

Thermal Influences on Salt Formation during Solution Mining in the Case of a Gas Storage Cavern in Bremen, Germany

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1 Introduction

During the construction of natural gas storage caverns by solution mining, the temperature distribution in the surroundings of the cavern is extensively disturbed. This fact affects the subsequent gas storage operations. In particular, the gas temperature during gas withdrawal and the water vapor distribution in the gas-filled cavern are considerably affected.

Following a qualitative description, the thermal influences caused by solution mining are discussed quantitatively with the aid of temperature measurements in a cavern as well as by calculations of the temperature distribution in the surrounding salt body. In conclusion, three different examples are presented concerning the calculation of gas temperature in the cavern during gas withdrawal.