ORANJE–NASSAU ENERGIE

Oranje-Nassau Energie B.V.

Offshore Netherlands Ninth Licensing Round - 1995

Application for Exploration Licence

Blocks G15 and H13

Section B

Geological Report

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1 Document Control

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Version	Date	Remark/Update
Draft 1.0	31 December 2018	Final draft
Draft 1.1	10 January 2019	Final draft clean for review
Draft 2.0	15 January 2019	Final draft

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1 Summary

This report is written in support of the licence application for Blocks G15 and H13 jointly, under the jurisdiction of the Offshore Netherlands Ninth Licensing Round, 1995 (Figure 1, Figure 2). The joint application includes a work programme for both blocks and assumes the blocks will be awarded as a single licence.

Blocks G15 & H13 are situated in the eastern Netherlands offshore, adjacent to the Netherlands-German Median Line. No wells have been drilled in the blocks to-date and the south-eastern corner is partially traversed by shipping lanes (Figure 3).

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Prior to the drilling of well N05-01-S1, analysis of the Upper Rotliegend Basal Sandstone play proposed for Blocks G15 & H13 was based largely on released data from wells drilled in the German North Sea. The success of N05-01-S1, also targeting Basal Rotliegend Sandstones has furthered ONE's interest in the area, hence the application for Blocks G15 & H13.

The play comprises the Basal Rotliegend Sandstone reservoir – fluvial, alluvial and aeolian sands deposited on the variable topography of the Base Permian Unconformity. The seal is provided by intra-formational shales and evaporites of the Lower Silverpit Formation and the source rocks are the coals of the Westphalian coal measures.

No wells have been drilled in Blocks G15 & H13. The two closest exploration wells are H16-01 and G18-01, drilled by NAM in 1982 and 1983 respectively. H16-01 and G18-01 both encountered gas in thin Basal Rotliegend Sandstones, as well as in the underlying Carboniferous sands.

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Wob 10.1.c

. Using the available 2D seismic data it is not possible to discriminate the Basal Rotliegend Sandstone; furthermore, the Base Permian Unconformity (BPU) is not imaged clearly. Well-driven isopachs guided by offset wells have been used to reconstruct the BPU and basal sand upon it.

Remaining prospectivity at other levels is deemed poor to non-prospective.

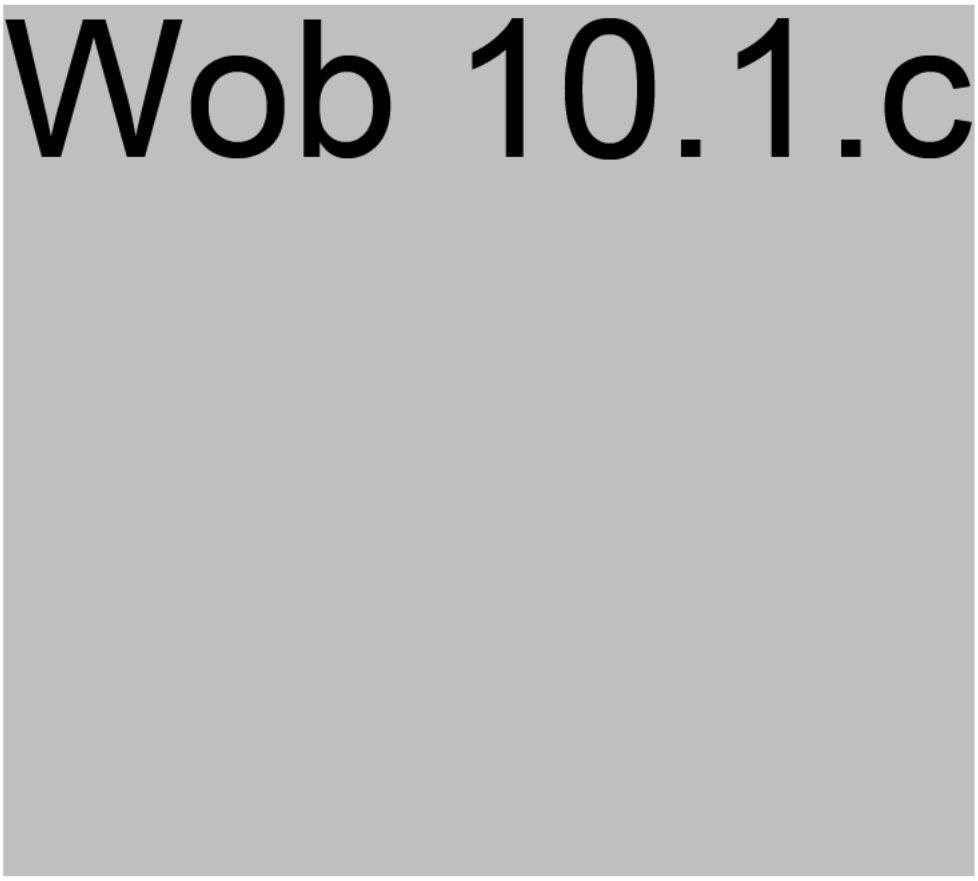

Figure 1 Blocks G15 & H13; block co-ordinates listed in Table 1 below.

Block	Area km^2
G15 & H13	226 + 0.84

Points	Datum ED50						Datum ETRS89					
	Northern			Eastern			Northern			Eastern		
	D	M	S	D	M	S	D	M	S	D	M	S
A	54	19	58.9238	5	39	59.9970	54	19	56.3684	5	39	55.0755
B	54	11	11.9041	5	59	59.9276	54	11	9.3447	5	59	55.0545
C	54	9	59.9820	6	0	41.3862	54	9	57.4207	6	0	36.5166
D	54	9	59.9811	5	59	59.9595	54	9	57.4193	5	59	55.0888
E	54	10	0.0099	5	39	59.9704	54	9	57.4346	5	59	55.0687

Table 1: Area and X & Y co-ordinates for Blocks G15 & H13