

Chapter 20
RESTRICTIONS ON ACCESS AND
SURFACE/SUBSURFACE TRESPASS
INVOLVING EXPLORATION AND
PRODUCTION TECHNOLOGIES

Kendor P. Jones*
Union Pacific Resources Company
Fort Worth, Texas

Synopsis

- § 20.01 **Introduction**
- § 20.02 **Recent Developments Involving Federal Surface Use Regulation**
 - [1] **Sources of Federal Authority**
 - [2] **Limitations on Agency Authority**
 - [3] **Severed Minerals**
 - [4] **Federal Right-of-Way**
 - [5] **Regulatory Takings**
 - [6] **Adjoining Tracts**
- § 20.03 **Subsurface Trespass and Geophysical Exploration**
 - [1] **Advances in Geophysical Technology**
 - [2] **Recovery For Unauthorized Geophysical Exploration**
 - [a] **A Valuable Property Right**
 - [b] **Trespass and Other Theories of Recovery**
 - [c] **Damages**
 - [3] **Applying the New Technology**

* I wish to gratefully acknowledge the assistance of John F. McNamara, a third year law student at the University of Notre Dame Law School, in researching and preparing this paper, and of John B. Gibson, Manager, Geophysical Operations, Union Pacific Resources Company, the primary author of the section dealing with advances in geophysical technology.

- [a] **Use of Seismic Options and Seismic Permits**
 - [b] **Three Dimensional Surveys**
 - [c] **A New Tort or A New Policy?**
-

§ 20.01 Introduction

This paper will address two areas of current interest to the oil and gas practitioner. Each deals with restrictions on access to minerals. The first involves restrictions on the use of federal surface to access minerals underlying such surface or adjoining lands. This has been a fertile area for the courts during the last few years, particularly in the application of the various environmental laws and regulations to the federal permitting process, and is likely to become even "hotter" with the recent issuance of two significant Supreme Court decisions interpreting the Takings Clause of the Fifth Amendment. The second area concerns restrictions on access to geophysically explore and the legal basis for such restrictions in light of the startling advances in geophysical technology during the last few years, which invariably will lead to conflicts between explorationists and non-permitted mineral owners.

§ 20.02 Recent Developments Involving Federal Surface Use Regulation

[1] Sources of Federal Authority

Any discussion of federal regulation of oil and gas surface-use activities on federal lands must begin with a review of the sources of federal authority. This obviously is a broad topic, worthy of separate treatment, and since this section of the paper is primarily concerned with recent developments concerning federal regulation and there is much to cover in this area, it is indeed fortunate that the subject was addressed at the 1992 Institute by Messrs. Kaiser and Hardt.¹

¹Charles L. Kaiser & Scott W. Hardt, "Surface-Use Regulation of Federal Oil and Gas Leases: Exploring the Limits of Administrative Discretion," *38 Rocky Mt. Min. L. Inst.* 19-1 (1992).

Their paper should be referred to for a thorough and comprehensive review of the sources of federal regulatory authority, as well as statutory delegation to federal agencies and limitations on agency authority to impose post-lease restrictions. To briefly summarize their analysis, the federal government possesses legislative powers pursuant to the United States Constitution; its authority to regulate is specifically derived from the Property Clause,² the Commerce Clause,³ and the Treaty Clause and the Necessary and Proper Clause⁴ of the Constitution. Most federal land-use legislation affecting federal oil and gas surface uses will be authorized under the Property Clause and the Commerce Clause, while the Necessary and Proper Clause, together with the Treaty Clause, provide the basis for the government to regulate the environmental impacts of oil and gas activities that may not directly affect federal lands or interstate commerce.⁵

In addition to its Constitutional authority, the federal government possesses the common law rights of a property owner.⁶ In *Light v. United States*,⁷ which upheld the creation of forest reserves, the Supreme Court stated that Congress "may deal with [federal] lands precisely as an ordinary individual may deal with his farming property." While the Property Clause encompasses most of Congress' common law powers as a property owner, the Supreme Court has indicated that the federal government's authority to exercise its proprietary rights is not vested solely in Con-

²U.S. Const. art. IV, § 3, cl. 2 grants Congress "power to dispose of, and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States."

³U.S. Const. art. I, § 8, cl. 3 grants Congress the power "[t]o regulate Commerce with Foreign Nations, and among the several States, and with the Indian Tribes."

⁴U.S. Const. art. II, § 2, cl. 2 grants the President the "power, by and with the Advice and Consent of the Senate, to make Treaties," and art. I, § 8, cl. 18, authorizes Congress "[t]o make all Laws that are necessary and proper for carrying into Execution . . . Powers vested by this Constitution in the Government of the United States, or in any Department or Officer thereof."

⁵Kaiser & Hardt, *supra* note 1, at 19-12.

⁶*See, e.g.,* Alabama v. Texas, 347 U.S. 272, 273 (1954); United States v. Midwest Oil Co., 236 U.S. 459, 474 (1915).

⁷220 U.S. 523, 536 (1911).

gress and that responsible federal agencies may enforce the government's rights as a property owner even if Congress has not delegated authority for such actions.⁸ However, because the Constitution vests primary authority to manage federal lands in Congress, federal agencies regulating federal land use are generally vested only with the authority delegated by Congress.⁹ Congress has delegated such authority to four federal agencies—the Bureau of Land Management (BLM), the Forest Service (Forest Service), the United States Fish and Wildlife Service (USFWS), and the National Park Service (Park Service). The BLM is responsible for managing BLM lands and all federal minerals; the Forest Service is responsible for managing National Forest System lands; the USFWS is responsible for managing lands within the National Wildlife Refuge System; and the Park Service is responsible for managing National Park System lands. The remainder of this section of the paper will deal primarily with recent regulatory activities involving the BLM and the Forest Service, the federal agencies that are responsible for the vast majority of federal lands subject to oil and gas leasing.¹⁰

[2] Limitations on Agency Authority

Under statutes like the General Mining Law of 1872, lands are open to mineral entry unless closed by government

⁸*Midwest Oil Co.*, 236 U.S. at 475.

⁹*See* *Federal Power Comm'n v. Idaho Power Co.*, 344 U.S. 17, 21-22 (1952). Where Congress has not exercised its power and foreclosed state regulation of federal land uses, states and local governments may regulate activities on federal lands, if such regulations do not conflict with federal law. *See, e.g., Gulf Oil Corp. v. Wyoming Oil & Gas Conservation Comm'n*, 693 P.2d 227 (Wyo. 1985), where the Wyoming Supreme Court held that federal mining and environmental protection laws do not preempt state statutes and rules which allow the Oil and Gas Conservation Commission to condition federally authorized drilling activities on the basis of identified environmental concerns.

¹⁰*See* Kaiser & Hardt, *supra* note 1, at 19-17 to 19-25 for an analysis of the agencies' authority to regulate oil and gas surface-use activities and at 19-25 to 19-54 for the limitations on such authority. *See also* Clyde O. Martz, Rebecca Love, & Charles L. Kaiser, "Access to Mineral Interests by Right, Permit, Condemnation or Purchase," 28 *Rocky Mt. Min. L. Inst.* 1075, 1087-1104 (1982), for a discussion of regulations governing access across federal and state lands, and David P. Kimball III, "Impact of BLM Surface Management Regulations on Exploration and Mining Operations," 28 *Rocky Mt. Min. L. Inst.* 509 (1982), for a discussion of regulations governing access rights under the General Mining Laws.

action. However, under the Mineral Leasing Act of 1920 (MLA),¹¹ which converted oil and gas from locatable minerals to leasable minerals, federal lands are closed to entry unless opened by federal action. The government viewed this authority from the outset as including the right to permit entry subject to conditions imposed in the form of stipulations. Within weeks of the enactment of the MLA, a Department of the Interior memorandum provided that leases “shall be subject to and contain such conditions, stipulations and restrictions as the Secretary of the Interior shall deem necessary.”¹² Lessees were required to notify the government before they could drill wells on leased lands through an “Application for Permit to Drill” (APD) procedure and, by July 1920, lessees were required to notify the government before they could undertake a variety of activities on their leases.

For many years after the MLA’s enactment, federal land managers were primarily concerned with the prevention of waste; more recently their focus has been on the protection of surface resources, encouraged by the enactment of a variety of environmental statutes and amendments to the MLA requiring land managers to regulate oil and gas activities to protect surface uses.¹³ Most of the recent judicial and administrative decisions and actions involving oil and gas activities on federal lands have dealt in one way or another with the limits of agency discretion over such activities, and the remainder of this section will focus on this area.

Leases issued by the federal government generally fall into two basic categories, depending on the nature of the stipulations written into the lease to govern surface-disturbing activities. Some of the leases contain “no surface occupancy” (NSO) stipulations, which, at least on their face, would appear to prohibit lessees from occupying or using the leased surface without specific approval from the BLM. Non-NSO

¹¹ Act of Feb. 25, 1920, ch. 85, 41 Stat. 437 (codified, as amended, at 30 U.S.C. §§ 181-263 (1988)).

¹² 47 L.D. 437, 438 (1920) (Circular No. 672).

¹³ Kaiser & Hardt, *supra* note 1, at 19-3 to 19-4.

leases, those not governed by NSO stipulations, contain the Forest Service's standard stipulations for environmental protection and, in certain cases, special stipulations to protect particularly sensitive areas.¹⁴ These standard and special stipulations require the lessee to obtain the government's approval prior to undertaking any drilling, construction, or other surface-disturbing activities and authorize the government to impose reasonable conditions on such activities; however, they do not authorize the government to preclude such activities altogether.¹⁵

In *Conner v. Burford*,^{15.1} the Forest Service issued environmental assessments (EAs) recommending that a total of 1,300,000 acres in the Flathead and Gallatin National Forests in northwestern and south-central Montana be leased for oil and gas development. Based on these EAs, the Forest Service also issued Decision Notices and Findings of No Significant Impact (FONSIIs), which concluded that the mere sale of the oil and gas leases would have no significant impact on the environment and that the preparation of an Environmental Impact Statement (EIS) was not required prior to such sale. Following the issuances of the EAs and the FONSIIs, the BLM sold over 700 oil and gas leases, some containing NSO stipulations, covering the 1,300,000 acres and thereafter consulted with the USFWS to determine the need to prepare a comprehensive biological opinion encompassing the impact of post-leasing activities on threatened or endangered species. The agencies concluded that such an opinion was not necessary at this stage of post-leasing activities.

Plaintiffs filed suit claiming the sale of the leases without an EIS violated the National Environmental Policy Act

¹⁴ Although lease applications are filed with the BLM, the Forest Service has primary responsibility for both making recommendations as to specific lease sales and performing the environmental analyses required by the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321 (1988). See *Conner v. Burford*, 848 F.2d 1441, 1443 (9th Cir. 1988).

¹⁵ *Conner v. Burford*, 848 F.2d at 1444. See also *Sierra Club v. Peterson*, 717 F.2d 1409, 1411 (D.C. Cir. 1983).

^{15.1} 848 F.2d 1441 (9th Cir. 1988).

(NEPA)^{15.2} and that the sale without a biological opinion assessing the environmental impact of post-leasing activities violated the Endangered Species Act (ESA).^{15.3} The district court granted the plaintiffs summary judgment on both their NEPA and ESA claims.¹⁶ The Ninth Circuit held that the district court erred in ruling that the government violated NEPA when it sold the NSO leases without first preparing an EIS, but agreed with the lower court as to the need for an EIS prior to the sale of non-NSO leases¹⁷ and that the government violated the ESA when it sold the leases without preparing a comprehensive biological opinion.¹⁸

In a decision issued in October 1993,¹⁹ the Interior Board of Land Appeals (IBLA) considered two important issues: (i) the apparent inconsistency in the provisions of the Interim Management Policy and Guidelines for Lands Under Wilderness Review²⁰ (IMP) relating to oil and gas development on pre-Federal Land Policy and Management Act of 1976²¹ (FLPMA) leases within Wilderness Study Areas (WSAs), and (ii) whether the access provisions of section 1323(b) of the Alaska National Interest Lands Conservation Act²² (ANILCA) apply with respect to access to a federal oil and gas lease located within a WSA. The case involved an appeal from a decision by the Deputy State Director approving an APD and an APD-related access right-of-way for a well to be

^{15.2} 42 U.S.C. §§ 4321-4347 (1988).

^{15.3} 16 U.S.C. §§ 1531-1543 (1988).

¹⁶ *Conner v. Burford*, 605 F. Supp. 107 (D. Mont. 1985).

¹⁷ The court found that "the sale of a non-NSO oil and gas lease constitutes the 'point of commitment;' after the lease is sold the government no longer has the ability to prohibit potentially significant inroads on the environment The 'heart' of the EIS—the consideration of reasonable alternatives to the proposed action—requires federal agencies to consider seriously the 'no action' alternative before approving a project with significant environmental effects." 848 F.2d at 1451.

¹⁸ The court found that "the ESA consultation process was triggered when the Forest Service notified the Secretary that the sale of oil and gas leases in the . . . National Forests . . . might affect threatened and endangered species living there" 848 F.2d at 1452.

¹⁹ *Southern Utah Wilderness Alliance*, 127 IBLA 331, GFS(O&G) 26(1993).

²⁰ 44 Fed. Reg. 72,014 (Dec. 12, 1979).

²¹ 43 U.S.C. § 1782 (1988).

²² 16 U.S.C. § 3210(b) (1988).

drilled in the Cross Canyon WSA in Colorado. The lease in question was issued in 1974, prior to FLPMA's passage, and did not contain express provisions limiting the lessee's rights in the premises.

The IBLA initially considered whether FLPMA required the Secretary of the Interior or his designee to consider the possibility of suspending operations on that portion of the lease within the Cross Canyon WSA at least until such time as a final decision was made by Congress on the ultimate status of the land subject to the WSA.²³ It noted that under the 1979 IMP, activities for the use and development of pre-FLPMA leases were not allowed unless the BLM determined that the impact of such activities satisfied FLPMA's non-impairment criteria, while under the 1983 amendments to the IMP, such activities would be authorized if necessary to the exercise of the rights conveyed by the lease. After a review of the legislative history of the 1983 amendments, the Board reconciled the apparent inconsistency, finding that the 1983 amendments to the IMP retained discretion in the Secretary to suspend activities pending congressional action and that, in the instant case, no consideration had been given to the possibility of such a suspension. It thus set aside the decision approving the APD and remanded for consideration of whether a suspension was warranted.

The IBLA also considered the BLM's contention that, while the issuance of a federal oil and gas lease does not guarantee access to the leasehold, "implicit in recognition of those pre-FLPMA rights [of oil and gas lessees] is reasonable access" and that under ANILCA it must grant access to privately-owned land surrounded by public lands even if such access results in violation of the non-impairment standard applicable to WSAs.²⁴ The Board disagreed, holding that the

²³Section 603(c) of FLPMA provides that "during the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable law in a manner so as not to impair the suitability of such use for preservation as wilderness."

²⁴127 IBLA at 365 (citing Utah Wilderness Ass'n, 80 IBLA 64, 91 I.D. 165, GFS(O&G) 99(1984)).

provision of ANILCA²⁵ at issue was limited to “nonfederally owned land” and that the subject lease could not be so classified under any theory. It also concluded that, to the extent FLPMA pre-dated the adoption of ANILCA, “rights of access based on the latter act could not, as a matter of chronology, be valid existing rights under the former.”²⁶ Finally, the Board noted that ANILCA may not apply, since it viewed the question of ANILCA’s application nationwide (i.e., to lands outside of Alaska) “as open, notwithstanding any implication to the contrary in the BLM Manual.”²⁷

Two other noteworthy decisions involving access to private lands were decided in 1993. In an Oregon District Court decision,²⁸ the defendant sought and received a right-of-way from the BLM to access privately owned forest land adjacent to federal land on which nested a pair of northern spotted owls. The plaintiff contended that the ESA required the defendant to first obtain an “incidental taking” permit from the USFWS. After noting that the USFWS does not have the authority to prohibit an incidental taking in advance and is limited to instituting prosecution after an incidental take has occurred, the court ruled that the allegation of a “speculative one-time future violation of ESA which will not result in the extinction of a species is insufficient to establish citizen suit standing.”²⁹

The Forest Service, in a Western District of Washington District Court decision³⁰ issued two months later, did not fare as well as the BLM. In this case, the Forest Service granted a special use permit for a temporary access road across national forest lands to conduct timber management activities on private lands. The access request was one of

²⁵ 127 IBLA at 367 (citing ANILCA § 1323(b)).

²⁶ 127 IBLA at 368.

²⁷ *Id.* at 367 n. 18. *But see* Amoco Prod. Co. v. Village of Gambell, 480 U.S. 531, 546-55 (1987).

²⁸ Forest Conservation Counsel v. Rosboro Lumber Co., No. 92-1114-140, slip op. (D. Or. 1993).

²⁹ *Id.* at 5.

³⁰ Alpine Lakes Protection Society v. U.S. Forest Service, 838 F. Supp. 478 (W.D. Wash. 1993).

seven submitted by the applicant for access roads in or near the national forest area. The Forest Service issued the road permit after concluding that neither an EA nor an EIS was required by NEPA because the road qualified for a categorical exclusion under its internal rules³¹ as an action which did not, individually or cumulatively, have a significant effect on the environment. The plaintiff filed an action to compel the Forest Service to consider the connected and cumulative environmental effects associated with the entire project related to the access road and the six additional projects for which access road permit applications were pending.

The court found that the record supported the conclusion that the seven projects at issue were cumulative in nature and that the failure of the Forest Service to even consider whether there was a potential for cumulative impact on any aspect of the environment except wildlife species as a result of the projects made its decision arbitrary and capricious. The court also rejected the Forest Service's argument that a finding that the Forest Service was required to consider the environmental impact of such cumulative actions in determining whether an EIS is necessary was precluded by ANILCA,³² holding that the Forest Service did not lack discretion under ANILCA in determining what is reasonable access and that NEPA required the agency to consider the environmental impact in making such a determination.

[3] Severed Minerals

In September 1993, the District Court for North Dakota issued a controversial decision³³ addressing whether the federal government has any greater rights than those of an ordinary surface owner where the mineral ownership had been severed prior to the government's acquisition of the

³¹40 C.F.R. § 1507.3 (1993).

³²16 U.S.C. § 3210(a) (1988) provides: "[S]ubject to such terms and conditions as the Secretary of Agriculture may prescribe, the Secretary shall provide such access to nonfederally owned land within the boundaries of the National Forest System as the Secretary deems adequate to secure to the owner the reasonable use and enjoyment thereof . . ."

³³*Duncan Energy Co. v. U.S. Forest Service*, No. A1-93-033, 1993 U.S. Dist. LEXIS 19448 (D. N.D. Sept. 30, 1993), *appeal pending*, No. 93-4005 (8th Cir. Nov. 29, 1993).

surface. The land involved was granted to the Northern Pacific Railroad Company in 1864 and in 1917 was deeded to individual farmers, with the Railroad Company reserving the underlying mineral estate. Many years later, the government purchased the surface estate from the private landowners under the Bankhead-Jones Farm Tenant Act of 1937. The land is now included in the Little Missouri Grasslands area of the Custer National Forest in western North Dakota, which is administered by the Forest Service. There are over 1,000 oil and gas wells within 61 producing fields in the Grasslands area and approximately 1,650 miles of roads and 1,250 miles of pipeline have been constructed there to serve the wells. Additionally, the Grasslands is the home of the largest grazing program in any national forest and, as the court observed, is "not virginal wilderness."³⁴

In early 1993, following extensive negotiations between the parties, the Forest Service advised the plaintiffs that they could not drill a proposed well until an area-wide and a site-specific EIS had been prepared, a process that could take several years. After requesting authorization to construct an access road and begin drilling activities, and waiting the 20 days required by North Dakota law, the plaintiffs constructed the road, began to drill, and filed for a declaratory judgment that the Forest Service had no right to impose any requirements on access, exploration, or development. The government counterclaimed, seeking to enjoin the plaintiffs from further work or ground disturbing activity without Forest Service authorization.

The court began its analysis by observing that the mineral estate is the dominant estate and that:

The surface owner cannot prevent the exploration, mining or extraction of the underlying minerals even if that development will completely destroy the value of the surface estate or render it unsuitable for public usage. If the remedy of seeking damages is illusory because of a belief that the surface usage threatened is irreplaceable, then the remedy is the condemnation and purchase of the

³⁴*Id.* at *1.

mineral estate, removing it from private ownership and subjecting it to the authority and control of a public agency.³⁵

The court noted that the state had enacted a fairly comprehensive statutory framework for the development, mining, and extraction of minerals and that these laws were intended to balance the public safety and well-being with the rights of mineral owners. It further noted that prior cooperative arrangements between the parties demonstrated that it was feasible to follow administrative processes that used Forest Service expertise to identify the least damaging siting of roads and wells. However, the government's position that "express written authorization of the Forest Service" was required prior to development implied that it could establish a completely different permitting process simply by virtue of its ownership of the surface estate. The court held that where the government owned only the surface estate through purchase after the mineral rights were reserved in private ownership, it did not have the authority to impose requirements and conditions for mineral estate development "different from or greater than those imposed by the state in which the property was purchased."³⁶

The court, apparently anticipating the controversy its decision would provoke,³⁷ specifically invited appellate review and resolution of the issues raised in the decision. In November 1993, the government accepted this invitation and filed an appeal with the Eighth Circuit, where the matter is pending. Not surprisingly, the parties have framed the issue to be decided differently, with the plaintiffs identifying the issue as whether the government has rights in the subject lands greater than those conveyed by its grantor and is restricted to following the "negotiation/state law paradigm" it previously followed; the government presenting it as whether the Forest Service has the authority "to regulate

³⁵*Id.* at *4.

³⁶*Id.* at *7.

³⁷The court noted that its law clerks "have disavowed any agreement with or participation in this matter, feeling that if the court is in fact correct in [its] analysis of the law, it should not be." *Id.* at *8.

federal surface resources in the National Forest System, pursuant to precedent of the Supreme Court and this court.”³⁸

[4] Federal Right-of-Way

From 1866 until its repeal by FLPMA in 1976, Revised Statute 2477³⁹ (R.S. 2477) granted a “right-of-way for the construction of highways over public lands, not reserved for public uses.” According to the BLM, an R.S. 2477 right-of-way could be obtained without application to, or approval by, the federal government;⁴⁰ rather, the grant referred to in R.S. 2477 became effective “upon construction or establishing of highways in accordance with state laws.”⁴¹

FLPMA departed from the federal government’s earlier policy of “giving away public lands, in favor of a philosophy of retention and management to maximize the multitudinous interests in the lands. To that end, FLPMA repeals R.S. 2477 and its open-ended grant of rights-of-way over public lands while explicitly protecting R.S. 2477 rights-of-way in existence on the date of FLPMA’s passage Any new rights-of-way must be obtained under the stricter provisions of FLPMA.”⁴²

There have been several recent decisions involving the interplay between FLPMA and pre-existing R.S. 2477 grants. From these cases, it is well settled that, even if an easement existed under R.S. 2477, it would still be subject to reasonable Forest Service regulations,⁴³ and that any doubt as to the scope of the grant must be resolved in favor of the

³⁸It is likely the Eighth Circuit will want the parties to brief the impact of the holding in *Dolan v. City of Tigard*, No. 93-518, 1994 U.S. LEXIS 4826 (June 24, 1994). See *infra* text accompanying notes 62-64.

³⁹43 U.S.C. § 932 (1970). See Thomas E. Meachum, “Public Roads Over Public Lands: The Unresolved Legacy of R.S. 2477,” at 2-1 of this volume for an extensive discussion of R.S. 2477.

⁴⁰See 43 C.F.R. § 2822.1-1 (1979).

⁴¹43 C.F.R. § 244.55 (1939).

⁴²*Sierra Club v. Hodel*, 848 F.2d 1068, 1078 (10th Cir. 1988).

⁴³*United States v. Vogler*, 859 F.2d 638, 642 (9th Cir. 1988), *cert. denied*, 488 U.S. 1006 (1989).

government.⁴⁴ Less clear is the law to be used in determining such scope.⁴⁵

In *Sierra Club v. Hodel*,⁴⁶ the Burr Trail wound for sixty-six miles through federally owned land in Utah's Garfield County. The trail had been used for various purposes since the late 1800's and Garfield County had maintained it since the early 1940's. The combination of public uses and county maintenance had created an R.S. 2477 right-of-way in favor of the county. The controversy at issue arose out of the county's plans to improve the western twenty-eight miles of the Burr Trail from an essentially one-lane dirt road into an improved two-lane graveled road. Part of this section of the trail ran between two federally protected wilderness study areas. The Sierra Club and other environmental groups sued the BLM and Garfield County, seeking to enjoin the construction, alleging that the encroachment on federal land violated FLPMA and NEPA and would impair the WSA's suitability for wilderness designation.

After finding that state law defined the scope of an R.S. 2477 right-of-way, the court held that the county's right-of-way at the time R.S. 2477 was repealed was that which was "reasonable and necessary" for the Burr Trail's pre-existing uses and that the initial determination of whether questioned activity fell within an established right-of-way was to be made by the BLM and not the courts. It further held that under Utah law, the road could be widened as reasonable and necessary to meet the exigencies of increased travel and that Garfield County was permitted to impair the adjoining WSAs through reasonable exercise of these valid existing rights. However, the court concluded that the BLM's duty under FLPMA to prevent unnecessary degradation of the WSAs from the changes in the right-of-way injected an

⁴⁴*United States v. Gates of the Mountains Lakeshore Homes, Inc.*, 732 F.2d 1411, 1413 (9th Cir. 1984).

⁴⁵*Compare Gates of the Mountains*, 732 F.2d at 1413 (the scope of the grant is a question of federal law) *with* *United States v. Jenks*, 804 F. Supp. 232, 235 (D.N.M. 1992) (whether the roads have been established is a matter of New Mexico law) and *Sierra Club v. Hodel*, 848 F.2d at 1081 ("as a matter of federal law, state law has been designated as controlling").

⁴⁶848 F.2d 1068 (10th Cir. 1988).

element of federal control for required action that elevated it to a major federal action requiring the preparation of an EIS under NEPA, and that the existing studies did not satisfy the requirements of an EIS. It remanded for the BLM to conduct an EA, followed by either a finding of no significant impact or an EIS.

Unlike in *Sierra Club v. Hodel*, where there was no dispute that the road constituted an R.S. 2477 right-of-way, most of the cases have been decided on the factual issue of whether the road in question was built before the surrounding land lost its public character. For example, in *Adams v. United States*,⁴⁷ the Ninth Circuit upheld the district court's finding that the subject road was no longer in the same location as the road that existed prior to 1906, while in *United States v. Jenks*,⁴⁸ the court found that the three roads which were the subject of the litigation all were developed after the reservation of the national forest, and that all prior rights to these roads were extinguished by enactment of FLPMA.

The scope of an existing right-of-way can be important in a context other than an R.S. 2477 grant, as evidenced by the decision in *City and County of Denver v. Bergland*.⁴⁹ There, the city brought suit seeking judicial review of a Forest Service order requiring the city to discontinue construction of its water service project off its original right-of-way over national forest lands until it had complied with certain environmental requirements. The right-of-way application had been granted in 1924 by the Secretary of the Interior, pursuant to a 1905 act,⁵⁰ for canals to be constructed on a certain alignment. While construction began in 1937, from 1942 to 1978 there was no significant progress. Once construction again commenced in 1978, the City used steel conduits which followed a different alignment from that earlier approved.

⁴⁷3 F.3d 1254 (9th Cir. 1993).

⁴⁸804 F. Supp. 232, 236 (D.N.M. 1992).

⁴⁹695 F.2d 465 (10th Cir. 1982).

⁵⁰16 U.S.C. § 524 (1976), *partially repealed* by FLPMA § 706(a).

The court found that FLPMA did not repeal the act of 1905 with respect to pre-existing rights-of-way across national forest lands, that FLPMA did not give the Forest Service any authority over the right-of-way in issue, and that only the Secretary of the Interior had such authority. It also held that the primary question in the case was the nature and scope of the interest the city received with the 1924 approval under the 1905 act. It found that the decision of the Forest Service that construction with conduits was outside the scope of the right-of-way was arbitrary, capricious, and an abuse of discretion and that the agency had no authority to order the city to stop construction on this basis. However, the court went on to hold that, by virtue of constructing on the new alignment without the prior approval of the Secretary of the Interior, the city had exceeded the authorized scope of its grant and the Forest Service, as a result, had the authority to halt construction.⁵¹ The court further held that the city had to comply with the regulations under the 1905 act that existed in 1979, when the Forest Service stop orders were issued, and that FLPMA did not apply to these regulations.⁵² It also held that the requirements of NEPA applied to the BLM's consideration of the city's deviation, but that the agency must decide whether the project had reached a point at which the cost of compliance with NEPA outweighs the benefits.⁵³

[5] Regulatory Takings

Several of the cases involving access to federal lands raise the issue of whether the government's regulations are so burdensome as to result in a taking of the private owner's property rights under the Takings Clause of the Fifth Amendment of the United States Constitution. In *United States v. Vogler*,⁵⁴ the court rejected the defendant's takings claim, finding that he had never attempted to apply for a permit and had never submitted a mining plan. It held that

⁵¹695 F.2d at 480.

⁵²*Id.* at 481.

⁵³*Id.* at 482.

⁵⁴859 F.2d 638, 642 (9th Cir. 1988).

a takings claim is not ripe for adjudication until the entity charged with implementing the regulations reaches a final decision regarding their application, citing *Williamson County Regional Planning Commission v. Hamilton Bank*.⁵⁵

In *Florida Rock Industries, Inc. v. United States*,⁵⁶ the plaintiff purchased, shortly before the enactment of the Clean Water Act in 1972, a 1,560 acre wetlands parcel in Dade County, Florida, to extract the underlying limestone—a process which destroys the surface wetlands. In 1977, the Corps of Engineers enacted regulations requiring owners of wetlands parcels to obtain permits under the Clean Water Act before engaging in dredging or filling activities. The Corps refused the plaintiff's application for a permit covering a 98 acre parcel, finding that the proposed mining would cause irreparable loss of an ecologically valuable wetland parcel. The plaintiff then filed suit in the Court of Claims, alleging the permit denial constituted an uncompensated regulatory taking of its land.

The court noted at the outset that whether a regulatory taking under the Fifth Amendment has occurred is a subject of ongoing debate and that one formula that has emerged is for the court to balance several “pragmatic considerations” in making its determination, including the economic impact of the regulation on the claimant, the extent to which the regulation interferes with investment-backed expectations, and the character of the government action.⁵⁷ The court found the economic impact of the regulation to be at issue in the instant case.

The court referred to the Supreme Court decision in *Lucas v. South Carolina Coastal Council*⁵⁸ as standing for the proposition that the economic impact factor alone may be determinative, in which case balancing is not required. It stated that “[i]f a regulation categorically prohibits all economically beneficial use of land—destroying its economic

⁵⁵473 U.S. 172 (1985).

⁵⁶18 F.3d 1560 (Fed. Cir. 1994).

⁵⁷*Id.* at 1564.

⁵⁸112 S. Ct. 2886 (1992).

value for private ownership—the regulation has an effect equivalent to a permanent physical occupation. There is, without more, a compensable taking.”⁵⁹ The court then rejected the trial court’s conclusion that all beneficial use of the land had been taken by the government’s denial of the permit, finding that evidence introduced at trial indicated that there was an active, though speculative, investment market for the land at the time of and following the permit denial. The court remanded for a determination whether, if in fact there had been some (but not a total) reduction in value, such reduction was so substantial as to constitute a taking of the property compensable under the Fifth Amendment.⁶⁰

This paper is not intended to add to the extensive literature devoted to the takings debate and, in particular, the *Lucas* decision.⁶¹ But it should be noted that the very recent Supreme Court decision in *Dolan v. City of Tigard*⁶² is likely not only to increase the volume of the debate, but also lead to new uncertainty as to the extent that federal regulations may burden development of private property, including mineral interests, before a takings occurs. In *Dolan*, the Court addressed the degree to which conditions imposed on land use development must relate to the adverse impacts (such as increased traffic congestion) caused by the development. The city had conditioned approval of a permit to increase the size of the plaintiff’s store and to pave the adjoining parking lot on the dedication of a portion of her property for flood control and traffic improvements. The Court found that the required dedication constituted an uncompensated taking, stating that the Takings Clause of the Fifth Amendment requires a “rough proportionately” test. That is, to justify a development condition imposed on a specific parcel of real property, a state or municipality “must make some sort of individualized determination that the required dedication is related in both nature

⁵⁹18 F.3d at 1564-65.

⁶⁰*Id.* at 1568.

⁶¹See *id.* at 1564 n.7 for a selection of 1993 law review articles on the subject.

⁶²No. 93-518, 1994 U.S. LEXIS 4826 (June 24, 1994).

and extent to the impact of the proposed development,⁶³ and, in evaluating a claim, it must be determined whether an 'essential nexus' exists between a legitimate state interest and the permit condition. The court stressed that, while precise "mathematical calculation" is not required, "generalized statements" as to the benefits derived are not enough.

[6] Adjoining Tracts

A final issue of current interest involving access to federal surface is the extent to which a mineral owner may use the surface of one tract to aid in the mining of another tract if he owns the minerals under both. In *Mountain Fuel Supply Co. v. Smith*,⁶⁴ the plaintiff mineral lessees sought to enjoin the defendant surface owners from interfering with their use of a road on defendants' tract for the hauling of oil from producing wells on adjoining lands. The court noted that there had initially been eleven different patents for the lands in issue, creating eleven separate tracts, and that the United States in such patents had reserved the minerals, together with so much of the surface as "may be required for all purposes reasonably incident to the mining and removal of the minerals therefrom." The court held that while the defendants' surface may not be used for development on, or the hauling of production from, the lands of others, under the record presented the surface lands of defendants included the combined area of the original eleven patents and constituted but one tract in construing the existing reservation. It remanded for the trial court to determine the application of the reservation to the combined tract.

In *Pittsburg & Midway Coal Mining Co. v. Shepherd*,⁶⁵ the court agreed with the defendant that the cases are clear "that a simple severance, without express grants, gives to the mineral owner no right to use the surface of one tract to aid in the mining of another tract, even though the miner owns the minerals under both,"⁶⁶ and that the courts do not by implication find such grants. However, it concluded that in this case

⁶³*Id.* at *16.

⁶⁴471 F.2d 594 (10th Cir. 1973).

⁶⁵888 F.2d 1533 (11th Cir. 1988).

⁶⁶*Id.* at 1535-36.

the broad language contained in the conveying deed⁶⁷ was sufficient to permit the use of the surface for a sediment pond to aid in the mining of coal from the other premises.

§ 20.03 Subsurface Trespass and Geophysical Exploration

While the body of law concerning the use of federal surface has greatly expanded in recent years, there is an absence of cases dealing with three “new” state-of-the-art technologies—three dimensional (3D) seismic surveys, horizontal drilling, and fracture stimulation—that have had a significant impact on the oil and gas industry. These technologies developed at a rapid pace and, in their short histories, have vastly improved exploration and development methods. Each presents a variety of potential legal problems and, even with the paucity of case law, there has been considerable commentary on applying existing legal doctrines to them.⁶⁸ This section of the paper will deal with unauthorized geophysical exploration and the one technology, 3D seismic, which, if a court is inclined to follow decisions dealing with two dimensional (2D) seismic and predecessor cases, may be governed by traditional legal principles.

[1] Advances in Geophysical Technology

Before addressing the case law on geophysical exploration, it may be helpful to review how the new technology developed, since this may influence a court seeking to apply traditional legal principles to modern techniques.

⁶⁷“ . . . [a]nd the undersigned also hereby grants, bargains, sells and conveys all . . . water upon the said lands necessary or convenient for the development working and mining of the said coal . . . from said lands or from other lands or in the preparation of the same for market.” *Id.* at 1534-35.

⁶⁸For articles dealing with horizontal drilling, see Albert D. Hoppe, “Horizontal Drilling,” *The Landman* 41 (July/Aug. 1992); Philip Whitworth, “Practical Problems Encountered in Drilling Horizontal Drilling Prospects Involving Standard Form Oil and Gas Leases,” *The Landman* 25 (Nov./Dec. 1991); and Patricia A. Moore, “Horizontal Drilling - New Technology Bringing New Legal and Regulatory Challenges,” *36 Rocky Mt. Min. L. Inst.* 15-1 (1990). See also Howard R. Williams & Charles J. Meyers, *Oil and Gas Law* § 227 (1992) and Wm. Jarrel Smith, “Rights and Liabilities on Subsurface Operations,” *8th Oil & Gas Inst.* 1 (Matthew Bender 1957). For the legal aspects of fracture stimulation, see John R. Hays, “To Cross A Lease Line/Trespass, Regulatory, and Practical Issues Raised by the Fracture Stimulation of Oil and Gas Wells” (July 1993) (unpublished manuscript on file with the South Texas College of Law).

Geophysical research provides techniques for acquiring structural and stratigraphic information below the earth's surface. Its success in supplying this information continues to increase through ever-evolving technological advances. However, geophysics does not necessarily disclose the presence of minerals; that determination still requires the drilling of a well or the opening of a mine.

The science of geophysics concerns itself with the structure of the earth, as compared to the composition (geology). Geophysical information can be obtained in many ways. Some of them require the placement of components just below the surface; others require the placement of equipment on the surface; and still others can be used by placing the equipment in a plane or a satellite. All can be used to draw conclusions about the mineral *potential* of a parcel.

The more familiar and most common types of geophysical operations today are the active seismic techniques such as shot hole and vibroseis surveys. In general, active seismic techniques are those operations where energy waves generated near the surface propagate through the earth's crust and reflect back from subsurface rock interfaces. The shot hole technique involves detonating small loads of explosives buried in relatively shallow holes near the surface, which sends vibrations into the subsurface formations. Vibroseis is a surface energy source that uses a truck- or buggy-mounted vibrator to generate a controlled wavetrain. The reflected signals can be recorded and used to produce a seismic record from which the depth and shape of various subsurface strata can be measured.

After permitting, the next stage of a seismic acquisition program is conducted by a survey crew, which is concerned with positioning sources and receivers according to the program design. Following the surveyors, a "layout" crew deploys sensitive listening devices at designated locations. These "geophones" pick up the reflected sound waves after they have been weakened by passing through the underground layers of rock. The geophone is a transducer which converts these seismic signals into electrical signals. Sophisticated instrumentation amplifies, filters, and digitizes these analog signals prior to their recording on an appropriate

medium. Geophones and recording instruments are so sensitive they can pick up footsteps at significant distances.

When the science of geophysics began earlier this century, the information obtained was often of marginal quality, provided much less subsurface detail, and was generally collected in a plane immediately below the line itself. Through the middle part of this century, the techniques grew progressively better with the result that clearer data, providing more detail, could be obtained. Within the last 10 to 15 years, not only has data quality improved, but there has been a strong move to secure and process data in 3D volumes, rather than in the traditional 2D format.

Three-dimensional seismic surveys operate much like 2D surveys, but on a larger scale. Two-dimensional seismic data is collected along a straight line, bouncing waves off naturally occurring reflectors in the subsurface. Oftentimes explorationists will receive inaccurate information from such 2D data if there is much subsurface complexity. In a 3D seismic shoot, receivers (geophones) and sources are deployed in an areal fashion, rather than in a linear profile as for 2D acquisition. Although a 3D shoot is more expensive than a 2D shoot, it has decided advantages, particularly the ability to produce a rather highly sampled image where subsurface reflectors, faults, etc., are more accurately positioned.

By its very nature, 3D requires larger acreage blocks than its 2D counterpart in order to be effective. For this reason and because of 3D's higher costs, explorationists usually want to shoot large areas of land when they use 3D seismic. As a result, significant numbers of land owners normally must be permitted in conjunction with a 3D shoot. Further, the 3D collection process is less able to reasonably accommodate "no permit" areas than is the 2D process, where linear profiles can be reoriented or "bent." This results in a greater chance of inadvertent seismic "trespass."⁶⁹

⁶⁹For additional information on geophysical data collection, see James D. Decker & J. David Stevens, "Selected Technical and Legal Issues Arising from Seismic Exploration" (Sept. 1990) (unpublished manuscript, on file with the State Bar of Texas).

[2] Recovery For Unauthorized Geophysical Exploration

The case law on unauthorized geophysical exploration is limited to a few states (primarily Texas and Louisiana), mostly dated (circa 1930-1960), and deals with older technology. No court has considered legal issues involving 3D seismic technology. While in the reported cases the courts generally have had little difficulty in finding that the right to geophysically explore is a valuable property right entitled to legal protection, they have struggled to award meaningful damages. Because of this, other theories of recovery have developed, with mixed results, or have been proposed for future application. Whether there remains an interest worthy of protection, particularly in light of the issues arising from the use of 3D technology, is the key question.

[a] A Valuable Property Right

The courts generally have maintained that the right of a mineral owner to conduct geophysical exploration on his own property or to grant a permit to have others do so is a valuable property right that warrants protection. "[T]he 'two essential attributes of property'—alienability and pecuniary value—support the conclusion that the right to explore should be a legally protected property interest."⁷⁰ The court in *Layne Louisiana Co. v. Superior Oil Co.*⁷¹ explained why it believed the right to geophysically explore is a valuable property right thusly:

It is a well-known and accepted fact in this, the third largest producing oil State, that the right to geophysically explore land for oil, gas or other minerals is a valuable right. Large sums of money are annually paid landowners for the mere right to go upon their land and make geophysical and seismograph tests. The information obtained as the result of such tests is highly valuable to the person or corporation by whom they are made. If the information

⁷⁰Note, "Oil and Gas: Recovery for Wrongful Geophysical Exploration - Catching Up With Technology," 23 *Washburn L.J.* 107, 117 (1983).

⁷¹26 So. 2d 20, 22 (La. 1946). See also *Wilson v. Texas Co.*, 237 S.W.2d 649, 650 (Tex. Civ. App. 1951).

thus obtained be favorable, it can be used and is used in dealing with the landowner for his valuable mineral rights. If the information be unfavorable, the fact quickly becomes publicly known and thus impairs the power of the landowner to deal advantageously with his valuable mineral rights. The average landowner is without means or funds to secure geophysical or seismograph information. Where that information, which is exclusively his by virtue of his ownership of the land, is unlawfully obtained by others, the landowner is clearly entitled to recover compensatory damages for the disregard of his property rights.

An equally accepted legal principle is that the mineral owner, not the surface owner, has the right to conduct geological and geophysical operations.⁷²

In a recent case involving geophysical exploration,⁷³ the Supreme Court of Colorado affirmed the mineral owner's exclusive right to explore, observing that "[t]he recognition of the exclusivity of the right of the mineral owner to consent to such exploration is based upon the central importance of information concerning mineral deposits to the value of the mineral estate." In this case, the defendant city drilled a 600' deep test hole to check for recoverable ore deposits, as required by state law, in connection with its investigation of sites for a wastewater treatment reservoir. It obtained the surface owner's consent to drill the well, but it never obtained permission of the mineral owner (the state) or the mineral lessee. The case was initially argued before the Colorado Supreme Court in 1987, predominately on a claim of geophysical trespass. The court remanded for additional evidence supporting the trespass allegation. On remand, after the trial court dismissed the tort claims, the plaintiff (perhaps because of the difficulty in proving damages) abandoned such claims and proceeded on a theory of inverse condemnation.

⁷²Phillips Petroleum Co. v. Cowden, 241 F.2d 586, 590 (5th Cir. 1957).

⁷³Grynberg v. City of Northglenn, 739 P.2d 230, 232 (Colo. 1987).

On a second appeal⁷⁴ to the Colorado Supreme Court, the court rejected the inverse condemnation theory and found for the defendant, noting that, “while in *Grynberg I*, we held that a person has a cause of action arising out of unlawful geophysical exploration, we did not reach any conclusion about the scope of recovery in such an action.” The court also noted that, to the extent the mineral owner may have a cause of action under trade secret laws, he could lose it if previously acquired geophysical data contained essentially the same information. *Grynberg* is a good example of the difficulty the courts have had in finding a true remedy for “unauthorized” geophysical surveys, an area that will be addressed later in this section of the paper.⁷⁵

[b] Trespass and Other Theories of Recovery

Since most early factual situations involving unauthorized geophysical exploration were associated with a physical trespass on the surface of the land, the first attempts to recover damages were based primarily on the tort of trespass. Thus, in *Thomas v. Texas Co.*,⁷⁶ one of the earliest cases, the defendant, while conducting a gravitational survey on adjacent land, entered the plaintiff’s land without permission and placed two torsion balance stations on a portion of the surface. The plaintiff alleged that the defendant disseminated negative results of the survey to other oil companies and that, following this disclosure, companies which had previously been negotiating with the plaintiff to purchase a royalty interest withdrew their offers. The plaintiff sued in trespass for the loss in market value of his royalty interest. The court affirmed the lower court’s award of costs and nominal damages of \$50 for the trespass and also its rejection of the plaintiff’s claim for loss of market value, finding no evidence to show that the trespass proximately resulted in the loss of market value. This case was the first of many

⁷⁴City of Northglenn v. Grynberg, 846 P.2d 175, 182 (Colo.), cert. denied, 114 S. Ct. 63 (1993).

⁷⁵For a discussion of the issues presented in *Grynberg II*, see Note, “Protectable Property Rights, Trade Secrets and Geophysical Data After City of Northglenn v. Grynberg,” 71 *Denver U.L. Rev.* 527, 533-36 (1993).

⁷⁶12 S.W.2d 597 (Tex. Civ. App. 1928).

in Texas and other states that characterized the action as one in trespass.⁷⁷ However, reliance on the theory of trespass has made physical trespass essential to recovery in most jurisdictions.

In *Kennedy v. General Geophysical Co.*,⁷⁸ the leading case for physical trespass, the court held that “[t]o constitute trespass, there must be an entry upon the land.” In *Kennedy*, the defendant first asked permission to conduct a seismic survey on the plaintiff’s land and was refused. The defendant then shot the survey along the plaintiff’s property line, sometimes detonating dynamite ten to fifteen feet from the property line, but never physically entering on the property. The court rejected the plaintiff’s assertion that he was entitled to damages for valuable information obtained from the survey concerning the probable presence or absence of oil and gas and denied recovery because no physical trespass was committed. Just as significant was the court’s further holding that mere seismic vibrations do not constitute a trespass without a physical invasion of the property, citing a line of blasting cases.⁷⁹

*Ohio Oil Co. v. Sharp*⁸⁰ is sometimes cited as a case holding that no physical entry is necessary to constitute a geophysical trespass. In that case, the plaintiff, through a contractor, conducted a geophysical survey on a public highway adjacent to the lands in issue, but never entered the surface of such lands. The plaintiff secured permission from the adjoining surface owner to conduct the survey, but did not secure permission from the mineral owner. The defen-

⁷⁷See, e.g., *Phillips Petroleum Co. v. Cowden*, 241 F.2d 586 (5th Cir. 1957); *Francis v. Sun Oil Co.*, 340 P.2d 824 (Mont. 1959); and *Angelloz v. Humble Oil & Ref. Co.*, 199 So. 656 (La. 1940). See also Earl A. Brown, Jr., “Geophysical Trespass,” 3 *Rocky Mt. Min. L. Inst.* 57 (1957) and Wallace Hawkins, “The Geophysical Trespasser and Negligent Geophysical Explorer,” 29 *Texas L. Rev.* 310 (1951).

⁷⁸213 S.W.2d 707, 712 (Tex. Civ. App. 1948).

⁷⁹See also *Ratliff v. Beard*, 416 So. 2d 307, 309 (La. Ct. App. 1982), where the court denied recovery for taking aerial photos of property for use in interpretation of subsurface formations, stating “[a]s to the allegations of trespass by ‘photographing and aerial viewing,’ these activities did not constitute trespass of the rights of the mineral lessee, or cause damages.”

⁸⁰135 F.2d 303 (10th Cir. 1943).

dant wrongfully obtained the information and data developed by the survey from an employee of the contractor and, using such information, obtained leases from the mineral owners. The plaintiff brought an equitable action to impress a constructive trust upon the leases. The defendant alleged that the plaintiff was not entitled to equitable relief since its unauthorized and wrongful trespass barred it from a court of equity. The court found the defendant to be an "innocent trespasser" on the mineral estate; nevertheless, it went on to say, that was not the issue it was deciding:

But we are not here concerned with the nature and quality of the trespass or the wrongful invasion of the property rights of the mineral owners, or the measure of damages assessable therefor, except insofar as the trespass or invasion relates to the question whether Ohio has been guilty of inequitable or unconscionable conduct which will repel it from a court of equity. This is not an action for damages arising out of the invasion of the property rights of the mineral owners, and we do not resolve the doubts and differences cast by the adjudicated cases on this point. Rather, our problem is to translate the trespass or wrongful invasion in terms of unconscionable or inequitable conduct.⁸¹

The court decided that plaintiff was not guilty of inequitable or unconscionable conduct by shooting seismic along the property in question and allowed it equitable relief. Interestingly, no court since that in *Ohio Oil Co.* has used the term "innocent trespasser" in considering a claim for geophysical trespass.

Trespass is not the only action that courts have suggested may lie for recovering the lost value of the right to explore. In Louisiana, recovery may be had in an action for conversion of the information obtained.⁸² While this theory has been explicitly rejected under Texas law,⁸³ in Texas a

⁸¹*Id.* at 308.

⁸²*Shell Petroleum Corp. v. Scully*, 71 F.2d 772 (5th Cir. 1934).

⁸³*Shell Petroleum Corp. v. Moore*, 46 F.2d 959 (5th Cir. 1931); *Wilson v. Texas Co.*, 237 S.W.2d 649 (Tex. Civ. App. 1951).

landowner may waive his right to sue in trespass and maintain an action in assumpsit for the reasonable value of the use and occupancy of the land.⁸⁴

[c] Damages

While the courts have been clear that the right to geophysically explore is a valuable right belonging to the mineral estate and that an action to protect such interest will lie in trespass or a similar area of the law, they have had a difficult time supporting significant damage awards.

Many courts either have simply denied a recovery or awarded an arbitrary amount for damages, because the plaintiff could offer no proof of how much the right to explore was worth. For example, in *Franklin v. Arkansas Fuel Oil Co.*,⁸⁵ the court rejected the trial court's award of \$5 per acre for a geophysical trespass on the basis that there was no evidence to show what the geophysical exploration was worth, and reduced the award to \$1 an acre based upon an offer for a geophysical option another company had made to the plaintiff a year earlier. *Franklin* represents the most common measure of damages that courts try to use, the value the owner of the mineral estate would have received if he had issued a seismic permit or option to an explorer.

*Phillips Petroleum Co. v. Cowden*⁸⁶ illustrates the difficulty that courts have in assessing the value of the right to geophysically explore. In this case, the defendant trespassed on the plaintiff's land and located six shot holes thereon. The plaintiff owned a total of 2,682 mineral acres and sued for the value of the right to explore all of these acres. The defendant acknowledged the trespass, but claimed that he had occupied only 82 acres of the plaintiff's land in making the seismic shots on the surface and shooting waves into the mineral estate and that any recovery should be limited to this area. He further claimed that the information he received about the plaintiff's minerals was of poor quality and of no value and that only nominal

⁸⁴ *Phillips Petroleum Co. v. Cowden*, 241 F.2d 586 (5th Cir. 1957).

⁸⁵ 51 So. 2d 600 (La. 1951).

⁸⁶ 241 F.2d 586 (5th Cir. 1957).

damages were recoverable. The trial court allowed plaintiff a recovery of \$20 an acre for the entire 2,682 acres.

Upon review, the Fifth Circuit reversed, holding that in Texas a landowner may waive the trespass and sue in assumpsit for the reasonable value of the use and occupation of the property, but recovery should be limited to the reasonable value of the land that would have been included in a contract between the parties giving the defendant the right to conduct seismic operations on the plaintiff's land. Upon remand, the trial court found that all 2,682 acres of the plaintiff's estate would have been included in this type of contract and established a reasonable market value of \$20 per acre. On appeal, the Fifth Circuit affirmed the award it had previously rejected, finding that the trial court had properly applied its earlier decision.⁸⁷ This case represents the largest amount of reported damages in a geophysical trespass case.

Some courts have recognized that a landowner may recover for the loss of the value of the leasing rights or the loss of value of other interests he might have sold in the mineral estate if "(1) the geophysical trespasser has communicated the results of his findings to third parties, and (2) they tend to demonstrate that the land is useless for oil and gas production purposes."⁸⁸ Louisiana courts have recognized this theory of recovery in a line of cases, but have allowed recovery in only one instance. In *Angelloz v. Humble Oil and Refining Co.*,⁸⁹ the defendant entered the plaintiffs' property after permission had been refused and placed four torsion balance stations in a line across one corner constituting about fifty-five acres of plaintiffs' nine hundred fifty acres. The plaintiffs sued, seeking recovery of the value of the rights to explore and damages for loss of lease value. The plaintiffs proved that they had rejected offers of substantial cash bonuses for executing oil and gas leases before the trespass occurred and that, after publication of the results of the survey indicating the area was dry, they were unable to lease at any price. The court noted with

⁸⁷256 F.2d 408 (5th Cir. 1958).

⁸⁸Richard W. Hemingway, *The Law of Oil and Gas* § 4.1 at 192 (3d ed. 1991).

⁸⁹199 So. 656 (La. 1940).

approval the trial court's finding that the defendant's acts had caused "disparagement of mineral quality of plaintiffs' land resulting in loss to plaintiffs through depreciation of its leasing value" and affirmed a recovery based on the amount paid for a similar survey in close proximity to the plaintiffs' land.⁹⁰

Most courts that have entertained this type of recovery have found that the plaintiffs could not offer any evidence that the value of their interest had decreased as a result of the survey. For example, in *Thomas v. Texas Co.*,⁹¹ the court affirmed an award of \$50 nominal damages, holding that the plaintiff royalty owner had failed to show that the trespass had proximately resulted in the loss of the market value of his royalty.

Several commentators, noting the failure to grant relief where there has been no physical trespass and the difficulty the courts have had in many cases assigning an economic value to the right to explore where a trespass has occurred, have suggested that it is time for courts to look "beyond traditional legal theories which no longer provide an adequate framework within which to protect the mineral owner."⁹² Their solution is to apply what they believe to be a more suitable body of law to the right to geophysically explore, such as the wrongful appropriation of the right to explore, the law of trade secrets, or interference with prospective advantage. As of now, no court has extended these theories to geophysical cases.

[3] Applying the New Technology

Since there have been no geophysical trespass cases involving 3D seismic technology, quite a number of questions remain as to the current state of the law governing geophysical exploration. This next section addresses these questions.

⁹⁰ *Id.* at 660.

⁹¹ 12 S.W.2d 597 (Tex. Civ. App. 1928).

⁹² Robert J. Rice, "Wrongful Geographical Exploration," 44 *Mont. L. Rev.* 53, 70 (1983). See also Griffin, *supra* note 38, at 536-40; Note, "The Surreptitious Geophysical Survey: An Interference With Prospective Advantage," 15 *Pac. L.J.* 381, 408-10 (1984); Warner, *supra* note 70, at 118-31; and Note, "Oil and Gas: Improper Geophysical Exploration - Filling in the Remedial Gap," 32 *Okla. L. Rev.* 903 (1979).

[a] Use of Seismic Options and Seismic Permits

Current practice is for an explorationist to secure permission from the affected surface and mineral owners prior to conducting a seismic acquisition program by use of a lease, a seismic permit, or a seismic option. A lease or permit will ordinarily be used if the program covers a relatively small area of proven land; a seismic option agreement is normally used in areas with little recent drilling activity and which contain a considerable amount of unproven, untested, and unleased land. Particularly where an area is substantial and primarily unleased, the explorationist is likely to use seismic option agreements to tie up the land, since only a small area can reasonably be expected to be potentially productive. By negotiating a seismic option rather than a lease, the explorationist commits a significant amount of acreage, but avoids the initial payment of a large cash bonus on all of the acreage to be explored. Obviously, this desire to avoid a large, up front payment may not coincide with the landowner's expectations, and whether the parties enter into a lease, permit, or seismic option will, to a great extent, depend upon their relative bargaining positions, the landowner's desire to encourage exploration and development of his minerals, and their respective ability to find someone else willing to make a more favorable deal.⁹³

A divided mineral and surface estate complicates the process of obtaining a seismic permit or seismic option because the explorationist must deal with more than one party. While case law provides guidance for permitting two parties, it offers little direction if the mineral estate has been divided among multiple owners or into different depths. If a number of parties own interests in a severed mineral estate, how many of these owners does the explorationist have to permit prior to commencing the program? Since existing case law requires the prior permission of the owner of the

⁹³For a more extensive discussion of seismic option agreements and for model forms, see Kendor P. Jones & Robert C. Faber, "Subsurface Trespass and Seismic Options," at J-1 to J-2 and J-13 to J-17 (Oct. 1993) (unpublished manuscript on file with the State Bar of Texas).

mineral estate, is it necessary to permit every owner or, for example, will six out of seven do?

Another issue of concern arises if the program is targeted for the deeper horizons. Does the explorationist have to secure a permit or option from the owner or owners of the more shallow mineral estates? The cases are silent on this issue, although it is logical to conclude that the owner of the deep rights has the implied right to grant permission to shoot seismic through the shallower formations, just as the owner of deep rights has an implied right to drill through shallower formations to produce his minerals. Obviously, however, the owner of the deep rights cannot produce minerals from the shallower formations and, by analogy, it would appear to be prudent not to retain geophysical data respecting the shallower rights, but instead to "purge" such data concurrent with its collection.

[b] Three Dimensional Surveys

As indicated earlier in this section, 3D seismic has greatly improved the quality of the subsurface image that can be obtained. But in order to be cost effective, 3D seismic must usually be used on large areas of land in fairly remote locations. Sometimes 3D seismic programs exceed fifty square miles. A shoot of this size causes many new problems, including the necessity to permit a large number of surface/mineral owners. Many times permission will be obtained from most of the owners, but not all of them. As a result, there can be "holes" in the middle of the seismic area to be shot. This puts the explorationist in an uncomfortable and, for now, legally undefined position.

There are several options for proceeding, each with a different amount of risk associated with it. The safest option is to lay the seismic lines up to the point where the explorationist has the legal right to be, thus creating a hole in the data. This clearly satisfies existing case law. However, data collected near the edges of the hole will be compromised in quality because such data lacks desirable subsurface redundancy; in short, the quality of certain data the explorationist has the legal right to collect is diminished.

A second option, and one commonly used in 3D shoots, is to shoot the unpermitted minerals, record the seismic waves on the other side of the hole, and purge the data for the unpermitted area following seismic processing. This option ensures the best quality of data around the edges of the hole because the seismic waves are being shot through the unpermitted minerals as though the information will be used to map the unpermitted subsurface. Given today's 3D technology, a fairly large hole can be shot without setting foot on the surface. In theory, this allows the explorationist to receive accurate data about his minerals, but still protects the rights of the mineral owner who has refused to sign a seismic permit.

The final option, short of physical entry, is to shoot the hole and retain the data. This might conform to the literal holding in *Kennedy*, but a court could find this to be a geophysical trespass.

An explorationist faced with unpermitted minerals must weigh these options and decide the amount of risk the program demands. Since the courts have had difficulty awarding damages in geophysical trespass cases, he may decide that shooting unpermitted minerals is a business risk worth taking.

[c] A New Tort or A New Policy?

As previously mentioned, several commentators have recommended that a new tort be developed to give mineral owners a better method of recovery for violation of their geophysical rights.⁹⁴ Others contend that public policy and advances in technology instead should make the right to geophysically explore a noncompensable interest.⁹⁵ They argue that an explorationist should be able to collect seismic data from any place that it has a legal right to be and that this is consistent with the great body of oil and gas law that has always encouraged development through doctrines such as the law of capture. It remains to be seen whether a court, faced with the difficult decision of how to apply old case law

⁹⁴*Supra* note 92.

⁹⁵Jones & Faber, *supra* note 93, at J-9 to J-12.

to new technology, will find Judge Phillips' concurrence in *Ohio Oil Co.* compelling:

I do not think that a geological investigation of a substantial area, conducted upon lands rightfully entered, constitutes a trespass upon adjoining land or a wrong against the owner thereof, or of the oil and gas rights therein, where there is no actual entry upon such adjoining land, although it may disclose geophysical information with respect thereto. To hold otherwise would greatly impede geological investigations which are essential to the discovery and development of oil and gas Where the investigation covers a substantial area, and is not directed at a particular tract of land, I think there is no distinction, if the entry be rightful, whether it is conducted upon the surface of such particular tract or upon adjoining land, and that information obtained with respect to such particular tract is not wrongful, even though the owners of the oil and gas rights in such tract have not consented to the investigation.⁹⁶

⁹⁶*Ohio Oil Co. v. Sharp*, 135 F.2d 303, 310 (10th Cir. 1943).