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PROSPECTS FOR SALT CAVERN STORAGE IN WESTERN NORTH DAKOTA

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Abstract

Western North Dakota in the United States is currently the focus of intensive oil and gas production. Currently, over 1 million barrels of oil per day and 1.3 billion standard cubic feet (38 million standard cubic meters) of gas per day are being produced. A significant fraction of the gas produced in North Dakota is associated with oil production. Based on present data, over 20 percent of the produced gas is flared or approximately 300 million standard cubic feet (8.5 million standard cubic meters) per day. This represents a potential loss of revenue of approximately US\$1,000,000 (€910,000) each day. Obviously, upstream producers would take advantage of the potential revenue from the sale of natural gas and natural gas liquids if the infrastructure existed—pipelines and storage.

Salt caverns have proven to be a safe and economical method of hydrocarbon storage throughout North America and Europe. Presently, there is no salt cavern storage in North Dakota. Although salt is found in western North Dakota, the potential for developing salt caverns is limited owing to the great depth at which much of the salt is found. However, isolated areas with salt less than 6,000 feet (1,800 meters) deep and thickness greater than 100 feet (30 meters) are present. This paper discusses the prospects for salt cavern development in western North Dakota.

Key words: Bedded Salt Deposits, Caverns for Gas Storage, Caverns for Liquid Storage, Geology, North Dakota, Williston Basin

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