EP/11/21

B.I.P.M.,
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THE HAGUE,
Netherlands.

EPD DSW/mb

11th November 1969

CONFIDENTIAL

Dear Sirs,

RESUME OF EXPLORATION WELLS 1/3-1 AND 1/3-2.

We have pleasure in forwarding separately 3 copies of Report NSEP 14 - "Resume of Exploration Wells 1/3-1 and 1/3-2" by Petroleum Engineering and Exploration Depts., dated October 1969.

Although 1/3-1 was drilled in 1968 it was thought more practical to combine the two wells in Block 1/3 in one report.

These wells have tested the two largest structures in Licence 011 S (Blocks 1/3 and 1/6) with almost wholly negative results.

Neither Tertiary, U. Cretaceous (chalk/limestone) nor L. Cretaceous as far as penetrated contain reservoirs of any significance and shows have been confined to minor intervals in well 1/3-1.

No further drilling can be recommended in the two blocks, and can only be visualized if competitors' future results in adjacent acreage are such as to upgrade substantially prospects in Norske Shell blocks. This appears unlikely, but cannot be excluded as additional well information may help to define the currently unpredictable distribution of L. Tertiary (U. Paleocene) sands which represent the main target in this part of the N. Sea basin.

We would appreciate in due course any comments you may wish to make.

Yours faithfully,
for A/S NORSKE SHELL E & P

D. S. WATT
Manager E&P

C O N F I D E N T I A L

A/S NORSKE SHELL

NSEP 14. RESUMÉ OF EXPLORATION WELLS 1/3-1 and 1/3-2

by Petroleum Engineering and Exploration Depts.

October 1969.

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1/3-1

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1/3-2

As 1/3-1 above.

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not in report

number of days

0 10 20 30 40 50 60 70 80 90 100 110 120

depths in thousands of feet from rotary table

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Driving 30" casing

Running 20" casing

Logging, running 13 3/8" casing

Reaming, logging, running 9 5/8" casing

Logging

Fishing

Velocity survey

Circulating gasout mud

Logging
Running 7" Casing

Saturated mud

Logging
Drillstem Testing
Plugging back, abandoning

ELEVATIONS

Rotary table 318' above mudline
Water depth 234'

Rig : ORION
Contractor : I.D.C.
Spudding date : 6 - 7 - 1968
Completion date : 11 - 11 - 1968

A/S NORSKE SHELL

PROGRESS CURVE

BLOCK I/3 WELL 1

Author:		Data:	
MPR	NOV. 1968	Encl. No. 10	Draw. No. IV 67

PART A.

DRILLING AND GENERAL INFORMATION

1.1 SUMMARY

Well	:	Norske Shell 1/3-1
Classification	:	Wildcat
Area	:	field 1, block 3, licence no. 011.
Contractor & Rig	:	International Drilling Company, "Orion"
Coordinates	:	N 56° 51' 21" E 02° 51' 05"
Water Depth	:	234 ft below mean sea level
Rotary Table	:	84 ft above mean sea level
Objective	:	Investigation of Tertiary and Mesozoic sequences down to top salt.
Results	:	3 DSTs 15038'- 15095' 14972'- 15095' 11008'- 11023'
Status	:	Plugged and abandoned.
Total Depth	:	16,000 ft.

1.2 DATES OF OPERATIONS

Rig released from 17/11-1 :	30 June 1968
Tow started	30 June 1968
Rig jacked up	6 July 1968
Spudded	6 July 1968
Reached total depth	24 Oct 1968
Abandoned	11 Nov 1968

2. MECHANICAL DATA

2.01 DRILLING HISTORY

The tow of the IDC jack up rig "Orion" from 17/11-1 began on July 1st at 1600 hrs. On July 2nd the weather deteriorated and the "Orion" was jacked up. Bad weather prevented further towing until July 5th, and the rig arrived on location 1/3 at 0630 hrs, July 5th. Preloading and jacking up was completed at 1030 hrs. The tow of 86 nautical miles required a total of 37 towing hours. Waiting time due to weather was 71 hours.

Well 1/3-1 was spudded on July 6th at 1400 hrs, 26" hole was drilled to 500' and the hole opened to 36" to 450'. The 36" conductor was driven to refusal at 458' leaving the National weld ring 80' above sea bed. The base plate of the 20" casing hanger was removed.

While drilling 17½" hole partial loss of returns occurred at 720'. At 780' the losses became total and sea water was used while drilling without returns as LCM had proved to be ineffectual. At 881' the pipe stuck and was freed after pumping mud. A cement plug of 200 sx Class B was set at 453' but on drilling it out with a 26" bit returns were again lost. A second plug, of 500 sx Class B + 8 sx Mica (Fine) was set at 453'. After drilling the cement to 554' no further losses occurred while the hole was being deepened to 1360'.

The 20" casing was run and cemented at 1338'. Below the 20" casing 17½" bits were used to drill Tertiary Gumbo to 5035'. Drilling problems associated with the latter included tight hole conditions, bit balling and difficulty in lowering logging tools.

The 13-3/8" casing was landed and cemented at 5014' with full returns. 12-1/4" hole was drilled to 10255', the fast drilling Gumbo clays continuing to give trouble. Drag and resistance during trips made it necessary to ream out long sections of hole. The mud weight was raised from 10.8 ppg to 13.6 ppg before these difficulties were eliminated.

The well was logged at 10260' and 9-5/8" casing cemented at 10228' without problems. 8½" rock bits were used to drill out of the 9-5/8" casing, but in the hard limestone formations it was found that diamond bits performed better and were economically favourable. Cuttings quality was regarded as acceptable. Intermediate logs were run at 12362'.

../2

At 13554' it was necessary to fish a bit and sub which had twisted off. The fish was recovered on the second run. Gas cutting of the mud was observed at 14984' but the well did not flow. The mud weight was raised in stages to 15.2 ppg and drilling was continued to 15064' with the Swaco degasser running. At this depth the degasser became overloaded with gas and further difficulties were caused by circulation losses.

The mud was loaded with LCM while circulating and barytes added, bringing the weight to 15.9 ppg. Inadvertent plugging of the annulus with LCM and the resultant losses necessitated pulling to the shoe and setting a cement plug of 200 sx Class B above which clean out operations were conducted. Some gas apparently leaked through the plug as the mud was cut back from 15.9 ppg to 14.9 ppg while circulating.

The mud was reloaded with LCM, the cement plug drilled out, and the weight raised to 16.0 ppg, after establishing that lower mud weights were definitely disadvantageous in terms of gas cutting. Observation of intermittent heading effects at the flow line while not circulating suggested that the producing formation was very tight. Logs were run with mud weight 16.0 ppg. Inflow was 12½ bbl in 21 hours.

7" casing was run and landed at 15038', and cemented in two stages with the DV cementer at 11128'. No returns were obtained from either stage. The 13-3/8" - 9-5/8" annulus was squeezed with 400 sx Class B + 1% R_8. A CBL revealed good bonding in the casing-casing annulus, but the bond was poor in open hole.

With mud weight between 13.5 ppg and 14.1 ppg, 5-7/8" bits were used to drill on to TD. A diamond bit again performed well in comparison with conventional rock bits. At 15333' the penetration rate increased from 10 to 50 ft/hr. 200' of rock salt were drilled with sea water mud without appreciable contamination. A caliper survey later revealed that the hole had remained on gauge during this interval. At 15551', the mud was saturated with salt and the hole then deepened to 16000' (TD) where final logs were run.

The hole was plugged back to 15095' and three DSTs were made before abandonment (detailed respectively in sections 2.09 and 2.10).