

SCHLUMBERGER

BOREHOLE COMPENSATED
SONIC LOG (WITH CALIPER)

COUNTY	SPAIN	COMPANY	CIEPSA	20168
FIELD or LOCATION	ROJAS	WELL	ROJAS 1	
WELL	ROJAS 1	FIELD	ROJAS	
COUNTY	SPAIN	STATE	BURGOS	
LOCATION		Other Services:	L - GEN	
Sec. _____	Twp. _____	Rge. _____		
Permanent Datum: _____	KB	Elev. _____	918.35	
Log Measured From: _____	KB	Fl. Above Perm. Datum		
Drilling Measured From: _____	KB	D.F. _____		
		G.L. _____	914.70	
Date	January 26, 1969			
Run No.	2			
Depth—Driller	1100.7			
Depth—Logger	1102			
Btm. Log Interval	1100.8			
Top Log Interval	750			
Casing—Driller	13 3/8 @ 200			
Casing—Logger	200			
Bit Size	12 1/4"			
Type Fluid in Hole	Bentonite			
Dens. _____	1.21	Visc. _____	40	
pH _____	10	Fluid Loss _____	ml	
Source of Sample	Circulation			
R _m @ Meas. Temp.	1.45 @ 52 °F			
R _{mf} @ Meas. Temp.	1.05 @ 65 °F			
R _{mc} @ Meas. Temp.	1.05 @ 65 °F			
Source: R _{mf} _____	Bartold			
R _m @ BHT	0.85 @ 90 °F			
R _{mf} @ BHT	4 BRS.			
R _{mc} @ BHT	4 BRS.			
Time Since Circ.	90			
Max. Rec. Temp.	90			
Equip. Location	D. STARRA			
Witnessed By	Mr. LUDWIG ARBS			

The well name, location and borehole reference data were furnished by the customer.

REMARKS

Changes in Mud Type or Additional Samples		Scale Changes	
Date	Sample No.	Type Log	Depth
Depth—Driller			
Type Fluid in Hole			
Dens. _____	Visc. _____		
pH _____	Fluid Loss _____		
Source of Sample			
R _m @ Meas. Temp.	@ °F	Run No.	Tool Type
R _{mf} @ Meas. Temp.	@ °F	1	BHC
R _{mc} @ Meas. Temp.	@ °F		Tool Position
Source: R _{mf} _____	R _{mc} _____		CENTERED
R _m @ BHT	@ °F		Other
R _{mf} @ BHT	@ °F		
R _{mc} @ BHT	@ °F		

C.D.: _____ S.O.: _____
Equip. Used: CART. No. SLC - B 234
PANEL No. SLP - B 225
SONDE No. SLS - D 222
VCD - D 787

$$\text{Velocity (feet per second)} = \frac{1,000,000}{\text{Interval Transit Time (microseconds per foot)}}$$

INTERVAL TRANSIT TIME

MICROSECONDS PER FOOT

T 3 R₁ 2 R₂

140	90	40
190		140

CALIPER

HOLE DIAM. IN INCHES

6" 16"

AMPLITUDE

MILLIVOLTS

0

DOWN HOLE CALIBRATION AFTER SURVEY

DOWN HOLE CALIBRATION BEFORE SURVEY

CALIPER

HOLE DIAM. IN INCHES

6" 16"

1/1000

T 3 R₁ 2 R₂

140	90	40
190		140

INTERVAL TRANSIT TIME

MICROSECONDS PER FOOT

COMPANY CIEPSA
WELL ROJAS 1
FIELD ROJAS
COUNTY SPAIN STATE BURGOS

SCHL. FR 1100.8
SCHL. TD 1102
DRLR TD 1100.7
Elev: KB 918.35
DF
GL 914.70

COMPANY		C I E P S A	
WELL		20163 ROJAS 1	
FIELD		ROJAS	
COUNTRY	SPAIN	STATE	BURGOS
Location :		N. 4.	
Permanent Datum		K. B.	Elev. : 916,35
Log Measured From		K. B.	Fl. Above Perm. Datum
Drilling Measured From		K. B.	Fl. Above Perm. Datum
RUN No. 1	Depth Scale	2	1,1000
Date	January 28, 1969		
First Reading	1100,8		
Last Reading	750,8		
Interval Measured	350,8		
Casing Schlumberger	200		
Casing Driller	1102		
Depth Reached	1100,7		
Bottom Driller	Bentoni 18		
Mud Nature	1,21	40	
Density 1 Viscosity	1,45	52	F
Mud Resistivity	0,65	90	F
pH Fluid Loss	10	CC/30 min.	
Origin of Sample	1100,7	CC/30 min.	
Rmt	1,05	65	F
Rmc	1,05	65	F
Bit Size	12 1/4"	To 1102	To
Casing Size	13 3/8"	To 1102	To
Operating Rig Time	1 1/2 HRS.		
Truck No.	4504		
Recorded By	D. SIERRA		
Witness	Mr. JUANMARRAS		

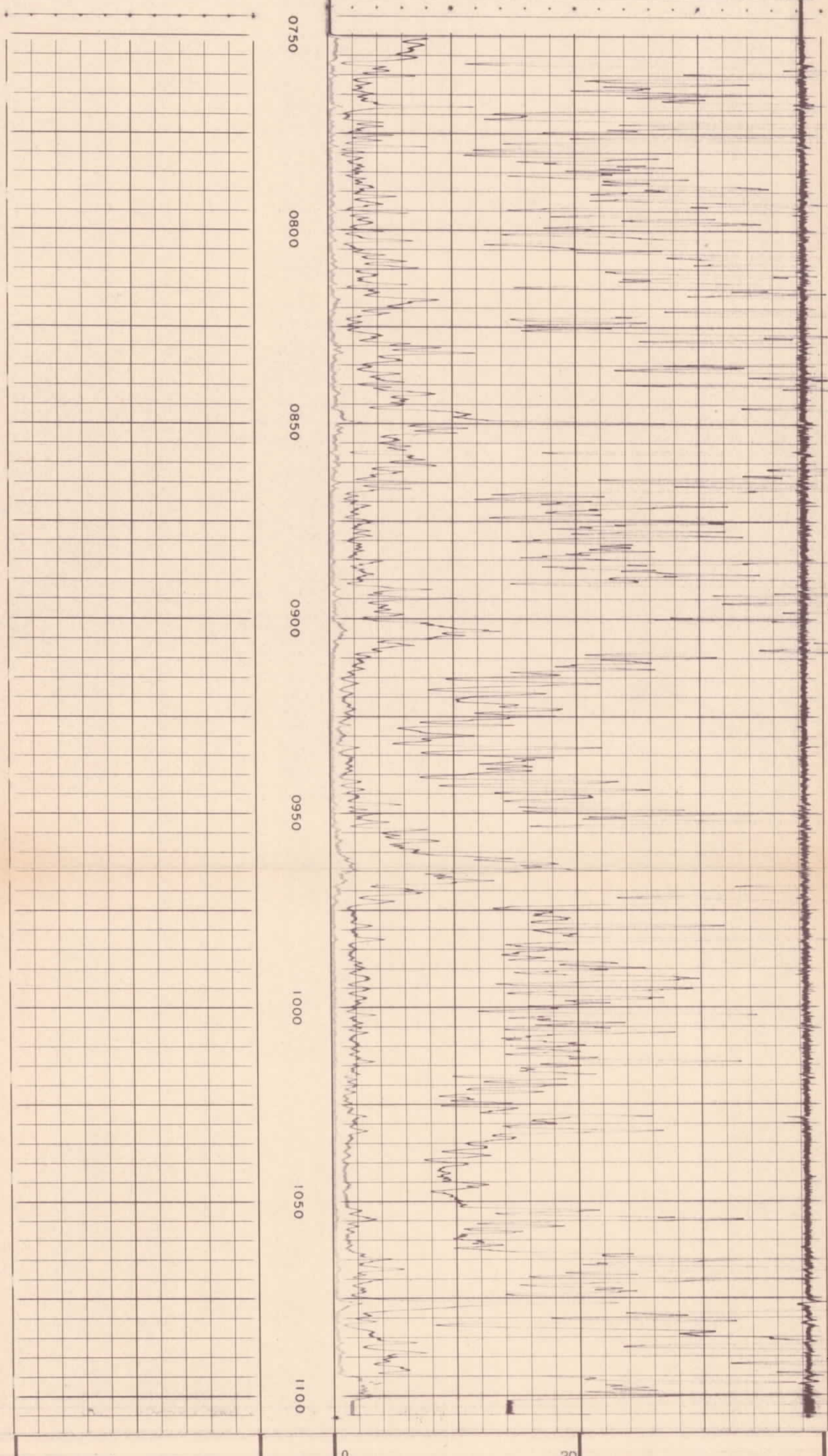
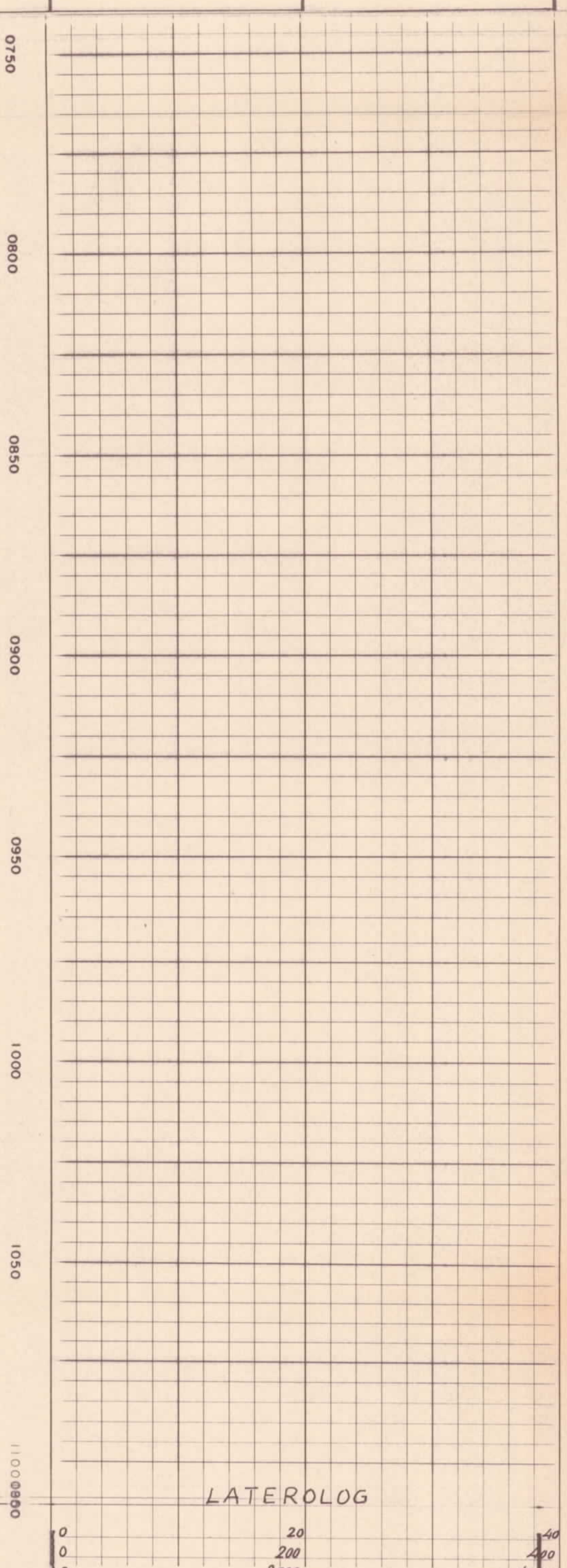
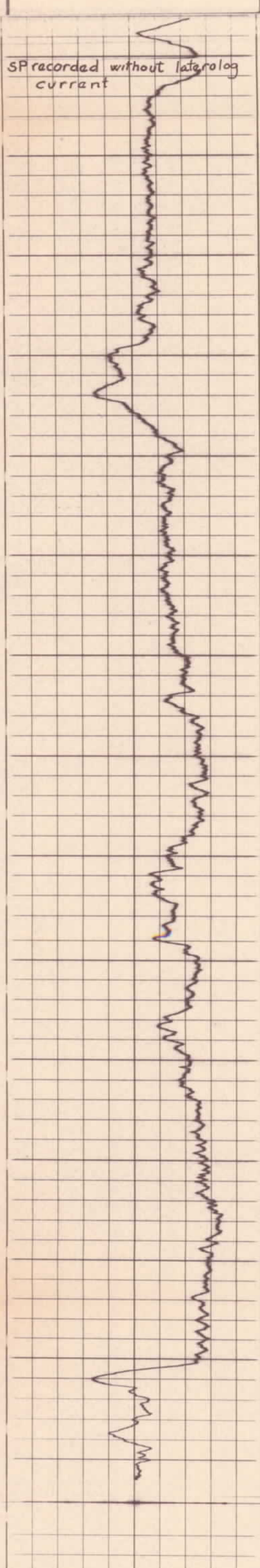
LATEROLOG 7
Beam Width : 32"

REMARKS

SP recorded without current

RECORDING DATA		EQUIPMENT DATA	
RUN No	1	RUN No	1
SP Electrode	AO	Panel	LLP - D 706
Monitor Sens.	HIGH	Sonde	LLS - K 716

SPONTANEOUS POTENTIAL	DEPTHS	RESISTIVITY	RESISTIVITY
millivolts		ohms - m ² /m	ohms - m ² /m
10 mv - +	1/1000	0 20 200 2000	



SPONTANEOUS POTENTIAL	DEPTHS	RESISTIVITY	RESISTIVITY
millivolts		ohms - m ² /m	ohms - m ² /m
10 mv - +	1/1000	0 20 200 2000	

COMPANY C I E P S A

WELL ROJAS 1

FIELD ROJAS

COUNTRY SPAIN

STATE BURGOS

SCHL F.R. 1100,8

SCHL T.D. 1102

DRLR T.D. 1100,7

COUNTRY	SPAIN	COMPANY	CIEPSA
FIELD	ROJAS	WELL	ROJAS 1
WELL	ROJAS 1	20168	
FIELD	ROJAS		
COUNTRY	SPAIN	STATE	BURGOS
Location	N.A.	Other Services	BSIC-JEN-CBL
Permanent Datum	K.B.	Elev.	918.35
Log Measured From	K.B.	Ft. Above Perm. Datum	
Drilling Measured From	K.B.	G.L.	914.70
RUN No. 1 Depth Scale	3	1/1000	
Date	14 February 1969		
First Reading	1364		
Last Reading	1101		
Interval Measured	263		
Casing Schlumberger	1101		
Casing Driller	1100		
Depth Reached	1365.2		
Bottom Driller	1365		
Mud Nature	Bentonite salt saturated		
Density 1 Viscosity	1.27 40		
Mud Resistivity	0.075 @ 41 °F		
Mud Resistivity BHT	0.036 @ 95 °F		
pH 1 Fluid Loss	11 3.8 CC/30 min.		
Origin of Sample	Circulation		
Rmt	0.051 @ 60 °F		
Rmc	- @ °F		
Bit Size	8 1/2" To 1365.2		
Casing Size	9 5/8"		
Operating Rig Time	1 1/2 HRS		
Tuck No	4504		
Recorded By	D. SIERRA		
Witness	MR. LINAZAROS		

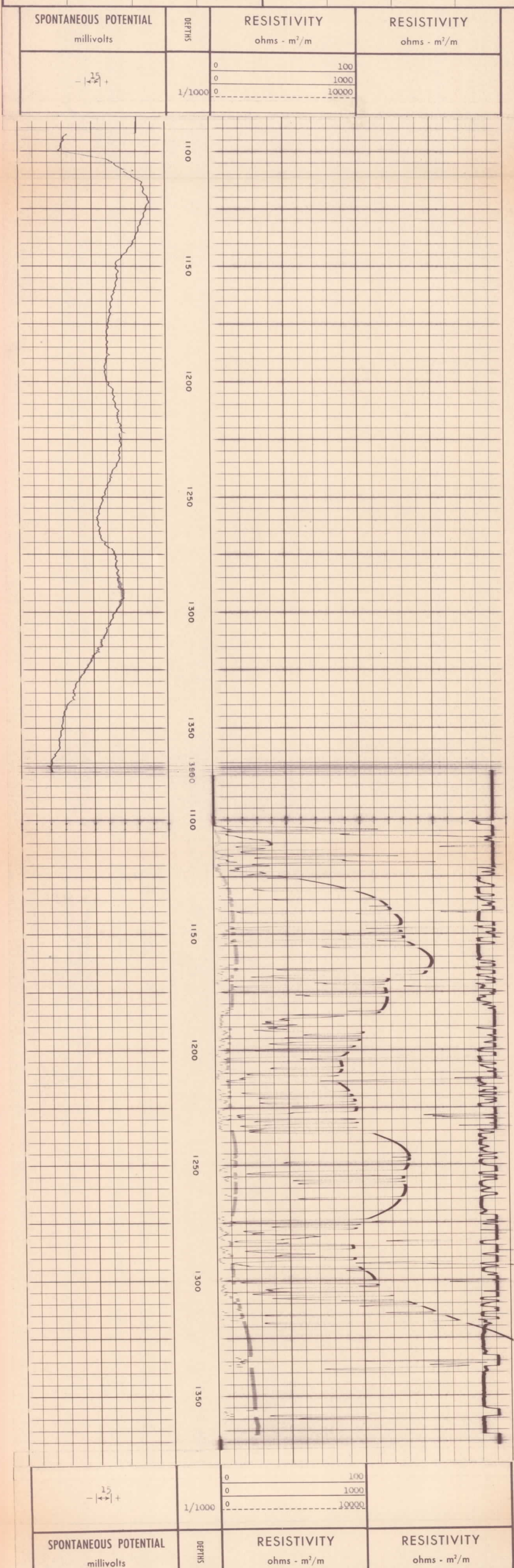
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REMARKS

SP recorded without current

LATEROLOG 7
Beam Width : 32"

RECORDING DATA		EQUIPMENT DATA	
RUN No	3	RUN No	3
SP Electrode	Ao	Panel	LLP - D 706
Monitor Sens.	HIGH	Sonde	LLS - K 716



COMPANY CIEPSA
WELL ROJAS 1
FIELD ROJAS
COUNTRY SPAIN

STATE BURGOS

SCHL. F.R. 1364
SCHL. T.D. 1365.2
DRLR. T.D. 1365

SCHLUMBERGER

BOREHOLE COMPENSATED
SONIC LOG - GAMMA RAY

COUNTY	SPAIN
FIELD or LOCATION	ROJAS
WELL	1
COMPANY	CIEPSA
WELL	20168
FIELD	ROJAS
COUNTY	SPAIN
STATE	BURGOS
LOCATION	Other Services:
Sec.	Twp.
Age	IL - 7
Permanent Datum:	K.B. Elev. 918.35
Log Measured From:	K.B. F. Above Perm. Datum
Drilling Measured From:	K.B. G.L. 914.70
Date	January 11th, 1969
Run No.	1
Depth—Driller	797
Depth—Logger	794.5
Blm. Log Interval	791.3
Top Log Interval	200
Casing—Driller	13 3/8" 200
Casing—Logger	200
Bit Size	12 1/4
Type Fluid in Hole	Bentonite
Dens.	1.14
Visc.	40
pH	9.5
Fluid Loss	5 ml
Source of Sample	27/5 @ 45' F
R _m @ Meas. Temp.	N.A. @ °F
R _{mf} @ Meas. Temp.	N.A. @ °F
R _{mc} @ Meas. Temp.	N.A. @ °F
Source: R _{mf}	R _{mc}
R _m @ BHT	2 HRS. @ °F
R _{mf} @ BHT	2 HRS. @ °F
R _{mc} @ BHT	2 HRS. @ °F
Max. Rec. Temp.	4504 °F
Equip. Location	4504 GOS
Witnessed By	Mr. PARADINAS

The well name, location and borehole reference data were furnished by the customer.

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REMARKS		Caliper recorded 2,30 m. too high	
Changes in Mud Type or Additional Samples		Scale Changes	
Date	Sample No.	Type Log	Depth
Depth—Driller		Scale Up Hole	Scale Down Hole
Type Fluid in Hole			
Dens.	Visc.	Equipment Data	
ph	Fluid Loss	Run No.	Tool Type
Source of Sample		1	BHC
R _m @ Meas. Temp.	@ °F	Pad Type	Tool Pos.
R _{mf} @ Meas. Temp.	@ °F		CENTERED
R _{mc} @ Meas. Temp.	@ °F		
Source: R _{mf}	R _{mc}		
R _m @ BHT	@ °F		
R _{mf} @ BHT	@ °F		
R _{mc} @ BHT	@ °F		
C.D.	S.O.		
Equip. Used:	CART. No.		
	PANEL No.		
	SONDE No.		

CALIBRATION:	BACKGND.	SOURCE	GALV. INCR.	SENS. TAP	SENS. TAP	TIME	RECORDING
	CPS.	CPS.	DIVISIONS	(FOR CAL.)	(RECORD)	CONST.	SPEED (FT./MIN.)
GAMMA RAY:	40	410	8.5	500	300	3	6 m/min.

$$\text{Velocity (feet per second)} = \frac{1,000,000}{\text{Interval Transit Time (microseconds per foot)}}$$

GAMMA RAY

API UNITS

DEPTHS

INTERVAL TRANSIT TIME

MICROSECONDS PER FOOT

T_{3R1} 2 R₂

CALIPER

HOLE DIAM. IN INCHES

1/1000

GAMMA RAY

API UNITS

DEPTHS

INTERVAL TRANSIT TIME

MICROSECONDS PER FOOT

COMPANY CIEPSA
WELL 1
FIELD ROJAS
COUNTY SPAIN STATE BURGOS

SCHL. FR. 791.3
SCHL. TD. 794.5
DRLR TD. 797
Elev. KB 918.35
DF 914.70
GL 914.70

SCHLUMBERGER

BOREHOLE COMPENSATED
SONIC LOG (WITH CALIPER)COUNTY SPAIN
FIELD or LOCATION ROJAS
WELL ROJAS 1COMPANY CIEPSACOMPANY CIEPSA
WELL ROJAS 1
FIELD ROJAS
COUNTY SPAIN STATE BURGOS
LOCATION N.A.
Sec. Twp. Rge.
Other Services:
L - GRN - CBLPermanent Datum: KB, Elev. 918.35
Log Measured From: KB, Fl. Above Perm. Datum
Drilling Measured From: KB
Elev.: K.B. 918.35
D.F. 914.70
G.L. 914.70Date 14 February 1969Run No. 3
Depth—Driller 1365
Depth—Logger 1365.2
Bim. Log Interval 1364
Top Log Interval 1101
Casing—Driller 9 5/8 @ 1100
Casing—Logger 1101
Bit Size 8 1/2"
Type Fluid in Hole BentoniteDens. Visc. 1.27 40
pH 11 3.8 ml
Source of Sample Circulation
R_m @ Meas. Temp. 0.075 @ 41 °F
R_{mf} @ Meas. Temp. 0.051 @ 60 °F
R_{mc} @ Meas. Temp. 0.051 @ 60 °F
Source: R_{mf} Batchold R_{mc} Batchold
R_m @ BHT 0.036 @ 95 °F
R_{mf} @ BHT 2 HRS.
R_{mc} @ BHT 2 HRS.Time Since Circ. 95 °F
Max. Rec. Temp. 4504 °F
Equip. Location D. SIERRAWitnessed By Mr. LLAMAZARES

The well name, location and borehole reference data were furnished by the customer.

REMARKS

Changes in Mud Type or Additional Samples				Scale Changes			
Date	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole		
Depth—Driller							
Type Fluid in Hole							
Dens.	Visc.						
ph	Fluid Loss		ml				
Source of Sample							
R _m @ Meas. Temp.	@	°F	@	°F	Run No.	Tool Type	Tool Position
R _{mf} @ Meas. Temp.	@	°F	@	°F	3	BHC	CENTERED
R _{mc} @ Meas. Temp.	@	°F	@	°F			
Source: R _{mf}	R _{mc}						
R _m @ BHT	@	°F	@	°F			
R _{mf} @ BHT	@	°F	@	°F			
R _{mc} @ BHT	@	°F	@	°F			

C.D.: S.O.:
Equip. Used: CART. No. SLC - B 234
PANEL No. SLP - B 225
SONDE No. SLS - D 222
VCD - D 787Velocity (feet per second) = $\frac{1,000,000}{\text{Interval Transit Time (microseconds per foot)}}$ SPONTANEOUS-POTENTIAL
MILLIVOLTS

— ↔ +

CALIPER
HOLE DIAM. IN INCHES

6" 16"

DEPTHS

1/1000

1050

1100

1150

1200

1250

1300

1350

CALIPER
HOLE DIAM. IN INCHES

— ↔ +

SPONTANEOUS-POTENTIAL
MILLIVOLTS

DEPTHS

1/1000

INTERVAL TRANSIT TIME
MICROSECONDS PER FOOTT 3 R₁ 2 R₂

140

90

40

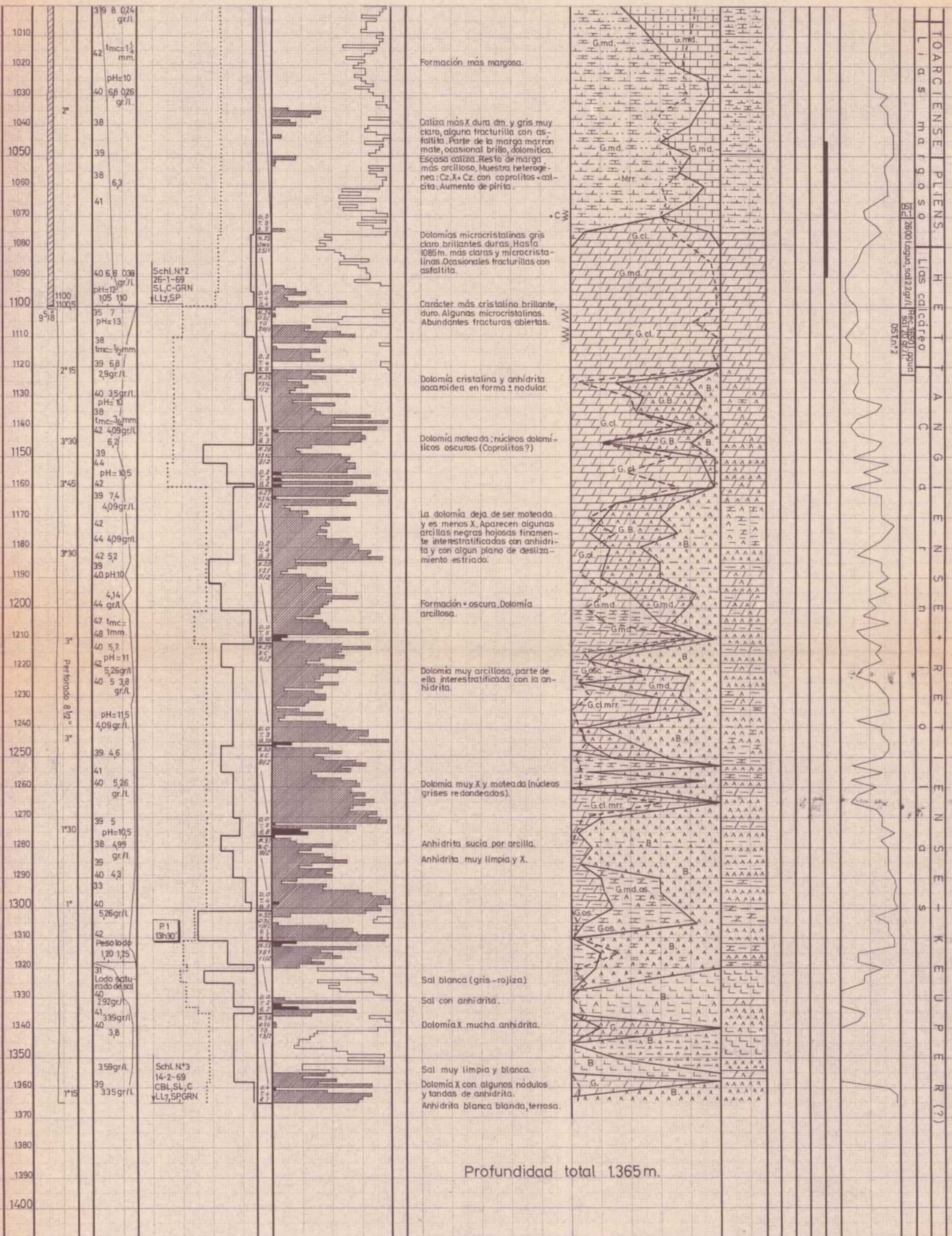
T 3 R₁ 2 R₂

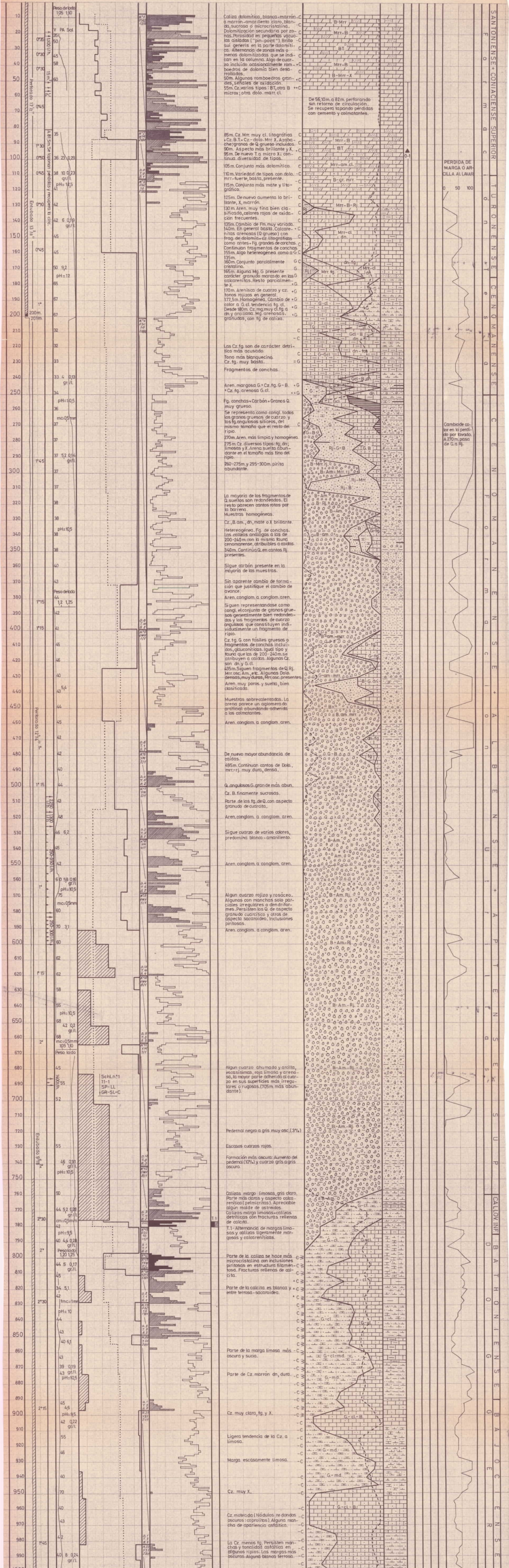
140

90

40

INTERVAL TRANSIT TIME
MICROSECONDS PER FOOTCOMPANY CIEPSA
WELL ROJAS 1
FIELD ROJAS
COUNTY SPAIN STATE BURGOSSCHL. FR 1364
SCHL. TD 1365.2
DRLR TD 1365
Elev.: KB 918.35
DF 914.70
GL 914.70





Departamento de Exploración.CIEPSA(Vitoria).Diagrama del Sondeo ROJAS-1

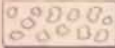
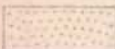
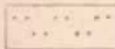
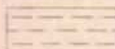
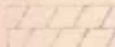
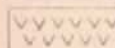
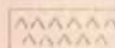
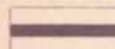
Provincia	Burgos	Latitud	42° 33' 12"	Elevación Mesa	918,35 m.	(Sobre el NM.en Alicante)
Permiso	Miranda de Ebro	Longitud	0° 14' 07"	Elevación Tierra	914,70 m.	(Sobre el NM.en Alicante)
Equipo	EMSCO-450	Iniciado	13-12-1968	Terminado	14-2-1969	Profundidad Total 1.365 m. Resultado Seco
Entubados	13 ³ / ₈ " a 200 m. - 9 ⁵ / ₈ " a 1.100 m.					

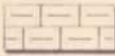
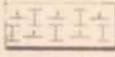
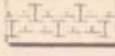
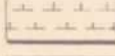
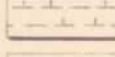
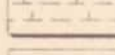
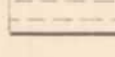
Control Geológico A. R. Paradinas - P. Llamazares

CV. 274 ③

COPIA N° DESTINO

- LITOLOGIA -

	Conglomerados (Cong.) > 2 mm.	
	Arenisca (Aren.) MG. Muy gruesa 1-2 mm. G. Gruesa 1/2-1 mm. M. Media 1/4-1/2 mm. F. Fina 1/8-1/4 mm. MF Muy fina 1/16-1/8 mm.	
	Limolita (Lim.) 1/16-1/256 mm.	
	Arcilla (All.) < 1/256 mm.	
(Adaptado de Wentworth)		
	Dolomia (Dol.) ▽ Pedernal	
	Yeso (Y.)	g. Glauconita × Cristalino
	Anhidrita (A.)	c. Calcita T. Terroso
	Carbón (Car.)	s. Siderita > Fracturas
Frecuencia	‡ Muy abundante	- Escaso
	+ Abundante	= Presente

	Caliza (Cz.)	(>95%) (CO_3Ca)
	Caliza margosa	(85-95%)
	Marga muy calcárea	(75-85%)
	Marga calcárea	(65-75%)
	Marga (Mg.)	(35-65%)
	Marga arcillosa	(35-25%)
	Marga muy arcillosa	(25-15%)
	Arcilla margosa	(15-5%)
	Arcilla	(<5%)

(Adaptado de Correns-Vatan)

Caliza : dn. Densa

fos. Fosilífera con matriz densa o cristalina.

fg. Calcarenita.

- COLOR -

Claridad: Claro(cla.) Medio(md.) Oscuro(osc.)	
Intensidad: Pálido(pal.) Fuerte(ft.)	
Tono: Rojo(Rj.)	Blanco(B.)
Naranja(Nj.)	Gris muy claro
Marrón(Marr)	Gris claro
Amarillo(Am.)	Gris medio claro
Verde(Vd.)	Gris medio(G.)
Azul(Az.)	Gris medio oscuro
Violeta(Vt.)	Gris oscuro
	Gris muy oscuro
	Negro(N.)
(Adaptado de Munsell)	

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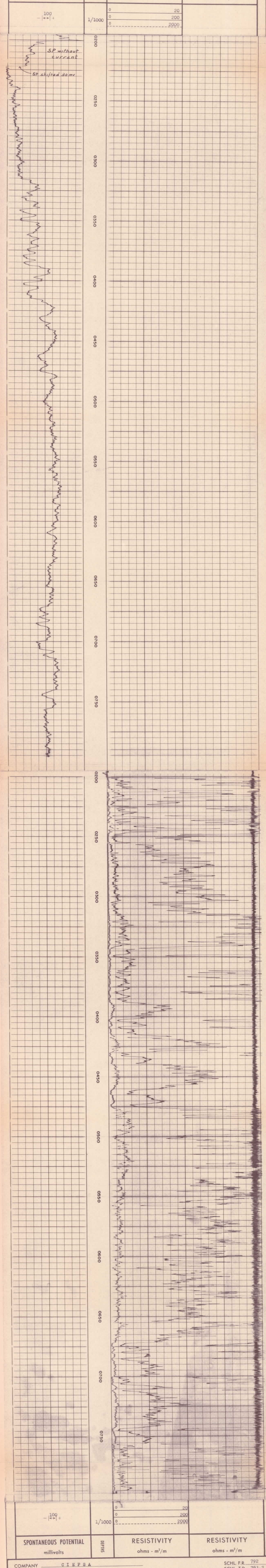
COMPANY		C I E P S A	
WELL		20168 1	
FIELD		ROJAS	
COUNTRY	SPAIN	STATE	BURGOS
Location :		Other Services :	
		BS98C	
Permanent Datum	K.B.	Elev. :	918.35
Log Measured From	K.B.	Fi. Above Perm. Datum	D. F.
Drilling Measured From	K.B.	Fi. Above Perm. Datum	G. L. 914.70
Run No. 1 Depth Scale	1	1/1000	
Date	January 11th, 1969		
First Reading	792		
Least Reading	200		
Interval Measured	592		
Logging Schlumberger	200		
Casing Driller	200		
Depth Reached	793.2		
Bottom Driller	797		
Mud Nature	Bentonite		
Density 1 Viscosity	1.14 40		
Mud Resistivity	2.75 46		
pH 1 Fluid Loss	9.5 6		
Origin of Sample	CC/30 min.		
Ref.			
Bit Size	12 1/4		
From	1		
To	797		
Casing Size	13 3/8		
Operating Rig Time	3 BHS		
Track No	4504		
Recorded By	D. SIERRA		
Witness	M. PARADINAS		

FOLD HERE

LATEROLOG 7
Beam Width : 32"

REMARKS

RECORDING DATA		EQUIPMENT DATA	
RUN No	1	RUN No	1
SP Electrode	AO	Panel	LLP - D 706
Monitor Sens.	HIGH	Sonde	LLS - K 716

SCHL F.R. 792
SCHL T.D. 793.2
DRLR T.D. 797COMPANY C I E P S A
WELL 1
FIELD ROJAS
COUNTRY SPAIN

STATE BURGOS

[illegible]