CHAPTER 26

Ten Years of Federal Underground Gas Storage Condemnations

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Synopsis

§ 26.01. Introduction.

Ten years ago the operators of federally regulated underground gas storage fields had ill defined legal rights to protect their operations. This uncertainty allowed storage operators to settle some problems by threatening precedent setting litigation. As the price of gas rose, settlements became impossibly expensive. Therefore, in 1982, Columbia Gas Trans-mission Corporation (Columbia) began a series of condemnation suits to confirm the federal rights needed to protect their gas storage fields.

This Chapter reviews the rights and responsibilities this litigation has established, as well as the questions that remain unanswered.[(1)] It is established that Section 7(h) of the Natural Gas Act[(2)] accords operators of federally certificated underground gas storage fields the right to condemn underground gas storage easements within the "map area" of their storage fields,[(3)] including the protective area. This means that invasive drilling or production within the storage field can be stopped.[(4)] The storage operator retains title to injected storage gas.[(5)] State law trespass claims for actual and punitive damages have been replaced with a federal cause of action for inverse condemnation, with an award of "just compensation" only.[(6)] Drilling expenses for production wells within the "map area" of a storage field are not compensable.[(7)]

The measure of the just compensation due for the condemnation of underground gas storage easements has followed a tortured legal course. A definitive precedent has not yet been achieved. Landowners have argued for a unit times price income capitalization method for computing just compensation. Columbia has sought

use of the diminution in fair market value. As the result of a decision by the Sixth Circuit,[(8)] this issue is now before the Ohio Supreme Court to determine the Ohio law to be used as the federal rule of decision.

§ 26.02. The Need for Underground Gas Storage.

About 80% of the gas consumed in the northeast and midwest is delivered by large diameter pipelines from Texas, Louisiana, and Canada. The remainder comes from Appalachian producers. The pipelines and the wells produce continuously. Consumer demand fluctuates with the seasons -- low in summer and high in winter.

Underground gas storage fields accumulate gas during the summer for winter delivery. Most fields are near the northeast and midwest markets. Others are near the sources of supply. All serve the purpose of balancing continuous supplies from pipelines and wells with demand fluctuations.

Underground gas storage is safer and cheaper than above ground gas storage. Natural gas stored underground is inert because it contains no oxygen -- it can not burn or explode. Underground gas storage uses various naturally sealed underground spaces as occur in depleted gas pro-duction fields and aquifers. Almost all Appalachian storage fields are in depleted gas production formations where the fact of production proved the quality of the container. The technical aspects of this Chapter deal only with this kind of storage field.

§ 26.03. Establishment of an Underground Gas Storage Field.

An underground gas storage field must deliver large amounts of gas when needed. This deliverability is achieved by selecting for storage depleted formations that have produced large amounts of gas and little fluid. This production history is the best indication that a formation can provide the needed deliverability. It means the formation has good porosity -- the amount of pore space available to store gas -- and permeability -- the cracks connecting the pore spaces. These cracks and pores in the rock are virtually invisible to the eye. Yet, that they held large amounts of production gas for millions of years proves their capacity to hold large amounts of storage gas with security.

The security of a gas storage field is generally provided by an impermeable barrier surrounding the storage field. The location of this barrier is determined by dry holes surrounding the previously prolific production wells. Unfortunately, these dry holes are not a perfect indicator of an impermeable barrier. Sometimes the storage gas migrates beyond the area originally thought to have an impermeable barrier. Storage operators monitor observation wells around their storage fields to ensure security and to detect migrating storage gas. Observation wells are generally depleted production wells with little gas pressure. An increase in this pressure indicates storage migration.

To construct an underground gas storage field existing wells are reequipped or plugged, new wells are drilled, and pipelines are laid to connect the wells to a compressor station.

The first gas injected raises the pressure in the field to achieve the required deliverability. This is known as base gas and remains in the field until storage operations are abandoned. Next, working gas is injected to achieve a maximum operating pressure that is no higher than the original pressure of the production field. The pressure is gradually reduced as working gas is removed to meet winter demand. Pressure is restored during the summer injection season and reduced again the following winter. This cycle continues until abandonment of the storage field. An underground gas storage field is often the size of several townships.

All of this is not nearly as simple as this explanation. Each storage field presents unique, often difficult problems. Since it is impossible to burrow down to the storage formation for direct observations, all