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Editorial

The Formation of Zechstein (Upper Premian) Salt in the Northeast German Basin

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EDITORIAL NOTE

The Zechstein (Upper Permian) salts are extensively distributed within the Northeast German Basin (NEGB). Their formation and movements have attracted large attention to discovering the buildup and exploration of organic compound sources, moreover because of the salt production. By analyzing group action, the history and structure evolution of Zechstein salts were reviewed. Seven cycles of Zechstein salt (Na1, Na2, Na3, Na4, Na5, Na6, and Na7) with distinct composition and thickness were deposited after a series of marine transgressions and regressions throughout the higher geological period. The Na1 (300 m) developed in very lagoon surroundings. The thick Na2 (over 500 m) was wide deposited within the whole basin. The Na3, Na4, Na5, Na6 and Na7 decreased in thickness and distribution. These salts should be captive as a result of regional tectonics happening from the Triassic period to the Early Cenozoic, which changes the first distribution of salts, leading to the formation of various salt structures (pillows and diapirs).

Salt movement was lot intensive in central and southern components of the basin forming narrow and widely-distributed salt diapirs, whereas it was less intensive within the northern parts whereas salt dome are the main structure. The salt grassland and saline springs are also present and are attributed to the salinization of the groundwater. We tend to review the history and structure development of the Zechstein salt within the NEGB by associating every individual study and finding out the common and regional characters of the salt during this region. Salts within the underground are thought of as a chemical base for the production of important industrial products. Additionally, thick salt is considered an appropriate media for the disposal of nuclear waste because of its geological stability, predictable engineering and physical behavior and impermeableness to groundwater. Salts play an important role within the accumulation and exploration of organic compound sources.

The Zech- stein (Upper Permian) salt is the most widespread salt within the Northeast German Basin (NEGB). It contains sodium chloride, potassium-magnesium salts and thick sulphates within the structure of diapirs, salt domes and walls. It was reported that the Zechstein salt originated from the saltwater. With the marine transgression, flooding on cyclic Zechstein geological phenomenon is initiated within the Southern Permian Basin. After marine transgression, a regression is followed, which ends within the lowering of water level and the precipitation of the Zechstein salt at the arid climate. Once consecutive marine transgression comes, the precipitation of Zechstein salt is ceased and therefore the initial cycle of the Zechstein salt forms. Followed by the next marine transgression and regression, the subsequent cycles of the Zechstein salt are formed. Within the NEGB, the thick Zechstein salt units (totally up to 2000 m within the basin center) are formed in the Upper Permian. The salts movement within the NEGB has been intensively consider as a result of the structural setting of the Mesozoic era and Cenozoic deposits which are depended on the distribution of mobilized Zechstein salt.

In 1960, the halokinetic model of Basinal salt movement was initially delineated by Trusheim within the North German Basin. Since then, several mechanisms of salt movement are projected. For instance, Trusheim instructed that buoyancy is the major trigger to initiate the movement whereas different scientists projected that the regional tectonics plays an Associate in nursing important role in triggering the salt (Zechstein) movement. Additionally, Waltham instructed that the flexural buckling and hanging-wall cause salt movement way more than that caused by buoyancy. The controversy is additionally present within the observation of salt deformation. Vendeville and Jackson instructed that regional extension will initiate and drive salt diapirism provoking deformation of the basin whereas Stewart and Coward attributed the deformation to the compression of the sedimentary overburden. Salt movement has occurred once the regional tectonics within the NEGB modified the first distribution of the Zechstein salt and resulted in the formation of different salt structures like salt domes and diapirs. Pulses of salt movement correlate

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