

GEOLOGICAL PROGRAM

MOBIL (OPERATOR), CONOCO, ESSO, SAGA GROUP, SHELL, STATOIL

WELL 33/9-2

NORWEGIAN OFFSHORE

LOCATION:

Licence No. 037 Block 33/9

Coordinates: 1° 53' 47.0" E

61° 17' 56.0" N

Shotpoint 360 on Line MNG 22

5.40 km north of south boundary and

5.55 km west of east boundary of Block 33/9

Water Depth

471'

K.B. Elevation

± 80'

Total Depth

10,200'

PURPOSE OF TEST

Well 33/9-2 is proposed to test the northward extension of the petroleum accumulation discovered by 33/12-1 that extends from Norwegian Blocks 33/9 and 33/12 into the U.K. The well is expected to encounter a Jurassic section similar to that present in the 33/9-1 test located approximately eight kilometers southwest of the proposed location. The test will be drilled to 10,200 feet which is a depth sufficient to test the entire Jurassic section expected to contain the reservoir units.

OBJECTIVES

The principal objective of this test well is the Middle Jurassic sandstone reservoir which is oilbearing in the 33/12-1, and 33/9-1 wells. The Lower Jurassic sandstone which log data indicate to be oil bearing in 33/12-2 is expected to be below the oil/water contact at this location. This prospect is defined by seismic mapping at a horizon that represents a major regional unconformity which, in this area, is at or near the top of the Jurassic sandstone section. The prospect is further defined by mapping of seismic events which are interpreted to be at the top of the Middle Jurassic sandstone, the Lias Shale, the Lower Jurassic sandstone and the top of the Triassic sections.

The section expected to be penetrated is shown on the attached geologic

well prognosis.

From results of drilling in this area, it appears unlikely that the Paleocene section will contain potential reservoirs, but the Lower Tertiary section will be examined carefully during drilling since it is structurally high.

WELL PROGNOSIS

<u>Formation</u>	<u>Depth (Subsea)</u>	<u>Thickness (feet)</u>
Paleocene	- 5400	700'
Cretaceous	- 6100	1670'
Jurassic Unconformity	- 7770	(-)
Middle Jurassic Sandstone	- 7790	600'
O/w contact	- 8478	(-)
Lias Shale	- 8390	870'
Lower Jurassic Sandstone	- 9260	535'
o/w contact	- 9192 (?)	(-)
Triassic (?)	- 9670	(-)

Estimated formation tops are related to seismic markers. These may be at some variance with the actual tops.

GEOLOGICAL WELL LOGGING

A contract mud logging service, Exploration Logging Ltd., will be employed to log the well for hydrocarbon shows, collect samples, prepare a sample log and operate certain auxilliary logging services throughout drilling operations.

Exploration Logging will also provide an engineering geologist as an additional staff member of the Mud Logging unit to carry out shale density measurements, pore pressure calculations and pressure plots during the drilling of 33/9-2 by the Norskald. Digital mud temperature equipment and recording has also been added to the standard mud logging services.

Samples will be collected at 20 feet intervals through the Tertiary or until the drilling rate slows sufficiently to allow taking 10 feet intervals. This interval may be altered at the well site geologist's discretion.

One cloth bag of samples for trade cut will be collected from first sample return depth to T.D. One set of paleontological samples will be collected at the above-indicated intervals and sent to Robertson Research along with

the trade cut. Robertson Research will carry out paleontological analyses of the samples and will utilize appropriate techniques in micropaleontology and palynology. Robertson Research will also perform paleotemperature and source bed analyses from samples of selected intervals. Selected samples may be sent to the Operator's Stratigraphic Laboratory in Dallas, Texas for further examination.

Sample cuts will be distributed to Group according to prior instruction. Operator will arrange for sample cuts, including core material, to be sent to appropriate Norwegian Government agencies.

LOGGING PROGRAM

<u>Run</u>	<u>Hole Size</u>	
1	17 1/2"	1. SGR 2. IES
2	12 1/4"	1. SGRC 2. IES 3. CNL + FDC 4. Micro-SFL (1) 5. HDT
3	8 1/2"	1. SGRC 2. IES 3. CNL + FDC 4. Micro-SFL 5. HDT 6. check shot survey

(1) Micro-SFL tool will be run if available. If not available the MLL-ML and DLL tools will be run.

A check shot survey will be run at the 9 5/8" casing point if there is difficulty equating the seismic character to the formations drilled or if bad hole conditions arise. Additional logging runs may be made at management's discretion. Sidewall guns will be left on the rig commencing with Run 3.

All log data will be recorded on magnetic tape.

CORING PROGRAM

A decision for coring in the Jurassic sandstone sections will be made based on information obtained during operation to that time.

An opportunity will be provided for members of the technical staffs of the Group to examine the cores.

Upon completion of this work, the cores will be sent to Robertson Research for storage.

TESTING PROGRAM

Drill stem tests will be made after logging and setting casing through the zone of interest.

Formation fluid sampling will be done with standard oil field practice in respect to types and volumes of sample.

COMMUNICATION OF WELL INFORMATION

A daily well report will be sent by telex to Mobil Exploration Norway Inc. to Members of the Group. Other data, including field prints of logs, will be forwarded by post or messenger.

A final well report will be prepared for distribution to members of the Group and to appropriate Government agencies.

All data are considered confidential and will be released to third parties only by decision of the Policy Committee.

Stavanger, July 1974

HPR/mdd