

Dutch Offshore Rounds; Be Early and Hope for Luck



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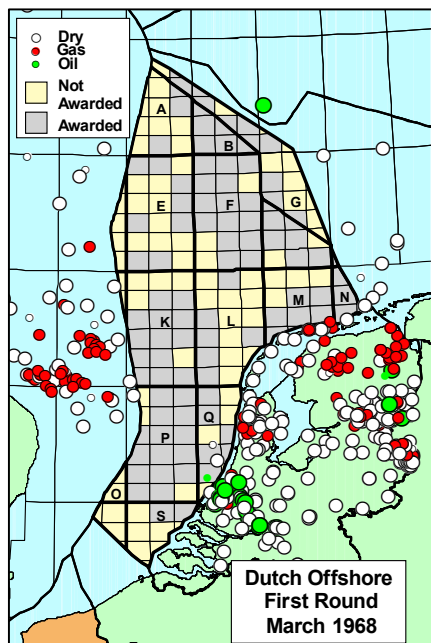
Three quarters of the cumulative hydrocarbon production from the Dutch offshore originates from exploration blocks that were awarded during the first two years of permitting. This is the main conclusion from our review of licence activities since the start of the First Round in 1968. In the last forty years 56 operators and 163 partners received 472 exploration licences. Numerous blocks have been issued more than once. Sixty exploration permits have been converted into producing licences, which generated about 690 bcm of gas, up to the end of 2008. This volume includes oil recalculated to the gas equivalent.

Waiting for new legislation

Drilling in the Dutch offshore had been delayed because the old Napoleonic Mining Act had to be re-written. Onshore exploration after the Groningen discovery had become chaotic because of several overlapping applications. Drilling in the offshore was considered by the Dutch Government as 'an unfriendly act'. The new mining legislation took a few years to write, by which time about 100 wells had been drilled in the UK sector and at least three large gas fields (Hewitt, Leman and Indefatigable) were discovered. The German sector had seen several (unsuccessful) boreholes as well, while Kraka oil was discovered in the Danish offshore (see map left).

First and Second Round

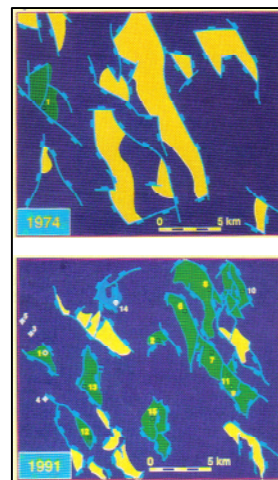
Out of the 331 applications for the First Round, 100 licences were awarded to 14 operators and 42 partners in March 1968. The companies that received most blocks in the First Round were NAM and Mobil. Other receivers include US multi-nationals like Tenneco, Pennzoil, Amoco, Union Oil and Placid. The French and the British had respectively Petroland and BP, while German and Dutch partners were linked to construction yards, shipping firms and coal traders.



NAM became the largest producer later. Mobil's victories, on the other hand, were marginal. Unlucky operators like BP, Phillips, Chevron and Tenneco acquired numerous blocks in the early rounds as well. However, most of their acreage was dry and they left the Dutch scene eventually. As a result of numerous name changes, mergers, takeovers and possibly bankruptcies, only four out of the 56 companies that participated in the First and Second Round are still active in the Netherlands under their original name now. These are: NAM, Total, Dyas and Oranje Nassau.

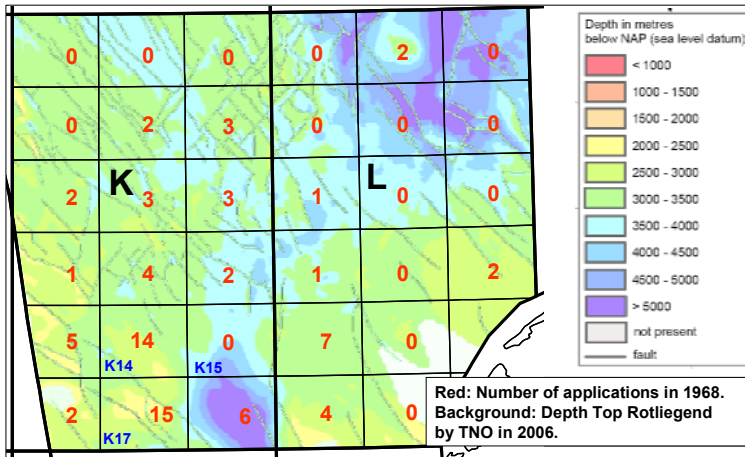
Poor seismic resolution

While drilling in the Dutch offshore was not allowed up to 1968, seismic surveys were being shot, processed and interpreted. The poor image quality in the early days of the subsurface is illustrated (right, 1992 Oil & Gas Journal) with Base Zechstein interpretations by NAM in block L13 of 1974 and 1991 (prospects in yellow).



Chasing a Groningen look-alike

As seismic imaging was poor and borehole control was sparse in the Dutch offshore, the geological know-how must have been limited in the late 1960's. Seismic surveys indicate regional 'anomalies', but individual prospects must have been hard to recognize. Areas with a regional structural high at Base Zechstein Level were the most wanted in those days. This probably explains the 15 different applications for blocks K14 and K17 (see map below). Even on mid-1960's seismic, this area must have shown up as a regional high, large enough to contain a second Groningen field.



Special Status for NAM?

Remarkable is that NAM received the two adjacent K14 and K17 blocks, while Economic Affairs could have decided to award the blocks to two parties. 'Hot' areas in the UK were split between different operators. For instance, when it came to awarding the structural high, where the giant Leman gas field was found later, Amoco and Shell received equal areas. Is the award of both K14 and K17 to NAM an early

sign that this "50% Royal Dutch Shell" company had a special status within the Ministry? Disappointment was considerable at NAM, when their first well into K17 encountered Rotliegend with very little porosity.

Block K15, which covered a structural low, had received no requests at all in the First Round. This block was acquired by NAM in the Second Round without competition. Luck or wisdom, but K15 will probably end up as the best gas producing block in the Dutch offshore, with a cumulative output of around 60 bcm. The six First Round applications in block K18 probably relate to Cretaceous structures.

Most gas in First and Second Round

Permits, which were issued in 1968 and 1970, represent 500 bcm or 72% of today's cumulative output (see table below, some block have been combined because of joined awards). Operators that were lucky in the early days (like Placid with L10, Petroland with L7), or purchased good acreage, have stayed (*Signal*>NAM, *Arco+ Richfield*>*Placid*, *Pennzoil*>*Wintershall*).

Third to Ninth Round:

Exploration licences that were awarded over the next 38 years, have contributed only 28% of the total hydrocarbon production. The best discoveries in the later rounds were in P15/P18 by Amoco, Rotliegend gas in K4/K5 by Elf Petroland, and the 'Fat Sands' in L9 by NAM. Clyde found beautiful Bunter reservoirs in the relinquished Q4 block during Round Nine, while Wintershall recently discovered substantial gas in F16. However, ultimate recoverable reserves in these newer permits are small compared to the older 'super' blocks.

TOP 10 PRODUCING BLOCKS						
	Permit or Block	<2009 bcm	year award	Round	operator	
					then	now
1	K8+K11	56	1968	1	Signal	NAM
2	L10+L11a	55	1968	1	Placid	GDF
3	K15	53	1970	2	NAM	NAM
4	L7+K6	48	1968	1	Petroland	Total
5	K4+K5	36	1985	5	Bow+Elf	Total
6	P15+P18	32	1979	4	Amoco	TAQA
7	L9	30	1978	4	NAM	NAM
8	K12	28	1968	1	Richfield	GDF
9	K13	25	1968	1	Amox	open
10	K14	23	1968	1	NAM	NAM