[redacted] LASMO International Oil Development Ltd

ARCHIVIO POZZI

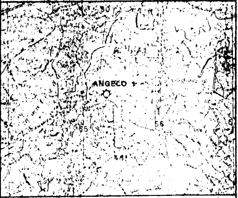
ANGELO - 1 COMPOSITE LOG [redacted]

E/PROF

5131 BN

AREA	: CENTRAL SICILY-ITALY	LOCATION	: 37 28'59'',358 N
BLOCK	: —		14 29'39'',407 E
PERMIT	: PERGUSA	UTM	: 4.148.855,79 N
RIG	: DELTA N° 9		455.345,35 E
CONTRACTOR	: DELTA OVERSEAS DRILLING Co.	KB ELEVATION	: 482.52 m
SPUD DATE	: 5th MAY 1986	GROUND ELEV.	: 475.37m
TD REACHED	: 9th NOVEMBER 1986	TOTAL DEPTH	: 4326m DRILLER
COMPLETION	: 22nd NOVEMBER 1986		4330.5m LOGGER

LOCATION MAP



Prov. ENNA
Sheet IGM 269 - III NW
Com. AIDONE
Scale 1:25.000

Encl. A

FINAL STATUS : PLUGGED AND ABANDONED, GAS SHOWS

LICENCEE	SICILIA CANADA PETROLI SpA
MANDATORY	SANTA ROSA ITALIA Srl
GENERAL CONTRACTOR	LASMO INT.OIL DEV.Ltd
JOINT VENTURE	LASMO - PETREX - TRISTATE - SANTA ROSA

GEOLOGISTS	JERRY SMART RICCARDO LEONCINI ANTONIO PICA
PETROLEUM ENGINEER	NIGEL THORPE NIGEL CHARLESWOOD
DRILLING SUPERVISOR	G.DE GRANDIS K.TIGARD D.COOK R.DAVIS B.CRAWFORD J.RAMSEY D.SMAIL

MUD LOGGING	GEOSERVICES
WIRELINE LOGGING	SCHLUMBERGER IT.
VERTICAL SEISMIC PROFILE	SCHLUMBERGER IT.
CORING COMPANY	—
CORE ANALYSIS	—
BIOSTRATIGRAPHY	Dr. CLELIA PANSERI
GEOCHEMISTRY	GEARHART GEO CONSULTANTS

DRILLING DATA

HOLE SIZE	INTERVAL (FT MD)
26"	0 - 171 m
17½"	171 - 902 m
12¼"	902 - 3014 m
8½"	3014 - 4326m

DRILLING FLUID

INTERVAL (FT MD)	SYSTEM
0 - 171 m	BENTONITE MUD
171 - 4326m	OIL BASE MUD

CEMENT PLUGS

No	INTERVAL (FT MD)
1	3925 - 3860 m
2	3090 - 3025 m
3	2965 - 2890 m
4	150m to Cellor floor

CASING DATA

SIZE	TYPE	SHOE DEPTH (FT MD)	CEMENT
20"	GRADE K55 14 JOINTS 94 LB/FT	170 m	1120 SX CLASS A + NF-1, 1860 gr/lt
13⅜"	GRADE K55 72 JOINTS 68 LB/FT	898 m	LEAD 148 SX CLASS G + GEL 4% + KCL 3% + NF-10 25% + HR7 01%, 1960 gr/lt TAIL 40 SX CLASS G, NEAT, 1900 gr/lt
9⅝"	GRADE P110-FLOAT SHOE GRADE HC 95-117 JTS 53.5 LB/FT	3014 m	1st stage 85 MT-SX CLASS G + SSA-2 40% + HI DENSE 29% + CFR-3 1% + LAP-1 1% + HR 4-L 0.4%, 2100 gr/lt
"	GRADE P110 FLOAT COLLAR		2nd stage 196.3 MT-SX CLASS G + SSA-2 40% + HI DENSE 20% + CFR-3 1% + LAP-1 1% + CFR-3L 0.25% + HR-12 L 1%, 2170 gr/lt
"	GRADE P110-DV COLLAR		
"	GRADE N80 140 JTS 47 LB/FT		

LOGGING SUMMARY

DATE	LOG	RUN	INTERVAL (FT MD)	REMARKS
26-5-86	DIL-SLS-GR	1	169 - 899 m	
27-5-86	BGT-GR	1	169 - 900 m	
13-7-86	DIL-SLS-GR-CAL	2	896 - 2498 m	
29-8-86	CNL-GR	1	2493 - 3018.5 m	
30-10-86	DIL-SLS-GR-CAL	3	2960 - 4095.3 m	
30-10-86	LDL-CNL-GR-CAL	3	2960 - 4097.7 m	
30-10-86	HDT	1	3098 - 3400 m 3841 - 4102 m	
10-11-86	DIL-SLS-GR-CAL	4	4080 - 4326.9 m	
10-11-86	FDC-CNL-GR-CAL	4	896 - 4329 m	
30-10-86	VSP	1	40 - 4098 m	

CORE DATA

No	INTERVAL (FT MD)	FORMATION	RECOVERY	BIT TYPE	REMARKS
	NO CORES CUT				

RFT TEST

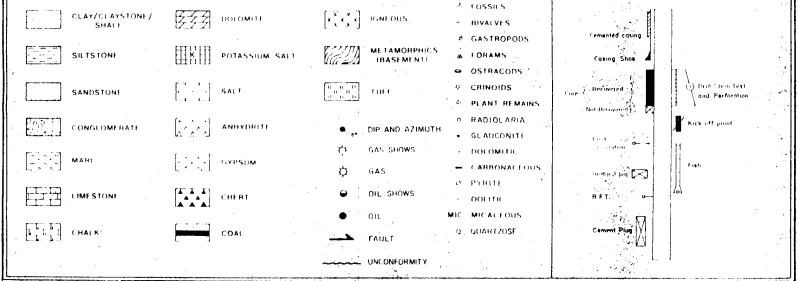
No.	DEPTH (FT MD)	HYDRO P (PSI)	F.M.P. (PSI)	REMARKS
1	2968 m		TIGHT	
2	3095.5		8700	WITH SAMPLING
3	3101		8709	
4	3106.5		8716	
5	3117		8733	
6	3128.5		TIGHT	
7	3911		11695	
8	3930		TIGHT	
9	3952.5		TIGHT	
10	3966		NO SEAL	
11	4001.5		TIGHT	
12	4016		TIGHT	
13	4027		10532	
14	4046		TIGHT	
15	4060.5		TIGHT	

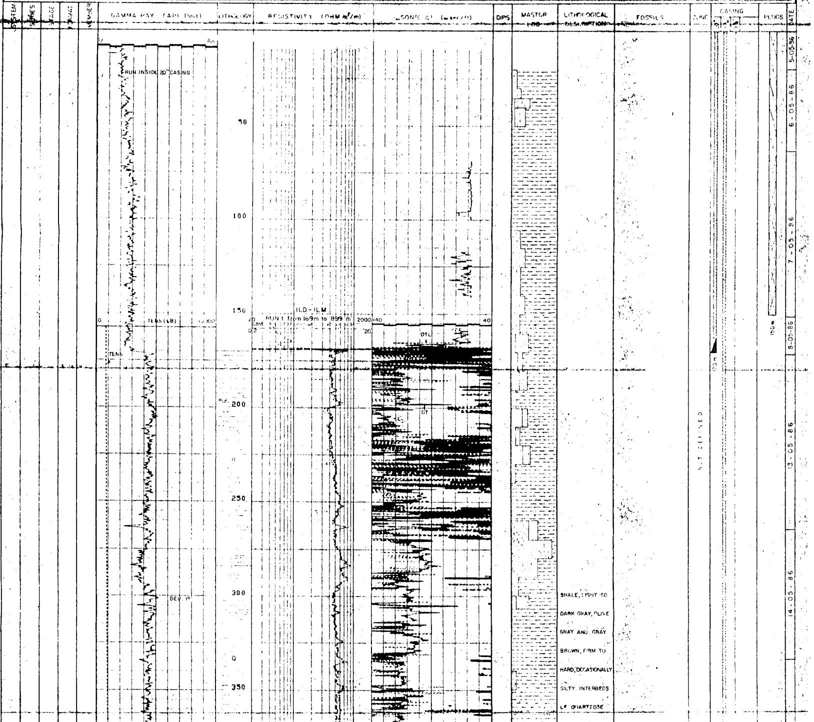
DST DATA

No	INTERVAL (FT MD)	FORMATION	FINAL FLOW RATE	BHFP (PSI)	WHFP (PSI)	CHOKE SIZE	GOR (SCF/BBL)	API°	S.G.	REMARKS
1	1515 - 1520 m	NUMIDIAN FLYSCH	—	2448		BUBBLE HOSE	—	—	—	SOME WATER CUSHION PRODUCED
2	1218 - 1224 m 1227 - 1237 m	"	—	1931		⅜"	—	—	—	GAS ON SURFACE, VOLUMETRIC RATE TOO LOW TO MEASURE

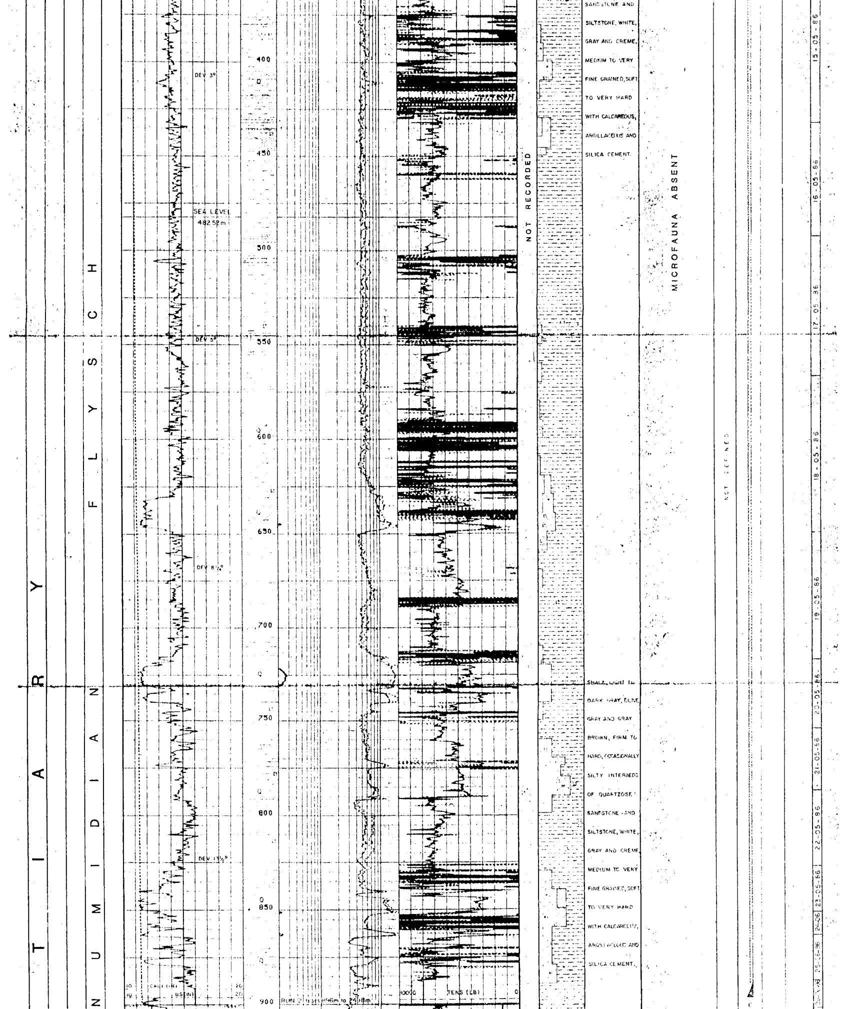
LITHOLOGY

SYMBOLS



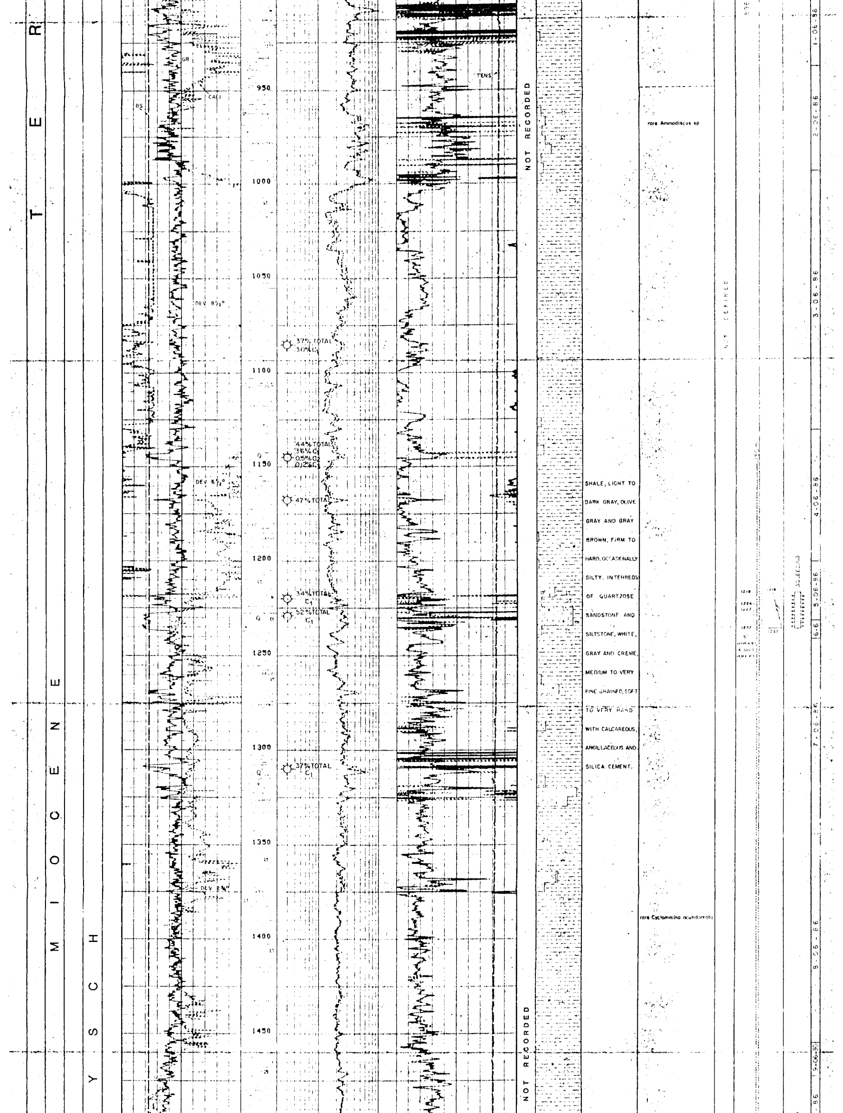


SHALE, LIGHT TO DARK GRAY, OLIVE GRAY AND GRAY BROWN, FIRM TO HARD, OCCASIONALLY SILTY INTERBEDS OF QUARTZOSE

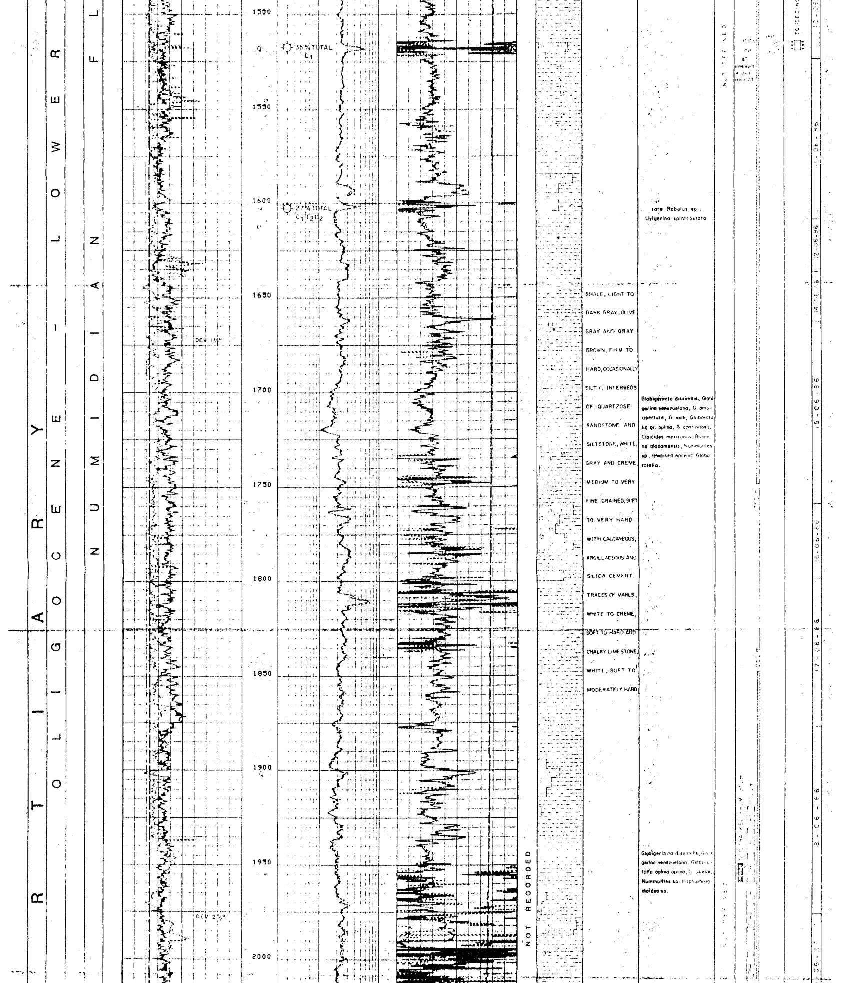


SANDSTONE AND SILTSTONE, WHITE, GRAY AND CREME, MEDIUM TO VERY FINE GRAINED, SOFT TO VERY HARD WITH CALCAREOUS, ARGILLACEOUS AND SILICA CEMENT.

SHALE, LIGHT TO DARK GRAY, OLIVE GRAY AND GRAY BROWN, FIRM TO HARD, OCCASIONALLY SILTY INTERBEDS OF QUARTZOSE SANDSTONE AND SILTSTONE, WHITE, GRAY AND CREME, MEDIUM TO VERY FINE GRAINED, SOFT TO VERY HARD WITH CALCAREOUS, ARGILLACEOUS AND SILICA CEMENT.



SHALE, LIGHT TO DARK GRAY, OLIVE GRAY AND GRAY BROWN, FIRM TO HARD, OCCASIONALLY SILTY, INTERBEDS OF QUARTZOSE SANDSTONE AND SILTSTONE, WHITE, GRAY AND CREME, MEDIUM TO VERY FINE GRAINED, SOFT TO VERY HARD WITH CALCAREOUS, ARGILLACEOUS AND SILICA CEMENT.

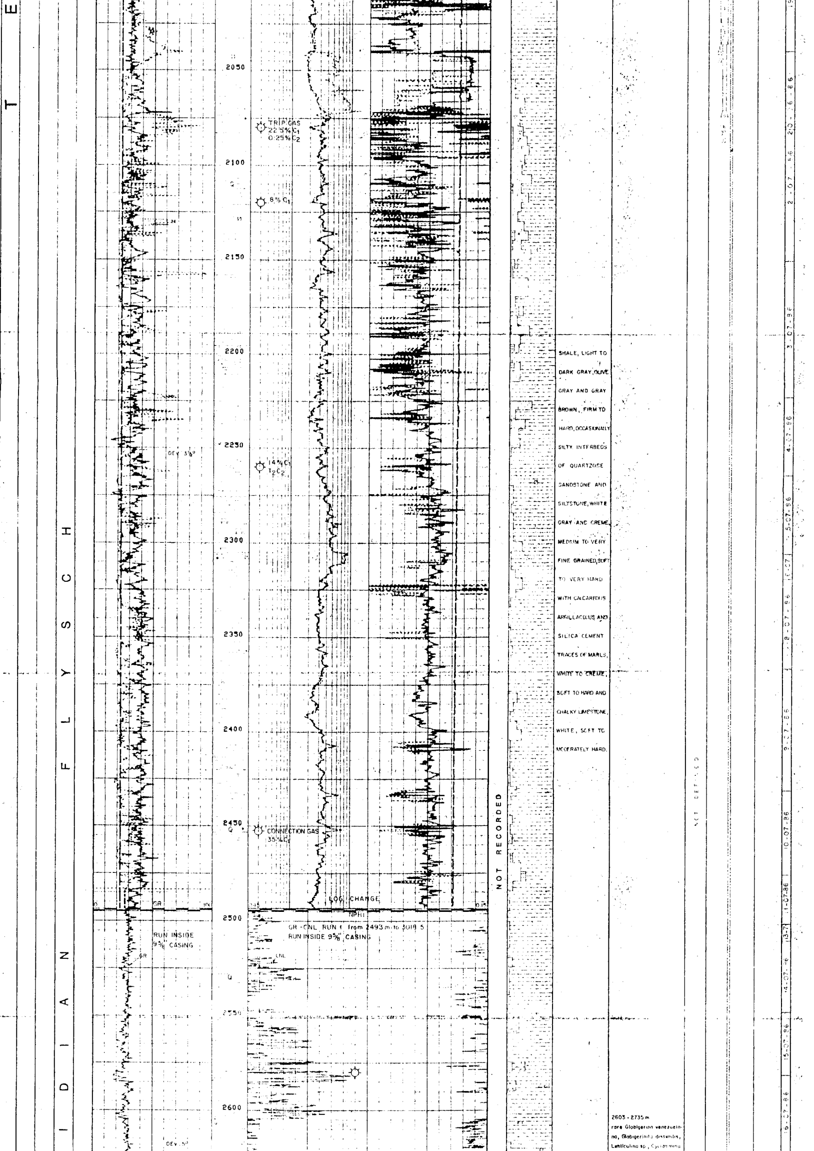


SHALE, LIGHT TO DARK GRAY, OLIVE GRAY AND GRAY BROWN, FIRM TO HARD, OCCASIONALLY SILTY. INTERBEDS OF QUARTZOSE SANDSTONE AND SILTSTONE, WHITE, GRAY AND CREME, MEDIUM TO VERY FINE GRAINED, SOFT TO VERY HARD WITH CALCAREOUS, ARGILLACEOUS AND SILICA CEMENT. TRACES OF MARLS, WHITE TO CREME, SOFT TO HARD AND CHALKY LIMESTONE, WHITE, SOFT TO MODERATELY HARD.

rare Robulus sp., Uvigerina spinicostata

Globigerinita dissimilis, Globigerina venezuelana, G. ampliapertura, G. selli, Globorotalia gr. opima, G. continuosa, Cibicides mexicanus, Bulimina alazamensis, Nummulites sp, reworked eocenic Globorotalia.

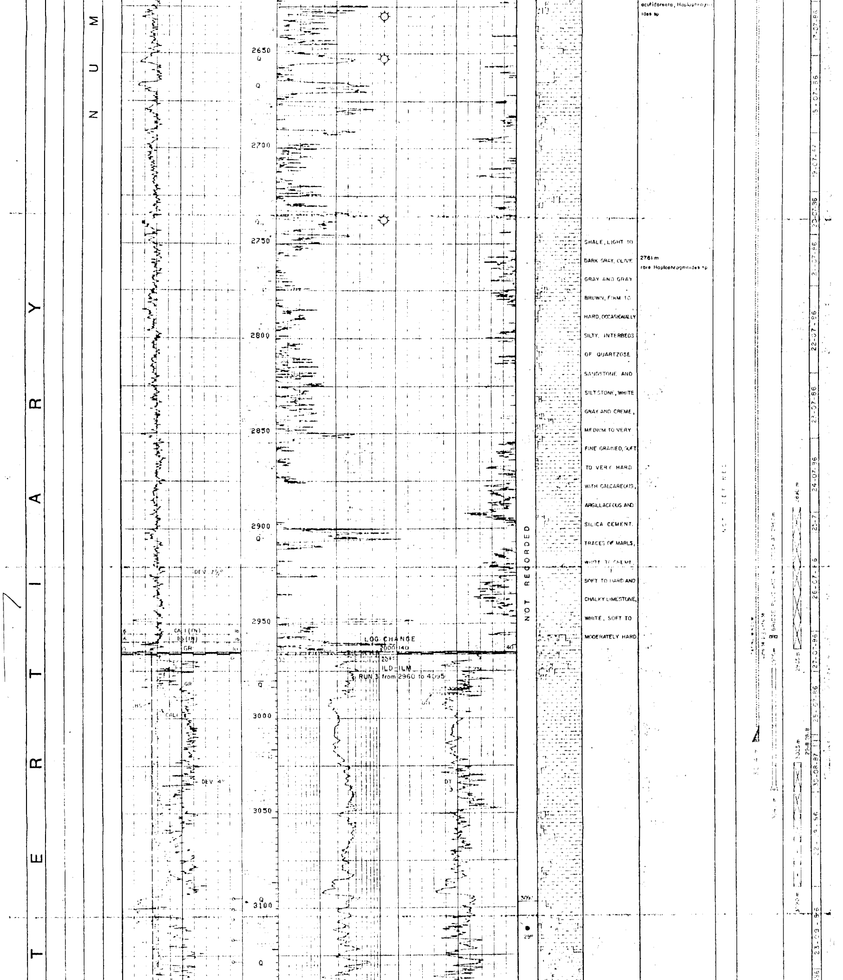
Globigerinita dissimilis, Globigerina venezuelana, Globorotalia opima opima, G. obesa, Nummulites sp. Haplophragmoides sp.



GR - CNL RUN 1 from 2493 m to 3018.5
RUN INSIDE 9⅝" CASING

SHALE, LIGHT TO DARK GRAY, OLIVE GRAY AND GRAY BROWN, FIRM TO HARD, OCCASIONALLY SILTY. INTERBEDS OF QUARTZOSE SANDSTONE AND SILTSTONE, WHITE GRAY AND CREME, MEDIUM TO VERY FINE GRAINED, SOFT TO VERY HARD WITH CALCAREOUS ARGILLACEUS AND SILICA CEMENT. TRACES OF MARLS, WHITE TO CREME, SOFT TO HARD AND CHALKY LIMESTONE, WHITE, SOFT TO MODERATELY HARD.

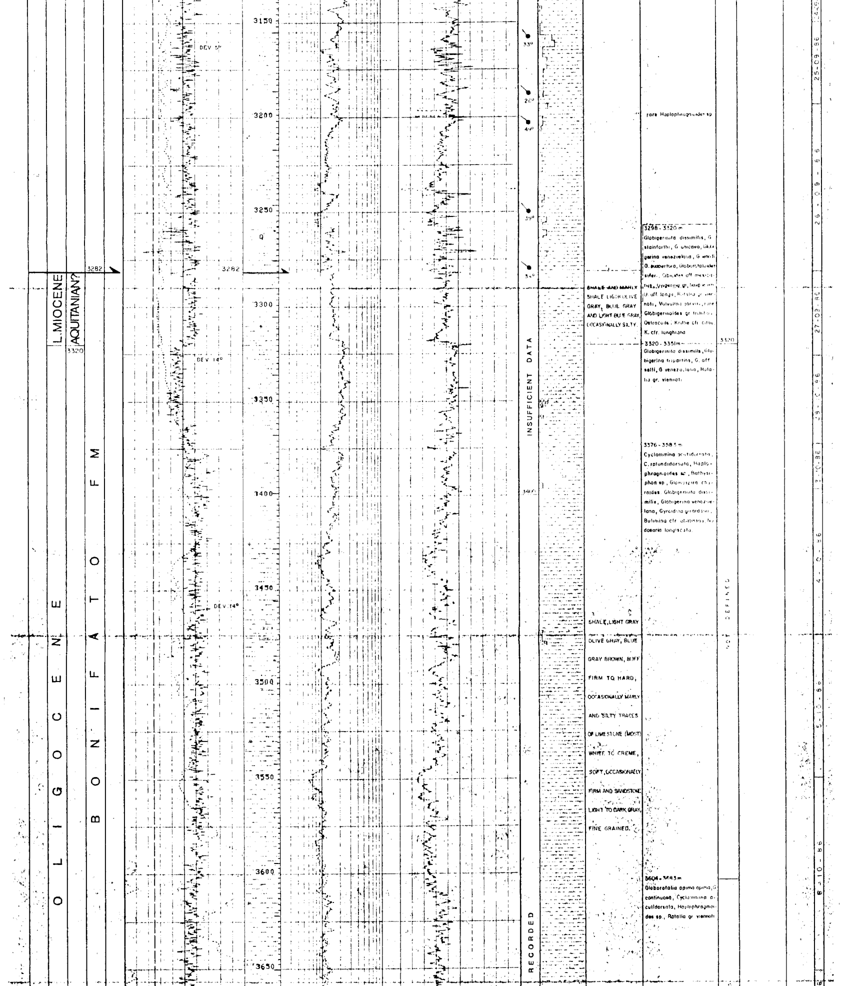
2603 - 2735 m
rare Globigerina venezuelana, Globigerinita dissimilis, Lenticulina sp., Cyclammina



acutidorsata, Haplophragmoides sp

SHALE, LIGHT TO DARK GRAY, OLIVE GRAY AND GRAY BROWN, FIRM TO HARD, OCCASIONALLY SILTY, INTERBEDS OF QUARTZOSE SANDSTONE AND SILTSTONE, WHITE GRAY AND CREME, MEDIUM TO VERY FINE GRAINED, SOFT TO VERY HARD WITH CALCAREOUS, ARGILLACEOUS AND SILICA CEMENT. TRACES OF MARLS, WHITE TO CREME, SOFT TO HARD AND CHALKY LIMESTONE, WHITE, SOFT TO MODERATELY HARD

2761 m
rare Haplophragmoides sp



rare Haplophragmoides sp.

SHALE AND MARLY SHALE LIGHT OLIVE GRAY, BLUE GRAY AND LIGHT BLUE GRAY, OCCASIONALLY SILTY.

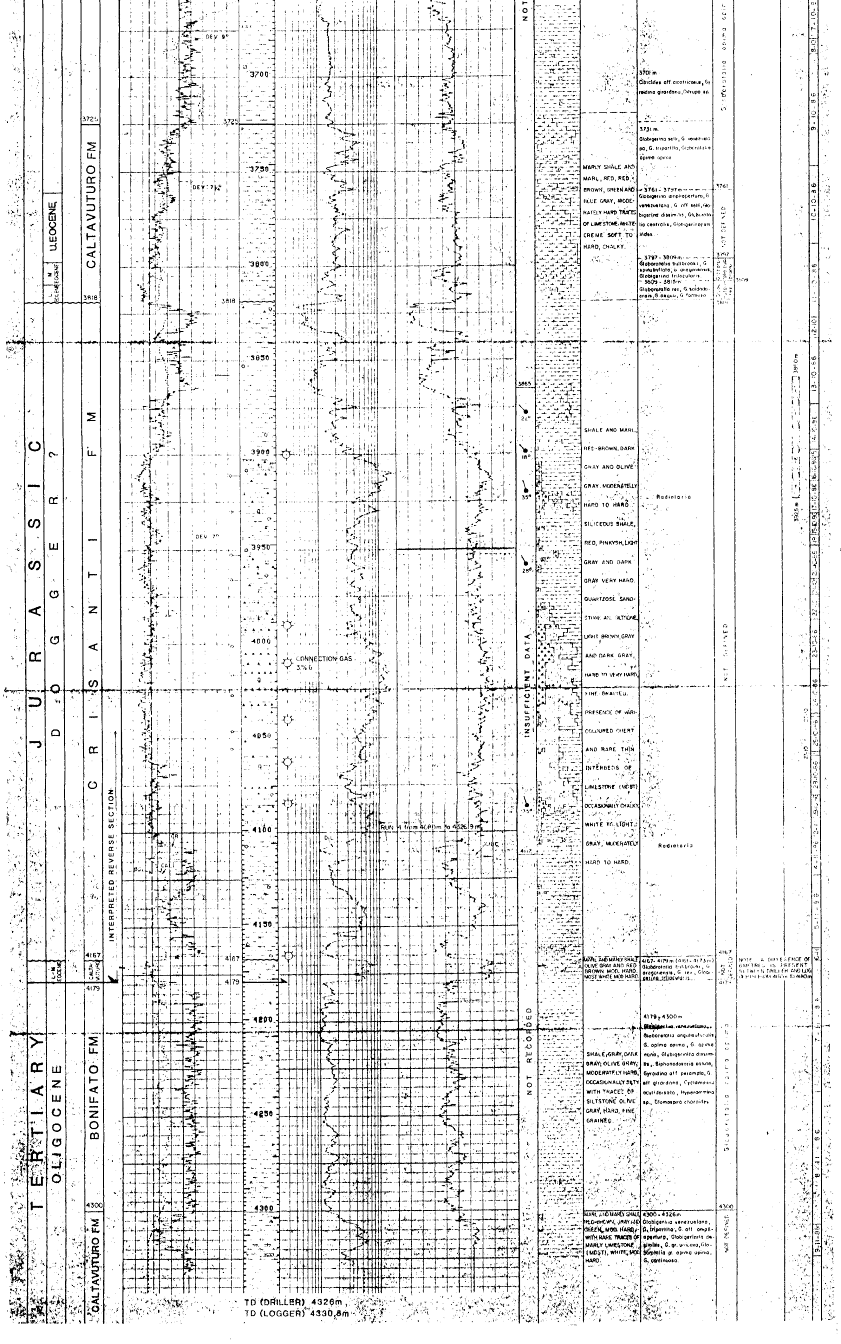
3298 - 3320 m
Globigerinita dissimilis, G. stainforthi, G. unicava, Globigerina venezuelana, G. woodi, G. subpertura, Globorotaloides suter, Cibicides aff. mexicanus, Uvigerina gr. laviculata, U. aff. longa, Rotalia gr. viennoti, Vulvulina jarvisi, rare Globigerinoides gr. trilobus, Ostracods: Krithe cfr. citae, K. cfr. langhiana

3320 - 3351m
Globigerinita dissimilis, Globigerina tripartita, G. aff. selli, G. venezuelana, Rotalia gr. viennoti

3376 - 3583 m
Cyclammina acutidorsata, C. rotundidorsata, Haplophragmoides sp., Bathysiphon sp., Glomospira charoides, Globigerinita dissimilis, Globigerina venezuelana, Gyroidina girardana, Bulimina cfr. alatissima, Nodosaria longiscata.

SHALE, LIGHT GRAY OLIVE GRAY, BLUE GRAY BROWN, BUFF FIRM TO HARD, OCCASIONALLY MARLY AND SILTY TRACES OF LIMESTONE (MOST) WHITE TO CREME, SOFT, OCCASIONALLY FIRM AND SANDSTONE LIGHT TO DARK GRAY, FINE GRAINED.

3604 - 3683 m
Globorotalia opima opima, G. continuosa, Cyclammina acutidorsata, Haplophragmoides sp., Rotalia gr. viennoti



MARLY SHALE AND MARL, RED, RED-BROWN, GREEN AND BLUE GRAY, MODERATELY HARD TRACES OF LIMESTONE WHITE-CREME SOFT TO HARD, CHALKY.

SHALE AND MARL, RED-BROWN, DARK GRAY AND OLIVE GRAY, MODERATELLY HARD TO HARD. SILICEOUS SHALE, RED, PINKYSH, LIGHT GRAY AND DARK GRAY VERY HARD. QUARTZOSE SANDSTONE AND SILTSTONE, LIGHT BROWN, GRAY AND DARK GRAY, HARD TO VERY HARD, FINE GRAINED. PRESENCE OF VARICOLOURED CHERT AND RARE THIN INTERBEDS OF LIMESTONE (MDST) OCCASIONALLY CHALKY, WHITE TO LIGHT GRAY, MODERATELY HARD TO HARD.

MARL AND MARLY SHALE OLIVE GRAY AND RED BROWN MOD. HARD. MOST WHITE MOD HARD.

SHALE, GRAY, DARK GRAY, OLIVE GRAY, MODERATELY HARD, OCCASIONALLY SILTY WITH TRACES OF SILTSTONE OLIVE GRAY, HARD, FINE GRAINED.

MARL AND MARLY SHALE RED-BROWN, GRAY AND GREEN, MOD. HARD, WITH RARE TRACES OF MARLY LIMESTONE (MDST), WHITE, MOD HARD.

3701 m
Cibicides aff. cicatricosus, Gyroidina girardana, Ostrupa sp.

3731 m.
Globigerina selli, G. venezuelana, G. tripartita, Globorotalia opima opima

3761 - 3797 m
Globigerina ampliapertura, G. venezuelana, G. aff. selli, Globigerina dissimilis, Globorotalia centralis, Globigerinopsis index

3797 - 3809 m
Globorotalia bullbrooki, G. spinulinflata, G. aragonensis, Globigerina triloculoris

3809 - 3815 m
Globorotalia rex, G. soldadoensis, G. aequa, G. formosa

Radiolaria

Radiolaria

4167 - 4179 m (4161 - 4173 m)
Globorotalia bullbrooki, G. aragonensis, G. rex, Globigerina triloculoris

4179 - 4300 m
Globigerina venezuelana, Globorotalia angulisuturalis, G. opima opima, G. opima nana, Globigerinita dissimilis, Siphonodosaria sotula, Gyroidina aff. perampla, G. aff. girardana, Cyclammina acutidorsata, Hyperammina sp., Glomospira charoides

4300 - 4326 m
Globigerina venezuelana, G. tripartita, G. aff. ampliapertura, Globigerinita dissimilis, G. gr. unicava, Globorotalia gr. opima opima, G. continuosa.

NOTE: A DIFFERENCE OF 6 METRES IS PRESENT BETWEEN DRILLER AND LOG DEPTH FROM 4160m TO 4180m