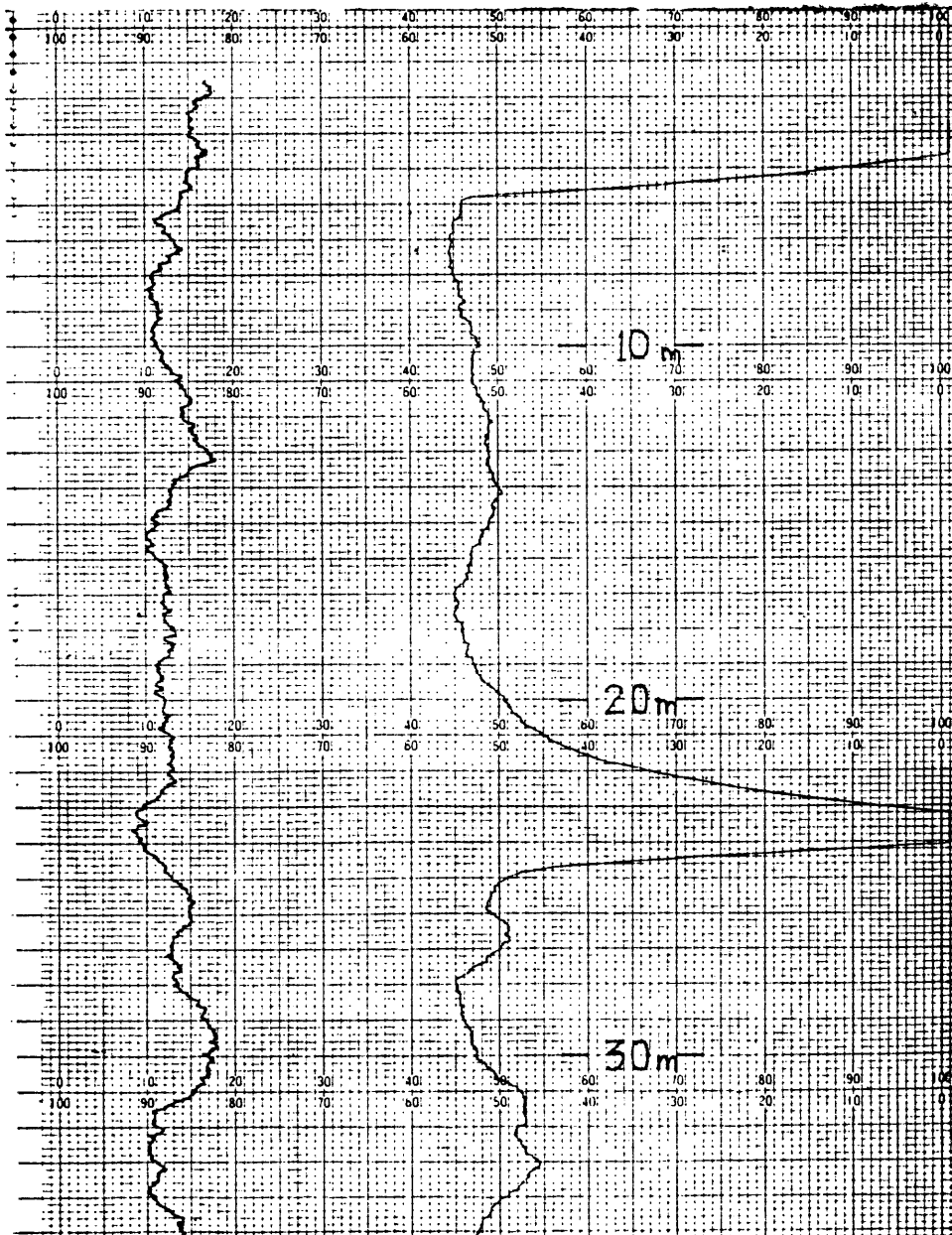
HOLE NUMBER:

UAT-10

P. 601

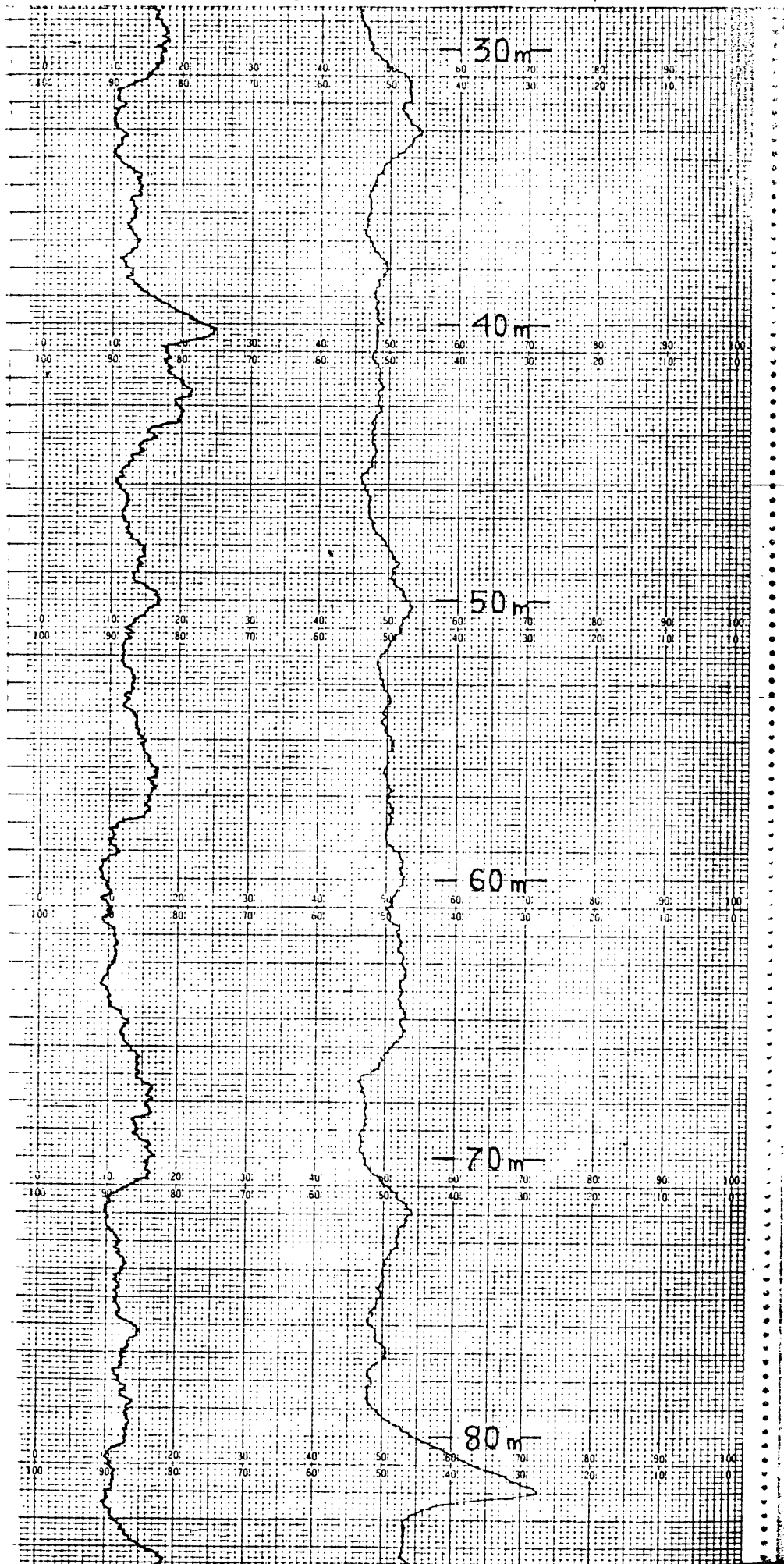
DATE: 17th January, 1987.

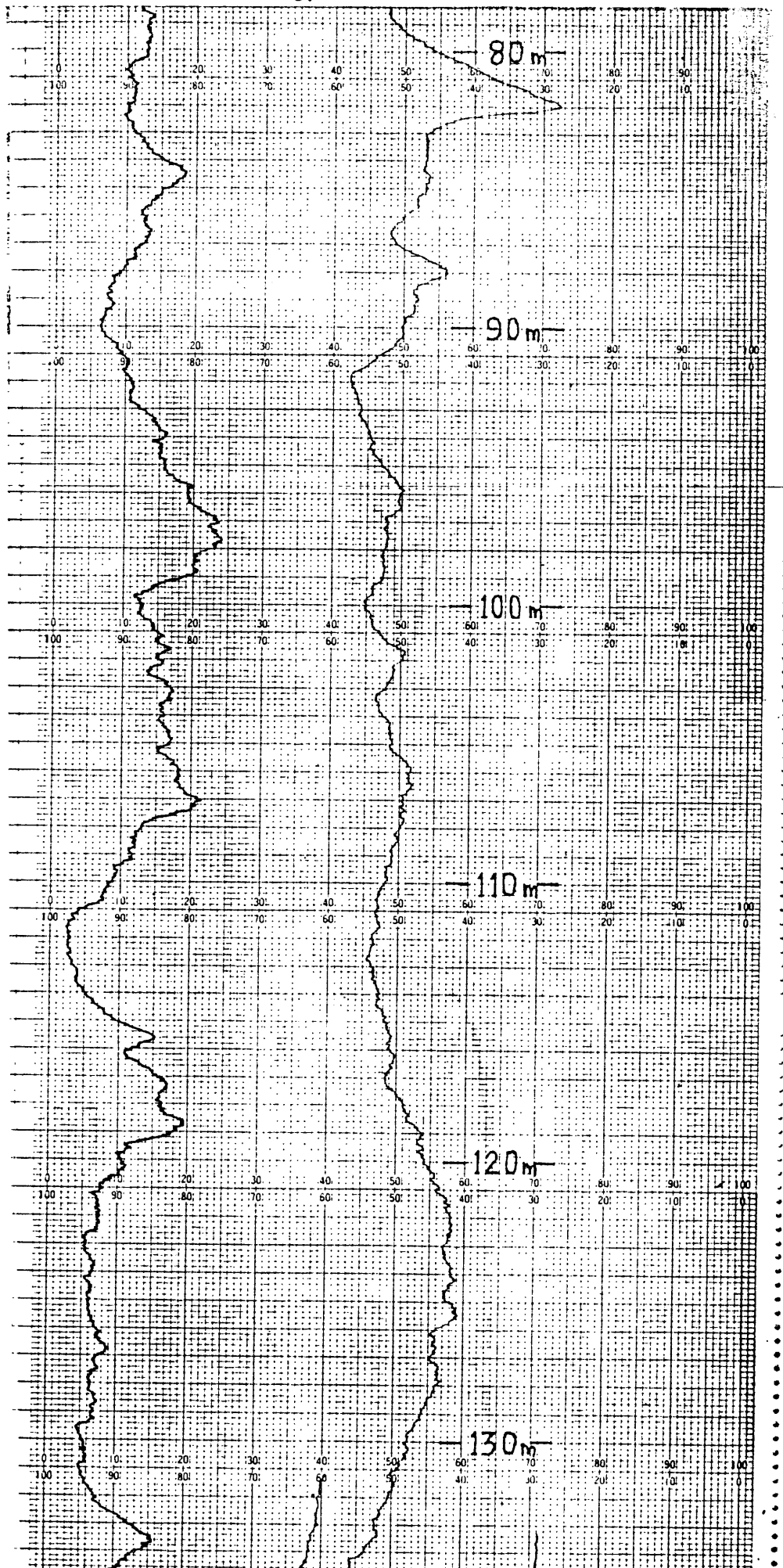
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY Sind Pakistan			DEPTH DRILLED: 225 m			CLIENT U.S.G.S. - G.S.P.		
REGION Sindh			DEPTH LOGGED: 199 m			GEOLOGIST:		
PROJECT COAL REAP.			COLLAR ELEV					
PROSPECT			DIA. Sec FROM TO			UNIT OPERATOR Mujib / MENTAS		
SEC TWP RING			DIA Caliper FROM TO			UNIT NO PL-1 OFFICE		
			DIA 1.2 FROM TO			BOULDER: 500000 U.S.A.		
TYPE GAM Neutron			BOREHOLE MEDIUM H <sub>2</sub> O + Mud			ELECTRIC		
LOGGED DEPTH 197 m 199 m			FLUID LEVEL			TYPE RESIST S.P.		
RANGE (1 s.) 100 1K			CASING DATA			LOGGED DEPTH 197 m FT		
%STD DEV 3% 1%			WALL SIZE 1/4"			SCALE 10 2		
PAPER SPEED 1-1 1-1			ID 4"			PAPER SPEED 1-1 2		
LOG SPEED 6-1 6-1			CASED FROM 0 TO 145.6			LOG SPEED 6-1 2		
BKGND. COUNT			CASING TYPE HW			FINE ADJ. 900 Bias.		
PROBE NO. GN-1 GN-1			SAMPLE DATA					
SIZE (dia.) 1 3/4" 1 3/4"			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>					
K-FACTOR			SAMPLED INTERVAL SAMPLE TYPE					
DEAD TIME 2 2								
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL						LOGGED DEPTH FT		
TIMEBASE						SCALE 2		
						PAPER SPEED 2		
						LOG SPEED 2		
						ARM LENGTH IN		
						MAX DEF. IN		
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN.		
						BEARING		



UAT-10

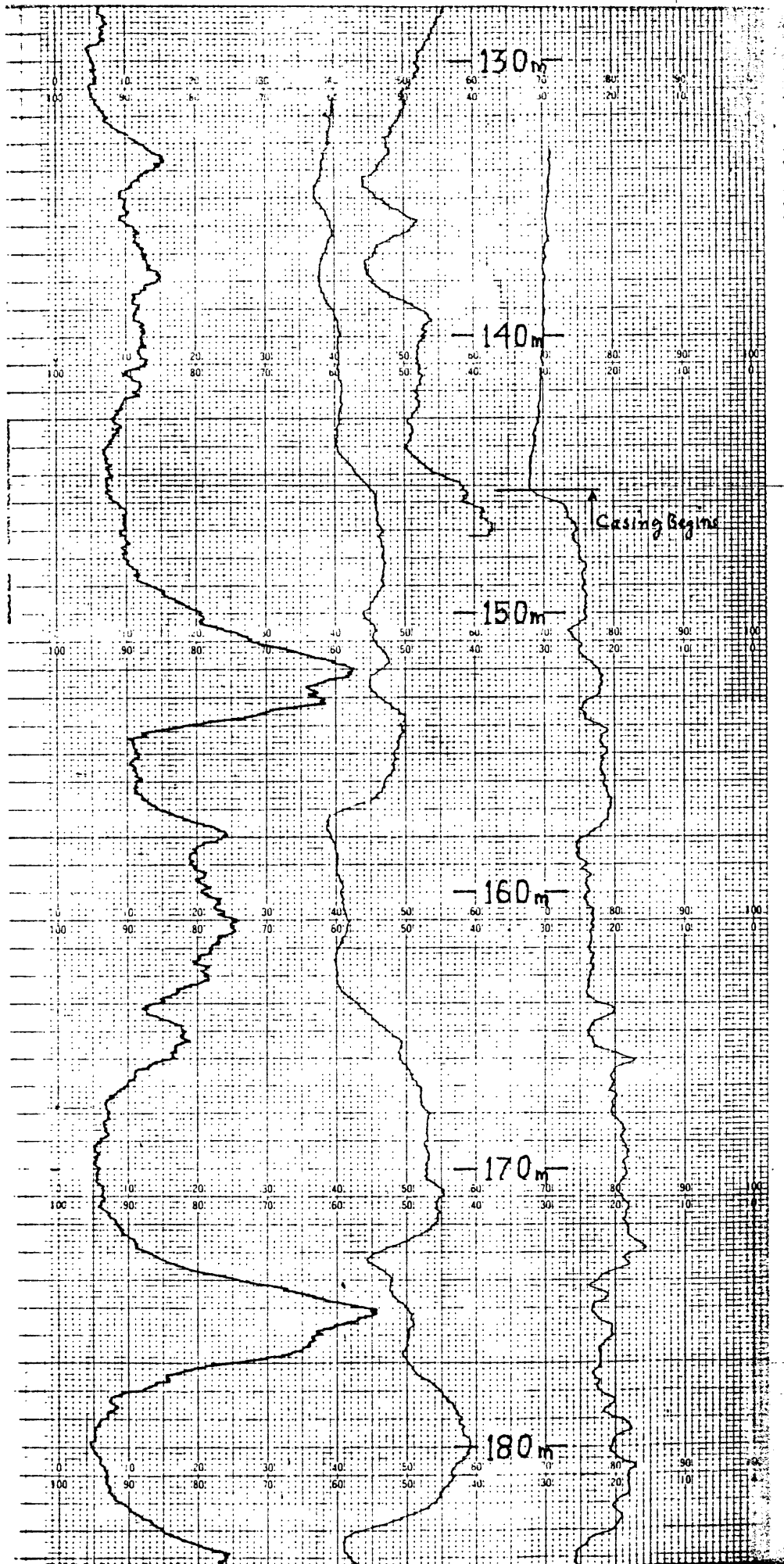
P.602





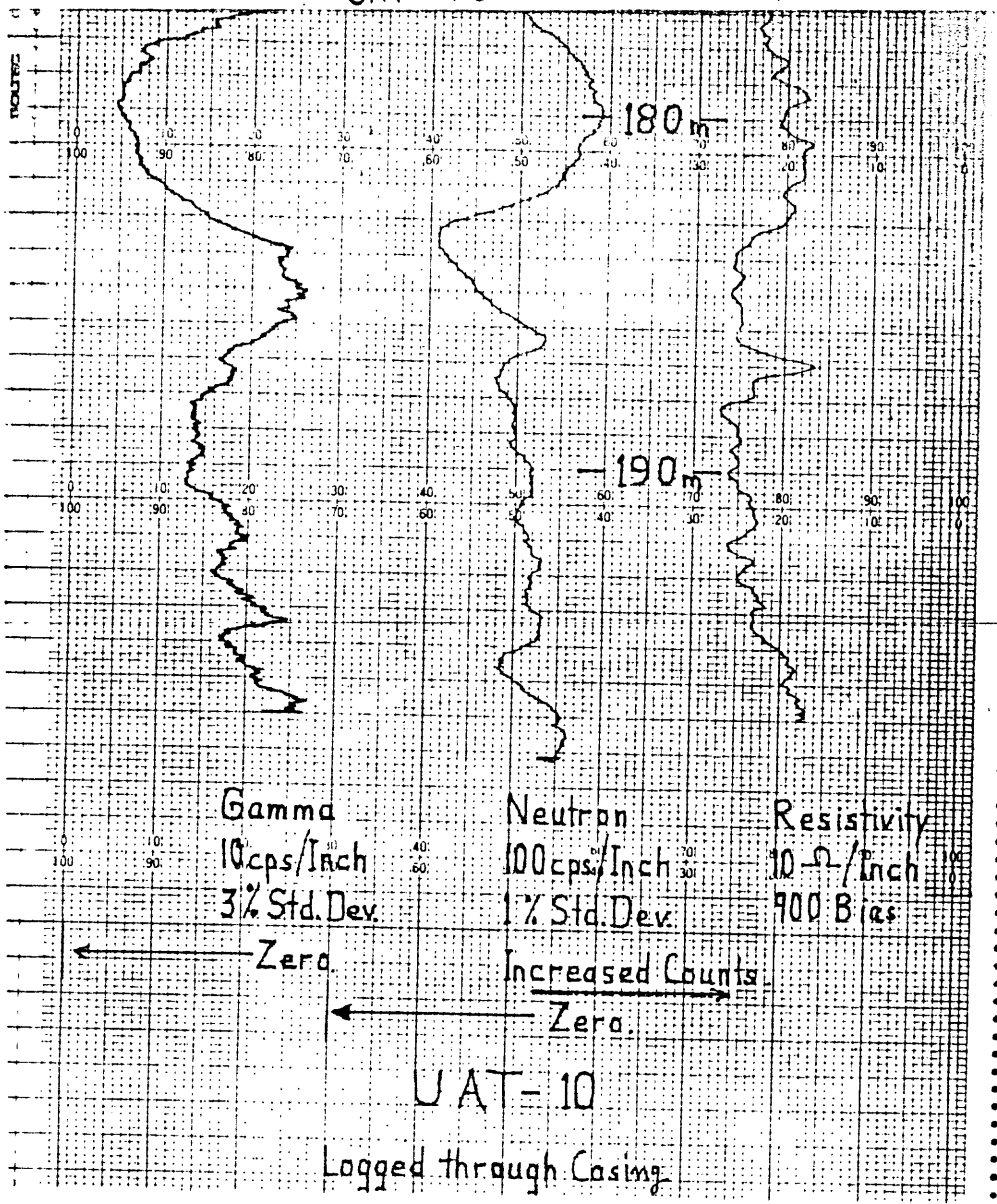
UAT-10

P. 604

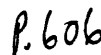


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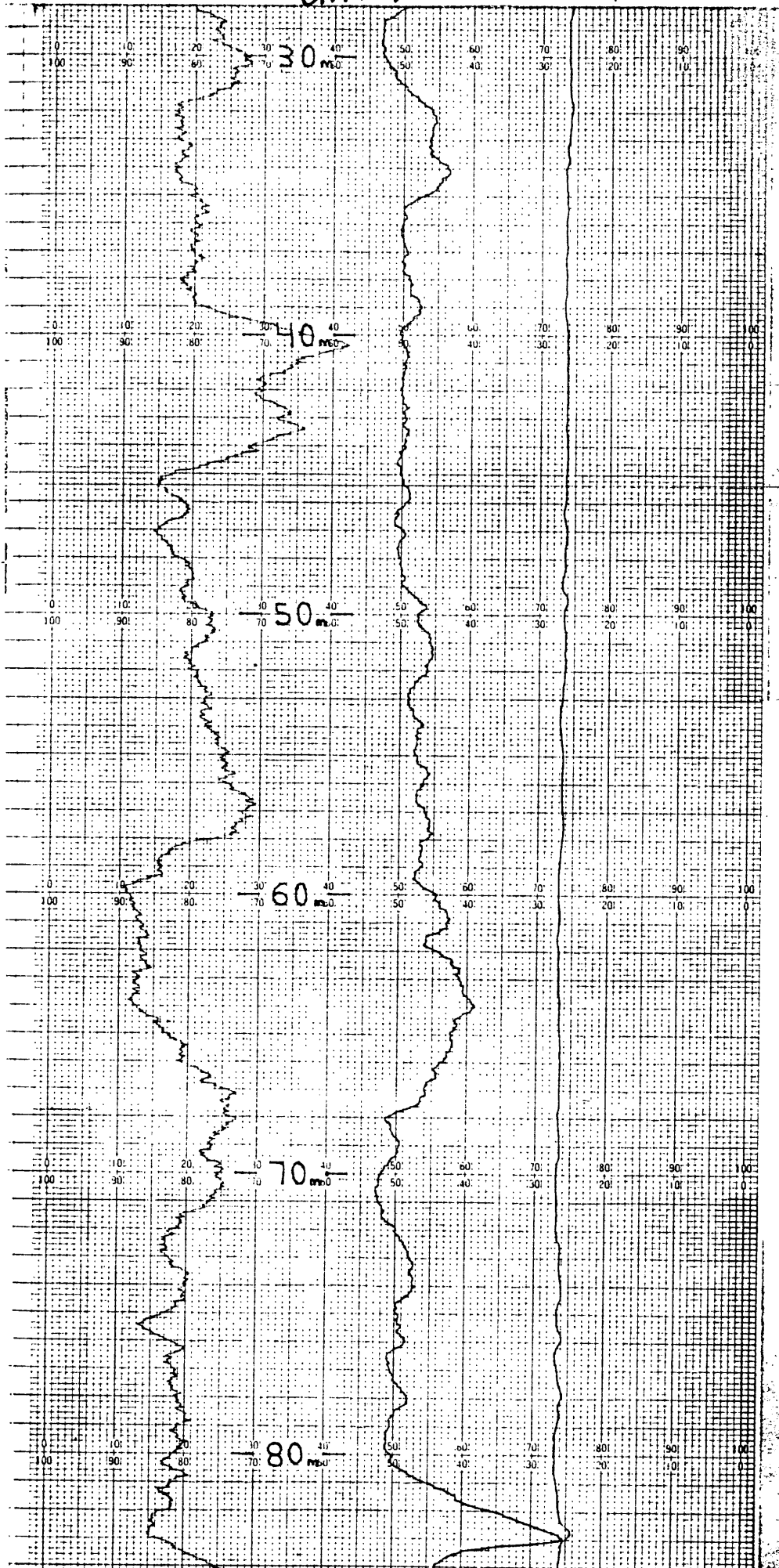


VAT-10

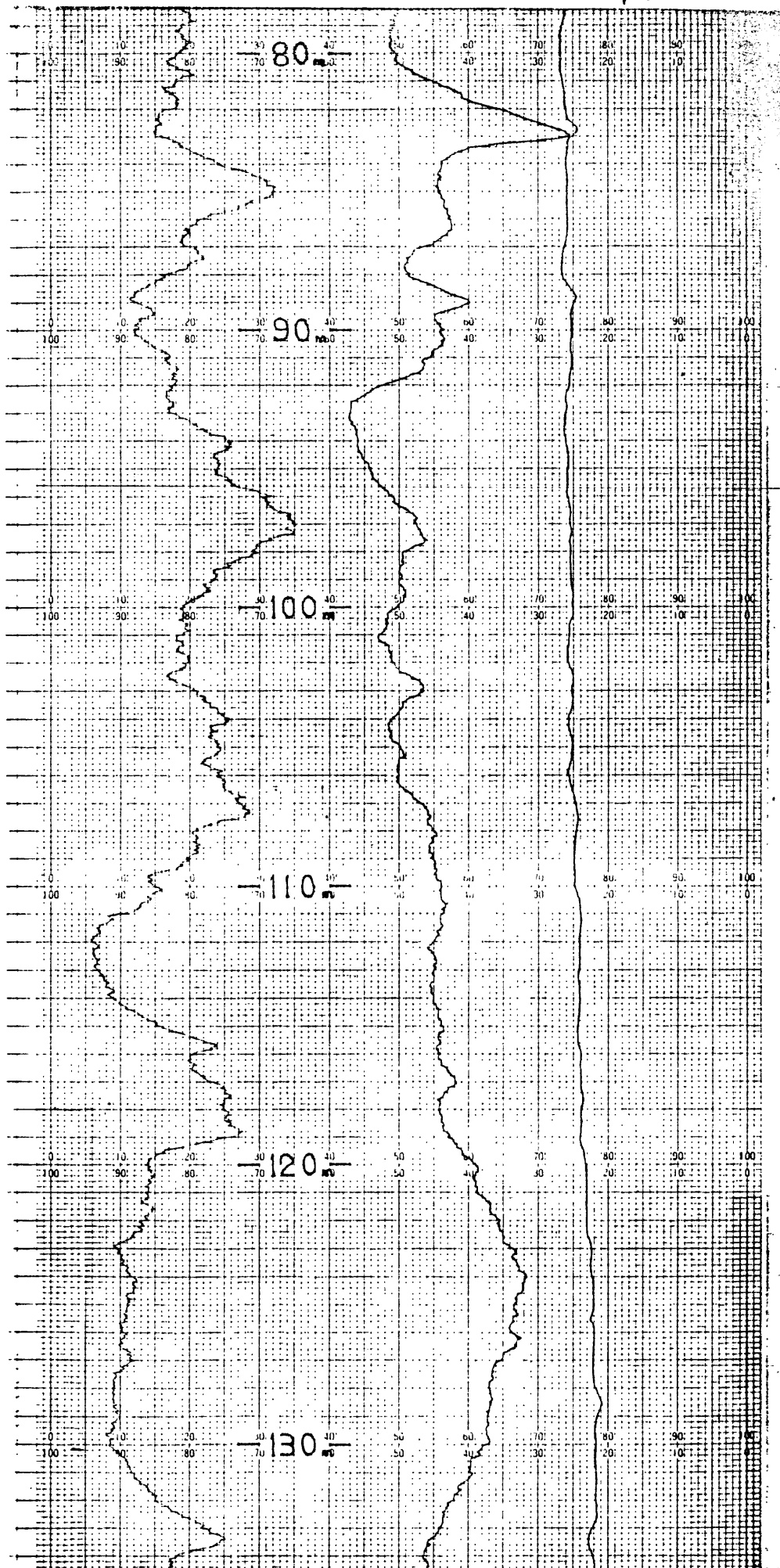
DATE: 19th January, 1987.

UAT-10

P.607

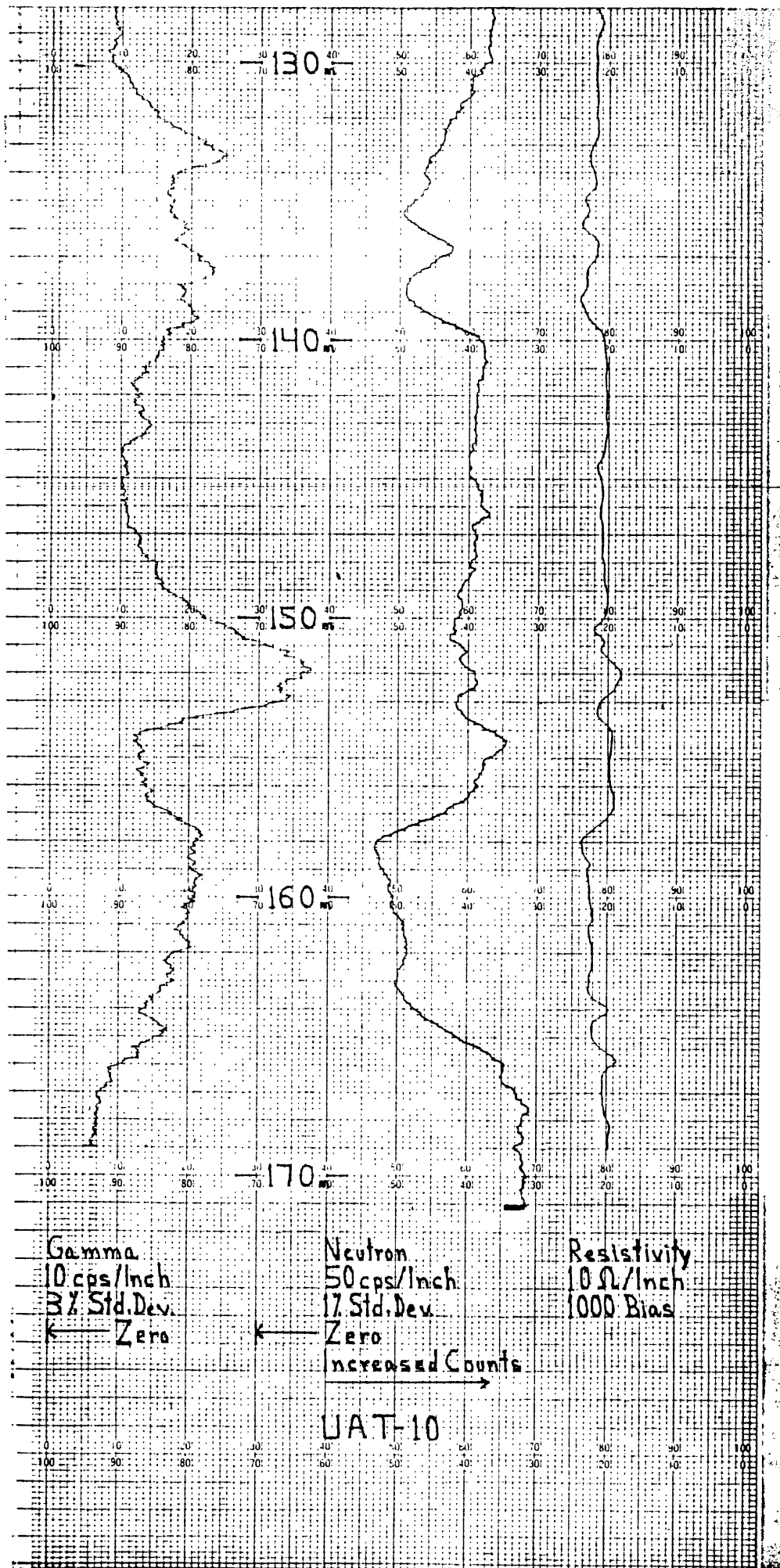






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## GEOSCIENCE ASSOCIATES

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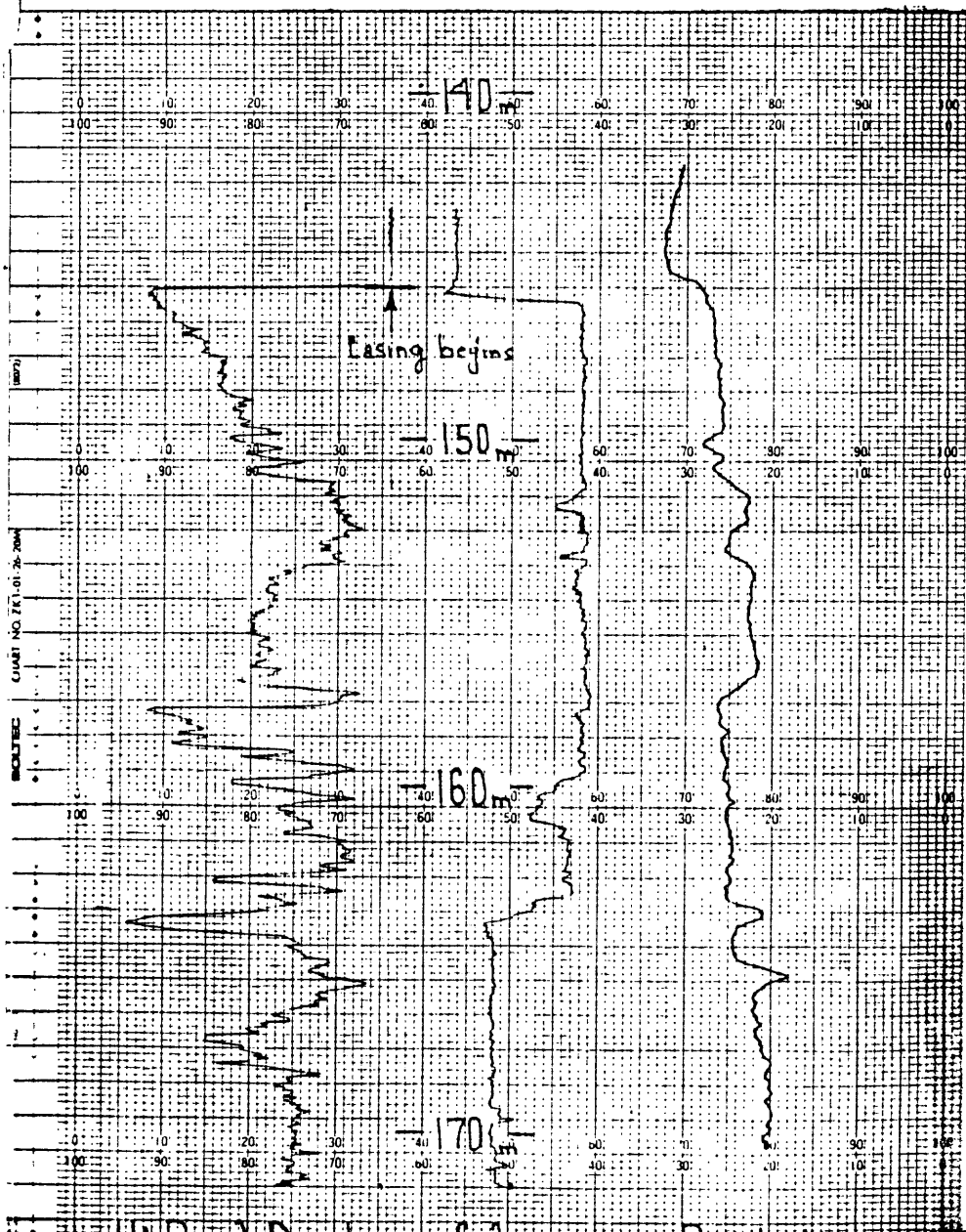
HOLE NUMBER:

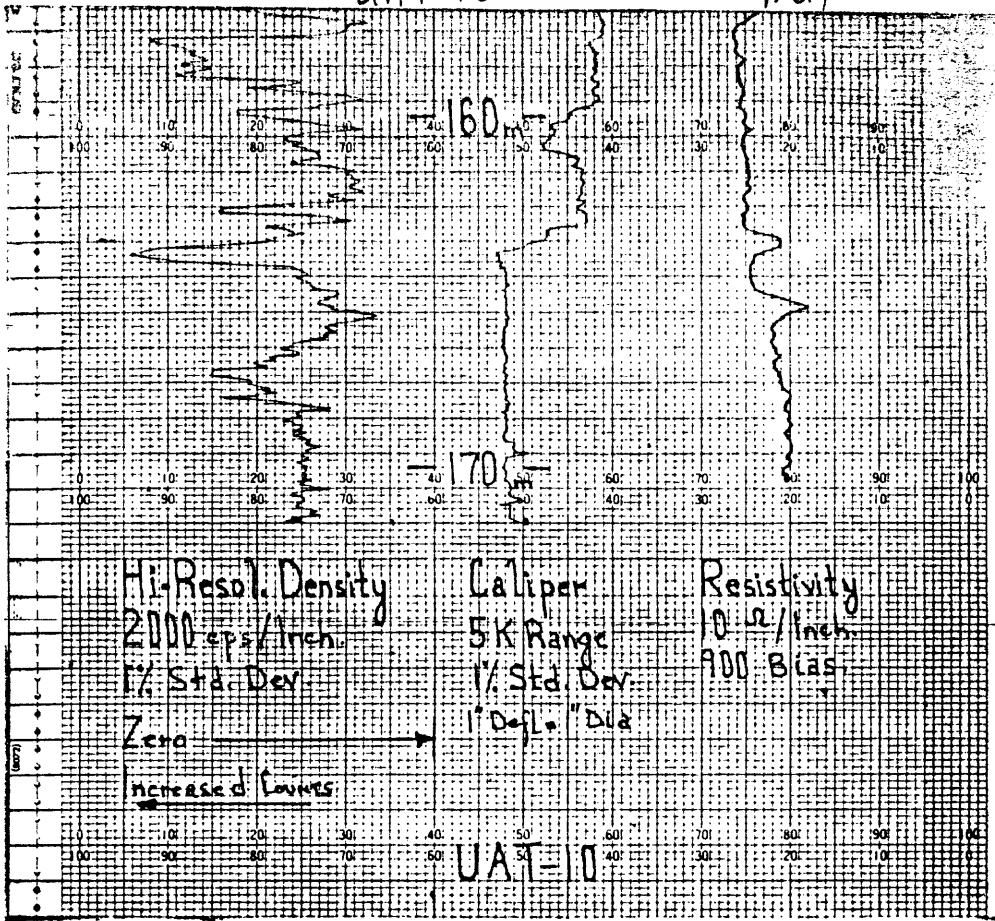
UAT-10

DATE:

17th January, 1987.

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	Sindh Pakistan		DEPTH DRILLED	225 m	CLIENT	U.S.G.S. - G.S.P.
REGION	Sonda		DEPTH LOGGED	171.6 m	GEOLOGIST	
PROJECT	COAL REAP		COLLAR ELEV.			
PROSPECT			DIA.	See FROM TO	UNIT OPERATOR	MUJIB/Khurshid
SEC	TWP	ANG.	DIA	Caliper FROM TO	UNIT NO	PL-1 OFFICE
			DIA.	Log FROM TO	BOULDER	COLOREADD U.S.A.
TYPE	GAM	HRD	BOREHOLE MEDIUM	H <sub>2</sub> O + Mvd	ELECTRIC	
LOGGED DEPTH		171.6 m	FLUID LEVEL		TYPE	RESIST
RANGE (F.S.)		20 K			LOGGED DEPTH	170.6 m
%BD DEV		1%	CASING DATA		SCALE	10
PAPER SPEED		1-1	WALL SIZE	1/4"	PAPER SPEED	1-1
LOG SPEED		3-1	ID	4"	LOG SPEED	3-1
BKGD. COUNT			CASED FROM	D TO 145.6 m	ARM LENGTH	30
PROBE NO.		HRD-1	CASING TYPE	HW	MAX DEF	7
SIZE (DIR.)		2	SAMPLE DATA		VERTICAL DEV.	
K-FACTOR			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>		DEPTH	
DEAD TIME		2	SAMPLED INTERVAL	SAMPLE TYPE	INCLIN.	
STANDARD					BEARING	
DIGITAL DATA			REMARKS			
PRINT INTERVAL						
TIMEBASE						
DENSITY CALIBRATION						
ALUMINUM						
LUCITE						







# GEOSCIENCE ASSOCIATES

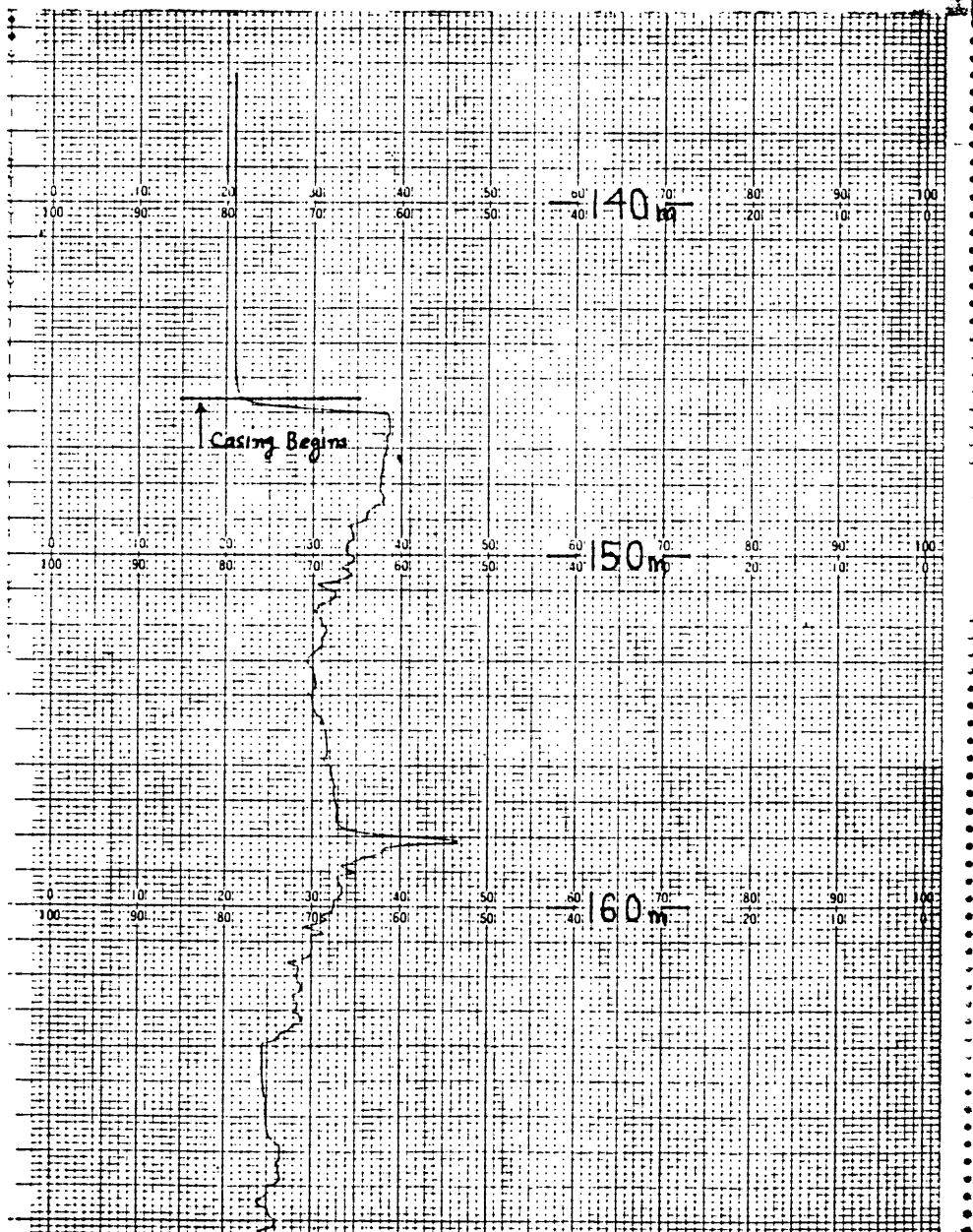
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HOLE NUMBER:

UAT-10

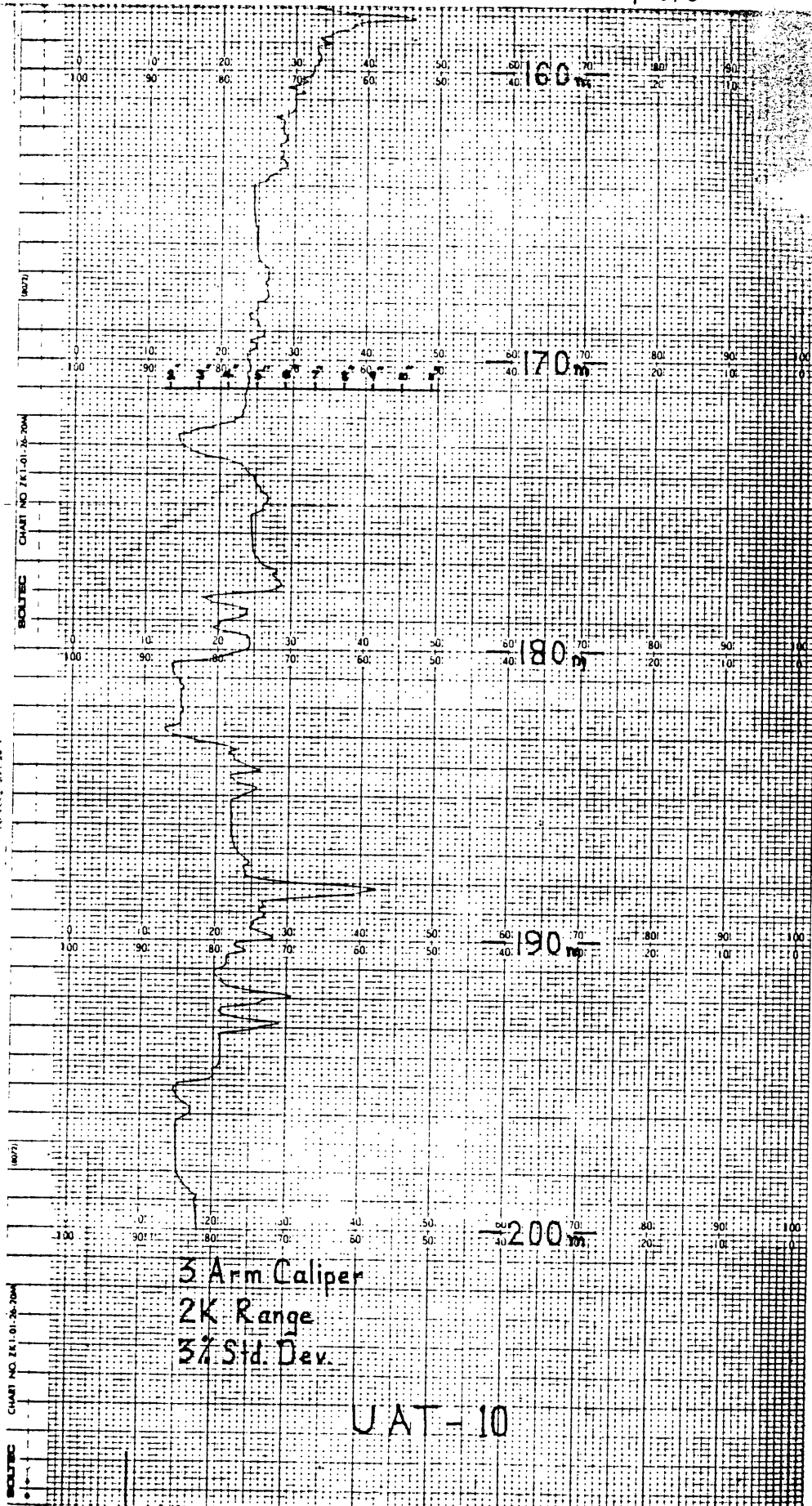
DATE: 17 January 1987

LOCATION		HOLE DATA		CLIENT	
STATE/COUNTRY	Sind Pakistan	DEPTH DRILLED	225m	CLIENT	U.S.G.S. - G.S.P.
REGION	Sindh - Thatta	DEPTH LOGGED	200m	GEOLOGIST	
PROJECT	COAL REAP	COLLAR ELEV		UNIT OPERATOR	MUJIB / HERTAE
PROSPECT		DIA	Sec FROM TO	UNIT NO	PL-2 OFFICE
SEC	TWP	ANG		BOULDER	COLORADO U.S.A.
TYPE	GAM			ELECTRIC	
LOGGED DEPTH				TYPE	RESIST
RANGE (f.s.)				LOGGED DEPTH	FT
%STD DEV				SCALE	FT
PAPER SPEED				PAPER SPEED	
LOG SPEED				LOG SPEED	
BKGD. COUNT				FINE ADJ.	
PROBE NO.					
SIZE (dia.)					
K-FACTOR					
DEAD TIME					
STANDARD					
DIGITAL DATA		REMARKS		3 ARM CALIPER	
PRINT INTERVAL				LOGGED DEPTH	200m
TIMEBASE				SCALE	D-4 DW 1"
				PAPER SPEED	1-
				LOG SPEED	6-
				ARM LENGTH	12
				MAX DEF.	24
DENSITY CALIBRATION				VERTICAL DEV.	
ALUMINUM				DEPTH	
LUCITE				INCLIN.	
				BEARING	



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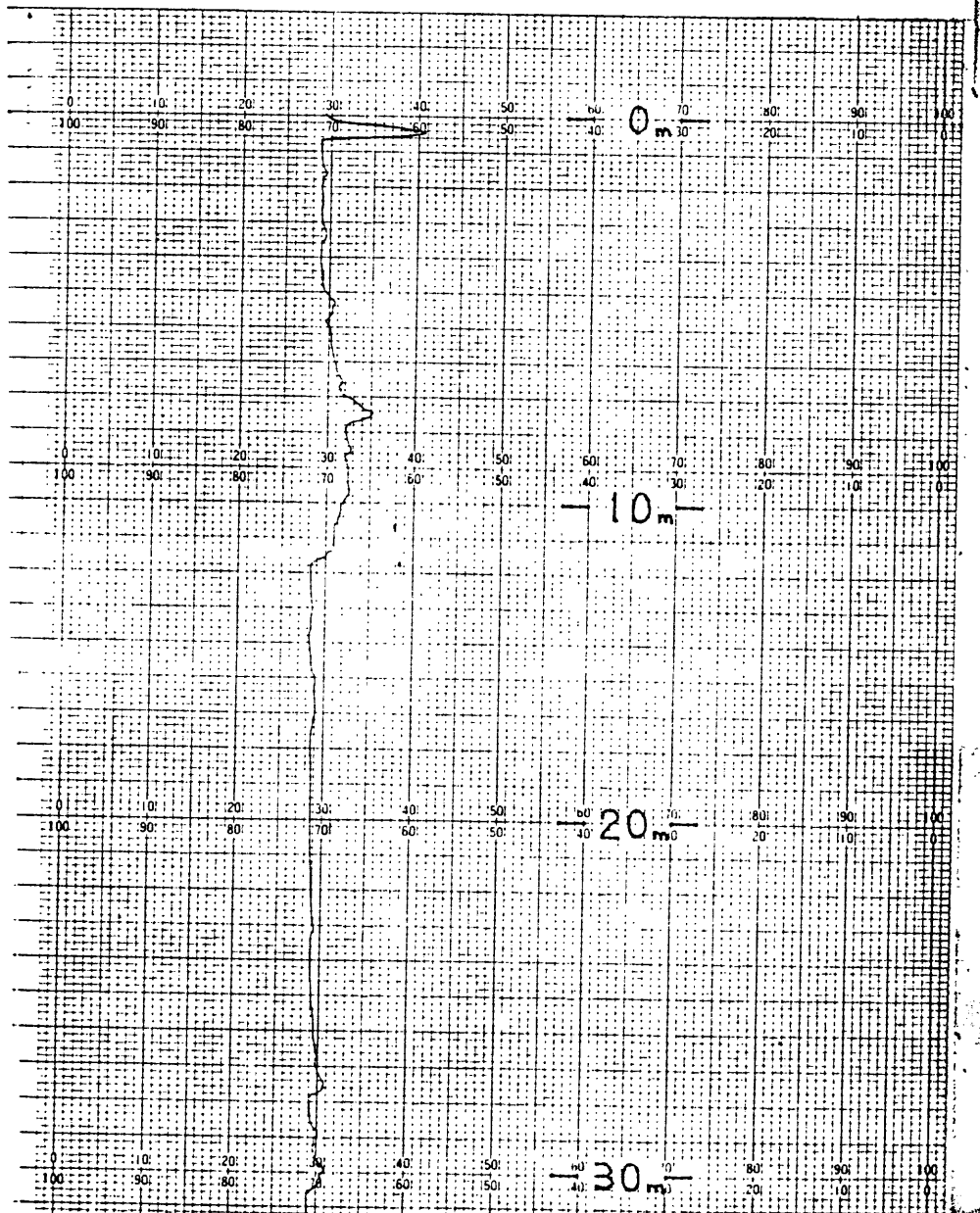


HOLE NUMBER.

UAT-10

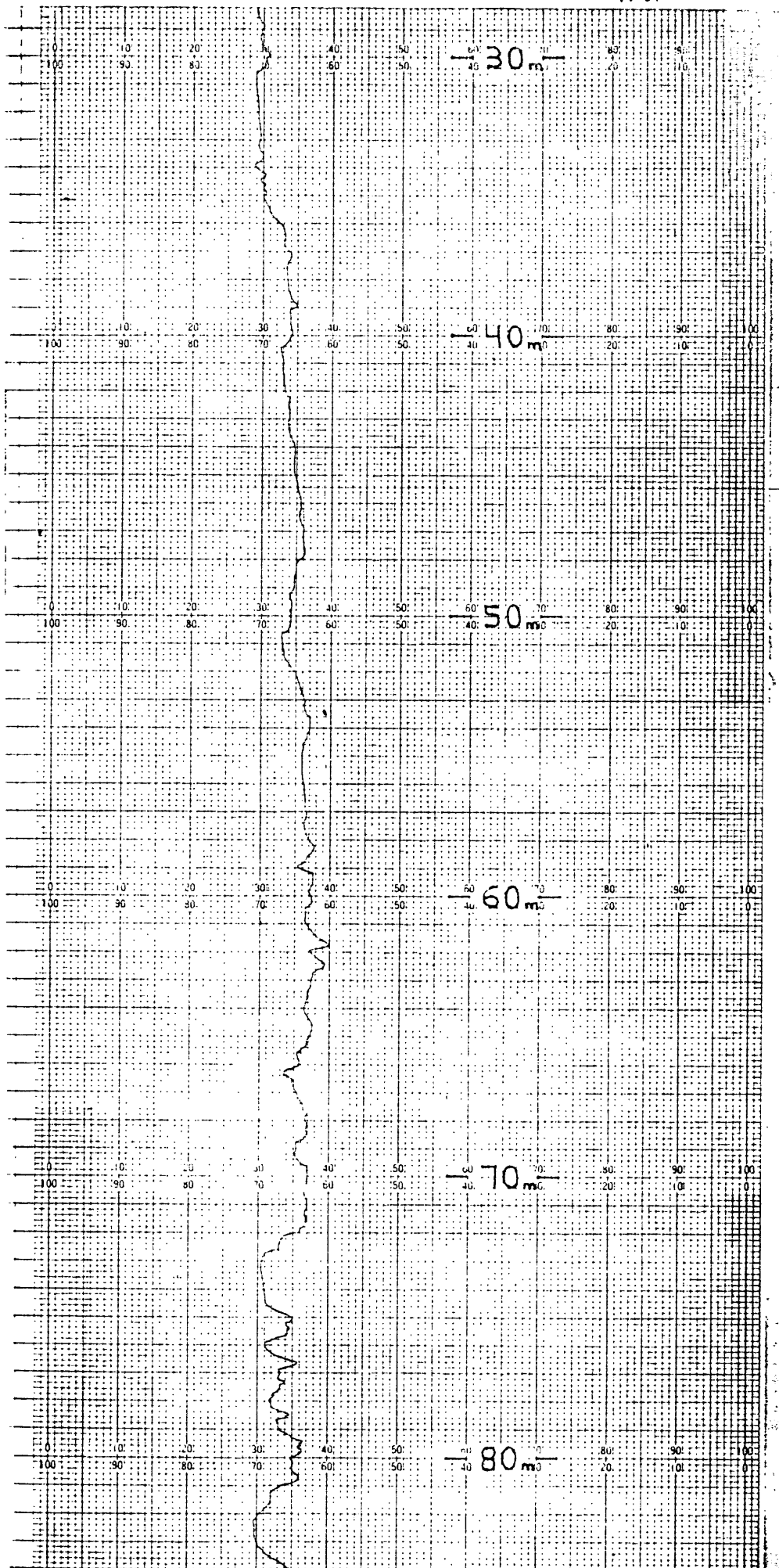
DATE 9th January, 1987

LOCATION				HOLE DATA				CLIENT																																																			
STATE/COUNTY <u>Sind Pakatan</u>				DEPTH DRILLED <u>225m</u>				CLIENT <u>U.S.G.S. - G.S.P.</u>																																																			
REGION <u>Thatta</u>				DEPTH LOGGED <u>170m</u>				GEOLOGIST																																																			
PROJECT <u>COAL REAP</u>				COLLAR ELEV				UNIT OPERATOR <u>ILYAS / Khurshid</u> UNIT NO. <u>PL-2</u> OFFICE <u>BOULDER COLORADO U.S.A.</u> <b>ELECTRIC</b>																																																			
PROSPECT				DIA <u>5cc</u> FROM TO																																																							
SEC <u>TWP</u> <u>RNG</u>				DIA <u>Caliper</u> FROM TO																																																							
				DIA <u>log</u> FROM TO																																																							
BOREHOLE MEDIUM <u>H<sub>2</sub>O + Mud</u>				FLUID LEVEL																																																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TYPE</th> <th>GAM</th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>LOGGED DEPTH</td><td></td><td></td><td></td></tr> <tr><td>RANGE (ft.)</td><td></td><td></td><td></td></tr> <tr><td>STD DEV</td><td></td><td></td><td></td></tr> <tr><td>PAPER SPEED</td><td></td><td></td><td></td></tr> <tr><td>LOG SPEED</td><td></td><td></td><td></td></tr> <tr><td>BKGND. COUNT</td><td></td><td></td><td></td></tr> <tr><td>PROBE NO.</td><td></td><td></td><td></td></tr> <tr><td>SIZE (dia.)</td><td></td><td></td><td></td></tr> <tr><td>K-FACTOR</td><td></td><td></td><td></td></tr> <tr><td>DEAD TIME</td><td></td><td></td><td></td></tr> <tr><td>STANDARD</td><td></td><td></td><td></td></tr> </tbody> </table>				TYPE	GAM			LOGGED DEPTH				RANGE (ft.)				STD DEV				PAPER SPEED				LOG SPEED				BKGND. COUNT				PROBE NO.				SIZE (dia.)				K-FACTOR				DEAD TIME				STANDARD				<b>CASING DATA</b>							
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				INCLIN.																																																							
BEARING																																																											
LOGGED DEPTH <u>170m</u>				FT																																																							
SCALE <u>.9BW = 1" Dia</u>				IN																																																							
PAPER SPEED <u>1-1</u>				IN																																																							
LOG SPEED <u>6-1</u>				IN																																																							
ARM LENGTH <u>12</u>				IN																																																							
MAX DEF. <u>2.4</u>				IN																																																							

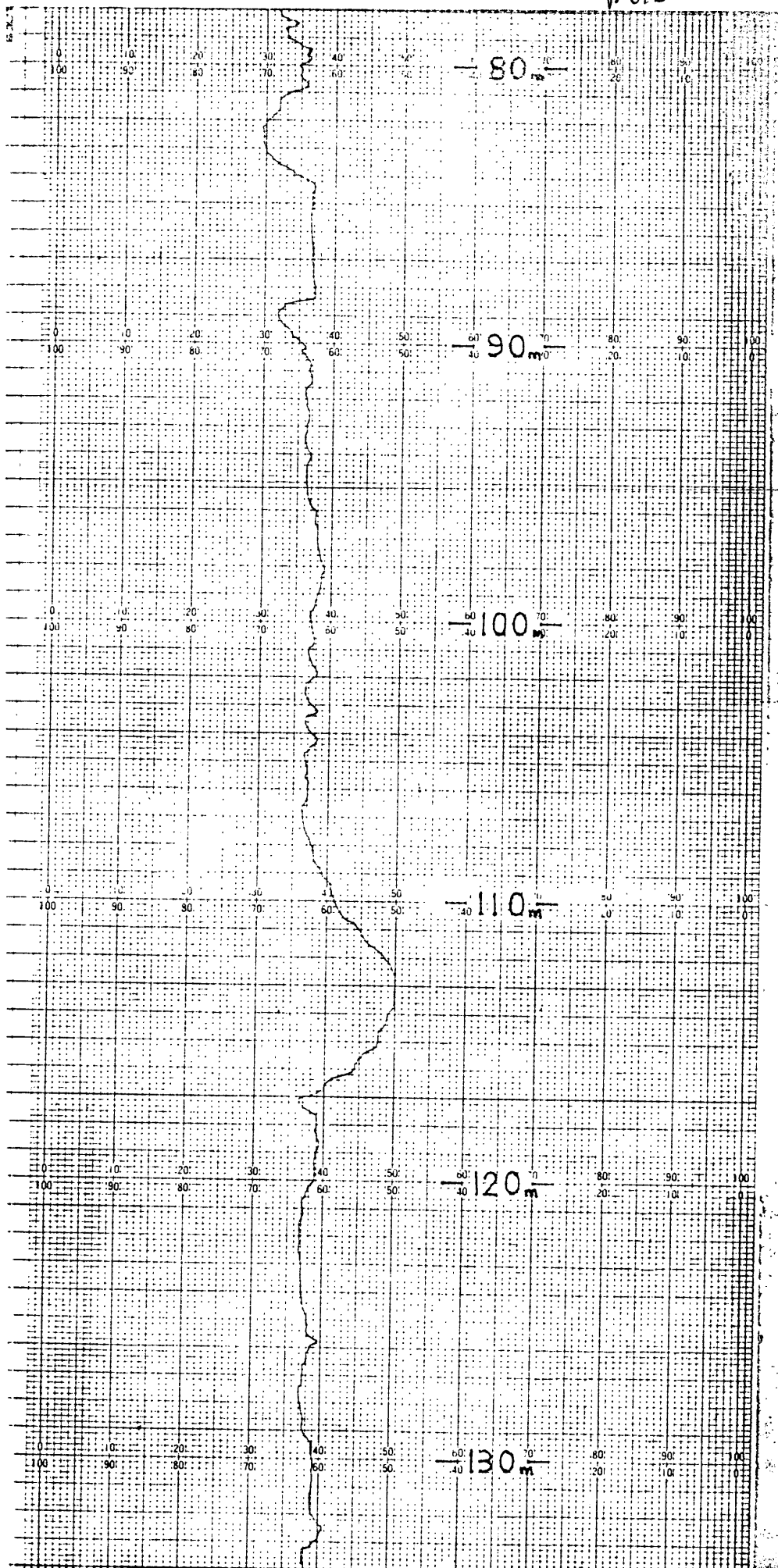


UAT-10

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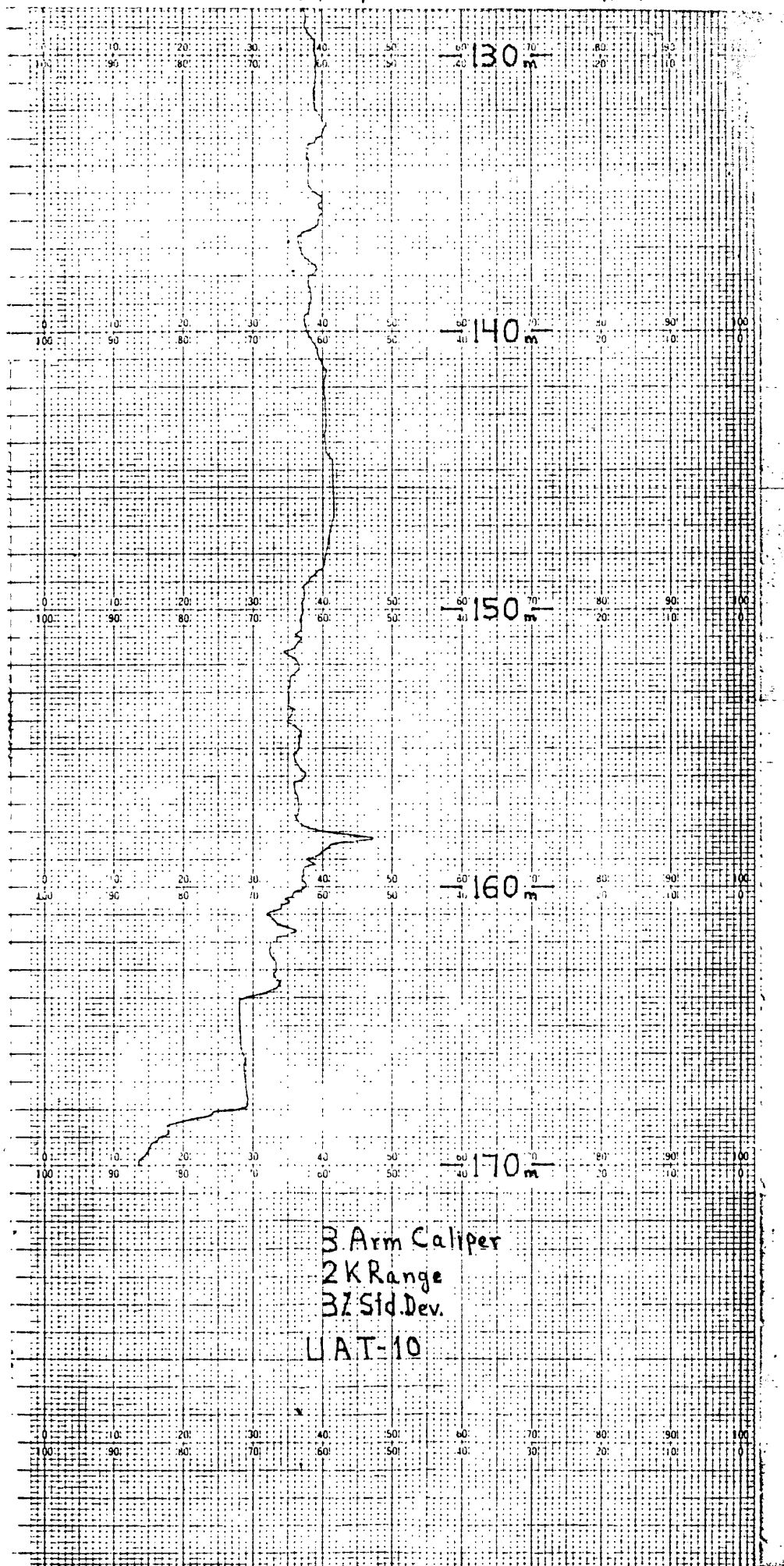






UAT-10

P.617



DRILL HOLE UAK-1



# GE SCIENCE ASSOCIATES

P.619

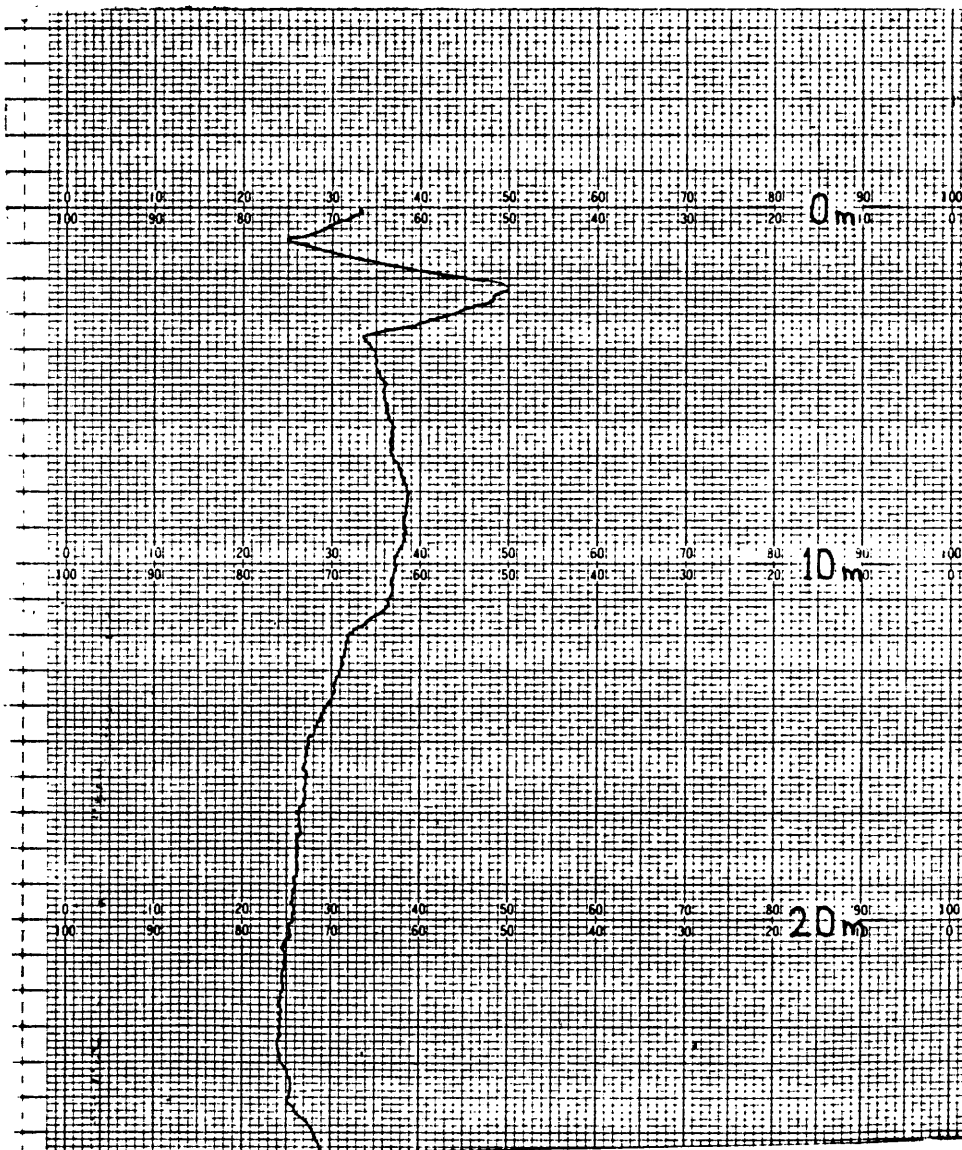
PROJECT NUMBER:

PAK-1

DATE:

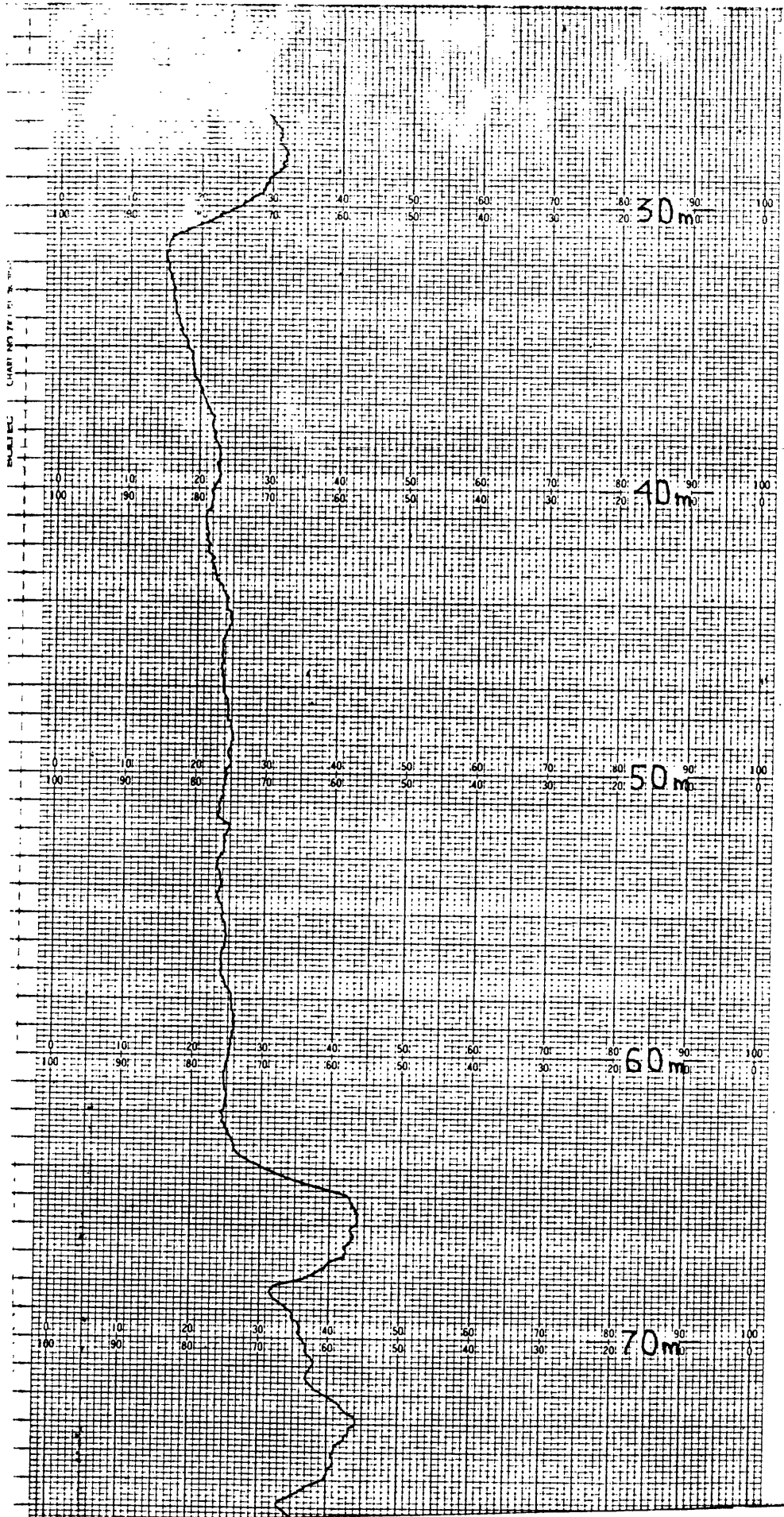
1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	SINDH PAKISTAN		DEPTH DRILLED:	291 m		CLIENT GSP - USGS - USA		
REGION	T.M. KHAN		DEPTH LOGGED:	289 m		GEOLOGIST:		
PROJECT	COAL REAP		COLLAR ELEV			UNIT OPERATOR MUJEEB / MAJ / MANFOD		
PROSPECT			DIA. FROM TO			UNIT NO. P-2	OFFICE	USA
SEC.	TWP.	RNG.	DIA. FROM TO			BOULDER	COLORADO	
TYPE	GAM	TD/DENSITY	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		ELECTRIC		
LOGGED DEPTH	289 m		FLUID LEVEL			TYPE	RESIST	S.P.
RANGE (I.S.)	5K		CASING DATA			LOGGED DEPTH	FT.	FT.
%STD DEV	1%		WALL SIZE	1/4"		SCALE		
PAPER SPEED	1-1		I.D.	4" HW = 0 TO 65 m		PAPER SPEED		
LOG SPEED	6-1		CASED FROM	NW = 0 TO 299 m		LOG SPEED		
BKGND. COUNT			CASING TYPE			FINE ADJ.		
PROBE NO.	60-2		SAMPLE DATA			CALIPER		
SIZE (dia.)	1 3/8"		NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			LOGGED DEPTH	FT	
K-FACTOR	1.5		SAMPLED INTERVAL	SAMPLE TYPE		SCALE		
DEAD TIME	2					PAPER SPEED		
STANDARD						LOG SPEED		
DIGITAL DATA			REMARKS			ARM LENGTH	IN	
PRINT INTERVAL			Logged through drill pipe + PD + HW + NW casing			MAX DEF.	IN	
TIMEBASE						VERTICAL DEV.		
DENSITY CALIBRATION			PR = 8 m					
ALUMINUM			HW = 65 m					
LUCITE			NW = 299 m					
						DEPTH		
						INCLIN.		
						BEARING		



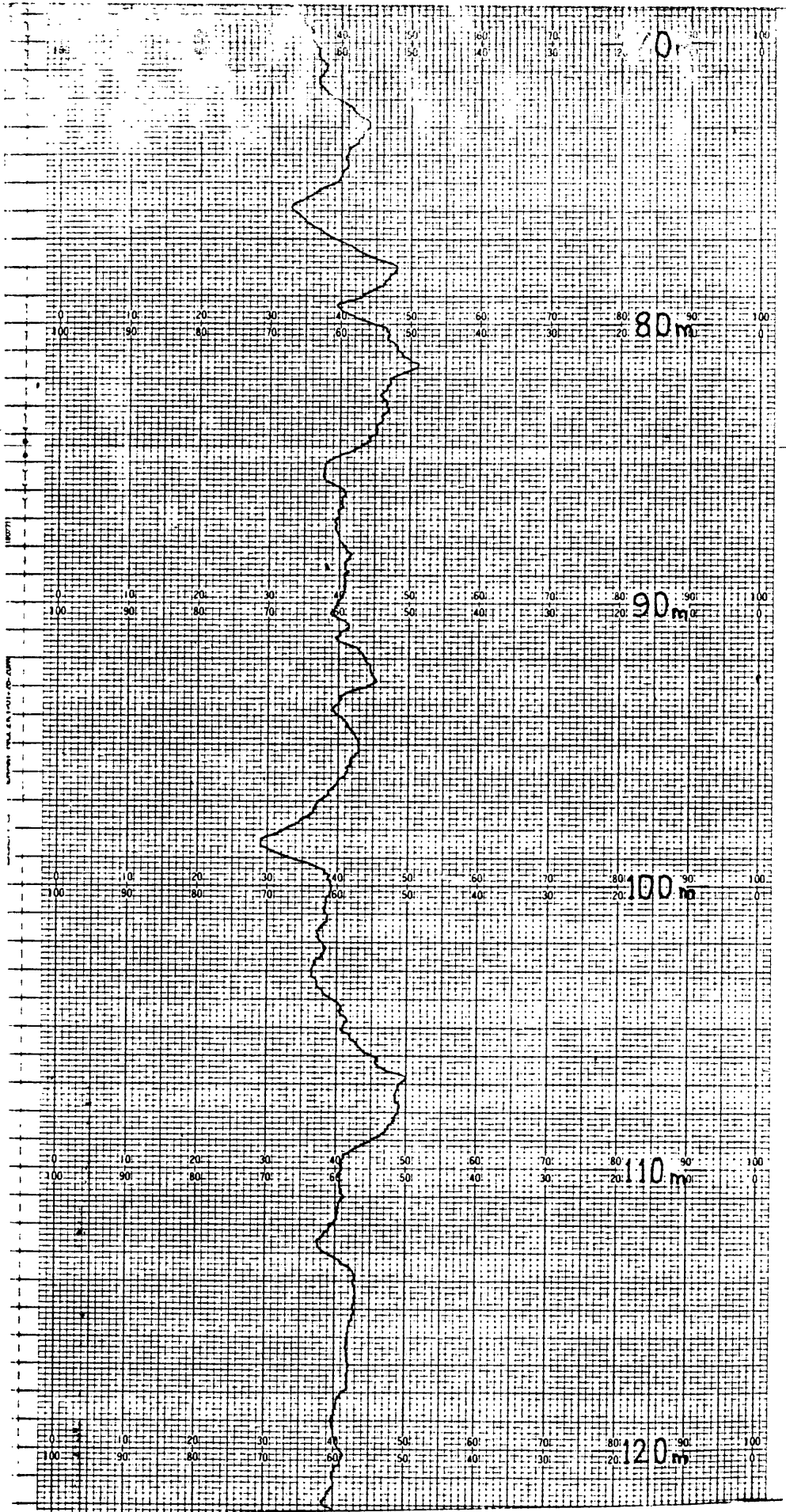
UAK-1

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UAK-1

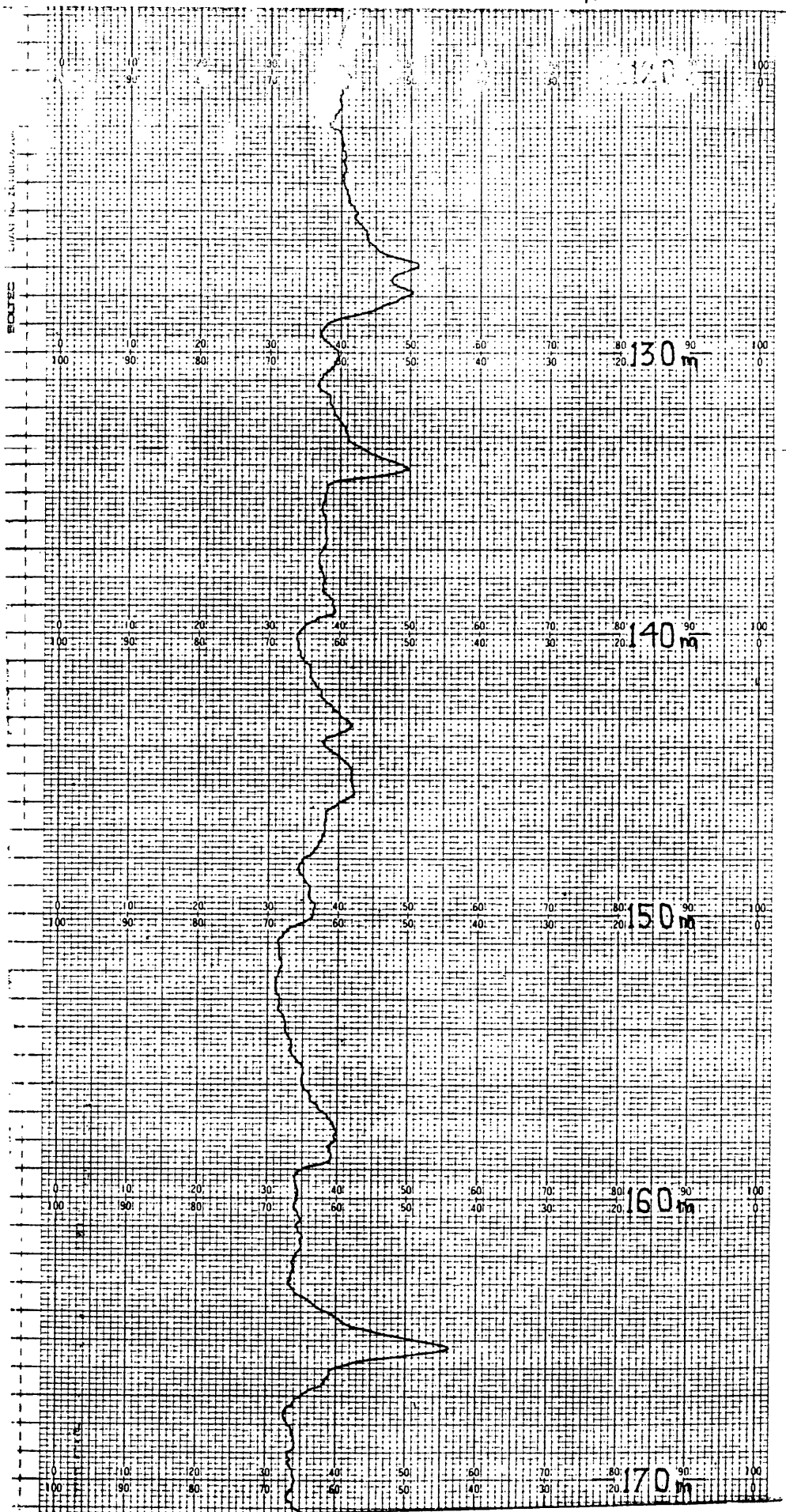
P.621





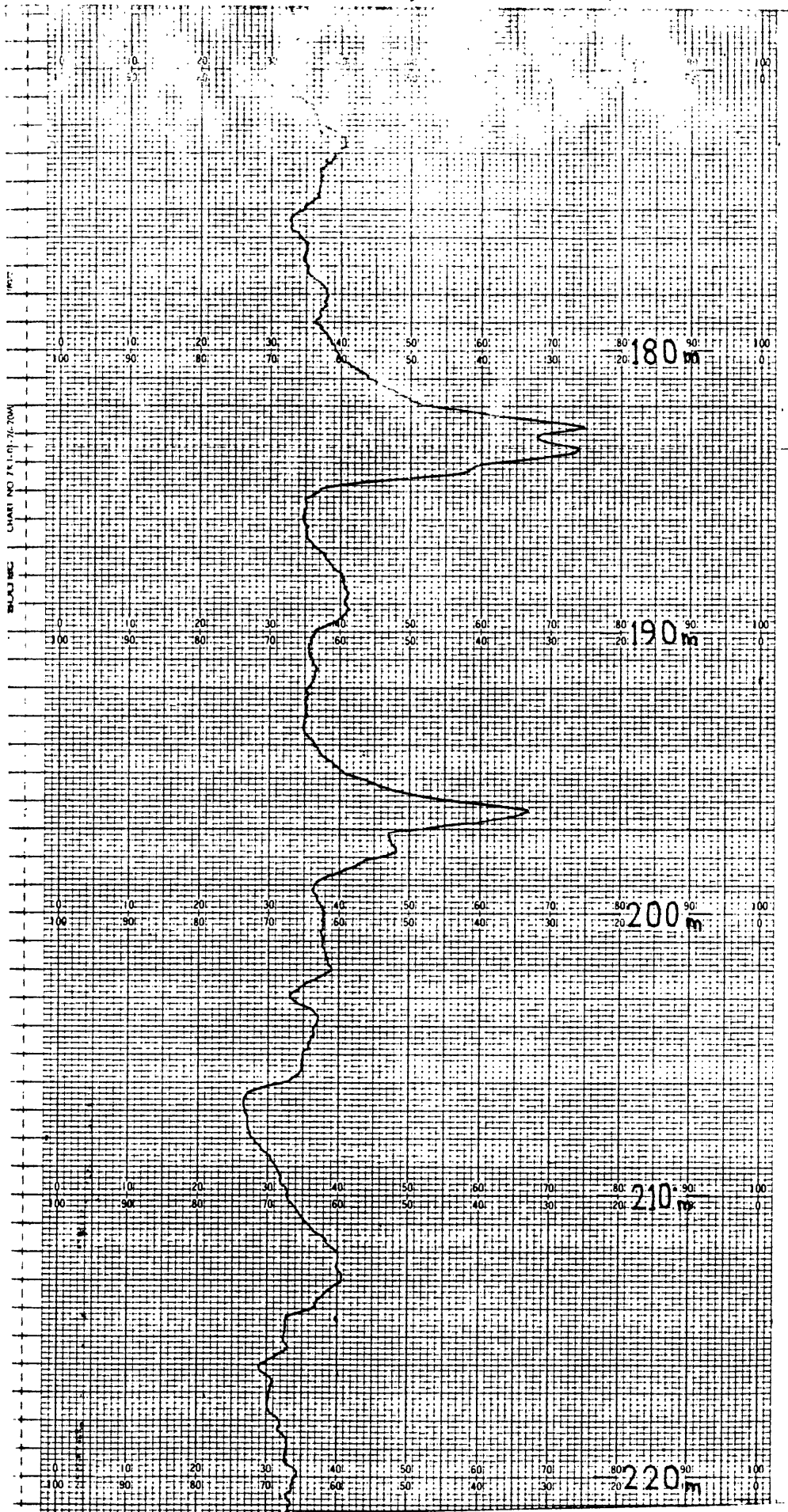
UAK-1

P.622



UAK-1

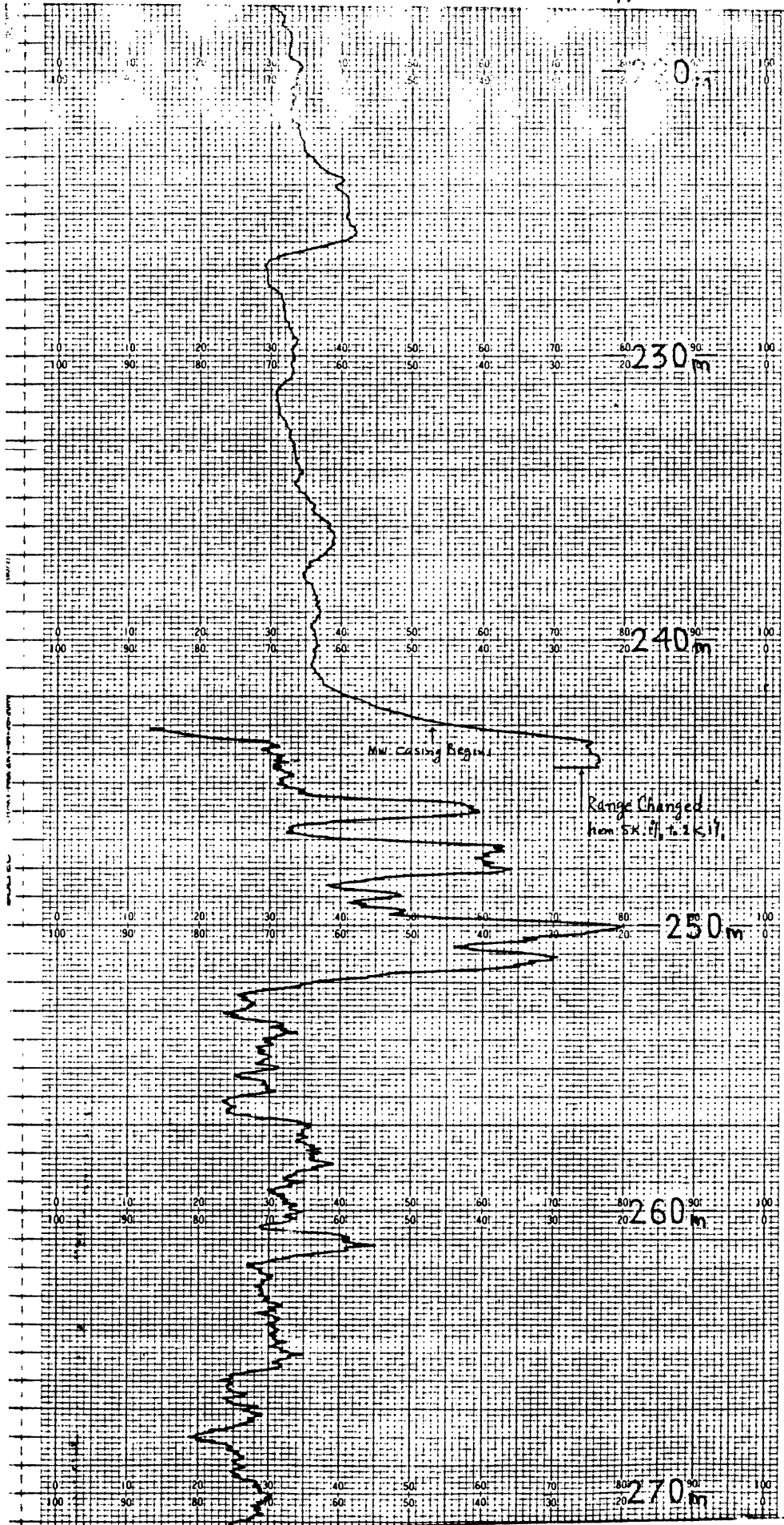
A623





UAK-1

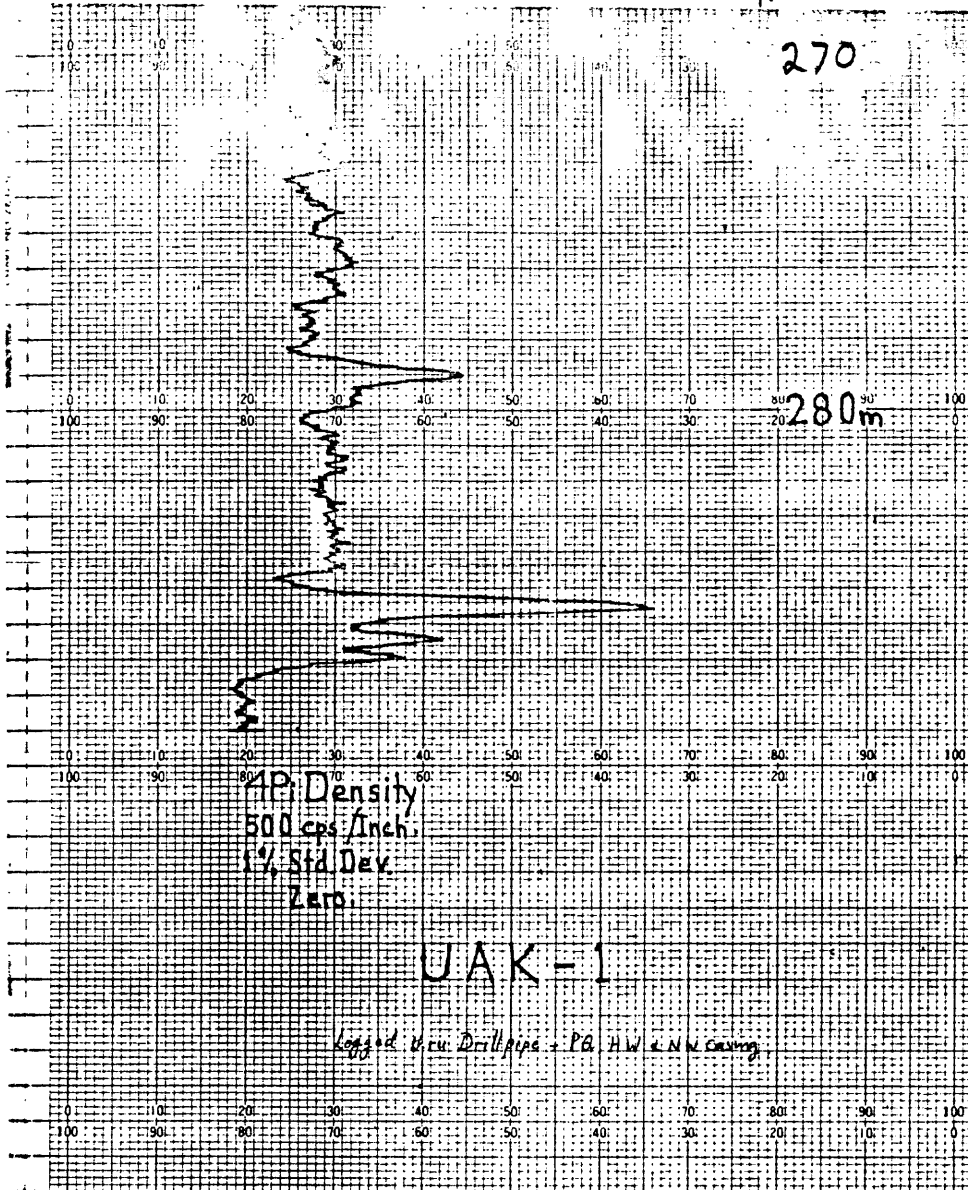
P.624



UAK-1

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# GEOSCIENCE ASSOCIATES

P.626

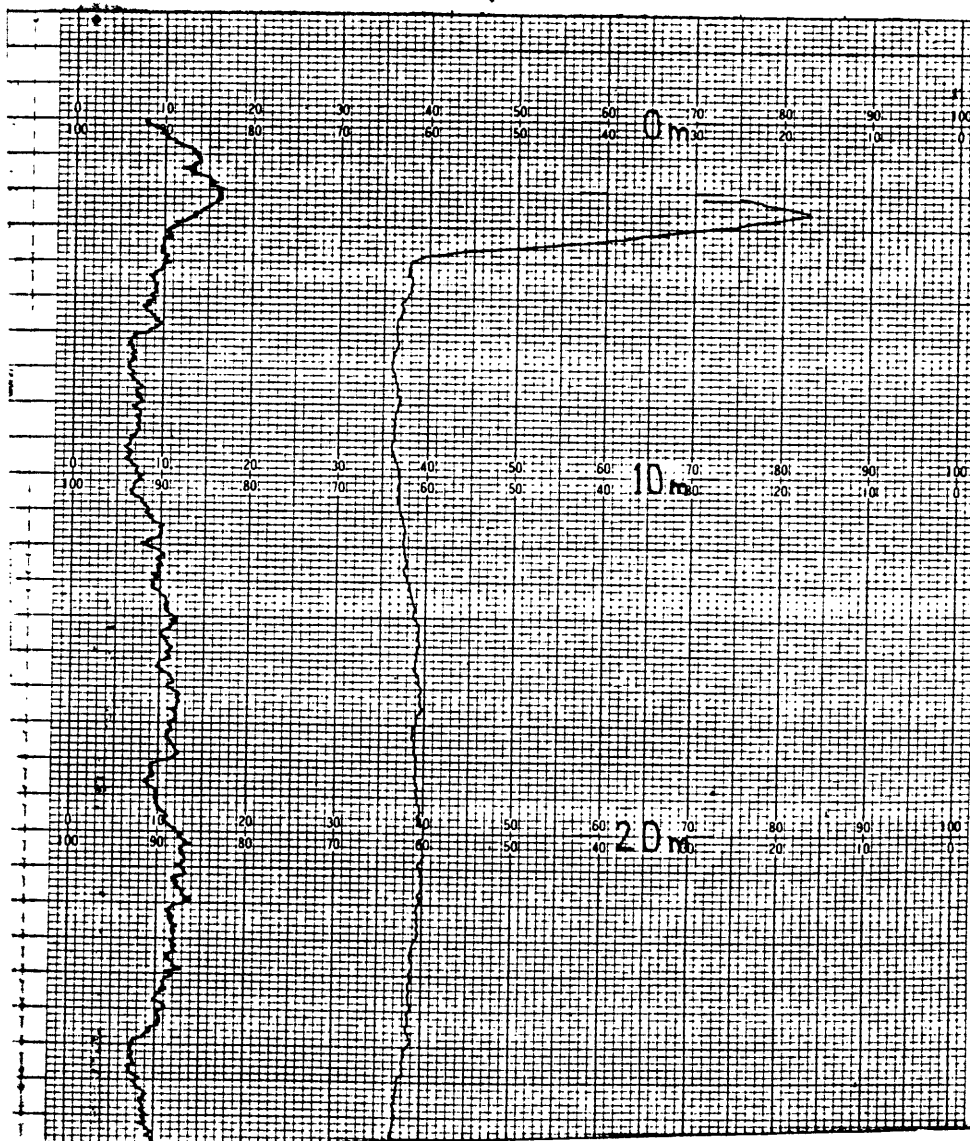
HOLE NUMBER:

UAK-1

DATE:

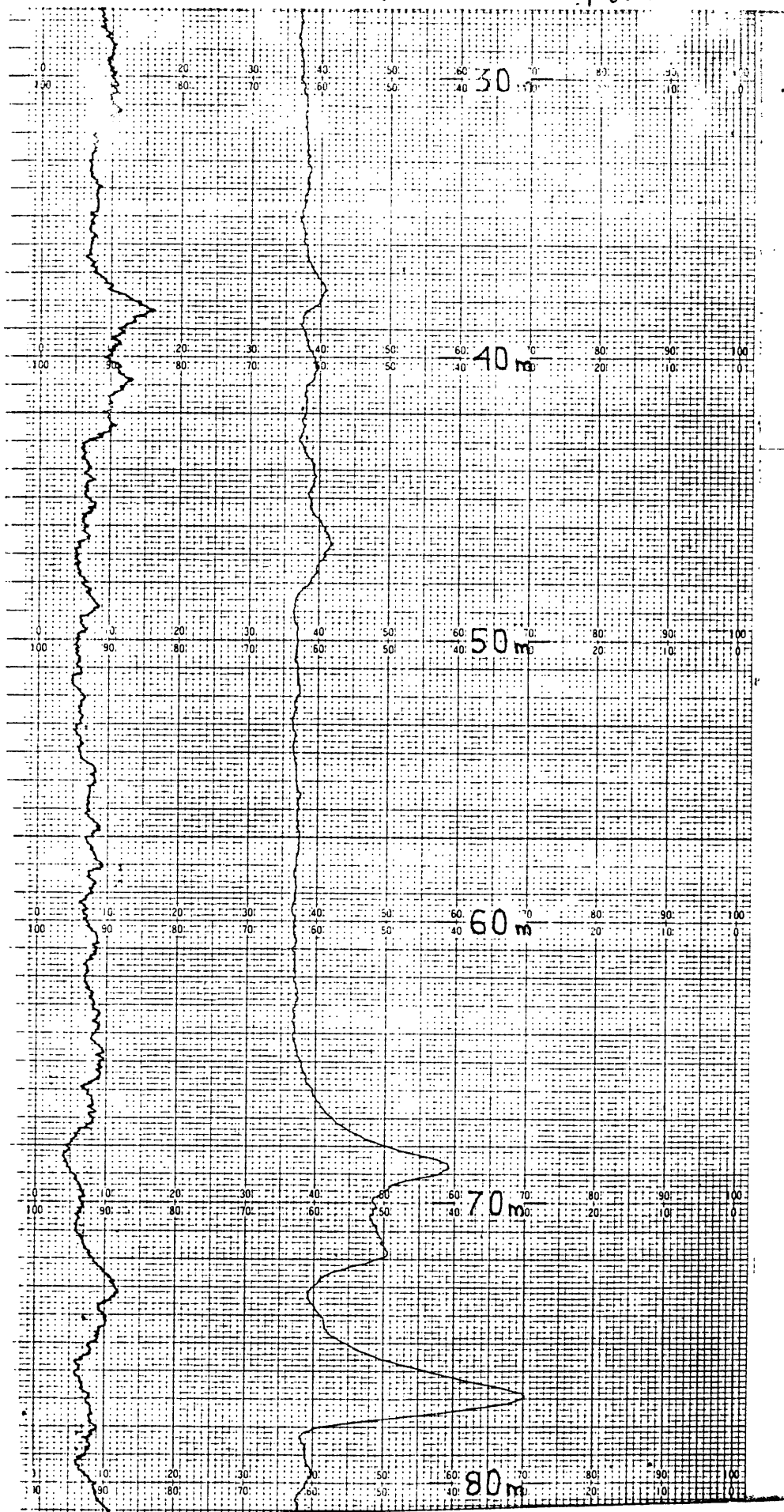
9th APRIL - 1987

LOCATION			HOLE DATA		CLIENT	
STATE/COUNTRY <i>SIND PAKISTAN</i>			DEPTH DRILLED: <i>291m</i>		CLIENT <i>GSP USGS USAID</i>	
REGION <i>TM KHAN</i>			DEPTH LOGGED: <i>289m</i>		GEOLOGIST:	
PROJECT <i>COAL REAP</i>			COLLAR ELEV.		UNIT OPERATOR <i>ILYAS/MUTIA/MAIT</i>	
PROSPECT			DIA. <i>See Caliper</i> FROM TO		UNIT NO. OFFICE	
SEC.	TWP.	RNG.	DIA. <i>Log</i> FROM TO			
TYPE			BOREHOLE MEDIUM <i>H<sub>2</sub>O + Mud</i>		ELECTRIC	
LOGGED DEPTH	GAM	Neutron	FLUID LEVEL		TYPE	
<i>287m</i>	<i>289m</i>				RESIST	
RANGE (I.B.)			CASING DATA		FT. S.P.	
<i>100</i>		<i>500</i>	WALL SIZE <i>14"</i>		LOGGED DEPTH	
%STD DEV			I.D. <i>4"</i>		SCALE	
<i>3%</i>		<i>1%</i>	CASED FROM <i>See remarks</i>		PAPER SPEED	
PAPER SPEED	<i>1-1</i>	<i>1-1</i>	CASING TYPE <i>PO HW NN</i>		LOG SPEED	
LOG SPEED	<i>6-1</i>	<i>6-1</i>	SAMPLE DATA		FINE ADJ.	
BKGD. COUNT			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input type="checkbox"/>			
PROBE NO. <i>GH-1</i>	<i>GH-1</i>		SAMPLED INTERVAL		SAMPLE TYPE	
SIZE (dia.) <i>1 3/4"</i>	<i>1 3/4"</i>					
K-FACTOR			REMARKS		CALIPER	
DEAD TIME	<i>2</i>	<i>2</i>	Logged through drill pipes,		LOGGED DEPTH	
STANDARD			PO HW and NN casing		SCALE	
			<i>PO = 6m HW = 6.5m</i>		PAPER SPEED	
			<i>NN = 249m</i>		LOG SPEED	
					ARM LENGTH	
					MAX DEF.	
					VERTICAL DEV.	
					DEPTH	
					INCLIN.	
					BEARING	



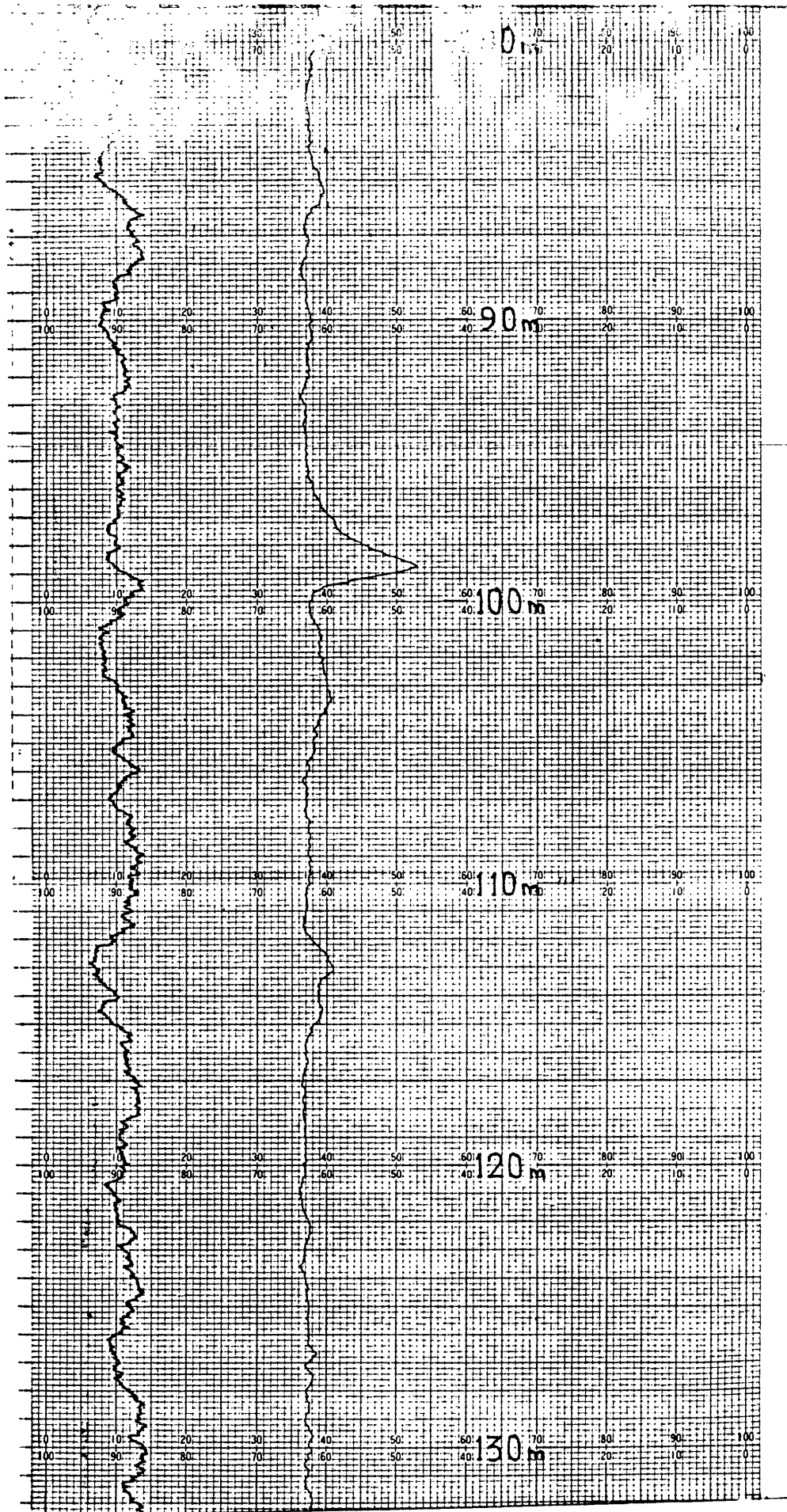
UAK-1

R627



UAK-1

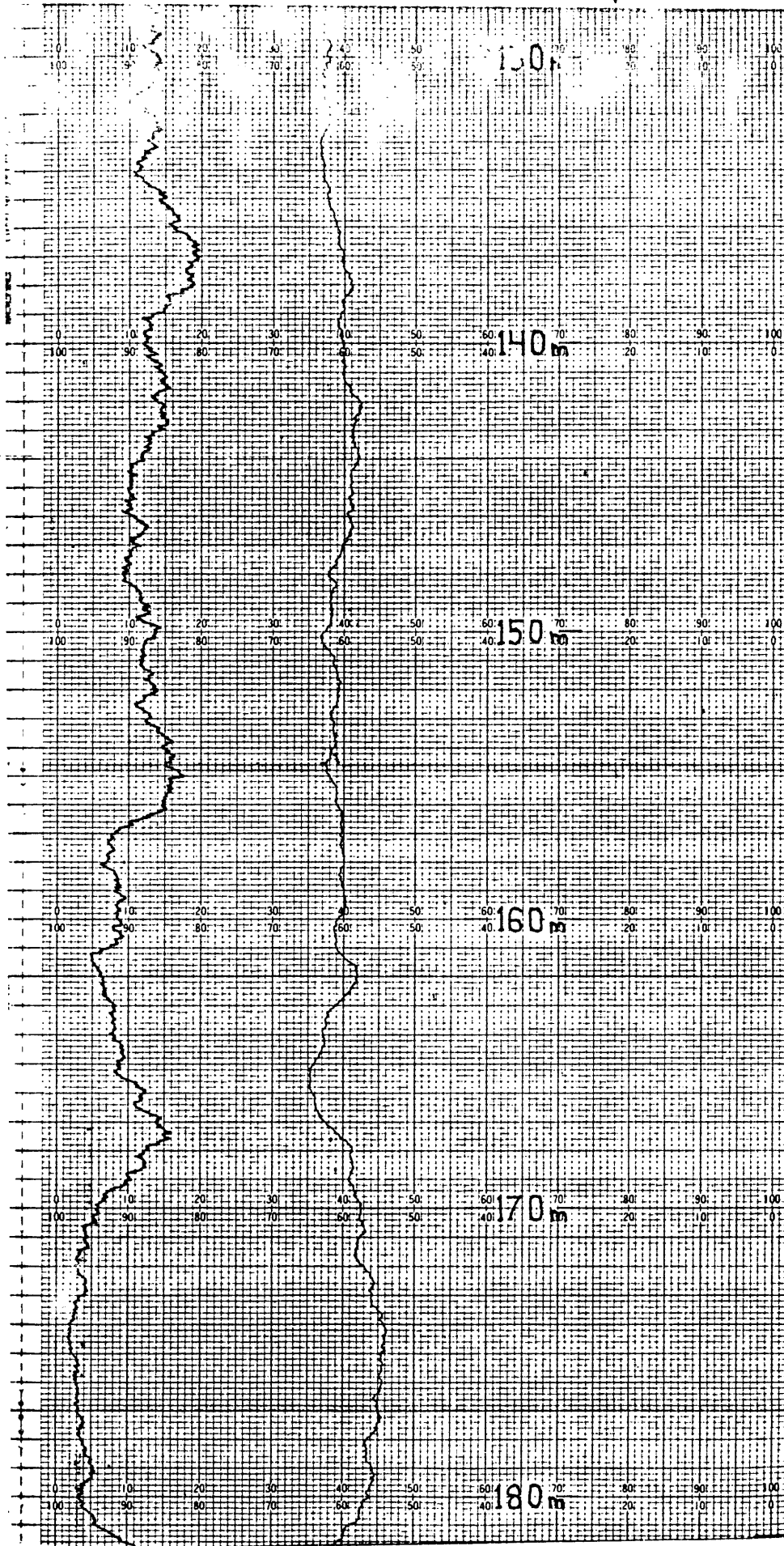
P.628



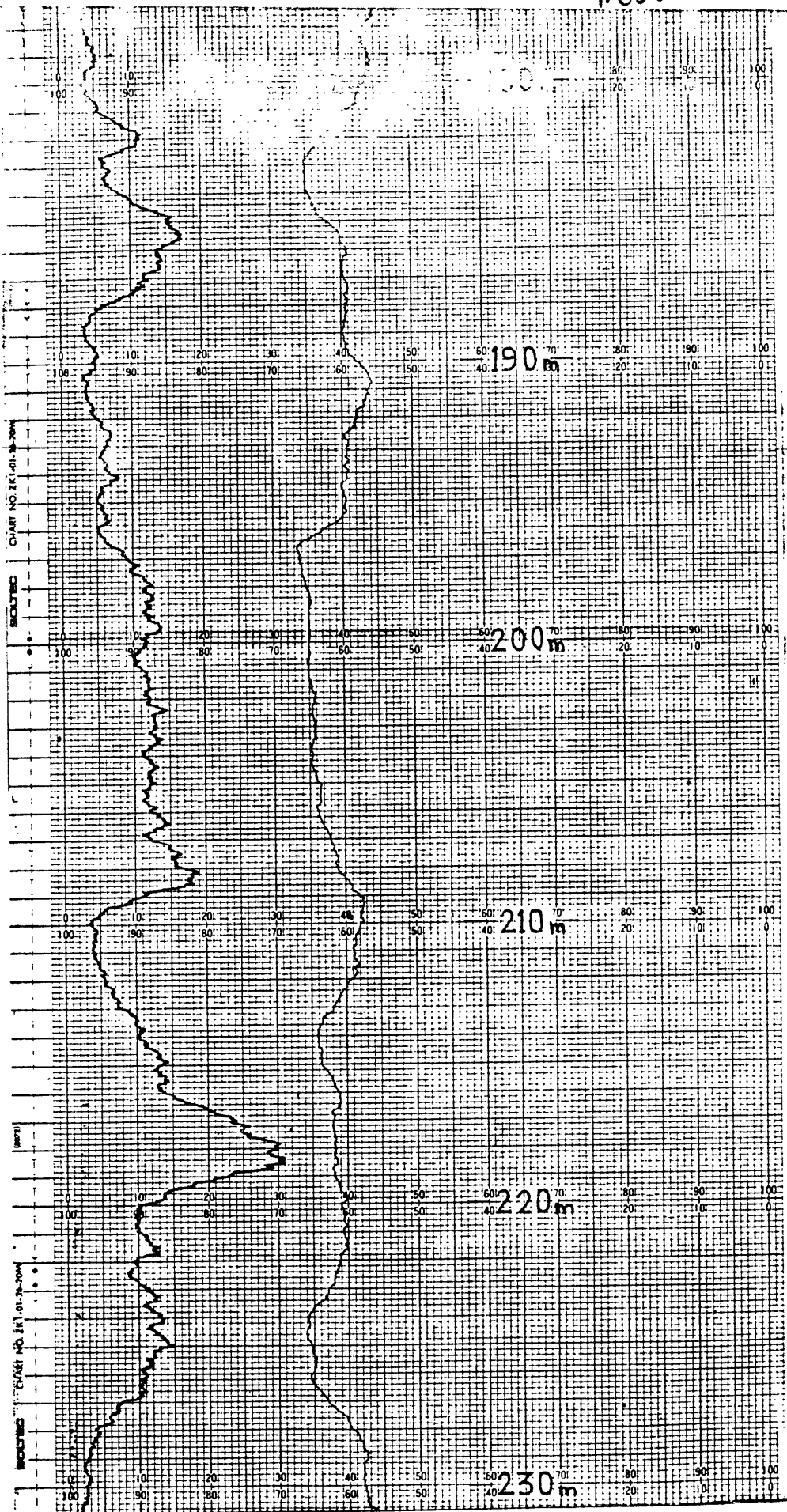


UAK-1

P.629

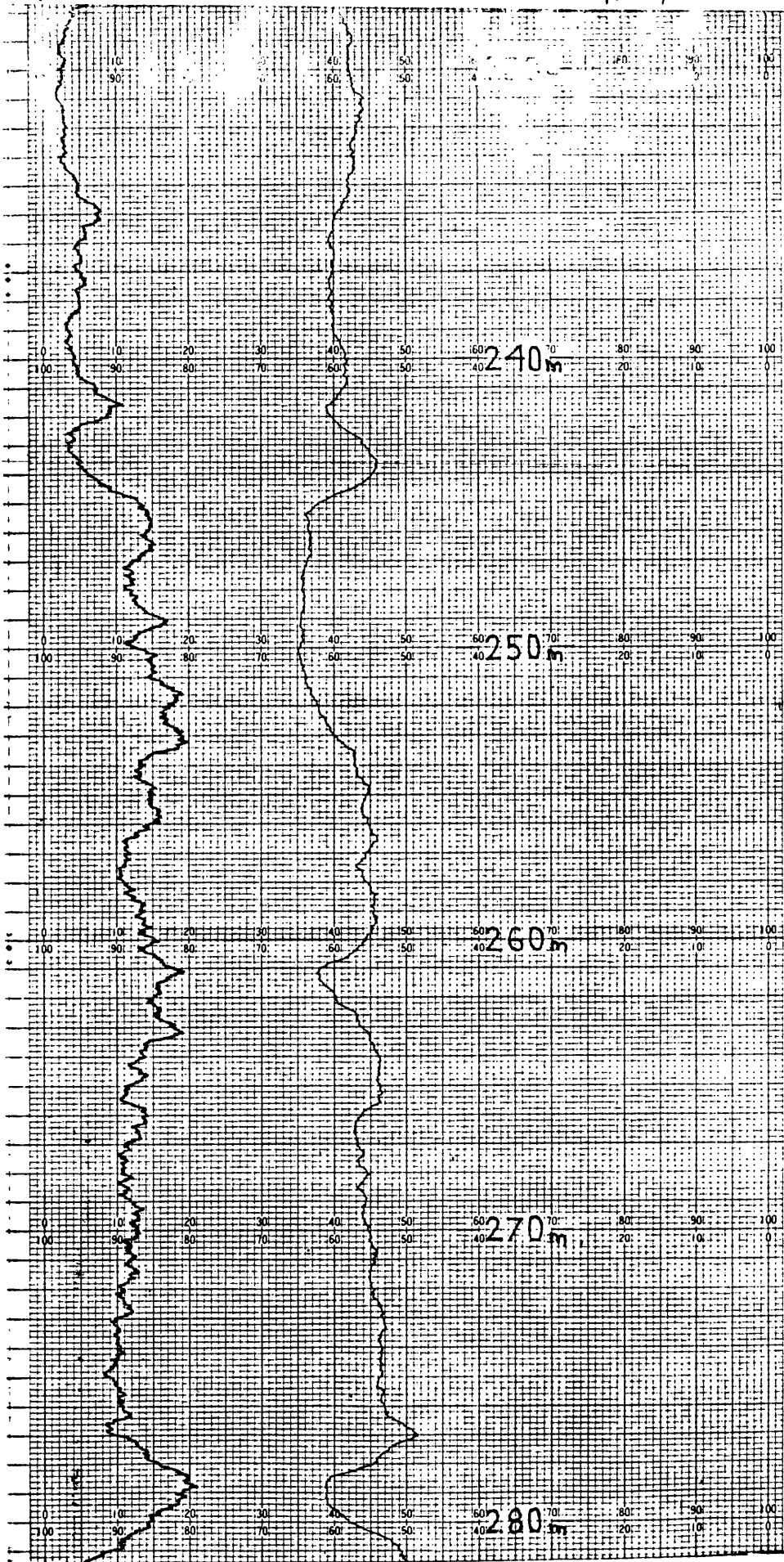


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UAK-1

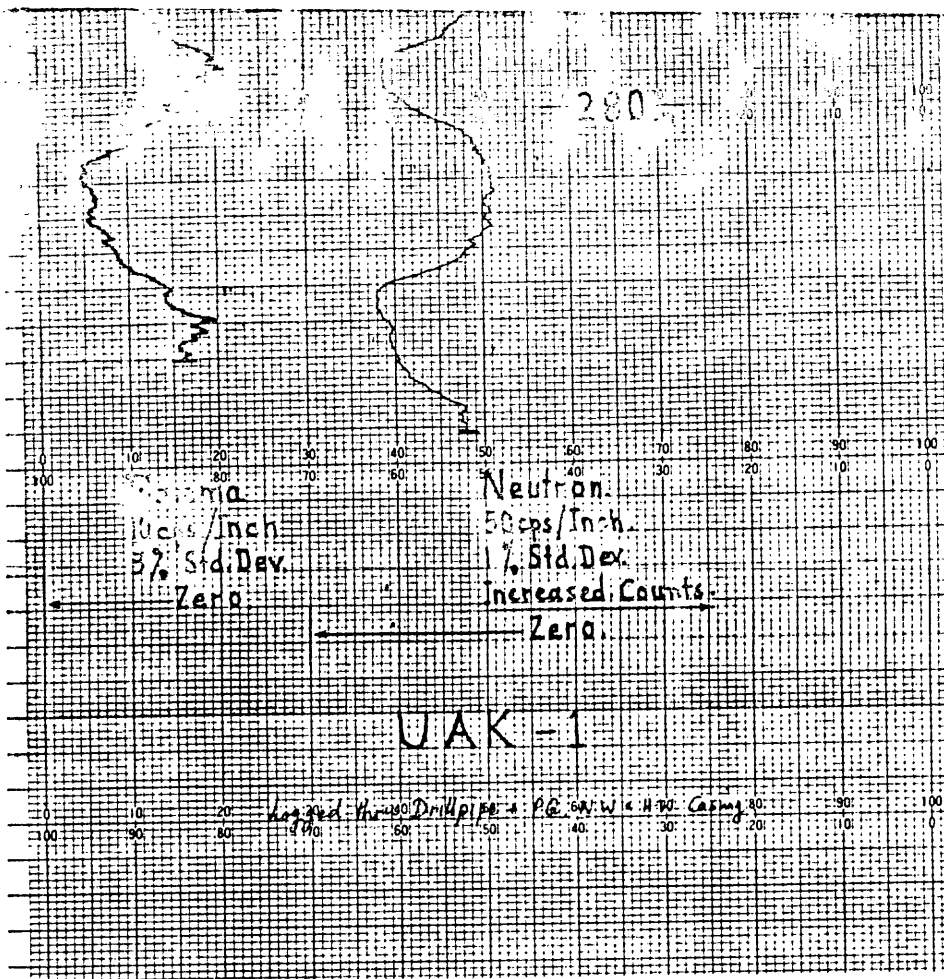
P.631





UAK-1

R632





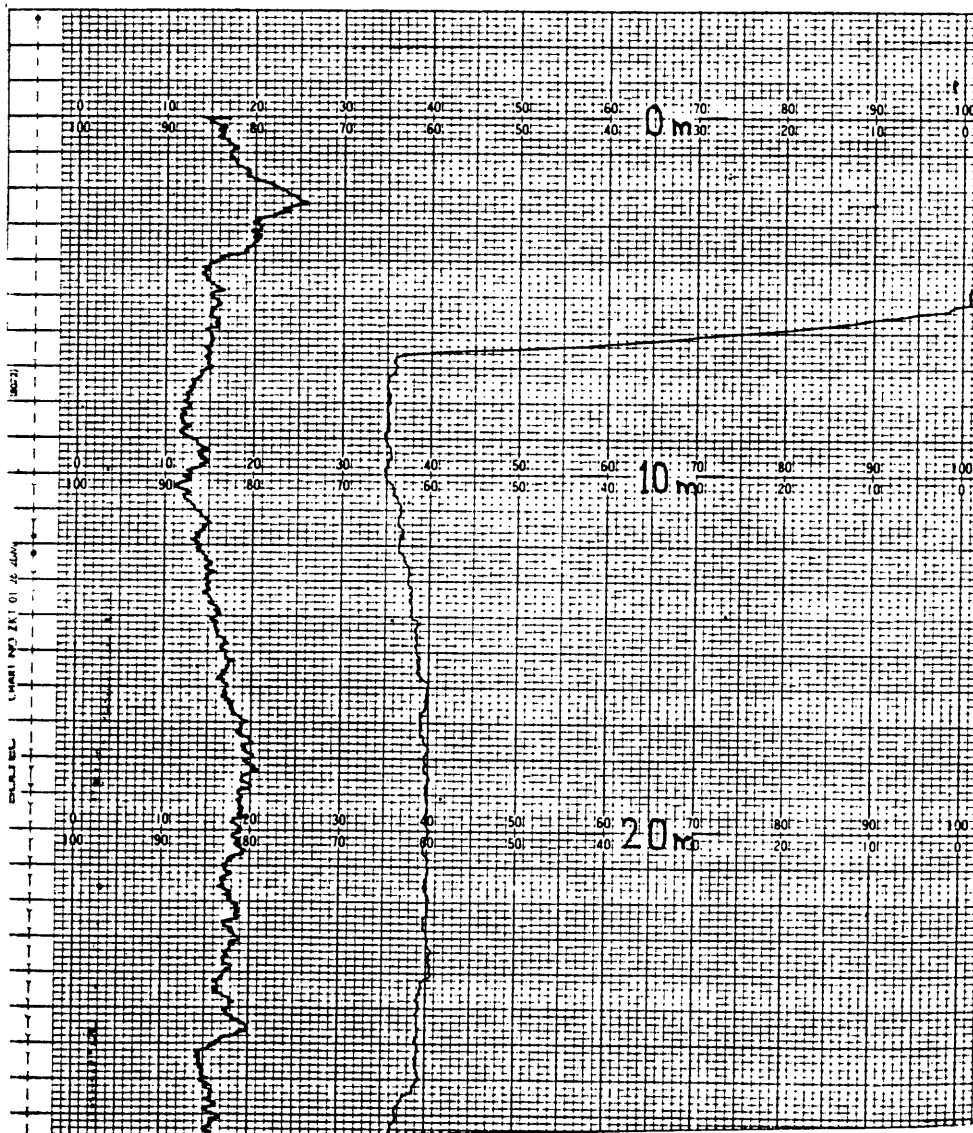
# GEOSCIENTIFIC ASSOCIATES R 633

HOLE NUMBER:

UAK-1.

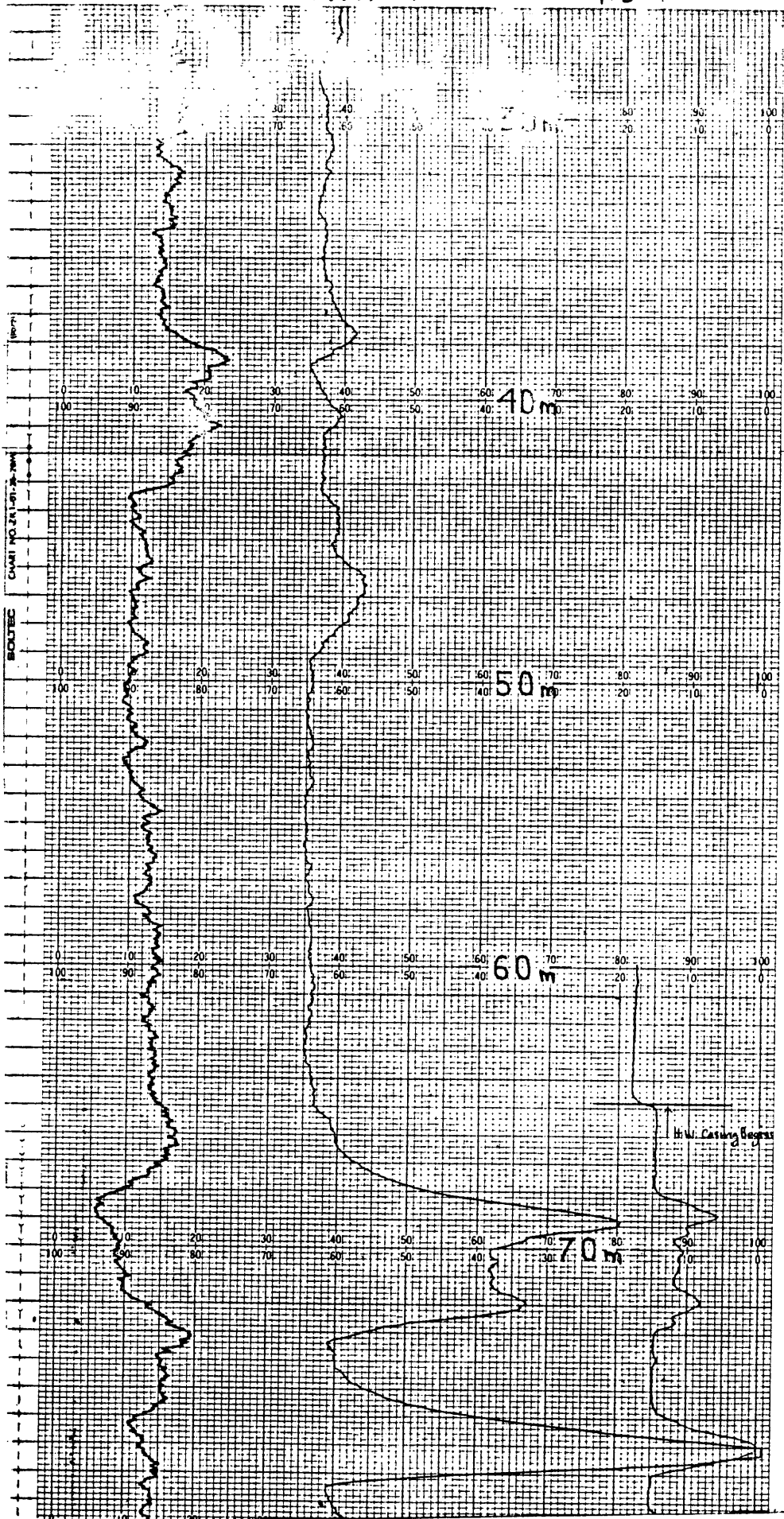
DATE: 9th APRIL 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY <i>SIND PAKISTAN</i>			DEPTH DRILLED: <i>291 m</i>			CLIENT <i>GS - USGS - USAID</i>		
REGION <i>T.M. KHAN</i>			DEPTH LOGGED: <i>167 m</i>			GEOLOGIST		
PROJECT <i>COAL REAP</i>			COLLAR ELEV			UNIT OPERATOR <i>MEDIAN VAC / ALTM</i>		
PROSPECT			DIA. <i>See</i> FROM TO			UNIT NO. <i>H-2</i> OFFICE <i>USA</i>		
SEC. TWP. RNG.			DIA. <i>Caliber</i> FROM TO			BOULDER <i>Colorado</i>		
			DIA. <i>Log</i> FROM TO			ELECTRIC		
TYPE <i>GA</i> <i>Neutron</i>			BOREHOLE MEDIUM <i>H<sub>2</sub>O + Mud</i>			TYPE		
LOGGED DEPTH <i>165 m</i> <i>167 m</i>			FLUID LEVEL <i>26 m</i>			LOGGED DEPTH		
RANGE (I.S.) <i>100</i> <i>500</i>			CASING DATA			SCALE		
%STD DEV <i>3</i> <i>1</i>			WALL SIZE <i>1/4"</i>			PAPER SPEED		
PAPER SPEED <i>1-1</i> <i>1-1</i>			I.D. <i>4"</i>			LOG SPEED		
LOG SPEED <i>6-1</i> <i>6-1</i>			CASED FROM <i>0 TO 67.8</i>			FINE ADJ. <i>1000 bias</i>		
BKGND. COUNT			CASING TYPE			CALIPER		
PROBE NO. <i>GN-1</i> <i>GN-1</i>			SAMPLE DATA			LOGGED DEPTH		
SIZE (dia.) <i>1 3/4"</i> <i>1 1/4"</i>			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			SCALE		
K-FACTOR <i>1.1</i>			SAMPLED INTERVAL			PAPER SPEED		
DEAD TIME <i>2</i> <i>2</i>			SAMPLE TYPE			LOG SPEED		
STANDARD						ARM LENGTH		
DIGITAL DATA			REMARKS			MAX DEF.		
PRINT INTERVAL			<i>Logged Through HW + PA +</i>			VERTICAL DEV.		
TIMEBASE			<i>OPEN HOLE</i>			DEPTH		
DENSITY CALIBRATION						INCLIN.		
ALUMINUM						BEARING		
LUCITE								



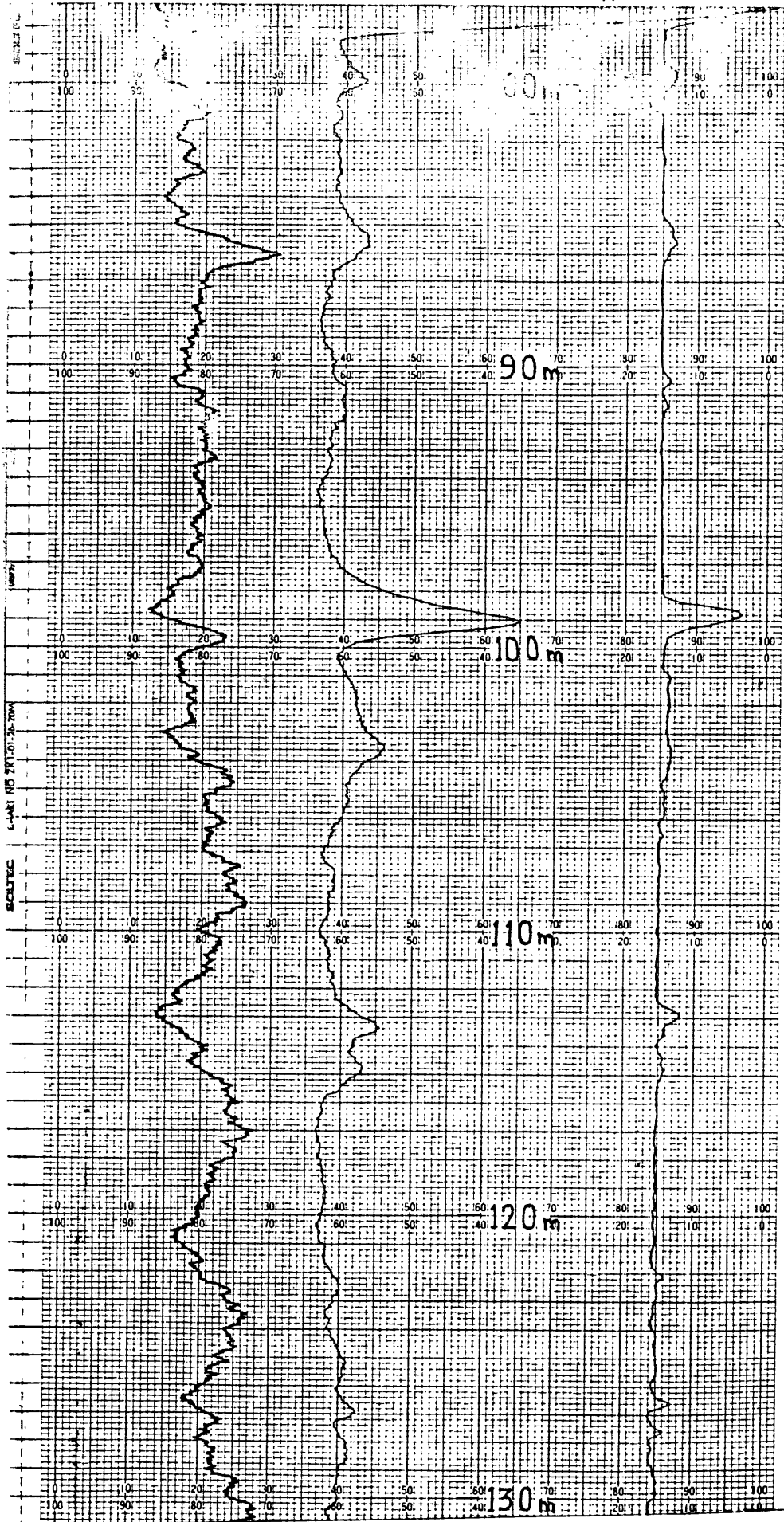
UAK-1

P.634

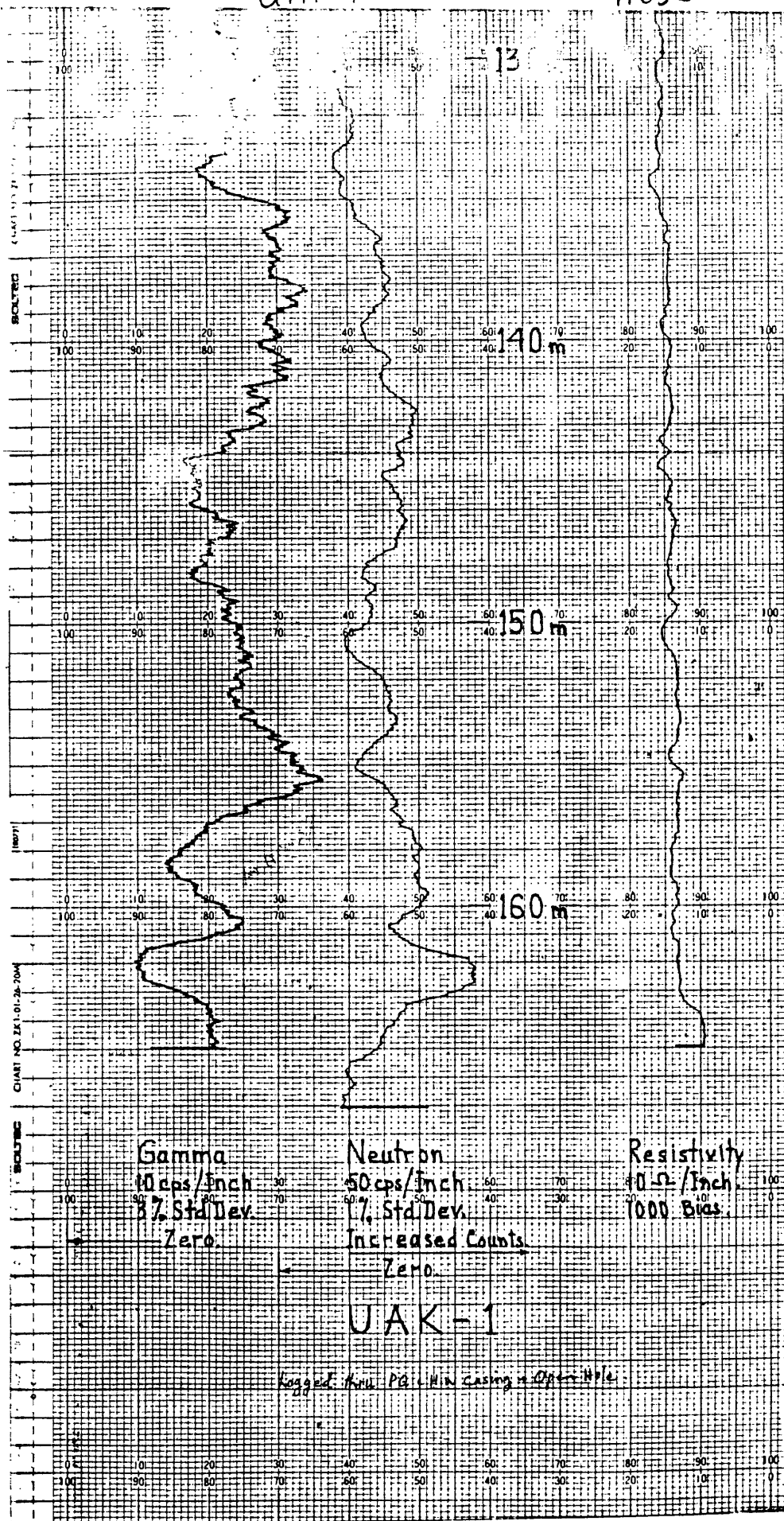


UAK-1

R635



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# GEOSCIENCE ASSOCIATES

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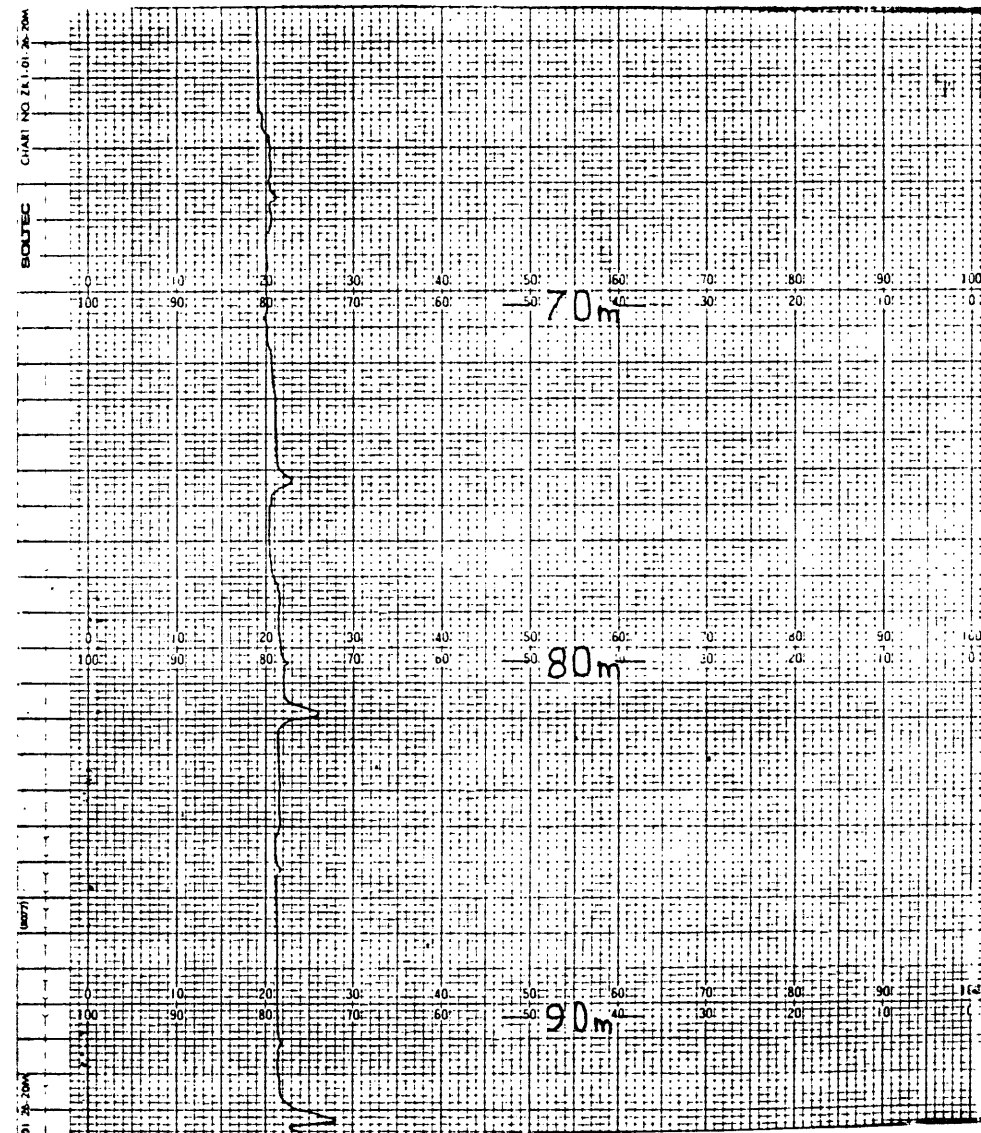
WELL NUMBER:

UAK - 1

DATE:

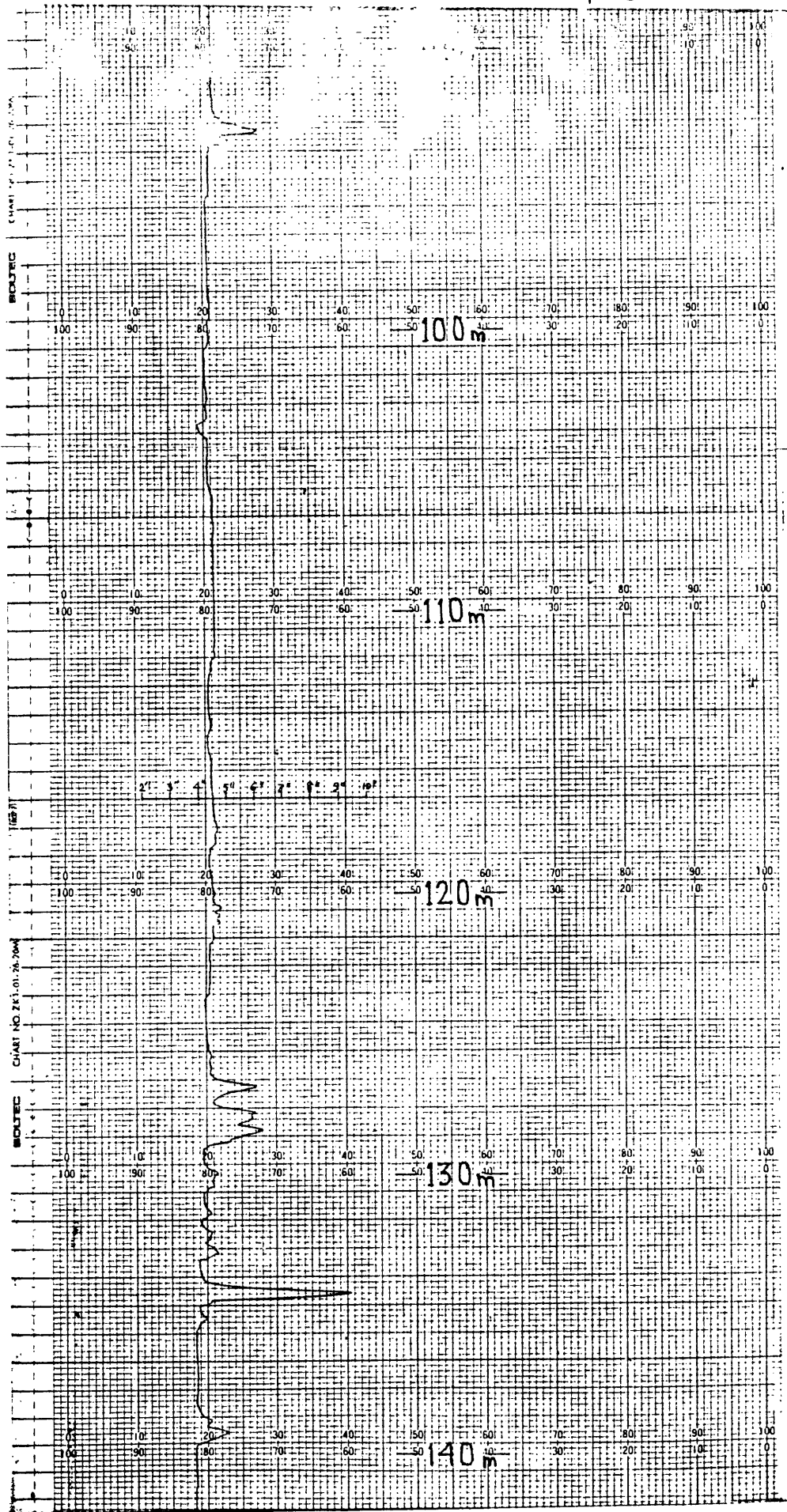
14 APRIL 1977

LOCATION				WELL DATA				CLIENT			
STATE/COUNTRY <i>SINDH PAKISTAN</i>				DEPTH DRILLED: <i>291m</i>				CLIENT <i>GSP. 11543 - USAID</i>			
REGION <i>T.M. KHAN</i>				DEPTH LOGGED: <i>167m</i>				GEOLOGIST:			
PROJECT <i>COAL REAP</i>				COLLAR ELEV.							
PROSPECT				DIA. <i>See</i> FROM TO				UNIT OPERATOR <i>ILYAS / 11/17/77</i>			
SEC. TWP. RING.				DIA. <i>Caliper</i> FROM TO				UNIT NO OFFICE			
				DIA. <i>Log</i> FROM TO							
TYPE				BOREHOLE MEDIUM <i>420 + Mud</i>				ELECTRIC			
LOGGED DEPTH				FLUID LEVEL				TYPE RESIST S.P.			
RANGE (F.S.)				CASING DATA				LOGGED DEPTH FT. FT.			
%STD DEV				WALL SIZE				SCALE			
PAPER SPEED				I.D.				PAPER SPEED			
LOG SPEED				CASED FROM TO				LOG SPEED			
BKGND. COUNT				CASING TYPE				FINE ADJ.			
PROBE NO.				SAMPLE DATA							
SIZE (dia.)				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>							
K-FACTOR				SAMPLED INTERVAL SAMPLE TYPE							
DEAD TIME											
STANDARD											
DIGITAL DATA				REMARKS				3 ARM CALIPER			
PRINT INTERVAL								LOGGED DEPTH <i>167m</i> FT			
TIMEBASE								SCALE <i>0.4" depth = 1" dia</i>			
								PAPER SPEED <i>1-1</i>			
								LOG SPEED <i>6-1</i>			
								ARM LENGTH <i>12"</i> IN			
								MAX DEF. <i>2"</i> IN			
DENSITY CALIBRATION								VERTICAL DEV.			
ALUMINUM								DEPTH			
LUCITE								INCLIN.			
								BEARING			

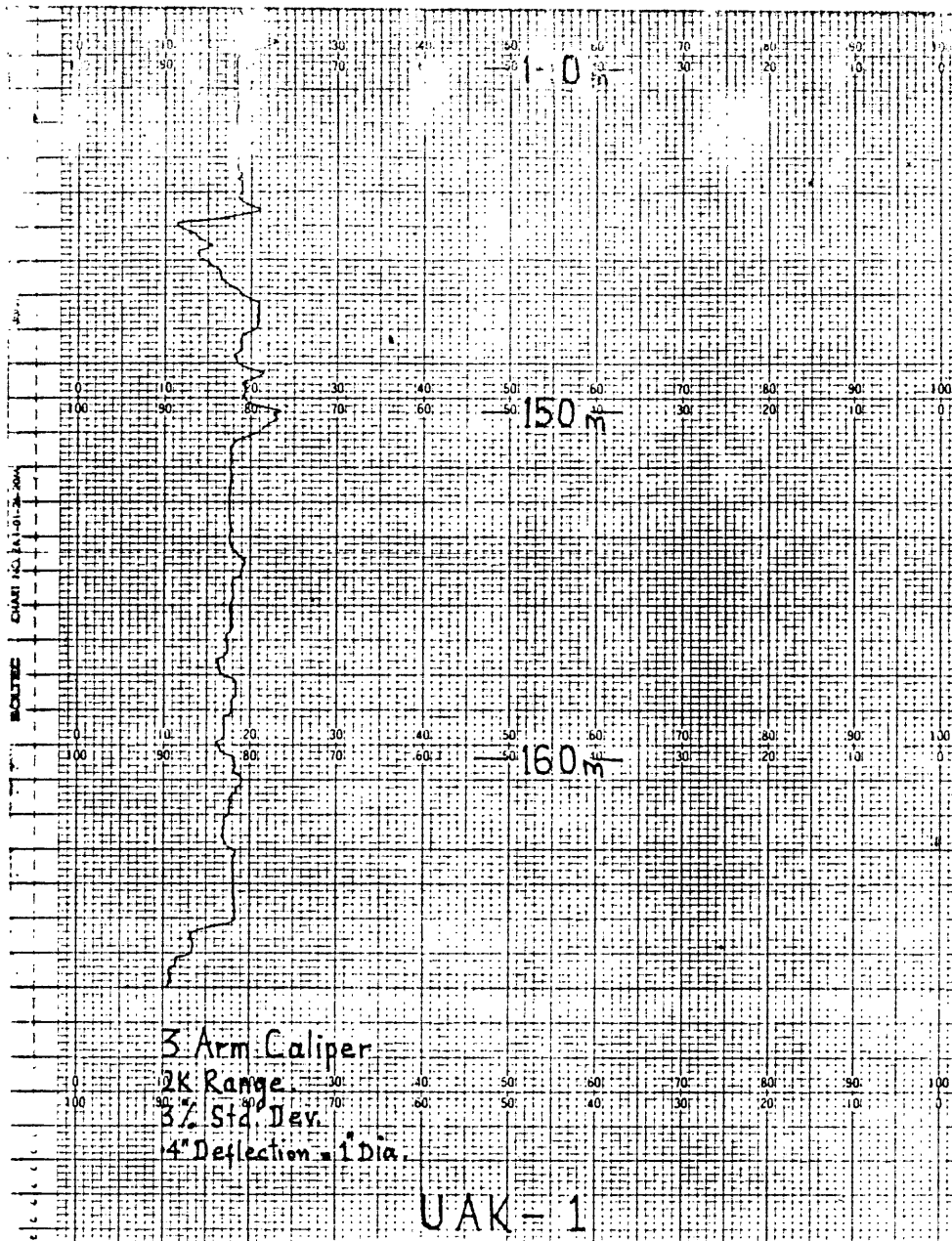


UAK-1

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DRILL HOLE UAK-2



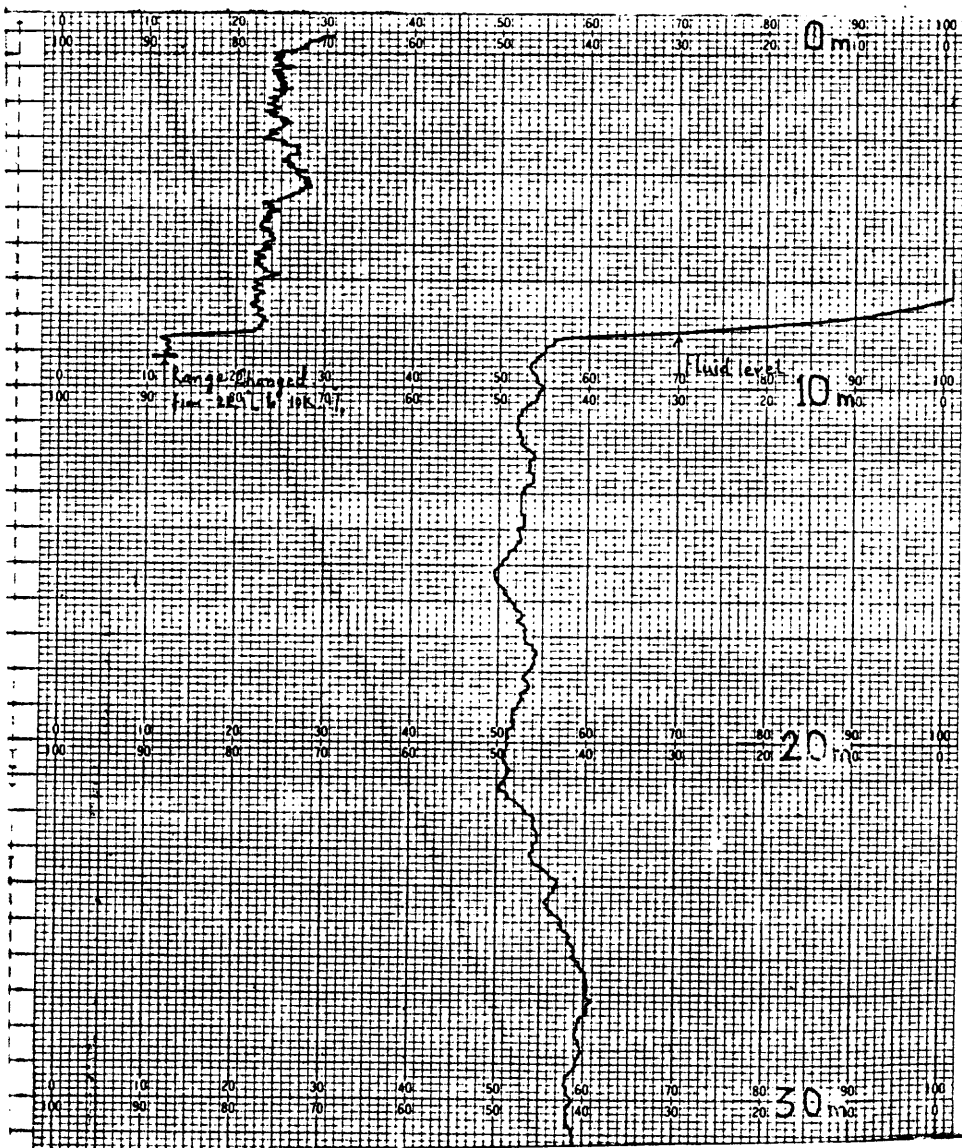
## GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

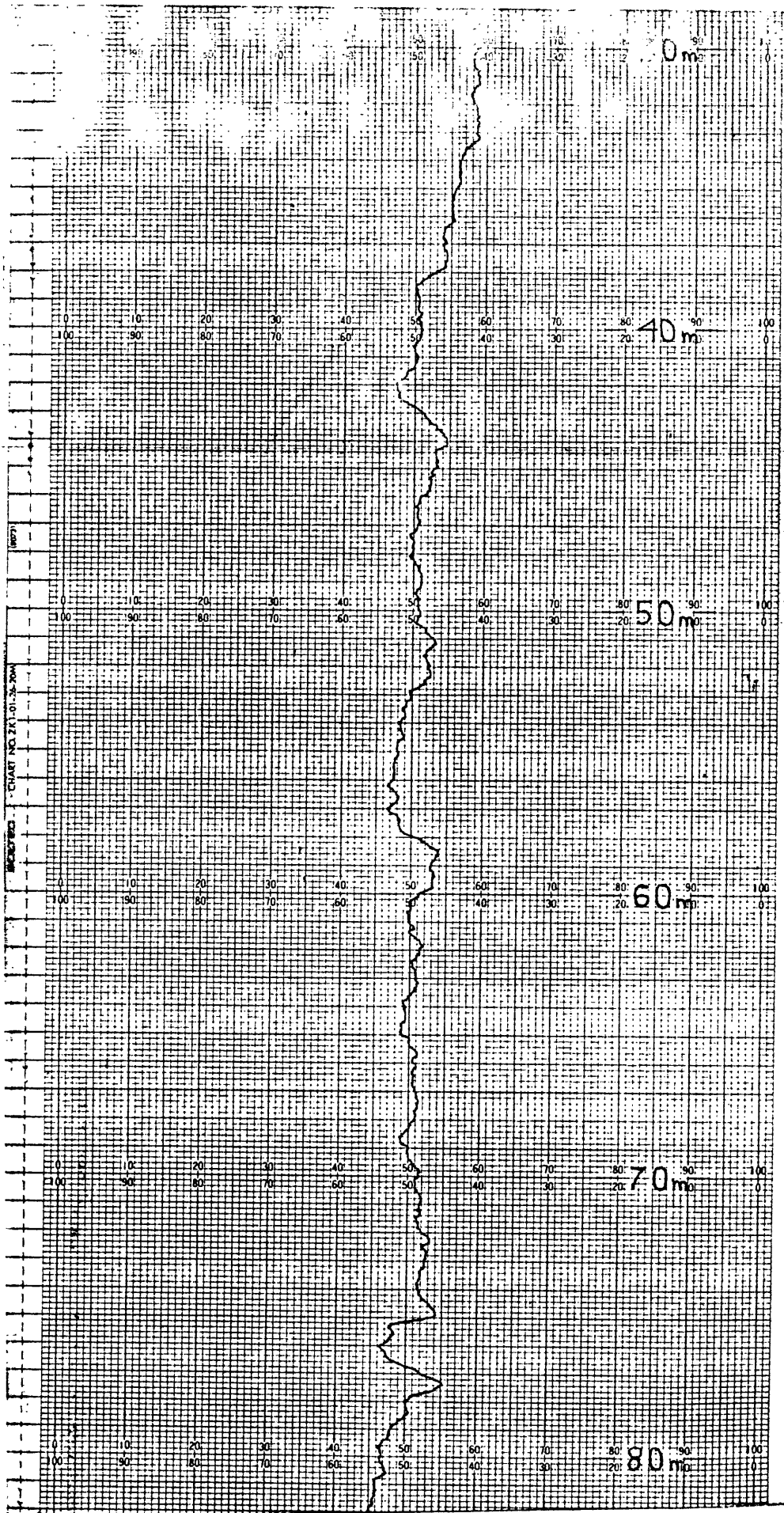
WELL - 2

P.641

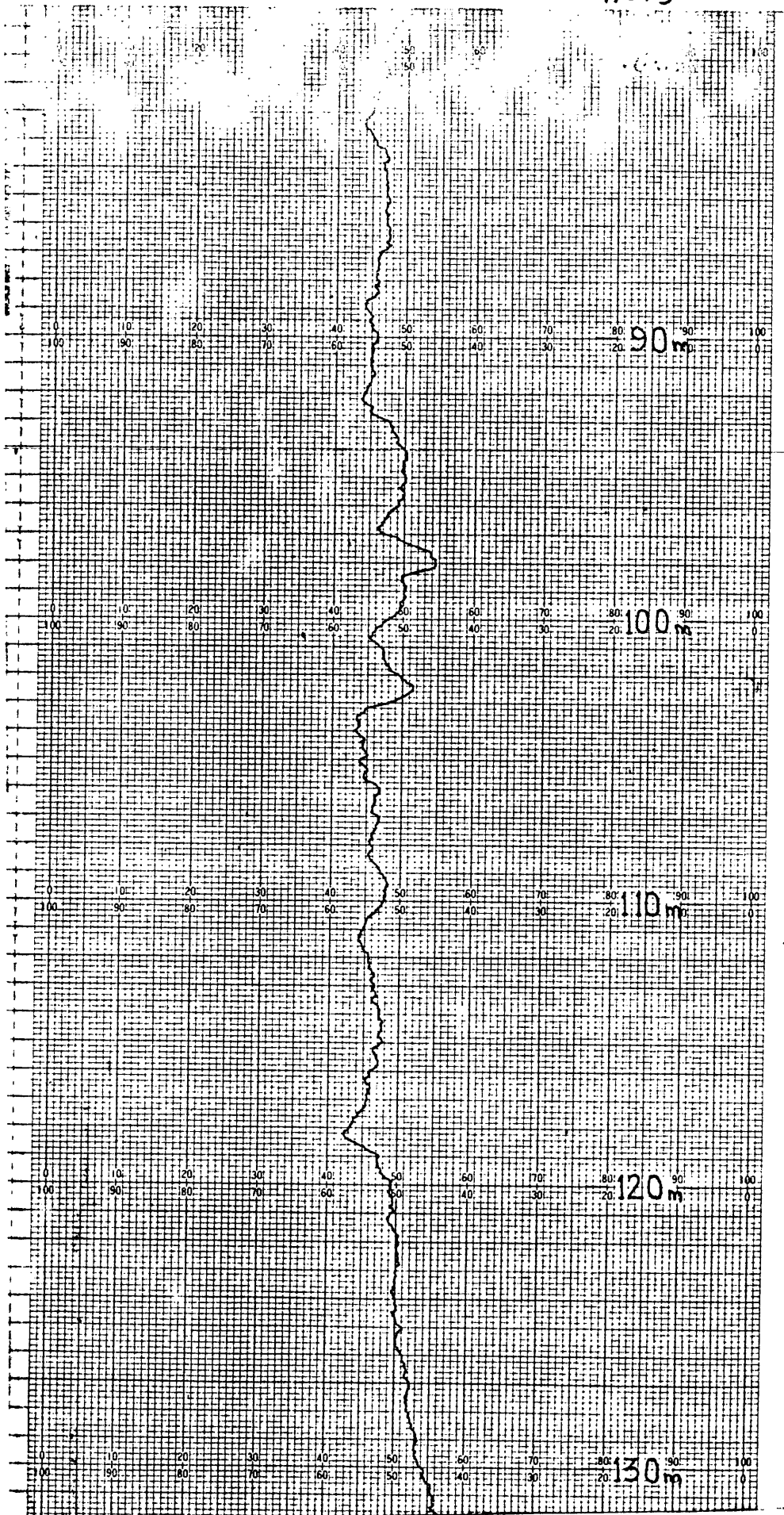
LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sindh Pakistan		DEPTH DRILLED:	2.0 m		CLIENT	USGS - Islamabad - USAID	
REGION	T.M. KHAN		DEPTH LOGGED:	209.4 m		GEOLOGIST		
PROJECT	COAL REAR		COLLAR ELEV.			UNIT OPERATOR	MUTZELI, TAJMUR	
PROSPECT			DIA. Sec FROM TO			UNIT NO.	H-2	
SEC.	TWP.	RNG.	DIA. Caliper FROM TO			OFFICE	COLORADO USA	
			DIA. Log FROM TO					
TYPE	GAM	4 Density	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		ELECTRIC		
LOGGED DEPTH	204.6 m		FLUID LEVEL	8.6 m		TYPE	RESIST	S.P.
RANGE (ft.)	5A		CASING DATA			LOGGED DEPTH	FT.	
% STD DEV	1%		WALL SIZE	1/4"		SCALE		
PAPER SPEED	1-1		I.D.	4"		PAPER SPEED		
LOG SPEED	6-1		CASING FROM	0 TO 139.6		LOG SPEED		
BRGD. COUNT			CASING TYPE			FINE ADJ.		
PROBE NO.	61-1		SAMPLE DATA					
SIZE (dia.)	1 3/4"		NON-CORED HOLE	<input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>				
K FACTOR			SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME	2							
STANDARD								
DIGITAL DATA			REMARKS			COMPIER		
PRINT INTERVAL			Logged through drift pipe and casing			LOGGED DEPTH	FT.	
TIMEBASE						SCALE	%	
						PAPER SPEED		
						LOG SPEED		
						ARM LENGTH	IN	
						MAX DEF.	IN	
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN.		
						BEARING		



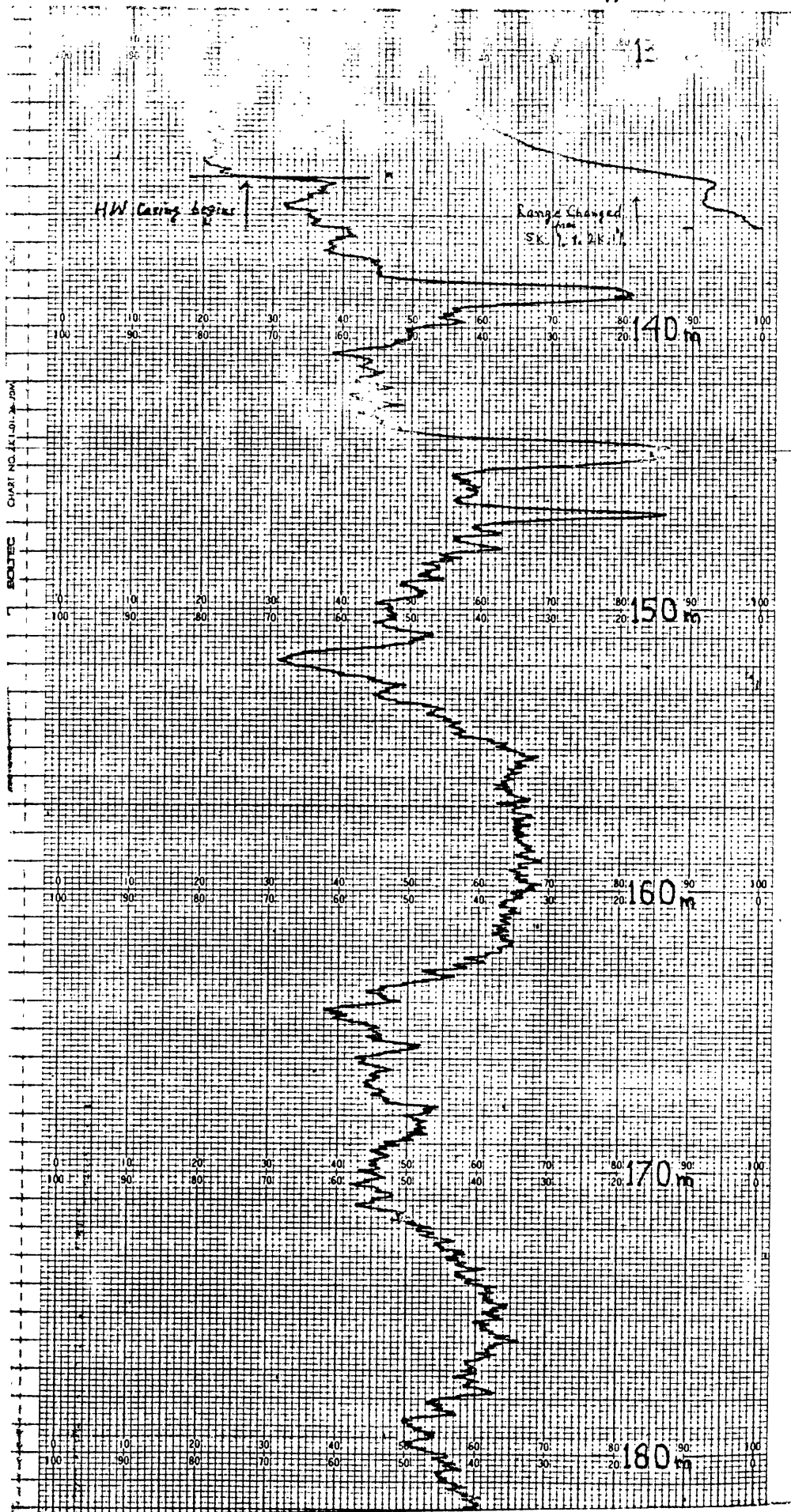
P.642



P.643



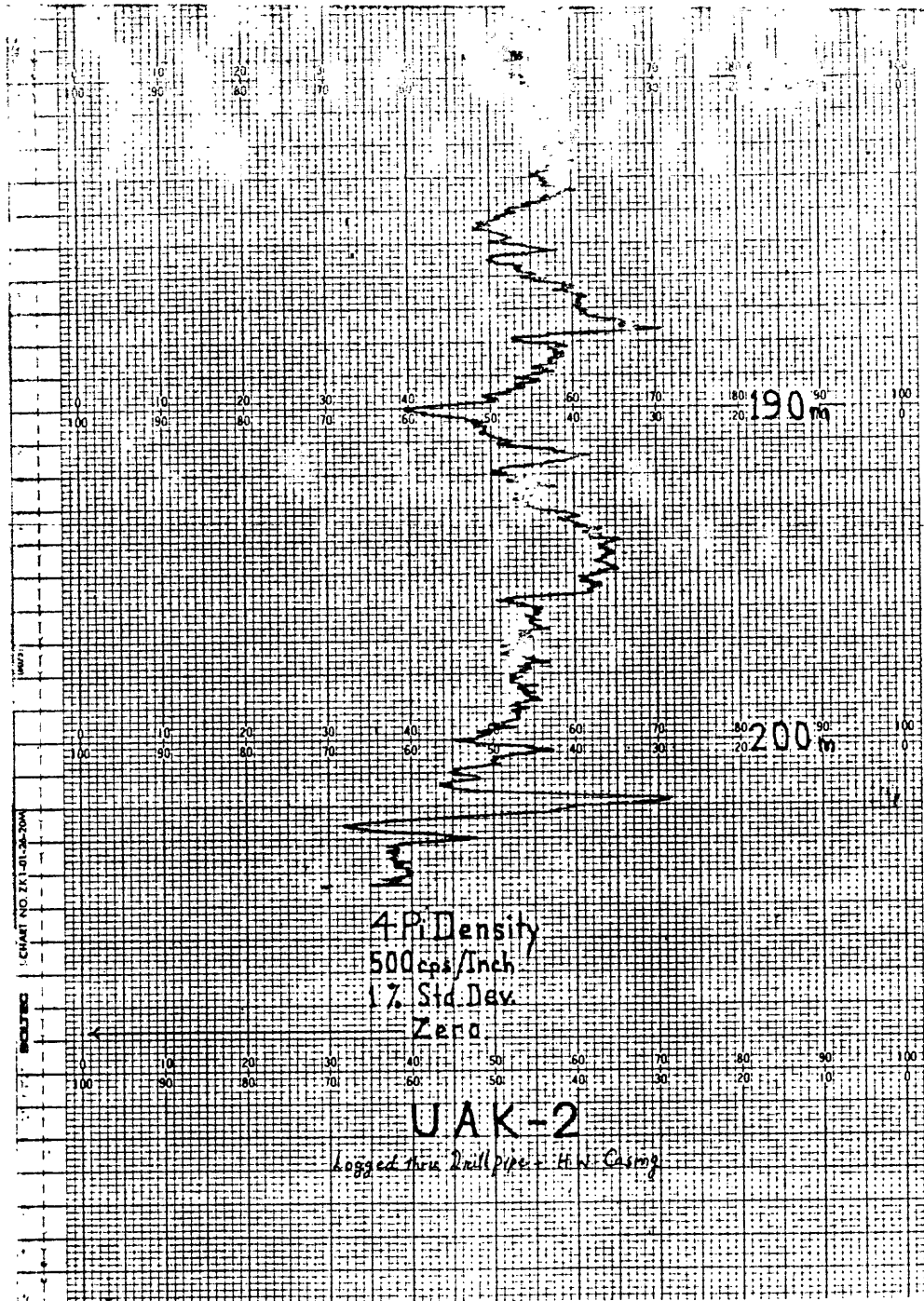
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UAK-2

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# GEOSCIENCE ASSOCIATES

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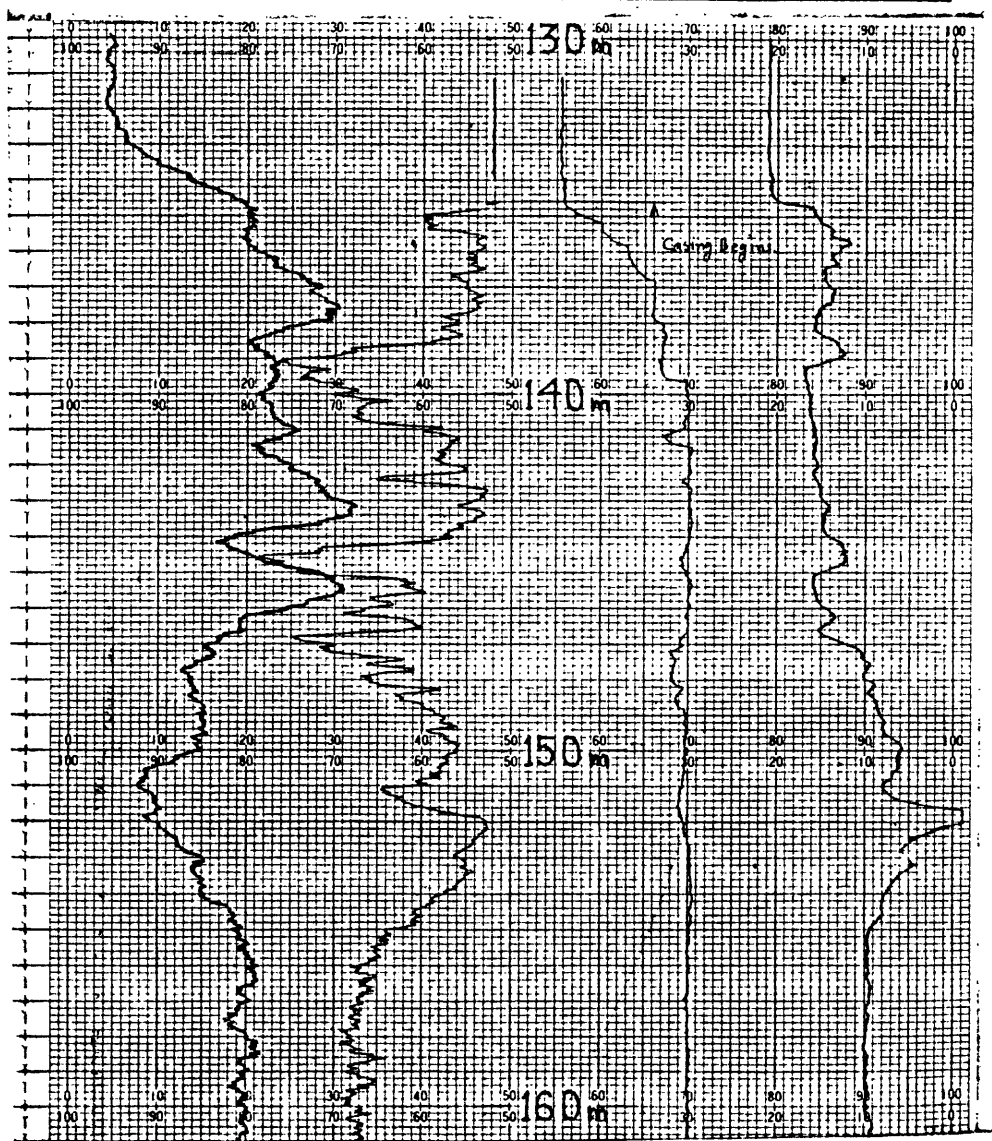
HOLE NUMBER:

UAK-2

DATE:

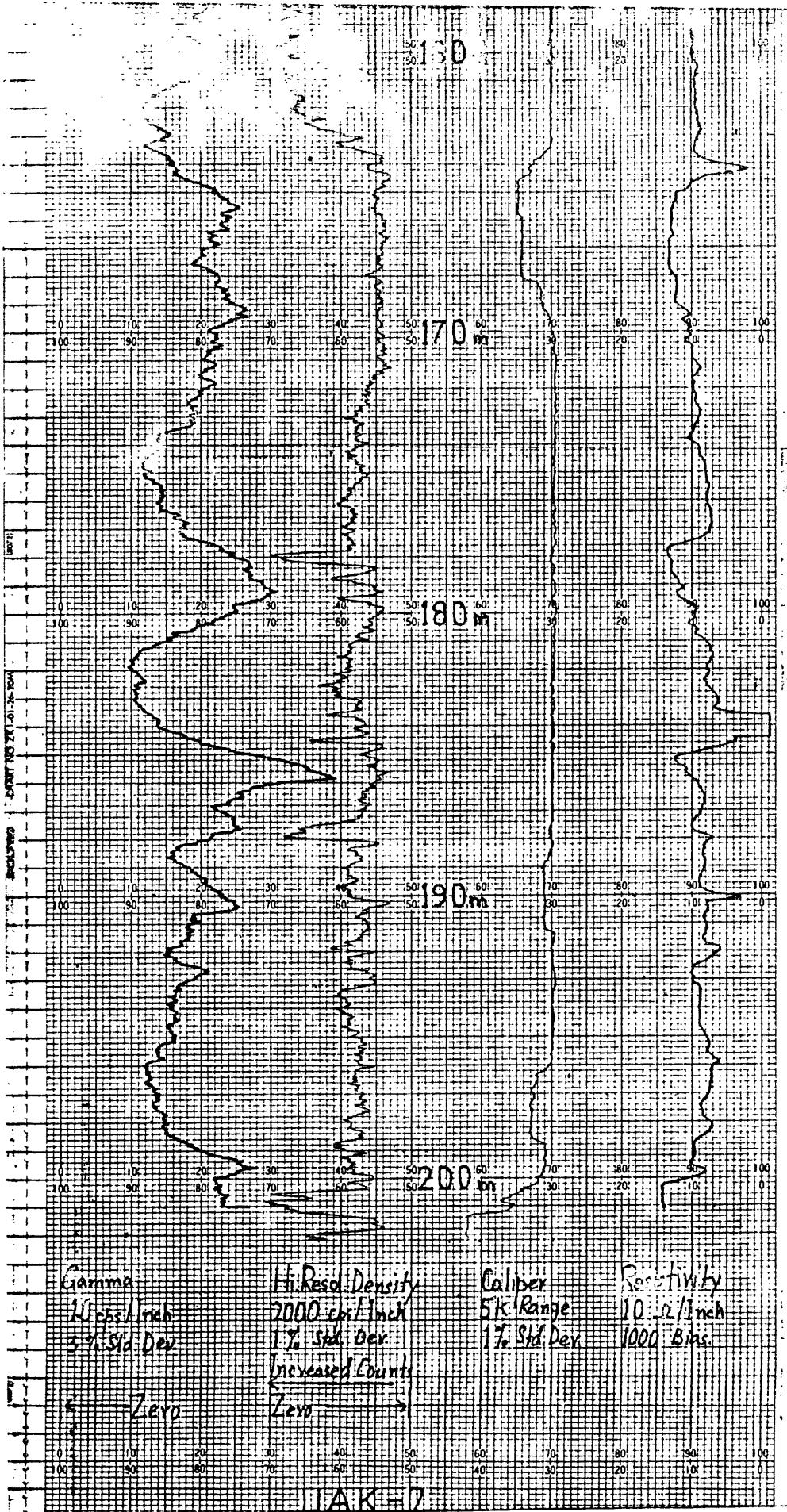
9th April 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY <i>SINDH PAKISTAN</i>			DEPTH DRILLED: <i>206 m</i>			CLIENT <i>GSP - USGS - USAID</i>		
REGION <i>T.M. KHAN</i>			DEPTH LOGGED: <i>202 m</i>			GEOLOGIST.		
PROJECT <i>COAL REAP</i>			COLLAR ELEV.			UNIT OPERATOR <i>MOJIBUL ISLAM KHAN</i>		
PROSPECT			DIA. <i>See</i> FROM TO			UNIT NO. OFFICE		
SEC. TWP. RNG.			DIA. <i>6.45</i> FROM TO					
			DIA. <i>6.45</i> FROM TO					
TYPE			BOREHOLE <i>MEDIUM H<sub>2</sub>O, Mud.</i>			ELECTRIC		
LOGGED DEPTH <i>201 m</i> <i>202 m</i>			FLUID LEVEL			TYPE RESIST S.P.		
RANGE (f.s.) <i>100</i> <i>200</i>			CASING DATA			LOGGED DEPTH <i>201</i> FT		
%STD DEV <i>3 %</i> <i>1 %</i>			WALL SIZE <i>1 1/4"</i>			SCALE <i>10</i>		
PAPER SPEED <i>1-1</i> <i>1-1</i>			I.D. <i>4"</i>			PAPER SPEED <i>1-1</i>		
LOG SPEED <i>3-1</i> <i>3-1</i>			CASED FROM <i>0</i> TO <i>1346</i>			LOG SPEED <i>3-1</i>		
BKGD. COUNT			CASING TYPE			FINE ADJ. <i>1000 S.P.</i>		
PROBE NO. <i>HRD-1</i> <i>HRD-1</i>			SAMPLE DATA					
SIZE (d.s.) <i>2"</i> <i>2"</i>			NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>					
K-FACTOR <i>2.0</i> <i>2.0</i>			SAMPLED INTERVAL					
DEAD TIME <i>2.0</i> <i>2.0</i>			SAMPLE TYPE					
STANDARD								
DIGITAL DATA			REMARKS			CUTTER		
PRINT INTERVAL						LOGGED DEPTH <i>202 m</i>		
TIMEBASE						SCALE <i>1" defl = 1" dia</i>		
						PAPER SPEED <i>1-1</i>		
						LOG SPEED <i>3-1</i>		
						ARM LENGTH <i>9"</i>		
						MAX DEF. <i>30"</i>		
DENSITY CALIBRATION						VERTICAL DEV.		
ALUMINUM						DEPTH		
LUCITE						INCLIN.		
						BEARING		



UAK-2

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Gamma  
Klipsch  
3% Std. Dev

Hi Resol. Density  
2000 cpi/inch  
1% Std. Dev  
Increased Counts

Caliber  
5K Range  
1% Std. Dev

Sensitivity  
10 n/inch  
1000 Bins

UAK-2





# GEOLOGICAL ASSOCIATION

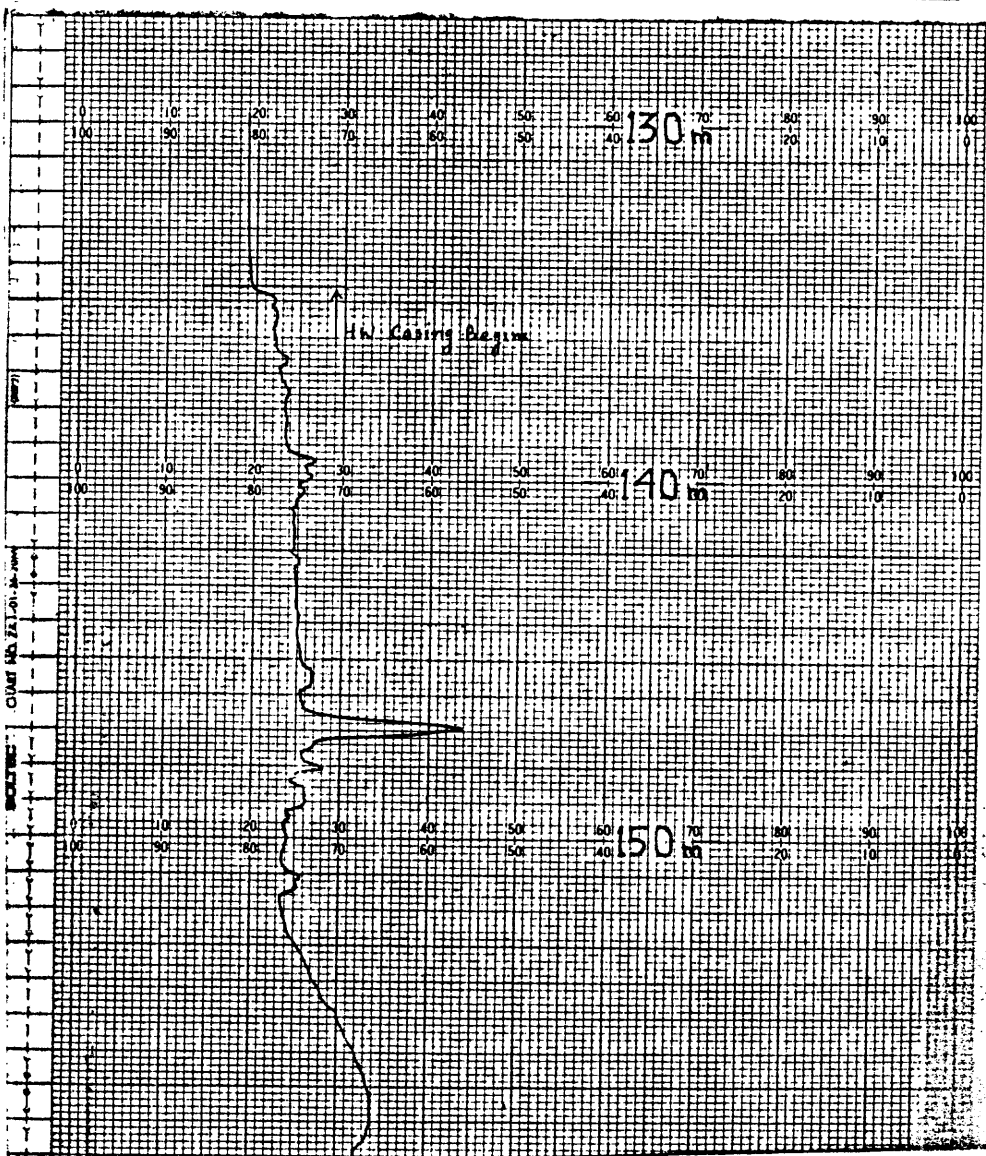
HOLE NUMBER:

UAK-2

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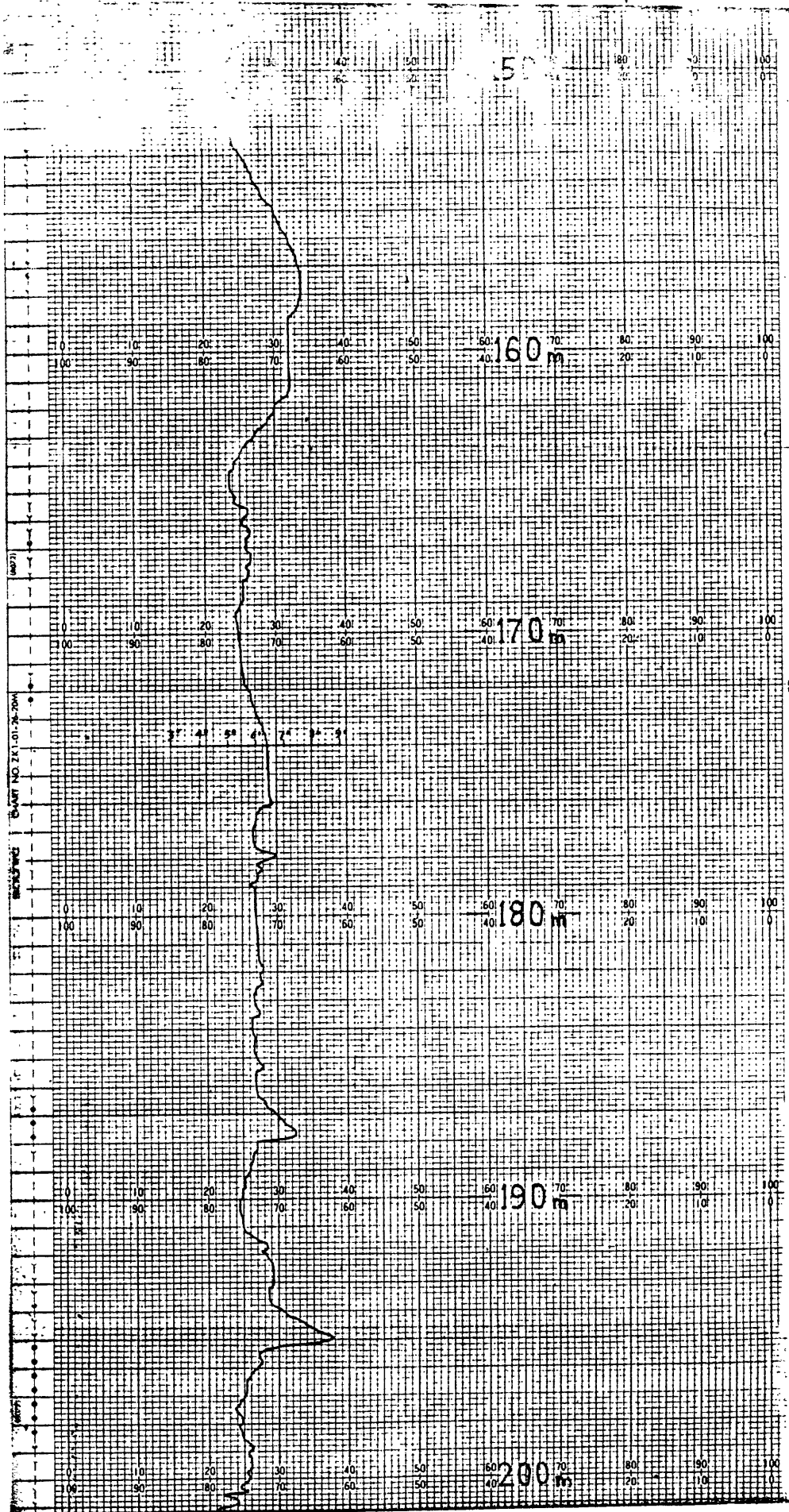
DATE: 25 April - 196

LOCATION				HOLE DATA		CLIENT	
STATE/COUNTRY: Sind, Pakistan				DEPTH DRILLED: 206 m		CLIENT: G.S.P. - USGS - USAID	
REGION: T.M. Khan				DEPTH LOGGED: 204 m		GEOLOGIST:	
PROJECT: Coal Reap				COLLAR ELEV.		UNIT OPERATOR: Mujeeb-ILYAS-Nigam	
PROSPECT:				DIA. See Caliper FROM TO		UNIT NO. PL-2 OFFICE	
B.C. TWP. RNG.				DIA. Log FROM TO		BOULDER (cm) 6000, 1500	
B.C. TWP. RNG.				DIA. FROM TO		ELECTRIC	
TYPE				BOREHOLE MEDIUM: H <sub>2</sub> O + Mud		TYPE	
LOGGED DEPTH				FLUID LEVEL		RESIST	
RANGE (ft.)				CASING DATA		S.P.	
WSTD DEV				WALL SIZE: 1/4"		LOGGED DEPTH	
PAPER SPEED				I.D. 4"		SCALE	
LOG SPEED				CASED FROM 0 TO 134.6 m		PAPER SPEED	
B-GND. COUNT				CASING TYPE: H-W		LOG SPEED	
PI. BE NO.				SAMPLE DATA		FINE ADJ.	
B. E (dia.)				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			
K. FACTOR				PLED INTERVAL			
DEAD TIME				SAMPLE TYPE			
STANDARD							
DIGITAL DATA				REMARKS			
PRINT INTERVAL				3 Arm Caliper			
TIMEBASE							
DENSITY CALIBRATION							
ALUMINUM							
LUCITE							
						VERTICAL DEV.	
						DEPTH	
						INCLIN.	
						BEARING	



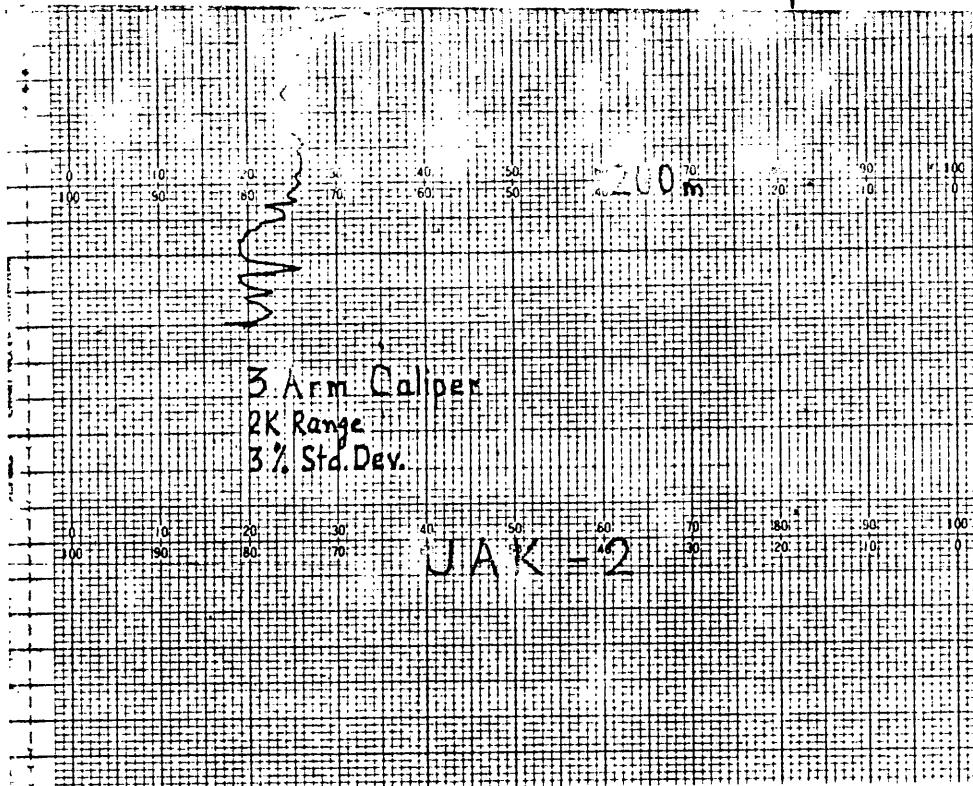
UAK-2

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UAK-2

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**GEO SCIENCE ASSOCIATES**

HOLE NUMBER:

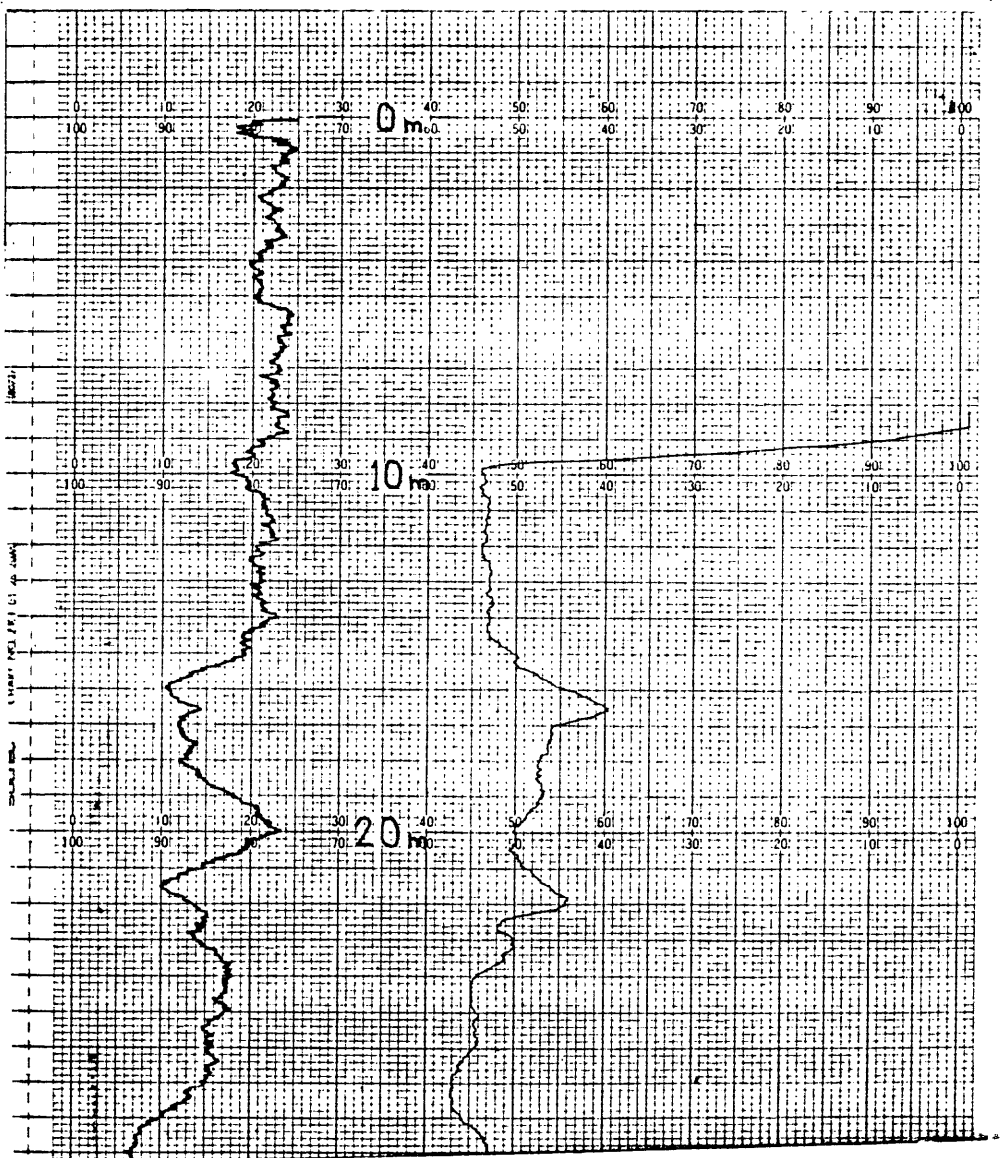
UAK - 2

P. 651

DATE:

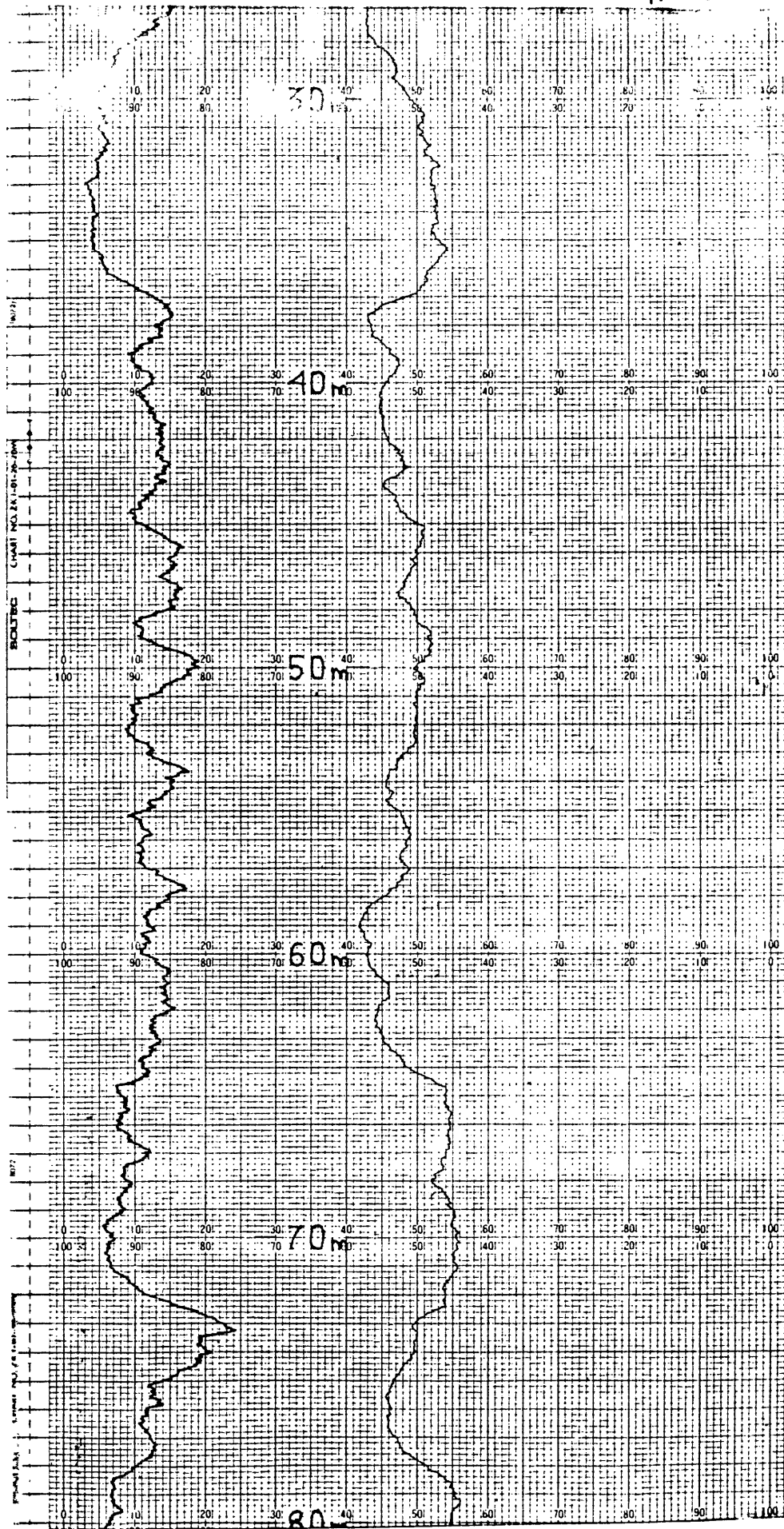
9th APRIL - 1987

LOCATION				HOLE DATA		CLIENT	
STATE/COUNTRY <i>SYN PAKISTAN</i>				DEPTH DRILLED <i>206 m</i>		CLIENT <i>USAID - USGS - GSP</i>	
REGION <i>TM KHAN</i>				DEPTH LOGGED <i>206 m</i>		GEOLOGIST	
PROJECT <i>Coal/HAAP</i>				COLLAR ELEV.		UNIT OPERATOR <i>Mykel Thomas</i> UNIT NO. <i>PL-2</i> OFFICE <i>USA</i> <i>SPENCER COLORADO</i>	
PROSPECT				DIA <i>See</i> FROM TO			
SEC. TWP. RNG.				DIA <i>Caliber</i> FROM TO			
				DIA <i>Log</i> FROM TO			
				BOREHOLE MEDIUM <i>4.0 + Mud</i>		ELECTRIC	
				FLUID LEVEL <i>96 m</i>			
				CASING DATA			
TYPE				WALL SIZE <i>1 1/4"</i>			
LOGGED DEPTH <i>204 m</i>				I.D. <i>HW = 4"</i>			
RANGE (I.S.) <i>100</i>				CASIED FROM <i>0 TO 1376 m</i>			
%STD DEV <i>3%</i>				CASING TYPE <i>HW :</i>			
PAPER SPEED <i>1-1</i>				SAMPLE DATA			
LOG SPEED <i>6-1</i>				NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>			
BKGD. COUNT				SAMPLED INTERVAL			
PROBE NO. <i>SN-1</i>				SAMPLE TYPE			
SIZE (dia.) <i>1 3/8"</i>							
K-FACTOR <i>1.0</i>				CALIPER			
DEAD TIME <i>2.</i>				LOGGED DEPTH			
STANDARD				SCALE			
				PAPER SPEED			
				LOG SPEED			
				ARM LENGTH			
				MAX DEF.			
DIGITAL DATA				REMARKS			
PRINT INTERVAL				<i>Logged Open hole</i> <i>+ Logged thru HW casing only</i>			
TIMEBASE							
DENSITY CALIBRATION				VERTICAL DEV.			
ALUMINUM				DEPTH			
LUCITE				INCLIN.			
				BEARING			



UAK-2

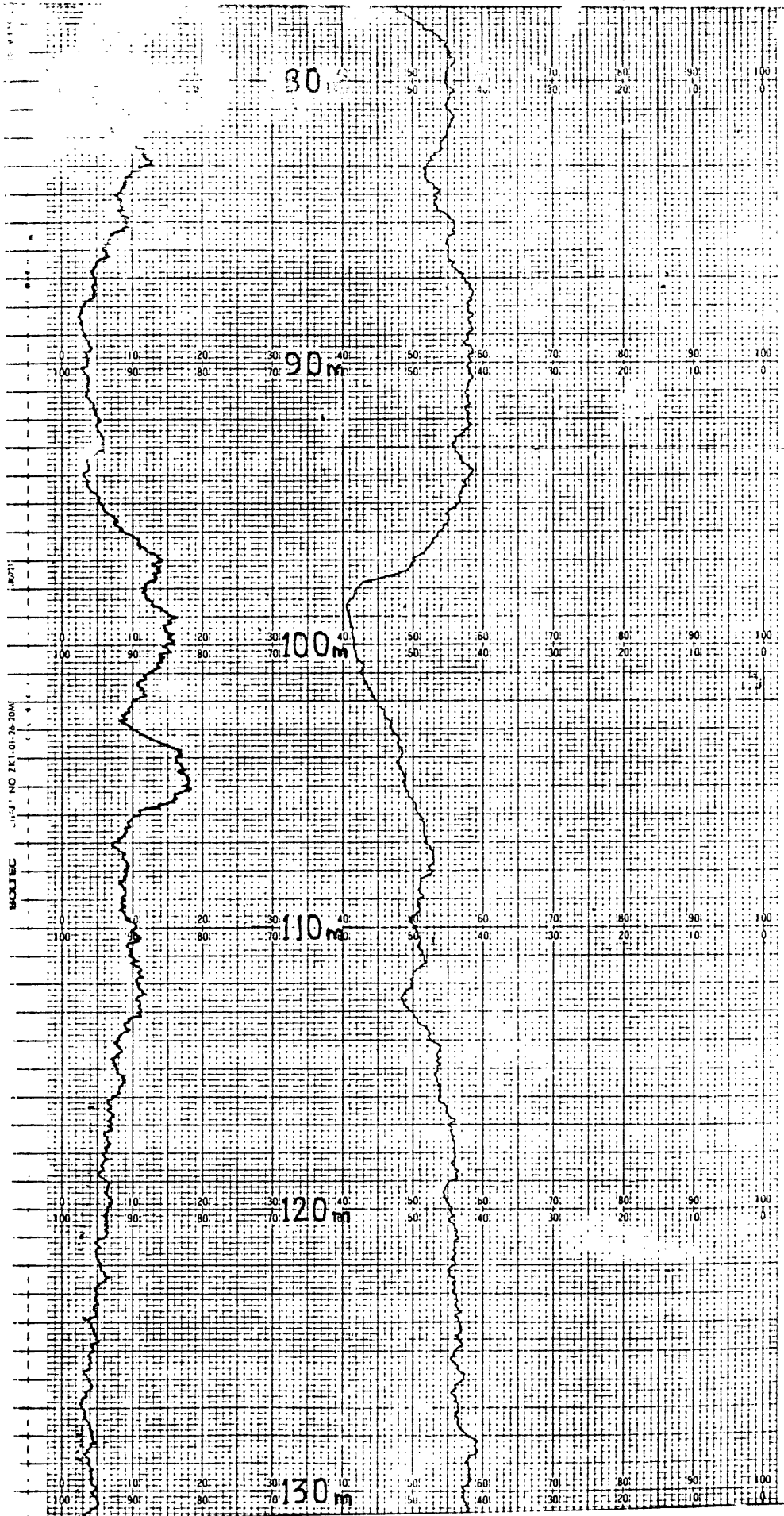
P.652





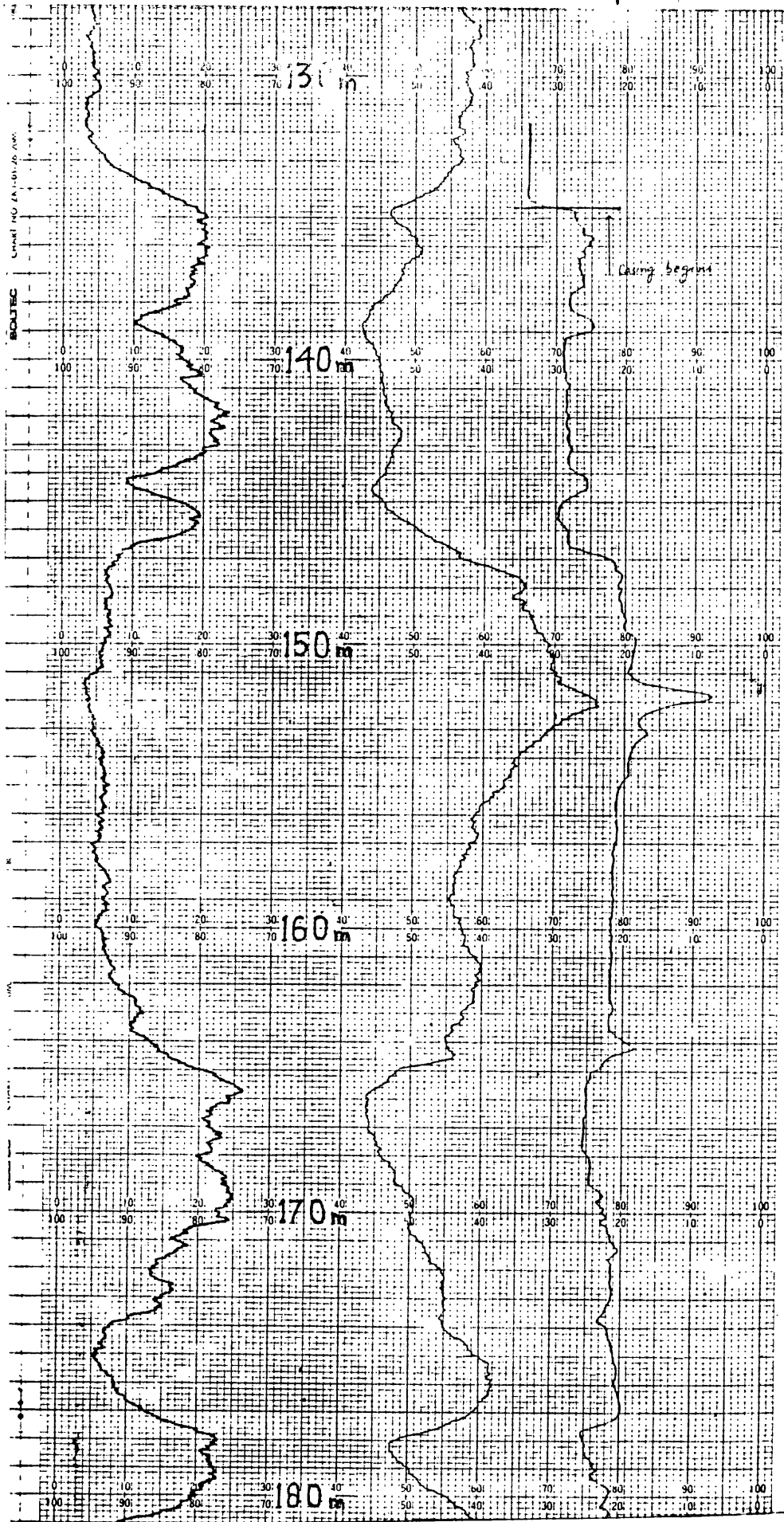
UAK-2

R653



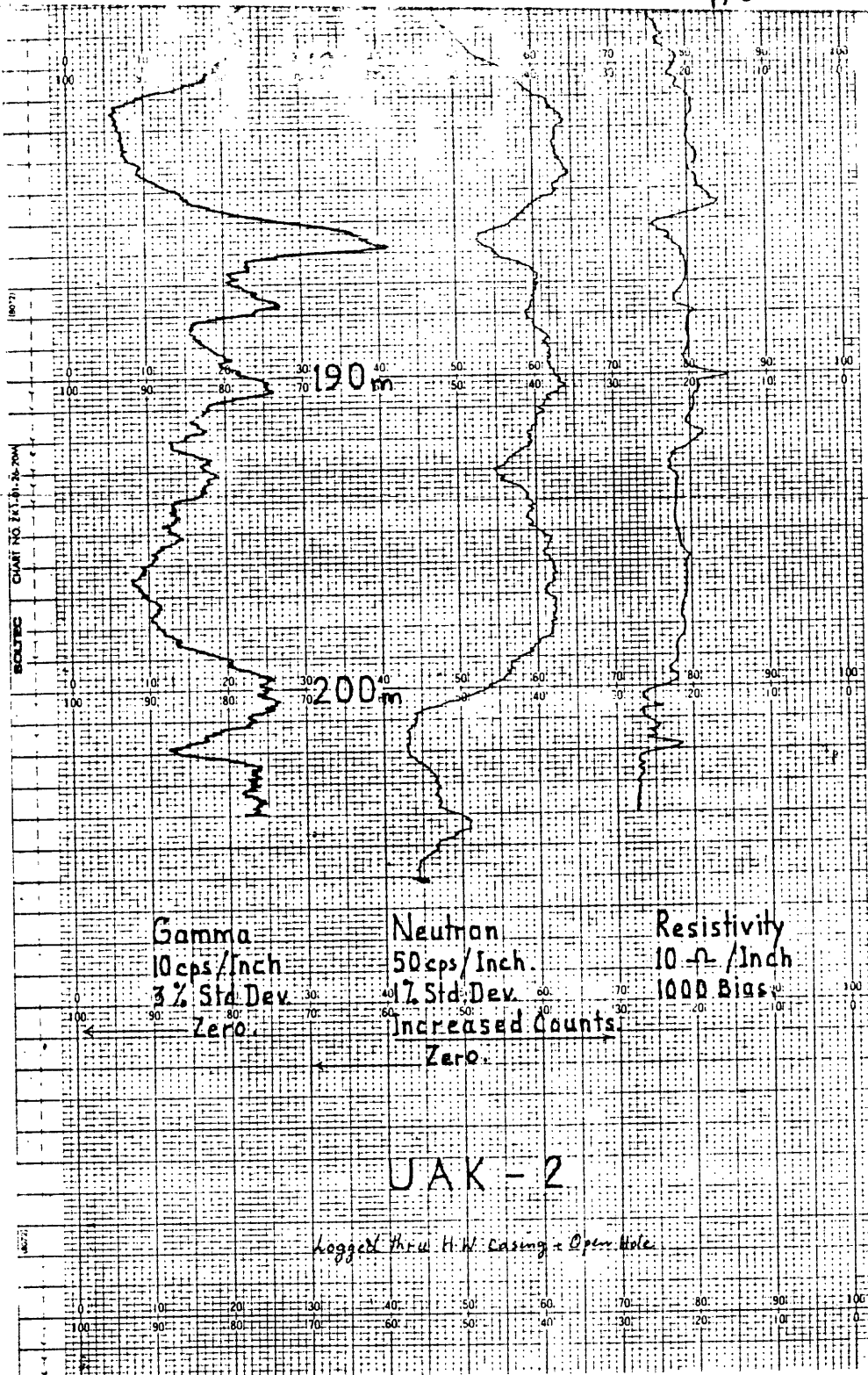
UAK-2

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UAK-2

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DRILL HOLE UAK-3

GEO SCIENCE ASSOCIATES P.657

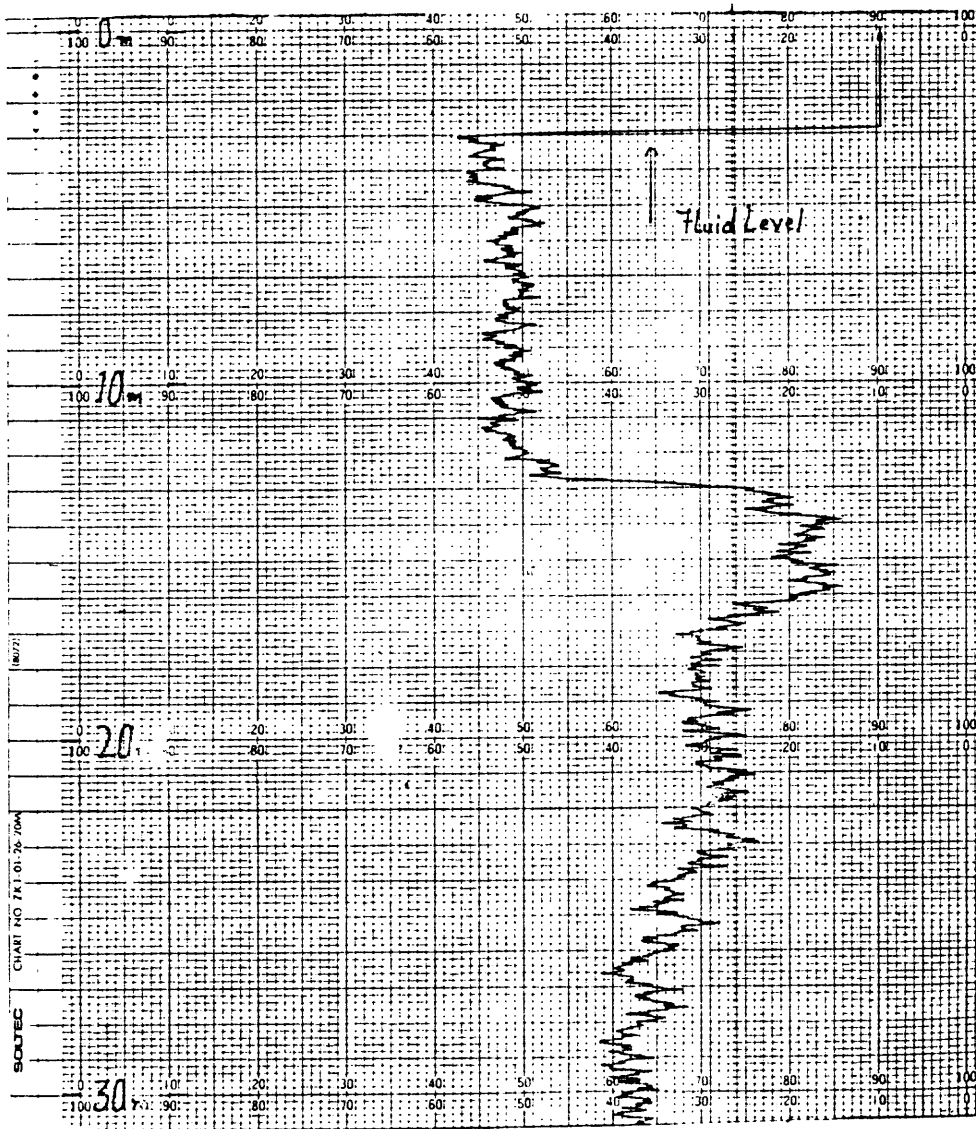
**BOOK NUMBER:**

УАК-3

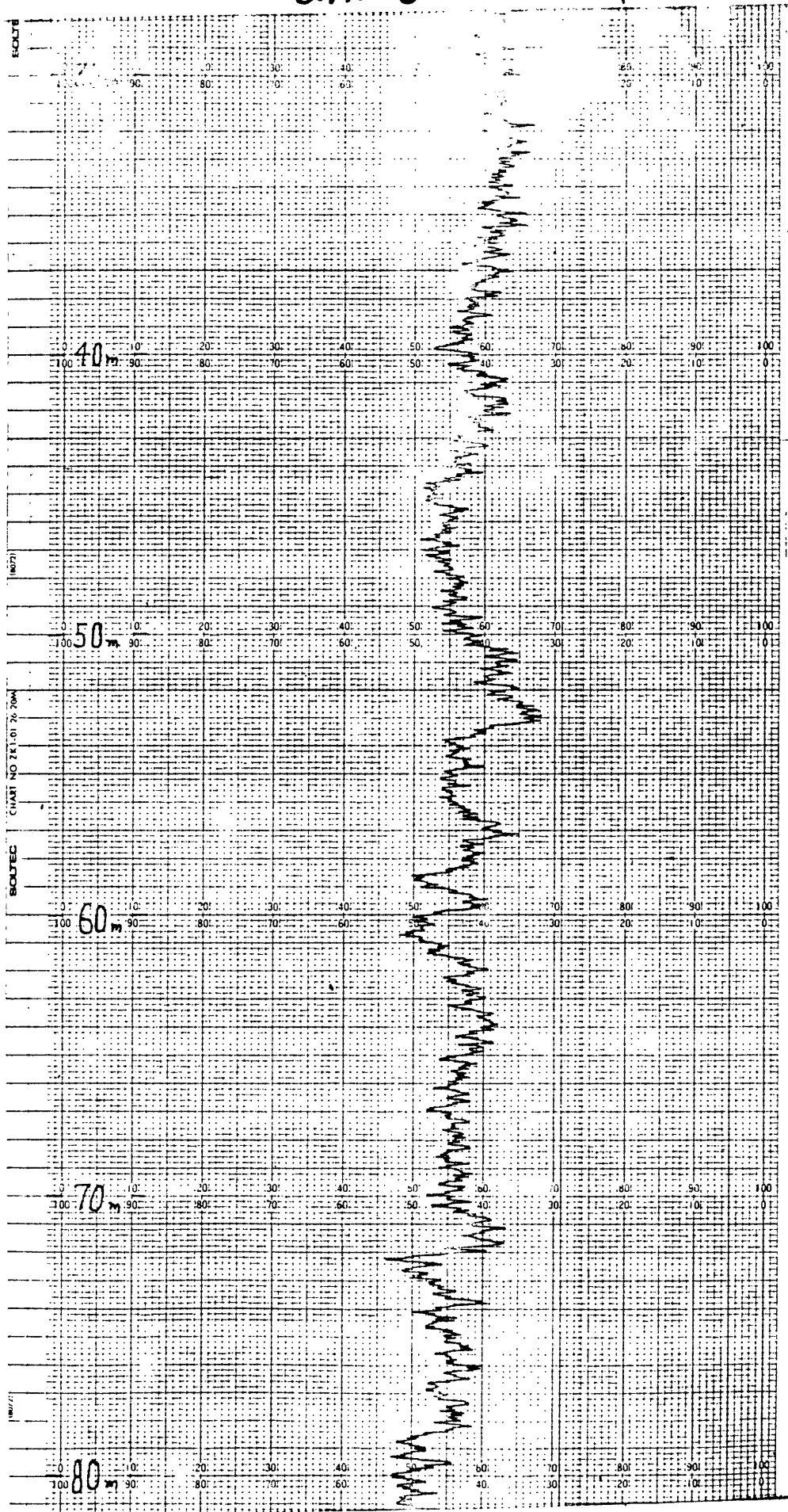
DATE: \_\_\_\_\_

19M April, 1987

DATE: 19th April 1987			HOLE DATA			CLIENT		
LOCATION STATE/COUNTY INDIA PAKISTAN			DEPTH DRILLED: 250 m			CLIENT 4593 GSP USA/13		
REGION FMRIAN			DEPTH LOGGED: 243 m			GEOLOGIST:		
PROJECT COAL SEAM			COLLAR ELEV			UNIT OPERATOR DAVIS / RYAS / ALI GUL UNIT NO. 212 OFFICE SHOULDER CHOKRAK USA		
PROSPECT			DIA. FROM TO					
SEC TWP. RNG.			DIA FROM TO					
			DIA FROM TO					
TYPE GAM 4.5 Density			BOREHOLE MEDIUM mud - mud			ELECTRIC		
LOGGED DEPTH 243 m			FLUID LEVEL 3 m					
RANGE (I.S.) 5k			CASING DATA			TYPE		
%STD DEV 1%						RESIST		
PAPER SPEED 1-1			WALL SIZE 1/4"			LOGGED DEPTH FT.		
LOG SPEED 6-1			I.D. 4"			SCALE		
BKGND. COUNT			CASED FROM 0 TO 146			PAPER SPEED		
PROBE NO. 60-1			CASING TYPE HW			LOG SPEED		
SIZE (DIA) 1 3/8"			SAMPLE DATA			FINE ADJ.		
K-FACTOR 115.3						NON-CORED HOLE <input type="checkbox"/> CORED HOLE <input checked="" type="checkbox"/>		
DEAR TIME 430			SAMPLED INTERVAL			CALIPER		
STANDARD 1000			SAMPLE TYPE			LOGGED DEPTH FT.		
DIGITAL DATA			REMARKS			SCALE		
						PRINT INTERVAL		
TIMEBASE			LOOKED thru DRILL PIPES			PAPER SPEED		
DENSITY CALIBRATION						LOG SPEED		
						ALUMINUM		
LUCITE						ARM LENGTH		
						MAX DEF.		
						VERTICAL DEV.		
						DEPTH		
						INCLIN.		
						BEARING		

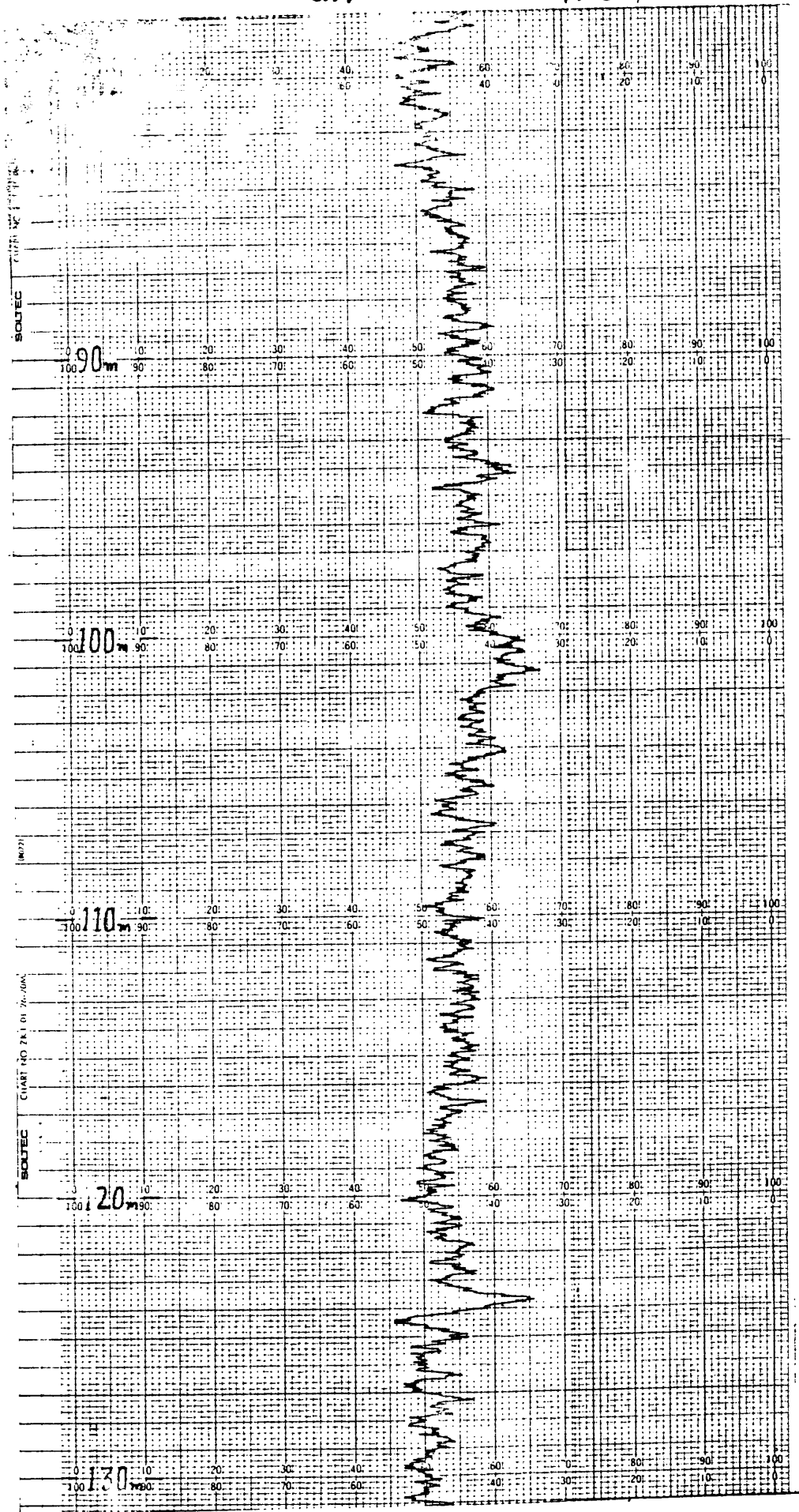


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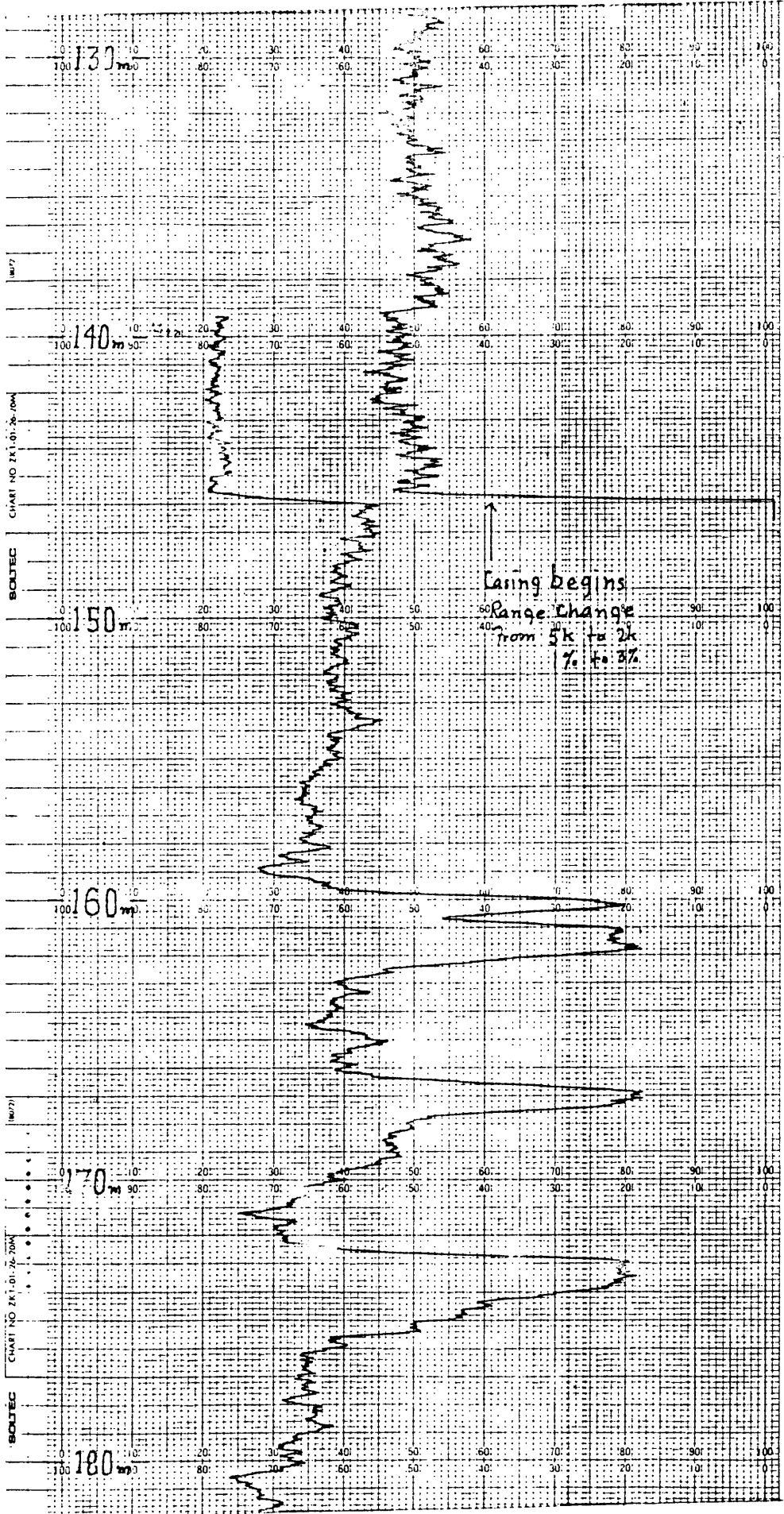
UAK-3

P. 659

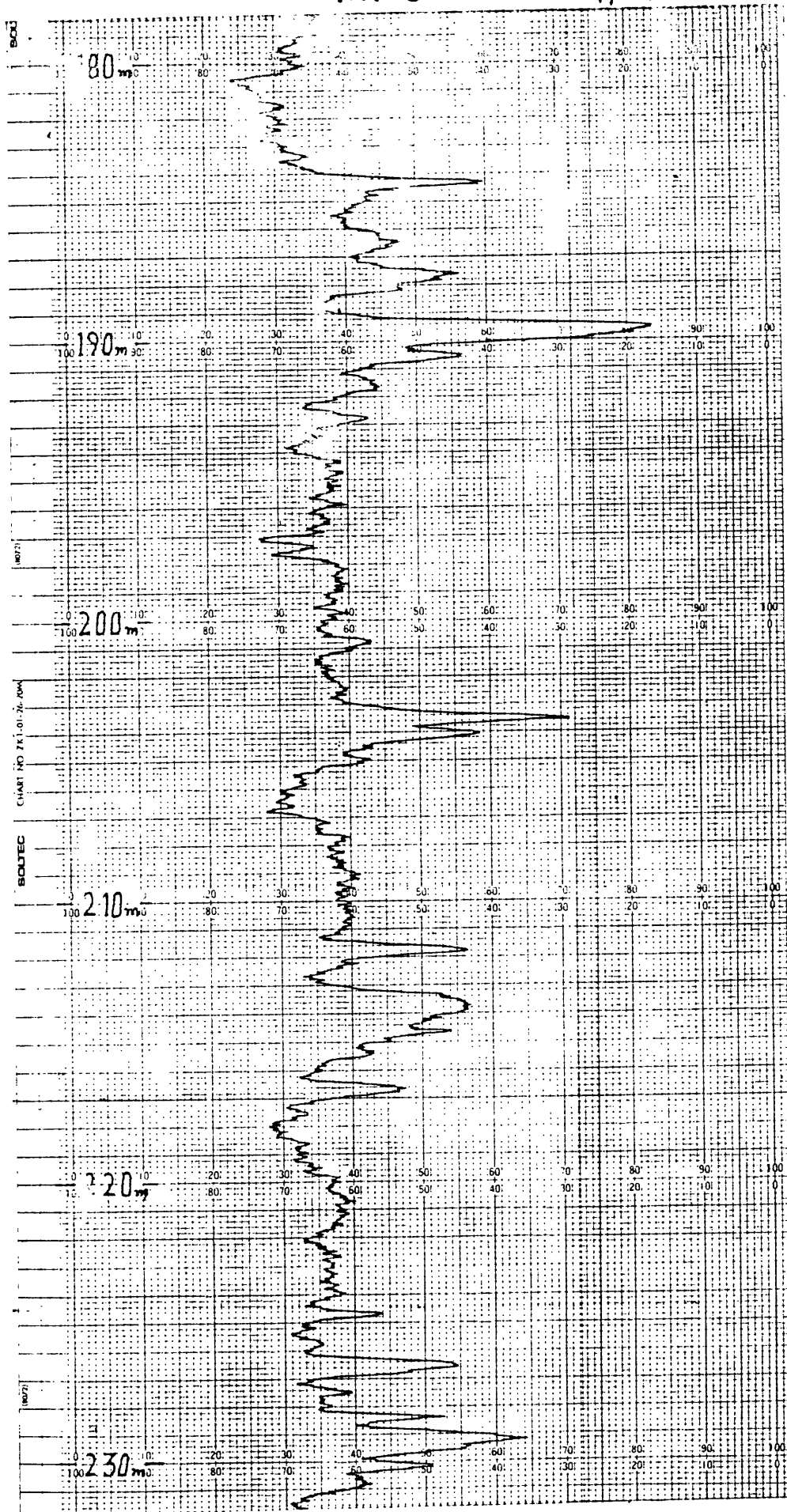


UAK-3

P.660

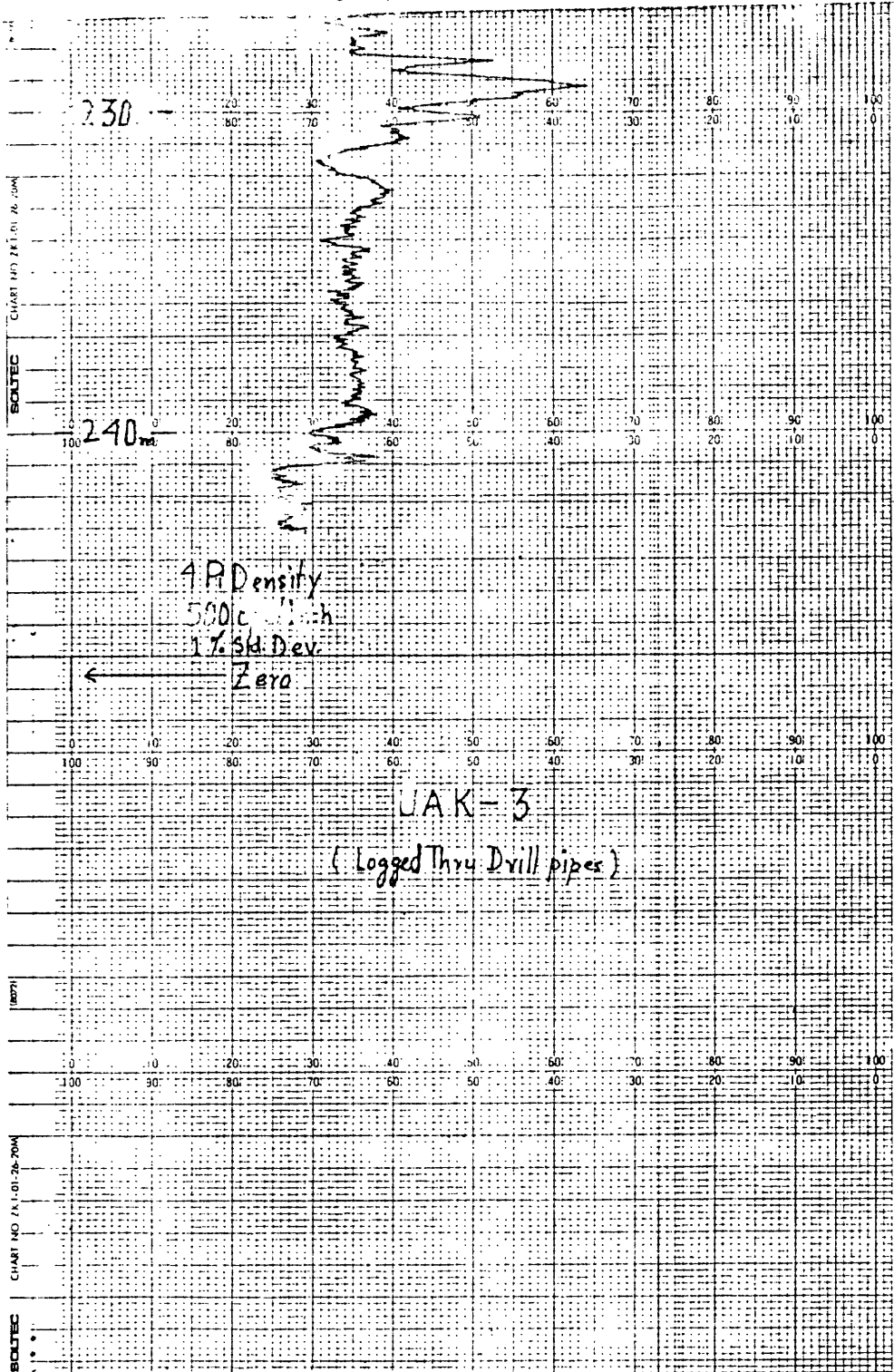


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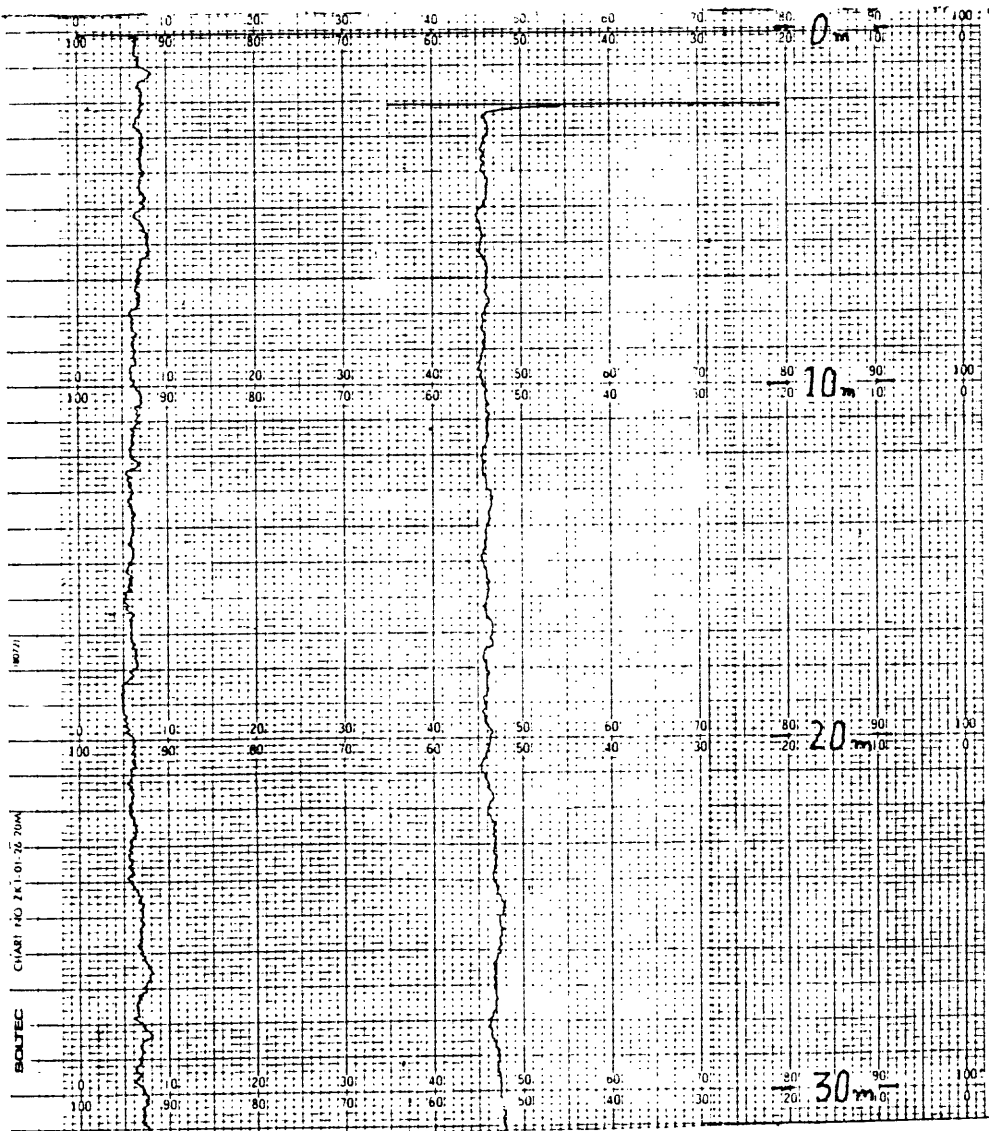


# GEOPHYSICAL LOGS

UAK-3

P.663

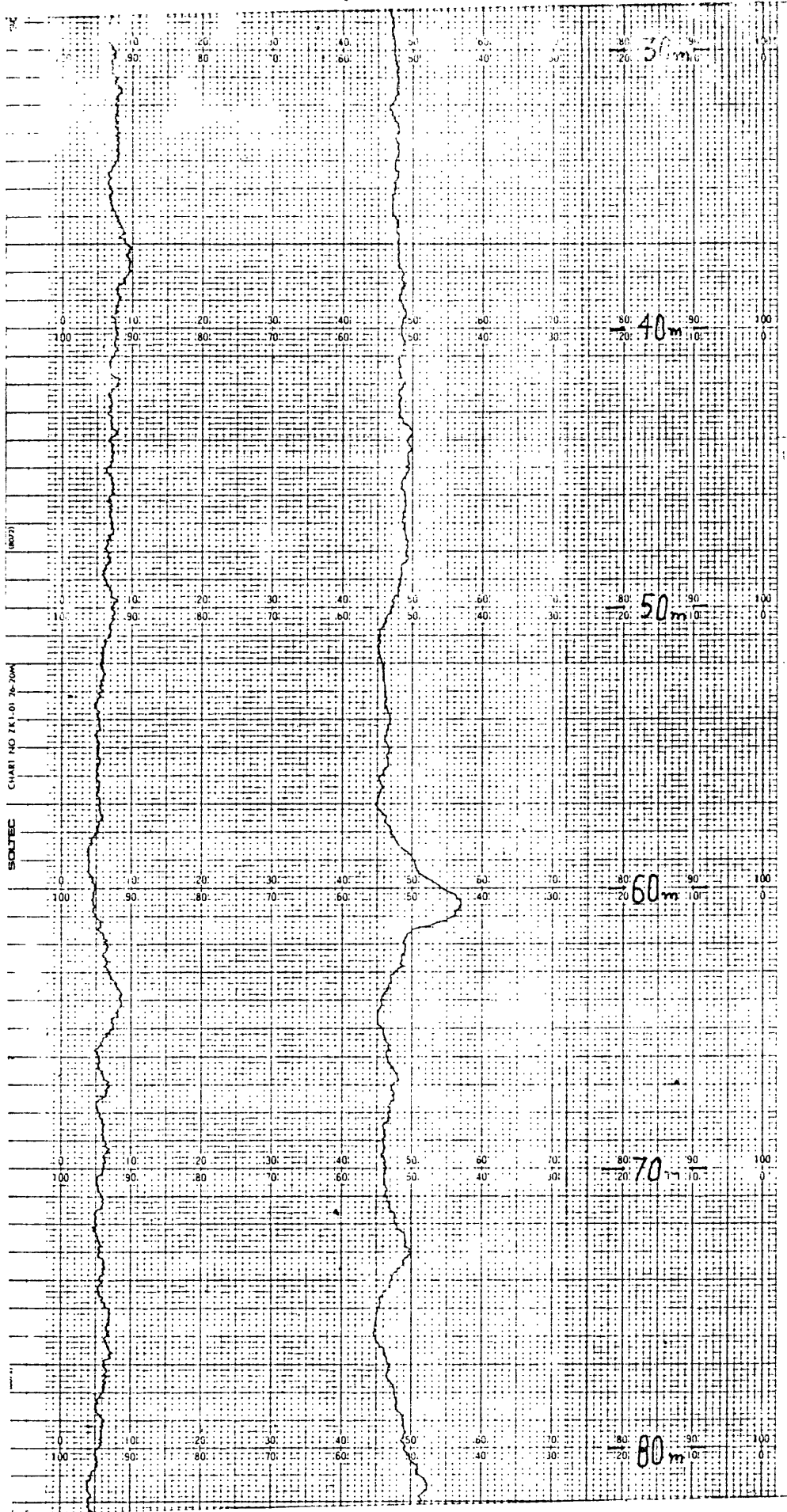
LOCATION				DATE		CLIENT	
STATE/COUNTY <u>IND. INDIAN</u>				DEPTH DRILLED <u>250. m</u>		CLIENT <u>USAID</u> / <u>USAID</u>	
REGION <u>IND. INDIAN</u>				DEPTH LOGGED <u>185. m</u>		GEOLOGIST:	
PROJECT <u>LOCAL ROAD</u>				COLLAR ELEV.			
PROSPECT				DIA FROM TO		UNIT OPERATOR <u>DAVIS/ILYAS/ALIGAL</u>	
SEC TWP. RNO.				DIA FROM TO		MIT NO. <u>12-2</u> OFFICE <u>COLORADO USA</u>	
				DIA FROM TO			
TYPE GAN <u>Hand</u>				BOREHOL. MEDIUM		ELECTRIC	
LOGGED DEPTH <u>243</u> <u>245</u>				FLUID LEVEL		TYPE RESIST S.P.	
RANGE (ft.) <u>200</u> <u>200</u>				CASING DATA		LOGGED DEPTH FT FT	
STD DEV <u>3</u> <u>1</u>				WALL SIZE <u>1/4"</u>		SCALE	
PAPER SPEED <u>1-1</u> <u>1-1</u>				I.D.		PAPER SPEED	
LOG SPEED <u>6-1</u> <u>6-1</u>				CASED FROM TO <u>140</u>		LOG SPEED	
BKOND COUNT				CASING TYPE <u>NV</u>		FINE ADJ.	
PROBE NO. <u>GA-1</u> <u>GA-1</u>				SAMPLE DATA			
SIZE (dia.) <u>1 1/8"</u> <u>1 3/8"</u>				NON-CORE HOLE <u>1</u> CORED HOLE <u>3</u>			
K-FACTOR <u>2</u> <u>2</u>				SAMPLED INTERVAL SAMPLE TYPE			
DEAD TIME <u>2</u> <u>2</u>							
STANDARD							
DIGITAL DATA				MARKS		CALIPER	
PRINT INTERVAL				LOGGED <u>185</u> <u>DRILL PIPES</u>		LOGGED DEPTH FT	
TIMEBASE						SCALE	
						PAPER SPEED	
						LOG SPEED	
						ARM LENGTH IN	
						MAX DEF. IN	
DENSITY CALIBRATION						VERTICAL DEV.	
ALUMINUM						DEPTH	
LUCITE						INCLIN	
						BEARING	





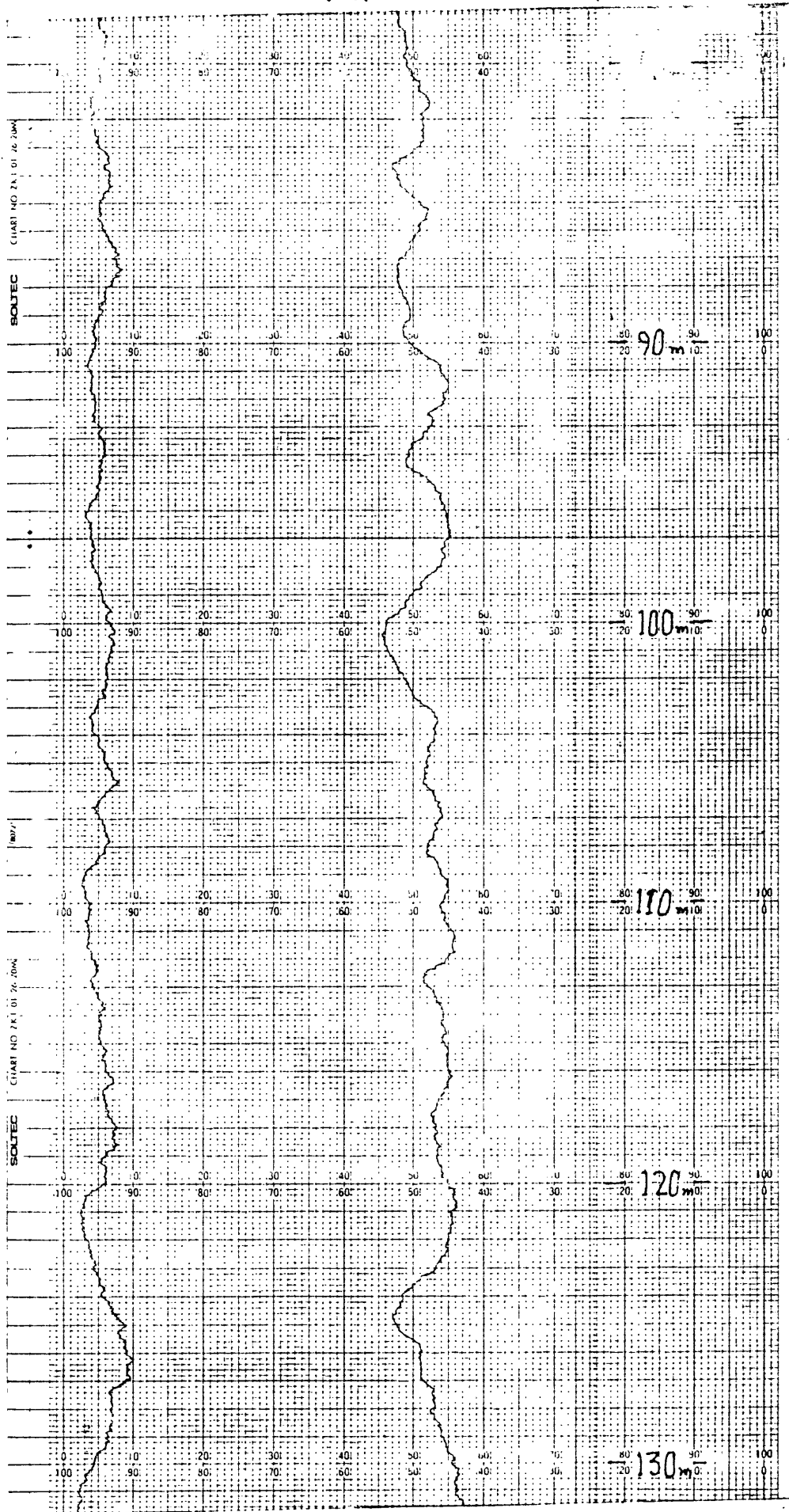
UAK-3

P.664

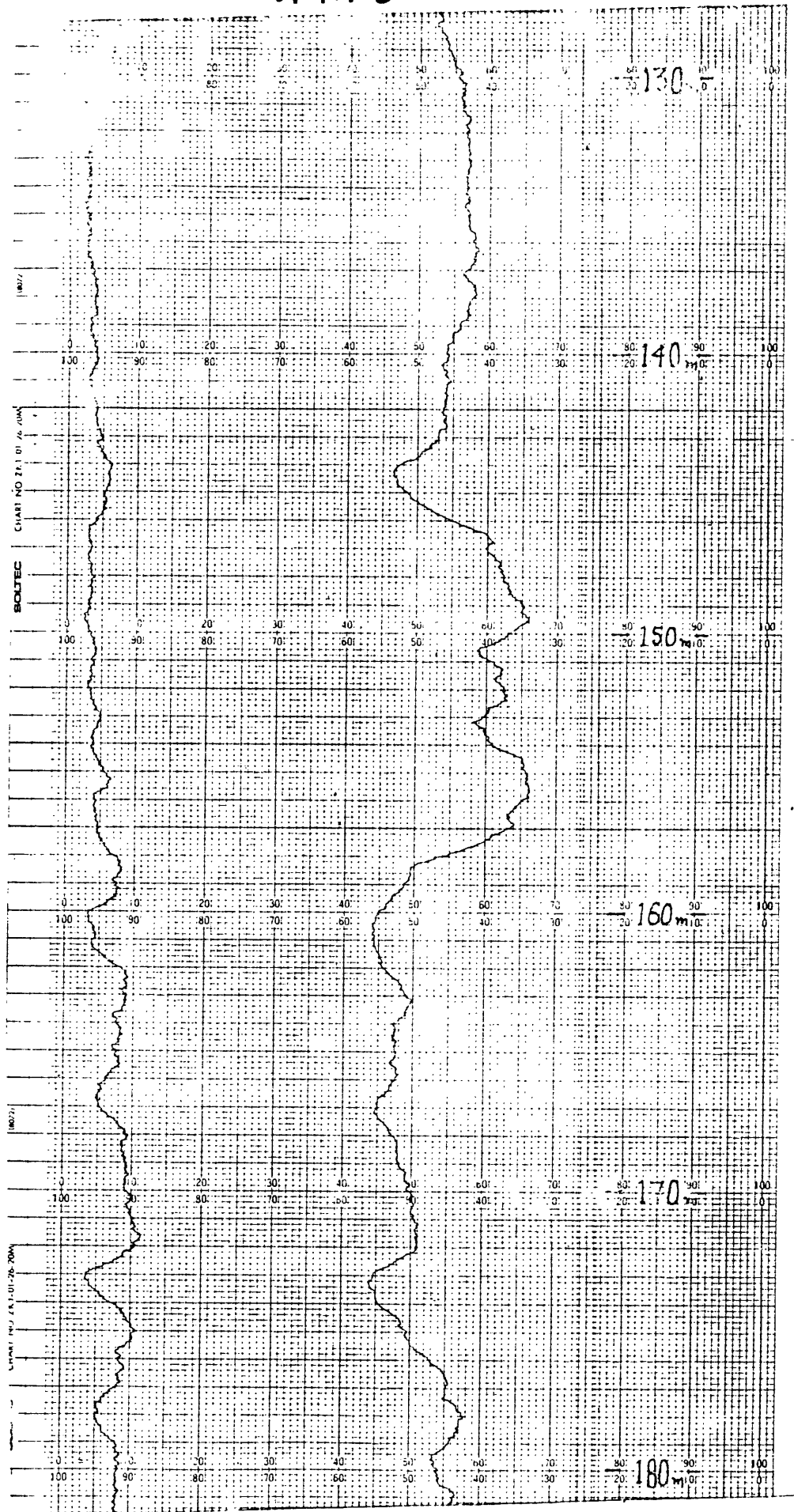


UAK-3

P.665

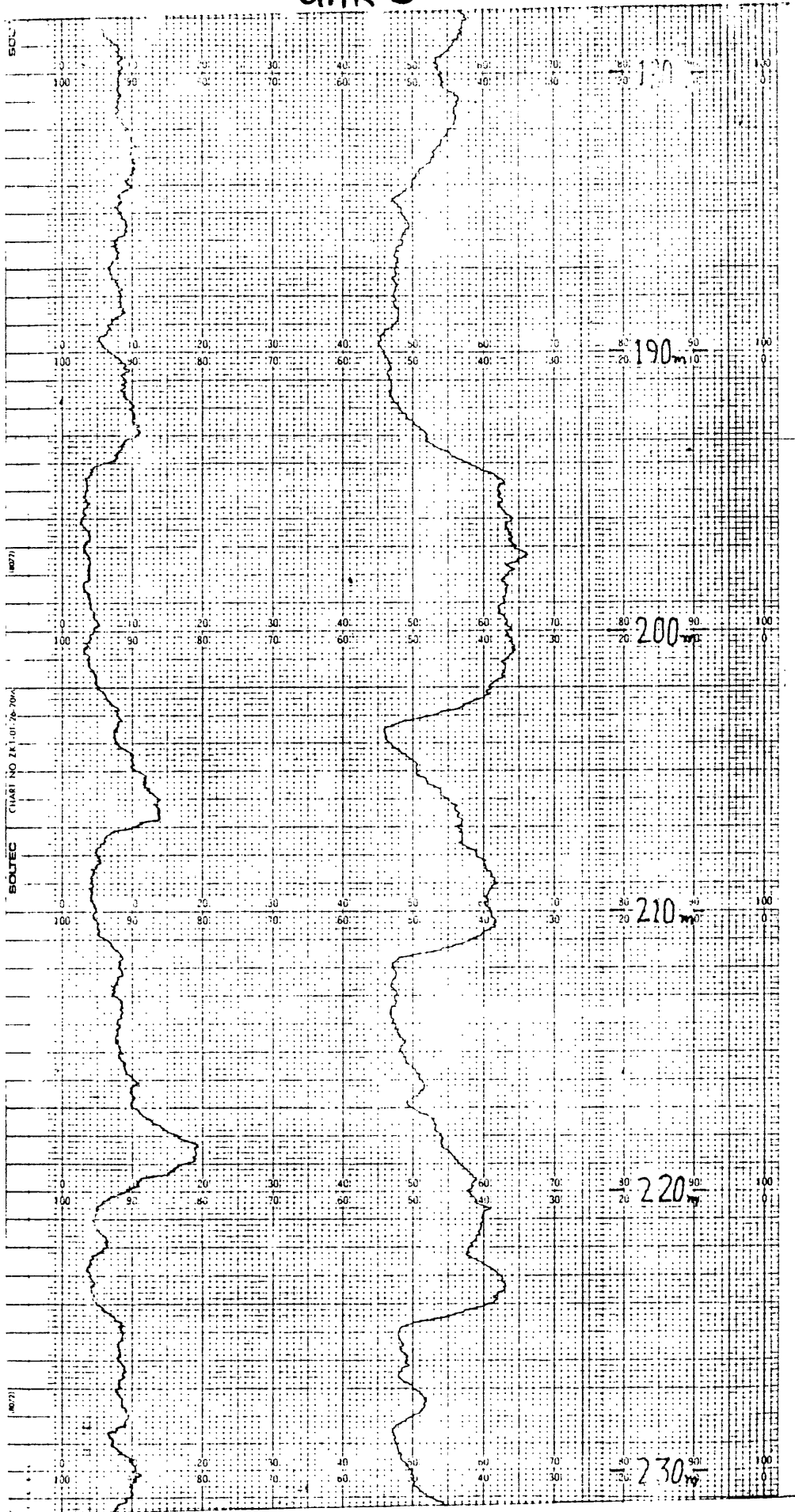


P. 666



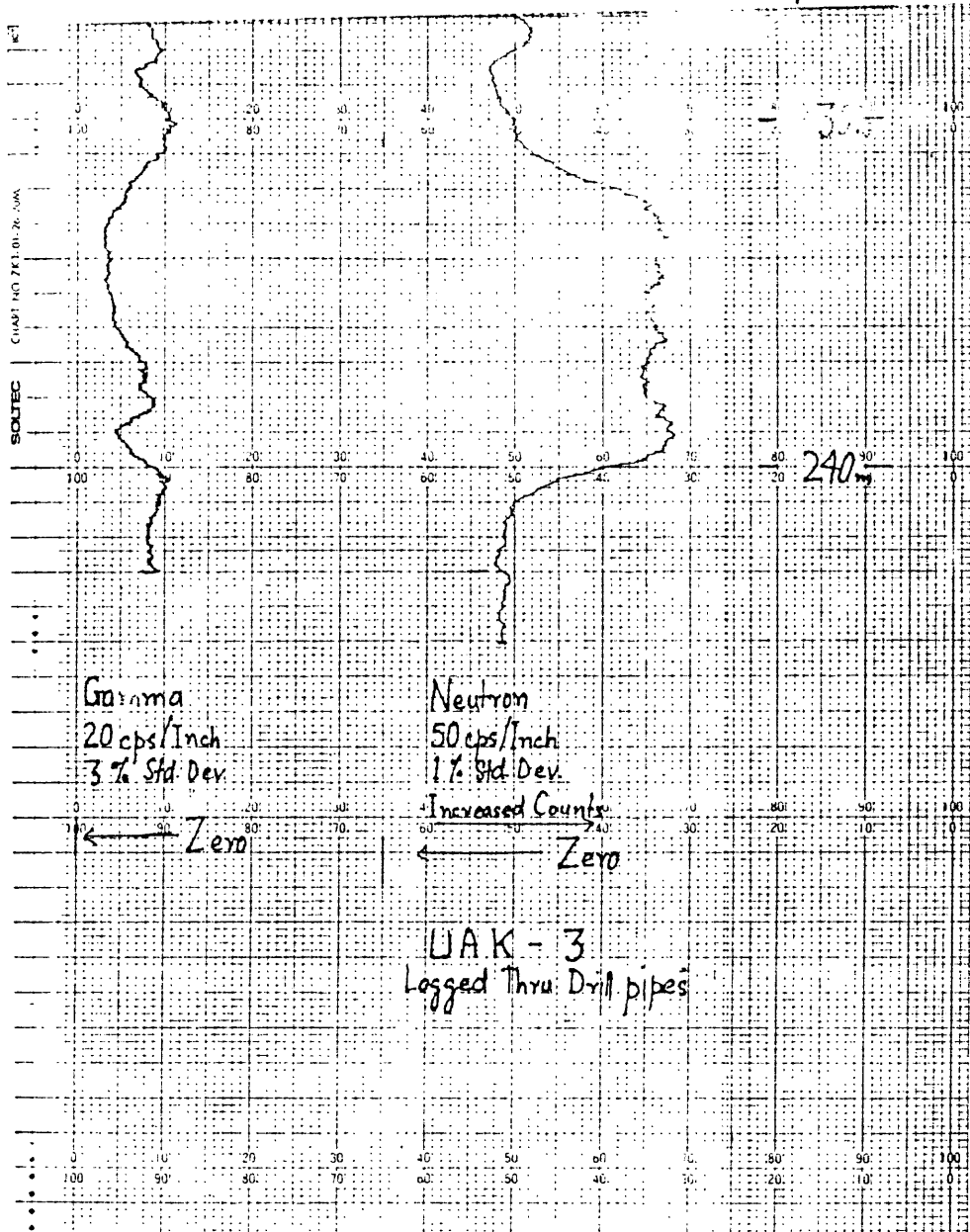
UAK-3

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UAK-3

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DRILL HOLE UAJ-1



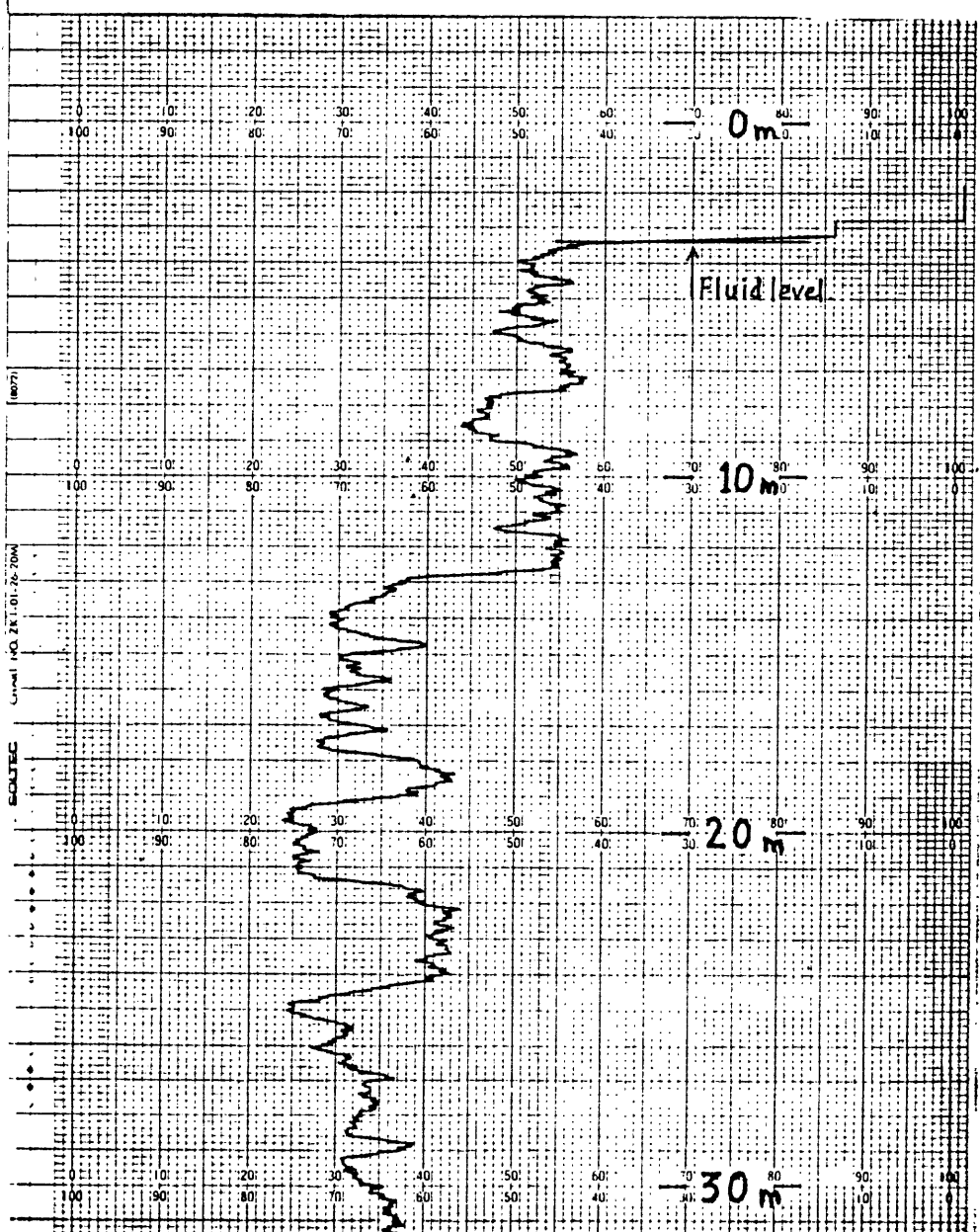
# GEOSCIENCE ASSOCIATES

HOLE NUMBER: UAJ-1

P.670

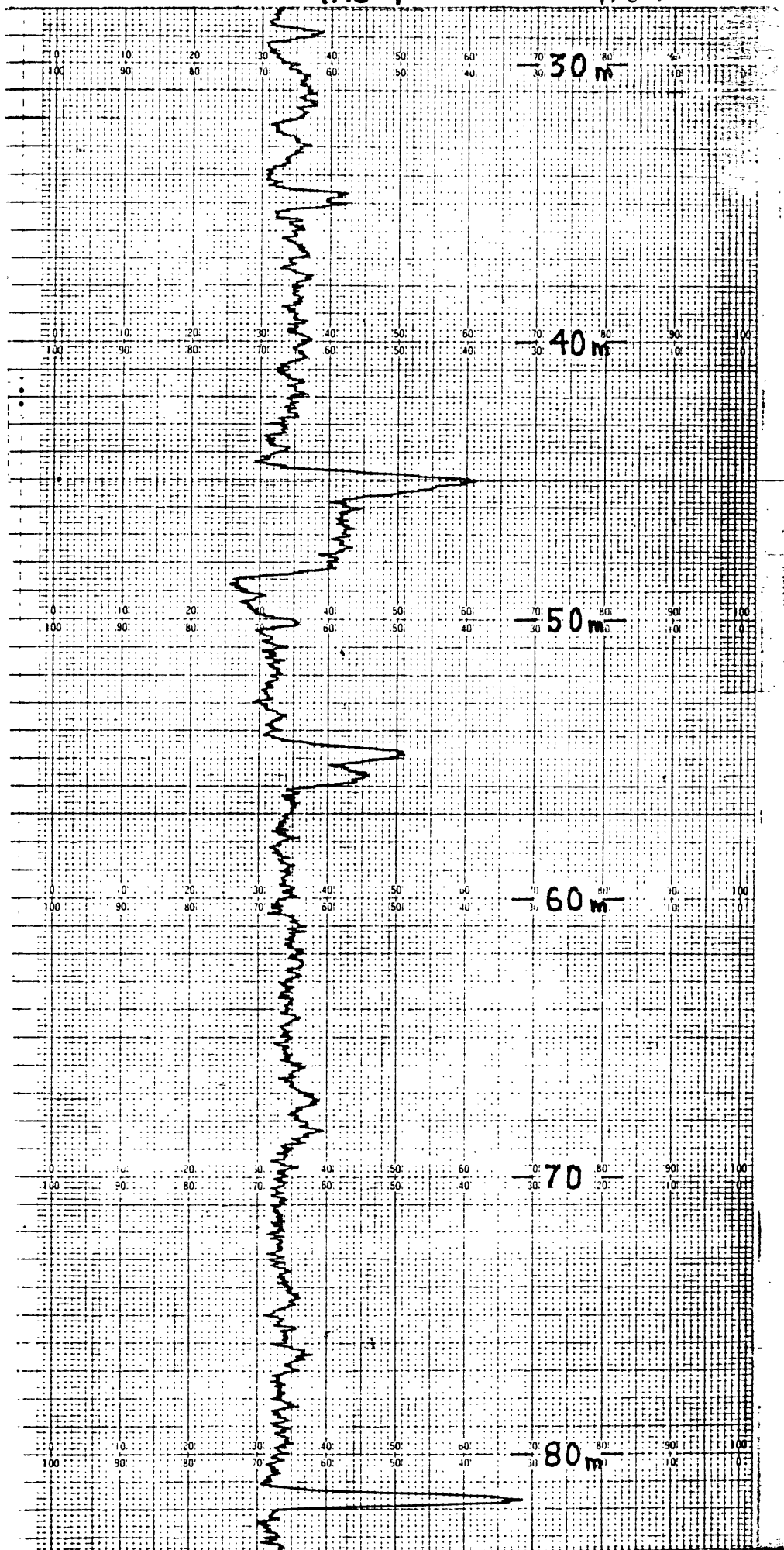
DATE: March 19, 1987

LOCATION		HOLE DATA		CLIENT	
STATE/COUNTRY	Sind Pakistan	DEPTH DRILLED	177 m	CLIENT	USGS / GSP
REGION	Thamir	DEPTH LOGGED	170 m	GEOLOGIST	
PROJECT	Coal Reap.	COLLAR ELEV		UNIT OPERATOR	IVAS / MUJIR
PROSPECT		DIA	See FROM TO	UNIT NO	P2-2 OFFICE
SEC	TWP RNG	DIA	Caliper FROM TO	BOULDER	Colorado USA
TYPE	GAM	DIA	Log FROM TO	ELECTRIC	
LOGGED DEPTH	4P Density 170m	BOREHOLE MEDIA	H <sub>2</sub> O + Mud	TYPE	RESIST
RANGE (I.R.)	5K	FLUID LEVEL	3.3 m	LOGGED DEPTH	FT
STD DEV	1.2	CASING DATA		SCALE	FT
PAPER SPEED	1-1	WALL SIZE	None	PAPER SPEED	FT
LOG SPEED	6-1	CASED FROM	TO	LOG SPEED	FT
BKOND. COUNT		CASING TYPE		ARM LENGTH	IN
PROBE NO.	60-2	SAMPLE DATA		MAX DEF.	IN
SIZE (dia)	1 3/8	NON-CORED HOLE	CORED HOLE	VERTICAL DEV.	
K-FACTOR		SAMPLED INTERVAL	SAMPLE TYPE	DEPTH	
DEAD TIME	2.0	REMARKS		INCLIN	
STANDARD		Logged Through		BEARING	
DIGITAL DATA		Drill pipes			
PRINT INTERVAL					
TIMEBASE					
DENSITY CALIBRATION					
ALUMINUM					
LUCITE					



UAF-1

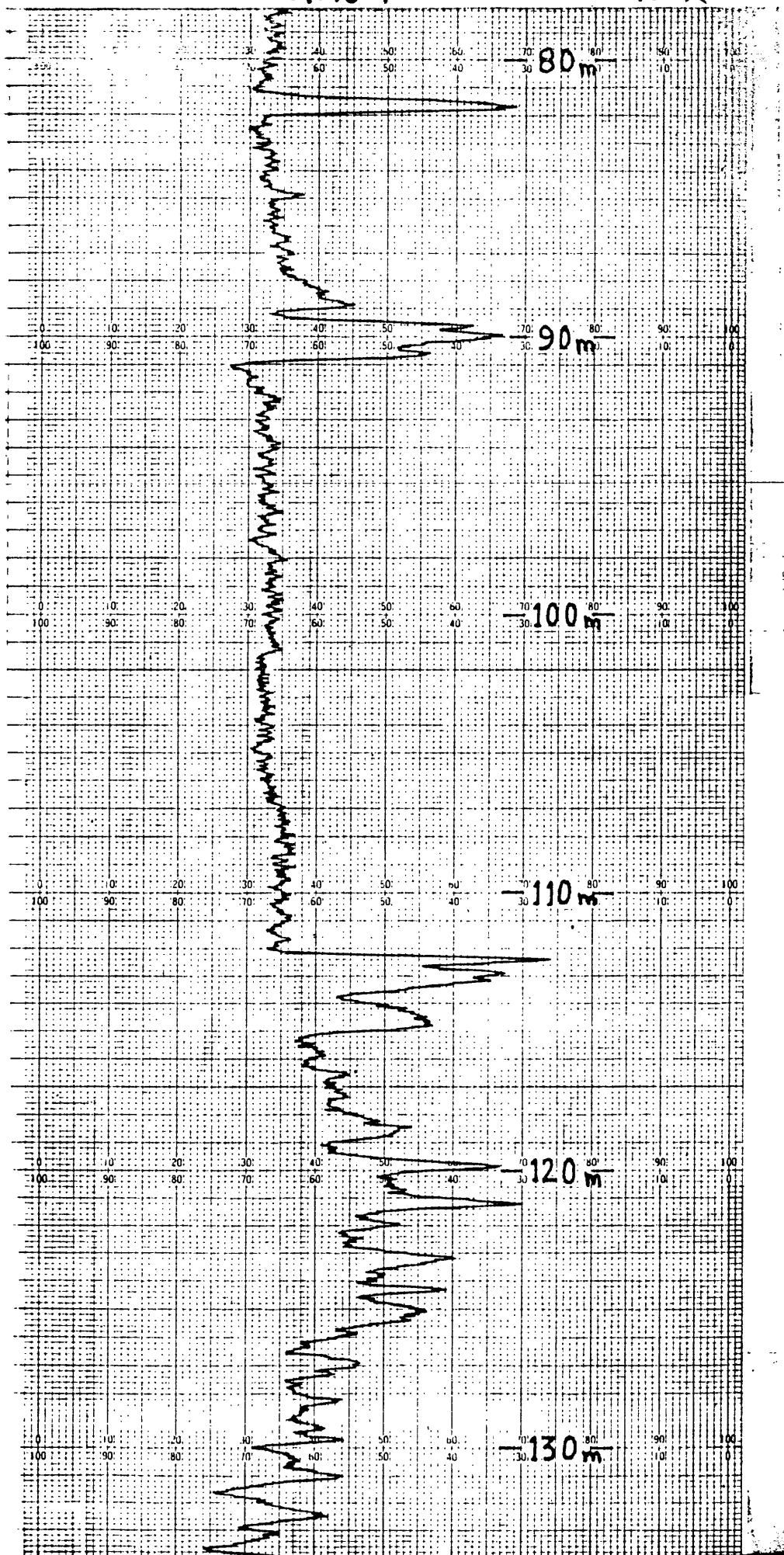
P. 671





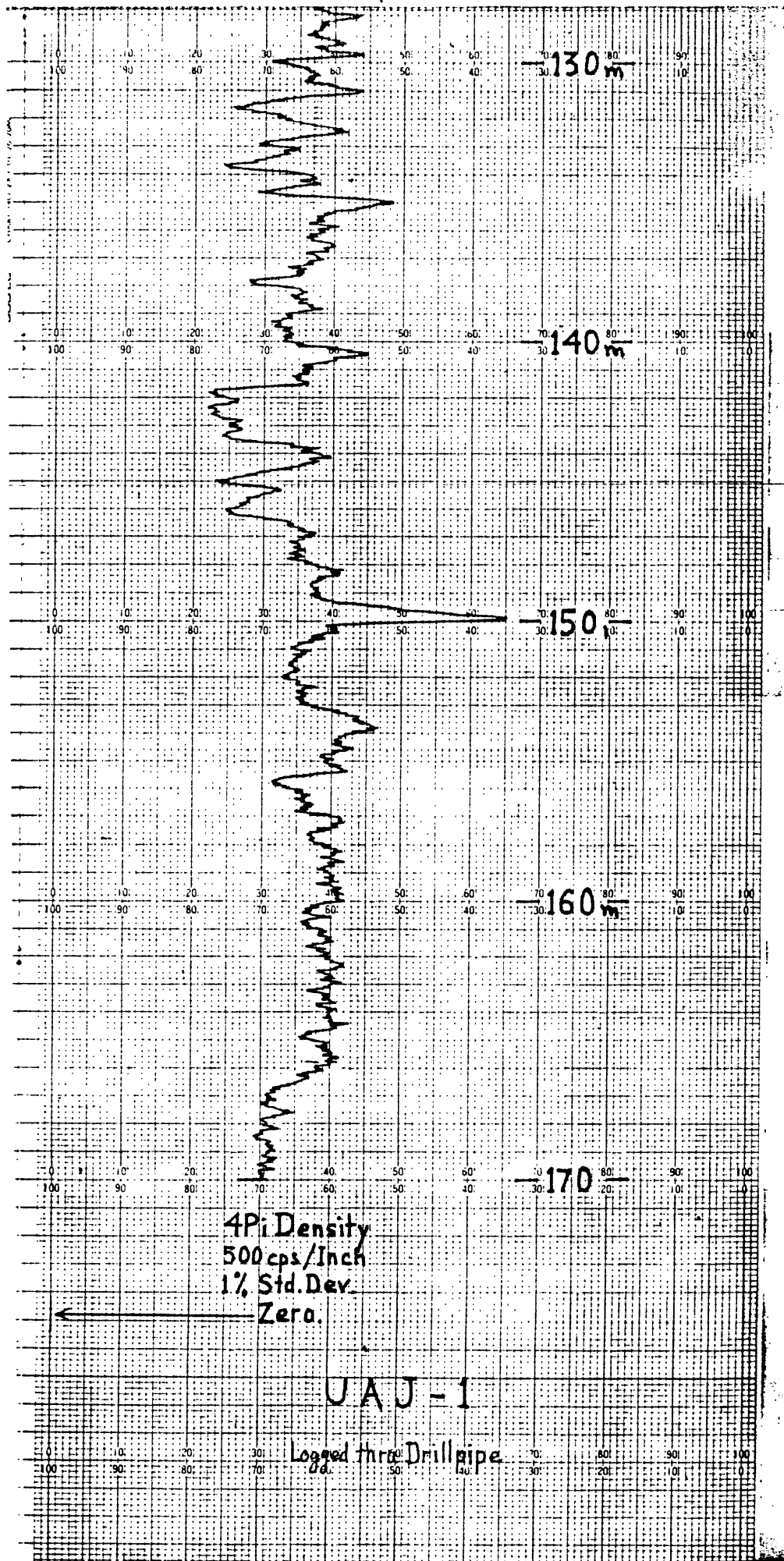
UATJ-1

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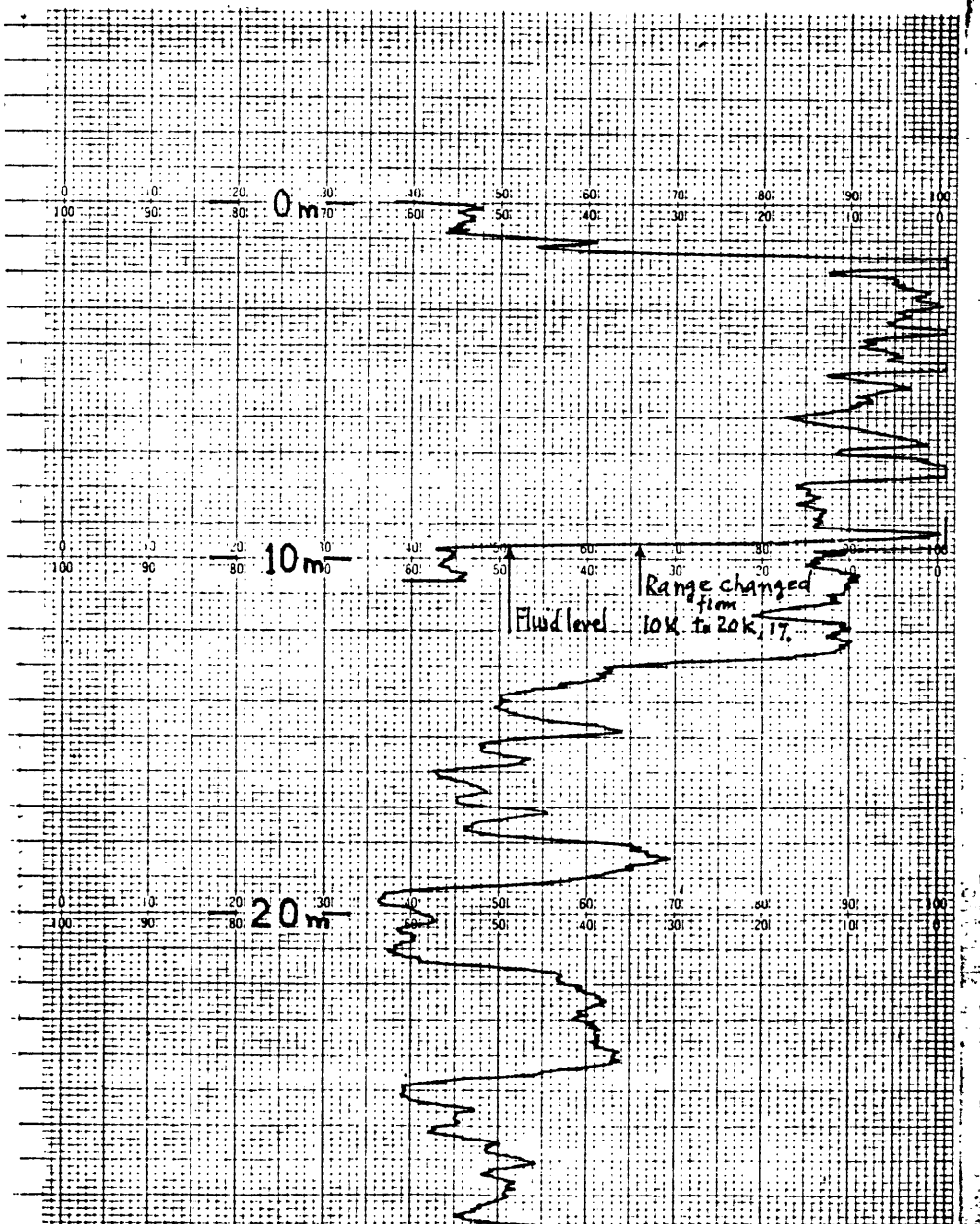
# GEOSCIENCE ASSOCIATES

P.674

HOLE NUMBER: UAS - 1

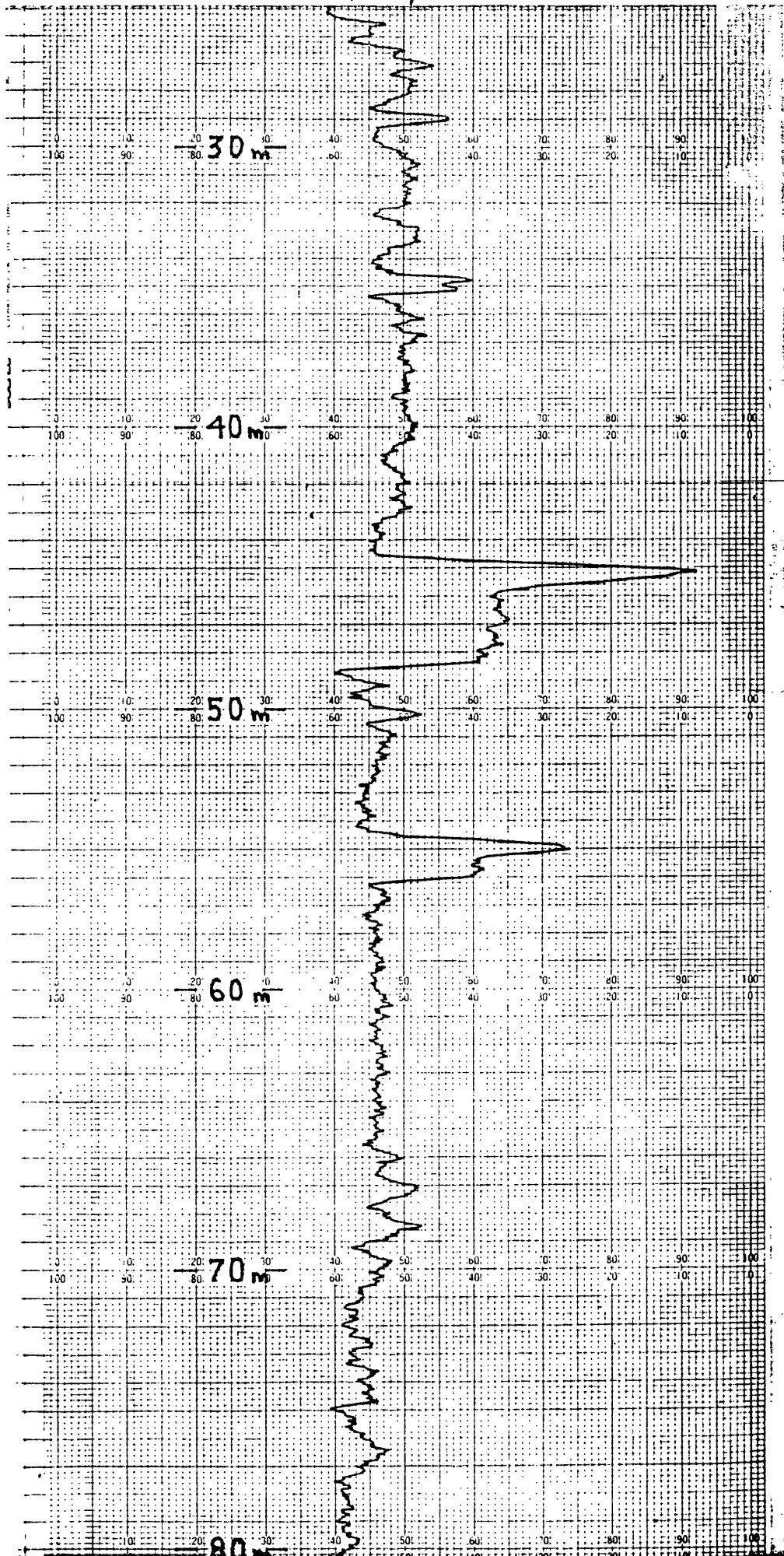
DATE: March 19, 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sind Pakistan		DEPTH DRILLED	177 m		CLIENT	USGS / GSP	
REGION	Thampr		DEPTH LOGGED	173 m		GEOLOGIST		
PROJECT	Coal Reap.		COLLAR ELEV			UNIT OPERATOR	ILYAS / MURID	
PROSPECT			DIA	See	FROM TO	UNIT NO	OFFICE	
BEC	TWP	ANG	DIA	Caliper	FROM TO			
			DIA	Log	FROM TO			
TYPE	GAM 48 Density		BOREHOLE MEDIUM	H <sub>2</sub> O + Mud.		ELECTRIC		
LOGGED DEPTH	173 m		FLUID LEVEL	9.6 m		TYPE	RESIST	S.P
RANGE (I.S.)	10K		CASING DATA			LOGGED DEPTH	FT	FT
%STD DEV	1.5		WALL SIZE			SCALE		
PAPER SPEED	1-1		I.D	NONE		PAPER SPEED		
LOG SPEED	6-1		CASED FROM	TO		LOG SPEED		
BKGD. COUNT			CASING TYPE			FINE ADJ.		
PROBE NO.	60-2		SAMPLE DATA					
SIZE (dia.)	1 1/2"		NON-CORED HOLE	CORED HOLE				
K-FACTOR	1.8		SAMPLED INTERVAL	SAMPLE TYPE				
DEAD TIME	2		REMARKS			CALIPER		
STANDARD			OPEN HOLE			LOGGED DEPTH	FT.	
DIGITAL DATA						SCALE		
PRINT INTERVAL						PAPER SPEED		
TIMEBASE						LOG SPEED		
DENSITY CALIBRATION						ARM LENGTH	IN	
ALUMINUM						MAX DEF	IN	
LUCITE						VERTICAL DEV.		
						DEPTH		
						INCLIN		
						BEARING		



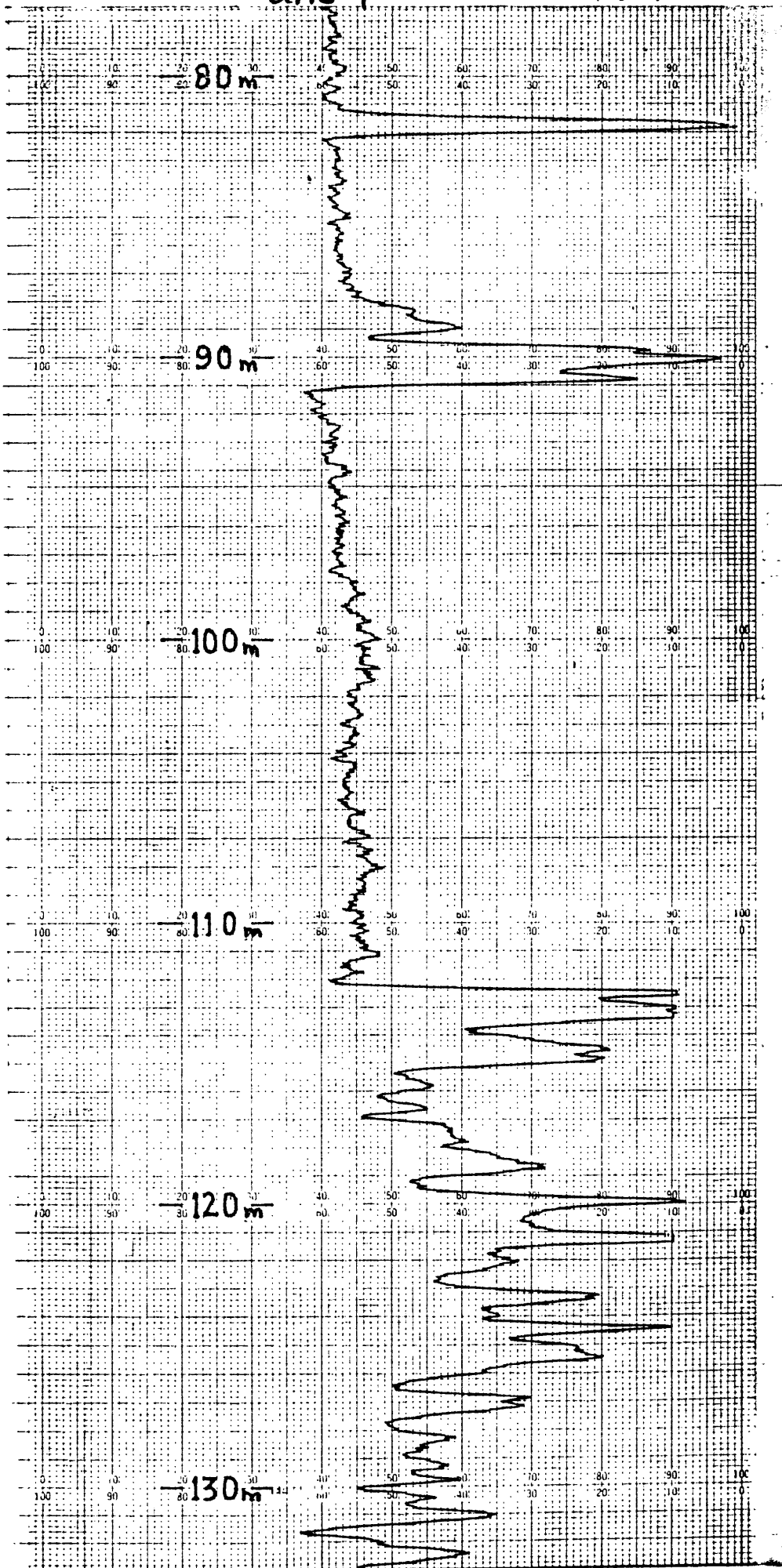
UAJ-1

P.675 (page 677 follows)



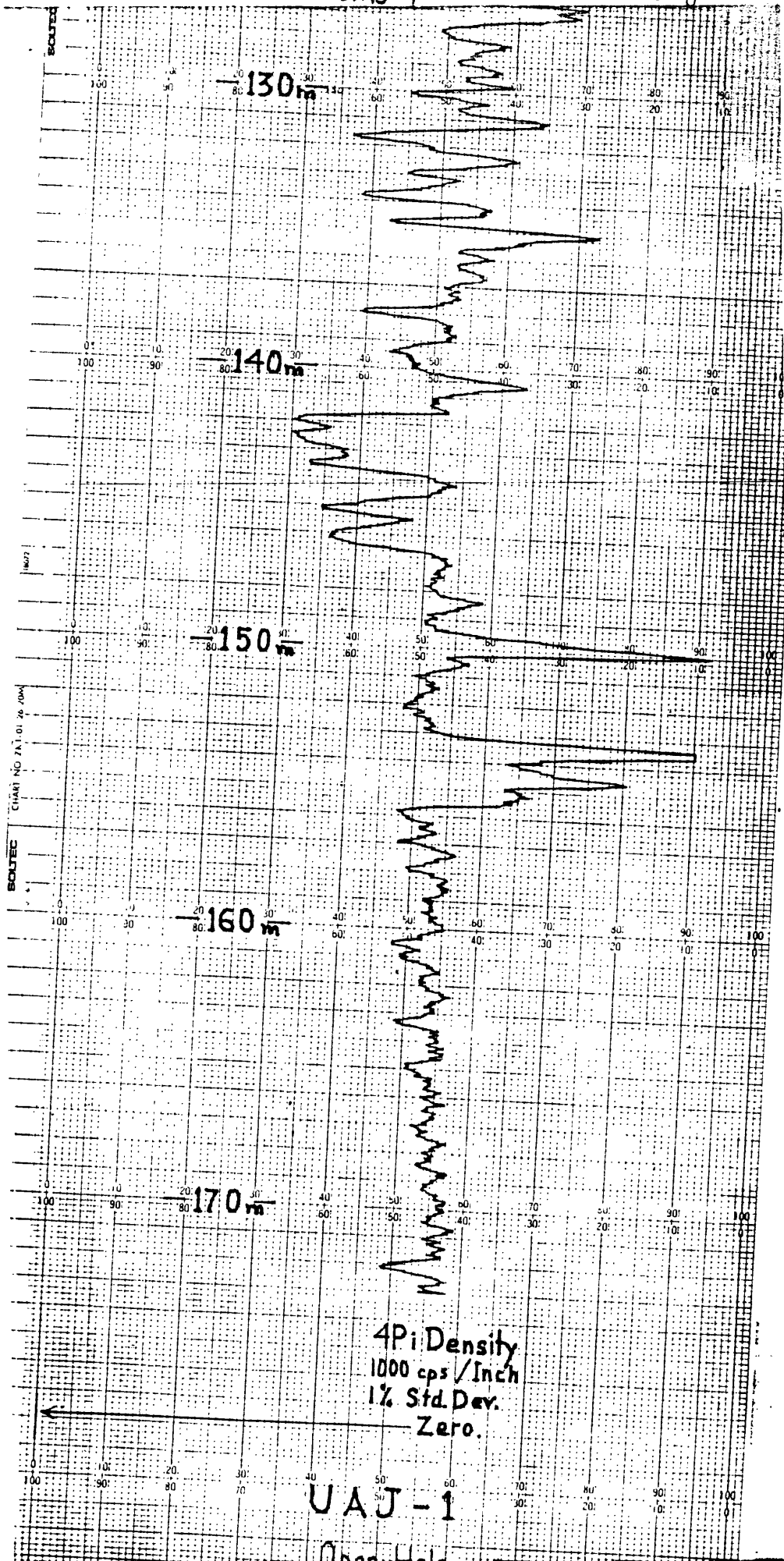
UAI-1

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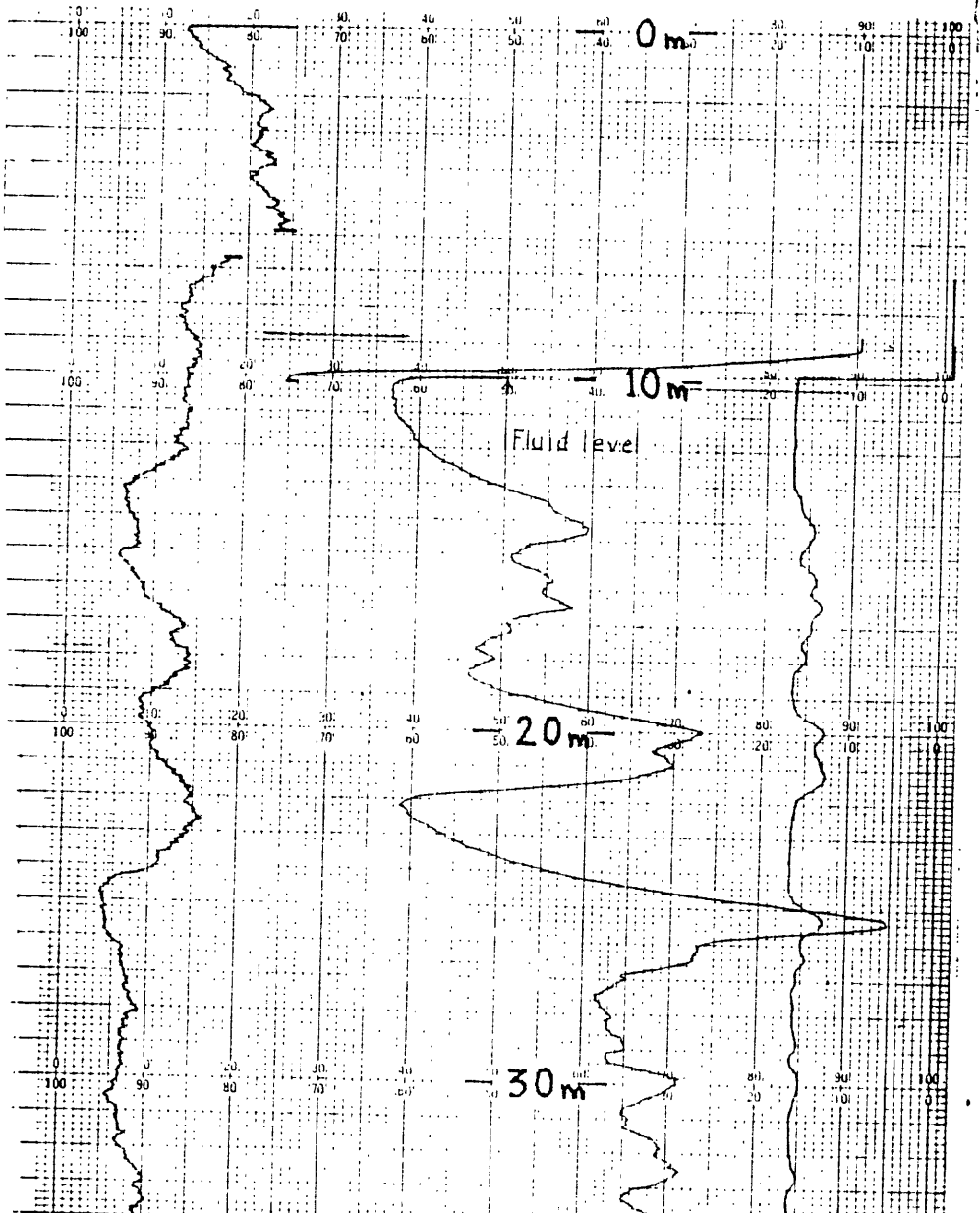
# GEOSCIENCE ASSOCIATES

P.679

HOLE NUMBER: LAJ - 1

DATE: March - 19 - 1987

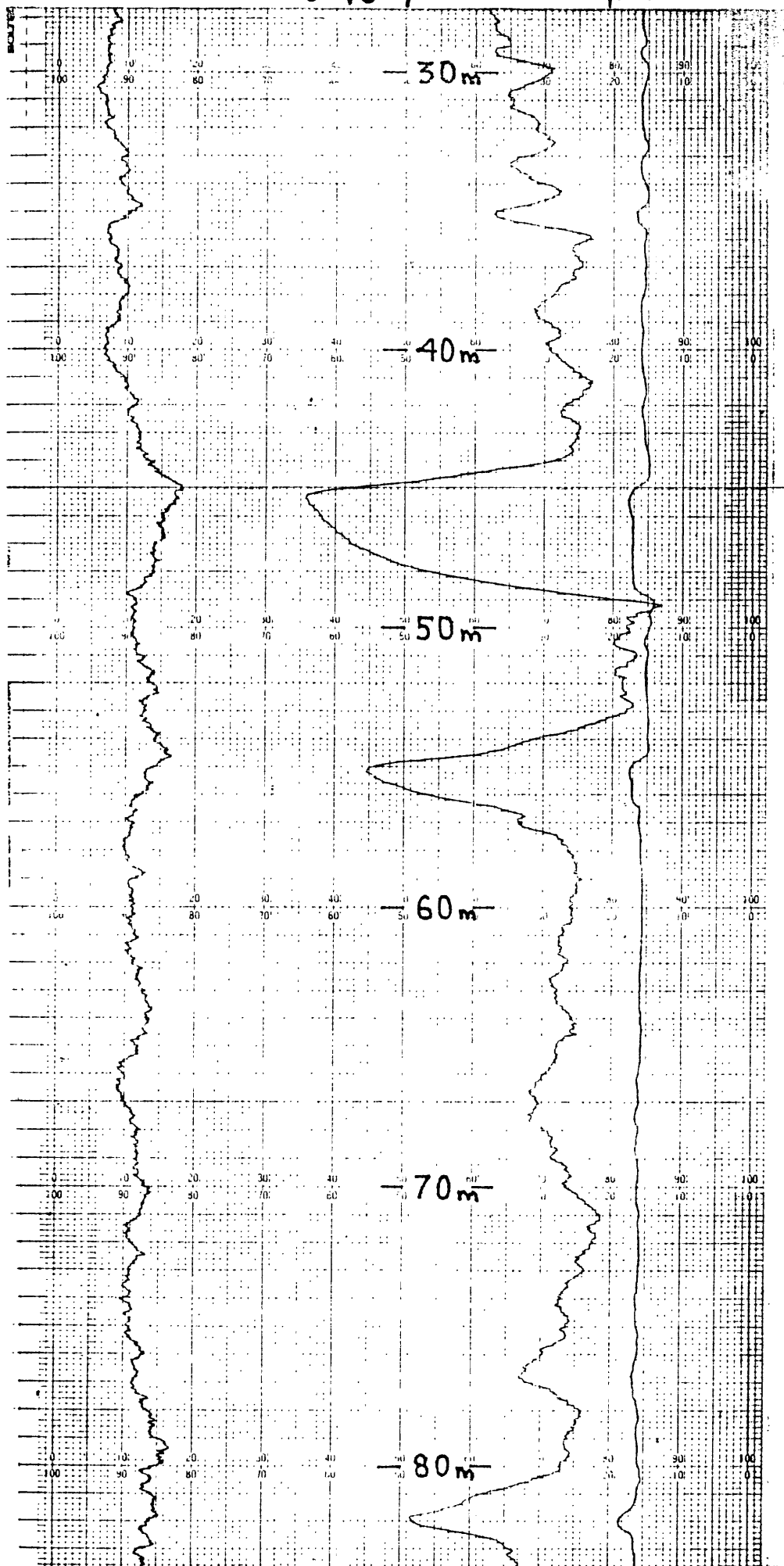
LOCATION			HOLE DATA		CLIENT	
STATE/COUNTY	Sindh Pakistan		DEPTH DRILLED	177 m	CLIENT	USGS / GSP
REGION	Thambir		DEPTH LOGGED	174 m	GEOLOGIST	
PROJECT	Coal Reap.		COLLAR ELEV		UNIT OPERATOR	ILYAS / MUTIA
PROSPECT			DIA	See	UNIT NO	OFFICE
SEC	TWP	RNG	DIA	Caliper		
			DIA	Log		
			BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		
			FLUID LEVEL	10 m		
TYPE			CASING DATA		ELECTRIC	
LOGGED DEPTH	172 m		WALL SIZE		TYPE	RESIST
RANGE (1-5)	100		ID	NONE	LOGGED DEPTH	172 m
STD DEV	3		CASED FROM		SCALE	10
PAPER SPEED	1-1		CASING TYPE		PAPER SPEED	1-1
LOG SPEED	6-1				LOG SPEED	6-1
BKGND COUNT					LOG SPEED	6-1
PROBE NO	GN-1				FINE ADJ	1000 bias
SIZE (dia.)	1 3/8					
K-FACTOR	2					
DEAD TIME	2					
STANDARD						
DIGITAL DATA			REMARKS		CALIPER	
PRINT INTERVAL			OPEN HOLE		LOGGED DEPTH	
TIMEBASE					SCALE	
					PAPER SPEED	
					LOG SPEED	
					ARM LENGTH	
					MAX DEF	
DENSITY CALIBRATION					VERTICAL DEV.	
ALUMINUM					DEPTH	
LUCITE					INCLIN.	
					BEARING	





UAJ-1

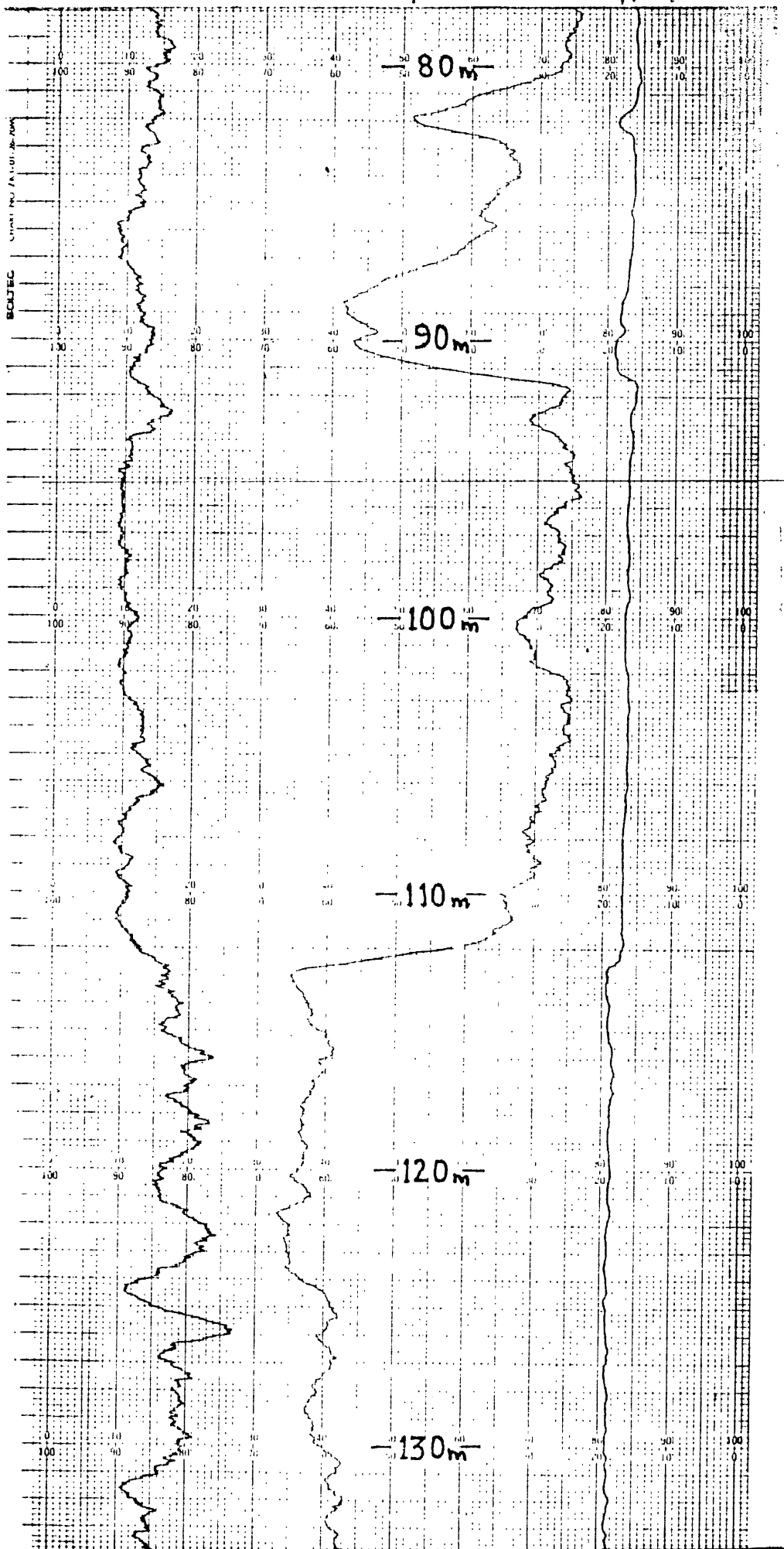
P.680





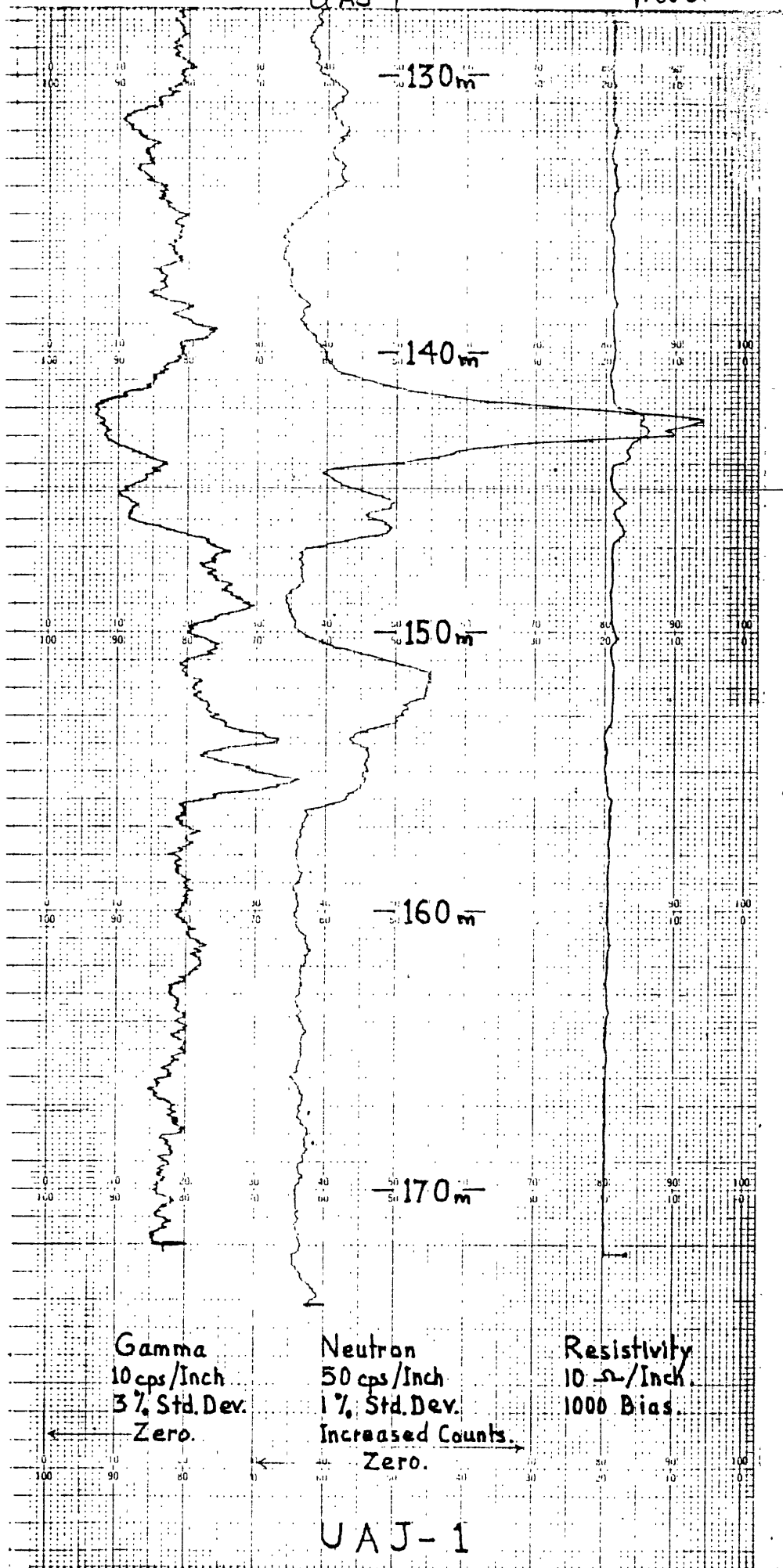
UAT-1

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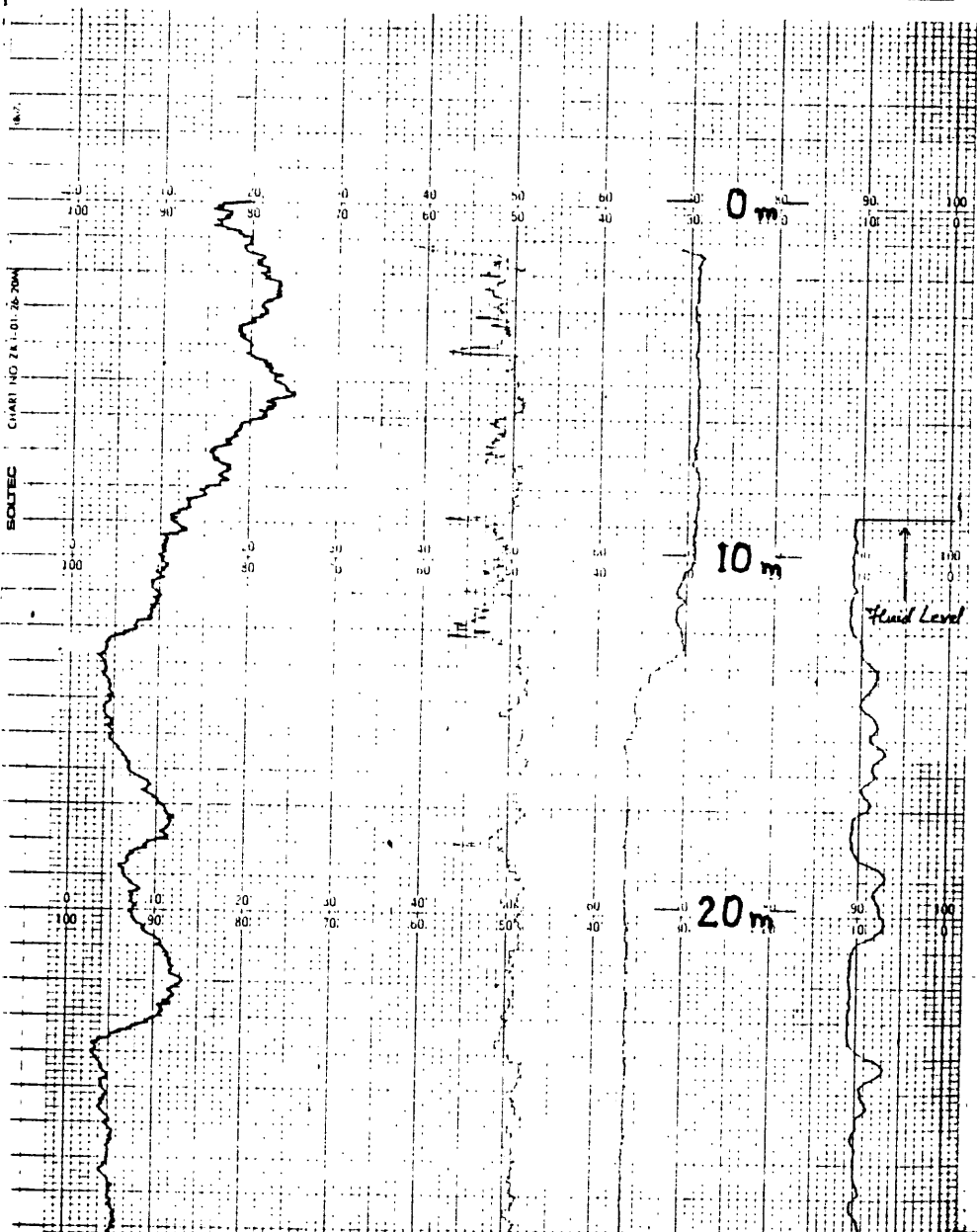
# GEOSCIENCE ASSOCIATES

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HOLE NUMBER: UAJ-1

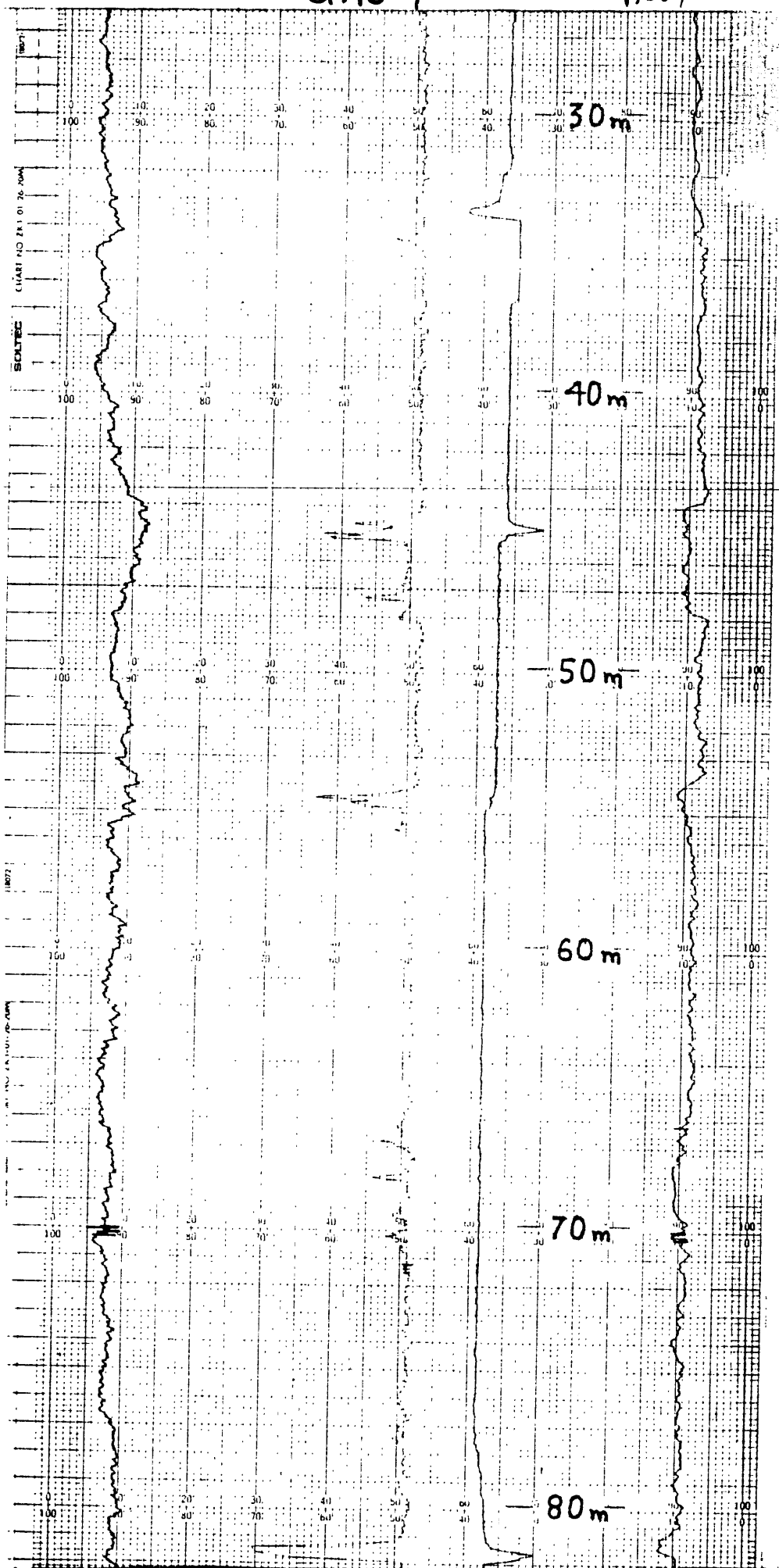
DATE: March-19-1981

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTRY	Sindh Pakistan		DEPTH DRILLED	171 m		CLIENT	USGS / G.S.P.	
REGION	Jamshyd		DEPTH LOGGED	171 m		GEOLOGIST		
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	ILYAS / MUJEEB	
PROSPECT			DIA	See	FROM TO	UNIT NO	PL-2 OFFICE	
SEC	TWP	RNG	DIA	Caliper	FROM TO	BOUNDER	COCORABE USA	
			DIA	Log	FROM TO		ELECTRIC	
TYPE	GAM	HRD	BOREHOLE MEDIUM	H <sub>2</sub> O + Mud		TYPE	RESIST	S.P.
LOGGED DEPTH	170 m	171 m	FLUID LEVEL	7 m		LOGGED DEPTH	170 m	FT
RANGE (ft.)	100	200				SCALE	10	
%STD DEV	3	1				PAPER SPEED	1-1	
PAPER SPEED	1-1	1-1				LOG SPEED	6-1	
LOG SPEED	9-1	6-1				FINE ADJ	1000 bars	
BKGND. COUNT								
PROBE NO.	HRD-1	HRD-1						
SIZE (dia.)	2"	2"						
K-FACTOR								
DEAD TIME	2	2						
STANDARD								
DIGITAL DATA			REMARKS			CALIPER		
PRINT INTERVAL			OPEN HOLE			LOGGED DEPTH	171 m	FT
TIMEBASE						SCALE	4" = 1" Dia	
DENSITY CALIBRATION						PAPER SPEED	1-1	
ALUMINUM						LOG SPEED	6-1	
LUCITE						ARM LENGTH	30	IN
						MAX DEF	9	IN
						VERTICAL DEV.		
						DEPTH		
						INCLIN		
						BEARING		



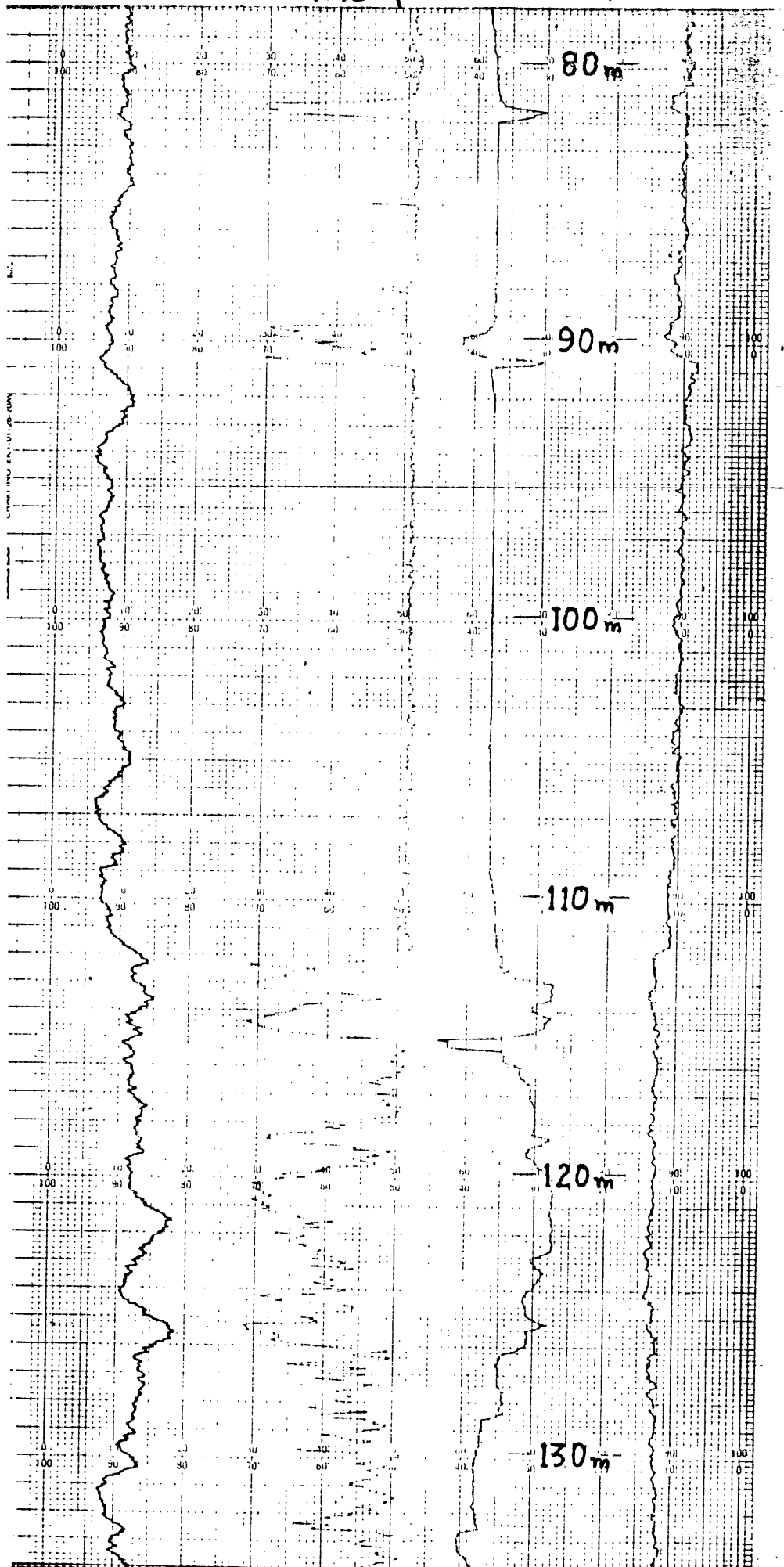
UAIJ-1

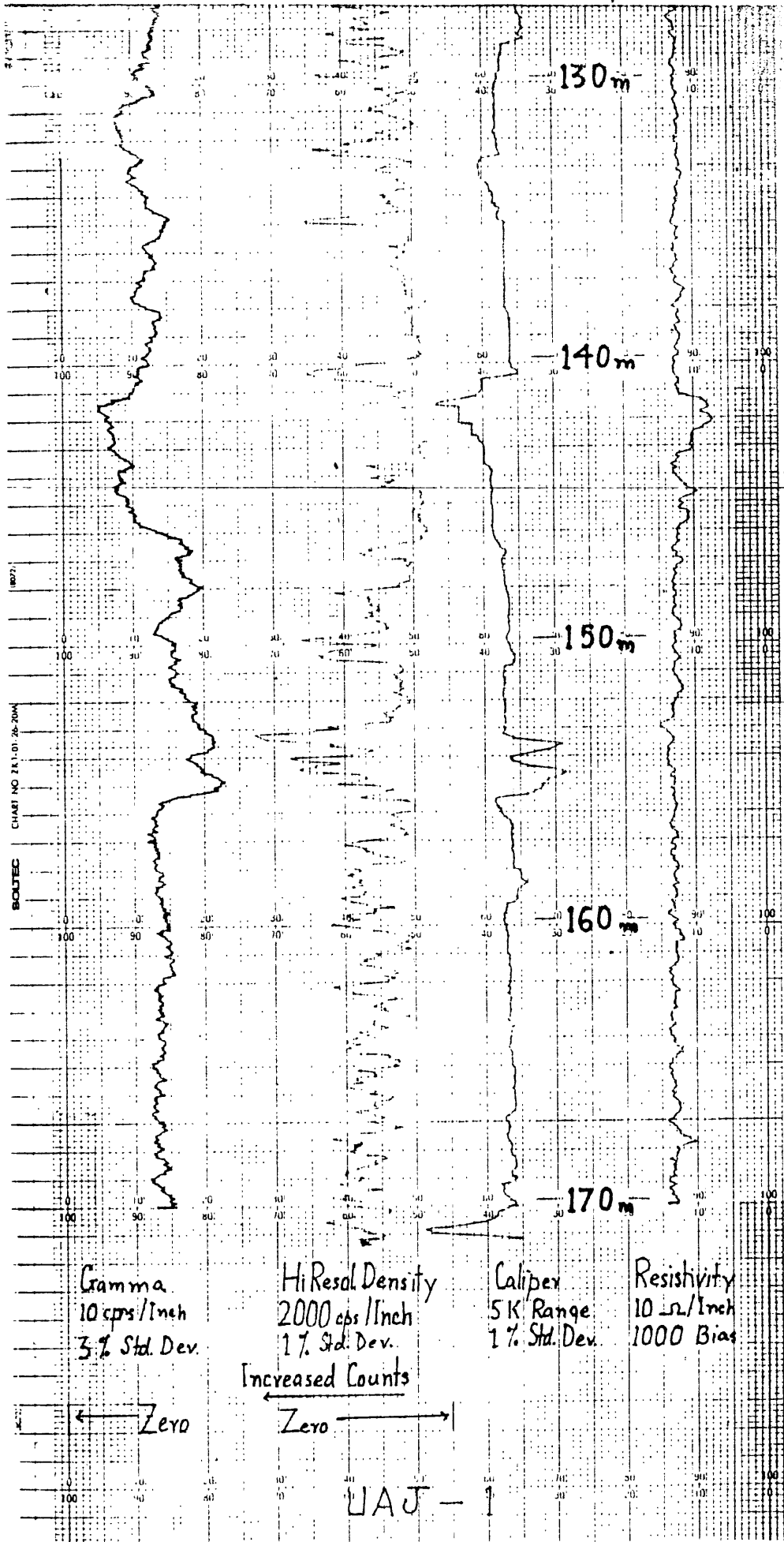
P.684



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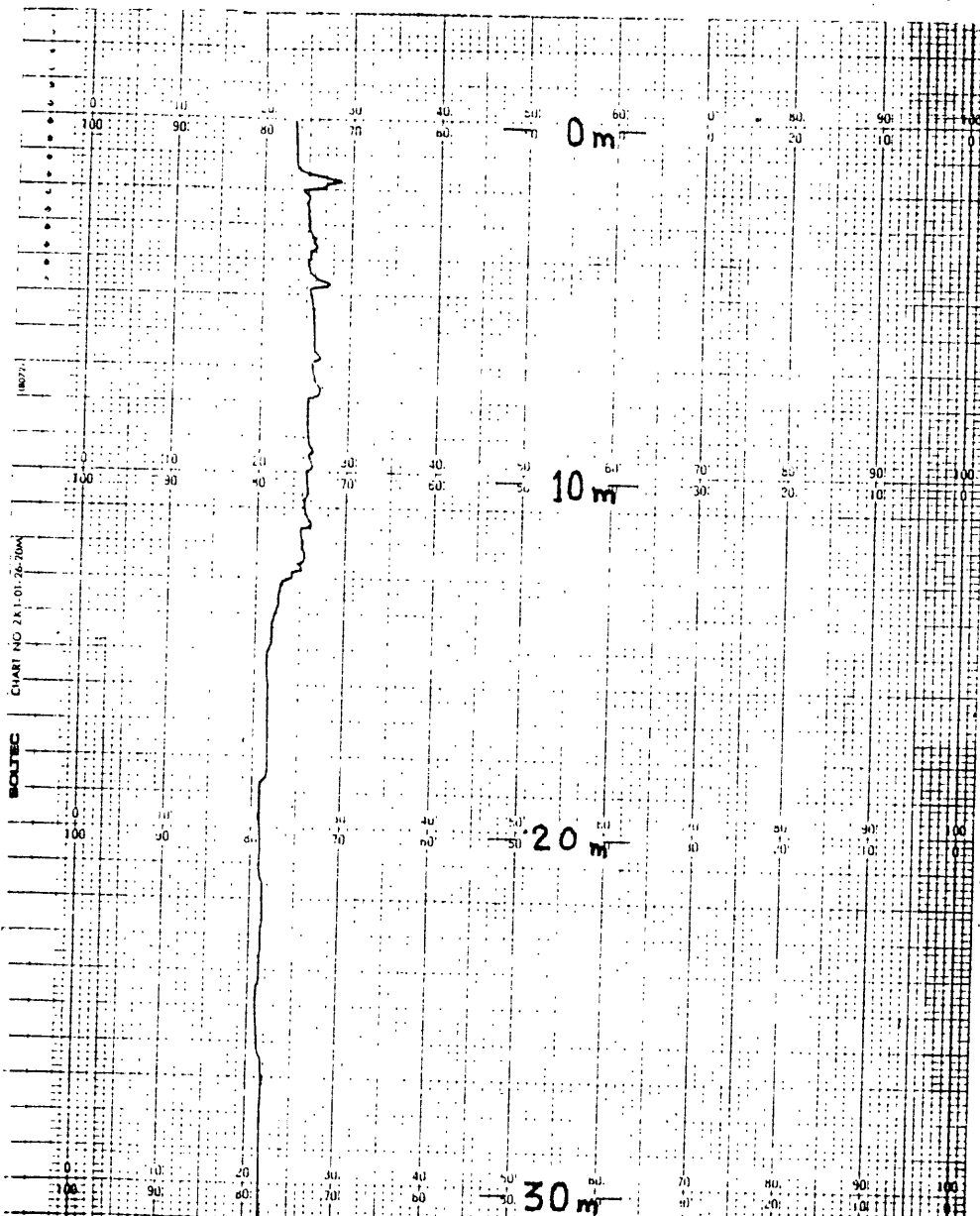


# GEOSCIENCE ASSOCIATES P. 687

HOLE NUMBER: UAJ - 1

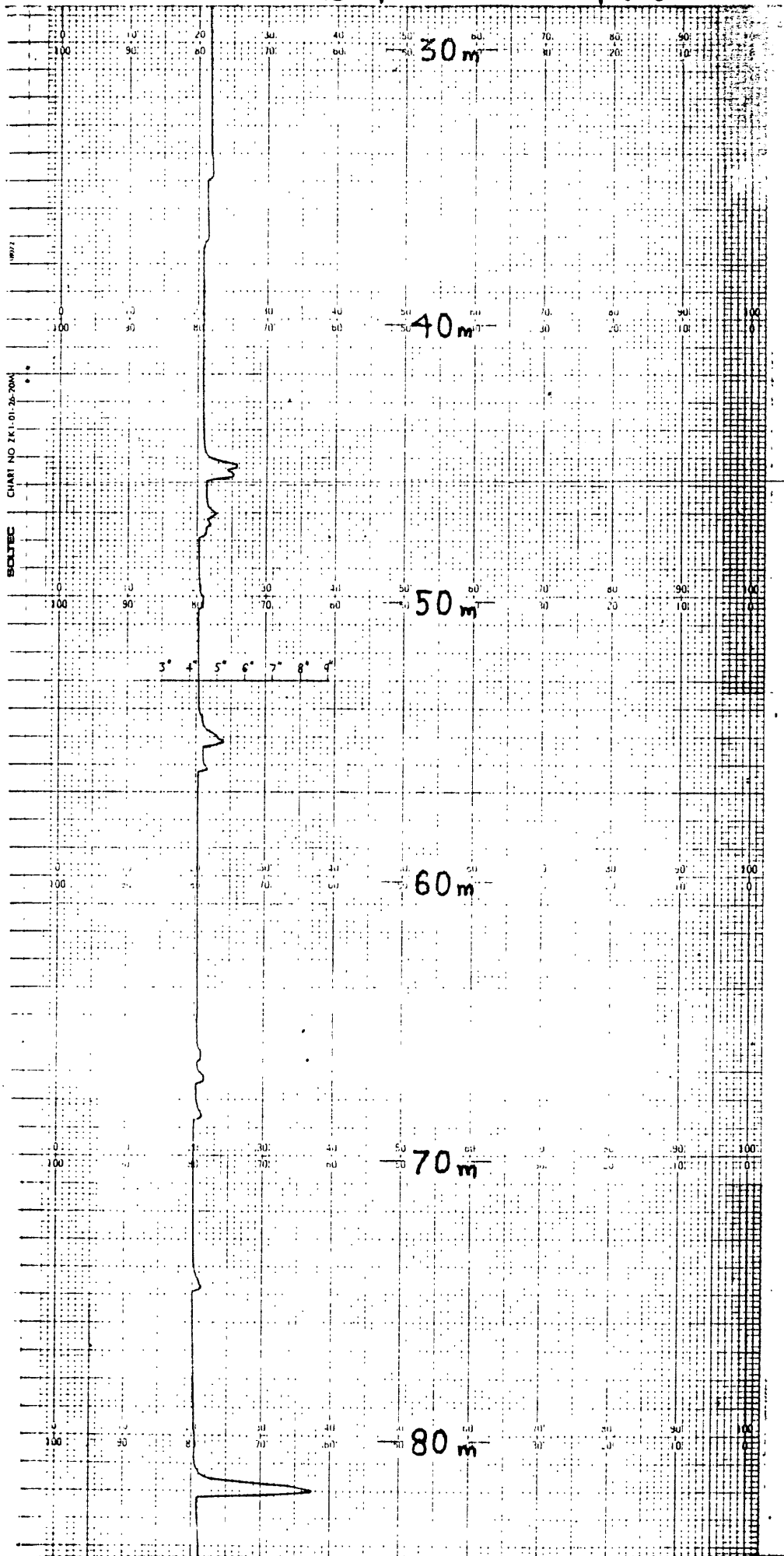
DATE: March - 19, 1987

LOCATION			HOLE DATA			CLIENT		
STATE/COUNTY	Sind Pakistan		DEPTH DRILLED	177 m		CLIENT	USGS / GSP	
REGION	Thamir		DEPTH LOGGED	174 m		GEOLOGIST		
PROJECT	Coal Reas.		COLLAR ELEV			UNIT OPERATOR	ILYAS / MUTE	
PROSPECT			DIA	FROM	TO	UNIT NO	PL-2	
SEC	TWP	RNG	DIA	FROM	TO	OFFICE	BOULDER COLORADO USA	
TYPE	GAM		DIA	FROM	TO	ELECTRIC		
LOGGED DEPTH			BOREHOLE MEDIUM			TYPE	RESIST	S.P.
RANGE (ft.)			FLUID LEVEL			LOGGED DEPTH	FT	FT
%STD DEV			CASING DATA			SCALE		
PAPER SPEED			WALL SIZE	NONE		PAPER SPEED		
LOG SPEED			ID			LOG SPEED		
BKGND. COUNT			CASED FROM	FO		LOG ADJ.		
PROBE NO.			CASING TYPE			3 Arms CALIPER		
SIZE (dia.)			SAMPLE DATA			LOGGED DEPTH	174 m	
K-FACTOR			NON-CORED HOLE	CORED HOLE X		SCALE		
DEAD TIME			SAMPLED INTERVAL	SAMPLE TYPE		PAPER SPEED	1-1	
STANDARD			REMARKS			LOG SPEED	6-1	
DIGITAL DATA						ARM LENGTH	30	
PRINT INTERVAL						MAX DEF.		
TIMEBASE						VERTICAL DEV.		
DENSITY CALIBRATION						DEPTH		
ALUMINUM						INCLIN		
LUCITE						BEARING		



UAJ-1

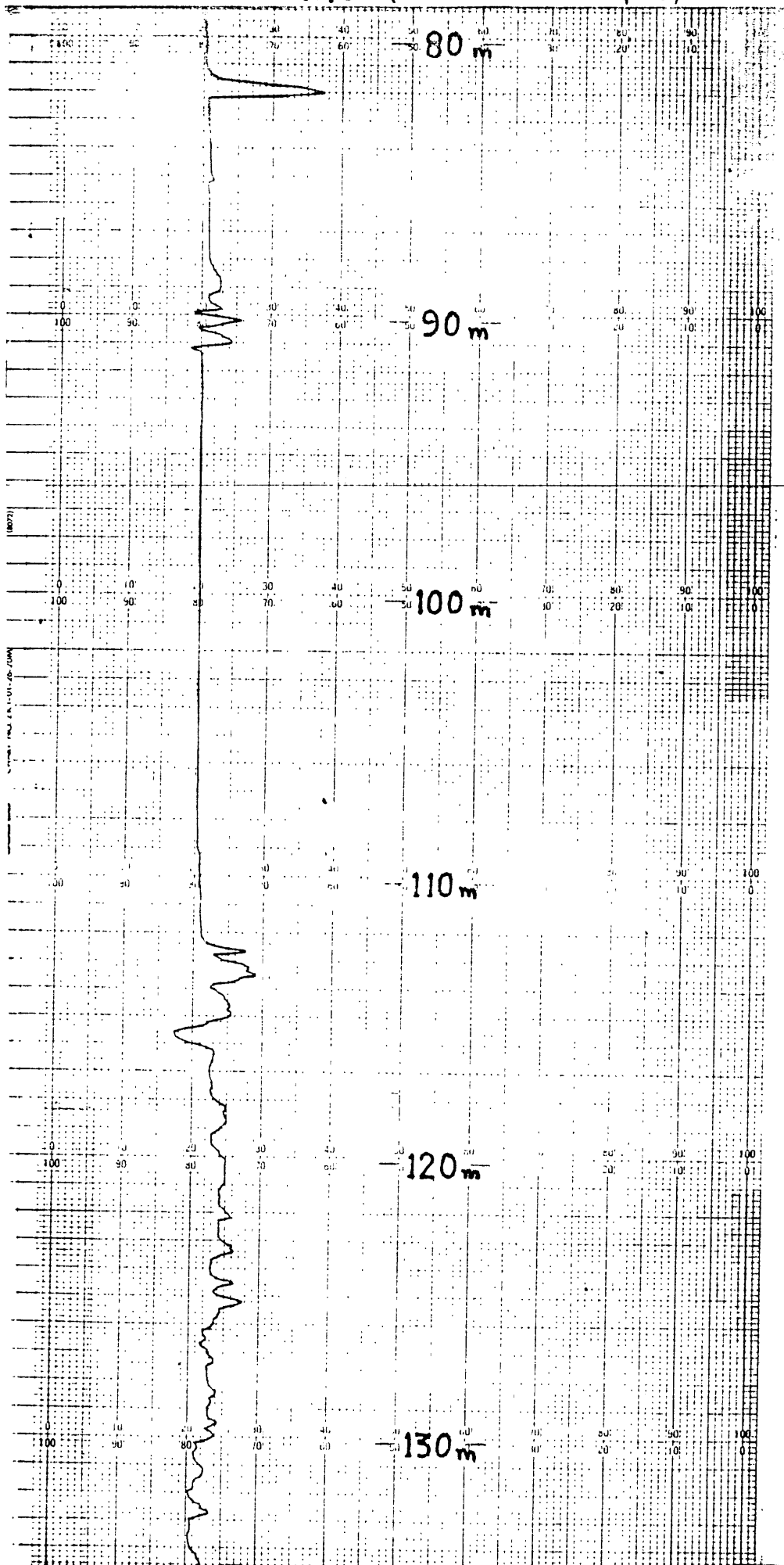
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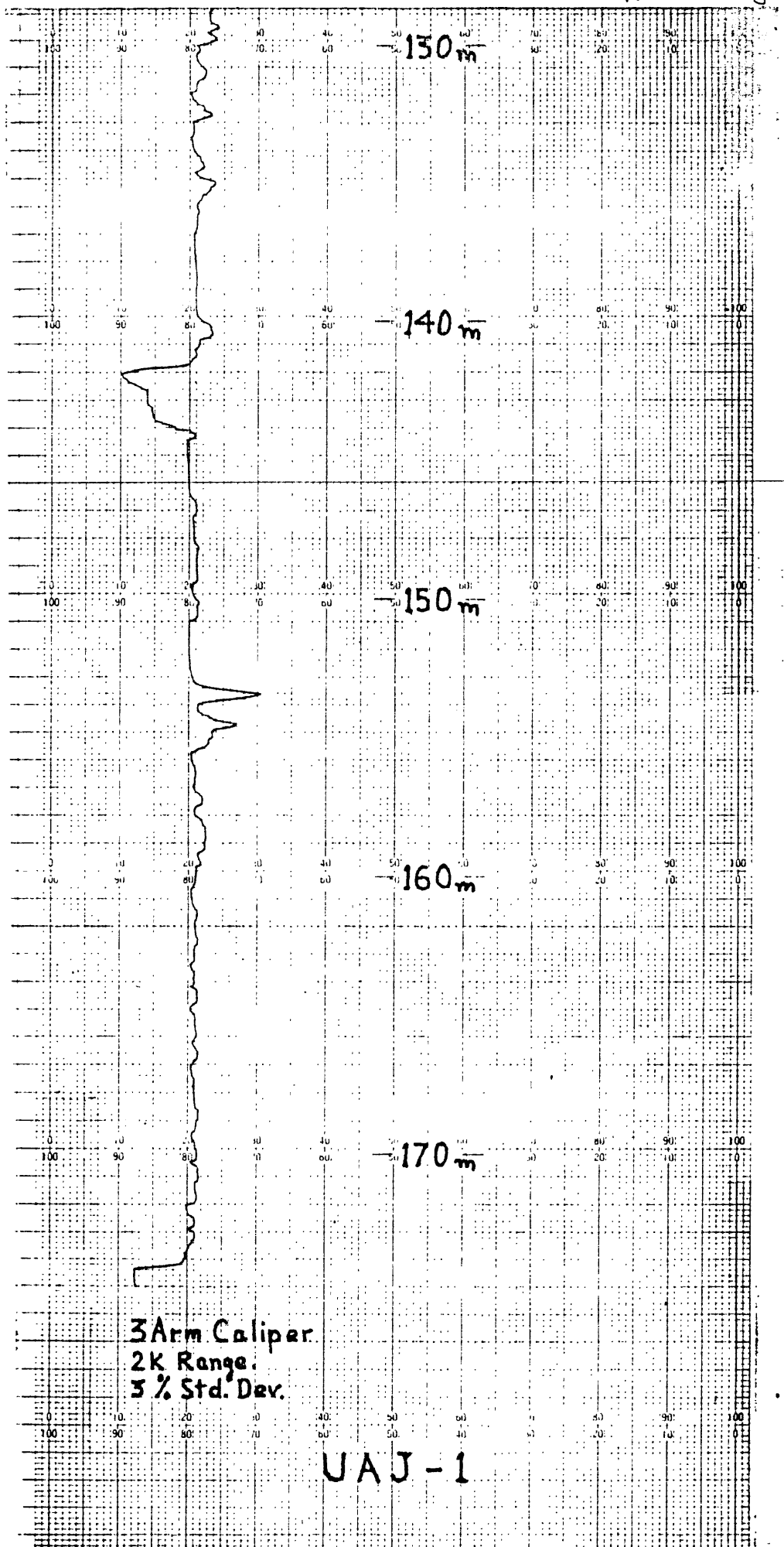
UAJ-1

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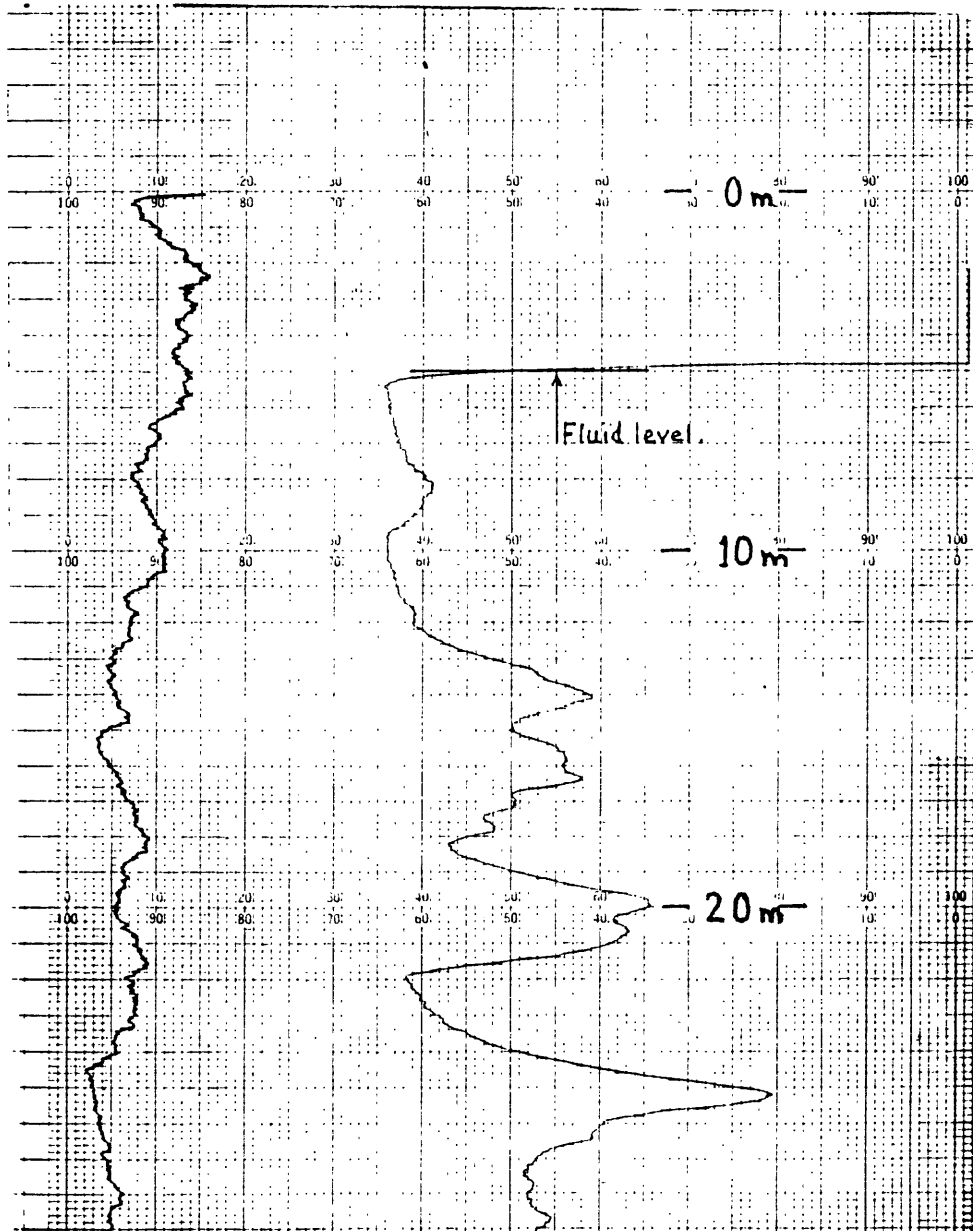


# GEOSCIENCE ASSOCIATES P.182

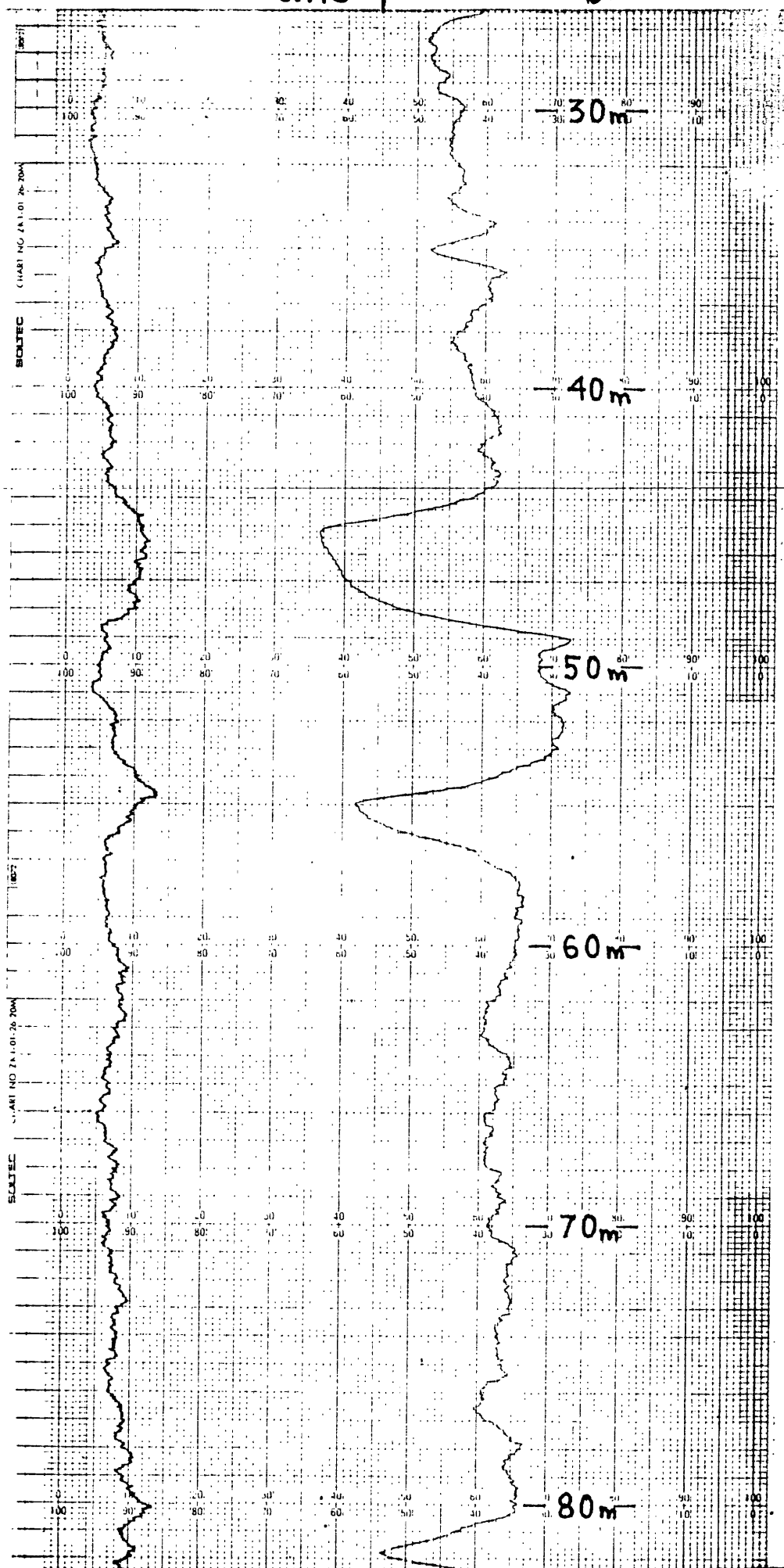
HOLE NUMBER: LAJ - 1

DATE: March - 19 - 1987

LOCATION			HOLE DATA			CLIENT				
STATE/COUNTY	Sind Pakistan		DEPTH DRILLED	177 m		CLIENT	USGS / GSP			
REGION	Thampur		DEPTH LOGGED	170 m		GEOLOGIST				
PROJECT	Coal Reap		COLLAR ELEV			UNIT OPERATOR	M. J. VAS / M. J. VAS			
PROSPECT			DIA	See	FROM 10	UNIT NO	PL-2			
SEC	TWP	RNG	DIA	Caliper	FROM 10	OFFICE	Colorado USA			
			DIA	Log	FROM 10	BOULDER				
TYPE	GAM	Neutron	HOE/HOLE MEDIUM	Water + Mud		ELECTRIC				
LOGGED DEPTH	168 m	170 m	FLUID LEVEL	5 m		TYPE	RESIST	S P		
RANGE (1 s)	100	500	CASING DATA			LOGGED DEPTH	FT	FT		
%STD DEV	3	7	WALL SIZE			SCALE				
PAPER SPEED	1-1	1-1	ID	NONE		PAPER SPEED				
LOG SPEED	6-1	6-1	CASED FROM	TO		LOG SPEED				
BKGND. COUNT			CASING TYPE			FINE ADJ				
PROBE NO.	GM-1	GM-2	SAMPLE DATA			CALIPER				
SIZE (dia)	1 1/4"	1 3/8"	NON CORED HOLE	CORED HOLE *		LOGGED DEPTH	FT			
K-FACTOR			SAMPLED INTERVAL	SAMPLE TYPE		SCALE				
DEAD TIME	2	2	REMARKS			PAPER SPEED				
STANDARD			Logged through Drill pipes			LOG SPEED				
DIGITAL DATA						ARM LENGTH			100	
PRINT INTERVAL						MAX DEF			100	
TIMEBASE						VERTICAL DEV.				
DENSITY CALIBRATION						DEPTH				
ALUMINUM						INCLIN				
LUCITE						BEARING				

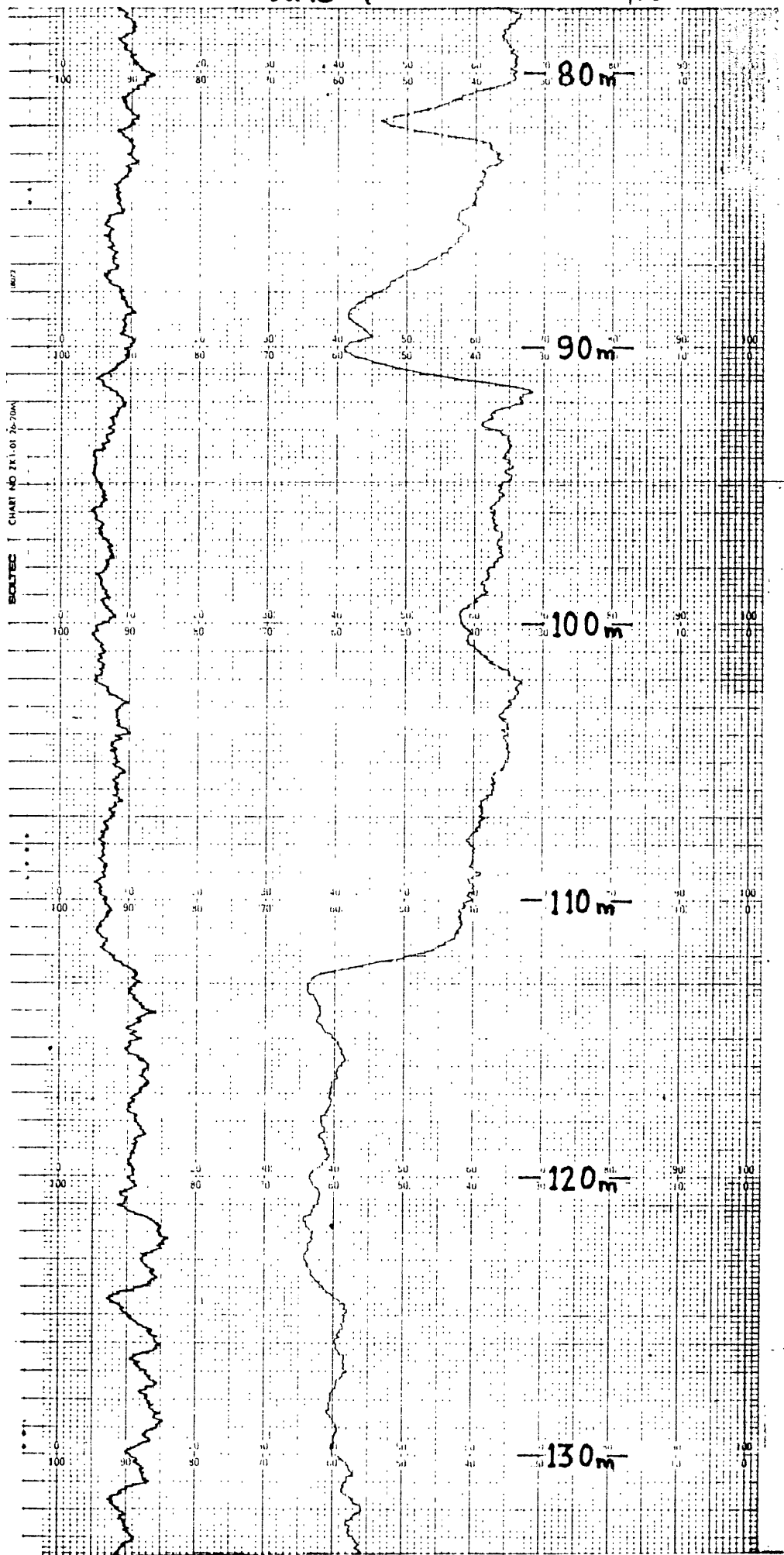


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