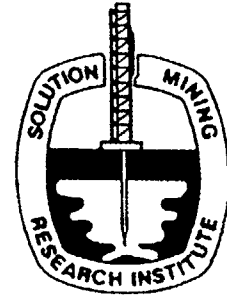


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**MEETING
PAPER**



**Solution Mining Magnesium Salts
by Using a Rock Salt Blanket**

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Abstract

The Mining department of NEDMAG Industries operates twelve solution mines in the (Zechstein) carnallite and bischofite deposits near Veendam (the Netherlands).

Up to 1995 NEDMAG has applied an oil blanket to control the cavern shape (via a strip mining method). The magnesium salts, about 140 metres in height, are interbedded in rocksalt (rocksalt) - 100 metre above and hundreds of metres below the deposit -, while on smaller (metre) scale the magnesium salts are rather mixed with halite and some other salts, resulting in many oil traps during dissolution. Oil losses were hence considerable.

Research has been performed as to develop a method to reduce (or eliminate) the oil losses by using a natural geological blanket: the rock salt layers. Since brine, saturated to carnallite or bischofite, contains only small fractions of sodium chloride (0.2 to 2 weight percent), the exposure of the cavern (rock salt) roof to near saturated brine will result in only limited roof dissolution. Injecting water at depth (tens of metres below the rock salt roof) results in strong mixing between the water and the cavern brine, as has been demonstrated by storage tank injection tests. The mixed fluids reaching the rock salt roof are almost fully saturated to the magnesium salts, provided the dissolution of the latter is sufficient.

A combined research effort of NEDMAG and KBB has demonstrated that the envisaged procedure will be successful. By calculating cavern development in advance, assuming certain injection scenarios, it is possible to confirm the potential of targeted leaching, with its effects on the rock salt layer, separating cavern from the Bunter Sandstone overburden.

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