Ex #3 Case 410

Summary of Proposed Underground Storage of Liquefied Petroleum Gases at El Paso Natural Gas Company's Jal No. 4 Gasoline Plant, Lea County, New Mexico

Due to fluctuations in the market of Liquefied Petroleum Gases during recent years, appreciable amounts of Liquefied Petroleum Gases have been wasted during the summer months due to lack of market and adequate above-ground steel tank storage. This has resulted because the cost of conventional above-ground steel tank storage of butane and propane prohibited conservation of summer L.P.G. production for winter sales. However, during the past three years underground storage of L.P.G. has been developed and numerous storage projects are now in operation in the West Texas - New Mexico area resulting in the conservation and efficient utilization of hydrocarbon liquids which would otherwise be wasted during seasons of slack sales.

It is the intent of El Paso Natural Gas Company to drill an underground storage well for the conservation of L.P.G. during seasons of wasted production at its Jal No. 4 Gasoline Plant site in Southeast Lea County, New Mexico.

This area of New Mexico is underlain by a massive salt bed, the Salado Formation, which is Permian in Age. Studies of logs of oil wells in the vicinity of the proposed underground storage well show the salt bed to be approximately 1370 feet thick at the proposed location of the storage well. The top of the salt bed is approximately 1400 feet below the surface, at sea level datum 1915 feet. The base of the salt bed is about 2780 feet below the surface at sea level datum 545 feet. It is the intent of El Paso Natural Gas Company to drill such a well in the following manner:

The well, to be known as El Paso Natural Gas Company's, State - L.P.G. Storage Well #1, is to be located 780 feet from the West line and 450 feet from the South line, Section 32, Twp. 23 S, Rge. 37 E, NMPM, Lea County, New Mexico. The State Land Oil and Gas Lease number is B-165 Assignment #1. We propose to drill the well with rotary drilling equipment to a maximum total depth of 2700 feet. New 9-5/8 inch casing will be set at a depth of approximately 250 feet with sufficient cement to circulate cement to the surface. Water wells drilled at the Plant site indicate that the "redbed" is encountered in this area at a depth of approximately 160 - 180 feet. One water well was drilled to a depth of 500 feet. At this total depth the well was still drilling in the "redbed". Water is encountered at a depth of approximately 120 feet. Therefore, 9-5/8 inch surface casing set in this manner will adequately protect the source of fresh water from any possible contamination.

New 7 inch casing will be set at approximately 1400 feet with sufficient cement to circulate cement to the surface. The exact depth of the setting of the 7 inch casing will be determined after an electric log has been run; that is, the production string will be set in the salt section or a selected anhydrite stringer in the salt section. The well will then be drilled to a maximum total depth of 2700 feet. The storage well will thus be completed 300 feet above the first productive formation or pay and be separated from it by approximately 100 feet of the lower Salado Formation and approximately 200 feet of anhydrite and brown dolomitic limestone, known as the Tansill Formation.

Upon completion of the drilling of the well, a storage reservoir of approximately 50,000 barrels will be developed by dissolving a cavity in the salt section. Fresh water will be injected through 3½ inch O.D. tubing installed to the total depth of the well and the return stream of water containing dissolved sodium chloride, will be circulated to the surface through the 7 inch casing. The reservoir capacity will be calculated from the metered volume of water injected and the sodium chloride concentration of the return stream. Core analyses of similar storage projects developed in the West Texas - New Mexico area, show the salt bed to be approximately 99.5% soluble. Computed diameters of similar storage projects indicate that a cavity of between 16 feet and 20 feet in diameter can be expected. Periodically during washing of the well and upon completion of the storage well and facilities as outlined above, it is intended to thoroughly test the completed project for successful storage conditions before product is admitted to the formation. This will be done by making the standard hydraulic test; that is, a pressure of approximately 500 - 600 pounds per square inch will be maintained for a period of 4 - 6 hours. Pressures will be observed by means of a dead-weight gauge. If no appreciable pressure drop is observed, product will then be admitted to the well.

1000 - psi fittings will be installed on all wellhead equipment and standard compressor and pumping equipment will be used.

The hazards of storing butane and propane above-ground in steel tanks are numerous. The threat of costly and misfortunate fires is ever-present. However, these hazards are greatly minimized in underground storage.

Respectfully submitted,

EL PASO NATURAL GAS COMPANY

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