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GEOLOGICAL COMPLETION REPORT
WELL 15/3-3

2 - JAN 1980
REGISTRERT
OLEDIRA TORAIST

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Stavanger, October 1979

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POSITION MAP



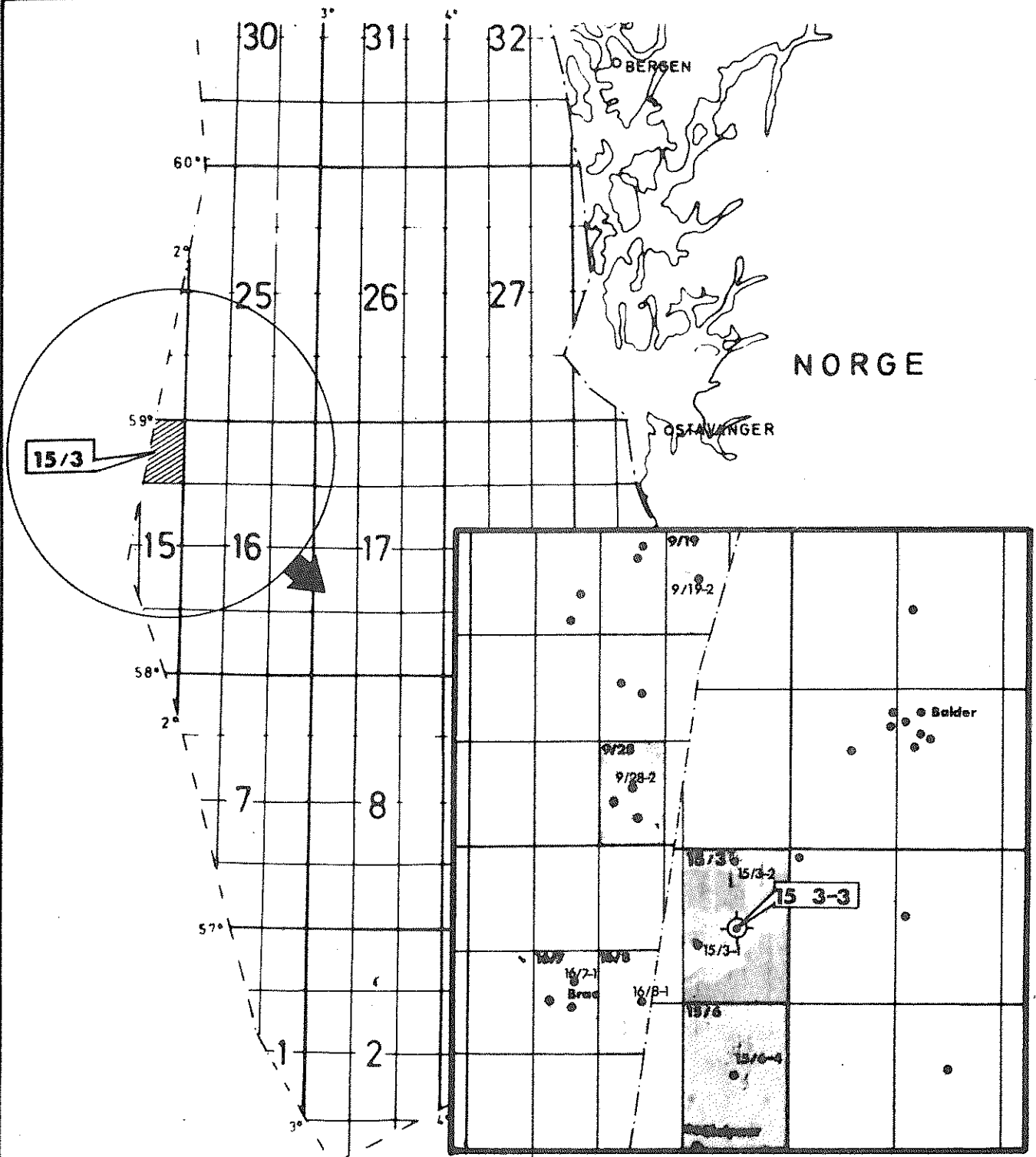
WELL 15/3 - 3

COUNTRY : NORWAY OFFSHORE

COORDINATES: X : 58° 52' 31.3" N

Y : 01° 46' 46.3" E

Scale: 1/2500.000



S U M M A R Y

The 15/3-3 well was drilled between January 5th and June 2nd 1979 to a total depth of 5115 m (RKB) and was bottomed in presumed Triassic red series.

Its objective was to test Jurassic series on the central 15/3 structure already explored in 1974 by the 15/3-1 well located 4,5 km away in a southwest direction.

Below the M2 unconformity five sandstone bodies were encountered, three of them hydrocarbon bearing in Jurassic section.

Two DSTs were run in addition to some RFT and FIT. The well was plugged and abandoned on August 10th 1979 as a gas discovery well.

1 GENERAL DATA (see fig. 1)

Country: Norway
Area: Block 15/3 (licence 025)
Owner: Petronord Group
Operator: Elf Aquitaine Norge A/S (43,6%)
Partners: Total Marine Norsk A/S (21,8%)
Norsk Hydro Produksjon A/S (19,6%)
Norske Hudbay A/S (15,0%)
Statoil
Classification: Wildcat
Drilling platform: Pentagone 84 (Forex Neptune)
Coordinates: Geographic: 58° 52' 31,3" N
01° 46' 46,3" E
UTM 31: Y (north) 6526924 mts
X (east) 429626 mts
Seismic location: SP 260 - line 580 517
Water depth: 109 m
RKB elevation: 24 m
Rig assigned to EAN: 31st December 1978
On location: 1st January 1979
Well spudded: 5th January 1979
At T.D.: 2nd June 1979
Completed: 5th August 1979
Rig released: 10th August 1979
Contractors: Electric logging: Schlumberger
Mud logging: Geoservices
Wellsite geologists: C. Guesdon
J.M. Masset
A. Michot
A. Paoloni
F. Verrolles

1.2 Hole Record

Drilling:	36"	to	196 m
	26"	to	870 m
	17 1/2"	to	2859 m
	12 1/4"	to	4052 m
	8 3/8"	to	5115 m (T.D.)
Casing:	30"	at	195 m
	20"	at	857 m
	13 3/8"	at	2845 m
	9 5/8"	at	4040 m
	7" liner	at	5109 m (liner hanger at 3853 m)

All depths are in RKB except when specified.

2 OBJECTIVES AND MAIN RESULTS

The main objective of the 15/3-3 well was to recognise the complete Jurassic series in the central prospect of block 15/3 on top of the infra M2 seismic marker, in up-dip position of well 15/3-1 drilled on the same structure in 1975. The 15/3-3 is located about 4,5 km NE of 15/3-1.

2.1 Post Jurassic Series

The lithology was approximately the same as prognosed and correlates rather easily with the 15/3-1 and 15/3-2 wells. It consists of:

- A series mainly argillaceous with some rare sandstone bodies ranging from Pleistocene to Eocene age.
- A sandy/shaly series from Paleocene age topped by a tuffitic zone (C1 seismic marker).
- A mainly chalky to marly series of Upper Cretaceous age followed by a shaly/marly series of Lower Cretaceous age.

All these levels were without hydrocarbon shows.

2.2 Jurassic (to Triassic) Series

Below the M2 seismic horizon found at 4017 m a shaly/sandy series was encountered.

The Jurassic section from 4017 to 5032 m allowed to recognise the four prognosed seismic markers with more or less important sandstone bodies, three of them being hydrocarbon bearing with porosity ranging from 7 to 25%.

The presumed Triassic section from 5032 to 5115 m (T.D.) was a water bearing sandstone of low porosity (5 to 6%) below a red shale level.

In addition to an important series of RFT and FIT performed in open hole and behind casing, two DSTs with perforation allowed to test the zones 4990 - 4967 m and 4632 - 4615 m.

The main results can be summarised as follows:

- Zone 4260 - 4369 m

Gas bearing sandstone (porosity: 20-25%) with gas/water contact at 4272 m (net pay: 6,7 m). This interval (cored from 4262 to 4307 m) is stratigraphic equivalent of the J1 seismic horizon on 15/3-1.

- Zone 4522 - 4768 m

Three main reservoirs, all tied with the J2 seismic horizon:

4522 - 4557 m: hydrocarbon bearing sandstone with a net pay of 10 m in interbeds of coal, tight sandstone and shale (cored from 4547 to 4562 m).

4588 - 4632 m: This sandstone body was tested in its lower part (from 4615 to 4632 m where porosity ranges from 11 to 15%) at a rate of 520.000 m³/day of gas through various chokes. The GOR was around 8.500 m³/m³ with a parafinic condensate of 41.5° API at 60°F.

4679 - 4692 m: with a net pay of 8,4 m and a porosity of 11%, this sandstone (with layers of siltstone and shale) body seems to be oil bearing (no gas effect on logs).

- Zone 4768 - 4935 m

This interval tied with the J3 seismic horizon is mainly a shale siltstone body with rare sandstone stringers (cumulated thickness: 18 m in 13 levels) all of them gas bearing according to logs with porosity ranging from 7 to 15%. The core No. 5 was taken from 4851 to 4860 m.

- Zone 4967 - 4994 m

Tied with the J4 seismic horizon this 19 m net pay sandy interval with a porosity ranging from 12 to 14% was tested and produced 4278 l of salt water (125 g/l) in 11 hours 54 minutes through a 1" choke.

- Zone 5052 - 5115 m (T.D.)

This sandstone body of low porosity (5 to 6%) below a red shale level was clearly water bearing on logs. This was confirmed by anFIT which recovered 10 l of salt water (82 g/l).

3 LITHOLOGY AND STRATIGRAPHY

See appendices, composite log and stratigraphic plates.

3.1 Lithology

Pleistocene - Miocene (Lignitic series)

- 133 - 196 m: Drilling with return to sea bed. Probably clay and sand fine to coarse.
- 196 - 387 m: Predominantly clay grey to dark brownish locally silty. Abundant shell fragments and lignitic debris. Rare sand levels.
- 387 - 427 m: Sand very fine to medium grained subrounded to subangular. Traces of shell fragments. Abundant mica, pyrite and glauconite.
- 427 - 677 m: Clay grey sticky glauconitic, silty.
- 677 - 851 m: Sand translucent to greenish, fine to medium grained subrounded, glauconitic with interbeds of clay sticky dark grey to greenish. Abundant shell fragments.

Oligocene - Eocene (Brown clay group)

Oligocene

- 851 - 1470 m: Clay grey to brown silty, locally strongly glauconitic slightly micaceous and pyritic. Loose sand medium to very coarse translucent, subangular occasionally reddish. Calcareous sandstone grey whitish hard between 1005 and 1130 m. Rare limestone stringers below 1300 m.

Eocene

- 1470 - 1840 m: Predominantly sand fine to medium, rounded to subrounded, locally coarse to very coarse

with interbeds of shale dark to light grey pyritic.

Rare stringers of limestone white cryptocrystalline soft.

1840 - 2172 m: Shale dark grey grading to greenish blue with stringers of beige brownish dolomitic limestone. Traces of tuffaceous shale below 2150 m.

Paleocene (to Danian) (Sand/Shale group)

2172 - 2244 m: Shale light grey to red brown tuffaceous.

2244 - 2692 m: Sand to sandstone poorly consolidated fine to coarse, subangular to subrounded, with interbeds of shale dark grey silty slightly calcareous below 2600 m.

Cretaceous

Upper Cretaceous (Chalk group)

- Danian:

2692 - 2764 m: Limestone to marl white to pink and light grey.

- Maastrichtian:

2764 - 3023 m: Marl light grey soft locally slightly silty to limestone chalky white soft partly argillaceous.

- Campanian:

3023 - 3087 m: Limestone red to pink locally argillaceous.

- Coniacian - Santonian:

3087 - 3276 m: Marl light to medium grey locally pink.

3276 - 3486 m: Limestone argillaceous light to medium grey and chalky white. Rare levels of shale slightly calcareous dark grey.

- Turonian:

3486 - 3521 m: Limestone argillaceous grey as above.

3521 - 3628 m: Marl to shale medium to dark grey locally greenish. Traces of glauconite.

- Cenomanian:

3628 - 3743 m: Marl light to medium grey and limestone beige argillaceous.

Lower Cretaceous

- Albian - Aptian:

3743 - 3901 m: Shale dark grey slightly silty in part, locally calcareous. Rare stringers of argillaceous limestone grey to dark brown slightly dolomitic.

- Barremian - Hauterivian - Valanginian (Berriasian):

3901 - 4017 m: Marl light grey to red micromicaceous. Stringers of limestone whitish to cream.

- Berriasian (upper section of the Kimmeridge clay formation):

4017 - 4031 m: Shale dark brown micaceous, carbonaceous, pyritic.

Jurassic (to Triassic?)

- Portlandian - Upper Kimmeridgian (Kimmeridge clay formation):

4031 - 4225 m: Shale dark brown, carbonaceous and micaceous as above with rare metric beds of sandstone dark brown to grey whitish fine to coarse locally calcareous strongly pyritic.

- Oxfordian:

4225 - 4247 m: Sandstone grey beige to dark brown fine to very coarse subangular to subrounded pyritic, friable, locally well calcareous cemented.
4247 - 4261 m: Shale dark brown carbonaceous.

- Lower Oxfordian - Upper Callovian:

4261 - 4369 m: Sandstone dark grey brownish medium to very coarse locally microconglomeratic friable, and sandstone light grey fine, calcareous strongly cemented.

Rare metric interbeds of dark grey shale below 4300 m.

4369 - 4450 m: Shale brownish to dark brown micaceous, pyritic. Rare stringers of sandstone fine to very coarse.

- Callovian:

4450 - 4479 m: Shale dark grey calcareous to limestone dark grey brownish hard, silty strongly pyritic.

4479 - 4522 m: Shale dark grey to black with stringers of limestone as above.

4522 - 4588 m: Sandstone fine to very fine, argillaceous to calcareous beige brownish interbedded with siltstone partly dolomitic and shale dark grey. Abundant coal levels.

- Bathonian (Upper Bajocian?)

4588 - 4632 m: Sandstone beige to beige brown fine to medium, quartzitic, subangular well to fairly well cemented.

4632 - 4672 m: Shale dark grey silty. Rare stringers of sandstone. Abundant mica and pyrite.

4672 - 4702 m: Sandstone beige brownish quartzitic to calcareous cemented grading to siltstone.

4702 - 4768 m: Shale to siltstone dark grey to black micaceous. Rare stringers of sandstone.

4768 - 4967 m: Predominantly shale to siltstone dark grey to brownish micaceous with rare metric interbeds of sandstone dark grey to brown carbonaceous, fine to medium, well cemented. Coal levels below 4930 m.

- (Lower Bajocian?) Toarcian - Pliensbachian:

4967 - 4994 m: Sandstone beige to beige brownish fine to medium locally microconglomeratic quartzitic with shale dark grey interbedded.

4994 - 5033 m: Shale to siltstone strongly micaceous slightly dolomitic.

- Triassic?:

5033 - 5052 m: Shale red brick to purple and white grey greenish locally silty and very fine sandy.

5052 - 5115 m: (T.D.) Predominantly sandstone red to white translucent friable to well cemented slightly calcareous in part fine to very fine occasionally medium grained quartzitic. Interbeds of shale varicoloured as above.

3.2 Stratigraphy

Fig. 5 summarises the stratigraphy according to micropaleontology and palynology studies and gives the lithological equivalence with North Sea nomenclature.

Main Palynological Results (see fig. 4)

The main results can be summarised as follows for the Jurassic section.

Depth (m)	Palyno. zone	Age
4006 - 4028	NJ10	Berriasian
4034 - 4042	NJ9	Portlandian
4051 - 4120 / (4150)	NJ8	Kimmeridgian
4239 - 4263	NJ5c	Oxfordian
4274 - 4375	NJ5b	Lower Oxfordian/ Upper Callovian
4460 - 4500	NJ5a	Callovian
4610 - 4756	NJ4b	Bathonian
4979 - 5004	NJ3b	Aalenian/Upper Toarcian

A revision of the palynological results from 15/3-1 and 15/3-2 is actually in progress. On the 15/3-3 some zones are still doubtful and some samples remain not studied (zone 4756 - 4979 especially).

3.3 Sedimentology

A first study carried out on cores gives the following results:

- Cores 1, 2 and 3 (4262 - 4307 m):
grain flow deposit with abundant floating pebbles and fragments of marine shells (belemnites).
- Core 4 (4547 - 4562 m):
bay deposit with abundant bioturbation and micaceous beds.
- Core 5 (4851 - 4860 m):
braided fluvial channels and swamp deposit.
- Core 6 (4995 - 5004 m):
marine swamp with negative sequence, abundant roots remain and features of emersion (supratidal dolomite).

Remark:

We should note that both for palynology and sedimentology studies the final reports have not yet been received.

4 STRUCTURAL DATA

4.1 Geophysical Results

4.1.1 Vertical Seismic Profile and Calibrated Sonic

See figs. 22, 25.

Vertical seismic profile (VSP) has been performed on this well. The main parameters are:

Sample rate:	2 ms
Recording length:	4000 ms
Frequency filter:	5 < f < 80 Hz
No. of acceptable levels:	118
In interval:	1580 m < Z < 5103 m D.F.D. (D.F. = 24 m)

The VSP has been recorded and processed by SSL (England). A separate SSL report has been sent to partners.

The calibrated sonic log has been computed using VSP data. A separate SSL report has been sent to partners.

Fig. 22 shows the $t = f(D)$ both predicted and actual. The prediction curve has been computed using only key horizons, whereas the actual $t = f(D)$ is computed about every 300 m.

From other wells in the area it has been noted that there is a common point at ~ 3600 m, 1450 mS OWT and also that when passing into M2 the curves exert a kink and then go parallel. This kink comes by just above the M2 level. This observation may be useful for future $t = f(D)$ computations. Any depth error is attributed to anticipated too high average velocities in prognosis, all depths are less than predicted.

4.1.2 Comparison Prognosis vs. Results (see fig. 23)

Figure 23 compares prognosis against calibrated results. An attempt has also been made in comparing seismic picks on unmigrated and migrated sections. For horizons above M2 it seems that use of the unmigrated lines in prognosis is adequate, whereas from M2 on and below the migrated lines are more adequate. In the case of migrated line the fact that migration velocities often are inadequate (approximations) should lead to caution in relying too much on dip values, thus horizon position.

Cycle corrections applied include both seismic pick corrections and any anticipated discrepancies between correct seismic pick and calibrated sonic log integrated times. Comparing the calibrated sonic logs and migrated seismic section (see fig. 23) it seems that there is no appreciable discrepancy between correct seismic position and sonic log times.

Some differences arise from the poor seismic signature of some of the Jurassic horizons, thus allowing cycle "slips" as in the case of J1 horizon. Future cycle corrections should therefore only include seismic pick corrections.

4.1.3 Comments (see fig. 24)

Fig. 24 links calibrated sonic logs to stratigraphy, thus to seismic section. It will be noted that we have not indicated any J1 horizon but J (no suffix) horizon which indicates the first Jurassic reservoir. The isochron map of J1 did match in 15/3-1 well whereas in 15/3-3 palynology states that J1 equivalent is higher than shown on the J1 map at 15/3-3 location and corresponds to J marker. This discrepancy has to be attributed to the fact that seismic signature in J2/M2 interval is not well defined and therefore a cycle "slip" must have occurred in our interpretation. New migration on 580 xxx lines may help defining this horizon. However, the migrated sections also show a poor definition in J2/M2 interval.

A tentative map has been made on which J1 at 15/3-1 will fit with the J horizon on 15/3-3 well (see pl. 7).

For J2, J3 and J4 horizons the isochron maps fit with the 15/3-3 results.

Isobath map for the tentative J1-J horizon is produced (pl. 8).

The isobath maps prepared for the other horizons will be re-computed using migrated data (position of fault pattern etc).

4.2 Dipmeter

The HDT log was recorded from 2000 m down to T.D. and a quick study of the 1 x 0,5 meter 35 degrees x 2 arrow plot gives the following results:

4.2.1 Tertiary and Cretaceous

In the Tertiary series the dipmeter is almost blind except for a few meters in the tuffaceous sequence where dip ranges from 2 to 4° toward north-northeast.

The rest of the Paleocene sand/shale series presented only rare scattered values both for dip and azimuth.

From 2716 m (near top of Danian Limestone) to 2790 m (on top of Maastrichtian) dip ranges from 6 to 10° with a general north azimuth.

From 2790 to 2870 m dip decreased from 8 to 1° with a general southwest azimuth.

From 2870 to 2920 m the dip is very low (1 to 2°) with a west azimuth which turned progressively toward east while dip increased to 6° at base of Maastrichtian from 2920 to 3020 m.

The Campanian presented from 3020 to 3080 m a monotonous 6° dip toward northeast.

On top of Coniacian a 30 meter zone of scattered high dip values (10 to 30°) is followed from 3120 to 3150 by a 10° north to northwest dip.

From 3150 to 3230 m the dip increased from 10 to 20° with a constant azimuth toward west-northwest.

The dip decreased progressively from 20 to 2° with an azimuth from northwest to southwest down to 3320 m.

From 3320 to 3743 m, for the rest of the Upper Cretaceous sequence, the dip is fairly constant, increasing slowly from 1 to 3° with a general azimuth toward northwest.

The upper part of Lower Cretaceous (Albian, Aptian) from 3743 to 3900 m presented a 2 to 8° dip generally toward east except for the top part (down to 3820 m where the general azimuth is toward west).

The lower part (Barremian and lower) has a dip between 2 and 6° with a general azimuth toward northwest.

4.2.2 Jurassic (Triassic)

The M2 horizon (top of Jurassic hot shale) is marked by an angular unconformity (3 to 5° in Lower Cretaceous, almost 0° in Jurassic shale).

The Kimmeridge clay formation presented a uniform 0 to 2° dip toward southwest to northwest.

In the sandstone bodies from 4227 to 4250 m and 4262 to 4370 m, no clearly persistent pattern is seen, probably because of complex stratigraphic dip.

From 4370 m down to 4450 m the dip ranges between 4 and 7° with a general azimuth toward northwest.

In the zone 4450 - 4526 m the arrow plot is scattered with no evidence of pattern.

From 4526 to 4586 m the dip ranges between 10 to 6°, sometimes 4°, with a general azimuth direction toward northwest.

The thick gas sandstone body from 4586 to 4632 m presented in its upper part (tight sandstone) a typical red pattern (channel deposit?). The dip increased from 6 to 30° with a constant north-west azimuth. The lower part of the sandstone body is more difficult to interpret due to the poor information provided by the arrow plot (very few dip data in a general north-west azimuth).

The zone 4635 - 4680 m with a dip ranging from 3 to 6° (10° in the top zone) and a general azimuth toward south-west to west is followed from 4680 to 4700 m in the sandstone body by a scattered dip and azimuth, possibly related to sedimentological figures.

The 6° dip south-west azimuth extended also from 4700 m down to 4730 m and turned toward north-west with the same dip down to 4770 m.

From 4770 m down to T.D. the dip values range from 9 to 15° with a general azimuth direction toward west-northwest. But the too large correlation depth of the cluster program does not allow to have subdivisions in this interval. However, it seems not to have any azimuth change even on top of the red beds at 5032 m.

A new treatment of the HDT log (geodip treatment) is actually in progress and will probably give new structural information.

5 HYDROCARBON SHOWS (see pl. 2)

Evaluation of hydrocarbon shows was carried out using a gas detector, a chromatograph and fluorescence observation on ditch cuttings.

5.1 Gas Shows

5.1.1 Tertiary and Cretaceous

In the tertiary section only methane was recorded (from 0.5 to 12%). The highest values correspond to sandy and lignitic levels.

The Upper Cretaceous section was drilled without shows except rare traces of C1 occasionally.

The Lower Cretaceous section gives some gas peaks (not exceeding 0.8% of C1 only).

5.1.2 Jurassic - Triassic

The Kimmeridgian unconformity is marked by a sharp increase on gas reading (2 to 4% of C1 with the first appearances of C2 and C3).

The background gas decreases progressively down to 4100 m where it increases again with the first appearance of iC4 and nC4.

The gas composition remains fairly constant to 4200 m with peaks (3 to 7% C1 to iC4) in front of sandstone stringers.

From 4200 to 4260 m the recorded gas decreased progressively with the same composition.

The top of the large sandstone body at 4260 m was marked by a sharp increase of gas recording. This interval was cored between 4262 and 4307 m thus reducing the gas shows in noticeable quantity.

The gas shows remain fairly low with a composition ranging from C1 to C3 and occasionally from C1 to nC4 down to 4590 m with some gas peaks in front of sandstone and coal levels.

From 4562 m the drilling operation was conducted mainly with turbine and diamond bit with ditch cutting samples and gas shows very poor and hard to be interpreted.

At 4595 m an important gas peak (18% C1 with C2 and C3) was recorded in front of a sandstone level. For the rest of the sandy interval (proved to be gas bearing to 4632 m on log and test) very poor shows were reported (traces of C1 only).

Down to 4690 m only minor amount of C1 with traces of C2 were recorded.

At 4690 a small gas peak (10% C1 with C2 and C3) was noted and from 4700 down to 4765 m the gas percentage decreased progressively with the same composition.

From 4765 to 4820 m the gas composition remains the same but the percentage increase and numerous gas peaks (2 to 10% C1 with C2 and C3) appeared in front of sandstone layers.

From 4820 to 4965 m only C1 and C2 with rare traces of C3 were recorded.

At 4965 m an important amount of gas ranging from C1 to nC4 occurs (C1 up to 60%) but decreases rapidly and below 5005 m only rare traces of C1 were recorded.

5.2 Fluorescence and Oil Shows

The Tertiary and Cretaceous sections presented no fluorescence at all.

In the Jurassic section only rare pale yellow to greenish crush fluorescence after ccl4 extractions were reported around 4100 m and on the different cores.

The poor sampling (due to turbodrilling and use of diamond bit) probably masked some of the fluorescence normally observed on cuttings.

5.3 Geochemistry Analysis

Geochemistry and fluorescence organic matter studies are in progress.

Partial results related to oil samples analysis from RFT at 4262 m and DST at 4615 - 4632 m show that in both cases the source rocks seem to be very close to the reservoir (zone 4400 - 4550 for the oil of RFT at 4262 m and zone 4700 - 4800 m for the condensate of DST 2 bis).

A quick analysis of the SWC at 4034 m permitted to recognise the typical sapropelic facies with microscopic algae and tasmanaea of the Kimmeridge Clay formation.

6 CORING

6.1 Coring (see appendix 1 and plate 21)

Six conventional cores were cut in the Jurassic section all with full recovery. On some cores exist a discrepancy between driller and wireline depth.

	Driller depth	Cored	Recov.	%	Core depth on log	Formation
1	4262-4271	9.0	9.55	100	4264,0-4273,4	Sandstone
2	4271-4289	18.0	18.15	100	4273,4-4291,7	Sandstone
3	4289-4307	18.0	18.20	100	4291,7-4309,9	Sandstone
4	4547-4562	15.0	15.00	100	4547,0-4562,0	Coal-sst-silt-sh
5	4851-4860	9.0	9.35	100	4851,0-4860,0	Silt-shale
6	4995-5004	9.0	9.00	100	4995,0-5004,0	Shale-silt (sst)

6.2 Sidewall Coring (see appendix 2)

Run	Date	Asked	Shot	Recov.	Lost	Misfire	Empty	Accepted
1	11.2.79	30	30	19	11	0	1	18
2	13.3.79	30	30	27	3	0	6	21
3	16.6.79	30	30	18	12	0	11	7
4	16.6.79	30	29	18	12	1	3	14
5	17.6.79	30	6	30	0	6	3	3
6	18.6.79	24	24	24	0	0	12	12
7	18.6.79	24	7	23	1	10	5	1
8	18.6.79	24	11	24	0	13	5	6

Sidewall cores were taken from 1975 to 5115 m. A total of 8 runs were made. The low recoveries in runs 3 to 8 were due to misfires probably caused by the high temperature of the well.

A total of 82 out of 222 cores were accepted.

7 ELECTRIC LOGGING

ISF Sonic GR-SP Log

Hole Ø	Date	Depth	Run	Remarks
26	08.01.79	866-195 (GR to surface)	1	
17 1/2	08.02.79	2757-844	2	Replayed from digital tape due to depth discrepancies.
"	10.02.79	2862-2600	2bis	- id -
12 1/4	06.03.79	3827-2844 (GR to 850)	3	GR used to calibrate depth of runs 2 and 2bis.
"	12.03.79	4052-3750	3bis	
8 3/8	03.04.79	4310,5-4042,7	4	
"	05.04.79	4389,7-4042,4	5	
"	05.05.79	4560,5-4250,0	6	
"	13.05.79	4756-4438	7	
"	25.05.79	4967-4650	8	GR not working (recorded while going down).
"	04.06.79	5110-4740	9	

FDC-GR CAL Log

17 1/2	10.02.79	2857-858	1	Replayed from digital tape due to depth discrepancies.
12 1/4	12.03.79	4052-2843	2	

FDC-CNL-GR-CAL Log

8 3/8	05.04.79	4391,0-4042,4	3	
"	13.05.79	4787-4300	4	
"	04.06.79	5110-4740	5	Much sticking.
"	12.06.79	5110-4740	6	

DLL-MSFL Log

Hole Ø	Date	Depth	Run	Remarks
8 3/8	07.04.79	4390,5-4042,3	1	
"	13.05.79	4767-4334	2	
"	04.06.79	5110-4735	3	

Sonic Long Spacing Log

12 1/4	13.03.79	4048-2844	1	
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HDT Log

17 1/2	10.02.79	2862-2000	1	(Deviation to 858).
12 1/4	13.03.79	4052-2844	2	
8 3/8	15.05.79	4762,5-4037,4	3	
8 3/8	09.06.79	5111-4740	4	

CBL-VDL Log

	18.02.79	2862-1800 and 1000-30	1	13 3/8 casing in 17 1/2 hole. Two stage cementa- tion
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CBL Log

	22.02.79	2849-2250 and 950-846	2a	After squeeze of cement at 2874 m.
	13.03.79	2844-2544 and 925-800	2b	
	06.04.79	4042,3-2433,0	3	9 5/8 casing in 12 1/4 hole.

CBL-VDL Log

	06.07.79	5067-3840	4	7" liner in 8 3/8 hole and 9 5/8 casing.
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Temperature Log

Hole Ø	Date	Depth	Run	Remarks
	15.02.79	2853-1500		After 13 3/8 cementations.

Velocity Survey (vertical seismic profile)

	10.06.79	5103-1580	1	118 shots (30 m spacing).
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Bore Hole Geometry Tool

8 3/8	16.06.79	5116-4042	1	
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8 TESTS

8.1 RFT (see figs. 6, 7 and 18)

A total of 8 runs of RFT with 51 reliable pressure readings and three samplings were performed in the 8 3/8" open hole. Due to differential pressure the RFT tool got stuck twice at 4975 m and had to be fished. The upper part of the Jurassic zone presented a 1.90 pressure gradient down to 4370 m and the lower part a 1.70 - 1.75 average pressure gradient from 4500 m down to T.D. It can be noted that in thin or compacted reservoir zones the recorded values are very dispersed around an average value, when in thick porous beds a good trend is easily drawn.

8.2 FIT (see fig. 7)

Five FITs were run after setting a 7" liner, four of them with sampling (5059,5 m, 4989,5 m, 4626,5 m, 4262 m). For FIT No. 2 at 4969 m the tool was plugged and no sample recovered.

8.3 DST (see figs. 8 and 9)

Two DSTs were performed after perforation by scallop gun 2 1/8", 13 shots per meter, of the 7" liner

- the first one in zone 4990 - 4967 m with packer at 4957 m, which produced 4278 l of emulsionated salt water (125 g/l) in 11 hours.
- the second one in zone 4632 - 4615 m with packer at 4600 m, which flowed 520.000 m³ of gas and 60 m³ of parafinic condensate in 24 hours.

9 PRELIMINARY RESERVOIR RESULTS

9.1 Tertiary (0 to 2692 m)

Several water bearing sand bodies with high porosity were encountered in this section.

9.2 Cretaceous (2692 to 4017 m)

This chalky to marly section presented no reservoir and was drilled without gas shows.

9.3 Jurassic (4017 to 5032 m)

Several sandstone reservoir zones, most of them with hydrocarbons, have been encountered.

In the upper part, mainly shaly rare metric layers of sandstone were hydrocarbon bearing (according to CPI parameters).

Depth	Ø %	Sw %
4103,0 - 4104,2	10 - 15	30 - 40
4116,5 - 4118,0	10 - 17	20 - 50
4140,8 - 4141,8	14	25

The interval 4228 - 4247 m is a water bearing sandstone with porosity around 20%.

- Prospect 4260 - 4369 m (figs. 10 and 14, pl. 3)

This sandstone body with interbeds of calcareous sandstone and shale is hydrocarbon bearing in its upper part. This interval was cored from 4262 to 4307 m (driller depth) (see appendix 1 and fig. 21).

Top reservoir: 4260,8 m (-4236 m MSL)
 GWC (from RFT): 4271,7 m (-4247 m MSL)
 Gross pay: 11 m
 Net pay: 6,7 m
 Average porosity: 25% (24% from cores)
 Permeability: 100 to 1650 m darcy (from
 cores 1, 2 and 3)
 Pressure: 806,5 kg/cm² at 4262 m
 (gradient: 1.89)
 Temperature: 124°C (from logs)

Some samplings were performed in the hydrocarbon zone both by RFT and FIT. They recovered gas. Gas analyses showed mainly methane (73%), ethane (12%) and propane (3%), and condensate (API gravity: 43,6 at 15°C). The hydrogen sulfide contents was below the detector's limit.

Due to a discrepancy between the prognosed J1 horizon and the depth of the top of this sandstone body, no direct map existed for this level. A new map of the J horizon around 15/3-3 well is proposed (see plates 7 and 8).

- Prospect 4523 - 4768 m (see figs. 11 and 15, pl. 4)

Three main reservoir zones have been encountered, all tied with the J2 seismic marker.

Zone 4522,8 - 4556,8 m:

This level, interbeds of sandstone, shale, siltstone and calcareous stringers, is hydrocarbon bearing (gas bearing from FDC/CNL).

Depth	Thickn. (m)	Ø	Sw %
4522,8 - 4527,3	4,5	10 - 15	8 - 30
4542,5 - 4544,0	1,5	10 - 12	25 - 30
4549,5 - 4552,0	2,5	7 - 13	28 - 40
4554,8 - 4556,8	2,0	10 - 15	25
net pay	10,5		

Core measurement (core No. 4) confirmed the porosity values (10 to 13%). It showed bad permeability (0.1 to 0.2 m darcy) and high values for the formation factor which confirms the tightness of the reservoir.

Pressure readings in this interval (795,6 kg/cm² at 4524,5 m) give a pressure gradient of 1.76.

Zone 4588,2 - 4632,6 m: (see figs. 8 and 9)

This 44,4 m thick sandstone body with a few meters of shale and sandstone on top is full of gas with no GWC, but only the bottom part (tested from 4632 to 4615 m) is of interest, the top part above 4618 m being more or less compacted. The gas effect is higher in the bottom part.

Top reservoir: 4588,2 m RKB (-4561,7 m MSL)
 Gross pay: 44,4 m (no GWC)
 Net pay: 14,6 m (with 11% porosity cut-off)

Depth	Thickn. (m)	Ø %	Sw %
4588,2 - 4618,0	29,6	6 - 11	13 - 30
4618,0 - 4632,6	14,6	11 - 16	8 - 13

Pressure readings in this interval (792,5 kg/cm² at 4630 m) give a pressure gradient of 1.71.

The evaluated temperature (from logs) is 146°C at 4590 m.

This zone was perforated from 4632 to 4615 m and tested with packer at 4600 m. Gas flowed through heater and separator before being burned at flare.

Flow duration	Choke	Gas rate m ³ /day	GOR m ³ /m ³	Water rate m ³ /day
15H 26'	1 3/4"	560.000	8200	2,5
3H 14'	44/64"	535.000	8400	2,3
3H 00'	1/2"	520.000	8550	2,2

At the total, the well flowed during 23 hours 40 minutes for a cumulative production of 520.000 m³ of gas and 60 m³ of parafinic condensate. The final build-up lasted 23 hours 20 minutes and the final build-up recorded pressure was 11.073 psi (778.4 kg/cm² at 4567,5 m MSL which gives an average gradient of 1.70).

Zone 4679,2 - 4692,8 m:

This sandy interval becoming calcareous below 4686,2 m is hydrocarbon bearing (oil bearing due to no gas effect on logs despite the fact that at such a temperature and pressure the formation should be gas bearing).

Depth	Thickn.	Ø %	Sw %
4679,2 - 4687,3	8,1	11	8 - 20
4692,5 - 5692,8	0,3	11	25
Total	8.4		

Pressure reading in this interval (793,1 kg/cm² at 4685,5 m) gives a pressure gradient of 1.69.

- Prospect 4768 - 4935 m (see figs. 12 and 16, pl. 5)

This section, mainly shale and siltstone with metric layers of sandstone, is tied with the J3 seismic horizon.

According to logs and CPI interpretation, 13 sandstone levels have been recognised for a cumulative net pay of 18,1 m, all of them gas bearing.

See table showing cumulated net pay on the following page (page 29).

When the porosity is over 10% the Sw from CPI is about 20 to 30%.

Pressure readings in this interval (835,5 kg/cm² at 4796 m) give an average gradient of 1.74.

Depth	Thickn.	Ø %
4767,4 - 4770,0	2,6	10 - 15
4795,0 - 4796,0	1,0	7 - 10
4808,2 - 4809,0	0,8	14
4823,7 - 4824,0	0,3	8 - 12
4826,8 - 4828,3	1,5	5 - 15
4829,8 - 4830,4	0,6	7 - 15
4850,0 - 4851,3	1,3	11
4853,4 - 4854,7	1,3	15
4865,6 - 4867,7	2,1	12 - 15
4868,7 - 4870,2	1,5	6 - 8
4896,7 - 4898,5	1,8	8 - 12
4909,5 - 4912,0	2,5	13 - 14
4914,7 - 4915,5	0,8	13 - 17
Cumulated net pay:		18,1

- Prospect 4967 - 4994 m (see figs. 13 and 17, pl. 6)

This interval of sandstone is interbedded with shale and is tied with the J4 seismic horizon.

Top reservoir: 4967 m RKB
Gross pay: 27 m
Net pay: 19 m
Porosity: 12 - 14%
Sw: 80 to 100% (from logs)

This zone was formation tested with perforations from 4990 to 4975 m and from 4974 to 4967 m with packer at 4957 m. It produced 4278 l of salt water (salinity 125 g/l) with traces of gas in 11 hours 54 min. on a 1" choke see fig. 7).

Pressure readings in this interval (867,0 kg/cm² at 4990 m) give a gradient of 1.73.

- Zone 5052 m to T.D. (Triassic?)

See figs. 13 and 17, plate 6.

Below a red shale level found at 5032 m the well was bottomed in a sandstone body of low permeability (5 to 7%). According to logs the water saturation was between 80 and 100%.

This was confirmed by an FIT sampling at 5059,5 m which recovered 10 l of salt water (salinity: 82 g/l). Due to the tightness of the formation, only one pressure reading was available (880,8 kg/cm² at 5059,5 m) giving a pressure gradient of 1.75.

10 TENTATIVE CORRELATIONS

10.1 Tertiary and Cretaceous (fig. 19)

As no laboratory results are actually available on the 15/3-3 well for the Tertiary and Cretaceous sequence, the correlations between 15/3-1, 15/3-2 and 15/3-3 wells are only based on electric log characters (see fig. 18).

An attempt to use the Standard Lithostratigraphic Nomenclature for the North Sea (Deegan and Scull) has been made for the 15/3-3 well (see fig. 5).

10.2 Jurassic and Triassic (see fig. 20)

Essentially based on preliminary palynological results a tentative correlation between the three wells on block 15/3 is proposed. The main results can be summarised as follows:

- The Kimmeridgian - Oxfordian series drilled from 3947 to 4442 m on 15/3-1 seems to correspond to the interval 4017 to 4261 m in the 15/3-3 with an important reduction of the sand bodies on 15/3-3. A confirmation of this correlation should invalidate the seismic isochron map of the J1 horizon for the 15/3-3 zone.
- An electric correlation is assumed between levels 4750 - 4850 m in 15/3-1 and 4450 - 4500 m in 15/3-3 despite the apparent discrepancy in the palynological zonation (Nj5b doubtful in 15/3-1) around this depth.
- The coaly levels in 15/3-1 and 15/3-3 seem to be stratigraphic equivalent and the 15/3-1 well was probably stopped before reaching the equivalent of the J2 b sandstone level drilled from 4586 to 4632 m in 15/3-3.

- The J2 seismic correlation between 15/3-3 and 15/3-2 has also to be reconsidered, the Nj4 b palynozone (J2 b seismic marker on 15/3-3) corresponding to the third sandy level in 15/3-2 (zone 4550 - 4615 m).
- From a pressure point of view (see fig. 18) a similar high pressure gradient (1.90) was recorded in 15/3-1 between 4083 and 4480 m and in 15/3-3 between 4117 and 4370 m.

An important change of gradient appears in 15/3-3 between the upper level (zone 4262 - 4370 m) and the following horizon starting at 4522 m where the pressure gradient ranges between 1.70 and 1.75, similar to the gradient recorded in 15/3-2 at 440 m (1.73 gradient) in the upper sandstone body.

As for the Tertiary and Cretaceous series, an attempt to use the Standard Lithostratigraphic Nomenclature for the Central and Northern North Sea is done but only as equivalence and for some formations only (see fig. 5).

11 CONCLUSIONS

The integration of the 15/3-3 well results in the 15/3 block scheme is actually in progress.

The main questionable points can be summarised as follows:

- Palynological zonation of well 15/3-1 and 15/3-2 towards the base.
- Seismic interpretation of J1 horizon eastward of the fault on the central prospect and its relation with the J1 horizon on 15/3-1 well.
- Lateral extension of the main gas bearing sandstones (J2 b horizon).
- Lateral improvement of the reservoir characteristics for the J3 horizon represented on 15/3-3 well under a deltaic facies.

A geophysical re-interpretation of block 15/3 using recent migration of seismic data should start soon.

An attempt to make a geological interpretation of some seismic profiles is also in progress below the M2 unconformity.

A structural and sedimentological analysis of the dipmeter log (Geodip treatment) is also scheduled on the 15/3-3 well.

APPENDIX 1

CORE DESCRIPTIONS

Core 1	4262 - 4271 m	100% recovery
Core 2	4271 - 4289 m	" "
Core 3	4289 - 4307 m	" "
Core 4	4547 - 4562 m	" "
Core 5	4851 - 4860 m	" "
Core 6	4995 - 5004 m	" "

CORE DESCRIPTION

CUT: 9m (driller)

RECOVERED: 9.55m

LOSS: _____

100 %

COMPANY: EAN

WELL N°: 1573-3

CORE N°: 1

DATE: 31-03-79

DEPTHS: 4262-4271 (driller)

Recov. 9.55m (4262-4271.55)

Core depth on logs : 4264-4273.4

Scale 1/40

DEPTHS	% Co	PERM	POROS	SHOWS	DIPS	LOG	DESCRIPTION
0							Sandstone, dark grey, coarse to very coarse, angular to rounded, friable, slightly argillaceous.
4263	0					4263.1	Sandstone, grey hard, well sorted, calcareous, strongly cemented.
34						4263.4	
0						4264.0	Sandstone, friable a.a. Pebbles of Shale, dark grey.
4264	35					4264.6	calcareous Sandstone, hard, fine, grey.
38						4265.9	Sandstone, friable a.a., with rare dark grey to black pebbles to centimetric levels of Shale.
0						4265.9	Black Shale.
4266	0					4266.3	calcareous Sandstone a.a, black Shale pebbles.
0						4266.8	
42					30°	4267.3	Sandstone, friable - abundant coarse quartz.
4267	28				20°	4268	Sandstone, calcareous cemented, fine with abundant centimetric quartz grains and black Shale pebbles below 4268m.
0					0°	4268.9	
42						4269.5	Breccia to slumped levels of black Shale, and pebbles of calcareous Sandstone.
4269	31				15°	4270	
0					0°	4270.5	Sandstone, dark grey, friable a.a.
4270	22				0°	4270.8	calcareous Sandstone, med. grey, hard.
0					30°	4271	Sandstone, dark grey a.a.
4271	0					4271.55	

Fluorescence yellow pale to orange - cut white weak to strong

CORE DESCRIPTION

CUT: 18m (driller)

COMPANY: EAN

DATE: 01-04-79

RECOVERED: 18.15m 100 %

WELL N°: 15/3-3

DEPTHS: 4271-4289 (driller)

LOSS: _____
Scale 1/40 (Page 1 of 2)

CORE N°: 2

Recov. 18.15m (4271.55 4289.70)
Core depth on logs: 4274.4-4291.7

DEPTHS	% Co Co	PERM	POROS	SHOWS	DIPS	LOG	DESCRIPTION
4271.55							
4272							
4273	0						
4274	0						Sandstone, grey to dark grey, coarse to very coarse, friable, fairly well sorted, argillaceous cemented, Rare interbeds of black Shale and very fine micaceous Sandstone.
4275	0						black Shale pebbles (up to 5cm).
4276	0						
4277	0						
4278	34						4277.6 Psammite, black, very fine. 4277.8 Sandstone, grey to white grey, medium grained, very hard, calcareous cemented. 4278.3
4279	0						Sandstone, friable, coarse to very coarse a/a.
4280	0						Microconglomerate with 1 to 5 cm big quartz pebbles
4281							

yellow to white direct fluorescence

CORE DESCRIPTION

CUT: 18m (Driller)

COMPANY: EAN

DATE: 01.04.79

RECOVERED: 18.15m 100 %

WELL N°: 15/3-3

DEPTHS: 4271.4289m (Driller)

LOSS: Scale 1/40

CORE N°: 2
(Page 2 of 2)

DEPTHS	% Co ₂ Co	PERM	POROS	SHOWS	DIPS	LOG	DESCRIPTION
4281				↑ yellow to white direct fluorescence ↑			Sandstone coarse to very coarse friable a/a becoming more dark toward base of core
4282							
4283							Black Shale interbedded
4284							
4285							4284.4 Black Shale pebbles elongated
4286							
4287							4287.3
4288							Microconglomeratic Sandstone with Quartz grains up to 1cm - Abundant black Shale pebbles (1 cm diameter)
4289							
4289.7							

CORE DESCRIPTION

CUT: 18.0 (Driller)

COMPANY: EAN

DATE: 02-04-79

RECOVERED: 18.20 100 %

WELL N°: 15/3-3

DEPTHS: 4289.4307(Driller)

LOSS: _____

CORE N°: 3

Recovery: 18.20m. (4289.7-4307.9)

Scale 1/40 (Page 1 of 2)

Core Depth on logs: 4291.7-4309.9

DEPTHS	% CO ₂ CO	PERM	POROS	SHOWS	DIPS	LOG	DESCRIPTION
4289.7							
4290				↑			
						4290.3 4290.4	v. fine Sandstone
4291							Sandstone grey to dark grey coarse to very coarse, well sorted argillaceous cemented.
4292							Rare black Shale pebbles and very thin levels of Sandstone fine to very fine (Psammite)
4293							
4294				↑			
				White fluorescence.		4294.3 4294.6	
4295							
4296							
4297						4297.3	Sandstone light grey fine to medium hard, calcareous cemented.
4298	36					4298.0 4298.5	Sandstone very fine, dark grey argillaceous and micaceous Sandstone light grey calcareous a/a.
4299							

CORE DESCRIPTION

CUT: 18.0 (Driller)

COMPANY: EAN

DATE: 22.04.79

RECOVERED: 18.20 100 %

WELL N°: 15/3-3

DEPTHS: 4289-4307 (Driller)

LOSS: _____

CORE N°: 3

(Page 2 of 2)

DEPTHS	% Co	PERM	POROS	SHOWS	DIPS	LOG	DESCRIPTION
4299				↑		[Pattern]	4299.1 Sandstone dark grey, coarse a/a.
						[Pattern]	4299.6 Sandstone black v. fine and Shale laminations
4300						[Pattern]	4299.8 Sandstone grey coarse with Shale laminations
	0					[Pattern]	
4301						[Pattern]	4301.0 Black Shale micaceous with rare interbeds of black Sandstone. Abundant slumped figures.
						[Pattern]	4301.7
4302						[Pattern]	
	0					[Pattern]	
4303						[Pattern]	
	0					[Pattern]	
4304						[Pattern]	Sandstone coarse grey friable a/a Rare Shale pebbles
4305						[Pattern]	
	0					[Pattern]	
4306						[Pattern]	4306.4 Sandstone black v. fine argillaceous with abundant interbeds of black Shale
	0					[Pattern]	
4307						[Pattern]	4307.2 Coarse Sandstone a/a
						[Pattern]	4307.4 Black Sandstone and black Shale laminations a/a.
4307.9				↑		[Pattern]	

white fluorescence

CORE DESCRIPTION

CUT: 15 m

COMPANY: E&N

DATE: 04 - 05 May 1979

RECOVERED: 15 100 %

WELL N°: 15/3 - 3

DEPTHS: 4547 - 4562

LOSS: Scale 1:40 (Page 1 of 2)

CORE N°: 4

 Recovered 15m (4547-4562m)
 core depth on logs :

DEPTHS	% Co Co Co	PERM	FOROS	SHOWS	DIPS	LOG	DESCRIPTION
4547	0			CCL4			Coal, massive brittle
4548	0						
4549	0			▲			Sandstone very fine to fine strongly micaceous pyrite, Argilaceous, Brownish, Well cemented with millimetric interbeds of siltstone to shale dark grey to brownish.
4550	0			△			
4551	0			△			
4552	2			△			
4553	25			△			Dolomitic siltstone to silty shale micaceous pyrite.
4554	6			▲			Siltstone to silty shale micaceous, strongly pyrite (centimetric to millimetric interbeds)
4555	1			▲			
4556	0			▲			
4557	0			△			
4558	0			△			Sandstone fine rarely medium, brownish subangular argillaceous with open vertical to subvertical fractures.

CORE DESCRIPTION

CUT: 15 m

COMPANY: EAM

DATE: 04 - 05 May 1979

RECOVERED: 15 m 100 %

WELL N°: 15/3 - 3

DEPTHS: 4547 - 4562

LOSS: -----

CORE N°: 4

Scale: 1/40

page 2 of 2

DEPTHS	% CaCO ₃	PERM	POROS	SHOWS	DIPS	LOG	DESCRIPTION
4556				CCL4			millimetric inclusions of Coal
0				△			
4557				△			Sh, slty, drk gy Sdst as above
0				△			
48				△			Sltst, to slty Sh (millimetric intbds) abund crossed beddings figures, pyrite and mica from 4557 ⁷⁰ to 4558 ³⁰ : vertical fracture filled w/dolo
48				△			
0				▲			
4559				▲			Sdst, v. fn
8				▲			
0				△			Sltst to slty Sh, drk gy to black micac w/abund millimetric Coal inclusions and micac, pyrite
0				△			
4561				△			Sh, drk gy, compact
0				△			
4562				△			
0							

△: weak fluorescence on CCL4 extraction
 ▲: fair to good " " " " " "
 while core recovering: abundant gas coming out of core
 on fresh fractures: strong hydrocarbon smell disappearing in a few seconds

no direct fluorescence
 weak to locally fair yellow greenish fluorescence on CCL4 extraction

dip not evident

CORE DESCRIPTION

CUT: 9m
 RECOVERED: 9.35m
 LOSS: _____
 Scale 1/40

100 %

COMPANY: EAN
 WELL N°: 15/3-3
 CORE N°: 5

DATE: 21.05.79
 DEPTHS: 4851-4860 (Driller)

Recommended 9.35m (4851 - 4860.35)
 core depth on logs :

DEPTHS	% Co ₂ Co	PERM	POROS	SHOWS	DIPS	LOG	DESCRIPTION
4851	0			↑ weak yellowish fluorescence after extraction with tetrachloride ↑		S	Silt light grey with abundant millimetric floating quartz grains
4852	0					S	4852.10 Shale black coaly fissurated 4852.40
4853	0				20'	S	Silt light grey a/a 4853
4854	0				0	S	Silt dark grey to black with horizontal shale interbeds
4855	0				10'	S	4854.6 Coal 4854.7
4856	0					S	Shale dark grey to black with decimetric interbeds of siltstone light grey - nodules of coaly black shale
4857	0					S	
4858	0				10'	S	4858.3
4859	0					S	Siltstone light grey, Centimetric levels of dark grey shale
4860	0					S	
4860.35							

CORE DESCRIPTION

CUT: 9m
 RECOVERED: 9m
 LOSS: Scale 1/40

100 %

COMPANY: EAN
 WELL NO: 15/3-3
 CORE NO: 6

DATE: 28.05.79
 DEPTHS: 4995.5004m(Driller)

Recovered 9m (4995.5004m)
 core depth on logs :

DEPTHS	% Co ₂ Co	PERM	POROS	SHOWS	DIPS	LOG	DESCRIPTION
4996	0						Shale dark brown silty to v.fine sandy micromicaceous
4996	0						4996.1 Shale a/a grading to siltstone v.shaly dark brown micromicaceous
4997	0						4996.8 Shale dark brown 4997.0
4997	1						Sandstone dark brown v.fine.micaceous. compact 4997.6
4998	0						Sandstone beige brown fine to medium micaceous, argillaceous,compact. grading to v.fine sandstone
4999	0						4998.9 Shale dark brown v.silty 4999.2 Sandstone beige brown v.fine,micaceous,compact
5000	23						4999.5 Shale dark brown silty 4999.7 Microconglomeratic sandstone fine to med.,rounded 5000.0 dolomitic,and dark brown Shale 5000.4 Sandstone to siltstone dark brown a/a
5001	11						Sandstone white v.fine to fine micaceous,dolomitic 5000.9
5001	0						Sandstone to siltstone dark brown 5001.4
5002	0						Shale dark brown silty micaceous 5002.0 Sandstone to siltstone dark brown with shale interbeds 5002.4
5003	0						Shale dark brown silty micaceous 5002.9 Sandstone beige brown v.fine,micaceous 5003.1
5004	0						Siltstone dark brown grading to sandstone v.fine micaceous 5003.8 Shale dark brown 5004.0

Gas seepage - rare weak white fluorescence.

APPENDIX 2

SIDEWALL CORE DESCRIPTIONS

Run 1	2343,0 - 1450,0 m	18 full bullets	
Run 2	4051,0 - 3301,0 m	21 "	"
Run 3	4787,5 - 4540,0 m	7 "	"
Run 4	4535,0 - 4095,0 m	14 "	"
Run 5	4787,5 - 4420,0 m	3 "	"
Run 6	4715,0 - 4068,5 m	12 "	"
Run 7	5105,0 - 4795,0 m	1 "	"
Run 8	5105,0 - 4795,0 m	6 "	"

		SERVICE COMPANY: SPE
		ASKED: 30
SIDE WALL CORES DESCRIPTION		RECOVERED: 19
		SHOT : 30
WELL : 15/3-3	RUN N° : 1	LOST : 11
LICENCE : 025	PAGE N°: 1	FULL BULLET : 18
		C. GUESDON
		DATE : 11.02.1979

lr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence	
					CUT
1	2843	40	MARL, grey, very soft		
2	2837	15	MARL, grey, very soft		
3	2815	40	MARL, whitish, soft		
4	2791	50	MARL, grey, med. hard		
5	2767	0	lost		
6	2758	40	MARL, grey, med. hard		
7	2720	60	MARL, light pink, very hard		
8	2687	0	lost		
9	2665	80	MARL, dark grey - LIMESTONE, white cream, med. hard		
10	2595	100	SHALE, black to dark grey, micaceous		
11	2565	0	lost		
12	2530	80	SHALE, greenish, glauconitic		
13	2465	0	lost		
14	2435	0	empty		
15	2363	85	sand, fine, rounded to subrounded, glauconitic		
16	2340	80	Shale, black to dark grey		
17	2275	90	Sand, very fine, micaceous		
18	2240	0	lost		

SIDE WALL CORES DESCRIPTION			SERVICE COMPANY: SPE
			ASKED: 30
			RECOVERED: 19
			SHOT : 30
WELL : 15/3-3		RUN N° : 1	LOST : 11
LICENCE : 025		PAGE N°: 2	FULL BULLET : 18
		DATE : 11.02.1979	
			C. Guesdon

tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence	
				Intensity	CUT
19	2225	0	lost		
20	2215	80	Shale, grey to pink, micromicaceous		
21	2190	0	lost		
22	2175	100	Shale, black to dark grey, micaceous, very pyritic		
23	2165	90	Shale, dark grey to brown, micaceous, very pyritic		
24	2100	100	Shale, dark grey to brown, micaceous, soft		
25	2040	100	Shale, brown, micromicaceous		
26	1975	100	Shale, black to dark grey, micromicaceous		
27	1925	0	lost		
28	1810	0	lost		
29	1685,5	0	lost		
30	1450	0	lost		

SIDE WALL CORES DESCRIPTION		SERVICE COMPANY: SCHLUM	
		ASKED: 30	RECOVERED: 27
WELL : 15/3-3	RUN N°: 2	SHOT : 30	LOST : 3
LICENCE : 025	PAGE N°: 1	FULL BULLET : 21	
		C. Guesdon	
		DATE : 13.03.1979	

tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence	
					CUT
1	4051	30	Shale, dark brownish to black, silty, loc VF sandy, Micro-pyr Co ³ Ca = 3%		
2	4042	30	Shale, dark brownish, silty, loc SL MIC w/laminae of silt to VF sand		
3	4034	30	Shale A/A Co ³ Ca = 2,5%		
4	4028	25	Shale A/A		
5	4023	30	Shale A/A w/laminae of silt to VF sand, pyr. Co ³ Ca= 1%		
6	4020	25	Shale A/A		
7	4018		Lost		
8	4012,160		Shale, strong calc, LT gry to gry, soft, silty, Loc SL.MIC, w/ pyr incl. Co ³ Ca = 21%		
9	4006,8	40	Calc shale, gry-drk, soft, silty, loc SL.MIC. w/rare pyr incl. Co ³ Ca = 13%		
10	3995,3	50	Shale, strong calc/marl, gry, soft, SL silty, Loc SL.MIC Co ³ C = 36%		
11	3975,7	30	Shale red brown, silty, strong calc. Co ³ Ca = 26%		
12	3923,7	60	Shale strong calc, gry, indurated, silty to VF sandy Co ³ Ca = 25%		
13	3898	70	Calc. shale, gry mod.ind, sl silty, SL MIC, w/pyr.incl Co ³ Ca = 12%		
14	3879,3		LOST		
15	3863,7		EMPTY		
16	3854,8	50	Shale, sl.calc, gry to gry-drk, soft, silty to VF sandy, SL MIC, loc mic-pyr Co ³ Ca = 9%		
17	3800	100	Shale sl.calc, gry-drk, mod ind, silty Mic. Co ³ Ca = 6%		
18	3751	30	Marl, drk gry, ind, SL silty, w/pyr incl. Co ³ Ca = 43%		

SIDE WALL CORES DESCRIPTION		SERVICE COMPANY: SCHLUM	
		ASKED: 30	RECOVERED: 27
WELL : 15/3-3	RUN N°: 2	SHOT : 30	LOST : 3
LICENCE : 025	PAGE N°: 2	FULL BULLET : 21	
	DATE : 13.03.1979	C. Guesdon	

tr : trace - M : medium - G : good

N°	DEPTH	REC %	L I T H O L O G Y	Fluorescence			
							CUT
19	3745	40	Shale strong calc, gry-drk, soft silty, micac. Co ³ Ca = 23%				
20	3740	50	Marl, LT gry to gry, soft, SL slty, lac Mic, (Glauconite?) Co ³ Ca=50%				
21	3735,5		EMPTY				
22	3675		LOST				
23	3632	40	Calc.shale, LT gry, sandy, loc grad to sandstone V. argil, glauconitic, friable Co ³ Ca = 14%				
24	3626,5	40	Calc shale, gry-drk, soft, v.sandy, micac. grad to sand v.argil, VF to F, rare med. subang. w/glauc. Co ³ Ca = 18%				
25	3620		EMPTY				
26	3529	50	Marl, LT gry to gry, soft slty to VF sandy Mic, glauc. Co ³ Ca=53%				
27	3520		EMPTY				
28	3401,7		EMPTY				
29	3311,8		EMPTY				
30	3301	50	Argil limestone, gry, mod hd, mudstone, TR of MIC. Co ³ Ca = 77%				

		SERVICE COMPANY: SCHLUM	
		ASKED: 30	
		RECOVERED: 18	
		SHOT : 30	
		LOST : 12	
		FULL BULLET : 7	
SIDE WALL CORES DESCRIPTION			
WELL : 15/3-3	RUN N° : 3		
LICENCE : 025	PAGE N°: 1		
	DATE : 16.06.1979		
		C. Guesdon	

tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence	
					CUT
1	4787,5		LOST		
2	4776		EMPTY		
3	4773	20	Shale, gry-brwn, HD, slty, loc VF sandy		
4	4770		EMPTY		
5	4760		LOST		
6	4750		LOST		
7	4735		EMPTY		
8	4725	15	Shale, brwn, HD, slty to VF sandy, mic-micac.		
9	4715		EMPTY		
10	4705		EMPTY		
11	4695		LOST		
12	4688	40	Sandstone, beige-brwn, VF to F, subang. SL mic, friable, argil, loc SL calc		
13	4681		LOST		
14	4670		LOST		
15	4660	50	Shale, gry-brwn to brwn, HD, SL slty, mic.		
16	4650		EMPTY		
17	4640		LOST		
18	4630		LOST		

SIDE WALL CORES DESCRIPTION			SERVICE COMPANY: SCHLUM
			ASKED: 30
WELL : 15/3-3			RECOVERED: 18
LICENCE : 025			SHOT : 30
RUN N° : 3			LOST : 12
PAGE N° : 2			FULL BULLET : 7
DATE : 16.06.1979			C. Guesdon

tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence		
				CUT		
19	4628		LOST			
20	4625	20	Sandstone, beige-brwn, F, subang, friable, argil			
21	4623		LOST			
22	4620		LOST			
23	4610	20	Sandstone, beige-brwn, med, subang, friable, argil			
24	4605	20	Sandstone, beige to beige-brwn, F to med, subang, friable, argil			
25	4593		EMPTY			
26	4590		LOST			
27	4585		EMPTY			
28	4580		EMPTY			
29	4570		EMPTY			
30	4540		EMPTY			

		SERVICE COMPANY: SCHLIM	
		ASKED: 30	
		RECOVERED: 18	
		SHOT: 29	
		LOST: 12	
		FULL BULLET: 14	
SIDE WALL CORES DESCRIPTION			
WELL :	15/3-3	RUN N° :	4
LICENCE :	025	PAGE N° :	1
		DATE :	16.06.1979
			C. Guesdon

tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence		
						CUT
1	4535		LOST			
2	4530	10	Siltstone to sandstone VF, beige-brwn, subang. friable, calc. cmt			
3	4526		LOST			
4	4525		LOST			
5	4501		LOST			
6	4500		LOST			
7	4489		LOST			
8	4480		LOST			
9	4469		LOST			
10	4458		LOST			
11	4445		LOST			
12	4430		LOST			
13	4420		LOST			
14	4405	10	Shale, brwn, drk-brwn, HD slty, loc VF sandy rare gas BBLES			
15	4390	40	Shale, gry-drk, med HD, slty, SL mic			
16	4375	20	Shale, gry-drk, med HD, slty, SL mic			
17	4351	25	Shale, gry-drk to blk med HD, mic w/VF incl of sandstone LT GY to white, VF to F ang/subang, argil			
18	4327	30	Sandstone, lt beige, med to crs, V friable, subang argil			

SIDE WALL CORES DESCRIPTION		SERVICE COMPANY: SCHLUM	
		ASKED: 30	RECOVERED: 18
WELL : 15/3-3	RUN N° : 4	SHOT : 29	LOST : 12
LICENCE : 025	PAGE N°: 2	FULL BULLET : 14	
DATE : 16.06.1979		C. Guesdon	

Tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence	
					CUT
19	4254	20	Shale, gry-drk, med HD, mic w/laminae of sandstone LT beige, VF loc F, subang, mic, SL calc		
20	4239	100	Sandstone, LT beige to beige, med to CRS, subang, friable, SL mic, calc CMT		
21	4238	50	Sandstone, gry-beige, F to med rare CRS, subang friable, argil, loc SL calc		
22	4233	40	Sandstone, gry-beige, med to CRS, subang, friable, SL calc		
23	4201	5%	Shale, drk-gry-brwn, V.HD, slty, SL mic		
24	4175		EMPTY		
25	4150	10	Shale, drk-brwn, HD, slty to VF sandy, mic-mic		
26	4125		MF		
27	4112	25	Sandstone, beige, beige-brwn, F to med loc CRS subang, friable, SL calc w/incl of shale A/A		
28	4100		EMPTY		
29	4125		EMPTY		
30	4095	30	Shale, gry-drk-brownish, HD, slty to VF sandy, mic-mic w/F incl of SST beige, VF to F, mic-mic, calc		

SIDE WALL CORES DESCRIPTION			SERVICE COMPANY: SCHLUM	
			ASKED: 30	RECOVERED: 30
WELL : 15/3-3		RUN N° : 5	SHOT : 6	
LICENCE : 025		PAGE N° : 1	LOST : 0	
		DATE : 17.06.1979	FULL BULLET : 3	
			C. Guesdon	

tr : trace - M : medium - G : good

N°	DEPTHS	REC	L I T H O L O G Y	Fluorescence	
				tr	CUT
1	4787,5	30%	Shale, gry-brwn, HD, slty, mic		
2	4776	40%	Shale, brown, HD, V.slty, mic		
3	4760		EMPTY		
4	4756		Misfire		
5	4750	40	Shale, gry-drk,-brwnish, HD, strong slty, mic.		
6	4715		EMPTY		
7	4650		Misfire		
8	4645		EMPTY		
9	4640		Misfire		
10	4593		"		
11	4585		"		
12	4580		"		
13	4577,5		POOH after shot No. 12		
14	4570				
15	4540				
16	4535				
17	4525				
18	4517				

		SERVICE COMPANY: SCHLUM	
		ASKED: 30	
SIDE WALL CORES DESCRIPTION		RECOVERED: 30	
		SHOT: 6	
WELL: 15/3-3		LOST: 0	
LICENCE: 025		FULL BULLET: 3	
RUN N°: 5			
PAGE N°: 2			
DATE: 17.06.1979			
		C. Guesdon	

tr : trace - M : medium - G : good

N°	DEPTHS	REC	L I T H O L O G Y	Fluorescence	
				tr	CUT
19	4510		Not shot		
20	4500		"		
21	4495		"		
22	4489		"		
23	4480		"		
24	4469		"		
25	4460		"		
26	4458		"		
27	4445		"		
28	4435		"		
29	4430		"		
30	4420		"		

SIDE WALL CORES DESCRIPTION			SERVICE COMPANY: SCHLUM
			ASKED: 24
WELL : 15/3-3			RECOVERED: 24
			SHOT : 24
LICENCE : 025			LOST : 0
			FULL BULLET : 12
RUN N° : 6			C. Guesdon
PAGE N° : 1			
DATE : 18.06.1979			

fr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence	
				HT	CUT
1	4715	20	Shale, drk-brwn to blk, med HD, mic, slty gas bbls		
2	4712	15	Shale, drk-brwn to blk, med HD, mic, slty gas bbls		
3	4705		EMPTY		
4	4650		EMPTY		
5	4655	25	Shale, drk-brwn, med HD, slty, SL mic		
6	4640		EMPTY		
7	4580		EMPTY		
8	4570		EMPTY		
9	4554	10	Shale, gry-drk, brownish, soft, v.slty, to silt v.argil SL mic		
10	4540		EMPTY		
11	4510		EMPTY		
12	4500	10	Shale, drk-brwn, HD, SL slty, mic-mic, w/rare pyr incl.		
13	4489		EMPTY		
14	4480	5	Shale, gry-drk, HD, slty, mic, SL, pyr		
15	4468		EMPTY		
16	4445	5	Shale, gry/drk-brownish, med HD, SL slty, mic		
17	4435		EMPTY		
18	4430	15	Shale, gry-drk to blk, med HD, SL slty, mic		

SIDE WALL CORES DESCRIPTION				SERVICE COMPANY: SCHLUM	
				ASKED: 24	RECOVERED: 24
WELL : 15/3-3		RUN N°: 6		SHOT : 24	LOST : 0
LICENCE : 025		PAGE N°: 2		FULL BULLET : 12	
		DATE : 18.06.1979		C. Guesdon	

tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence	
					CUT
19	4425	10	Shale, gry-drk-brownish, HD, SL slty, mic-mic		
20	4420	10	Shale, gry-drk, med HD, SL slty, mic		
21	4175		EMPTY		
22	4100		EMPTY		
23	4075	15	Shale, gry-drk to blk, med HD, SL mic and slty		
24	4068,5	10	Shale, gry-drk to blk, med HD, SL slty mic		

SIDE WALL CORES DESCRIPTION		SERVICE COMPANY: SCHLUM	
		ASKED: 24	RECOVERED: 23
WELL : 15/3-3		RUN N° : 7	SHOT : 7
LICENCE : 025		PAGE N°: 1	LOST : 1
		DATE : 18.06.1979	FULL BULLET : 1
		C. Guesdon	

tr : trace - M : medium - G : good

N°	DEPTHS	REC	L I T H O L O G Y	Fluorescence	
					CUT
1	5105		EMPTY		
2	5086		LOST		
3	5082		EMPTY		
4	5073,5		EMPTY		
5	5069,5		EMPTY		
6	5060	10%	Silt beige, friable, loc SL ind, and LMST, gry-white, beige-brwn, microxline soft.		
7	5052		EMPTY		
8	5020		MISFIRE		
9	4985		"		
10	4979		"		
11	4976		"		
12	4972		"		
13	4970		"		
14	4962		"		
15	4960		"		
16	4958		"		
17	4923,5		"		
18	4912		STOP SHOOTING - POOH		

		SERVICE COMPANY : SCHLUM	
		ASKED : 24	
		RECOVERED : 23	
SIDE WALL CORES DESCRIPTION		SHOT : 7	
WELL : 15/3-3		RUN N° : 7	
LICENCE : 025		PAGE N° : 2	
		LOST : 1	
		FULL BULLET : 1	
		C. Guesdon	

tr : trace - M : medium - G : good

N°	DEPTHS	REC	LITHOLOGY	Fluorescence	
				1	CUT
19	4907		NOT SHOT		
20	4898		" "		
21	4845		" "		
22	4810		" "		
23	4795		" "		
24	4795		" "		

		SERVICE COMPANY: SCHLUM
		ASKED: 24
		RECOVERED: 24
		SHOT : 11
		LOST : 0
		FULL BULLET: 6
SIDE WALL CORES DESCRIPTION		
WELL :	15/3-3	RUN N° : 8
LICENCE :	025	PAGE N°: 2
		DATE : 18.06.1979
		C. Guesdon

tr : trace - M : medium - G : good

N°	DEPTHS	REC %	L I T H O L O G Y	Fluorescence	
				CUT	
19	4907,3	20	Siltstone, gry-beige, med HD, SL mic, V.argil		
20	4898		MISFIRE		
21	4845		"		
22	4810		"		
23	4795		"		
24	4795		"		

FORTROLIG
i h.t. Beskyttelsesinstruksen,
jfr. offentlighedslovens
§ nr.

2 - JAN 1980
REGISTRERT
OLIEDIREKTORATET

FIGURES

Coord: x: 58° 52' 31.3" ground: - 109
 y: 01° 46' 46.3" Z RKB: + 24
 Line: 580 517 SP: 260 133m
 Depths datum: RKP
 Rig: PENTACONE 84
 Stopped in: TRIASSIC (?) SANDSTONE

Spudded: 05th JANUARY 1979
 Started drilling: 05th JANUARY 1979
 At T.D: 02nd JUNE 1979
 Completed: 10.08.79
 T.D Driller: 5115m T. D. Logger: 5111.5m

Well: 15/3-3
 Country: NORWAY

OPERATOR ELF AOUTTAINE NORGE A/S

LICENCE 025 OWNED BY PETROMOD

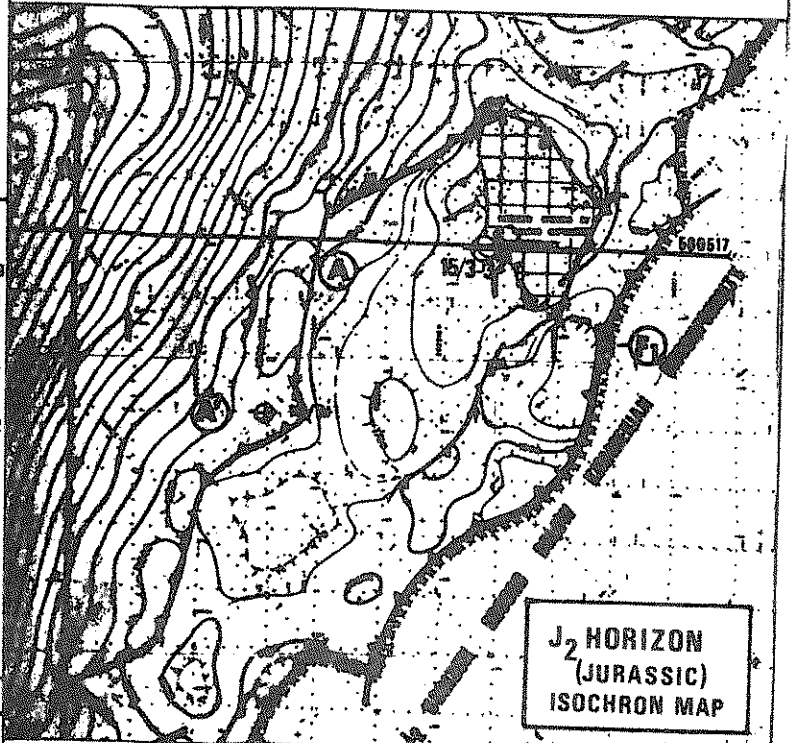
TARGETS
 JURASSIC SANDSTONES

RESULTS
 - GAS AND CONDENSATE IN JURASSIC SANDSTONES:
 - PLUGGED AND ABANDONED
 2 - JAN 1980

REGISTRERT
 OLJEDIREKTORATET

CASINGS	CORES	%
30" : 195m	1 4262 - 4271	100
20" : 857m	2 4271 - 4289	"
13 3/8" : 2845m	3 4289 - 4307	"
9 5/8" : 4040m	4 4547 - 4562	"
7" Liner: 5109m	5 4851 - 4860	"
	6 4995 - 5004	"

SHOWS	SVC	%
cl to c3, locally ic4 to nc4 in Jurassic levels.	1 2843 - 1975	30/18
	2 4051 - 3301.5	30/21
	3 4787.5 - 4540	30/7
	4 4535 - 4025	30/14
	5 4787.5 - 4420	30/3
	6 4715 - 4068.5	24/12
	7 5105 - 4795	24/1
	8 5105 - 4795	24/6



LOGS

TSF-SONIC-GR-SP	FTC-CNI-GR-CAL	
866 - 195	1 2857 - 858	1
2862 - 854.4	2 4052.7 - 2843.8	2
3827.7 - 2844	3 4391 - 4042.4	3
4052 - 3750	4 4767 - 4300	4
4310.5 - 4042.4	5 5110 - 4740	5
4389.7 - 4042.4	6 5110 - 4740	6
4560.5 - 4250		
4756 - 4438		
4962 - 4650		
5110 - 4740		
	<u>PDT</u>	
	2862 - 2000	1
	4057.5 - 2847	2
	4762.5 - 4037.4	3
	5111 - 4740	4
	<u>VERTICAL SHEET</u>	
	<u>PROFILE</u>	
	118 shots betw.	
	5103 and 1580	
<u>MLL - MSFL</u>		
4390.5 - 4042.3		
4767 - 4334		
5110 - 4725		
<u>SONIC LONG SPACING</u>		
4048.8 - 2844		

tests

RFT: 75 pressure readings from 5059.5 to 4117m
 4 sampling

FIT: 4 sampling and pressure readings

DST: DST no.1 : 4990.4967m
 Recovered 4270l water: 125g/l salinity
 DST no.2 bis: 4632.4515m
 Flowed 520,000m³ gas and 60m³ parafinic condensate in 23^{hours} 40min.

Checked A. PAOLONT
 Date 07.79.

FIG.1

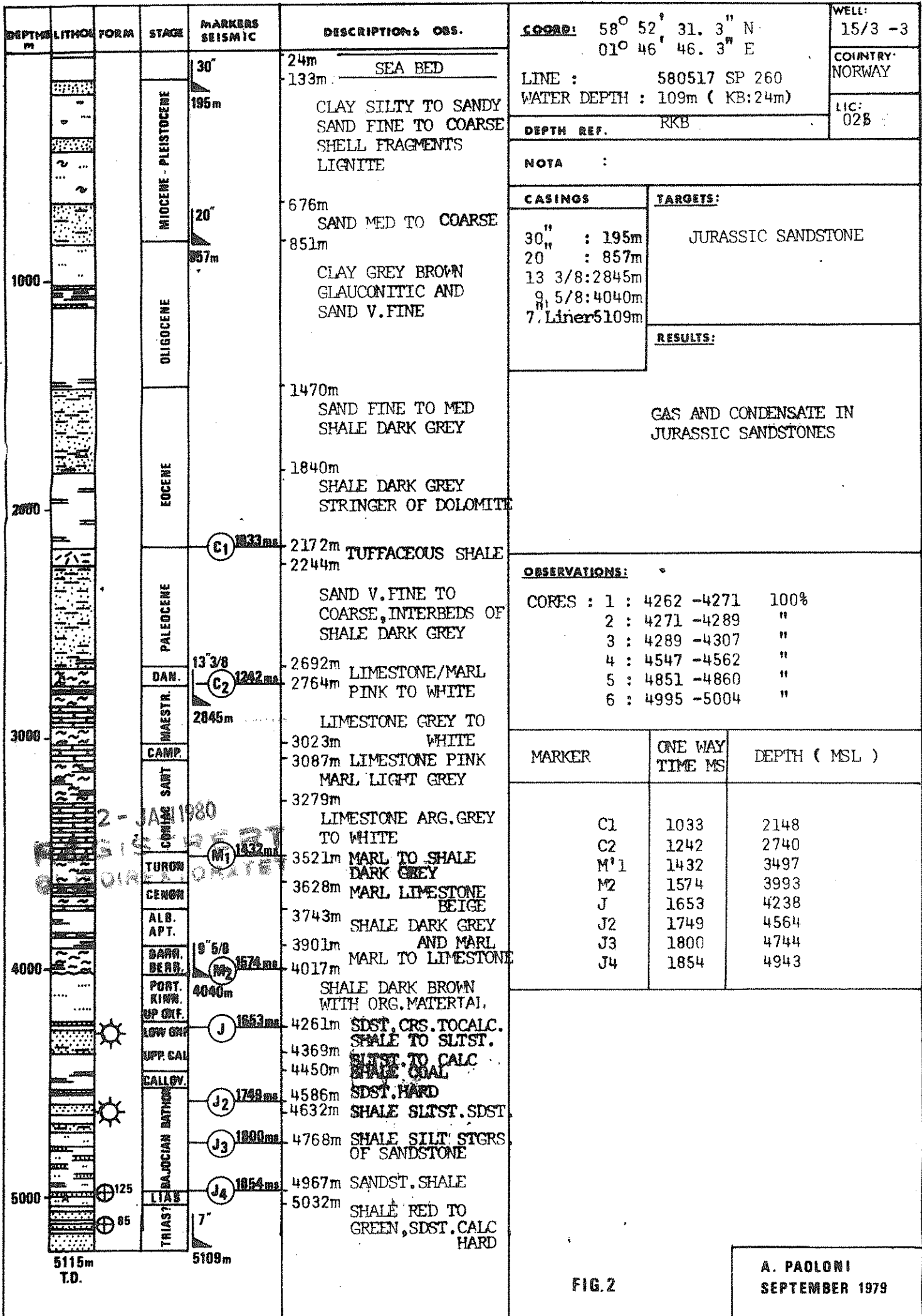


FIG. 2

A. PAOLONI
SEPTEMBER 1979

15/3.3 RFT PRESSURE READINGS

ZONE	DEPTH (RKB)	FORM PRESS kg/cm ²	GRAD:	FLOW TIME	ZONE	DEPTH (RKB)	FORM PRESS kg/cm ²	GRAD	FLOW TIME
4017-4246	4117	796.4	1.934	4'20	4679-4693 PROSPECT J2C	4683.5	792.8	1.692	6'
	4141	797.8	1.926	12'30		4685.5	793.1	1.692	7'
	4181.5	806.2	1.927	2'55	4768-4935 PROSPECT J3	4769.5	834.4	1.749	4'
	4233	802.9	1.896	1'45		4796	835.9	1.742	6'
	4235.5	803.2	1.896	3'		4809	841.3	1.749	4'
	4242	803.7	1.894	2'30		4828.3	837.0	1.733	4'
	4246.5	804.5	1.894	14.10		4851.2	847.1	1.746	3'
4261-4369 (PROSPECT J)	4261.5	806.4	1.892	3'30	4870	868.5	1.783	3'	
	4261.5	804.9	1.888	9'		4898.5	848.7	1.732	4'
	4261.6	810.5	1.901	.		4912	843.4	1.716	3'
	4261.8	810.5	1.888	2'30		4967-4994 PROSPECT J4	4968.5	874.9	1.760
	4262	806.5	1.892	2'30	4968.7		858.6	1.728	7'
	4262	811.1	1.903	64'	4971		876.3	1.762	11'
	4262.5	805.0	1.888	6'	4971.4		863.6	1.737	7'
	4264	806.4	1.891	2'20	4972.6		861.7	1.732	5'
	4264	805.0	1.888	2'30	4973		878.3	1.766	9'
	4267.2	806.7	1.890	2'30	4981.5		862.2	1.730	7'
	4278.5	807.6	1.887	2'	4988.7		858.8	1.721	6'
	4291	809.1	1.885	2'	4989.8		855.7	1.714	4'
	4305	810.5	1.882	2'20	4990		867.6	1.738	6'
	4342	814.3	1.875	3'10	4990	867.7	1.738	7'	
4522-4556 (PROSPECT J2A)	4524.5	795.6	1.758	6'	5052-TD (TRIAS)	5059.5	882.6	1.744	7'
	4543	799.6	1.759	13'					
	4555.1	800.1	1.756	22'					
4588-4633 (PROSPECT)J2B	4588.6	789.3	1.720	6'					
	4591	789.9	1.720	12'					
	4611	790.0	1.713	7'					
	4620	790.1	1.710	8'					
	4630	792.5	1.711	6'					

FIG. 6

RFT and FIT Sampling Data 15/3-3

Test	Depth (RKB)	Flowing pressure ₂ kg/cm	Flowing time (chamber full)	Total time set	Static pressure	Sampling data
RFT 12	4262	≈ 245	10'	19'30	806,5	Recovered 7800 cc gas 2600 cc condensate (d: 0.805) Chamber pressure: 183 kg/cm ² at surface)
RFT 22	4261,8					Seal failure
RFT 23	4262,5	≈ 280	10'	31'	805,0	Seal valve failure Recovered: 1600 cc mud with traces of condensate Chamber pressure: 0
RFT 24	4261,5	≈ 430	7'	22'	804,9	Seal valve failure Recovered: 2500 cc condensate Chamber pressure: 0
FIT 1	5059,5				899,1 uncorrected	10 l formation water + filtrate Salinity: 82 g/l
FIT 3	4990				865,8 uncorrected	10 l Filtrate Salinity: 35,8 g/l
FIT 4	4626,5				792,3 uncorrected	9 l gas at atmospheric pressure 1 l mud (salinity 40 g/l)
FIT 5	4262				843,8 uncorrected	4,9 l gas Transferred at 150 bars 5,6 l Oil

FIG.7

DST RESULTS

DST 1 PERFORATION : 4990/.4975 m DEPTH PACKER : 4958 m
 : 4974. 4967 m

INITIAL FLOW	1'	1'	1'	BHP	506.21	761.85	808.46
				WHP	128.66	94.91	126.55
INITIAL SHUT IN	19'	20'	61'	BHP	814.08	853.11	854.51
				WHP	135.69	173.31	174.64
	CHOKE	DUR.	BHP kg/cm ²	WHP	PRODUCTION		
FINAL FLOW	8/64	9'	714.11	55.5			
	10/64	21'	742.35	73.8			
	32/64	4'	712.20	14.06			
	64/64	5'	704.89	0			
	8/64	25'	694.98	0			
	25/64	90'	683.59	0			
	47/64	483'	669.88	0			
FINAL BUILD UP		720'	NO PRESSURE RECORD BY FLOPETROL				

RECOVERED ON REVERSE CIRCULATION : 4278 l EMULSIONED SALT WATER
 NaCl 125 g/l
 pH 7

DST 2 BIS
 PERFORATION : 4632. 4615m
 DEPTH PACKER 4600m

OPERATION	CHOKE	DURATION		BHP	WHP	GAS RATE	OIL RATE	GOR
		Hr	mm	Kg/cm ²	Kg/cm ²	m ³ /d	m ³ /d	m ³ /m ³
INITIAL FLOW		00	01	695.48	279.82			
INITIAL SHUT IN		00	14	785.75	281.02			
FINAL FLOW	24/64	00	08	578.35	142.02			
	32/64	00	08	576.73	112.49			
	48/64	00	15	589.03	137.10			
	64/64	01	17	560.00	70.31			
	{ 64/64	15	28	515.84	43.45	548400	66.6	8234
	{ 48/64							
	44/64	03	14	510.36	128.31	540500	63.4	8581
	32/64	03	03	508.25	205.30	514300	60.0	8572
FINAL BUILD UP		24	00	778.51	-			

CUMULATED PRODUCTION : 520.000 m³ GAS D: 0.656/AIR
 : 60 m³ PARAFINIC CONDENSATE 41.5 API AT 60° F
 : 1.6 m³ WATER

FIG. 8

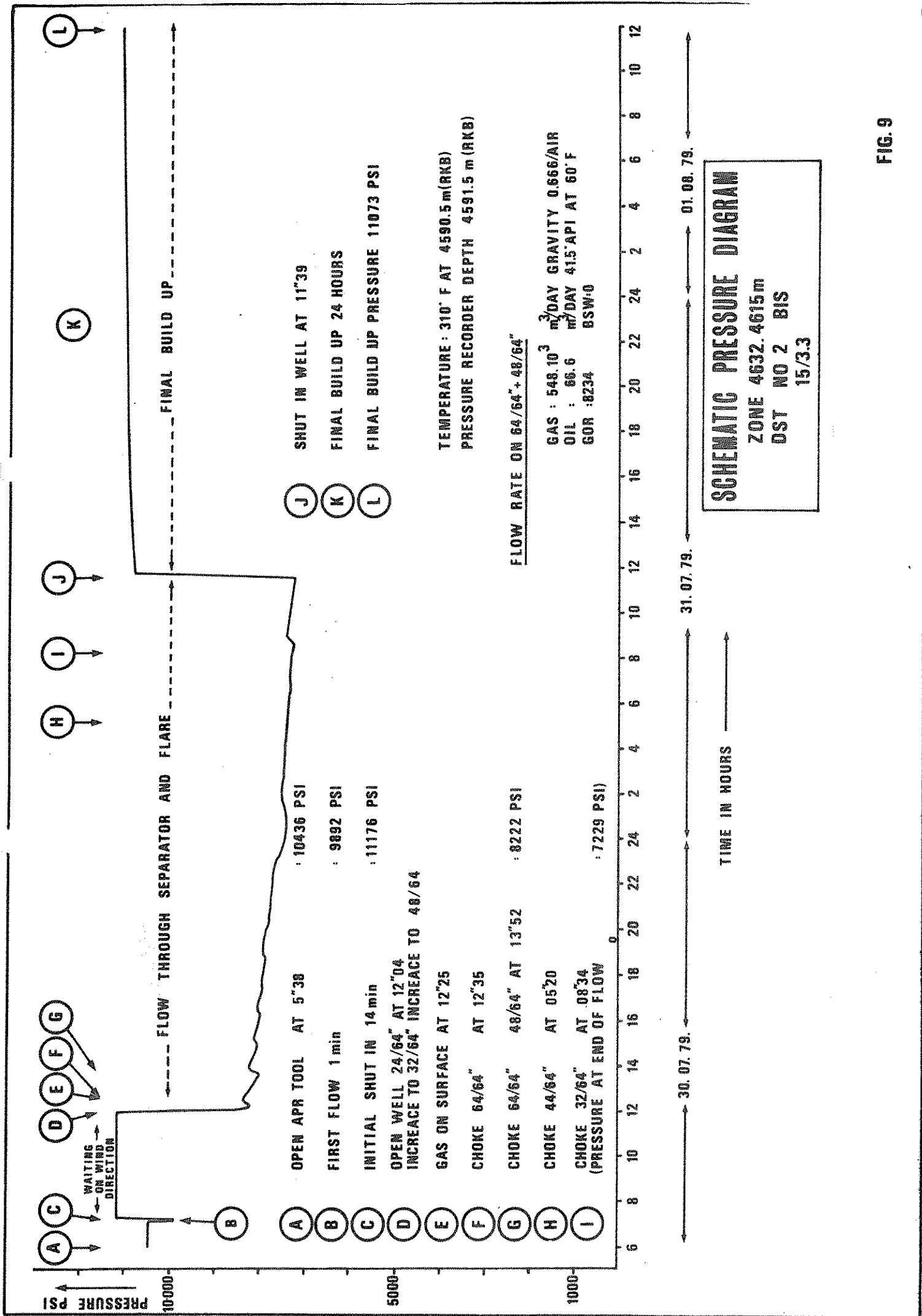
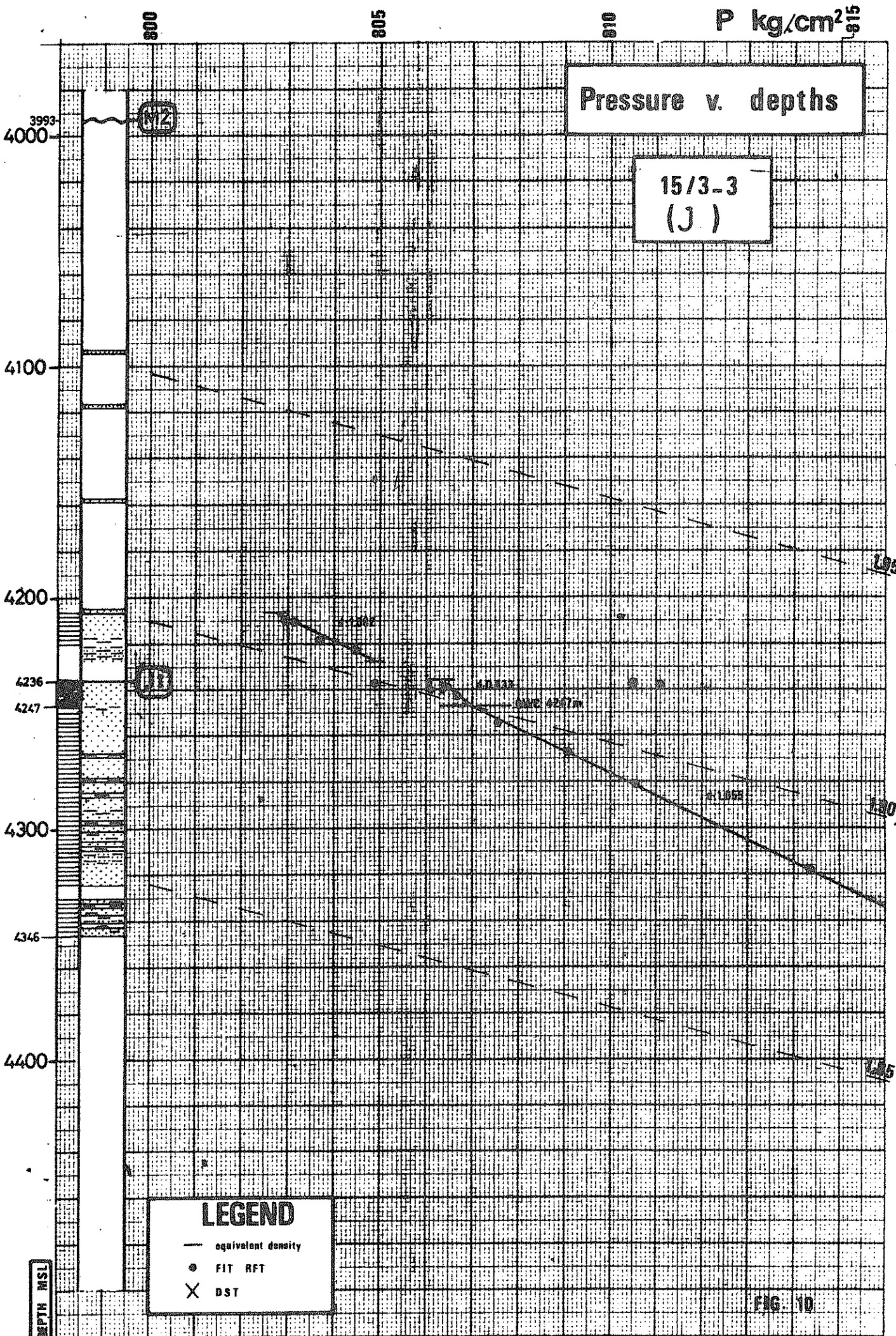
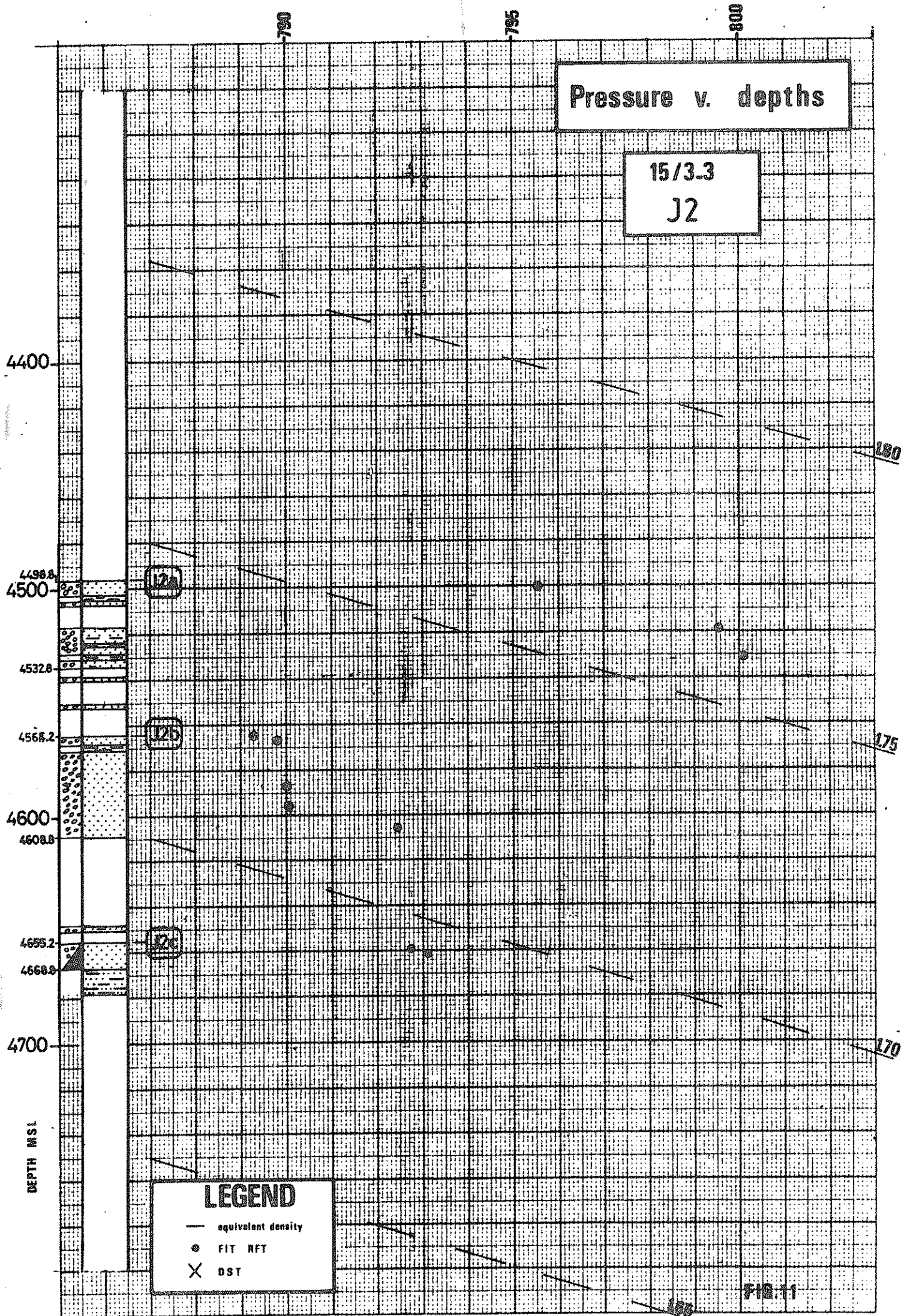


FIG. 9





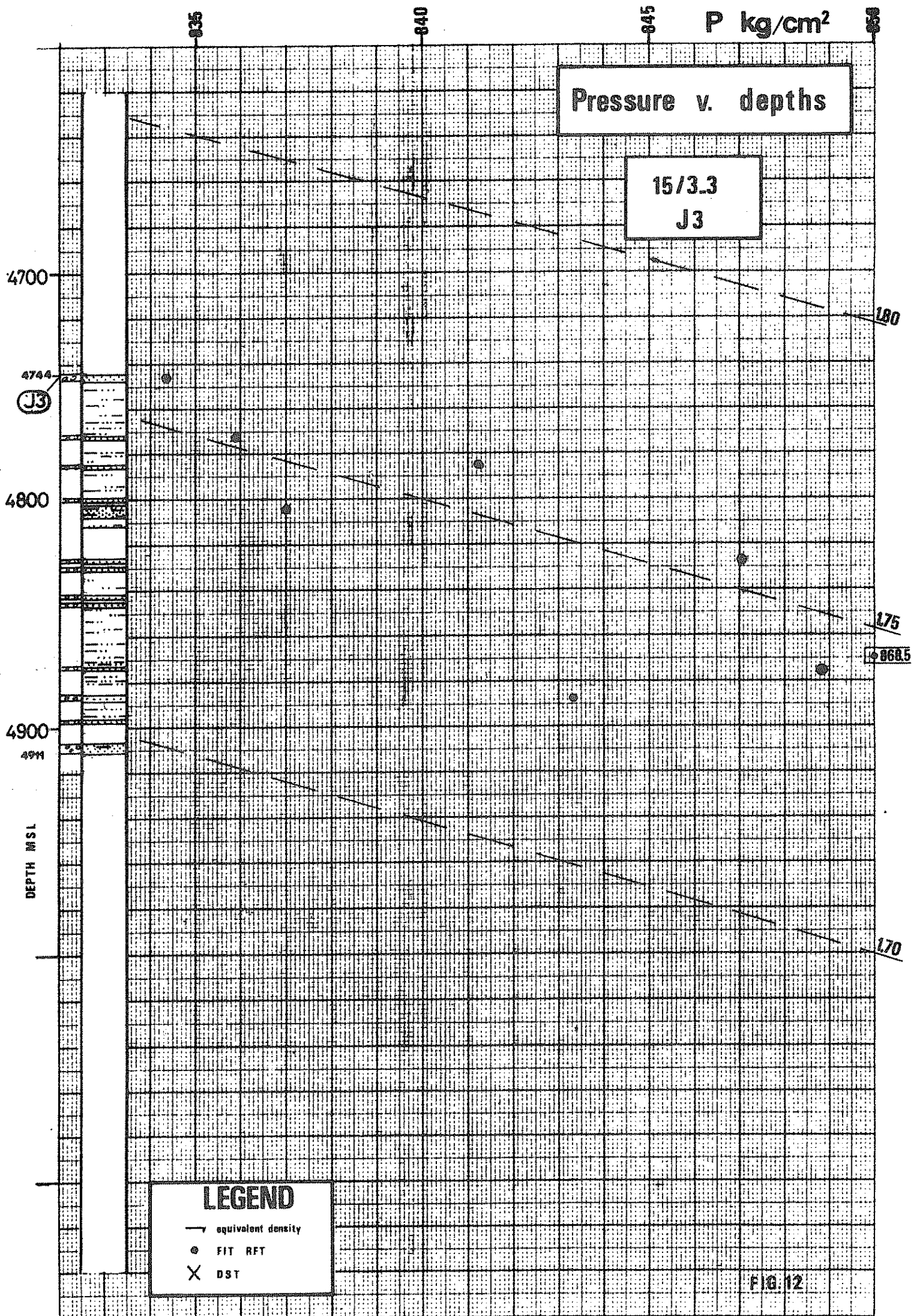
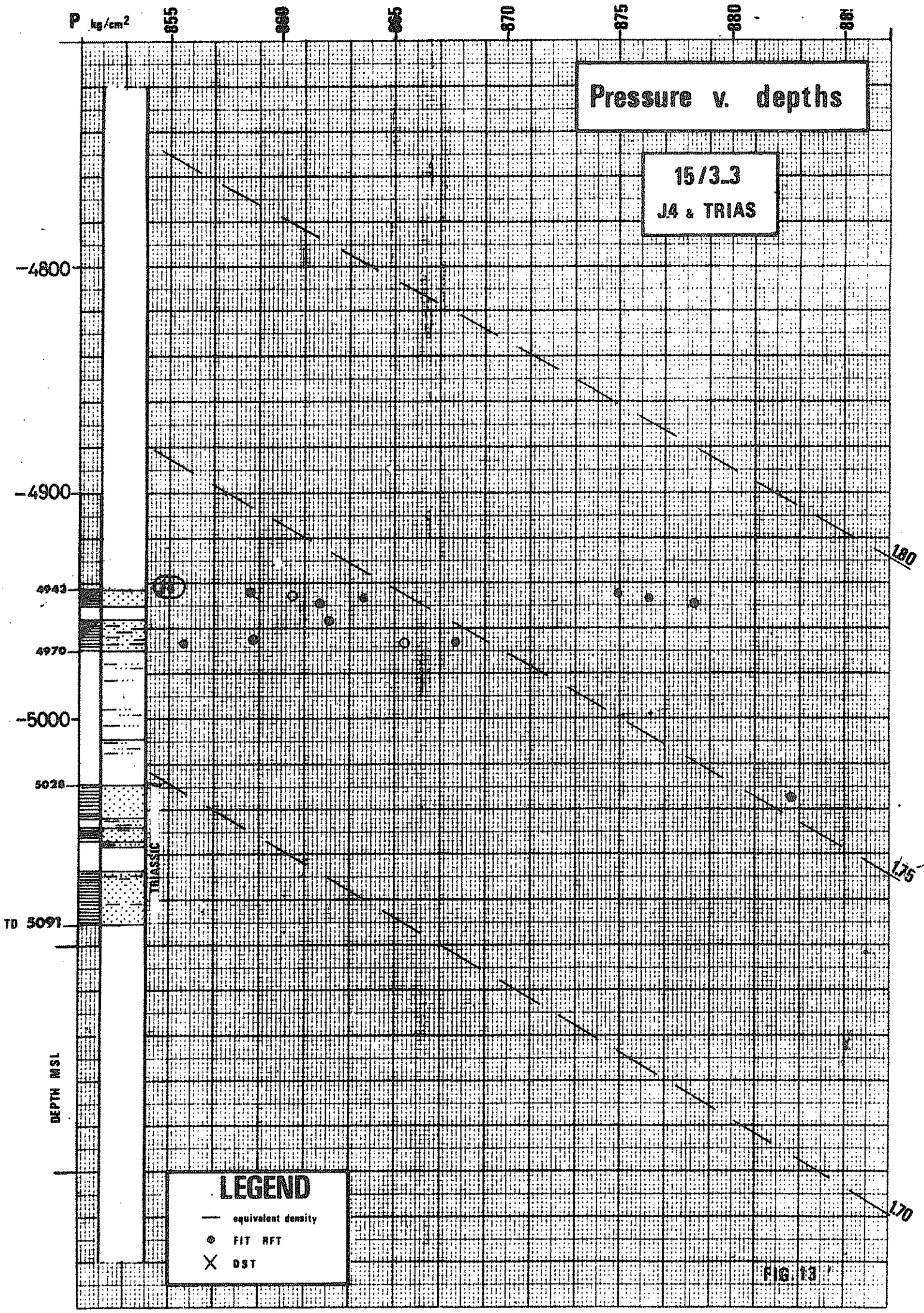


FIG. 12



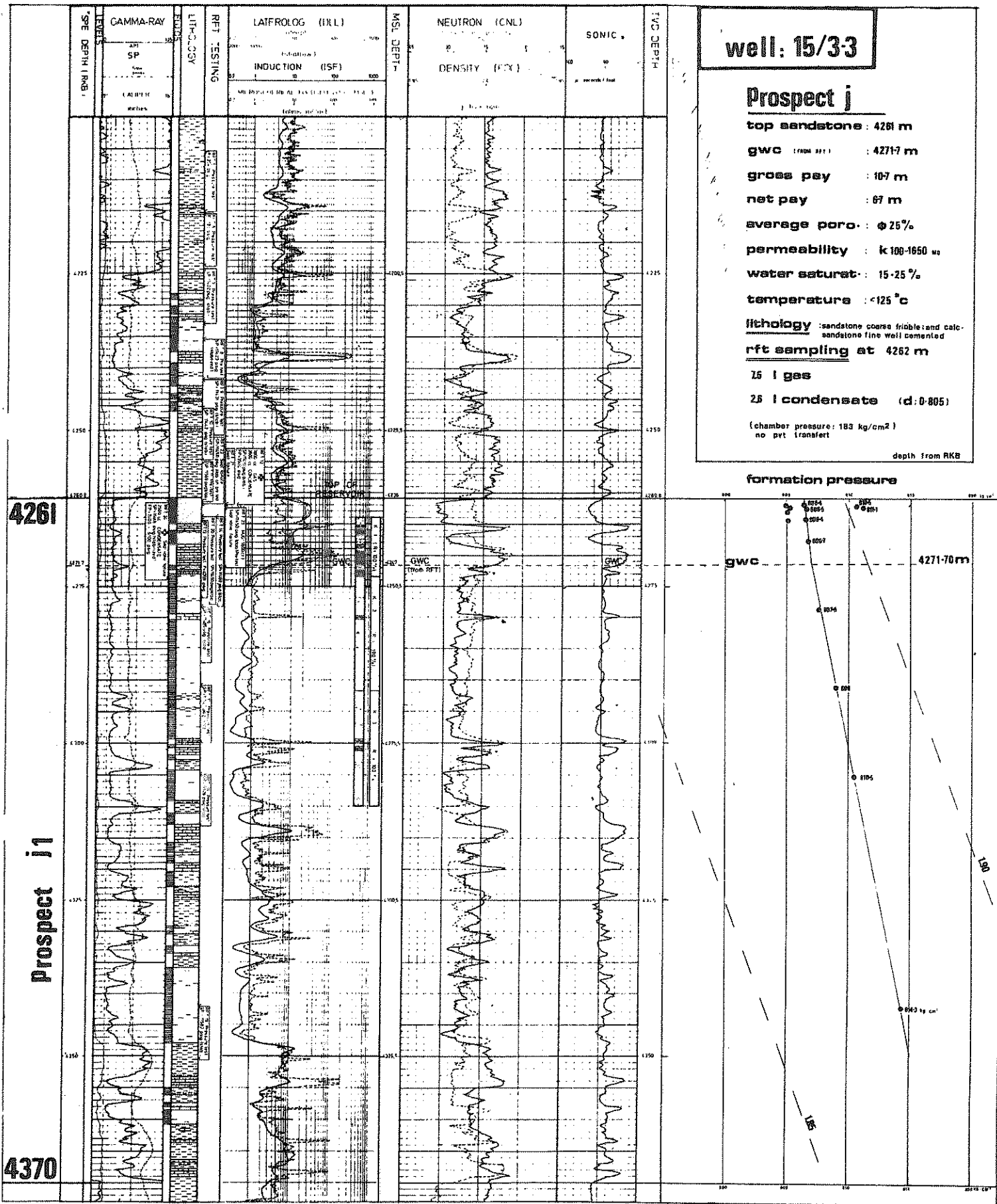


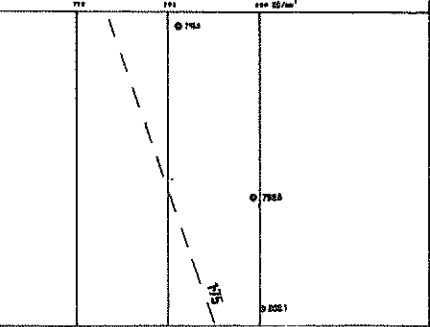
FIG. 14

well: 15/33

prospect j2

100ft FROM RKB1

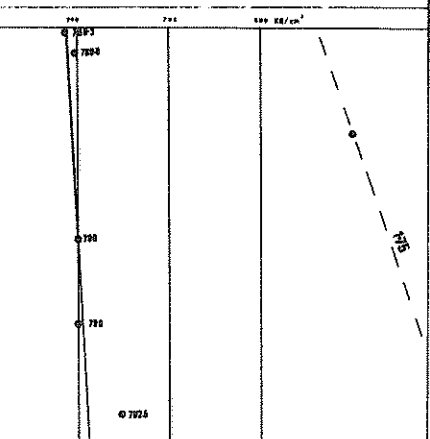
formation pressure



j2a hydrocarbon bearing sandstone

Interval	Porosity (%)	Sw (%)	Fluid
4523-4527	10-15%	8-30%	gas (FDC-CNL)
4542-4544	10-12%	28-30%	hydrocarbon
4549-4552	7-11%	28-40%	-
4556-4557	10-15%	25%	-

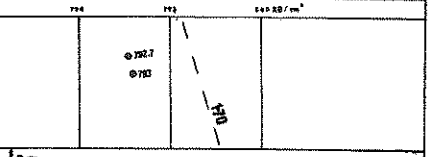
net pay: 10.5 m
permeability: 0.1-0.2 md (on core n°4)
lithology: sandstone with shale & coal



j2b
Top sandstone: 4588.2 m
gross pay: 44.4 m
net pay: 14.6 m (11% porosity cut off)

Interval	Porosity (%)	Sw (%)	Fluid
4582-4585	8-11%	13-30%	gas
4586-4588	11-16%	8-13%	-

no GWC
temperature: 146°C at 4590 m
lithology: sandstone fin. quartzitic

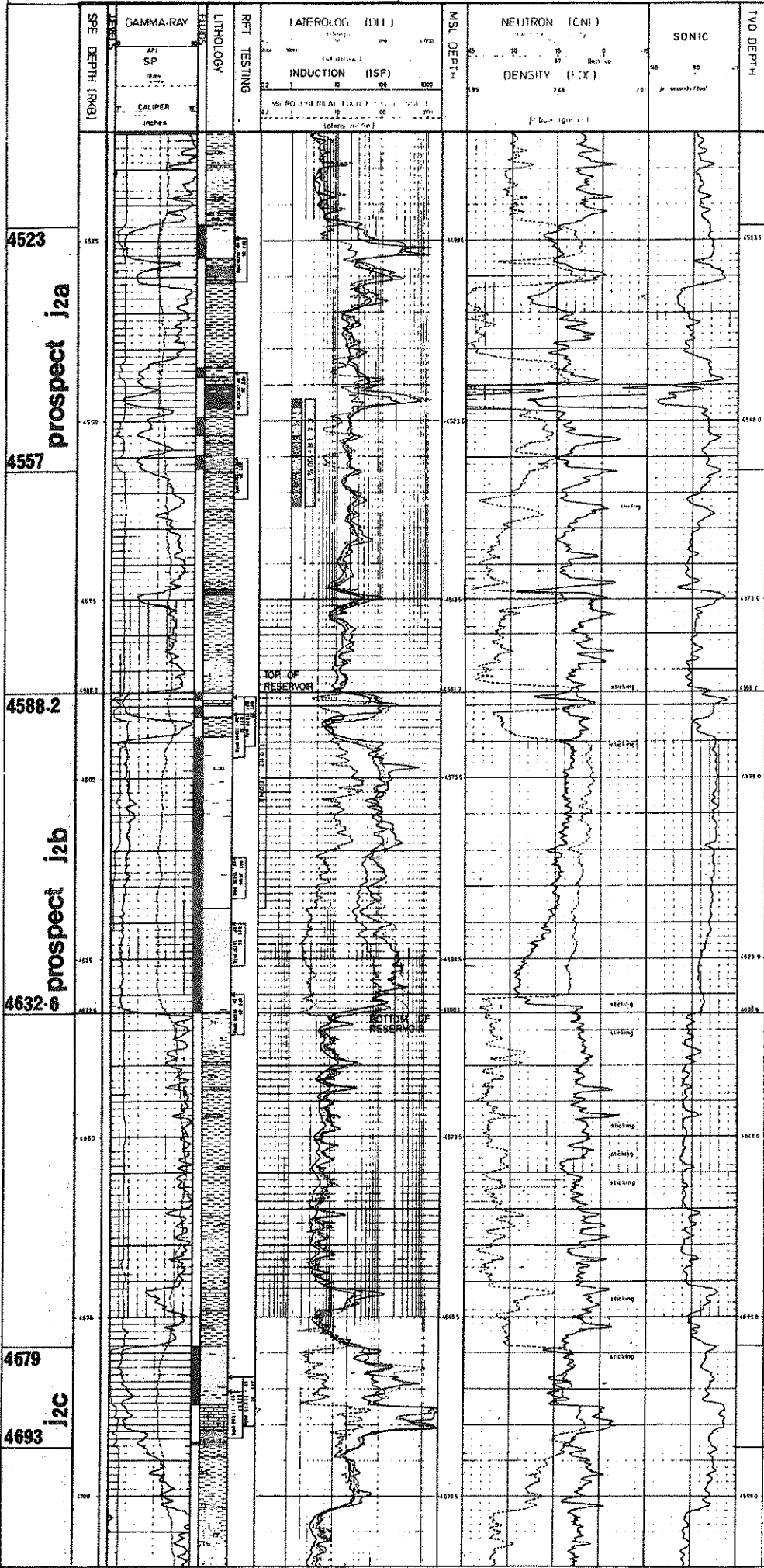


j2c

net pay: 8.4 m

Interval	Porosity (%)	Sw (%)	Fluid
4672-4673	11%	8-20%	oil ?
4685-4686	11%	21%	gas

temperature: 190°C at 4685 m
lithology: sandstone with silt & shale



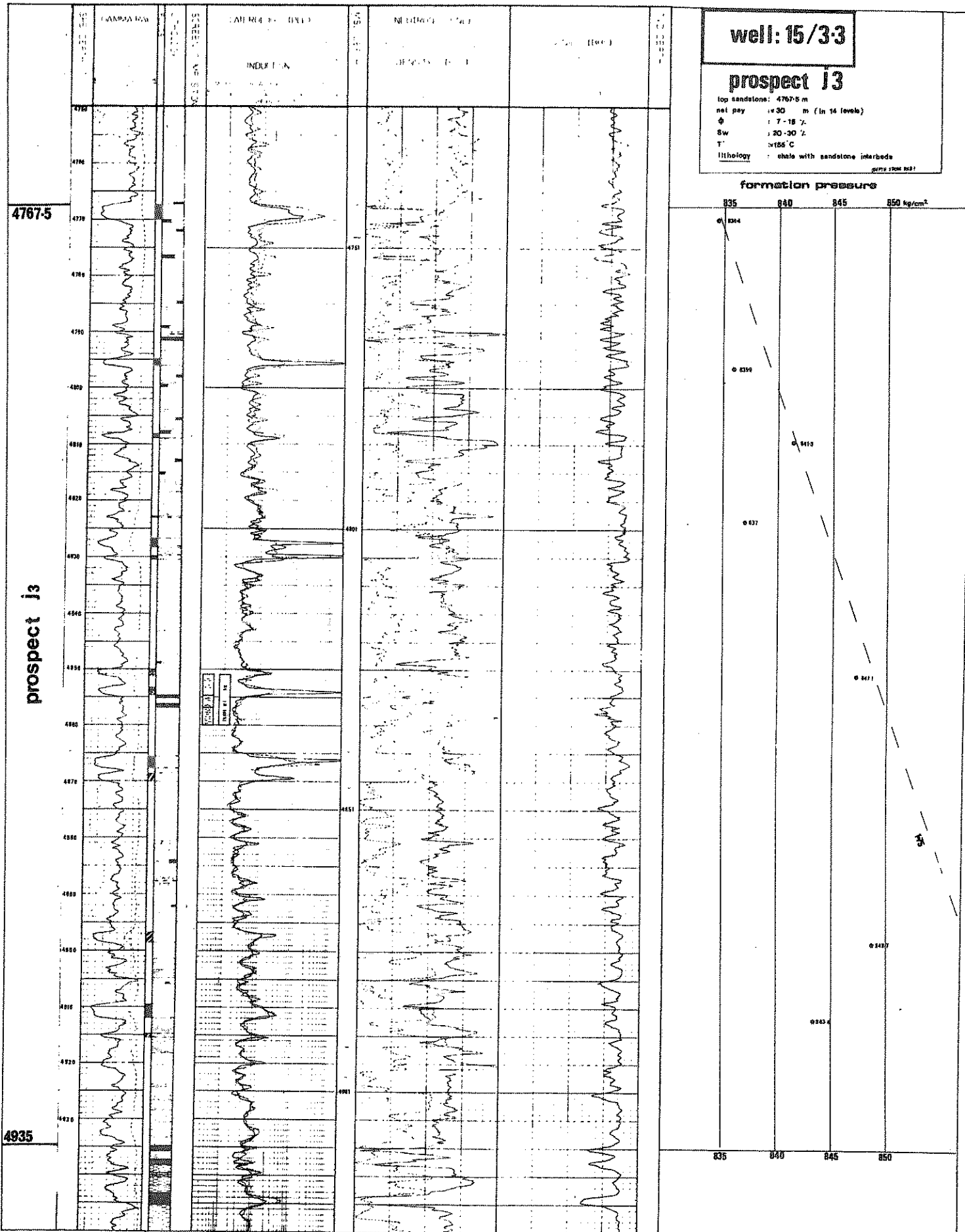


FIG. 16

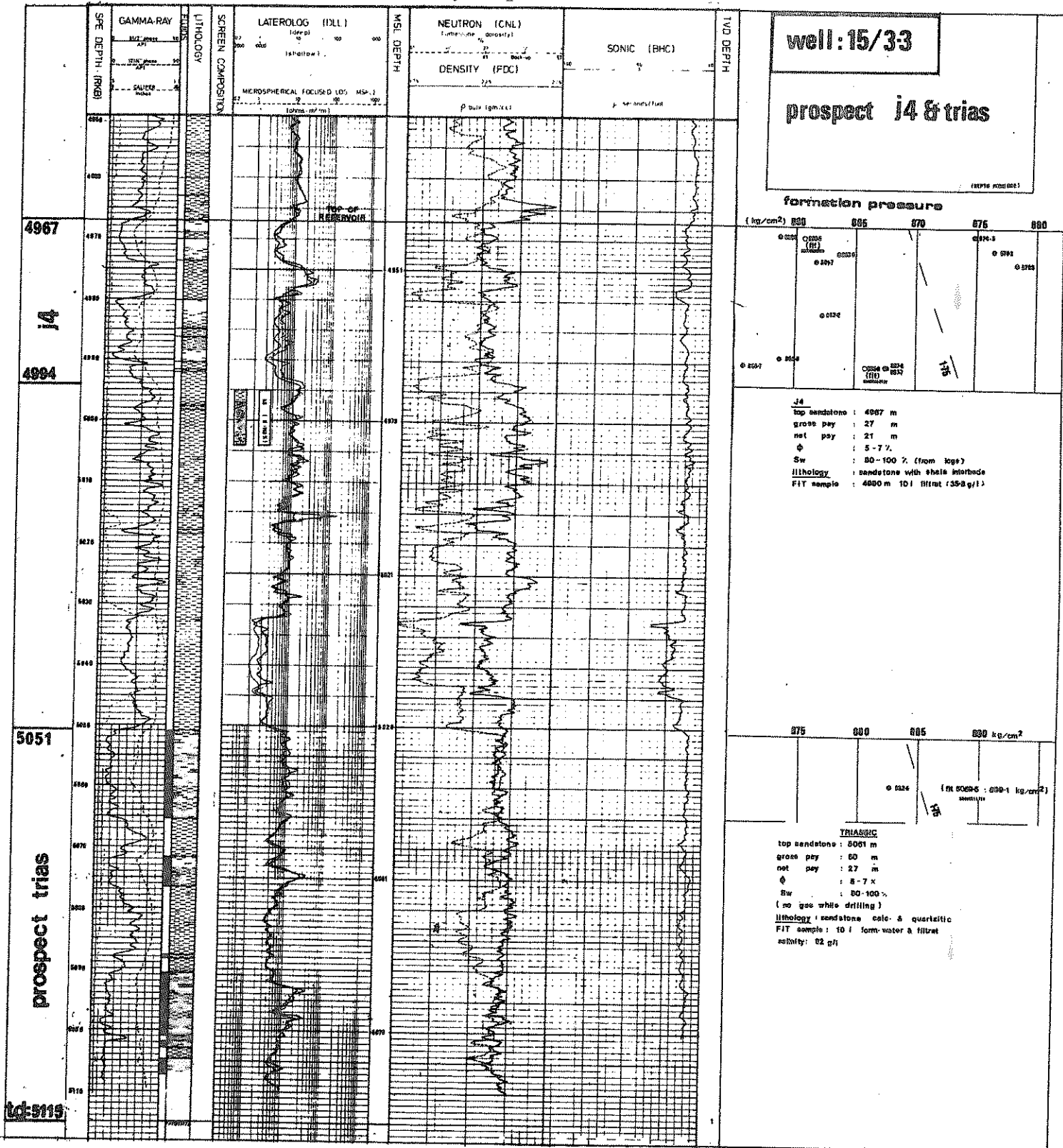


FIG.17