Underground Gas Storage: Economic Needs and a Proposed Statutory Resolution of Legal Obstacles

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UNDERGROUND GAS STORAGE:
Economic Needs and a Proposed
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Obstacles

Steven Y. Winnick*

I. Introduction

Gas storage is necessary to equate the supply and demand for gas in different parts of the United States. Most areas of the country lack sufficient native gas supplies to meet their own demands for consumption, and commercial natural gas produced mainly in the southwest must be shipped to all parts of the country.1 The primary and most economical means of shipment is by pipelines.2 But during the winter months pipelines carrying capacity loads are incapable of meeting the demand for gas, especially for residential space heating. Contrariwise, capacity far exceeds demand during the warmer periods.3

This problem might be alleviated if industrial service were placed on an interruptable basis4 and concentrated in the summer months, thus making available greater amounts of gas for residential consumption during the winter. But frequently this technique will not be a feasible solution because

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1 Figures in Bureau of Statistics, American Gas Association, Gas Facts 33 (1967) indicate that in 1965 the Mountain and West South Central States had a marketed production of 13,906,323 million cubic feet of natural gas, whereas the country as a whole had a total marketed production of 16,039,753 million cubic feet.

2 According to Wagner, Transportation by Pipeline, in Lectures on Oil and Gas Law 3 (1954), transportation by pipelines costs only about one-third of the cost of shipment by railroad.

3 Todd, Progress in Gas Storage, in Economics of the Gas Industry 170-77 (1962).

4 "Interruptable service" has been defined as:

Low priority service offered to customers under schedules or contracts which anticipate and permit interruption on short notice, generally in peak-load seasons, by reason of the claim of firm service customers and higher priority users. Unlike Off-Peak Service, gas is available at any time of the year if the supply is sufficient. Gas Facts supra note 1, at 246.
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industrial and/or residential demand might be too great during the peak winter period and bargain prices will have to be offered to induce industrial acceptance of such service.\(^5\)

The solution to the problem of creating a supply system which will meet radical fluctuations in seasonal demand lies in the storage of gas after transportation through the pipelines so that the supply may be varied with the demand at the consumer markets. Aboveground storage of gas in artificial containers is not a feasible storage technique due to high costs,\(^6\) fire and explosion hazards,\(^7\) and the limited capacities of such facilities.\(^8\) In view of the inability of aboveground containers to satisfy the tremendous demand in many parts of the country for storage gas on the coldest days,\(^9\) underground storage appears to be the only practical and economical way of storing large commercial quantities of gas.\(^10\)

However, current law frequently presents significant obstacles to expeditious development of underground gas storage projects. Some jurisdictions have held that title to gas injected for storage is lost and that the gas can rightfully be appropriated by the owner of the mineral rights in the storage tract if storage rights have not been previously obtained.\(^11\)


\(^6\) As quoted in Stamm, *Legal Problems of the Underground Storage of Natural Gas*, 36 TEX. L. REV. 161, n. 17 (1957), it was reported in *Gas Age*, Nov. 18, 1954 at 35 that unit costs for investment per 1,000 cubic feet of gas for the different types of storage facilities were: Underground storage — $0.40; Liquefication — $20.00; High pressure bottle — $50.00; Gas Holders & Spheres — $175.00 to $200.00.

\(^7\) H. Williams & C. Meyers, *Oil And Gas Law* § 222 (1964).

\(^8\) According to Professor Donald Katz, aboveground artificial containers could only hold about three to five million cubic feet of gas. The Six Lakes Storage Field, which is Michigan's largest natural storage reservoir, holds close to 55 billion cubic feet of gas. Interview with Professor Donald Katz, Department of Chemical & Metallurgical Engineering, University of Michigan, in Ann Arbor, Michigan. January 25, 1968.

\(^9\) During one day in January 1968, for example, Michigan Consolidated Gas Company and its affiliated companies withdrew 2.5 billion cubic feet of gas from its storage reservoirs to meet consumer demands. It has been estimated, moreover, that on cold winter days, 60-65% of the gas distributed to retail customers in Michigan is taken from underground storage reservoirs, while the remaining 35-40% comes directly from the pipelines. *Id.*

\(^10\) This is confirmed by the tremendous growth of gas storage in natural reservoirs. By December 31, 1966, the total reservoir capacity for underground storage of gas in the country exceeded 4.4 trillion cubic feet. Storage installations in 25 states actually contained over 3.2 trillion cubic feet of gas on that date. These figures indicate a remarkable increase from the 3.4 trillion cubic feet of reservoir capacity existing in 1962, and the less than 2.5 trillion cubic feet actually in storage on December 31, 1962. *Committee On Underground Storage, American Gas Association, The Underground Storage Of Gas In The United States And Canada* 6 (1966).

\(^11\) Hammonds v. Central Kentucky Natural Gas Co., 255 Ky. 685, 75 S.W.2d 204 (1934); Bezzi v. Hocker, 370 F.2d 533 (10th Cir. 1966).
ence to this rule could economically prohibit storage operations and significantly inflate retail gas prices. Other jurisdictions have rejected this rule of capture and have held that title to the gas injected for storage remains in the injector. However, this approach does not insulate the storage operator from liability for trespass when the gas migrates into subterranean areas in which it has no property rights. Gas storage is further restricted by eminent domain statutes which prescribe condemnation unless a high percentage of the needed storage rights have been acquired through voluntary agreements. Such legislation encourages landowners to demand exorbitant compensation for their storage rights and to delay development of storage projects. It may also encourage storage operators deliberately to forego acquisition of all storage rights before storage operations are undertaken. In such event, a trespass action, due to its expense and the burden of proof problems, may not be effective to vindicate the rights of landowners who have not been compensated for their storage rights. This article will analyze the practical effects of various ways to circumvent these legal obstacles and will propose a basic statutory solution.

II. Acquisition of Storage Rights

The problems of ownership of migrated gas and possible liability in trespass would be virtually eliminated if those injecting gas into underground reservoirs for storage purposes purchased, leased, or condemned storage rights in enough land to hold their gas.

Frequently, the storage operator can predetermine with relative certainty the lands in which storage rights have to be obtained. When, as is most common, depleted oil or gas fields are used for storage, gas companies know to the cubic foot how much native gas or oil has been removed according to the records of the producing wells. From dry wells previously drilled beyond the periphery of the reservoir, they can determine under what lands the reservoir lies. It should be noted, however, that without the benefit of records or pre-existing wells, it may be difficult to make such a predetermination in the case of aquifers.


13 Of 303 storage pools in use in 1966, 264 were depleted oil and/or gas fields. All but two of the remaining pools were originally water-bearing sands, or aquifers. See THE UNDERGROUND STORAGE OF GAS IN THE UNITED STATES AND CANADA at 6, 13, supra note 10.

14 Interview with Professor Kenneth Landes, Department of Geology, University of Michigan, in Ann Arbor, Michigan, January 24, 1968.

15 Core analysis is obtained by drilling out small cores of rock during the drilling of exploration or exploitation wells. The cores are then analyzed in laboratories for data regarding the porosity, permeability, and oil saturation of the rock. K. LANDES, PETROLEUM GEOLOGY 187 (2d ed. 1959).
itself will not provide sufficient information, and the cost of drilling ade-
quate observation wells may be prohibitive.\footnote{16}

\textit{A. Through Voluntary Agreements}

While it may not be perfectly clear whose interest must be obtained in any particular piece of property (the fee of which may be divided into surface and mineral interests and present and future interests), the seriousness of this problem has been exaggerated in the legal literature.\footnote{17} In jurisdictions with case law directly on the question of whether surface or mineral owners must be compensated for storage rights, the problem is no more than one of careful title searching. If the question is unresolved, it would seem that compensation of the mineral owner would afford adequate protection to the gas injector, for the surface owner in this situation has no right to withdraw the gas from the ground. Moreover, a trespass action by the surface owner would probably result in an award of only nominal damages, since the storage gas causes no real harm to his interests. In any case, both mineral and surface owners could ordinarily be compensated without incurring excessive expenses for storage rights.\footnote{18}

As a rule, compensation for the voluntary acquisition of storage rights should not render storage projects economically unfeasible. Except in cases where the storage operator seeks to drill wells and lay pipelines in a particular piece of land, the only interest which need be acquired in that land is an easement many hundreds of feet under the ground.\footnote{19} For the most part, therefore, the price of storage rights has been anything but excessive.\footnote{20}

\footnote{16 Interview with Joseph Hancock, Vice President, Natural Gas Pipeline Company of America, and Charles McDugald, member of the Illinois Bar, in Chicago, June 26, 1968.}

\footnote{17 \textit{E.g.}, I H. Williams \& C. Meyers, \textit{supra} note 7, \S 222; Scott, \textit{Underground Storage of Natural Gas: A Study of Legal Problems}, 19 \textit{Okla. L. Rev.} 47, 57 (1966).}

\footnote{18 Presently, the State of Michigan demands $1.00 per acre per year for gas storage rights when the State owns surface rights in a piece of land and an additional $0.25 per acre per year for a gas lease to the storage formation when the mineral rights are also State-owned. \textit{Department of Commerce, Michigan Public Service Commission, Gas Storage Lease — Basic Terms}.}

\footnote{19 Peoples Gas Light \& Coke Co. \textit{v. Buckles}, 24 Ill.2d 520, 532-33, 182 N.E.2d 169, 176 (1962).}

\footnote{20 In parts of northern Michigan, for example, where much of the land is used only for growing trees, Michigan Consolidated Gas Company has paid only five dollars per acre for deeds to storage rights in fee, including rights of ingress and egress. An additional five dollars per acre has been paid in advance for any possible damages which might result. Interview with Professor Katz, \textit{supra} note 8. In Kentucky, on the other hand, the custom has been to pay fifty cents per acre per year for storage rights. Milby \textit{v. Louisville Gas \& Electric Co.}, 375 S.W.2d 237 (Ky. Ct. App. 1963); Cornwell \textit{v. Central Kentucky Natural Gas Co.}, 249 S.W.2d 531 (Ky. Ct. App. 1952). Storage rights for Iowa's first significant storage project were acquired for five dollars per acre for the first year and two dollars per acre for each year thereafter, but such compensation...}
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When depleted gas fields are used as storage reservoirs, storage operators must customarily compensate mineral owners (and surface owners retaining a royalty interest in the minerals) for native gas remaining in the formation as well as for storage rights. This may drastically drive up acquisition costs for storage reservoirs. Balancing this added expense to the gas company, however, is the function that the remaining native gas serves as cushion gas to maintain reservoir pressures, thereby reducing the amount of gas which the storage operator must inject for this purpose. In practice, therefore, a gas company will not wait until a reservoir is completely depleted before acquiring the necessary rights. Furthermore, although all the remaining native gas is useful for storage operations, the gas company may be able to negotiate a low price for it because not all of the native gas would have been commercially recoverable by the mineral owner.

B. Through Condemnation

If gas companies are unable to acquire sufficient storage rights through negotiations, almost every gas storage state has legislation specifically providing for the condemnation of needed storage rights by gas companies.


"Native gas" may be defined as gas indigenous to the reservoir in which it is found.

In common situations where the fee owner has conveyed mineral rights under a royalty agreement whereby he is to receive compensation for a certain proportion, usually one-eighth, of the minerals produced, the storage operator may acquire the native gas by negotiating for seven-eighths of it with the mineral owner and for one-eighth with the surface owner.

The costs of acquiring native gas will, of course, vary with the estimated amounts of gas in place within the formation and with the give and take of negotiations between gas company and individual. Attorney Russell Otterbine, who has sold considerable of his mineral interests in Michigan to gas companies for storage purposes, reports that he has been compensated between $15 and $50 per acre for native oil and gas in place, while storage rights in fee in the same lands were purchased for between $15 and $20 per acre. Interview with Russell Otterbine of the Michigan Bar, February 22, 1968.

Unlike "working gas", which is regularly injected and withdrawn for use, Cushion gas is that gas which normally is left in a storage reservoir at the end of the withdrawal season in which maximum use of the reservoir was made. Cushion gas is needed to maintain a reservoir pressure high enough to provide the desired gas flow rate from the wells at the critical withdrawal period. D. Katz, R. Tek, K. Coats, Underground Storage of Natural Gas 84 (1965).

Interview with Ray Markel, member of the Michigan Bar in Clark Lake, Michigan, February 23, 1968.

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In the absence of such statutes, it is not entirely clear whether storage rights may be condemned.\(^{27}\)

Many obstacles within the condemnation statutes are rather insubstantial. Most legislation, for example, only permits condemnation of land for storage purposes if it is necessary,\(^{28}\) or reasonably necessary,\(^{29}\) or may reasonably be expected to be penetrated by the storage gas.\(^{30}\) But necessity may be shown simply by demonstrating that the rights sought to be condemned are located within the boundaries of a storage reservoir which will supply gas for public consumption.\(^{31}\) If strictly applied, this requirement could mean that the gas companies would be unable to condemn "protective acreage", often acquired to contain slight migrations of gas beyond the perimeter of the reservoir. Courts, however, are not unaware of the desirability of securing storage rights in reasonable protective acreage. Accordingly, the problem would not seem to be a serious one.\(^{32}\) In any case, if gas migrates to these fringe lands after injection, they will thereby be rendered necessary for storage purposes and hence subject to condemnation.

\(^{27}\) In the well-known case of Strain v. Cities Service Gas Co., 148 Kan. 393, 83 P.2d 124 (1938), the Supreme Court of Kansas held that a Kansas statute providing that land could be condemned for the use of oil companies, pipeline companies, and for the piping of gas did not embrace condemnation for underground storage. This case has been interpreted to mean that condemnation of storage rights is not possible unless expressly provided for by statute. Discussion Notes, 10 & G. R. 1172 (1952). Undoubtedly, it was this understanding of the case which ultimately led to the proliferation of eminent domain statutes specifically for underground storage.

The holding, however, has been severely criticized, and it has been suggested that courts might reach different results with similarly broad eminent domain statutes. Errebo, Condemnation of Depleted Underground Gas Strata for Gas Storage Purposes, 20 Okla. B. A. J. 1186, 1192-93 (1949).


\(^{32}\) Language in some of the statutory formulations certainly appears to recognize, if only implicitly, the need for condemning protective acreage. The Montana statute, for example, states:
Other statutory obstacles to condemnation represent a deliberate public policy to protect other natural resources. In this category are statutory provisions that storage rights may not be condemned if gas storage would interfere with the production of native mineral resources such as coal and water, or if native oil and gas in the reservoir remain recoverable in commercial quantities.

Compensation for the condemnation of storage rights is not likely to be inordinately high:

The measure of damages in a condemnation proceeding is "just compensation" and this is generally determined by the fair market value of the property taken.

As in the case of pipelines, the property taken is usually only a subterranean easement. While condemnation awards should also include compensation for damages caused to the residue of the property by appropriation of the storage easement, this type of damage does not often occur, especially when there are no wells on the property. Even more important,

The value to the owner of the property taken or damaged for his particular purposes, or its value to the condemnor for some special use, have been rejected in favor of the market value of the property.
at the highest and best use to which it is adapted.39

Thus, the enormous value of storage rights to the condemnor is irrelevant to the amount of compensation which will be awarded.40 Moreover, in determining market value, the court will not consider that the landowner might have used the same stratum to store gas himself, since such use is too speculative.41

The burden is upon the defendant landowner to prove the value of the property taken and damage caused to the residue.42 Also, the condemnor may introduce evidence of prices which it has paid for similar interests in voluntary transactions with other landowners.43 As a result, awards have been diminutive in the overwhelming number of reported cases of condemnation of storage rights.44 In cases where the jury has awarded larger judgments, the courts have demonstrated a willingness to overturn these awards as excessive.45

C. Persistence of Ownership and Trespass Questions

There are several reasons why the possibility of acquiring storage rights, through voluntary or involuntary techniques, has not eliminated the legal problems of ownership and trespass of injected gas:

(1) Many condemnation statutes require that gas companies through

41 As the Buckles court demonstrated, there is little likelihood that the landowner can combine his land with other properties overlying the reservoir, a prerequisite for using his own land for storage purposes. Indeed, the prior acquisition of rights in the storage field by another may make it impossible for the landowner to acquire a storage permit in those states where it is required, 24 Ill.2d at 538, 182 N.E.2d at 179. Even in those states which do not require such a permit, if the storage operator has already injected gas into the reservoir, the landowner will risk losing title to any gas he then injects into the reservoir under the “confusion of goods doctrine.” See Note 65 infra.
43 Id. at 911, 75 S.E.2d at 96; Milby v. Louisville Gas & Electric Co., 375 S.W.2d 237, 240 (Ky. Ct. App. 1963).
44 In two Kentucky cases, the ultimate award for storage rights amounted to fifty cents per acre per year. Milby v. Louisville Gas & Electric Co., 375 S.W.2d 237 (Ky. Ct. App. 1963); Cornwell v. Kentucky Natural Gas Co., 249 S.W.2d 531 (Ky. Ct. App. 1952). In Midwestern Gas Transmission Co. v. Mason, 31 Ill.2d 340, 201 N.E.2d 379 (1964), nothing was awarded for condemnation of a stratum underlying 107 acres of land. $13.60 per acre for storage rights over a twenty year period was awarded in United Fuel Gas Co. v. Allen, 137 W.Va. 897, 75 S.E.2d 88, 91 (1953). And in the Buckles case, an award of only $25 per acre for storage rights in fee was made.
voluntary agreements acquire storage rights in a certain percentage of the reservoir property before condemnation will be permitted. Thus, in both Pennsylvania and Michigan, the two largest gas storage states, voluntary interests in seventy-five percent of the necessary area must first be voluntarily acquired. When gas companies confront obstinate landowners unwilling to grant storage rights, or willing to grant them only for exorbitant fees, the gas companies will be unable to acquire the storage rights unless they pay the price or have the percentage of interests demanded by statute. If alternative facilities are not available, the economic pressures would seem to dictate that the companies go ahead with storage operations anyway. A failure to do so would disrupt development schedules and deprive the companies of the tremendous savings to be derived from storage operations. Moreover, the possibility of legal sanctions for proceeding to store the gas without acquiring sufficient property interests may not represent a significant deterrent to the gas company.

(2) Gas may be injected during negotiations for the voluntary acquisition of storage rights. These negotiations ordinarily precede condemnation actions, frequently as required by law. Of course, if the provisions of the applicable eminent domain statute are met, the storage operator may condemn the land as soon as the landowner threatens to appropriate the gas or sues for a trespass. But this will not preclude the ownership and trespass questions from arising. It is incumbent upon the court hearing the condemnation suit to decide if ownership remains in the injector in order to determine the proper amount of compensation. The condemnation proceeding, moreover, has no bearing upon the question of the condemnor's liability for a previous trespass.

(3) The gas company may mistakenly fail to acquire rights from a party whose property interest will be affected by the storage project. The gas company may, for example, fail to discover a mineral lease or royalty deed in its title search. As a rule, any eminent domain suit which it

46 Between them, the two states contain about one-third of the nation's gas storage. The Underground Storage of Gas in the United States and Canada, supra note 10 at 7.
48 See notes 100-105 and accompanying text infra.
49 See text accompanying notes 58-66 infra.
52 In 1958, for example, in acquiring storage rights for a field in Mecosta County, Michigan, the Michigan Consolidated Gas Company failed to notice a mineral
had previously brought to appropriate the land may then be ineffective as to this interest. In some jurisdictions, if the gas company is unable to determine who owns interests in the property, the property may still be condemned by paying the award into court.  

(4) There may be an unforeseen leakage of gas from the reservoir. However, such cases appear to be rare. When gas is stored in totally or partially depleted oil or gas reservoirs, the same geological factors which permitted the native oil or gas to accumulate within the reservoir rock are operative to restrain the injected gas within the same area. While no rock is absolutely impermeable, rock surrounding reservoirs chosen for storage projects should be sufficiently impermeable to prevent losses of gas in commercial quantities.  

(5) Lastly, gas companies may not always bother to lease, purchase, or condemn storage rights. In certain situations they may never have to pay anything for subterranean strata if they do not voluntarily take steps which will result in compensation to landowners. While in practice gas companies ordinarily do acquire gas storage rights, the common assertion by spokesmen for the utilities and by legal writers that they must do so to avoid the risk of losing the gas or being sued for trespass has never been adequately documented. This assumption, in fact, has rested on a legal analysis divorced from practical, and especially economic, considerations.

In many cases, the landowner undoubtedly will remain unaware that gas is being stored under his land unless the gas company informs him.

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It has been held that condemnation proceedings pass nothing more than the title to whatever interests were possessed by persons who were made parties to the proceeding. A party who could not be notified is not bound by the award or judgment. 3 P. NICHOLS, THE LAW OF EMINENT DOMAIN § 9.1(2) (3rd rev. ed. 1965).


Interview with Professor Landes, supra note 14.

A. LEVORSEN, GEOLOGY OF PETROLEUM 104 (2d ed. 1967).

Interview with Professor Landes, supra note 14.

While gas companies, according to the laws of many storage states, are under a duty to file maps of their storage reservoirs with state conservation commissions, these reports are not automatically made available to all landowners whose rights may be affected. Storage reservoirs are large enough that the landowner may not guess that wells some distance away may in fact be pumping gas under his land.

Even if the landowner discovers that gas lies under his land, the storage operator may still be in an excellent position to avoid payment. In some cases, the landowner may lack the funds to initiate court action against the gas company. If he can afford a suit, he may still lack the resources to make an effective case. A good example of this dilemma is the case of *Whetstone v. Michigan Consolidated Gas Co.* Plaintiff learned of maps filed with the Michigan Conservation Commission indicating that a stratum under her land was being used by the gas company for storage purposes. Without the aid of an attorney, she filed suit in the federal court for the Eastern District of Michigan, but her complaint was dismissed with prejudice on a procedural point. Still without an attorney, she appealed to the United States Sixth Circuit Court of Appeals which overruled the dismissal. Upon remand, plaintiff lost on the merits when the gas company produced two of its own employees, a geologist and a chemical engineer, who testified that no gas was being stored under her land. Plaintiff could not afford her own expert witnesses to counter this testimony. Thus, the court held that she had not sustained her burden of proving a trespass, notwithstanding the seemingly more objective evidence in the form of maps which had been filed by the defendant for many years with a state agency and which supported the plaintiff's position.

Regardless of the merits of this particular litigation, the case does demonstrate the tremendous difficulty of proving a case of trespass against the storage operator. In many cases of this sort, the plaintiff can sustain his burden of proof only by drilling a well under his land. He may lack

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50 E.g., OHIO REV. CODE ANN. § 4161.02 (Page 1964); PA. STAT. ANN. tit. 52, § 2301 (1966); W.VA. CODE ANN. § 22-7-2 (1966). The West Virginia and Pennsylvania statutes only require such filing when there is a possibility that the gas storage will interfere with coal mining operations.

60 Injection operations in the Menifee Gas Storage Field, for example, expanded that field from an area of some 18,000 acres to one approaching 40,000 acres. Central Kentucky Natural Gas Co. v. Smallwood, 252 S.W.2d 866 (Ky. 1952).

61 I am indebted for an account of this case to Fred Fox and especially to Walter Nelson. Interview with Fred Fox and Walter Nelson, members of the Michigan Bar, in Detroit, January 26, 1968. The original dismissal of the suit is unreported. The report for decision on appeal from this dismissal is 289 F.2d 494 (6th Cir. 1961). Upon remand, a determination of an issue irrelevant to this discussion was reported: 219 F. Supp. 121 (E.D. Mich. 1963). The district court's separate opinion on issues germane to this discussion was unreported but was available in the clerk's office of the court. Mem., Whetstone v. Michigan Consolidated Gas Co. (E.D. Mich. Feb. 17, 1965).

62 Interview with Herman Fruechtenicht, supra note 58.
sufficient resources for such a project, and the cost of the well is unlikely to be shifted to the gas company while determination of the suit on the merits is pending.

Similarly, it may be extremely difficult for the mineral owner to prove that any native oil or gas was appropriated when storage operations were commenced. Thus, what might otherwise have been the most effective deterrent to a practice of not acquiring storage rights—the possibility that the injector might lose title to his gas if it commingled with native gas and became unidentifiable—may be of no consequence.

In jurisdictions which hold that the injector loses title to gas injected into the ground for storage or in which this question has not been resolved, it may be surmised that storage operators will be deterred from deliberately omitting to acquire storage rights by the possibility that landowners may drill a well and acquire ownership to the injected gas by withdrawing it from the ground for their own purposes. But in practice, this threat may not be significant to the gas company. Even if landowners are aware of the gas being stored under their land, they are unlikely to have adequate resources to undertake production of that gas. Moreover, state conservation laws may be applied to limit gas production severely when such production interferes with storage projects. This possibility is likely to deter substantial investment by mineral developers in such operations.

There is some question concerning the extent to which gas companies deliberately undertake storage operations without compensating all affected landowners. Spokesmen for the utilities tend to insist that such a practice is, to their knowledge, non-existent. At least one knowledgeable attorney, on the other hand, is certain that gas companies do, in particular situations, deliberately choose not to acquire storage rights. The latter position would appear to be supported by the cases, to the extent that they reflect at all upon this question. In the unreported case of Whetstone v. Michigan Consolidated Gas Co., for example, Michigan Consolidated's own maps, which had been filed with the Michigan Conservation Commission for several years, indi-

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63 For a well 1,300 feet deep, the minimum cost would be about $15,000. Interview with Charles Maxwell, supra note 52. It has been estimated that drilling a well generally may cost between $25,000 and $500,000. 1 H. WILLIAMS & C. MEYERS, supra note 7, § 103.

64 Interview with Charles Maxwell, supra note 52.

65 See 1 E. KUNTZ, A TREATISE ON THE LAW OF OIL AND GAS § 2.6 (rev. of THORNTON ON OIL AND GAS 1962).


67 Interview with Herman Fruechtenicht, supra note 58; Interview with J. A. Domagalski, Manager of the Land & Legal Services Department, Michigan Consolidated Gas Company, in Detroit, Michigan, March 7, 1968; Interview with Joseph Hancock and Charles McDugald, supra note 16.

68 Interview with Walter Nelson, supra note 66.

69 See note 61 supra.
cated that plaintiff's subsurface was being used for gas storage by the company, or its lessee, but no attempt was made to compensate the plaintiff. When plaintiff sued, the utility fought the case and won. Although none of the reported cases explain why sufficient storage rights were not obtained by the gas company, it is at least clear in some of these cases that the storage operator could not have been unaware that its gas was in lands in which no property interests had been acquired.\textsuperscript{70}

At any rate, there is a substantial possibility that gas companies will turn to a policy of storing gas without acquiring all the "necessary" storage rights, particularly in jurisdictions which do not permit condemnation of storage rights, or permit it only after a high percentage of those rights have been voluntarily acquired. One executive of a major gas company indicated that his company would proceed with storage operations if a situation arose where necessary storage rights in a vitally and immediately needed reservoir could not be acquired through voluntary agreements or condemnation. The utility would, however, continue to pursue settlements with owners of outstanding property interests. Determinations to proceed in this manner would depend upon the economic pressures for commencing storage operations and upon the risks incurred thereby by the company. This same executive also speculated that in states without multiple storage possibilities, and with either no condemnation statute or with a statute with high percentage requirements, storage operators might be led to store gas without ever voluntarily compensating landowners for storage rights.\textsuperscript{71}

### III. Problem of Ownership

Judicial consideration of the problem of maintaining one's rights to gas injected for storage has been limited to a few reported cases applying the laws of Kentucky, Oklahoma, Pennsylvania, and Texas. The central question in each case has been whether or not the rule of capture,\textsuperscript{72} which, subject to certain legislative and administrative restrictions, is the universal rule in this country in regard to native gas, should be extended to gas which has already been taken out of the ground but which is reinjected for storage.

#### A. The Hammonds Doctrine

One line of cases in Kentucky has extended the rule of capture to gas injected for storage with little consideration of the propriety of such ex-

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\textsuperscript{71}Interview with J. A. Domagalski, supra note 67.

\textsuperscript{72}The rule of capture amounts to a legal recognition that whoever takes gas out of the ground, thereby reducing it to possession, owns it, even if it has migrated from the land of another. 1 H. WILLIAMS & C. MEYERS, supra note 7, § 204.4; Elliff v. Texon Drilling Co., 146 Tex. 575, 581, 210 S.W.2d 558, 561-62, (1948).
tension. This treatment of the problem has rested largely on a conception of gas, whether native or injected, as a wandering and fugacious mineral:

Under the analogy to animals *ferae naturae* it is apparent that there is no distinction in the title to gas once recovered and released for subterranean storage and native gas before its initial recovery.

Title to gas in place is a qualified one. Because of its fugitive characteristics, one does not own the gas in the sense that one owns the surface or the solid minerals. Such ownership is limited to the exclusive right to explore, and if gas should be found to reduce the same to possession and ownership.73

The best known of these cases is *Hammonds v. Central Kentucky Natural Gas Co.*,74 the first case in which a state court of last resort ruled on the immediate title and trespass questions for stored gas found under another’s land. In *Hammonds*, the plaintiff sued the defendant gas company for trespass after the defendant injected gas into a depleted natural reservoir, part of which underlay the plaintiff’s land. Relying upon the analogies of percolating waters and of captured wild animals which become *ferae naturae* upon escape from their captor, the Kentucky Court of Appeals held that there could be no trespass because the injector had lost title to the gas upon injection. Thus, while the plaintiff could not recover for a trespass, he could seemingly drill a well under his land and help himself to any gas which he found there.

There is little doubt that the *Hammonds* case remains the law in Kentucky. The case was explicitly followed in *Central Kentucky Natural Gas Co. v. Smallwood*.75 It has been suggested that the subsequent case of *Smallwood v. Central Kentucky Natural Gas Co.*76 represented an “erosion” of the *Hammonds* doctrine in Kentucky in that the case failed to treat stored gas as a mineral *ferae naturae*.77 This assertion is unwarranted. The case was one of contractual interpretation and explicitly distinguished the *Hammonds* case and the previous *Smallwood* case. In a later condemnation case,78 the same court acknowledged that gas which had migrated

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73 Central Kentucky Natural Gas Co. v. Smallwood, 252 S.W.2d 866, 867-868 (Ky. Ct. App. 1952).
74 255 Ky. 685, 75 S.W.2d 204 (1934).
75 252 S.W.2d 866 (Ky. Ct. App. 1952).
76 308 S.W.2d 439 (Ky. Ct. App. 1957).
into the defendants' land might be recovered as their personal property under the authority of the *Hammonds* case.

Similarly, in Oklahoma, though there has been no determination of this precise question, the authorities make it clear that the Hammonds rule will be followed. In *West Edmond Salt Water Disposal Ass'n v. Rosecrans*,79 the court applied the *Hammonds* rule to injected salt water which migrated under the plaintiff's land. While the situation is readily distinguishable from the case of migrated storage gas, in that the injector intended to abandon the salt water, and the public interest in economic development was vindicated by a finding of loss of title, the *Rosecrans* court indicated that the result would have been the same if oil or gas, rather than salt water, had been involved.

Although *Bezzi v. Hocker*,80 a federal case applying Oklahoma law, concerned the distinct problem of rights of a lessor and lessee inter se regarding gas injected for conservation purposes, the court did indicate that injected gas would be subject to the rule of capture under the *Rosecrans* holding:

> While the Supreme Court of Oklahoma was not presented with the precise question here, it did liken salt water to oil, gas, and other fugacious minerals which are subject to the law of capture.81

Without considering any possible distinctions between native gas and injected gas or between the equities, both public and private, bearing upon salt water and gas, the court reasoned:

> It is now recognized that oil and gas are mobile and fugacious, and if it [sic] escapes [sic] to other lands or comes [sic] under another's control, whatever title the original owner had is lost. It belongs to the person who legally obtains control and possession of it.82

In *Bingaman v. Corporation Commission*,83 the court affirmed an order of the Oklahoma Corporation Commission approving a plan of unitization whereby royalty owners were to be denied royalties for the reproduction of gas injected by the lessee as part of a recycling, or secondary recovery, operation. Retention of title to injected gas would seem implicit in such result.

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79 204 Okla. 9, 226 P.2d 965 (1950).
80 370 F.2d 533 (10th Cir. 1966).
81 *Id.* at 536.
82 *Id.* at 535.
83 421 P.2d 635 (Okla. 1966).
Bingaman, however, is readily distinguishable from the problem at hand on several grounds: (1) rights between lessor and lessee were in issue; (2) the primary source for determining such rights was the terms of a royalty agreement which exempted such reproduction from royalty payments; and (3) the rule of capture was limited by order of the Corporation Commission under its police power.84

B. Legislative Treatments

The majority of statutes which have touched upon the question of ownership of injected gas appear to incorporate the Hammonds holding. Oklahoma legislation, for example, protects the property rights of the injector to the gas,

... provided that the injector, his heirs, successors, and assigns, shall have no right to gas in any stratum, or portion thereof, which has not been condemned under the provisions of this Act, or otherwise purchased. [Emphasis added].85

As suggested by other writers discussing the statute,86 such language represents a positive determination that title to the injected gas is lost unless the land under which the gas is stored has been previously condemned or purchased by the storage operator. The Arkansas,87 Louisiana,88 Nebraska,89 and New Mexico90 statutes are virtually identical to that of Oklahoma.

The Missouri legislation, on the other hand, does not appear to resolve the problem of ownership of gas which has migrated into unacquired

84 For an excellent discussion of these points and an analysis of the Bingaman case, see Note, Oil and Gas: Royalties on Injected Gas, 21 OKLA. L. REV. 215 (1968).
85 OKLA. STAT. tit. 52, § 36.6 (Supp. 1967).
86 Stamm, Legal Problems in the Underground Storage of Natural Gas, 36 TEX. L. REV. 161, 178 (1957). To the same effect is the following language in Scott, supra note 77, at 70:

In effect the statute has added nothing to existing case law on the subject. It provides that if the proponent has the necessary land condemned, then the gas contained therein is his and no one else may produce it. However, if the gas migrates to land which is not condemned, then the injector loses his exclusive right to recover this gas. This is the same circumstance which occasioned the Hammonds decision.

strata. It provides that injected gas, unless abandoned, will remain the personal property of the injector and may not be reduced to possession by the owner of land under which the gas company has acquired a right to store gas,

\[
\text{... provided nothing herein contained shall apply to a person under whose land gas may be stored without the gas storage company having obtained the right to store gas.}^{91}
\]

The Colorado legislative formulation appears to be contrary to the Hammonds rule. Its language may be interpreted to mean that the injector retains ownership of the gas even when the gas migrates into lands in which the injector has no storage rights:

All natural gas in said underground reservoir and the rights reasonably necessary for the injection and storage in and withdrawal from said underground reservoir of said natural gas, as defined and limited by the decree of the district court, shall be the property of said natural gas public utility. \textit{In no event} shall such gas be subject to the right of the owner of the surface of said lands or of any mineral interest therein \textit{or of any person other than the public utility} \ldots to produce, take, reduce to possession or otherwise interfere with or exercise any control thereover. \[\text{[Emphasis added].}^{92}\]

Enactments of three other states are similar to the Colorado statute in that they contain no express qualifications on their protection of ownership of gas injected for storage.\[93\]

\[91\text{MO. REV. STAT. } \S 393.500 \text{ (Supp. 1966).}\]
\[92\text{COLO. REV. STAT. ANN. } \S 100-9-3 \text{ (1963).}\]
\[93\text{GA. CODE ANN. } \S 93-811 \text{ (Supp. 1967); N.Y. CONSERV. } \S 88 \text{ (McKinney 1967); ch. 201, } \S 6, 1963 \text{ WASH. SESSION LAWS 1005-06.}\]

The New York Statute adds the following provisions:

\[
\ldots \text{the injector ... shall have no right to reserves of native gas or oil remaining in any stratum or portion thereof which have not been condemned hereunder or otherwise acquired by such injector ... N.Y. CONSERV. } \S 88 \text{ (McKinney 1967).}\]

It is submitted that this provision should be distinguished from the Oklahoma statute and its progeny. The critical distinction in the New York statute is
Unfortunately, none of these recent statutes which touch upon the ownership of migrated storage gas has been construed by any case law. Therefore, it is not certain that the courts will read these differences in language to demand different results. In addition, it is not entirely clear whether these statutes apply at all unless storage rights have been condemned at least in the particular piece of land into which the gas has been injected, since these provisions are all found within acts providing for the condemnation of storage rights.

C. Economic Objections to the Hammonds Doctrine

The most fundamental objections to the application of the rule of capture to produced gas injected for storage are economic ones. By the time gas is injected into a natural reservoir for storage, substantial investments have already been made by the gas company to prepare it not only for transmission through the pipelines, but also for ultimate consumption. There are, in fact, four common types of gas treatment prior to injection: gasoline plant processing, dehydration, the removal of chemical impurities, and the removal of physical impurities. In view of these expensive processes, it is anomalous to hold that the gas company loses title upon injection.

Probably the most serious economic shortcoming of the Hammonds rule is the effect which it may have upon retail gas prices, and thus upon the residential consumer of gas. Unless alternative means of protecting ownership of the gas would be entirely practical and efficient, it is clear that underground storage of gas might be effectively precluded under the Hammonds rule.

between native oil or gas remaining in a depleted reservoir which had never been owned by the storage operator and gas previously reduced to possession by the storage operator and then injected for storage. The injector is given no property rights to native oil or gas in unacquired strata. Under the New York statute, however, it appears that title to any gas injected for storage remains in the injector, even if it migrates into land in which no storage rights have been obtained. This is unlike the Oklahoma statute where a distinction is apparently made between injected gas lying in lands in which storage rights have been obtained and that in lands in which they have not.

In Colorado, for example, §§ 100-9-3 to 100-9-7 of COLO. REV. STAT. ANN. (1963) provide for the condemnation of storage rights. Language within § 100-9-7 (which protects the property rights of the gas company in the stored gas) specifically refers back to the eminent domain proceeding brought under § 100-9-3.


The facilities used in gasoline plant processing, for example, "represent investments of about $30 to $40 per gallon per day of products recovered." Id. at 70.

Alternative means might include (1) limitation of gas storage in sufficiently sealed underground rock formations well within property boundaries; (2) the purchase, leasing, or condemnation of sufficient property interests; and (3) the effective prohibition of capture of another's storage gas through state admin-
mons rule because the injector of gas would in essence be abandoning it to the first taker.

As underground storage is critical to the gas industry, its availability or nonavailability has an important bearing upon the price paid for gas by individual consumers. Gas companies, as public utilities, are subject to rate regulations by municipalities, the federal government, and the states, and rates are determined according to cost of service formulae in which the costs of transportation and storage play a vital part. Without question, the absence of gas storage would result in higher transmission costs which would ultimately be borne by the residential gas consumer.

It is perhaps easiest to appreciate the relationship of storage facilities to gas prices by considering how prices would be affected if companies had to use pipelines capable of carrying enough gas to meet the greatest consumer demand at any particular time. According to Raymond W. Todd, at the time chairman of the American Gas Association’s Subcommittee on Underground Storage Statistics, if such pipelines were used in southern California, their average use would be about 33% of capacity.

Gas delivered in southern California markets now costs about 38c per MCF [1,000 cubic feet] at 100% load factor. Fixed costs represent almost 50% or about 18c per MCF. If the load factor were 33% the fixed costs would be around 54c per MCF put through the pipelines. When other costs are added, one MCF would cost about 74c—a sizeable change from 38c.

Of course, these figures to some extent exaggerate the effect of gas storage on the price structure. The assumption that in the absence of underground gas storage, pipelines large enough to meet maximum demand would have to be built, ignores other techniques such as interruptable service and

98 Leeston, From Public Utilities to Private Homes, in The Dynamic Natural Gas Industry 179 (1962).

99 In 1966, for example, transmission costs (exclusive of any distribution costs), which are critically affected by the accessibility of gas storage facilities, represented 8.8% of the operating expenses for natural gas transmission companies. GAS FACTS, supra note 1, at 208-09. These costs in turn became part of the gas purchasing costs for gas distributing utilities. At the same time, storage costs for the year amounted to only 0.8% of operating expenses for all natural gas companies. Id.

100 Todd, supra note 3, at 174.

101 See note 4 and accompanying text supra.
off-peak service which would improve annual load factors. On the other hand, seasonal fluctuations in demand are undoubtedly even greater in parts of the country with colder winters than those of southern California, so in these places costs would rise even more radically with the construction of larger pipelines to meet greater demands for gas. Except in cases where interruptable service can be provided on a large scale, therefore, the statistics appear to present a relatively meaningful yardstick for measuring the relationship of gas storage to gas prices.

Some idea as to the magnitude of storage costs may be derived from a study of statistics of the Michigan Gas Storage Company, a subsidiary of Consumers Power Company in Jackson, Michigan, whose sole function is to store gas. In 1966, the company's net purchases of gas averaged 30.00 cents per MCF. Its average revenue per MCF sold, on the other hand, was 39.46 cents. This difference of 9.46 cents included total operating expenses for the company, including all administrative costs, as well as depreciation of equipment, amortization of investments, and a six percent return to the company on its total investment. It is likely that actual gas storage costs represented a small fraction of this figure.

The cost of gas has become personally relevant to more and more people with the enormous growth of the gas industry. In 1966, for example, the number of residential gas consumers rose to 35,141,800, compared to only 27,241,000 in 1956. Of the 1966 residential gas consumers, seventy-seven percent, or some 27.1 million, heated their homes with gas. Also, it has been estimated that by the end of 1966, almost fifty-two percent, or 30.5 million, of the housing units in the United States were heated with gas. Consequently, any interference with underground gas storage would be directly felt by a large segment of the population. And it is important to note that the popularization of gas has been at least partially facilitated by its remarkably stable price over the last seven years.

102 "Off-peak service" has been defined as:
Service made available on special schedules or contracts on a firm basis but only for a specified part of the year during the off-peak season.
GAS FACTS, supra note 1, at 247.
103 ANNUAL REPORT OF MICHIGAN GAS STORAGE COMPANY TO THE FEDERAL POWER COMMISSION 535 (1967).
104 Id. at 521.
105 See note 6 supra.
106 GAS FACTS, supra note 1, at 79.
107 Id. at 1, 139.
108 Id. at 139.
109 During 1966, residential consumers paid an average of 10.0 cents per therm of gas, the same rate which they paid in 1961. Id. at 112.
D. Judicial Rejection of the Hammonds Doctrine

Cases in some jurisdictions have either expressly refuted the Hammonds case or at least revealed bases for avoiding its holding. In Michigan, there has been no reported case explicitly treating the question of ownership of injected gas. The Michigan Supreme Court, however, implicitly rejected the Hammonds rationale in Michigan Consolidated Gas Co. v. Austin Township,110 where it held that gas in natural storage reservoirs could be taxed as personal property of the storage operator. In that case, plaintiff sued the defendant townships for the recovery of ad valorem personal property taxes assessed on gas stored in the townships by the plaintiff and paid by the plaintiff under protest. In affirming a lower court judgment for the defendants, the Supreme Court of Michigan focused on the issue of whether this constituted state taxation of interstate commerce. It is unlikely that Michigan Consolidated Gas Company tried to avoid payment of the tax by arguing that the gas was not its personal property, for this would have implied that title had been lost by injection and might be an unfavorable precedent in a situation like Hammonds. Thus, the court may not have been benefited by an adversary confrontation on this issue. Even so, in the face of the language and result in the Austin Township case, it is not easy to imagine any Michigan court holding that title to injected gas is lost:

While the physical properties of gas are admittedly different . . . from those of coal, grain, and oil, gas is personal property which can be stored, processed and sold.111

It is therefore probable that Michigan will not follow the Hammonds decision.

The Hammonds solution to the question of ownership of gas which has been injected for storage and has migrated into another’s property has been explicitly rejected in two subsequent cases applying Pennsylvania and Texas law, respectively: White v. New York State Natural Gas Corp.,112 and Lone Star Gas Co. v. Murchison.113

The White case is significant in that Pennsylvania law was involved. It was an early Pennsylvania case, Westmoreland & Cambria Gas Co. v. DeWitt,114 that first applied the doctrine of animals ferae naturae to oil and gas law. Moreover, the doctrine as applied to injected gas had been given implicit approval by a state district court in Protz v. Peoples Natural

111 Id. at 142, 128 N.W.2d at 501.
114 130 Pa. 235, 18 A. 724 (1889).
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*Gas Co.* The *White* court cited both cases but refused to be bound by either.

Although the district court in *White* explicitly declined to extend the *ferae naturae* concept beyond the original capture of native oil and gas, its primary bases for decision lay entirely within the framework of that analogy. In effect, the court used doctrines which were part and parcel of the law relating to captured and escaped wild animals to avoid the result reached in the *Hammonds* case.

The court stated that the injected gas remained subject to the control of the injector within a well-defined storage field and had therefore not escaped from its owner. Thus, under the *ferae naturae* analogy the injector had not lost title to the gas. The test for an escape under the law regarding wild animals hinges upon whether the animal remains subject to artificial restraints or the injector's control. In the overwhelming number of cases where gas migrates under another's land, it is likely that gas will in fact remain subject to the injector's control. It is a truism that gas companies would not inject gas for storage unless it appeared certain that they could subsequently withdraw it. Gas companies can generally enlarge and shrink storage reservoirs at will. Careful testing and preparations which must precede every gas storage project for the most part preclude serious losses of storage gas.

The *White* court presented another basis for its decision:

Moreover, there has been no return of storage gas to its "natural habitat", since Southwest gas, differing materially in chemical and physical properties from native Oriskany gas, is not native to the Oriskany Sands underlying the Hebron-Ellisburg Field.

Although this factor appears irrelevant to the question of escape under the animals *ferae naturae* analogy, it may be significant by analogy to the legal proposition that where the subsequent captor of an escaped animal is on notice as to the ownership of the animal, title may remain in the

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115 93 Pitts. L.J. 239, aff'd, 94 Pitts. L.J. 139 (1945).
116 The court also made a brief, but significant and proper, allusion to state public policy supporting underground gas storage, as manifested in state legislation granting eminent domain power for this purpose. 190 F. Supp. at 349.
117 190 F. Supp. at 348.
119 Interview with Professor Katz, *supra* note 8.
120 190 F. Supp. at 348.
121 In Mullett v. Bradley, 24 Misc. 695, 53 N.Y.S. 781 (N.Y. App. T. 1898), for example, the court held that the escape of plaintiff's sea lion into a strange environment did not mean that it had not attained its natural liberty.
original captor.\textsuperscript{122} Injected gas which has been transmitted over pipelines from great distances frequently differs in properties from gas native to the locality of storage. These differences are detectable.\textsuperscript{123} In this sense, surrounding landowners who begin to withdraw the gas may very well be on notice as to its ownership. In addition, some landowners may be on notice as to the ownership of the gas to the extent that they are aware of gas storage operations being conducted in their area.

As will be demonstrated, the animals \textit{ferae naturae} analogy should be completely abandoned in gas storage cases. It is nevertheless clear that if such analogy is to be followed, its proper application would not subject injected gas to the rule of capture.

In \textit{Lone Star Gas Co. v. Murchison}\textsuperscript{124} the gas company sued defendant for conversion of the natural gas which it had produced and injected into a natural subsurface reservoir for storage purposes. The court held that the plaintiff had not lost title to the gas and reversed the trial court's judgment for the defendant.

The Texas court in \textit{Murchison} came directly to grips with the propriety of the analogy of injected gas to animals \textit{ferae naturae} and concluded:

\begin{quote}
[1]n the light of advanced knowledge and scientific achievement in the oil and gas industry, we are of the opinion that the rule of the \textit{Hammonds} case should not be embraced as the law in Texas . . . Gas has no similarity to wild animals. Gas is an inanimate, diminishing non-reproductive substance lacking any will of its own, and, instead of running wild and roaming at large as animals do, is subject to be moved solely by pressure or mechanical means.\textsuperscript{125}
\end{quote}

Clearly, this represents a more fundamental quarrel with the \textit{Hammonds} case than that presented by the \textit{White} case. As suggested by \textit{Murchison}, there is little practical or factual justification for analogizing oil and gas to wild animals.

The \textit{Murchison} court properly demonstrated a willingness to treat the question of ownership of injected gas as an entirely distinct problem from that of native gas. The rule of capture was in fact a rough but workable legal technique for delineating property rights in a mineral which migrated

\begin{footnotes}
\textsuperscript{122} In Stephens & Co. v. Albers, 81 Colo. 488, 256 P. 15. (1927), the absence of wild foxes and the presence of large numbers of foxes in captivity in the area, as well as a special brand or mark on the fox, was held to convey sufficient notice to the captor to prevent a passage of title to the dead fox's pelt.
\textsuperscript{123} Interview with Professor Landes, \textit{supra} note 14.
\textsuperscript{124} 353 S.W.2d 870 (Tex. Ct. Civ. App. 1962).
\textsuperscript{125} \textit{Id.} at 879.
\end{footnotes}
underground without regard to boundary lines. Moreover, it has been suggested that the courts at one time felt a special impetus to adopt the rule of capture for oil and gas law, since it was believed that absolute ownership of the gas by the landowner would render conservation statutes invalid under the due process clause. The need for such justification is no longer felt. Indeed, conservation considerations have led to judicial, as well as legislative and administrative, limitations on the rule of capture. It would thus be anomalous to expand the application of the rule to gas injected for storage.

Unlike native gas originally subject to capture, gas extracted from the ground and subjected to possession is universally regarded as personal property. As would therefore seem appropriate, the case law has held that title to produced oil or gas which has escaped on the surface — although it moves onto someone else’s land — is not lost unless the gas or oil has been abandoned by its owner. There is no demonstrable reason why this same rule should not apply to injected gas which migrates underground. Ownership of the injected gas has already been identified, so there is no longer as difficult a problem of adjusting more than one landowner’s interest in the gas as there may well be with native gas. Moreover, in most cases of subterranean migration there is perhaps even less basis for finding an abandonment than in cases of escape along the surface, since the gas remains subject to the control of the gas company in the former case. Thus, the Murchison court appropriately demanded a finding of abandonment before the injector could be held to have lost title to the gas. The court alleged:

Contrary to the theory of abandonment we find in this record a positive statement of intention on the part of appellant to reclaim its gas as it is needed to satisfy the demand of consumers during times of high fuel consumption.

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127 48 HARV. L. REV. 855 (1935); 1 H. WILLIAMS & C. MEYERS, *supra* note 7, § 204.3.
128 1 H. WILLIAMS & C. MEYERS, *supra* note 7, § 204.3.
129 Elliff v. Texon Drilling Co., 146 Tex. 575, 210 S.W.2d 558 (1948); Annot., 4 A.L.R.2d 198 (1949).
131 See 1 E. KUNTZ, *supra* note 65, § 2.5.
133 48 HARV. L. REV. 855, 856 (1935).
134 353 S.W.2d at 879.
In other leading gas storage states, such as California, West Virginia, Ohio, and Illinois, there are no reported cases on the problem of ownership of injected gas which has migrated into another's land. It would be nearly impossible to predict the resolution of this issue in these jurisdictions. The rule of capture as applied to native gas and the recognition of produced gas as personal property are the most relevant legal principles to the immediate problem. These doctrines are similarly treated in virtually all the jurisdictions, including Kentucky and Oklahoma which follow the Hammonds doctrine as well as Texas and Pennsylvania which reject it. Thus, it is clear that they do not explain how the courts will react to the question of ownership of gas injected for storage. When ownership questions arise as cases of first impression in the state courts, their treatment will depend, on the one hand, upon the degree to which the jurisdiction is tied to the animals feræ naturæ analogy and to a conception of gas as fugacious and wandering or, on the other hand, upon its readiness to consider the economic consequences of a finding of loss of title, and state public policy, as reflected in eminent domain statutes for underground gas storage.

IV. The Problem of Trespass

If ownership of the migrated gas is found to remain in the storage operator, questions arise as to the possible liability of the storage operator for trespass. In the ordinary cases of migration of storage gas, either a technical trespass standard or a nuisance standard may be used to determine whether a trespass has been committed. Under traditional notions of trespass, a simple invasion or entry interfering with a plaintiff's exclusive possession of his land and caused by defendant's act constituted a technical trespass. There was no requirement of fault on defendant's part or harm to plaintiff or his land. The nuisance standard, on the other hand, involves balancing of harm to the plaintiff against benefit to the defendant and to the public welfare. It is submitted that the technical trespass approach should be followed because it will most expeditiously reconcile the conflicting interests without excessive costs for storage operators.

135 These four states, when added to Michigan, Pennsylvania, and Oklahoma, contained on December 31, 1966 more than 70% of the nation's gas being stored underground, as may be seen from statistics in THE UNDERGROUND STORAGE OF GAS IN THE UNITED STATES AND CANADA, supra note 10, at 7.
136 1 H. WILLIAMS & C. MEYERS, supra note 7, § 204.4.
137 Although the trespass issue was argued by the defendant in Lone Star v. Murchison, 353 S.W.2d 870 (Tex. Ct. Civ. App. 1962), the court refused to consider it, since the action had been brought by plaintiff for conversion of the gas.
A. Nuisance Approach

According to Professors Keeton and Jones, the modern concept of trespass to land demands: (1) a showing of harm caused by the entry or invasion where such entry was not intentional and (2) a showing of some degree of fault on the part of the defendant, whether it be negligence, intention, or some degree or recklessness. Moreover, they argue that more stringent requirements for finding a trespass would be particularly appropriate for subsurface invasions:

The mere fact that an actor is obtaining a benefit from the subsurface use may not be justification for a quasi-contractual recovery, and if so a landowner's right should be limited to a recovery for damage caused and for the value of products unjustifiably appropriated. Moreover, it may be that a nuisance approach to all such invasions, which necessarily involves a balancing of interests, is the more desirable one.

The advantages of such an approach are obvious. The owner of an exhausted oil or gas stratum may have no use for it. A nuisance approach, moreover, would mean substantial savings for the gas companies, because storage rights would no longer have to be acquired in many situations, unless the trespass would be likely to cause harm to the landowner.

One difficulty with the nuisance approach which predicates recovery upon a showing of harm is that migrated storage gas in the majority of cases is bound to appropriate native gas or oil in the formation by inter-mixing with it. Contrary to the common assumption in much legal litera-

139 Id. at 256.
140 Id. at 269-70.
142 "Harm" will be used in this discussion in the same sense that it is used in RESTATEMENT (SECOND) OF TORTS § 165 (1965). Comment c states:

The harm may be an impairment of the physical condition of the land or an invasion occurring on the land of some other legally protected interest of the possessor, connected with his interest of exclusive possession. These interests include those in bodily security and freedom from confinement, and in the possession and physical condition of his chattels and the physical condition of the members of his family and the servants belonging to his household. This enumeration is not intended to be exclusive.
ture that the stratum is exhausted and useless to the landowner, \(^{143}\) the stratum is ordinarily not completely depleted when storage is commenced. Even if this oil or gas may not have been commercially recoverable, there should be a remedy for its appropriation. It is of immense value to the gas company, and it might ultimately have been recoverable by the landowner, or his assignee, with the development of better production techniques. \(^{144}\)

In any case, it seems unlikely that the application of the nuisance approach to subsurface trespasses will readily meet with widespread judicial approval. The courts are less likely to be persuaded by arguments as to the landowner's inability to use the stratum \(^{145}\) than by the fact that this has been recognized as a property interest \(^{146}\) of market value. \(^{147}\)

Similarly, under most of the modern authorities which are ready to apply such a nuisance approach to subsurface trespasses, that approach is abandoned when the invasion or entry is intentional. Thus, while Keeton and Jones relied heavily upon Restatement of Torts § 165 (1934) which

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\(^{144}\) See Litz, *supra* note 5, at 153.

\(^{145}\) Such an argument is made in Note, *The Ownership of Natural Gas and Some Real Property Concepts*, 36 Va. L. Rev. 947, 955 (1950):

Nor should the land owner be permitted to demand payment for the use of the stratum. Whenever payment is given for the use of land it is on the theory that the owner, if he used it himself, would reap benefits of a commensurate value therefrom. But there is at present no way that a private individual could make use for his own benefit of an exhausted stratum lying hundreds of feet beneath the surface.

\(^{146}\) The present state of the law is accurately presented in Scott, *supra* note 77, at 60-61:

... the surface owner's right to exclusive possession extends downward beneath his land *usque ad inferos* within the planes of his surface boundaries. This possessory right is not limited to a depth of foreseeable use, as in the case of superjacent airspace, but extends to all parts of the subsoil and to all caverns and containing spaces. Accordingly, the fact that a use of a stratum for gas storage may not be foreseeable to a particular land owner is not material.

\(^{147}\) It is a startling proposition that a thing of value to its would-be acquirer (for which he would otherwise have to pay) can be taken without compensation. ... Value in everyday life and law ... is not what a thing is worth to an owner who cannot or will not develop it himself, but its market value, which means what buyers will pay for it. Discussion Notes, 21 O. & G. R. 282 (1965).
excepted from liability entries or invasions of land causing no harm and resulting from reckless, negligent, or extra hazardous activity, this section did not cover intentional invasions or entries. Intentional invasions resulted in liability although they caused no harm. The same is true under the more recent formulations of these sections in Restatement (Second) of Torts. Significantly, while the codification was altered to require, in effect, a showing of actual harm for liability for invasions or entries into the airspace above another's land, the provisions on subsurface entries were left unchanged.

Though Keeton and Jones suggest the possibility that a distinction might be drawn, for purposes of determining liability, between cases “... when the act is committed for the purpose of causing the invasion ...” and cases “... when the act is performed with knowledge that the invasion will result ...,” but without a definite purpose to bring it about, the law has made no such distinction. In any case, many occurrences of gas migration may be deliberately caused by storage operators who knowingly inject more gas than the original reservoir can hold. In depleted oil and gas fields, excessive injection ultimately not only displaces the water which has filled the depleted pore spaces, but also pushes the water out from under the gas and leads to lateral migration of the gas. In these situations, the actions of the storage operator in causing a subsurface invasion might be said to be purposeful as well as knowing. Thus, under the modern formulations of trespass law, a case of trespass may be committed on, beneath, or above the surface of the earth. Flight by aircraft in the airspace above the land of another is a trespass if, but only if, (a) it enters into the immediate reaches of the air space next to the land, and (b) it interferes substantially with the other's use and enjoyment of his land.

If the actor intends to be upon the particular piece of land, it is not necessary that he intend to invade the other's interest in the exclusive possession of his land. In order that the actor may intentionally enter a particular piece of land, it is not necessary that he act for the purpose of entering. It is enough that he knows that his conduct will result in such an entry inevitably or to a substantial certainty.

Interview with Professor Landes, supra note 14.

Id.
pass can perhaps be made out against the gas company in many cases if the examination of fault on the part of defendant is an honest one.

B. Technical Trespass

The real problem in these cases is a resolution of the conflict between private property rights and corporate economic development in the public interest. A focus on the intent of the defendant does not get at this fundamental issue. Rather, it obscures it. It is possible to hold that when a storage operator deliberately causes the gas to migrate, an adjoining landowner's property rights may be technically interfered with, but that when the migration has resulted from an accidental migration, the landowner's property rights are not affected. But this would seem a rather artificial distinction. A better approach might be to assume a technical trespass and to focus attention on what remedies would best serve the rights and needs of the parties concerned and the public interest.

A finding of technical trespass and an award of damages commensurate with the harm caused by that trespass appears to be the most appropriate way of accommodating the competing interests within the context of a traditional legal action. If a technical trespass is found, nominal damages may be awarded when no clear harm is caused, and such damages may be absorbed by the gas industry with little or no impact upon the retail price structure of gas for the consuming public. When substantial harm does result, it is appropriate that the storage operator respond in damages, since the cost of damage should be borne by the party or economic activity causing it.

Proper awards in trespass actions should approximate condemnation awards and voluntary compensation for the same rights, except perhaps in rare cases where substantial damages are caused by the trespass.

The costs should therefore not mean too large a burden on the gas industry. This is evidenced by the small proportion of land investments for storage rights relative to total investments for underground storage operations. At the end of 1966, for example, Michigan Gas Storage Company's investment in land, leaseholds, and storage rights totalled only $731,271 compared to a total investment in underground storage plant (including, *inter alia*, gas rights, wells, structures compression station equipment, and measuring equipment) of $21,135,880. **Annual Report of Michigan Gas Storage Company to The Federal Power Commission** 502 (1967). Similarly, Michigan Consolidated Gas Company's investment in land, leaseholds, and storage rights for gas storage at the end of 1966 totalled $1,174,949.52, while its total underground storage plant investment, including $22,666,683.78 worth of gas in storage, came to $53,352,467.74. **Annual Report of Michigan Consolidated Gas Company to The Michigan Public Service Commission** 502 (1967). Comparable figures for Consumers Power Company were $7,033,800.59 worth of land, leaseholds, and storage rights and a total plant investment in underground storage of $82,164,417.83, including $35,603,151.78 worth of storage gas. **Annual Report of Consumers Power Company to The Michigan Public Service Commission** 502 (1967).
Such an approach will have another advantage. If storage operators neglect to acquire storage rights from a landowner, a trespass action may be the landowner's only remedy for vindicating the same rights which the gas company has voluntarily recognized in others. To demand a showing of damages as the prerequisite for any relief might render the trespass action ineffectual in many cases as a device for equalizing treatment of all landowners whose property interests are affected by the storage project. But a finding of technical trespass in the absence of any demonstration of damages may result in the awarding of minimal damages close to the lowest rates of compensation voluntarily paid to the landowners by the gas companies.

C. Injunction

If a trespass is found under either the technical trespass or nuisance approach, the coordinate question arises whether equitable relief will be granted against such trespass. While the majority rule may be said to be that a continuing trespass to land is sufficient cause to render a remedy at law inadequate and to justify equitable relief in order to avoid a multiplicity of actions and the formation of a prescriptive easement, the rule frequently has been subjected to significant qualifications. Thus, it has been held that an injunction will only be issued to avoid irreparable injury. It has also been held that an injunction will not be issued against a trespass to property when the damage caused is speculative or nominal. Under either of these qualifications, it would seem that an injunction against the storing of gas would be inappropriate.

The general rule as to trespass to land should not be applicable to a situation such as this in which an injunction would seriously interfere with, or even preclude, economic activity in the public interest. In most cases, the practical effect of an available injunction would be to force storage operators to pay exorbitant compensation to landowners for storage rights. The cost, of course, will be passed on to the public, but it is improper to view this as a desirable distribution of loss. It will mean, on the one hand, an excessive payment to a property owner for a property right which may, in fact, have been of little intrinsic value and, on the other hand, the imposition of higher retail costs on an essential public fuel which should be made available at low prices.

It is at this point that the nuisance approach advocated by Keeton and Jones may be brought to bear upon the problem most effectively. Such an approach has been described as the "comparative injury doc-

157 Id.
159 Sunray Oil Co. v. Cortez Oil Co., 188 Okla. 690, 694, 112 P.2d 792, 795-96 (1941).
160 Keeton & Jones, supra note 138, at 269-70.
trine", and it has been applied both implicitly\textsuperscript{161} and explicitly\textsuperscript{162} to trespass cases as well as nuisance cases. Perhaps the most analogous application of the doctrine occurred in the case of \textit{Crescent Mining Co. v. Silver King Mining Co.},\textsuperscript{163} where the court refused to grant an injunction against the laying of defendant's pipeline which was to carry water to defendant's mining plant:

The laying of the pipeline across the barren, valueless land caused no appreciable injury to the plaintiff . . . . To restrain the laying of the pipeline would cause the defendant irreparable damage and destroy and lay waste a mining industry of incalculable value, throw out of employment hundreds of laborers, and seriously retard and injure people of this community and state in which the mine is located. To grant the injunction asked for would work a great and irreparable injury to the defendant, without corresponding or any benefit to the plaintiff; while to refuse it would injure neither, but leave the plaintiff to its remedy at law, where it could obtain such redress as the law should award it. Under such circumstances, the remedy at law being complete, the plaintiff should be required to resort to such remedy.\textsuperscript{164}

Similarly, the granting of an injunction in the case of migrated storage gas could cause irreparable harm to the natural gas industry.\textsuperscript{165} The mere availability of an injunction could serve ultimately to inflate retail gas prices. These factors undoubtedly moved the district court in \textit{Protz v. Peoples Natural Gas Co.}\textsuperscript{166} to indicate by way of dictum that it would

\textsuperscript{162} Pritchett v. Wade, 261 Ala. 156, 73 So.2d 533 (1954).
\textsuperscript{163} 17 Utah 444, 54 P. 244 (1898).
\textsuperscript{164} Id. at 458, 54 P. at 248.
\textsuperscript{165} The balancing approach implicit in the comparative injury doctrine, of course, does not absolutely preclude an injunction from being issued against gas storage in the plaintiff's land. An injunction may, for example, be appropriate if the storage gas is seriously interfering with the production of native minerals. \textit{E.g.}, \textit{Emerald Coal & Coke Co. v. Equitable Gas Co.}, 378 Pa. 591, 107 A.2d 734 (1954).
\textsuperscript{166} 93 Pitts. L.J. 239, \textit{aff'd}, 94 Pitts. L.J. 139 (1945).
not enjoin the storage of gas in lands in which no storage rights were held.\textsuperscript{167}

Contrary to the implicit conclusion of the Protz court, it is normally possible for a storage operator to comply with an injunction. The answer lies not in artificially sealing the reservoir, a process which has not been adequately developed for commercial use and may be economically unfeasible,\textsuperscript{168} but rather in the simple reduction of gas quantities and pressure in the reservoir until the plaintiff's land is no longer occupied by any storage gas. But this makes an injunction no more palatable. If "over-pressures"\textsuperscript{169} created by excessive gas injection lead to expansion of the storage field beyond its original boundaries, the law should not invoke such sanctions as an injunction or a loss of ownership upon the storage operator.\textsuperscript{170} Certainly, there is no intent on the part of the storage operator to abandon this gas. More fundamentally, the difficulty of finding suitable geological conditions for a reservoir in locations where storage facilities are needed\textsuperscript{171}

\textsuperscript{167} The court said:

\begin{quote}
In view of our findings of fact it is unnecessary to consider the question of the public interest involved in the maintenance of large underground gas pools within reach of metropolitan areas where industrial, commercial, and residential consumers are to be served. Such interest, however, undoubtedly exists, and if a choice were required between conserving the public interest and the enforcement of an individual property owner's alleged underground rights, such as contended for, the former must control. \textit{Id.} at 244-45.
\end{quote}

\textsuperscript{168} Interview with Professor Katz, \textit{supra} note 8; Interview with Professor Landes, \textit{supra} note 14.

\textsuperscript{169} "Over-pressures" as used in this context will mean pressures above those previously existing in the reservoir in its virgin state.

\textsuperscript{170} It has been suggested

\begin{quote}
... that "pool pressure" should not exceed the original rock pressure; otherwise, the court could say with clear conscience that the operator drove his "geese" to his neighbor's pond, thus losing title thereto. Litz, \textit{supra} note 5, at 157.
\end{quote}

\textsuperscript{171} The geological features necessary for a storage project are the same as those required for the commercial accumulation of native oil and gas in reservoirs. These have been described as:

\begin{enumerate}
  \item a porous, permeable zone of sufficient thickness to contain large quantities of oil and gas;
  \item an overlying impervious bed;
  \item an underlying seal, such as a water-saturated zone or a pinch-out of the oil-bearing stratum . . . ; and
  \item some type of structural feature, or a discontinuity of the porous, permeable beds, or a combination of the two that provided a trap in which the petroleum or
and the expense of developing such reservoirs\footnote{The first significant gas storage reservoir developed in Iowa cost in excess of ten million dollars to develop, exclusive of gas injected for storage. Pitsenbarger v. Northern Natural Gas Co., 198 F. Supp. 665 (S.D. Iowa 1961).} are too great to preclude an expansion of the original field in this way. Also, reservoirs will become proportionately less expensive to operate as they grow larger because the fraction of gas needed as cushion gas will thereby decrease.\footnote{D. Katz, R. Tek, & K. Coats, \textit{Underground Storage of Natural Gas} 65 (1965).} Opportunities to expand the storage field may become especially critical as the demand for gas increases. The plaintiffs in these cases should therefore be left to their action at law.

\section*{V. Conclusion}

Aside from cases applying the laws of Texas and Pennsylvania, no jurisdiction has explicitly, and without qualification, refuted the legal proposition that gas injected for storage is subject to the rule of capture. In the majority of states where there are substantial investments in storage projects, the question remains unresolved.

It is clear, however, that the rule should be expressly rejected for the following reasons: (1) even in cases in which the storage operator deliberately forces injected gas to migrate into property in which no storage rights have been obtained, no intent to abandon the injected gas can be presumed; (2) expansion of suitable storage fields near consumer markets should be facilitated to reduce supply costs; and (3) application of the rule of capture would encourage landowners in jurisdictions with inadequate eminent domain procedures to demand exorbitant compensation from gas companies, thus either compelling these companies to charge the consumer a higher rate for gas or encouraging them to take extra-legal steps to obtain adequate storage.

Even if the subterranean storage of gas causes little real harm to landowners, the situation concerning compensation to landowners would seem to demand a novel legal resolution. As matters stand, gas utilities may inadvertently be making improper discriminations as to the amount of compensation landowners will receive for storage rights under their lands and as to the particular landowners who will be compensated.

The absence of suitable eminent domain legislation is largely responsible for this situation, for it is then in the economic self-interest of the landowner to impede development of a storage reservoir until he can name his own price. In the case of vitally needed storage reservoirs, landowners

\begin{itemize}
\item natural gas accumulated and was preserved. 
\item \textit{Interstate Oil Compact Commission, Oil and Gas Production} 16-17 (1951).
\end{itemize}

Reservoirs depleted of native oil or gas may not always be sufficiently permeable to meet the need for rapid injection and withdrawal in storage reservoirs. Interview with Ray Markel, \textit{supra} note 25.
who hold out longer will normally be able to command much higher prices for identical interests.\(^{174}\)

The inability to condemn storage areas is also the single most important factor which may lead storage operators to undertake storage operations without acquiring storage rights in lands in which the reservoir lies. The possibility that storage projects will be seriously delayed or rendered too expensive by obstinate landowners may create substantial economic pressures on the storage operator to forego the acquisition of storage rights, particularly in areas where alternative storage facilities do not exist. As a result, certain landowners may not be compensated at all, while others, with similar interests, will be compensated at an exorbitant rate.

Theoretically, a valid trespass action would afford the individual landowner an opportunity to vindicate the same property rights which the gas company, through purchase, lease, and condemnation, voluntarily recognized in others. But a trespass action is a less than efficacious technique for vindicating the rights of landowners on an equal basis. This inadequacy of trespass actions results from ignorance of landowners as to the presence of gas under their land, from the considerable effort and expense of bringing a legal action, and from the extreme difficulty of proving damage if an action is brought. It is submitted that the answer lies in statutory provision for compulsory acquisition of all storage rights within the reservoir, coupled with state administrative procedures for resolving any disputes which may arise.

The following statute is presented to suggest a legislative approach for implementing the three fundamental proposals set forth in this article: (1) rejection of the proposition that title to gas is lost when it is injected for storage, or that such gas may be captured when it migrates into lands in which no storage rights are held; (2) adoption of eminent domain legislation without percentage requirements; and (3) provision for mandatory acquisition of all storage rights within the reservoir, with administrative procedures by which property owners whose lands may be affected by the storage project can press their claims. The proposed statute is not intended as a panacea for all the gas storage problems which may arise. Definitional matters, protection of other resources, enforcement questions, and other details are adequately handled by existing legislation and are not treated herein.

\(^{174}\) In one storage field, for example, Consumers Power Gas Company of Jackson, Michigan paid $7.50 to $10.00 per acre for the storage rights in fee, but it could not acquire interests for reasonable compensation in a percentage of the land sufficient to permit it to condemn the remaining needed interests. Thus, it was necessary to pay some landowners $120.00 per acre for virtually identical interests. Interview with Herman Fruechtenicht, supra note 58.
Proposed Gas Storage Act

Section 1 Underground Storage Permits

(a) No underground reservoir shall be devoted to the storage of gas unless the prospective operator of such reservoir shall have received from the state conservation commission a storage permit. The application for said permit shall include the following:

(1) A map showing the location and boundaries of the proposed reservoir.

(2) A report containing sufficient data to show that the reservoir is adaptable for storage purposes.

(3) A written agreement signed by the applicant providing that said applicant shall thereafterwithin a reasonable time acquire, through negotiation or condemnation, any outstanding storage rights in the reservoir acreage.

(b) Upon issuance of said storage permit, the storage operator shall publish a notice concerning its prospective storage project, with a map thereof, not less than once in each week for four successive weeks in a newspaper to be designated by the conservation commission.

(c) Every storage operator shall file with the conservation commission an annual report showing any change in the amount of gas contained in its storage reservoirs and the size or area of such reservoirs.

Comment

Requirement of a storage permit represents the basic framework for state regulation of gas storage operations. The remainder of this statute, in fact, builds upon compliance by the storage operator with the conditions for issuance of a storage permit set forth in Section 1.

It is clear that such conditions reflect three basic concerns: (1) that storage operations be practicable in the designated reservoir; (2) that adequate information regarding the project be conveyed to the appropriate state agency and to affected landowners; and (3) that compulsory acquisition of storage rights be prescribed.

Subsections (a)(3) and (b) are perhaps most notable. No provision
comparable to subsection (b) can be found among existing gas storage acts for giving landowners notice that their lands may be penetrated by the injected storage gas. On the other hand, mandatory acquisition of all storage rights within a reservoir as a condition for issuance of a storage permit is provided only in the New York legislation,\textsuperscript{175} from which Section 1 is largely derived.

It should be noted that the proposed statute omits language from the New York formulation providing that a storage permit may only be issued after 75% of the storage rights have been obtained. The New York provision effectively prohibits condemnation of storage rights until 75% of the interests have been voluntarily acquired, since the eminent domain power may not be invoked without a storage permit. As will be described in the Comment to Section 2 of this statute, such a requirement serves no positive function.

**Section 2 Condemnation**

*Any corporation empowered to produce, transport, distribute, or store gas within this state for ultimate public use, which holds an underground storage permit from the conservation commission, and which after reasonable effort is unable to obtain rights in real property necessary for examination, preparation, operation, or protection of the storage reservoir shall have the authority to acquire such rights by condemnation. The condemnation procedure may be invoked hereunder irrespective of what percentage of the interests in the storage reservoir have been acquired by grant, lease, or other agreement.*

**Comment**

The first sentence of this section is derived from §86 of the New York Conservation Law.\textsuperscript{176} The language leaves no doubt that protective acreage may be condemned thereunder.

Under the second sentence, it is clear that condemnation may be available even when few or no storage rights have been voluntarily obtained by the storage operator. But despite the absence of percentage requirements, it will not be possible for gas companies to condemn indiscriminately under the proposed statute. Section 2 requires, as do many existing statutes,

\textsuperscript{175} N.Y. CONSERV. § 85 (McKinney 1967).

\textsuperscript{176} Id. § 86.
that the rights condemned be necessary for storage purposes.\textsuperscript{177} Similarly, a reasonable effort to negotiate for the interests must precede invocation of the eminent domain action.\textsuperscript{178} The requirement of a storage permit also insures that the reservoir in which condemnation is proposed has been determined to be suitable for storage purposes. It is therefore clear that a percentage requirement for condemnation would serve no useful function in the proposed statute.

Section 3 Administrative Determination of Storage Rights

(a) Any property owner whose lands lie within a reasonable distance of the storage reservoir, as indicated by maps filed under Section 1 of this act, may, if he has not been compensated for storage rights within a reasonable time after the storage permit was acquired, petition the conservation commission for a determination that his land has been penetrated by the storage gas.

(b) Upon receipt of such petition, the commission shall initiate an investigation of the site of the reservoir to determine whether the injected gas has penetrated the petitioner's land. The storage operator shall make available to the commission for its consideration all geological and reservoir engineering studies and other information within its possession or control concerning the underground storage project.

(c) Failing prior settlement of the issue between the storage operator and the petitioner, a hearing upon the petition shall be held by the commission which shall determine whether or not the petitioner's land falls within the reservoir and the amount of compensation, if any, to which the petitioner is entitled. Compensation shall be calculated according to the fair market value of the property interest appropriated and by the extent of damage, if any, to the residue of petitioner's property.

\textsuperscript{177} See notes 28-30 supra.

\textsuperscript{178} See note 50 supra.
(d) The storage operator or the petitioner may commence a civil action in a court of competent jurisdiction to test the lawfulness and reasonableness of the commission's final order. The burden of proof in such action shall be upon the party complaining of such order, and such order shall be deemed prima facie valid.

Comment

Language in subsections (b) and (d) is derived from §§ 93-806 and 93-808 of the Georgia Underground Gas Storage Act,179 which cover the separate problem of challenging applications for storage permits.

Section 3 presents a framework for providing expedient and inexpensive state administrative procedures whereby landowners may have their rights determined without the economically prohibitive burden of proof problems inherent in every trespass action of this sort. Determinations of such rights will be based upon impartial investigations by state experts as well as upon submissions of evidence and argument by the parties involved.

Section 4 Rights to the Storage Gas

All gas which previously has been reduced to possession, and which lawfully is injected into an underground storage reservoir, shall be deemed the property of the injector. In no event shall such gas be subject to the right of any person other than the injector to produce, take, reduce to possession, or otherwise interfere with or exercise any control thereover, irrespective of whether such gas has migrated into lands in which the storage operator has no storage rights.

Comment

Excepting the final clause, Section 4 is derived from a combination of §88 of the New York Conservation Law180 and §100-9-7 of the Colorado statutes.181 The section gives more explicit protection to the storage operator concerned with maintaining his rights in the storage gas than any existing statutory language.

180 N.Y. CONSERV. § 88 (McKinney 1967).
181 COLO. REV. STAT. ANN. § 100-9-7 (1963).