

# CONVERSION OF LPG SALT CAVERNS TO NATURAL GAS STORAGE

## “A TRANSGAS EXPERIENCE”

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### ABSTRACT

Large volume underground storage of hydrocarbons has been developed and practiced in Saskatchewan, Canada for many years. Use of these facilities has gained importance in recent years, due mainly to economical and environmental reasons.

TransGas Limited currently has 42.8 billion cubic feet (Bcf) or 1206 million cubic meters ( $10^6\text{m}^3$ ) of working storage capacity. Of this total 14.1 Bcf ( $397\ 10^6\text{m}^3$ ) is held in solution mined bedded salt caverns and the remaining 28.7 Bcf ( $809\ 10^6\text{m}^3$ ) is held in depleted gas pools and gas caps. The total gas storage capacity is 83.97 Bcf ( $2366\ 10^6\text{m}^3$ ) of which 16.46 Bcf ( $463\ 10^6\text{m}^3$ ) is held in caverns and 67.51 Bcf ( $1902\ 10^6\text{m}^3$ ) is held in depleted pools. All of the depleted gas pools are located on the western side of Saskatchewan, mainly in Lower Cretaceous sandstone reservoirs. The washed salt caverns are scattered across Saskatchewan, all developed in the halite portion of the Middle Devonian Prairie Evaporite salt bed.

Traditionally, TransGas Limited has developed its solution mined salt storage caverns from start to finish to supply Saskatchewan customers. However, in the increasingly competitive North American natural gas storage market, TransGas Limited has had to look for innovative methods to develop cost effective storage facilities while providing new market development opportunities. One method of providing natural gas storage service, used in two recent cases, is to convert existing salt caverns, previously used to store Liquefied Petroleum Gas (LPG) products, to natural gas storage.

TransGas Limited currently owns, leases and operates twenty-one (21) bedded salt caverns, of which six (6) caverns are converted LPG caverns. Three (3) additional bedded salt caverns are currently in the process of being solution mined.

This paper presents a general overview of TransGas Limited's present experiences with the conversion of LPG salt caverns to sweet natural gas storage service.

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