

Influence of Salt Structures on Reservoir Rocks in Block L-2, Dutch Continental Shelf

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In the subsurface of the Netherlands Continental Shelf, thick layers of Zechstein salt have developed into salt domes and ridges that occasionally even pierce through the overlying formations.

To measure the range of influence of the salt in these structures on the reservoir rocks of the Mesozoic sequence, a cementation model was developed. The target area, Block L-2 was chosen for the presence of salt domes, wells and reservoir rocks. All available well information (wire-line and test data) has been used to measure the presence of salt in a certain well interval. This was mainly done by combining Gamma Ray, Sonic, Resistivity and Density data from existing bore logs into a computer model. This cementation model produced displays where the presence of halite cement is clearly indicated.

Only one well, located within several 100 m of a salt dome, showed salt plugging. Four other wells, located at more than 1.5 km from a salt dome or ridge, did not show any signs of halite cementation in the main reservoir rock, the Volpriehausen Sst. The indicated salt plugging of the Detfurth Sst could be attributed to early seepage from Röt salt brines. Therefore, the influence of salt domes on the surrounding reservoir rocks is limited to less than 1.5 km at 1-2 km depth.