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Geologic evaluation of Kirkuk underground storage project NE Iraq

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Storage of liquids and gases in solution mined salt caverns was reported first in Canada in the early 1940s during world war. Storage in the salt caverns of liquid petroleum gas (LPG) and other light hydrocarbons spread rapidly in the early 1950s in North America and several European countries. Storage of crude oil reportedly occurred first in England, also in 1950s during the Suez crisis. Natural Gas Storage followed the storage of liquid hydrocarbons by about a decade in the USA and Canada, (Dreyer, 1920). Kirkuk underground storage project is located at the southern west limb of Kirkuk anticline near Kirkuk city, North Iraq (fig). In 1978, eight wells were drilled for the purpose of LPG storage, five wells of them (2,5,6,7,8) were selected for leaching operations as the thickness of salt layer in these wells was suitable to create cavern of salt and economical size. Geologic evaluation of the Kirkuk underground was conducted by comparison of the geometric properties of the cavities derived from two surveys running during 1989 and 2015. The vertical cross sections of the cavities show that most cavities have irregular shape because of the presence of impurities in the salt bed that cause different leaching velocities in different directions.



Figure : The relationship of the cavity roof with tilted salt bed

Biography

Faraj Ahmad AL-Sulaiman is a Chief Geologist in the field division of Petroleum Engineering department for the North Oil Company, Ministry of Oil, Kirkuk, Iraq. He received his BSc degree from Mosul University in General Geology in 1982, and received MSc and PhD degree in Structural Geology from Baghdad University, in 1989 and 1998 respectively. Since 2000, he joined North Oil Company as Supervisor for Logging Operation and Interpretation. In addition to work in North Oil Company, he worked as a Lecturer in Kirkuk and Tikrit Universities.

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