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Line 46 crosses northern part of the Roer Valley Graben (RVG), the Peel Boundary Fault and the Peel-Maasbommel Complex (PMC) from the southwest to the northeast. The seismic line is oriented perpendicular to the main structural trend.

Within the RVG the Paleozoic and Mesozoic strata, but the limited seismic resolution here does not allow a reliable interpretation. However, information about the RVG can be found on line 29 which runs almost parallel to this line but covers a bigger part of the RVG.

Across the Peel Boundary Fault, the Peel-Maasbommel Complex experienced significant uplift and erosion during the Late Jurassic–Early Cretaceous rifting event. As a result, no Jurassic material is preserved here. Here, a thick Carboniferous sequence and a thick Chalk Group are present, separated by a thin interval of Permo-Triassic strata on the northern side of the PMC. The relatively thick Carboniferous interval comprises the Carboniferous Limestone Group (also known as the Zeeland Formation), a complete Namurian sequence (including Namurian A en B), followed by the Baarlo en Ruurlo Formations (Westphalian A). Younger Upper Carboniferous units (Westfalien B-D) units are not encountered on the PMC.

The thin Permo-Triassic interval locally shows a clear angular relationship with the underlying Carboniferous strata. Here, the Rotliegend and Zechstein strata cannot be differentiated, but due to their strong reflectivity, stand out from the Triassic interval. The Peel-Maasbommel Complex experienced strong uplift and erosion during the main Late Jurassic–Early Cretaceous rifting event. Thinning of the Permo-Triassic and truncation of the Carboniferous can be seen below the Cretaceous unconformity, especially in the southern part of the Peel-Maasbommel Complex. The Chalk Group includes both syn-inversion (Aken, Vaals and Gulpen formations) and post-inversion (Maastricht and Houthem formations) units. This interpretation is mainly based on correlation with Line 16.

A detailed subdivision of the North Sea groups on the PMC was made for the project H3O-Peelhorst & Venloslenk. This subdivision is here indicated with thin black lines only.