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PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

THE EFFECTS OF LEASING DEPARTMENT LANDS
FOR OIL AND GAS EXPLORATION AND DEVELOPMENT

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PREFACE

All lands held by the Montana Department of Fish, Wildlife & Parks (MDFWP) were acquired for the purposes of preservation and recreation. The department now has a mineral estate drawing considerable attention from development interests. As prescribed by law, the Fish and Game Commission (FGC) will decide what is to be done with this potential. The decisions reached by the commission are of interest to many Montana people, organizations and agencies who are concerned with the allocation and preservation of these resources.

The purpose of this review is to share with the public as fully as possible the many facets of this issue. The basic goal is to be uncompromising in the department's preservation responsibility while not losing an opportunity to benefit wildlife and recreation with an economic asset which the department may hold.

This review discusses some ideas on how the issue might be approached. There are undoubtedly other ideas; hopefully they will come in response to this review. Response is requested from those who read this analysis and have either new ideas or comments on the ideas presented.

Following the review of this draft, all comments will be discussed with the commission. The department will then make recommendations to the commission. These recommendations will be circulated prior to formally presenting them to the commission. As with all items brought before the commission, the public is welcome to appear and express its ideas and concerns. Public notice will be given of the appropriate commission meeting date.

INTRODUCTION

Recent national energy prices and demand have spurred developers into searching for fossil fuels throughout the state of Montana. The MDFWP is receiving requests to conduct exploration operations on its lands and/or to lease the department's mineral rights.

This programmatic analysis has been prepared to explain to the commission, department and the public the problems related to oil and gas leasing on department lands. This document will be presented to the public to obtain additional ideas and opinions.

Included in this document are the background data needed by the Fish and Game Commission to set policy related to oil and gas leasing on department lands. Only the commission can make these decisions, since by law the Fish and Game Commission shall establish the rules of the MDFWP governing the use of lands owned or controlled by the department.

The MDFWP owns and leases approximately 321,071 surface acres. These lands include administrative sites, wildlife management areas, fishing access sites, state parks, monuments and recreation areas. The department's ownership is divided into 218,287 acres, plus 63 lots owned and 102,783 acres leased. Lands are leased from a variety of sources, the most prominent being the US Government, Department of State Lands, irrigation districts, counties, Champion International and The Anaconda Mining Company. Some of the land owned or controlled by the department was acquired with funds provided by hunting and fishing license buyers and from federal excise taxes on sporting goods. The intended purpose of these properties is to protect the natural and cultural resources of the state of Montana and make them available to meet a portion of the recreational demands within the state.

The department is faced with a delicate situation between accommodating energy development and protecting its lands for the purposes for which they were acquired. The complex landownership patterns which cover many department lands complicate the situation. Lands controlled by the department frequently include areas of outright ownership, plus contiguous parcels of leased lands. The department also controls both mineral and surface rights on some lands and only surface rights on others. Some of the US Government lands, where MDFWP manages the surface, have had the mineral rights withdrawn to allow the department to manage the lands without concern for mineral development. The federal government has already notified the MDFWP, in the case of the Sun River Wildlife Management Area (WMA), that if the department leases its mineral rights for development the federal government may have to reassess the withdrawn status of the minerals, which could lead to their leasing of federal lands within the WMA in the future.

Further complicating leasing is the manner in which some department lands were purchased. Most MDFWP WMA's (which comprise approximately 80% of the landownership) were purchased with federal aid funds (mostly Pittman-Robertson) on a cost-sharing basis. This participation by federal aid requires that these lands must be used in a manner consistent with the objectives and intentions for which the lands were purchased, and failure to do so would constitute a violation of the agreement between MDFWP and federal aid. A violation could cause the state of Montana to become ineligible to receive federal aid funds.

If leasing were determined not to be in violation, then part of the income received from the lease must be returned to federal aid. Federal aid receives income in the same ratio as its participation in the purchase. However, recent federal aid legal decisions have verified that the department's share of any income received from activities on federal aid purchased

lands must also remain in the MDFWP's hands or the department could be in violation of the federal aid agreement (US Government, Office of Mgt. & Budget Circular A-102 1980). Montana law states that any royalties received by MDFWP will not go to the department's trust fund; therefore, there is a strong possibility that the MDFWP would be in violation of the federal aid agreement if the department's share of royalties does not remain with the department. This specific area of potential conflict should be resolved before any major leasing is undertaken.

Some MDFWP lands (parks, recreation areas, fishing access sites and some WMA's) were purchased with Land and Water Conservation funds. This federal fund is used on a 1:1 ratio to purchase lands for recreational purposes and development of outdoor recreational facilities. The Land and Water Conservation Fund Act of 1965 states that, "...no property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location."

All of the above information should be kept in mind while reviewing this document and making decisions on oil and gas exploration and leasing.

DISCUSSION OF MINERAL AND SURFACE RIGHTS

Mineral rights are defined as the ownership of the minerals under a given surface, with the right to enter thereon, mine, and remove those minerals. Surface rights are the control by ownership or lease of the

surface of a tract of land. Mineral rights can be owned with or without the surface rights. The mineral rights owner clearly takes precedence over the surface owner or lessee, and the courts have determined that the owner or lessee of the oil and gas mineral estate has a right to enter upon the surface of the property and make use thereof as is reasonably necessary to enable him to remove the minerals involved. The surface rights owner also has rights and privileges, and the courts have determined that the mineral rights owner or lessee cannot use the surface in an unreasonable or excessive fashion. The terms "reasonable" and "unreasonable" are the keys to the above statements, and frequently the courts have to decide whether there is a violation involving these terms. Surface owner rights have been researched by MDFWP lawyers (MDFWP 1981).

The MDFWP owns 218,287 acres; however, it doesn't have the mineral rights on all these lands. The department leases an additional 102,783 acres, and it is doubtful whether it controls any mineral rights on these lands.

Protection of mineral rights presents problems. If MDFWP leases its mineral rights, it is very important to make it clear that the department is leasing only oil and gas, and not other minerals such as coal, lignite, uranium, etc.

If the department does not lease, it cannot protect the oil and gas beneath its lands from adjacent wells which may drain a pool. This occurrence is entitled the "Rule of Capture." In theory, oil and gas production is analogous to the capture of wild animals, and the fee simple owner of a tract acquires title to all the oil and gas produced from wells on that tract, even though it can be proven that the oil and gas were drained from other tracts. This is true whether the owner of the drained tract owns the minerals in place or merely has the right to extract the minerals found

under it. Lessors combat this problem by requiring that off-set wells (wells that are near other wells) be drilled on their tracts to get their fair share of the oil and gas that may be drained off by an adjacent lessee. The department may be able to turn a loss of oil or gas under its lands into benefits for wildlife and recreation. For example, the department could form an agreement with an adjacent lessee where the department would not allow off-set wells on its lands in return for better protection of the wildlife and recreational resources on the adjacent lease. Conversely, by doing nothing, a potential asset could simply be drained away.

The department's mineral estate relationship with the federal government has an additional feature. In several instances, the department has taken over the surface management of federal lands when these lands were within a tract that was purchased or leased. The federal government has then withdrawn its mineral rights on these lands to protect the wildlife and recreational resources from possible adverse effects. This happened on the Sun River WMA. The federal government has already notified the department that if the department leases its lands on the Sun River WMA, it may become necessary to cancel this withdrawal. Thus, there is a possibility that the federal government would lease its holdings if they were applied for. In some cases, this would put additional pressure on the wildlife and recreational resources.

When the department purchased lands using federal funds (Pittman-Robertson, Land and Water Conservation Fund), the federal government required that these lands not be used for anything that would conflict with the purpose for which these lands were purchased. Thus, MDFWP must be sure there is no conflict before it can lease these mineral rights.

The purchase agreement for one area the department acquired with The Nature Conservancy as an intermediary states, in essence, that The Nature Conservancy must approve of any activities that may be in conflict with the purpose for which these lands were purchased. If this provision of the deed were violated, the land would revert to The Nature Conservancy. On this particular property, the Beartooth Wildlife Management Area, the department also feels that a strong commitment to the previous owners exists, in a moral sense, because of their insistence that the property be preserved for wildlife.

The department controls many surface rights without the accompanying mineral rights; therefore, problems can develop that MDFWP cannot control. The Montana Department of State Lands (MDSL) already has leased mineral rights on some school trust lands on which MDFWP leases the surface rights. For example, within the Blackleaf WMA there are school trust lands on which MDFWP leases the surface, but not the mineral rights. Mineral rights have been leased on these lands and a well was drilled on one section. Similar problems can be expected as leasing occurs on more lands on which the department has surface, but not mineral, rights.

POTENTIAL ON DEPARTMENT LANDS

Many department lands are situated along the Overthrust Belt which covers much of western Montana. The Overthrust Belt is a geological structure which is considered to have high oil and gas potential. Within the Overthrust Belt, a gas discovery has already been made on the MDFWP's Blackleaf WMA, where all mineral rights are held by private interests or public agencies other than MDFWP.

The Williston Basin in eastern Montana is a very productive and active area at this time, and the department also holds land in this geological structure. The Montana "Highline" also has produced gas and oil in significant amounts, and MDFWP owns lands along the Highline.

The likelihood of finding oil and gas in marketable quantities on department lands is unknown; however, the possibility exists. The value of MDFWP lands will reach its potential in future years as the oil and gas industry continues its accelerated exploration program.

The potential value of oil and gas obtained from development of department lands could be significant in terms of helping the MDFWP and the wildlife and recreational resources - provided disposition of accrued funds is clarified. The addition of new income could finance land purchases and increase the department's ability to manage and protect the wildlife and recreational resources.

James Nybo, an economist, was contracted by the MDFWP to make an estimation of revenues the department might earn from oil and gas leasing. Nybo's analysis uses a simulation model that portrays possible levels of revenues which might accrue to the state by virtue of that activity. Because the quantity and quality of the department's oil and gas holdings are extremely uncertain (as are future market conditions and industry activity), the simulation of alternative futures under specific sets of assumptions was deemed the best analytical approach (Nybo 1982). Nybo's analysis estimates that total gross revenues could, at the lower estimated level of leasing and production activity, reach an annual level of \$19,765 by 1985 and increase to \$65,056 by the year 2000. At the highest estimated level of leasing and production activity, he estimated that total gross revenues could go as high as an annual level of \$278,750 by 1985 and \$862,781

by the year 2000. A complete discussion of Nybo's methodology and analytical results can be found in his report, An Economic Analysis of Oil and Gas Leasing on Lands Administered by the Montana Department of Fish, Wildlife and Parks. Copies can be obtained from MDFWP, Helena.

The potential contribution of oil and gas to the national energy situation will probably be insignificant from development of MDFWP lands. The department controls the surface rights on only about 1/3 of 1% (321,070 acres) of Montana's total of 94,168,320 acres. Within Montana, the following federal and state agencies control more surface rights than the department: national forests 16,733,232 acres; BLM 8,140,990; Indian lands 5,282,414; DSL 5,130,623; national parks 1,186,943; FWS 1,108,115 and US Army Corps of Engineers 496,607. MDFWP mineral rights ownership is unknown; however, it is much less than its surface rights ownership. It is probably about 1/10 of 1% of Montana's total; therefore, it is improbable that the department would make a significant contribution to Montana's - or the nation's - oil and gas production. Montana produced about 1.0% of the nation's oil and gas in 1980.

Oil and gas exploration and development on MDFWP lands may be detrimental to the environment. This potentially critical threat to the wildlife and recreational resources is of vital concern to the department. Since the reader needs to understand these concerns, the next two sections of this document will cover a description of oil and gas exploration and development and the impacts of oil and gas exploration and development upon the environment. These two sections will provide the reader with necessary background material for the remainder of the document.

DESCRIPTION OF THE PHASES OF OIL AND GAS EXPLORATION & DEVELOPMENT

The following is a brief description of the various phases of oil and gas exploration and development. A more detailed description and a list of references can be found in Appendix A. An outline of the steps normally followed in locating and establishing a field is provided in Table 1.

Table 1. Phases of oil and gas exploration, development and production.

PRELIMINARY EXPLORATION
GEOPHYSICAL EXPLORATION
Gravity and Magnetics
Seismic
Thumper units
Vibroseis
Dinoseis
Explosives
Subsurface
Surface
EXPLORATORY DRILLING
STRATIGRAPHIC TESTS
WILDCAT
DEVELOPMENT
FIELD DEVELOPMENT
TRANSPORTATION DEVELOPMENT
Roads
Pipelines
PRODUCTION
WELL FACILITIES
SECONDARY RECOVERY
DISPOSAL OF PRODUCED WATER
ON-SITE PROCESSING
Crude oil separators
Natural gas sweetening plants
ABANDONMENT

Preliminary geological exploration involves ground and aerial surveys of a given area along with aerial photo and topographic map interpretation. Methods used in seismic exploration vary, but the premise basic to all involves imparting an artificially generated shock wave into the ground so that the reflected waves from layers of different density rock can be recorded. Methods of producing the shock wave vary from using explosives to dropping a heavy object on the ground. The resulting data are analyzed to predict where fossil fuels may have collected.

There have been numerous requests for permission to conduct seismic exploration on MDFWP lands. The Fish and Game Commission's present policy has been to grant these requests. Appendix B is a comprehensive discussion of the rules and regulations that cover geophysical exploration on Montana's school trust lands, Bureau of Land Management lands, national forest and MDFWP lands.

Only exploratory drilling will confirm the existence of hydrocarbons in a given location. When an area's fossil fuel potential is unknown, the drilling operation is termed a wildcat. In Montana's Overthrust Belt, drilling to depths of 10,000-15,000 feet is not uncommon. For deep wells, as much as 5 acres may be needed to establish a drill pad, the drill rig, mud pit, tool shack, pipe rack and generators.

If "wildcatting" produces commercial quantities of hydrocarbons, the development phase is initiated. Field size may vary considerably. In addition to drill sites, on-site processing facilities, storage tank batteries, road networks, and gathering and transmission pipelines are necessary before production can commence. Oil from a small field can be trucked to storage facilities, but it is not practical to truck natural gas, so pipelines are necessary. Depending on the size of the field and

a number of other variables, the production phase may last from 15-25 years. When it is abandoned, the holes are sealed and surface monuments are established to record the well name and location.

The agencies responsible for the administration of rules and regulations that govern the development, production and abandonment phases of oil and gas activity are noted in Appendix C.

IMPACTS OF OIL & GAS EXPLORATION AND DEVELOPMENT UPON THE ENVIRONMENT

It is the intent of this report to present only a general discussion of the ramifications of oil and gas exploration and development upon the environment, because there are so many different impacts, with varying degrees of intensity, that are possible in a given area. These potential impacts are site-specific; therefore, they can be determined only by intensive and extensive studies of each site. For a more detailed discussion of potential impact, the reader can obtain reports prepared by the USFS, BLM and the Montana Department of State Lands (Appendix A lists some of these reports). These agencies have produced many comprehensive studies of impacts that may affect parts of Montana. Table 2 presents a list of resource values which are affected by different phases of exploration, development and production (USDA 1979).

Air quality is affected by all active phases of oil and gas exploration and development. The primary air pollutants come from dust generated from vehicles on roads and around drilling sites and emissions from vehicle and stationary engines used in the drilling operation. In the production phase, air pollutants can be produced from separation facilities, burning of unwanted gas and by venting of noxious vapors from storage tanks. Also, accidental explosions, fires, blowouts, oil spills and leaks can occur, causing potentially serious air pollution problems (USDA 1979). A serious

Table 2. Oil and gas activities and affected resource values - oil and gas activity effects.*

Values	Preliminary exploration	Exploratory drilling	Development	Production	Abandonment
Air quality	x	x	x	x	x
Soil - compaction	x	x	x	x	N/A
erosion	x	x	x	x	N/A
mantle stability	x	x	x	x	N/A
Water - sedimentation	x	x	x	x	N/A
surface water					
contamination	N/A	x	x	x	x
ground water					
contamination	N/A	x	x	x	N/A
Geological hazards - subsidence	N/A	N/A	N/A	x	N/A
seismicity	N/A	x	x	x	N/A
Cultural values	x	x	x	N/A	N/A
Visual quality	x	x	x	x	N/A
Recreation - developed areas	x	x	x	x	N/A
recreation types	x	x	x	x	N/A
Fish	x	x	x	x	x
Socioeconomics	x	x	x	x	x
Wildlife	x	x	x	x	x

*Adapted from USDA Forest Service, Region 1, Oil & Gas Guide.

problem can develop when working with sour gas. This gas contains hydrogen sulfide which is highly toxic and flammable. It can represent a deadly hazard to personnel, and it can, under certain conditions, form an explosive mixture. In Wyoming, it has recently resulted in wildlife mortalities.

Soil productivity and capability can be adversely impacted. Wherever the earth's surface is disturbed, soil compaction and surface erosion can take place. Mechanized equipment will have the greatest effects on compaction and erosion. Thus, any activities requiring equipment are prone to these impacts. Mass movement stability hazards such as potential landslides, avalanches, rockfalls, earthflows and expansive soil and rock can occur if they are not identified and corrective measures taken. When soil is destroyed, the vegetation dependent upon it is also destroyed.

Vegetation will be primarily impacted by construction of roads and facilities. Wildfire, which may occur accidentally during any of the phases of oil and gas exploration and development, may cause destruction of considerable vegetation. After vegetation destruction, erosion may follow and destroy soils and water quality. Most exploration companies, however, make a reasonable commitment to fire control.

Water can be adversely affected by the following actions that degrade water quality. Abnormal sedimentation usually results from erosion where roads and trails cross streams. This is particularly common in the exploration (seismic phase) and when high grade roads, drill pads, processing facilities and pipelines are constructed. Channel scour may occur if sumps rupture. Surface water contamination may occur from leaks in mud and evaporation pits, oil spills (both crude and refined), produced water and rare instances of blowouts. Groundwater contamination may occur from

surface leaching, introduction of well fluids into deep groundwater aquifers, or spills from buried pipelines (USDA 1979).

Geological hazards other than those associated with surface soil movement (landslides, mud flows, avalanches) include subsidence (earth surface drops) and earthquakes. It is very unlikely that subsidence would be a problem in Montana and there is little evidence that oil and gas production can trigger earthquakes.

Cultural values, including archaeological and historical sites, may be adversely impacted by any surface disturbing activity. A cultural resource inventory of the entire area that will be disturbed is required by the National Historic Preservation Act of 1966 prior to any ground disturbance that might adversely affect archaeological sites on federal lands.

The Montana Antiquities Act states that state agencies shall avoid substantially altering heritage properties or paleontological remains. Also, an antiquities permit is needed before excavating or removing these properties or remains. When a state agency prepares an EIS in accordance with the Montana Environmental Policy Act, it must consult with the historic preservation officer concerning the identification and location of any properties or remains that may be in the impacted area. When any of these properties or remains are located, the EIS must address a plan for the avoidance or mitigation of damage to these properties or remains.

Visual quality (aesthetics) of an area will be impacted during all phases of activity from the perspective of those who value undisturbed landscapes.

Various recreational pursuits are enjoyed on MDFWP lands, and any of the phases of oil and gas activity, at certain times, can impair the recreational experience. Some common recreational pursuits are hiking, camping, ski touring, snowmobiling, hunting, fishing, picnicking, pleasure driving or boating. The development of additional access (roads) into an area can affect certain recreational pursuits in different ways. More access can change the types of recreational uses available.

However, access is generally not a problem on MDFWP properties. All additional road development necessitated by oil and gas development will probably be closed and reclaimed as soon as possible.

Social and economic impacts, as a result of oil and gas development, can be both positive and negative. Many variable conditions govern the scope and severity of socio-economic impacts; however, size of the discovery and specific location are the two most crucial factors (USDA 1979). The larger the field and the more isolated the field is from an existing area of high population density, the more prominent the impacts can become. In the case of a large field being discovered far from any large towns, the following impacts are probable: Positive economic impacts would result as significant numbers of new jobs would become available, which would help local employment opportunities. The influx of large amounts of new money into the area would boost the local economy. The tax bases of local areas, counties and the state would be enriched. Negative economic impacts that may be encountered are the burdens placed on community and county infrastructure, which include housing, water supply, sewage treatment, schools, recreational opportunities, roads and police and fire protection. Social impacts are more difficult to analyze; however, there will be a radical change of life style in the impacted area

and change can be difficult for people. Adverse impacts such as an increase in violent crime, drug abuse and various forms of family (divorce) and social disruption can offset beneficial financial impacts (MDSL 1981).

Fish and wildlife will be impacted by oil and gas exploration and development. Because of the diversity of fish and wildlife species and their unique habitat needs, the impacts on these species can be significant and vary immensely. The following discussion will be general in nature; however, a more in-depth impact of oil and gas activity upon fish and wildlife in Montana is not well documented, because of limited experience in mountainous areas. Research has been done on this subject along the Gulf Coast and in Alaska. However, these data may not be relevant to Montana. Fish and wildlife impacts can fall within several major categories (USDI 1981):

(1) Surface disturbance of the area generally reduces the quantity and quality of forage and cover available for fish and wildlife,

(2) Displacement of wildlife can occur as a result of disturbance. Displacement could be short term or long term depending upon the species involved and the magnitude of the impact.

(3) Stress to wildlife species can occur and would vary with the season during which the activity occurred and the wildlife species involved. Winter and spring are the times when stress most often occurs.

(4) Increased access can cause hunting and fishing pressure increases. Nonconsumptive recreational use of an area could increase, adding to the stress and displacement impacts caused by oil and gas activities.

(5) Special management provisions might be necessary to close roads, and this would add to management costs and enforcement requirements.

(6) Noise from many of the oil and gas activities could displace wildlife species.

(7) Direct mortality to wildlife can result from the operation of equipment and machinery, but primarily from vehicle/wildlife collisions.

(8) Vegetation removal and soil disturbances along streams for the purpose of access roads could alter streamflow patterns, raise water temperature, decrease insect production and increase siltation levels.

In summary, pad construction, road construction, and the human activity involved with oil and gas production would create the most significant impacts to animals. Many of the effects upon wildlife would be indirect, in that a loss of vegetation can result in a loss of forage for animals, or a change in water quality can result in a change in fish populations. Other impacts would be direct in the sense that continued disturbance could result in abandonment of the disturbed areas by wildlife (USDI 1981).

DISCUSSION OF WHETHER TO LEASE OR NOT TO LEASE

The question of leasing the department's mineral rights is difficult, and the possible choices are complex. This question of leasing is very important to the Fish and Game Commission, since only the commission has the authority to make these decisions. The following discussion confronts this question and outlines several possible choices. There may be more choices, so the reader is encouraged to make known his ideas on this subject.

Should the commission decide not to lease MDFWP lands, several advantages and disadvantages become apparent. The major advantage is that it would be a good way to protect the wildlife and recreational resources

on the involved lands. The major disadvantage is that the department is losing a source of income.

The MDFWP owns lands with constraints that may prevent their leasing. These constraints are the results of laws that govern the use of lands purchased with federal aid funds, and in some cases, agreements made with Nature Conservancy or private landowners when purchasing their lands. If the commission decides not to lease these lands because of these conditions, the department should make a concerted effort to explain the exact circumstances that prevent the department from leasing.

A more realistic no leasing decision by the commission may be to decide not to lease now, but to leave open the option of leasing at a later date. The advantages of this decision are that (a) the price that industry will pay may increase significantly, especially if surrounding lands prove to be highly productive; (b) the commission can gain time to reevaluate its position and to better protect the department's resources if the lands around a department tract or within (e.g., state lands inside a WMA) are being leased and developed, thereby causing stress on the wildlife and recreational resources on nearby department lands; (c) the commission can adopt a policy where it plans to be one of the last to lease instead of one of the first, thus strengthening its position of carrying out its responsibilities to the wildlife and recreational resources.

The main disadvantage is that if the surrounding lands fail to become oil and gas producers, the department lands may become unattractive to lessees, thus losing an opportunity to acquire income and/or to use the leasing of mineral rights as an effective bargaining tool with an inholding lessee. For example, the inholder agrees to all protective stipulations

on both the MDFWP property and his inholdings in exchange for an opportunity to lease the department's mineral rights.

If the commission decides that leasing a given tract will not adversely affect the wildlife, recreational and cultural resources, and if it then decides to lease, there are several leasing choices to consider.

The department could issue a no surface occupancy lease. This type of lease would prevent any surface disturbance or occupancy; therefore, it would provide maximum protection for the wildlife and recreational resources. It doesn't prevent the lessee of adjacent mineral rights from drilling wells and draining the oil and gas beneath department property. If the no surface occupancy lease is placed into a pooling and unitizing agreement with adjacent leases, the department would receive royalties from production within the unit without actual drilling taking place upon the department's lease. A no surface occupancy lease should be a good lease for tracts of land less than 640 acres.

The department could issue a standard lease which allows occupancy. This lease will create maximum income. It should provide protection for the wildlife and recreational resources by contractual stipulations. These stipulations are simply a list of directives that are to be followed by the lessee to protect the resources which are the department's legal responsibilities. Stipulations will be only as good as the amount of effort that the department puts into monitoring the oil and gas activities. This monitoring will require the expenditure of time and money by the department.

There are several different methods of compensation that the commission can consider. The usual way is to receive money through fees and royalties. Another possibility would be for the department to receive

wildlife values instead of money. For example, the lessee could purchase a tract of land suitable for a game range and give it to the department in lieu of money. It should be remembered, that in the case of leasing lands purchased with Pittman-Robertson funds, any monetary income (fees and royalties) received by the department must be returned to federal aid. Federal aid credits this income to Montana and it could possibly be used to purchase land for the department.

Another method of compensation would be to have the lessee acquire wildlife and recreational values and trade them to the department. Wildlife and recreational values could include such things as conservation easements, access right-of-way, opening up closed lands for recreation, and/or acquisition of key wildlife habitats. In the case of dealing in "wildlife values" as compensation for any consideration, federal aid administrators would have to agree that this innovation satisfies federal requirements.

ALTERNATIVES

A. Geophysical Exploration Permission

(1) Do not grant permission.

(2) Grant permission. If commission does grant permission, the department should develop a seismographic permit - a composite of the state's and private landowners' would be satisfactory. The department should continue its present policy in which a preliminary environmental review is required. Of primary interest will be the permit's list of stipulations under which geophysical exploration will be allowed. These stipulations should be made on a site-by-site basis, and any exploration allowed must not be in opposition to the intention for which the lands were purchased or detrimental to the wildlife and recreation resources.

Fees may be charged at a current rate determined from the standard rates on federal and state lands and the rates that private landowners are receiving at that time.

B. Oil and Gas Leases

(1) Do not issue leases. This decision, in reality, would not be a permanent decision because of possible changes in commission makeup and policy. The advantage of this decision is that the commission makes a clear statement of intention to provide maximum protection. Disadvantages include loss of revenues from leasing and it can't prevent the drainage of oil and/or gas from beneath department lands.

(2) Do not issue leases at this time, but will reconsider leasing at a later date. This alternative will provide MDFWP with more time to evaluate the situation and handle any problems that may develop because adjacent landowners have begun leasing. It may also allow the department to obtain higher values for its leases at a later time. This would be a good alternative if the commission, because of its stated objectives, feels it is obligated to be last to lease instead of one of the first.

(3) Issue leases.

(a) Issue no surface occupancy leases. This lease provides maximum protection for the surface resources and it is an excellent lease when the environment cannot be otherwise protected. It should be a good lease for tracts of land less than 640 acres. It can provide income for the department.

(b) Issue standard (occupancy) leases. This lease will provide maximum income for the department; however, it can cause the most problems with protecting the wildlife and recreational resources.

If the commission issues leases, the department will need a standard procedure for handling the issuance and administration of leases. One procedure for handling lease requests would be to have the Montana Department of State Lands do the paperwork on leasing. This would include the administration of leases from bidding through the collection of royalties and abandonment. However, the MDFWP would still control and make decisions about stipulations and any other factors which would affect the wildlife and/or recreational resources. Also, MDFWP would be responsible for the field supervision and inspections. State Lands would handle only the paperwork. The Department of State Lands would have to agree to do this, also.

Another procedure would be for the MDFWP to construct and negotiate its own leases. The process of constructing and negotiating a lease and leasing procedures are explained in Appendix E. Appendix E is divided into three parts. Part one covers lease construction and negotiation and includes a discussion of several important points, an outline and a comprehensive article covering the subject. Part two is a discussion of the leasing procedures used on state school trust, federal, private and MDFWP lands. Part three is a survey (Nybo 1982) which covers the leasing procedures used by eight state fish and game departments.

CLOSING

The Montana Fish and Game Commission is faced with setting a policy concerning oil and gas leasing on department lands which can have far-reaching impacts on the wildlife and recreational resources of Montana. Montana law directs the commission and department to protect and preserve fish and wildlife habitat and provide both recreational lands and recreational opportunities. This direction provides a working base and the

commission and department should approach this policy making with the thought that it must substantially benefit these resources of Montana and not just preserve or protect them.

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Appendix A. Description of phases of oil and gas exploration and development.

Preliminary geological exploration involves ground and aerial survey of a given area, along with aerial photo and geologic map interpretation. On-the-ground geologic mapping and rock sampling necessitates use of vehicles and sometimes helicopters to transport the geologist into inaccessible areas.

Geophysical exploration is used to obtain data about subsurface geology. Gravitational and magnetic surveys are conducted on a given area by means of aerial surveys and/or by ground surveys. Small trucks and jeeps with crews of several people can be used at this stage of subsurface data gathering, and off-road travel is likely (USDI 1981).

Seismic surveys are the most common of the geophysical methods and seem to give the most reliable results (USDA 1979). A seismic survey is a method of using artificially created shock waves penetrating downward from the surface into the rock layers. Each formation reflects the shock wave back to the surface, where sensitive instruments record and measure the intensity of the reflections. Several methods may be used to conduct seismic exploration. The following descriptions are taken from Joslin (1981).

A thumper unit consists of a large truck (usually more than one is used at a time) from which a suspended 3-ton slab is repeatedly dropped to the ground from several feet high. Support vehicles for equipment and crew are necessary. Vibroseis involves use of three or four large trucks, under each of which is mounted a platform. The platform can be lowered and the truck hydraulically raised above it to provide the necessary weight. A shock wave is generated when a motor is turned on which vibrates the entire unit. In the dinoseis method, a large bell-shaped metal chamber is mounted beneath a large truck and is lowered to the ground at the test sites. Propane and oxygen are ignited inside the chamber with a spark to create an

explosion, which, in turn drives the required energy into the ground. The subsurface explosion method may utilize a large truck mounted with drilling equipment used to drill a 2-6 inch diameter hole 25-200 ft deep, into which 5-50 pounds of explosives are placed. When detonated, the explosion generates the shock wave.

Each of the previous four techniques requires various trucks such as jug trucks, equipment trucks, recording truck and personnel carriers. Shot hole drilling also may require water trucks and sources for water. A typical seismic operation may use 10-15 men and 5-7 trucks (USDI 1981). The seismic sensors and energy source are located along lines on a 1-2 mile grid. Existing roads are used if possible. Lines may require clearing of vegetation and loose rock to improve access for the trucks. Each mile of line cleared to a width of 8-14 feet represents disturbance of about an acre of land (USDI 1981). After initial testing, road spacing may be reduced, if the results were favorable, and the process is repeated. There can be little modification of the road system to accommodate topography, since a line shouldn't deviate more than 11° from the straight.

When rugged terrain prevents use of ground vehicles, portable drills may be backpacked or flown by helicopter onto location and a series of 25-ft deep holes is drilled, loaded with explosives and all are detonated simultaneously. Another technique involves a surface explosion which consists of draping explosive packs over stakes which are driven into the ground. The explosive packs, 5-50 pounds of explosives, are detonated simultaneously.

A given area may be explored with seismic methods several times by the same or different companies over a period of time. Reasons for this are that frequently companies do not share their information and seismic methodology is constantly being upgraded to find deeper, smaller and more subtle targets. There appears to be no consensus of opinion to which methods are the best.

If preliminary exploration reveals favorable results, exploratory drilling may take place. Exploratory drilling does not begin until a lease has been acquired by the operator. Stratigraphic tests involve drilling relatively shallow holes (100 to several thousand ft deep) to supplement seismic data. These holes are usually drilled by rotary rigs which are truck-mounted and fairly mobile; therefore, roads and trails to test sites on level, solid ground are temporary and may involve a minimal amount of construction.

Only by drilling a "wildcat well" (i.e., a well drilled in unproven territory) will the oil company know if the rocks in the prospect contain oil or gas and if its quality and quantity are adequate for profitable sale. The depth of wildcat wells and their rig size depend on the geology of an area. In the Williston Basin and Overthrust Belt areas, wells are commonly drilled to a depth of 10,000 ft or more. Drilling equipment could remain on this type of site for 6 months, while in other areas such as the northern part of Montana, shallower wells up to a few thousand feet are common and may be completed in a few weeks (USDI 1981). Prior to drilling, a drill pad (well site) from 1-4 acres in size is cleared and leveled for the drill rig and its associated equipment and structures. From 50,000-100,000 gallons of water a day may be needed for mixing drilling mud, cleaning equipment, cooling engines, etc. (USDI 1981). A surface pipeline may be laid to a stream or a water well, or the water may be trucked to the site. Once drilling is started, it continues 24 hours a day, and it never stops until completion.

If "wildcatting" produces commercial quantities of hydrocarbons, the development phase is initiated. Additional wells will be drilled to establish the extent of the field. Field size may vary from less than 1,000 acres to several thousand acres, and some cover several townships. In Montana, the Oil and Gas Conservation Division governs the spacing of oil and gas wells.

In the absence of special field rules, the following rules shall govern: oil wells less than 6000 ft deep are placed one per 40 acres; oil wells 6,000-11,000 ft, one per 160 acres; wells greater than 11,000 ft deep are one per 320 acres. Gas wells will be located one well per 640 acres. If an oil field is developed on the current minimum spacing pattern of 40 acres per well and if the field is a section (640 acres) in size, it can be estimated that at least 4 miles of roads will be needed (USDA 1979). In addition to roads, other surface uses needed for development are well drill sites, on-site processing facilities, storage tank batteries and gathering and transmission pipelines. Oil from a small field may be trucked to storage facilities; however, larger amounts of oil and natural gas require pipelines. Gathering lines transport the oil and/or gas from the well site to collection facilities while transmission lines move it from storage to refineries. Many fields go through several development phases. A field may be considered fully developed and produce for several years, then wells may be drilled to a deeper pay zone, thus creating a new field beneath the old field.

Production begins when the field and its transportation networks are developed for the initial discovery wells. Most oil wells in Montana require an artificial lift to bring the oil to the surface. This primary production accounts for about 25% of the oil in a reservoir. In fields where it is economically feasible, "secondary" recovery methods are used. This involves pumping water or gas into the reservoir to increase oil production by increasing the pressure in the reservoir. "Tertiary" recovery methods can sometimes increase recovery rates if the viscosity of the oil is lowered so that it flows more easily - either by heating the oil or by injecting chemicals into the reservoir (USDI 1981). Most gas wells produce by normal flow and do not require pumping.

Frequently, water is produced with the petroleum. This water may be brackish to highly saline, and must be treated to meet water quality standards before discharging into surface waters. Often, produced waters are reinjected into dry holes, depleted wells or back into the producing formations ("secondary" recovery method).

Various treating and separating facilities are located near the wells to treat the oil before storage and transportation. Similar units are used to separate condensate, moisture and other undesirable products from natural gas. A major undesirable is hydrogen sulfide laden natural gas (sour) gas. This sour gas must be "sweetened" (sulfur removed) near the producing wells, since long distance piping is not possible. The Overthrust Belt gas discoveries in Montana and Wyoming appear to be producing a very sour gas. The process of removing sulfur from gas is complex; the plants needed to accomplish this can use up to 1,000 acres of land and cost several hundred million dollars (USDI 1980). Plants can require extensive pipeline systems and/or railroads to ship the sulfur. Large numbers (500-1000) of construction workers may be needed and some 50-120 employees may be needed for the operation and maintenance of a plant (USDI 1980). When smaller amounts of sulfur are produced, it may be trucked out or burned.

Depending on numerous factors, the life span of a field can vary considerably; however, the estimated average life of a "typical" field is 15-25 years. When the field is abandoned, the wells are plugged and the disturbed land surfaces are restored to their previous grade and productive capability and necessary measures are taken to prevent adverse hydrological effects from the wells.

Appendix C explains what agencies are responsible for the administration of the rules and regulations that govern the development, production and abandonment phases of oil and gas activity.

REFERENCES THAT DESCRIBE OIL AND GAS EXPLORATION AND DEVELOPMENT ACTIVITIES

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DISCUSSION OF GRANTING EXPLORATION PERMISSION

Preliminary Exploration

Preliminary exploration consists of ground and aerial mapping of an area of interest. Since no surface disturbances are involved, permits are not required on state or federal lands. On private lands, the laws of trespass are in effect, and consequently, anyone interested in entering upon private property should obtain permission. On DFWP lands, the rules and regulations that govern public use will govern these activities. As with all dealings with the public, necessary precautions should be taken to prevent violations of the department's rules and regulations.

Geophysical Exploration

Since DFWP lands have various combinations of surface and/or mineral rights, and since these lands have been purchased or leased from various sources such as the US Government, State of Montana, and private ownership, the following discussion of the rules and regulations that permit geophysical exploration on these different lands within the State of Montana is presented.

Montana: Within the State of Montana, anyone intending to conduct geophysical exploration must adhere to state laws (See Pg.B-4) and Oil and Gas Conservation Division rules and regulations (See Pg.B-8).

School Trust Lands: A person wishing to prospect for oil and gas by geophysical methods on school trust lands for which he does not hold an oil and gas lease is required to follow various rules and regulations (See Pg.B-10) and to sign and submit two executed copies of a seismographic exploration permit application on forms provided by the Department of State Lands.

This form specifies the requirements that must be met by the applicant. Of primary interest to DFWP are two requirements: one is that the applicant must furnish proof that he has notified the surface owner or lessee. This is of

paramount importance to DFWP, as it is the lessee of the surface rights on scattered sections of state school trust lands. The second requirement is that the permission granted by the permit is subject to a set of conditions that are listed on the permit form. There is also a section on the permit form for any additional "special conditions" that may be necessary. This is where special wildlife stipulations may be added.

There are charges for exploration on school trust lands where the state owns the surface, and they are paid to the Department of State Lands at the rate of at least \$50 per hole, or \$100 per mile for vibroseis, surface charges or other surface activity, depending on the exploration procedures used. These charges are presently under review.

Public Lands: The Bureau of Land Management (BLM) manages all federally owned oil and gas reserves, including those reserves under BLM lands, national forest system lands and lands with privately owned surface. The US Geological Survey was the administrator of operations granted by a federal oil and gas lease. These duties have now been assumed by a new federal agency, the Minerals Management Service.

On BLM lands, the operator is required to file in person or by mail a "Notice of Intent to Conduct Oil and Gas Exploration Operations," for all operations on public lands administered by the BLM. The notice includes maps showing the location of the line, all access routes and must be filed in the BLM district office before operations begin. For a list of further requirements, see page B-12. There are no charges on BLM lands.

National Forest: Geophysical operations on national forest system lands require a prospecting permit issued by the Forest Service. The operator is required to follow other regulations (see page B-14). The Forest Service District Ranger will make an environmental analysis of the proposed activities to determine the stipulations necessary to protect and reclaim surface resources. The operator will be sent a prospecting permit indicating the stipulations, fee

to be paid, and amount of bond required. The District Ranger makes final inspections prior to approval of termination and release of bond. Fees charged are similar to those on state lands.

Private Lands: Permission to conduct geophysical exploration on private lands is accomplished by an agreement between the operator and the landowner. The operator, as in all cases, must follow the laws of Montana and the rules and regulations of the Oil and Gas Conservation Division. In some cases, landowners have joined together and formed associations in order to deal with the oil and gas industry. These associations of land and mineral owners will provide standard permit forms that their members can use when dealing with operators. A typical permit form identifies the operator, the property involved, when and how contacts are made, payments for shot holes, water, etc. It may include stipulations for use of water, damages, access routes, plugging procedures, etc. Common charges are \$100 per hole.

DFWP Lands: The department's present policy is that applications for seismic permits on lands controlled by the department will be considered on an individual basis according to the following procedure: application for a seismic exploration permit for activities that cause no surface disturbance other than that necessary for seismic tests must be accompanied by a preliminary environmental review (PER). This PER is prepared by DFWP in accordance with the rules and regulations promulgated under the Montana Environmental Policy Act and adopted by the department. A permit, if approved by the commission, will be only for the purposes described in the preliminary environmental review, and shall imply no right to engage in any activity not described in that review and will be for a specific period of time. Of primary interest are the list of stipulations under which exploration will be allowed. These stipulations are made on a site-by-site basis, and any exploration allowed must not be in opposition to the intention for which the lands were purchased and must not be detrimental to the wildlife and recreational resources.

82-1-101

MINERALS, OIL, AND GAS

30

Part 1**Geophysical Exploration**

82-1-101. Persons required to comply. A person, firm, or corporation operating individually or through agents within the state of Montana for the purpose of geophysical exploration in which exploration the seismograph is utilized along with explosives for the determination of geophysical data for any purpose whatsoever, and which person, firm, or corporation either through its own employees or by hiring the services of others operates "seismograph crews", as the term is generally known, shall comply with the following provisions of this part; provided, however, that compliance with the provisions of this part by a seismograph crew or its employer shall constitute compliance herewith by that person, firm, or corporation who has engaged the services of such crew or its employer as an independent contractor insofar as the geophysical operations of such crew are concerned.

History: En. Sec. 1, Ch. 235, L. 1955; R.C.M. 1947, 69-3301.

82-1-102. Doing business within state — resident agent. A person, firm, or corporation shall be deemed to be doing business within the state of Montana when engaged in such geophysical exploration within the boundaries of this state and shall, if not already qualified to do business within this state with a designation of an agent within the state for service of process prior to such time, file with the secretary of state of the state of Montana an authorization, which authorization shall designate a resident agent for the service of process in any action which may be pending in a court in this state, which cause of action may have arisen out of such geophysical exploration.

History: En. Sec. 2, Ch. 235, L. 1955; R.C.M. 1947, 69-3302.

82-1-103. Notice of intention to explore. A person, firm, or corporation desiring to engage in geophysical exploration within the state of Montana shall file a notice of intention to engage in the exploration with the county clerk and recorder in each county in which exploration is to be carried on or engaged in. The notice shall be filed prior to the actual commencement of the exploration.

History: En. Sec. 3, Ch. 235, L. 1955; amd. Sec. 34, Ch. 39, L. 1977; R.C.M. 1947, 69-3303.

82-1-104. Surety bond — restoration of surface. (1) A person, firm, or corporation desiring to engage in such geophysical exploration shall also file with the secretary of state a good and sufficient surety bond in the amount of \$10,000 for a single such geophysical crew or a blanket surety bond in the amount of \$25,000 for all such geophysical crews operating within the state for such person, firm, or corporation, which bond shall indemnify the owners of property within this state against such physical damages to such property as may arise as the result of such geophysical exploration.

(2) Unless otherwise agreed as between the owner of the surface and such person, firm, or corporation, it shall be the obligation of such person, firm, or corporation upon completion of exploration to plug all "shot holes" in such a manner as shall be specified by the board of oil and gas conservation

to contain any water within its native strata by replacing all drill cuttings and filling the hole with bentonite mud or cement as required to contain the water and capping the same with an impervious material at least 1 foot in depth, the top of which shall be 4 feet below the surface of the land. The portion of the hole above the cap shall be filled with native material. The person, firm, or corporation shall also restore the surface around the same as near as practicable to its original condition.

(3) The bond shall remain on file with the secretary of state so long as the exploration is carried on or engaged in, plus an additional 5 years thereafter; provided, however, that the aggregate liability of the surety shall in no event exceed the amount of said bond. Upon the filing of such bond, said secretary of state shall issue to the person, firm, or corporation a certificate showing that such bond has been filed and showing the name of the designated resident agent within the state for service of process for such person, firm, or corporation.

History: En. Sec. 4, Ch. 235, L. 1955; amd. Sec. 1, Ch. 175, L. 1961; amd. Sec. 1, Ch. 272, L. 1977; R.C.M. 1947, 69-3304.

82-1-105. Exploration permit. (1) Upon compliance with the provisions herein contained, namely the filing of a notice of intention to engage in the exploration and a certificate (or photostatic copy thereof) from the secretary of state certifying the name and address of the resident agent for service of process for the person, firm, or corporation desiring to engage in the exploration and certifying that the required surety bond has been filed with the secretary of state, the county clerk and recorder shall issue to the person, firm, or corporation a "geophysical exploration permit".

(2) The permit shall show:

(a) the name of the person, firm, or corporation and principal place of business;

(b) if a firm or corporation, the names and addresses of its officers;

(c) the name and address of the resident agent for service of process for the person, firm, or corporation;

(d) that a notice of intention to engage in geophysical exploration has been duly filed; and

(e) that a good and sufficient surety bond has been filed by the person, firm, or corporation, naming the surety company and giving its address.

(3) The permit shall be signed by the county clerk and recorder or his deputy and bear the official county seal. The permit shall be valid and effective for all geophysical crews of the permittee during the calendar year in which it is issued.

(4) The cost of the permit shall be \$5 per calendar year or any portion thereof for which issued, and the revenues realized therefrom shall go to the county so issuing. Such funds as are realized shall be applied toward payment of the cost of printing the permits, which shall be printed at the county seat, and excesses shall go into the county's general fund.

(5) If printed forms are not available at the time any person, firm, or corporation desires the permit and qualifies for its issuance, typewritten or other form of reproduction of the permit may be used, the fee of \$5 nevertheless shall be paid for its issuance, and this fee shall be disposed of in the same manner.

(6) The permit or a photostatic copy thereof shall be carried by the person or by the agent of the firm or corporation at all times during the period of the geophysical exploration and shall be exhibited upon demand of any county or state official.

History: En. Sec. 5, Ch. 235, L. 1955; amd. Sec. 35, Ch. 39, L. 1977; R.C.M. 1947, 69-3305.

82-1-106. County clerk to notify board of issuance of permit — compliance. (1) The county clerk and recorder of the county in which a permit for geophysical activity is issued will immediately forward notice of the issuance of such permit to the board of oil and gas conservation.

(2) The board shall notify the county clerk and recorder of the county if the person, firm, or corporation which has obtained a permit is not in compliance with any applicable requirement for engaging in geophysical activity within the state.

(3) If the board of oil and gas conservation determines that a person, firm, or corporation has violated any provisions of this part, the board shall take necessary action to assure compliance.

History: En. 69-3305.1 by Sec. 2, Ch. 272, L. 1977; R.C.M. 1947, 69-3305.1(1) thru (3).

82-1-107. Permit holder to furnish information to surface user. Before commencing geophysical activity, the person, firm, or corporation shall notify the surface user as to the approximate time schedule of the planned activity, and upon request the following information shall also be furnished:

(1) the name and permanent address of the geophysical exploration firm, along with the name and address of the firm's designated agent for the state if different from that of the firm's;

(2) evidence of a valid permit to engage in geophysical exploration;

(3) name and address of the company insuring the geophysical firm;

(4) the number of the bond required in 82-1-104;

(5) a description of the surface areas where the planned geophysical activity will take place;

(6) anticipated need, if any, to obtain water from the surface user during planned geophysical activity.

History: En. 69-3305.1 by Sec. 2, Ch. 272, L. 1977; R.C.M. 1947, 69-3305.1(4).

82-1-108. Filing record of work performed. (1) Within 3 months from the day any firing of shotpoints in geophysical exploration is done by any person, firm, or corporation within this state, such person, firm, or corporation shall file with the county clerk and recorder of the county in which the work was done a record showing each township and range within the county in which the work was performed and the approximate date on which the work was performed.

(2) Such person, firm, or corporation shall file with the county clerk and recorder a record showing the location of each shotpoint and date fired within a maximum area of any square, 4-section area of land, upon written request of the county clerk and recorder. The request must be based upon the complaint of a property owner that physical damage to his property has resulted from the use of the seismograph and explosives in geophysical operations at some location within the maximum 4-square mile area, and the

request shall designate the name and address of the complaining person and the approximate date and nature of the alleged damages. The required record of operations in response to the request of the county clerk and recorder shall be supplied within 10 days from the date on which the request is received.

History: En. Sec. 6, Ch. 235, L. 1955; R.C.M. 1947, 69-3306; amd. Sec. 1, Ch. 201, L. 1979.

82-1-109. Enforcement by county attorneys. It shall be the duty of the several county attorneys to see that the provisions herein contained are complied with and that this law is enforced.

History: En. Sec. 7, Ch. 235, L. 1955; R.C.M. 1947, 69-3307.

82-1-110. Penalty. A failure to comply with the terms of this part shall be deemed a misdemeanor and shall be punishable as is elsewhere provided in this code, either by fine or imprisonment, or both. The geophysical permit of any person, firm, or corporation convicted of a violation of the plugging requirements of this part shall be revoked and may not be renewed for a period of 2 years after conviction.

History: En. Sec. 8, Ch. 235, L. 1955; amd. Sec. 3, Ch. 272, L. 1977; R.C.M. 1947, 69-3308.

OIL & GAS CONSERVATION DIVISION SEISMIC
EXPLORATION RULES

OIL AND GAS CONSERVATION

36.22.502

Sub-Chapter 5

Seismic Exploration Activities

36.22.501 SHOT LOCATION LIMITATIONS. No seismic shot hole shall be drilled closer than 1320 feet (1/4 mile) to any building, structure, water well, or spring; nor closer than 660 feet (1/8 mile) to any reservoir dam without written permission of the surface owner. (History: Sec. 87-1-104, MCA; JMR, Sec. 87-1-104, MCA; NLR, 1977 MAR p. 1196, Eff. 12/24/77.)

36.22.502 PLUGGING AND ABANDONMENT. Unless otherwise agreed to between the surface owner and the company, firm, corporation, or individual responsible for the drilling for seismic shot holes, all such holes shall be plugged and abandoned as set forth below:

(1) The seismic company responsible for the plugging and abandonment of seismic shot holes shall notify the Board in writing at its Billings office of its intent to plug and abandon, including the date and time such activities are expected to commence, the location by Section, Township and Range of the holes to be plugged, and the name and telephone number of the person in charge of the plugging operations. A copy of this notice shall be sent to the surface owner at the same time.

(2) All seismic shot holes shall be plugged as soon after being utilized as reasonably practicable; however, in no event shall they remain unplugged for a period of more than 120 days after being drilled and shot.

(3)(a) Except as hereinafter set forth all seismic shot holes shall be plugged by returning to the hole as many of the drill cuttings as practicable and filling the remainder of the hole with bentonite mud having a minimum density that is 4% greater than fresh water (8.67 pounds/gallon). A mechanical bridge plug shall then be set at a depth sufficient to permit placement of a cement plug at least 1 foot in length such that the top of the plug is at least 4 feet below the surface of the ground. The remainder of the hole shall be filled with native surface material.

(b) Seismic holes that penetrate artesian water deposits shall be plugged by displacing the hole with a cement slurry to a level not higher than 4 feet below the surface of the ground level. The cement slurry will be of sufficient density to contain the waters to their native strata. The remainder of the hole shall be filled with native surface material.

(c) Seismic shot holes that tend to crater or slough at the surface after being shot shall be plugged as set forth in subsections (3)(a) or (3)(b) insofar as those procedures are reasonably possible. However, deviations from those procedures are permissible as circumstances may dictate, provided the procedures are designed to accomplish the primary objective of containing waters penetrated by the hole to their native strata.

and restoring the surface as near as practicable to its original condition.

(4) The surface area around each seismic shot hole shall be restored to its original condition insofar as such restoration is practicable and all stakes, markers, cables, ropes, wires, primocord, cement or mud stacks, and any other debris or material not native to the area shall be removed from the drill site and deposited in a convenient sanitary landfill.

(5) A seismic shot hole may be left unplugged at the request of the surface owner for conversion to a fresh water well provided the surface owner executes a release furnished by the Board of Oil and Gas Conservation relieving the party otherwise responsible for the plugging and abandonment of the hole from any liability for damages that may thereafter result from the hole remaining unplugged. (History: Sec. 82-1-104, MCA; IMP, Sec. 82-1-104, MCA; NEW, 1977 MAR p. 1196, Eff. 12/24/77.)

36.22.503 NOTIFICATION (1) The County Clerk and Recorder of the county in which a permit for geophysical activity is issued shall immediately forward notice of the issuance of such permit to the Board of Oil and Gas Conservation.

(2) The Board shall notify the County Clerk and Recorder of the County if the person, firm, or corporation which has obtained a permit is not in compliance with any applicable requirement for engaging in geophysical activity within the State.

(3) If the Board of Oil and Gas Conservation determines that a person, firm, or corporation has violated any provisions of this act, the Board shall take necessary action to assure compliance.

(4) Before commencing geophysical activity, the person, firm, or corporation shall notify the surface user as to the approximate time schedule of the planned activity and upon request the following information shall also be furnished:

(a) the name and permanent address of the geophysical exploration firm along with the name and address of the firm's designated agent for the State if different from that of the firm's;

(b) evidence of a valid permit to engage in geophysical exploration;

(c) name and address of the company insuring the geophysical firm;

(d) the number of the bond required in Section 82-1-104, MAC, to be filed with the Secretary of State;

(e) a description of the surface areas where the planned geophysical activity will take place;

(f) anticipated need, if any, to obtain water from the surface user during planned geophysical activity. (History: Sec. 82-11-111, MCA; IMP, Sec. 82-1-103, and Sec. 82-1-105 through 82-1-107, MCA; NEW, Eff. 12/24/77.)

26.3-230

DEPARTMENT OF STATE LANDS

Rules 23 through 29 Reserved

STATE LAND LEASING 26.3-233

26.3-230 APPLICATION FOR SEISMOGRAPHIC PERMIT. A person wishing to prospect for oil and gas by geophysical methods on state lands for which it does not hold an oil and gas lease is required to sign and submit two executed copies of a seismic permit application form to the Montana Geological Survey, Department of State Lands, Helena, Montana, for approval by the department. With \$10.00 fee in hand, forms may be obtained from the department. (History: Sec. 77-3-402 MCA; Imp. Sec. 77-3-401 MCA, New 1980 MAR p. 3122; Eff. 12/27/80.)

26.3-231 PROCEDURE FOR ISSUANCE OF SEISMOGRAPHIC PERMIT. In order to obtain a permit the applicant shall:

- (1) be qualified to do business in the state as shown by records of the secretary of state;
- (2) file a surety bond, as required, with the secretary of state;
- (3) furnish proof (such as copies of letters) that it has notified the surface owner or lessee of the approximate time schedule of activities on the land;
- (4) provide the name and permanent address of the geophysical exploration firm which will be doing the actual work on the land, and the name and address of any designated agent of the geophysical exploration firm;
- (5) provide a detailed description of the surface areas where geophysical activities will take place; and
- (6) provide written or oral notification from the oil and gas lease of permission to conduct exploration on lands covered by an oil and gas lease.

(7) A permit is valid for one calendar year from the date it is granted.

(8) The permit does not grant any rights to an oil and gas lease or any interests therein and the land covered by the permit is not subject to the provisions of MCA, §§ 77-3-403, 77-3-404, 77-3-405, 77-3-406, 77-3-407, 77-3-408, 77-3-409, 77-3-410, 77-3-411, 77-3-412, 77-3-413, 77-3-414, 77-3-415, 77-3-416, 77-3-417, 77-3-418, 77-3-419, 77-3-420, 77-3-421, 77-3-422, 77-3-423, 77-3-424, 77-3-425, 77-3-426, 77-3-427, 77-3-428, 77-3-429, 77-3-430, 77-3-431, 77-3-432, 77-3-433, 77-3-434, 77-3-435, 77-3-436, 77-3-437, 77-3-438, 77-3-439, 77-3-440, 77-3-441, 77-3-442, 77-3-443, 77-3-444, 77-3-445, 77-3-446, 77-3-447, 77-3-448, 77-3-449, 77-3-450, 77-3-451, 77-3-452, 77-3-453, 77-3-454, 77-3-455, 77-3-456, 77-3-457, 77-3-458, 77-3-459, 77-3-460, 77-3-461, 77-3-462, 77-3-463, 77-3-464, 77-3-465, 77-3-466, 77-3-467, 77-3-468, 77-3-469, 77-3-470, 77-3-471, 77-3-472, 77-3-473, 77-3-474, 77-3-475, 77-3-476, 77-3-477, 77-3-478, 77-3-479, 77-3-480, 77-3-481, 77-3-482, 77-3-483, 77-3-484, 77-3-485, 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77-3-786, 77-3-787, 77-3-788, 77-3-789, 77-3-790, 77-3-791, 77-3-792, 77-3-793, 77-3-794, 77-3-795, 77-3-796, 77-3-797, 77-3-798, 77-3-799, 77-3-800, 77-3-801, 77-3-802, 77-3-803, 77-3-804, 77-3-805, 77-3-806, 77-3-807, 77-3-808, 77-3-809, 77-3-810, 77-3-811, 77-3-812, 77-3-813, 77-3-814, 77-3-815, 77-3-816, 77-3-817, 77-3-818, 77-3-819, 77-3-820, 77-3-821, 77-3-822, 77-3-823, 77-3-824, 77-3-825, 77-3-826, 77-3-827, 77-3-828, 77-3-829, 77-3-830, 77-3-831, 77-3-832, 77-3-833, 77-3-834, 77-3-835, 77-3-836, 77-3-837, 77-3-838, 77-3-839, 77-3-840, 77-3-841, 77-3-842, 77-3-843, 77-3-844, 77-3-845, 77-3-846, 77-3-847, 77-3-848, 77-3-849, 77-3-850, 77-3-851, 77-3-852, 77-3-853, 77-3-854, 77-3-855, 77-3-856, 77-3-857, 77-3-858, 77-3-859, 77-3-860, 77-3-861, 77-3-862, 77-3-863, 77-3-864, 77-3-865, 77-3-866, 77-3-867, 77-3-868, 77-3-869, 77-3-870, 77-3-871, 77-3-872, 77-3-873, 77-3-874, 77-3-875, 77-3-876, 77-3-877, 77-3-878, 77-3-879, 77-3-880, 77-3-881, 77-3-882, 77-3-883, 77-3-884, 77-3-885, 77-3-886, 77-3-887, 77-3-888, 77-3-889, 77-3-890, 77-3-891, 77-3-892, 77-3-893, 77-3-894, 77-3-895, 77-3-896, 77-3-897, 77-3-898, 77-3-899, 77-3-900, 77-3-901, 77-3-902, 77-3-903, 77-3-904, 77-3-905, 77-3-906, 77-3-907, 77-3-908, 77-3-909, 77-3-910, 77-3-911, 77-3-912, 77-3-913, 77-3-914, 77-3-915, 77-3-916, 77-3-917, 77-3-918, 77-3-919, 77-3-920, 77-3-921, 77-3-922, 77-3-923, 77-3-924, 77-3-925, 77-3-926, 77-3-927, 77-3-928, 77-3-929, 77-3-930, 77-3-931, 77-3-932, 77-3-933, 77-3-934, 77-3-935, 77-3-936, 77-3-937, 77-3-938, 77-3-939, 77-3-940, 77-3-941, 77-3-942, 77-3-943, 77-3-944, 77-3-945, 77-3-946, 77-3-947, 77-3-948, 77-3-949, 77-3-950, 77-3-951, 77-3-952, 77-3-953, 77-3-954, 77-3-955, 77-3-956, 77-3-957, 77-3-958, 77-3-959, 77-3-960, 77-3-961, 77-3-962, 77-3-963, 77-3-964, 77-3-965, 77-3-966, 77-3-967, 77-3-968, 77-3-969, 77-3-970, 77-3-971, 77-3-972, 77-3-973, 77-3-974, 77-3-975, 77-3-976, 77-3-977, 77-3-978, 77-3-979, 77-3-980, 77-3-981, 77-3-982, 77-3-983, 77-3-984, 77-3-985, 77-3-986, 77-3-987, 77-3-988, 77-3-989, 77-3-990, 77-3-991, 77-3-992, 77-3-993, 77-3-994, 77-3-995, 77-3-996, 77-3-997, 77-3-998, 77-3-999, 77-4-000.

Without the written permission of the department, the permittee may grant such permission only after the permittee has submitted evidence of conditions which require such permission, and a plan for the road construction and maintenance of the land surface as such as practicable. The department may impose requirements on such construction in order to protect the interests of the public.

(2) The permittee shall, on other damage to the surface, geophysical testing or measuring which is required by the permittee, or move the earth within 300 feet of any well, stream, lake, water wells, or water courses, or any other facilities. The permittee shall not conduct any geophysical testing or measuring activities within 120 feet of any well or within 60 feet of any reservoir, stream, lake, or water course, without the written permission of the department. The department may impose further restrictions when the particular situation warrants.

(3) In all operations on the lands covered by the permittee shall interfere as little as possible with the use of the premises for any other purpose. All necessary operations shall be taken to avoid any damage other than that which is necessary to the operation. The permittee shall be responsible for the cost of any damage to gates, bridges, roads, cattle trails, fences, and other improvements on state lands, and shall be liable for any damage to such improvements. (History: Sec. 77-3-401 MCA, New 1980 MAR p. 3122; Eff. 12/27/80.)

26.3-233 OPERATIONS NEARBY TO A SEISMOGRAPHIC PERMIT. Exploration operations shall be conducted in compliance with all federal, state, and local laws, ordinances, rules and regulations which apply to such operations. Particularly, the permittee shall be subject to the provisions of the following laws, rules, regulations, and other orders on state lands, and shall be subject to the provisions of the following laws, rules, regulations, and other orders commencing operations, and the bonding requirements of the following laws, rules, regulations, and other orders:

- (1) The permittee shall take such measures to prevent vibration and subsidence of fire on the adjacent lands used or traversed by the permittee as required by applicable laws and regulations. The opinion of the department weather and other consultants regarding the occurrence and control of such vibration and subsidence shall be binding on the permittee. Such vibration and subsidence may be required by the department and control measures may be required by the department.
- (2) The permittee shall obtain written permission from the department to use water necessary for the exploration activities. The permittee shall normally will require a permit from the department for such right.
- (3) The permittee shall obtain written permission from the department for the use of explosives for the exploration activities.
- (4) The permittee shall have satisfactory evidence of

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any damages sustained by the owner to the surface of the lands or sustained by the surface lessee to his leasehold interest in connection with operations by the permittee. The surface lessee should not receive damages over and above his annual rental in less than Special Circumstances demonstrated. (History: Sec. 77-3-402 MCA; IMP, Sec. 77-3-401 MCA; NEW, 1980 MAR p. 3122, Eff. 12/27/80.)

26.3.234 SEISMOGRAPH PLUGGING AND ABANDONMENT (1) Except as hereinafter provided, all seismic holes shall be plugged as soon after being utilized as reasonably practicable; however, in no event shall they remain unplugged for a period of more than (2) days after being drilled and shot.

(2) The permittee shall notify the department, in writing, of its activities and abandonments including the date such activities are expected to be conducted, the location by section, township, and range of the holes to be plugged and the name and telephone number of the person in charge of the plugging operations.

(3) All seismic shot holes shall be plugged in accordance with the bore of oil and gas conservation rules. All cuttings and debris placed on the hole shall be spread out over the surrounding area.

(4) If an actinia exceeder finch is encountered in any of the drill holes located on state land, the permittee shall immediately notify the department so that a decision can be made by the department as to whether the well will be developed.

The department shall make a decision within 24 hours of notification. If the well is not developed, or if damage is occurring or is imminent, it is the permittee's responsibility to plug the hole with cement of sufficient density to contain the hole and gas conservation estimates as required by the board of oil and gas conservation. If the permittee encounters an actinia in any of the drill holes on state land, the permittee shall notify the department in writing of the location and death.

(5) The permittee shall leave the land covered by the operations in as nearly the same condition as it was prior to the operations as is practically possible. All refuse, including the permittee's, shall be removed, including powder boxes, flagging, cement or mud cans, shot wire, primacord shall be removed from the lands and shall be properly disposed of by the permittee.

(6) A seismic shot hole may be left unplugged at the request of the surface lessee or owner for conversion to a fresh water well provided the surface lessee or owner executes a release on a form provided by the department relieving the permittee from any liability for damages that may thereafter

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result from the hole remaining unplugged. (History: Sec. 77-3-402 MCA; IMP, Sec. 77-3-401 MCA; NEW, 1980 MAR p. 3122, Eff. 12/27/80.)

26.3.235 CANCELLATION OF SEISMOGRAPHIC PERMIT If the department determines that any person has violated any of the provisions of these rules or the permit issued by the department shall take the necessary action to assure compliance, including cancellation of the permit. Such cancellation is not a waiver of other remedies available to the state. (History: Sec. 77-3-402 MCA; IMP, Sec. 77-3-401 MCA; NEW, 1980 MAR p. 3122, Eff. 12/27/80.)

26.3.236 SEISMOGRAPHIC PERMIT CHARGES Charges for exploration or production of state lands on which the state owns the surface shall be paid to the state by the permittee at a rate of at least \$50.00 per acre or \$100.00 per mile for a volume of at least 100,000 cubic feet of gas or 100,000 barrels of oil. Surface charges or other surface activity, depending on the exploration procedures used. (History: Sec. 77-3-402 MCA, IMP, Sec. 77-3-401 MCA; NEW, 1980 MAR p. 3122, Eff. 12/27/80.)

26.3.237 REPORT UPON TERMINATION OF SEISMOGRAPHIC PERMIT (1) The permittee shall, within 30 days after termination of an affidavit setting forth the following: the department an

(a) The nature of the tests conducted;

(b) A narrative description of or a map showing the number and location of sites where tests were conducted; and

(c) The location and depth of any geologic formations which may be capable of producing water in usable quantities, as discovered in testing. The submission of a crater's log shall be required.

(2) The permittee shall maintain records, including receipts and/or check or draft numbers, of amounts paid by any, to surface owners or lessees in settlement of claims. The permittee shall make the records available for the department's review upon requests of the department. (History: Sec. 77-3-402 MCA; IMP, Sec. 77-3-401 MCA; NEW, 1980 MAR p. 3122, Eff. 12/27/80.)

"Sub-Chapter 3"

COAL LEASING RULES

26.3.301 GENERAL PROVISIONS The board is established by the constitution of the state of Montana (Article X, section 4) to consist of the governor, superintendent of public instruction, auditor, secretary of state and attorney general.

1 Geophysical Operations

Geophysical operations on and off an oil and gas lease are approved by the Federal Surface Management Agency — BLM or FS, as appropriate. Good administration and surface protection on geophysical operations can only be accomplished through close cooperation of the operator and BLM or FS.

BLM Requirements

Geophysical operations on public lands are approved by BLM. The responsibilities of the operator and the BLM District Manager are as follows:

Geophysical Operator

The operator is required to file, in person or by mail, a "Notice of Intent to Conduct Oil and Gas Exploration Operations" for all operations on public lands administered by BLM. Forms for this purpose are available in all BLM District Offices. (See Form 3040-1, page 9.) The Notice includes maps showing the location of the line, all access routes and before operations begin. The map should be a minimum scale of one-half inch equal to one mile. Where available, USGS 7.5 minute quadrangle maps should be used.

The operator is required to be bonded. A copy of the bond or other evidence of satisfactory bonding shall accompany the "Notice of Intent." Proper bonding can include a nationwide or statewide oil and gas bond with a rider for geophysical exploration or a \$5,000 individual surety bond filed with the District Manager. The name listed on the "Notice of Intent" is the company required to be bonded.

The operator is required to notify the District Manager before entering onto public lands administered by BLM.

The operator is required to obtain the District Manager's prior written approval before commencing any surface disturbing activities such as with bulldozers.

The operator is required to notify the

District Manager in writing of any changes in the original Notice and secure written approval for proposed changes before proceeding.

The operator is required to comply with written instructions and orders given by the District Manager at the prework conference or field inspection (if required) before actual work begins and during field investigations.

The operator is required to notify the District Manager that his operations are completed and that he is leaving the land listed on the Notice.

The operator is required to file a "Notice of Completion of Geophysical Exploration" in person or by mail after rehabilitation work is completed. Forms for this purpose are available in all BLM offices. (See Form 3045-2, page 9.)

The operator may be required to submit an acceptable archeological survey if dirt work is contemplated.

The operator is required to comply with all applicable Federal, State and local laws such as the Federal Land Policy and Management Act of 1976, Historic Preservation Act of 1966, Threatened and Endangered Species Act, etc.

The District Manager is responsible for the examination of resource values and the development of appropriate surface protection and reclamation measures.

The District Manager is responsible for compliance inspections.

The District Manager is required to check for proper bonding.

The District Manager is required to contact the operator immediately after the "Notice of Intent" is filed and explain the terms of the "Notice of Intent," including the operating procedures to be followed or avoided, all current laws and all BLM administrative requirements.

District Managers — BLM

State Standards

The District Manager is required to complete final inspection after the "Notice of Completion" is filed.

Where applicable, the operator may be required to register with the State and County governments. State standards for plugging shot holes, personnel safety, etc., will be followed. Additional standards may be required by BLM.

Day 1 — "Notice of Intent" received by BLM.

Day 3 — BLM contacts geophysical operator.

Day 9 — Prework conference; appraisal of requirements.

Day 10 — If no bulldozer work is necessary, work starts. When bulldozer work is contemplated or becomes necessary, development of rehabilitation requirements and further environmental review may be necessary. The operator may be required to furnish an archeological survey which could normally take up to 30 days. When no bulldozer work is necessary, normally 10 days will be required from "Notice of Intent" filing to start of operations.

Day 30 — When bulldozer work is necessary, normally 30 days will be required to start of operations.

Typical Timetable for Geophysical Operations

Appendix B. US FOREST SERVICE'S ADDITIONAL REQUIREMENTS TO BLM'S
REQUIREMENTS FOR GEOPHYSICAL EXPLORATION

**FS
Requirements**

Geophysical operations on National Forest System lands require a Prospecting Permit issued by the Forest Service. The sequence of actions by the geophysical operator and the FS District Ranger is as follows:

**Geophysical
Operator**

The operator is required to file in person or by mail, his intentions for all proposed operations on National Forest System lands. Forms are available in all FS District Ranger offices. The application will be accompanied by a map (two inches or larger to the mile) showing access routes and location of lines and all other surface-disturbing activities.

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An archeological inventory may be required, at the operator's expense, prior to surface disturbing activities.

The operator will sign and return the Prospecting Permit with the fee requested for operations off the leasehold and a completed Performance Bond form or applicable regional form for approval of FS.

The operator must have an approved Prospecting Permit prior to entry on National Forest System lands and must comply with all stipulations (i.e., notify FS District Ranger of scheduled entry, receive prior approval of any changes in original plans, etc.).

The operator is required to notify the FS District Ranger that operations are completed by submitting a termination notice.

**District
Ranger**

An environmental analysis will be made of the proposed activities to determine the stipulations necessary to protect and reclaim surface resources. The operator will be sent a Prospecting Permit indicating the stipulations, fee to be paid and amount of bond required.

The District Ranger makes final inspections prior to approval of termination and release of bond.

APPENDIX C

AGENCIES CONTROLLING OIL AND GAS FIELD DEVELOPMENT, PRODUCTION AND ABANDONMENT

These phases of oil and gas activity are controlled by numerous agencies and their rules and regulations. On federal lands, the Geological Survey is responsible for the administration of the rules and regulations involving the development, production, conservation and management of the mineral resources. This includes the development and production operations as contained in an approved exploration plan, drilling permit, oil or gas development plan or plan for the abandonment of wells or operations. It includes all facilities used for on-project oil and gas resource field exploration, development and production.

The BLM, in cooperation with the Geological Survey, formulates the general stipulations to be incorporated in leases for surface reclamation and the protection of the surface and nonmineral resources. The Geological Survey, before approving drilling permits, oil or gas development plans, or plans for the abandonment of wells or operations, consults with the surface management agency (e.g., Forest Service) on the adequacy of the surface use, environmental protection, and reclamation aspects of the plans. The surface management agency has the primary responsibility for approval of access roads, pipelines, utility routes, and other surface uses outside the operating area (the area of operations is that area of the present or planned oil and gas field, including the development and production operations). The surface management agency obtains the recommendations of the Geological Survey before taking final action. Oil and gas operators must follow various requirements, rules and regulations of other agencies, both federal and state. Operators are regulated by the Environmental Protection Agency concerning oil spills and underground injection control and certain requirements of the Department of Transportation and the Interstate Commerce Commission.

In Montana, the Oil and Gas Conservation Division of the Department of Natural Resources and Conservation has rules and regulations for oil and gas operators. This agency regulates drilling, well spacing, production, secondary recovery, transportation, refining, abandonment, well location variances, unit agreements, water and gas injection systems, gas flaring and underground gas storage projects. The Oil and Gas Conservation Division is interested mainly in production and conservation of oil and gas and their rules and regulations cover operations on all lands.

Surface protection requirements are between the surface owner and the operator. Also, in Montana the Department of Health and Environmental Sciences assists the Environmental Protection Agency on major spills and disposal operations, regulating waste discharge as a result of drilling and/or production and inspecting, controlling and disposing of small oil spills. The Department of Health and Environmental Sciences is also concerned with all water and air and other pollution that may be a result of the oil and gas operations.

In summary, an oil and gas operator is controlled by both federal and state rules and regulations, whether his lease is on federal, state or private lands. Many of the rules and regulations can be found in the Department of State Lands' booklet of Rules and Regulations on Oil and Gas Leases and in the Oil and Gas Conservation Division's booklet.

APPENDIX D

ADDITIONAL DISCUSSION ON POTENTIAL IMPACTS TO FISH AND WILDLIFE

Vegetation destruction is an important adverse impact. It can happen during all types of construction of facilities or roads, by well blowouts or spills, by wildfire, by improper disposal of contaminated water, by filling of wetlands, by water withdrawal and by removing gravel from streambeds or other sites. This impact may adversely affect fish and birds, especially during breeding, nesting and wintering seasons. It may affect big game, small game, amphibians and reptiles.

Water removal and/or pollution is an important adverse impact. It can happen during oil and gas activities where water is removed from ponds or streams or wetlands. It can happen when waters are polluted by oil spills, improper disposal of saltwater, blowouts or leaks of toxic material. This impact may adversely affect the fishery, the birds directly associated with water or riparian habitat and the mammals directly related to water or riparian habitat, such as fur-bearers, etc.

Increased access into an area could be an important adverse impact. It happens when additional roads are built in an area. This impact may cause overharvest of fish and wildlife. It may cause an increase in poaching. There may be an increase of road kills of birds and/or big game. It may alter security levels of big game and thus reduce herd populations.

An increase of human activity and noise levels is another adverse impact. It can happen wherever people or equipment are used. The major problem areas are along roads, at well sites or other areas where humans are concentrated. The impact may be critical at certain times or in areas where birds are breeding, nesting or wintering. Big game will be most affected during their critical periods when they are breeding, having their young or wintering. The major result of this impact is displacement of the wildlife to another area. In the case of big game, this displacement may cause depredation on adjacent private lands. Most wildlife will be displaced to marginal habitat which will adversely affect their ability to survive.

Drill site oil sumps (reserve pits) are very toxic to fish and wildlife. Problems develop when wildlife is attracted to the water or when the sumps leak and contaminate nearby waters. These sumps can be very toxic to birds and it has been documented that numerous birds can be killed in these sumps.

Toxic gas can kill wildlife. It can happen when a gas well has a blowout or when pipelines crack or break. Escaping gas may be so toxic that it can kill all wildlife with which it comes in contact. Discharge of gases from wells, by flaring or from other oil and gas production activities may contribute to acid rain.

APPENDIX E (Part 1)

CONSTRUCTION AND NEGOTIATION OF A LEASE

The following discussion will elaborate on several points that should be taken into consideration when constructing and negotiating a lease:

A lease must state that the department is leasing the rights for the exploration and development of hydrocarbons (oil and gas) only, and not the rights for exploration and development of other minerals such as coal, lignite, uranium, etc.

The leases can be granted noncompetitively or by competitive bidding. Competitive bidding will probably obtain the highest price for the leases. From the viewpoint of protection to the wildlife and recreational resources, there shouldn't be any difference between noncompetitive and competitive leases because the stipulations and other regulations placed into any lease will determine the level of protection. If, however, the goal of leasing is to acquire considerations that will directly benefit wildlife in exchange for oil/gas rights, this might best be accomplished through negotiation - particularly if those considerations are nonmonetary.

If the leases are competitive, two concerns are pertinent: (a) the date of sale must be determined; (b) sale must be advertised and a deadline for applications must be made (the Department of State Lands has a deadline of 40 days prior to date of sale). The Department of State Lands advertises in a trade journal and also has a mailing list of interested lessors.

There may be an advantage to leasing all department lands suitable for leasing to one company, since the department may be able to negotiate a more favorable lease - the basic idea being that an oil/gas company handles all department interests in oil and gas and the department deals only with one company. However, the lease should also be a competitive lease to obtain maximum benefits for fish and wildlife and appropriate fees for the department and iron-clad protection of MDFWP properties.

If numerous leases are pursued, size of maximum parcels to be offered must be determined. Keeping parcels to minimum sizes for development purposes allows tight control and thus the lessee will be required to achieve maximum development and production on a given parcel of land without being able to hold and tie up additional lands. The state has a maximum of 640 acres and the federal government has a 640-acre maximum within a KGS (known geological structure) for competitive bidding.

The reason for a maximum size parcel of only 640 acres in Montana is that Montana has a minimum well spacing law (only one well can be drilled within a certain spacing) which is regulated by the State Oil and Gas Conservation Division.

The spacing is generally 640 acres for a gas well, 320 acres for an oil well over 11,000 ft deep, 160 acres for an oil well between 6,000-11,000 ft deep and 40 acres for an oil well less than 6,000 ft deep. If a gas lease is for a maximum of only 640 acres, by law the lessee can only drill one gas well. If the lease were for over 640 acres, then the lessee could drill one well and still hold the entire lease, by law, without drilling more wells because he has fulfilled the terms of the lease. The fault of a lease of more than 640 acres is that the lessor can't force the lessee to drill more than one well; thus, the lessor may not get maximum production from his lease.

Obviously, maximum production on a lease may not be best for the protection of the environment. There does not appear to be much that the lessor can do with the parcel size to provide additional protection to the wildlife and recreational resources. The lessee can be expected to drill the maximum number of wells allowed by law if he has found anything. It is doubtful if the department could get a lessee to drill less than he might want to drill. One way that the lessor may be able to restrict the number of wells would be to issue leases in sizes that are just below the minimum amount of acres necessary for two wells. For example, in a gas field the lessor could issue a lease for 1279 acres which is one acre less than the minimum number of acres needed to drill two wells; therefore, the lessee could only drill one well on 1279 acres.

A list of stipulations for the protection of the wildlife and recreational resources must be determined. Stipulations are the most important part of any lease that is issued by the department. These stipulations will be the result of the work of various personnel from several department divisions. They can only be done on a site-specific basis, so there is no simple general checklist that can guide department personnel. It appears that any list of stipulations will only be as good as the amount of supervision and inspection the department provides to make sure that its stipulations are met.

Additional protection for the wildlife and recreational resources can be had by issuing leases that contain open-ended sets of stipulations. These stipulations ensure that after the lease is issued the department has additional opportunities to specify measures the lessee must take to protect environmental values.

The kind of compensation for leasing department lands must be determined. The usual means of compensation is to receive money, through fees and royalties from a lease. At the present time, state law specifies that royalties received by the MDFWP won't go into the department's trust account, but it doesn't state where these royalties will go.

Individuals involved in the legislative discussion acknowledge that legislators were not in favor of having a windfall in royalties go to the department. Although the legislation passed did not specifically prevent this, it is apparent that some legislators favor assigning any substantial royalties to the state school trust account.

The department may want to consider an agreement assigning these royalties to the school trust lands account in exchange for more wildlife and recreational concessions on school trust lands. This could compensate the trust account for wildlife considerations. It might also be effective in avoiding a diversion of assets argument, since wildlife benefits would be gained. Sportsmen whose money bought these properties might also be content with such an agreement.

The department should consider other compensation options such as accepting land or wildlife values (conservation easements, habitat acquisition, habitat improvements, etc.) or recreational values instead of money. This would ensure that wildlife and recreation would benefit directly from development of an oil/gas asset if such an asset actually occurred on department lands.

Another possibility would be to negotiate a compromise where the department could utilize royalties to a certain income level. Income exceeding that level would be retained pending legislative direction as to its specific disposition.

"Construction and Negotiation of Oil and Gas Leases"*

1. Legal Classification of the Oil and Gas Lease
 - A. Nature of the Estate Granted
 - (1) Rule of Capture
 - (2) Estate in Real Property
2. Consideration
 - A. Bonus (See fees at end of outline)
 - B. Delay Rental
 - C. Royalty (See Royalties at end of outline)
3. Granting Clause
 - A. Words of Grant
 - B. Types of operations permitted
 - C. Minerals leased (very important to lease only oil & gas)
 - D. Undivided mineral interests
 - E. Mother Hubbard clause
4. Habendum Clause and Drilling Clause
 - A. Primary and secondary terms
 - B. Lease termination
 - (1) Unless drilling and rental clause
 - (2) or drilling and rental clause
 - C. Savings Clause
 - (1) Dry hole clause
 - (2) a cessation of production clause
 - (3) a continuous operations clause
 - D. Shut-in royalty clause (see at end of outline)
 - E. Habendum applicable to all lands leased

5. Royalty
 - A. Payment
 - B. Valuation of production
 - C. Costs proportionately shared by lessor's royalty
 - D. Lessor's remedies for breach of royalty covenant
 - E. Free use of gas clause
6. Pooling clause
7. Unitization clause
8. Pugh clause
9. Other express lease clauses
10. Implied covenants
 - A. Covenant to protect against drainage
 - B. Covenant to develop reasonably
 - C. Covenant to further explore
 - D. Covenant to market the product
11. Federal taxation consequences of the oil and gas leasing transaction
 - A. Bonus
 - B. Delay rental
 - C. Royalty
 - D. Operations
 - E. Depletion

*This is an outline of an article by Bruce A. Kenney, attorney. This very comprehensive article is presented on Appendix page E-7.

Fees are charged for a lease. A typical lease has an annual rental fee and possibly delayed drilling penalties. Competitive bidding can increase the rental fees significantly, as parcels located in high potential areas have brought fees of several thousand dollars per acre in recent months in Montana. The department should establish a fee that will bring maximum

returns, even on a noncompetitive bid. The best way to determine a minimum fee is to check recent bids on nearby state lands or private lands. These should give the department a good idea of the value of the lease. In competitive bidding, the bidder will establish this price. Penalties can be worked out by determining the sale price of a lease.

Shut-in royalties on gas are royalties on gas which is kept in the well and not sold or used off premises. The Department of State Lands charges \$400 per well each year, or the amount of the annual rental provided in the lease, whichever is greater.

On the other hand, if leases and possibly royalties are to be exchanged for direct benefits for wildlife, the horizon is broader but the course still without precedent. This innovative concept could be pursued either competitively where the applicants would be invited to present proposals and wildlife enhancement programs or leases could be negotiated. An advantage to a negotiated lease would be that the commission could select an applicant to deal with, possibly a company with some mineral rights already secured on a mineral estate inholding. This could have the effect of increasing the department's influence over what occurs on the inholding through bargaining.

The key point in this negotiation of benefits approach is that benefits would accrue directly to an area's wildlife rather than revenue accruing to a state department. Chances of permanent improvement in the condition of the wildlife resource would probably be greatly enhanced.



BRUCE A. KENNEY*

Construction and Negotiation of Oil and Gas Leases

Introduction

Because the current increase in oil and gas exploration in and outside of the traditional producing states may require many lawyers, not heretofore practicing in oil and gas law, to be called upon to render counsel to clients negotiating oil and gas leases, it is thought that a nutshell presentation on some of the important legal considerations in drafting and construing an oil and gas lease could be of benefit to young lawyers and the bar in general. Consequently, this article has been prepared to assist practicing members of the bar in acquiring a basic knowledge of this area of law. In addition, the reader should realize that there are several excellent treatises in oil and gas law, as well as law reviews and other publications, many of which are cited in the footnotes herein provided, which provide valuable supplemental research sources.

I. Legal Classification of the Oil and Gas Lease

A. Nature of the Estate Granted

Before the specific terms of the oil and gas lease can be intelligently assessed, the examiner must keep in mind the nature of the interest created by this instrument. In spite of its name, the oil and gas lease does not create a landlord-tenant relationship. The leading theories as to the nature of the leasehold estate can be placed in two general categories. These are the incorporeal hereditament (profit a prendre) theory¹ and the determinable fee interest in the oil and gas in place theory.² These seemingly inconsistent theories resulted from early opinions predating modern scientific knowledge concerning the fugacious nature of oil and gas underneath the land and its ability to be owned in place.

In spite of the above divergence of opinion, there is almost universal agreement on two other important features of the oil and gas lease. One such feature is the *Rule of Capture*. According to this theory, oil and gas production was analogized to the capture of wild animals, and the fee simple owner of a tract acquired title to all the oil and gas that wells on that tract could produce, even though it could be proved that the oil and gas was drained from other tracts.³ This is true whether the owner of the drained tract owned the

minerals in place or merely had the right to extract the minerals found under it.

The other feature of the oil and gas lease that is common to most states is that it creates an estate in real property.⁴ The lease must, therefore, conform to the conveyancing laws of the situs state.

II. Consideration

A. Bonus

Foremost in the mind of your client will be the consideration to be given or received for the granting of the lease. The primary inducement for entering into the lease will be anticipation of oil or gas production being obtained, but usually there is also a monetary consideration. In many areas of the country, it is customary that the mineral owner will be offered a lump sum "bonus" payment as added inducement to execute the lease. This sum will usually be calculated on a per acre basis and will vary in dollars offered according to the competitive position of the tract. This is one element of consideration that will vary considerably from area to area. In areas such as West Virginia, bonus payments are not commonly found.

B. Delay Rental

The "delay rental" is another sum paid to the mineral owner, and will also be based on dollars per acre (usually \$1) to be paid annually to cover the privilege of extending the lease during each year of the primary term (for a discussion of the meaning of primary term, see Article IV, paragraph A).⁵ This is generally not as significant an element of consideration as bonus and royalty, and there will probably be little negotiation on this sum unless the tract is very large or very small.

C. Royalty

The royalty paid to the mineral owner is the most significant element of consideration in the oil and gas lease. It has been traditionally set at one-eighth (1/8) in leases of private lands, although royalty of 1/6, 1/5, and 1/4 is not uncommon. Mineral owners of privately held lands will probably find operators reluctant to negotiate this percentage unless the tract in question is very near a known producing tract. Royalty and shut-in royalty will be discussed in more detail in Articles IV and V.

III. Granting Clause

A. Words of Grant

Any words evidencing an intent to grant an oil and gas leasehold estate and in conformity to the law of the situs state will suffice. The words *grant, demise, lease and let* are typical. The "four corners rule" of construing the entire instrument as a whole will be used to determine the actual nature of the estate granted.

B. Types of Operations Permitted

The types of operations that the lessee may conduct on the premises should be enumerated in the granting clause; however, the typical lease will use exceedingly broad terms to describe these activities. Where the lease itself offers little aid in defining the extent that the lessee may use the surface in support of operations, the courts have implied an easement making the surface estate subservient to the leasehold estate for such uses as are reasonably necessary for exploration, development, and production of minerals.⁴

C. Minerals Leased

The minerals subject to lease will be identified by the granting clause. While oil and gas are clearly leased, the all-inclusive phrase "and other minerals" is frequently included. Neither party can afford either to place too much reliance on this phrase or to disregard it. The question of whether this phrase includes coal and lignite where used in mineral grants and reservations has been vigorously litigated in recent years with the result that title to some or all of these minerals is left in the grantor.⁵

The obvious suggestion is that it is in the best interest of both parties to ensure that the lease identifies clearly what minerals are to be leased and the authorized means of extraction. Related hydrocarbon and other substances, such as condensate, natural gas products, casinghead gas, helium and sulphur, found in the stream of oil or gas should not be omitted from the granting clause.

D. Undivided Mineral Interests

The competitive conditions prevailing during leasing activity usually require that leases be acquired quickly and on the basis of title information obtained from a check of the county or parish records. Title opinions will only be required if and when a well is planned to be drilled; therefore, at the time of entering into the lease, the true quantum of the mineral owner's interest is generally unknown. This requires that the form used be drafted to lease the entire mineral interest from the lessor. In addition, the lease will usually contain express covenants of title.

Consequently, lessees customarily place a *Lesser Interest Clause* in the lease to make it adaptable to the situation where the lessor owns less than a 100 percent mineral interest. This clause allows a proportionate reduction of rentals and royalties on the basis of lessor's quantum of mineral interest and prevents any chance of the lessee being held in breach or default for

proportionately reducing these payments in the absence of such a clause.

While the Lesser Interest Clause allows the lessee legally to reduce his obligations to the lessor who owns a partial mineral interest, the lessor may, nonetheless, be in breach of the covenant or warranty of title.⁶ The lessor leasing only a partial interest may then desire to negate the warranty clause or to lease all his "undivided interest" in said oil and gas, without specifying the fractional amount of the undivided interest. Most lease forms are very inflexible to alteration to expressly recite and lease only a fractional interest and such modification should be avoided unless careful attention is given to the impact on other lease clauses.

E. Mother Hubbard (Cover All) Clause

The granting clause will frequently purport to also cover all land owned by lessor contiguous or adjacent to the described premises. This is commonly known as the Mother Hubbard Clause. In spite of the broad wording, its purpose is to cover small adjacent or contiguous strips of land not described in the lease due to survey vacancies, misdescription of boundary lines, accretions. The cases have generally limited its applications to these situations.⁷ Once again, both parties' interests require an exercise of caution in drafting this clause due to the possibility that a literal interpretation could lead to a result not subjectively contemplated by the parties.

IV. Habendum Clause and Drilling Clause

A. Primary and Secondary Terms

The duration of an oil and gas lease is usually for a definite term of years and so long thereafter as oil or gas is produced in paying quantities, that is, quantities profitable to the lessee. Occasionally, the lease may also provide that it is to last as long thereafter as the tract is used for gas storage. This definite term of years is called the primary term. During the primary term there will be an obligation on the lessee to commence or complete a well on the tract; however, this obligation may be deferred from year to year during the primary term by payment of delay rental on the next ensuing anniversary date of the lease. The length of the primary term will be an important point of negotiation. The longer the primary term, the longer the lessee may hold the lease for speculative purposes by payment of the relatively inexpensive delay rental. On the other hand, a short primary term will mean that the lessor will either have a well drilled or the tract freed of the lease in the near future. Two-, three-, five-, and ten-year leases are not uncommon.

The period during which the lease is held in force solely by production or operations following expiration of the primary term is called the secondary term of the lease.

B. Lease Termination

Certain events will cause termination of the lease *ipso facto*. Late or incorrect payment of delay rental prior to establishing production (or commencement of drilling operations under most leases) causes such ter-

mination. Another event that may cause termination is late or incorrect payment of shut-in royalty. Finally, expiration of the primary term without production having been established (or drilling operations having been commenced under most leases) or cessation of production (without workover, or other operations having been commenced shortly thereafter under most leases) after the expiration of the primary term will cause termination.¹⁰

In addition, certain clauses are usually construed as special limitations on the duration of the lease.¹¹ The type of lease containing a delay rental clause in the nature of a special limitation can be identified by its provision that the lease will terminate on the next ensuing anniversary date unless the lessee pays or tenders delay rental in a specified manner. This provision will apply separately in each year of the primary term and is referred to as an *Unless Drilling and Rental Clause*.

To avoid the harsh result to the lessee of a mistake in payment of delay rental, the *Or Drilling and Rental Clause* is sometimes used. This clause will be drafted so as to create a covenant that lessee shall either commence a well during the year or pay or tender delay rental on the next ensuing anniversary date. Breach of this covenant will not cause automatic lease termination.¹² While California seems to be the only locality where this clause is still used, it seems to be the preferable form for the lessee. It avoids the harsh result of the unless form and, when coupled with a clearly worded provision allowing the lessee to release the lease in whole or in part and be relieved of future obligations to the extent of the release, it also gives lessee the advantage of avoiding obligations to pay delay rental on unwanted acreage. The release provision does require lessee to take an affirmative act to avoid these obligations, however.

C. Savings Clauses

The determinable nature of the lease has resulted in certain common clauses being placed in the lease to save the lease in certain situations. While the specific terms of these clauses may be arguable, there is usually little argument over the concepts involved.

When a dry hole is drilled on a leased tract during the primary term, it will typically satisfy the drilling clause to allow lessee to hold the lease for the remainder of the primary term without paying annual delay rental. Lessees often may not be willing to rely solely on this to prevent lease termination and lessors rarely desire to have the lease held for the remainder of the primary term without receiving consideration. A *Dry Hole Clause* should be included to require lessees to resume payment of delay rental in order for the lease to continue in effect.

Frequently a marginally producing well can be stimulated by a workover of the well or other operation to increase production and prevent lease termination for failure to produce in paying quantities. A *Cessation of Production Clause* will allow the lessee a stated period of time to commence operations to restore production or commence additional drilling before the lease expires.

The cases are split as to whether a lease requiring commencement of drilling operations during the primary term will be extended into the secondary term by a well commenced prior to expiration of the primary term and completed after expiration thereof.¹³ A *Continuous Operations Clause* will provide that the lease will be preserved beyond the primary term so long as operations are prosecuted with diligence and without interruption between operations of more than a stated number of days.

D. Shut-in Royalty

The situation where a gas well is discovered in an area where no pipeline exists to carry the gas to market requires special treatment in the lease. Gas, unlike oil, cannot be trucked away to a refinery or easily stored on the surface. A pipeline is required to transport gas, and, naturally, pipeline companies are reluctant to invest in construction of a line until there is proven production. The lessee is therefore usually without a market to sell his gas immediately after discovery, yet the lease requires production in the secondary term to be kept alive.¹⁴

The solution to this dilemma is the *Shut-in Royalty Clause* providing for lease continuance by payment of "substantive royalty" for a reasonable period of time while lessee is securing a market. Some jurisdictions, however, will imply that a shut-in well is constructively productive while lessee is diligently searching for a market.¹⁵ Even in these jurisdictions the Shut-in Royalty Clause is favored because it removes any question of fact as to the lessee's diligence or what is a reasonable time to find a market.

Careful drafting of this clause is crucial due to the impact on preserving title to the lease and the newly discovered well. The Shut-in Royalty Clause should clearly cover the following points:

1. Under what circumstances is it payable?
2. Is payment obligatory or optional?
3. How much is payable?
4. When is it due?
5. The manner of tender;
6. Consequence of proper or improper payment;
7. The effect of partial assignment by lessee;
8. The effect of pooling or unitization;
9. The effect of momentary restoration of production;
10. The period of time that the lease may be maintained in this manner;
11. Whether payable in secondary term;
12. To whom payable?

The lessor should expect that the lessee will insist on this clause, which, if properly drafted and satisfactory in consideration, can also be of benefit to the lessor.

E. Habendum Applicable to All Lands Leased

A potential trap for the unwary lessor is the fact that all lands and strata covered by the lease may be held as long as there is one producing well anywhere on the premises at any depth.¹⁶ The lessor will then be deprived of the speculative value of the unexplored portions for the duration of the lease. This situation is

particularly acute where noncontiguous or large tracts are involved. Sophisticated lessors of large tracts sometimes require a continuous development obligation and release obligation of all unproductive acreage and strata at the end of the development drilling program. State spacing regulations may eliminate this concern to small tract owners as to acreage held, but not as to strata.

V. Royalty

A. Payment

While neither mandated by law for privately owned and independently negotiated leases nor universally accepted, royalty has traditionally been set at one-eighth of production. Tradition also specifies that the lessor is to receive royalty on oil in kind, but royalty on gas, which cannot be easily divided and stored in separate tanks on the surface, is paid in money. Most lessors not prepared to handle and deal with their own oil will allow, if not insist, that the lessee may purchase lessor's share of oil and pay royalty based on the market value thereof to the lessor.

Other substances that may be produced along with oil and gas, discussed in Paragraph III, C above, should not be overlooked by the royalty clause.

B. Valuation of Production

Few problems have been encountered in valuing oil, but valuation of gas has produced many problems. Some of these problems are a result of the rapid escalation in market value of gas in recent years. The economics of marketing gas require that long-term contracts be entered into for the sale of gas. Where newly discovered gas in the 1960s and earlier was worth 2 to 3 cents per thousand cubic feet, or less, it may now be worth in excess of \$2.00 per thousand cubic feet. Gas royalty clauses in widespread use calling for royalty on gas sold off the premises to be paid on "market value" have proven to be the nemesis of a growing number of producers forced to pay royalty based on current market value, while receiving payment from purchasers at the market value at the time the gas purchase contract was negotiated.¹⁷ An attorney can ill afford to overlook this valuation problem when examining the gas royalty clause.

C. Costs Proportionately Shared by Lessor's Royalty

Most royalty clauses require royalty to be paid at the wellhead; meaning that lessee must bear all the cost of bringing the substances to the surface. Costs the lessor usually will be required to share in will be gross production and severance taxes, transportation costs, dehydration costs, gas compression costs and costs of extracting liquid products from gas and casinghead gas.¹⁸

D. Lessor's Remedies for Breach of Royalty Covenant

Once the features of this clause are understood, it will be observed that the obligation to pay royalty is a covenant and the lessor's remedy for breach will be an

action on the contract and not forfeiture.¹⁹ Where royalty is owing a kind, a tort action for conversion may be brought.²⁰

E. Free Use of Gas Clause

Both lessor and lessee should consider carefully a lease clause allowing the lessor to have the free use of gas on the premises. Natural gas is highly dangerous unless properly handled and will not have been odorized on the tract where produced. In addition, legal construction problems of the typical clause abound.²¹

Since gas has become more valuable, the presence of this right in the lease is of increasing concern. In spite of the rise in gas prices, this clause is not commonly seen in the Gulf Coast and Southwest, except in older leases. It is more likely to be found present in other areas, such as the eastern coastal states of the United States.

VI. Pooling and Unitization

A. Its Concept

At common law, every mineral owner may drill as many wells as he desires on his tract so long as they are bottomed within the vertical boundaries of the tract.²² Under the Rule of Capture, the owner may produce and own all the oil and gas obtainable therefrom.²³ It now is commonly accepted that overly dense drilling will reduce ultimate recovery of minerals from the reservoir due to too great a reduction of reservoir pressure and cause economic waste from more wells being drilled than necessary to deplete the reservoir. To alleviate these situations and to protect the correlative rights of tract owners overlying the reservoir, most producing states have adopted conservation laws which regulate the density of drilling by requiring that units of a prescribed size be established for each well to be drilled.²⁴ The term *pooling* then refers to combining small tracts into a unit large enough to qualify for a drilling unit pursuant to the spacing regulations of the state and in the interest of prudent drilling and production practices.

The term *unitization* is often used interchangeably with pooling, but more precisely unitization refers to the process of acquiring the legal right to operate a whole reservoir as though all tracts overlying it were under a single lease. Oil and gas engineers have devised several methods of stimulating recovery from a reservoir which result in removal of far greater amount of hydrocarbons than would be possible otherwise. Many of these operations must be performed on the reservoir as a whole and require the cooperation of all mineral, royalty and working interest owners. It is therefore necessary to unitize the entire reservoir to avoid legal problems attendant to private boundary lines.

Most lessors and lessees agree that pooling and unitization is of great benefit to all, however, some lessors may wish to reserve the right to approve the terms thereof. The most serious consideration from the standpoint of negotiating a pooling clause will be the manner of allocating production between the tracts and the effect of pooling on the other lease

terms. It should be kept in mind that many states provide for forced pooling of tracts within a drilling unit where the parties cannot agree on pooling otherwise.²⁵ Unitization authority will often be granted by a separate instrument when the need for unitization arises.

B. Effect of Pooling and Unitization on Other Lease Clauses²⁶

Production from any tract within a unit will be shared on a prorata basis (usually based on the relative area of the tracts but sometimes measured by relative productivity) with all royalty owners in the unit. For example, if a well is drilled on a pooled tract, the royalty owner must share production proportionately with other parties in the unit even though there might not be a well drilled on the other tracts. The effect on the royalty clause will be substantial and necessitate careful consideration of the basis of sharing in production between the lessors in the unit.²⁷

The habendum clause will also be affected by pooling. In general, it can be said that a unit well will perpetrate the lease during both the primary and secondary term as to all acreage leased, even though the well may not be located on the leased premises itself. Many lessors prefer to insert a special provision to prevent a unit well from maintaining leased acreage outside the unit boundaries. The outside acreage will then have to be maintained as though it were under a separate lease from the unitized acreage. This type of provision, which is said to be named after its creator, is known as the *Pugh Clause*.

C. Negotiating the Pooling Clause

The pooling clause is extraordinarily complex because of its effect on other lease terms and the lessor's right to and share of production, and it creates a new legal relationship with third parties when it becomes operative. Attention in drafting this clause should be given to the following points:

1. Is there an express grant of authority to pool, and if unitization authority is to be included, is it so stated?
2. May less than all the leased premises be included within a unit?
3. What restrictions are there on:
 - (a) Lands with which the leased premises may be pooled such as contiguity and size of the other tract?
 - (b) Restrictions as to what substances, depths or strata may be unitized?
 - (c) Restrictions on operations in the event of unitization?
4. When may the authority be exercised and how may the unit be legally created? It is customary for lessee to be required to place a Declaration of Pooling of public record to create the unit.
5. For what purposes may the unit be created?
6. What is the maximum size permissible for the unit?
7. What is the legal effect of unit production, drilling or reworking operations on other provisions of the lease, including the delay rental, shut-in royalty, and habendum clauses?

8. How to calculate the lessor's share of royalty from unit production?

9. How may the unit be amended in size and what will be the effect on the lessor's royalty?

10. How may the unit be terminated?

11. How will unit production affect leased acreage and strata lying outside the unit boundaries?

VII. Other Express Lease Clauses

Other matters which should be expressly provided for in the lease, but which are more or less self-explanatory, include the following:

A. The right of the parties to assign their respective interests, in whole or in part, after the execution of the lease and a notice provision therefor.²⁸

B. Lessees may wish to provide specially for protection from loss of lease for failure to pay delay rental or shut-in royalty correctly or timely in the event of inadequate notice of assignment by lessor, death of lessor, or confusion as to the correct apportionment of delay rental or shut-in royalty between two or more persons entitled to payment.

C. If the lessee contemplates assigning a segregated portion of the lease to another operator, some arrangement must be made between the two for one to be responsible for payment of delay rental. It is often provided in the lease that if an assignment is made of a segregated portion of the tract, then failure of the assignee to pay delay rental will not terminate the reserved portion upon which the Assignor has correctly paid delay rental or vice versa.

D. Lessees may desire to have the ability to re-lease all or a portion of the premises and thereafter be relieved of lease obligations, and further, that the lessee's obligation to pay rentals and shut-in royalties will be proportionately reduced.

E. The parties should agree on what substances lessee may use in its operations, such as oil, gas, and water from the premises.

F. If the lessor desires to be compensated for the taking of the surface where the lessee's use is within reasonable limits, it must be expressly provided in the lease. It is customary for lessor to compensate lessee for damage to timber and growing crops only.

G. The special limitations which may be included in the lease require that careful consideration be given to a force majeure clause.

H. There is often a requirement for lessor to give lessee notice of breach of covenant and time to cure if the lessor deems lessee to be in breach of the lease.

VIII. Implied Covenants

While analyzing the oil and gas lease, it should be kept in mind that most jurisdictions will read certain implied covenants into the lease where there is no express provision to the contrary.²⁹ These covenants usually concern operations after the initial discovery on the premises. Typical leases will be silent as to the

duties and obligations of lessee after the discovery of a productive strata. These covenants tend to make many lease forms presented by oil and gas operators more readily acceptable to mineral and royalty owners. The more important of these covenants are discussed below.

A. Covenant to Protect Against Drainage

To protect the lessor against loss due to uncompensated drainage of hydrocarbons from the leased tract to a well on an adjoining tract, this covenant requires the lessee to drill an offset well on the leased tract. In general, the covenant will be breached where lessor can prove that there is substantial drainage from the premises and where an offset well would probably produce sufficient quantities to repay the expense of drilling, equipping and operating the offset well and also produce a reasonable profit to the lessee.³⁰

B. Covenant to Develop Reasonably

It is foreseeable that disagreement between lessor and lessee could arise over the number of wells required to develop adequately the premises. The controversy will usually be over the rate of withdrawal, where the lessor is interested in a quick rate of return while the lessee is interested in maximizing his profit by reducing unnecessary drilling and operating costs.

Once production has been obtained on the premises, the lessee must drill as many wells on the premises as a reasonably prudent operator would under the same circumstances when the interest of both lessor and lessee are considered. However, the burden is on the complaining lessor to prove that a well would produce a reasonable profit to the lessee.³¹

Lessors who are successful in bringing actions on this theory may be awarded damages, lease cancellation of nonproductive areas, or conditional cancellation whereby the lessee will have a stated time to drill additional wells or suffer cancellation as to nonproducing areas.³²

C. Covenant to Further Explore

A well in search of oil or gas will usually test all formations through which it is drilled at that location. It does not foreclose the possibility of the presence of oil or gas in deeper strata or possibly in the same strata at far removed locations.

To prevent lessors from holding unexplored portions of the lease for speculative purposes for so long as there is production elsewhere on the tract, some jurisdictions have implied an obligation to test other portions of the lease or to relinquish those unexplored areas.³³ Simply stated, the lessor must prove that the reasonably prudent operator would have drilled an exploratory well to test these unexplored areas.

Unlike the action brought on the theory of breach of the implied covenant to develop reasonably, the lessor bringing an action for failure to further explore will not have to prove that an exploratory well would produce a reasonable profit to the lessee.³⁴

D. Covenant to Market the Product

After oil or gas has been discovered on the premises, there is an implied obligation to sell the product if the prudent operator could find a market through the exercise of reasonable diligence.³⁵

The lessor's remedy will either be some form of cancellation or damages. It should be especially noted that the operation of the shut-in royalty clause will not negate the implied obligation to market the product. The purpose of the shut-in royalty clause is to modify the habendum clause to prevent lease termination where there is no production from a shut-in well. The lessee will still be held to a duty to exercise diligence in finding a market during the shut-in term.³⁶

IX. Federal Taxation Consequences of the Oil and Gas Leasing Transaction

A. Bonus

Bonus payments are deemed to be advance royalty and must be capitalized by the lessee as leasehold acquisition costs and form a part of the lessee's basis in the property. Bonus is recoverable through depletion if the property proves productive or will generate a loss if no production is found or the lease is allowed to terminate prior to drilling.³⁷

To the lessor, receipt of bonus is ordinary income in the year it is received.³⁸

B. Delay Rental

Receipt of delay rental is ordinary income not subject to depletion to the lessor.³⁹ The lessee may elect to either expense or capitalize delay rental each year as to each nonproductive property.⁴⁰

C. Royalty

The lessor will treat royalty received as ordinary income subject to depletion.⁴¹ Shut-in royalty, however, is not subject to depletion.⁴²

The lessee does not include in income the value of production paid to the lessor as royalty. The lessee may also deplete income from production if desired.⁴³

D. Operations

Generally, the lessee's geological and geophysical costs of locating an area of interest in which a lease is acquired will be apportioned between the leases acquired on a net acreage basis and must be capitalized.⁴⁴

Any cost incurred which in itself has no salvage value and which is incident to and necessary for the drilling of wells and the preparation of wells for the production of oil and gas, called *Intangible Drilling Costs*, are subject to the working interest owner's election to expense or capitalize such costs.⁴⁵

The lessee's investment in tangible personal property used as an integral part of oil and gas production, extraction, transportation or refining is subject to a tax credit of 10 percent in the year when the property was placed in service.⁴⁶

E. Depletion

Any owner of an economic interest in oil or gas property is entitled to recover the investment in the property through depletion. Both the lessor's mineral interest and the lessee's working interest are economic interests.

Depletion may be computed by two methods.⁴⁷ One is cost depletion which simply allows the taxpayer to deduct annually a sum representing each produced unit's proportionate share of the taxpayer's basis in the property. Percentage depletion, however, is not limited to the taxpayer's basis. It allows a specified percentage of the gross income from a property to be deducted but not to exceed 50 percent of the net income from the property. Percentage depletion may be taken in each year of the life of the property in which income from production is received. Percentage depletion is now generally available only for fixed contract gas, domestic regulated gas, certain geothermal

deposits and to independent producers and royalty owners.

X. Conclusion

In conclusion, some general words of caution are in order.

The printed lease forms used in the industry will contain virtually uniform provisions although the specifics will vary considerably. Particular lease forms often are referred to by a name such as *Producer's 88*. These terms usually have no commonly accepted meaning, and there will be many different forms all using the label *Producer's 88*.

The jurisprudence of the various jurisdictions may take quite different views on the same issue and the law of the applicable jurisdiction should, therefore, always be checked. This will be especially true in the civil law jurisdiction of Louisiana. 

Footnotes

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1. This theory holds that oil and gas is incapable of being owned separate and apart from the land and, therefore, the grantee of oil and gas rights receives only an exclusive license to take such oil and gas from the land as may be reduced to possession. See Kolachny v. Galbraith, 26 Okla. 772, 110 P. 902 (1910).

2. Stephens Co. v. Mid-Kansas Oil & Gas Co., 113 Tex. 160, 254 S.W. 290 (1923).

3. 1 WILLIAMS & MYERS, OIL AND GAS LAW § 204.4 (1977).

4. 1 E. BROWN, THE LAW OF OIL AND GAS LEASES § 3.04 (2d. ed. 1973).

5. The statutory law of New York creates an exception to this rule. General Construction Law of New York § 39 (McKinney 1951).

6. Sun Oil Co. v. Whitaker, 483 S.W.2d 808, 42 O&GR 256 (Tex. 1972). *cf.* Getty Oil Co. v. Jones, 470 S.W.2d 618 (Tex. 1971).

7. The Jones case expressly recognized the dominance of the mineral estate yet required an accommodation by the oil and gas operator to allow continued agricultural irrigation on the surface. Any question that Jones seriously eroded the dominance of the subsurface estate in Texas will be dispelled by the realization that Whitaker was decided subsequent to Jones. Whitaker involved an action to enjoin the Lessee's use of fresh water in secondary recovery operations. The dominance of the mineral estate was held to preclude an injunction.

8. Silvan v. Peabody Coal Co., 547 F.2d 115 (10th Cir. 1977) applied the common law doctrine of *ejusdem generis* to exclude coal from the grant of substances. The Texas courts have taken a different approach to reach somewhat similar conclusions, at least as to near surface deposits of coal, in two widely discussed cases. Acker v. Guinn, 464 S.W.2d 348, 38 O&GR 273 (Tex. 1971) and Wylie v. Reed, 554 S.W.2d 169 (Tex. 1977). For an update on Wylie see 4 State Bar of Texas Natural Resources Section Report 4 (1978).

9. The type of minerals granted is an important consideration to the lessor desiring to retain control over the surface. See E. Kuntz, *The Law Relating to Oil and Gas in Wyoming*, 4 WYO. L.J. 107 (1948).

10. See A. F. Smith, Jr., *The Proportionate Reduction Clause in Oil and Gas Leases—Relationship to After Acquired Title and*

Warranties, 5th ANN. ROCKY MOUNTAIN MINERAL LAW INSTITUTE 341 (1960).

9. Continental Oil Co. v. Walker, 238 Miss. 21, 117 S.2d 333, 11 O&GR 814 (1960).

10. *But see* Stewart v. Amerada Hess Corp., _____ P.2d _____, 50 O.B.A.J. 2137 (Okla. 1979). Paragraph IV.D, *infra* contains a discussion of shut-in royalty.

11. Walker, *The Nature of Property Interest Created by an Oil and Gas Lease in Texas*, 8 TEX. L. REV. 483 (1930).

12. *Id.*

13. 3 E. KUNTZ, A TREATISE ON THE LAW OF OIL AND GAS § 26.13 (1967).

14. Walker, *The Nature of Property Interest Created by an Oil and Gas Lease in Texas*, *supra* note 11 at 511.

15. Flag Oil Corp. v. King Resources Co., 494 P.2d 322, 41 O&GR 545 (Okla. 1972) and Gard v. Kaiser, _____ P.2d _____, 49 O.B.A.J. 1365 (Okla. 1978).

16. There are certain limitations on this result discussed at Paragraphs VI.B and VIII.B and C., *infra* and by statutes such as 52 OKLA. STAT. 1971 87.1(b).

17. The status of current market value litigation in Texas is also reviewed in 4 State Bar of Texas Natural Resources Section Report 4 (1978). It appears that the lessee could be held to the current market value standard even where his sale is subject to federal regulation which may hold the value received by the producer below what could be received in the intrastate market. See *Kingery v. Continental Oil Co.*, 434 F. Supp. 349, 58 O&GR 400 (W.D. Tex. 1977).

The gas royalty clause should also be read with the effect of the Natural Gas Policy Act of 1978, 15 U.S.C. § 3301 *et seq.* (1978) in mind. While the price of interstate sales of natural gas has been regulated for years, this act extends federal price regulation to intrastate contracts for the first time. The Act also provides for the gradual deregulation of certain categories of natural gas.

18. E. Brown, *Royalty Clauses in Oil and Gas Leases. Their Nature, Construction and Remedies for Breach Thereof*, 1611 ANN. INST. ON OIL AND GAS L. AND TAX. 139 (1965).

19. *Id.*

20. Indian Territory Illuminating Oil Co. v. Killingsworth, 175 Okla. 78, 51 P.2d 505 (1933).

21. J.A. SUMMERS, OIL AND GAS § 587, *et seq.* (Permanent Ed. 1958).

22. 2 H. TIFFANY, THE LAW OF REAL PROPERTY § 585 (3d. Ed. 1939).
23. Paragraph 1.A, *supra*.
24. I MYERS, THE LAW OF POOLING AND UNITIZATION § 1.01 (2d. ed. 1967).
25. For example refer to 52 OKLA. STAT. 1971 § 87.1.
26. A more extensive discussion of this complex subject may be found in several of the treatises cited herein and National Energy Law and Policy Institute, Legal Aspects of Enhanced Oil Recovery (1977).
27. In Shell Oil Co. v. Corporation Commission, 389 P.2d 951, 20 O&GR 841 (Okla. 1963) lessors bound by a royalty interest communitization order of the Oklahoma Corporation Commission were held to be entitled to receive royalty on the basis of prices received by each operator in the unit without regard to whether or not their lessee was then marketing its share of the unit's gas.
28. Royalty owners should beware partitioning a tract after a lease is executed in states adhering to the nonapportionment rule. This rule entitles the royalty owner on whose tract a well is drilled to 100 percent of the royalty from that well even though the other segregated tract is covered by the same lease. The royalty owner of the nonproducing tract must suffer drainage while receiving no compensatory royalty. Often an *Entireties Clause* is inserted into the lease to deal with this situation. O'Quin, *Separately Owned Tracts Under Single Lease As Affected by Entirety Clause and Related Provisions*, 8TH ANN. INST. ON OIL AND GAS L. AND TAX. 125 (1957).
29. M. MERRILL, COVENANTS IMPLIED IN OIL AND GAS LEASES (2d. ed. 1940) is considered to be the leading treatise on this subject.
30. Gerson v. Anderson-Prichard Production Corp., 149 F.2d 444 (10th Cir. 1945).
31. See M. MERRILL, COVENANTS IMPLIED IN OIL AND GAS LEASES, *supra* at 129.
32. *Id.* at 148, *et seq.*
33. Doss Oil Royalty Co. v. Texas Co., 192 Okla. 359, 137 P.2d 934 (1943).
34. *Id.*
35. Bristol v. Colorado Oil and Gas Corp., 225 F.2d 894, 5 O&GR 50 (10th Cir. 1955) and McVicker v. Horn, Robinson and Nathan, 322 P.2d 410, 8 O&GR 951, 71 A.L.R.2d 1211 (Okla. 1958).
36. 4 E. KLINTZ, A TREATISE ON THE LAW OF OIL AND GAS § 46.7 (1972).
37. L. FISKE, FEDERAL TAXATION OF OIL AND GAS TRANSACTIONS § 2.07 (1978).
38. I.R.C. 361, Treas. Reg. § 1.61-8.
39. Treas. Reg. § 1.612-3(c).
40. I.R.C. § 266, Treas. Reg. § 1.266-1(b).
41. I.R.C. § 611, Treas. Reg. § 1.611-1.
42. Johnson v. Phinney, 287 F.2d 544 (5th Cir. 1961).
43. Paragraph IX E., *infra*.
44. I.R.C. § 263, Rev. Rul. 77-188.
45. Treas. Reg. § 1.612-4.
46. I.R.C. § 38, 46-48 and L. FISKE, FEDERAL TAXATION OF OIL AND GAS TRANSACTIONS, § 5.14, *supra*.
47. BURKE AND BOWHAY, INCOME TAXATION OF NATURAL RESOURCES § 8.01 *et seq.* (1978).

APPENDIX E (Part 2)

LEASING PROCEDURES

The following discussion will cover the current procedures for obtaining oil and gas leases on (A) state school trust, (B) federal, (C) private, and (D) MDFWP lands.

A. State School Trust Lands - Procedures for obtaining an oil and gas lease to commence exploratory drilling.

1. The tract desired must be applied for by making application on a DSL form and including a \$10 fee. Tracts of not more than 640 acres will be leased.
2. Applications must be filed 40 days prior to sale date.
3. Lease sales are held once a quarter.
4. Sales are competitive, oral bidding and made to highest qualified bidder.
5. Terms of lease are 10 years or as long as oil and gas in paying quantities are produced, on condition that all drilling, rental and other obligations are fully kept and performed by the lessee. Lease term is under review and may be changed.
6. The oil and gas lease will be issued to the successful bidder and will be on the form currently in use.
 - (a) oil and gas lease form has a set of stipulations under which the lessee must conduct his operations.
 - (b) oil and gas lease form has a place for special provisions which would include wildlife stipulations.
7. Fees
 - (a) annual rental is \$1.50/acre of land leased but not less than \$100 per tract.
 - (b) Rental for first year of lease shall include any sums in excess of \$1.50/acre offered and accepted at bidding sale.
 - (c) The lessee shall commence drilling of a well for oil and gas upon the lease within 5 years or pay in advance a delayed drilling penalty of \$2.50/acre for the 6th year of the lease and each succeeding year.
8. Royalties
 - (a) on gas, at the rate of 12.5%
 - (b) on oil, at the rate of 13%

- (c) The royalty on gas, while the same, if not sold or used off premises, shall be \$400 per well each year, or the amount of the annual rental provided in the lease, whichever is greater.
 - (d) The State of Montana is reviewing its royalties, as other nearby states have higher royalties. Example: North and South Dakota - 16.6%, Nevada - 15%, private leases on Indian reservations and in the Williston Basin in eastern Montana -16.6%. Montana is also considering shortening the lease term from 10 years to 5 years.
- 9. Leases may be assigned or transferred in accordance with the rules and regulations found in the Department of State Lands' rules and regulations on oil and gas leases.
 - 10. Leases may be surrendered (see rules and regulations).
 - 11. Leases may be forfeited, canceled and terminated (see rules and regulations).
 - 12. The board is authorized to enter into pooling agreements and unit agreements for the purpose of pooling and unitizing state lands (see rules and regulations).
 - 13. Any lessee may enter into agreements with another person for drilling and other operations for oil and gas on state lands under his lease or leases. However, no such operating agreements are in any way binding upon the state until filed with and approved by the department.
 - 14. Operations on state leases are subject to a list of orders and requirements (see rules and regulations).
 - 15. Stipulations for protection of the surface (wildlife and/or recreation stipulations are placed here in lease).

B. Federal Lands - Procedures for leasing oil and gas.

- 1. Two types of leases (\$10 application fee)
 - (a) Noncompetitive - 10 year term, up to 10,240 acres, file for lease. If a particular lease has expired or been relinquished, it is subsequently reissued in a lottery.
 - (b) Competitive - 5 year term, within known geologic structure (KGS), up to 640 acres, bidding involved.
- 2. Fees
 - (a) Noncompetitive: 50¢/acre per year, if in KGS \$2/acre
 - (b) Competitive: \$2/acre
 - (c) Any other way: \$1/acre

3. Royalties (May be changed)

(a) Noncompetitive leases

- (1) Oil: when the average production of oil for the calendar month is less than 110 barrels per well per day, the royalty shall be 12.5%; between 110 and 400 barrels per well per day average for a calendar month the royalty varies from 18-24% in proportion to barrels produced; over 400 it is 25%.
- (2) Gas: 5 million cubic ft or less average production of gas per well per day for the calendar month is 12.5%, over 5 million cubic ft is 16.66%.

(b) Competitive leases: royalty determined for each lease.

4. Additional Rules and Regulations

There are numerous rules and regulations pertaining to federal oil and gas leases which will not be discussed except for the surface management regulations which are of primary importance to the wildlife and recreational resources.

5. Surface Management Requirements

- (a) An environmental assessment (EA) is made. This assesses the impacts and recommends mitigating measures for possible oil and gas leasing within a general area.
- (b) All operations and related surface disturbance activities must be approved.
- (c) A preliminary environmental review (PER) must be made. This review is required for all future drilling operations prior to entry on the land.
- (d) A map must be filed.
- (e) An application for permit to drill (APD) must be filed.
- (f) Must notify the lessee of potential conflicts.
- (g) Stipulations are required on each lease to ensure adequate utilization of the lands for the primary purpose for which they were acquired or are being administered. The BLM in Montana has recently made up a new form covering oil and gas leasing stipulations (see pg E-20). As seen in this form, several general comments pertaining to wildlife are included. These are general stipulations that the lessee must be aware he may be required to comply with.
- (h) If a field inspection was not made prior to staking, an on-site inspection will normally be required. It is the present policy of the BLM in Montana to wait until the actual well site is plotted and then, during an on-site inspection, discuss possible wildlife and recreation conflicts and attempt to mitigate these conflicts; e.g., the wildlife biologist may request that a well site be moved to protect certain specific wildlife values.

- C. Private Lands - Oil and gas leasing procedures with private landowners who hold mineral rights are usually initiated when they are approached by someone who is interested in acquiring those rights. A lease is arranged between the lessor and lessee, and these leases can vary a great deal. Industry has numerous standard forms (called Producer's 88); however, private landowners frequently make up their own, retain a lawyer to draw up the papers, or may be members of a land and mineral owners' association and use the standard form which is provided by the association. The private landowner, with the advantage of being able to negotiate on an individual basis, has the potential to lease his mineral rights at the highest current rate. This includes fees, royalties and surface damage charges.

As in all cases, the lessee of private lands must comply with all state and federal laws that apply to all phases of the oil and gas business.

- D. Montana Department of Fish, Wildlife & Parks' Lands - The department's present oil and gas leasing policy for department controlled lands is as follows:

1. "The primary responsibility of the Fish and Game Commission is the protection and preservation of fish and wildlife habitat along with providing both recreational lands and recreational opportunities.
2. "Applications for leases for the purposes of exploratory well drilling or development shall be accompanied by a complete environmental impact statement prepared by the Department of Fish, Wildlife & Parks, consistent with the rules and regulations promulgated under the Montana Environmental Policy Act.

"The impact statement shall include all necessary stipulations to ensure that oil and gas drilling and extraction shall not adversely affect the purposes for which the Fish, Wildlife & Parks properties were acquired, and shall be agreed to by the applicant.

"Cost of preparation of this environmental impact statement shall be borne by the applicant.

"Upon review of the application, environmental impact statement and special stipulations, the department may or may not grant the lease, subject to commission approval.

"In the event that a lease application for drilling an exploratory well or conducting oil and gas development activities is filed with the commission or department, the holder of an unexpired seismic exploration permit shall have the first right to apply for such a lease - provided he meets all the special conditions and stipulations specified by the department or commission.

"On matters relating to oil and gas leasing other than those affecting the fish, wildlife and recreational resources, the commission adopts the rules and regulations promulgated by the Montana Department of State Lands as found in ARM, Title 26, Chapter 6, Subchapter 1."

Any changes in the oil and gas leasing policy must be made by the commission, as only the commission has the authority to establish rules of the department governing the use of lands owned or controlled by the department and waters under the jurisdiction of the department (Statute 87-1-30(1-3), Statutes of MDFWP 1981).

The commission has issued oil and gas leases on several parcels of department lands in past years. These leases have been no surface occupancy leases. One was for four fishing access sites in Madison County and totaled 256 acres. Another involved 16 acres in the Bean Lake area.

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land ManagementM 49033
(Serial Number)

OIL AND GAS LEASE STIPULATIONS

CULTURAL AND PALEONTOLOGICAL RESOURCES — The Federal surface management agency is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the authorized officer of the surface management agency, shall:

1. Engage the services of a qualified cultural resource specialist acceptable to the Federal surface management agency to conduct an intensive inventory for evidence of cultural resource values.
2. Submit a report acceptable to the authorized officer of the surface management agency and the District Engineer, Geological Survey, and
3. Implement mitigation measures required by the surface management agency to preserve or avoid destruction of cultural resource values. Mitigation may include relocation of proposed facilities, testing and salvage or other protective measures. All costs of the inventory and mitigation will be borne by the lessee or operator, and all data and materials salvaged will remain under the jurisdiction of the U.S. Government as appropriate.

The lessee or operator shall immediately bring to the attention of the District Engineer, Geological Survey, or the authorized officer of the Federal surface management agency any cultural or paleontological resources or any other objects of scientific interest discovered as a result of surface operations under this lease, and shall leave such discoveries intact until directed to proceed by the District Engineer, Geological Survey.

ENDANGERED OR THREATENED SPECIES — The Federal surface management agency is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species, listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the authorized officer of the surface management agency that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resources specialist approved by the surface management agency. An acceptable report must be provided to the surface management agency identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

ESTHETICS — To maintain esthetic values, all surface-disturbing activities, semipermanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives of the Federal surface management agency.

EROSION CONTROL — Surface disturbing activities may be prohibited during muddy and/or wet soil periods. This limitation does not apply to operation and maintenance of producing wells using authorized roads.

CONTROLLED OR LIMITED SURFACE USE STIPULATION — This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the District Engineer, Geological Survey, with concurrence of the Federal surface management agency. Distances and/or time periods may be made less restrictive depending on the actual onground conditions. The prospective lessee should contact the Federal surface management agency for more specific locations and information regarding the restrictive nature of this stipulation.

The lessee/operator is given notice that the lands within this lease may include special areas and that such areas may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled or, if absolutely necessary, excluded. Use or occupancy will be restricted only when the Geological Survey and/or the surface management agency demonstrates the restriction necessary for the protection of such special areas and existing or planned uses. Appropriate modifications to imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the Federal surface management agency has been advised of specific proposed surface use or occupancy on the leased lands, and on request of the lessee/operator, the Agency will furnish further data on any special areas which may include:

100 feet from the edge of the rights-of-way from highways, designated county roads and appropriate federally-owned or controlled roads and recreation trails.

500 feet, or when necessary, within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams; 1,000 feet, or when necessary, within the 100-year flood plain from larger perennial streams, rivers and domestic water supplies.

500 feet from grouse strutting grounds. Special care to avoid nesting areas associated with strutting grounds will be necessary during the period from March 1 to June 30. One-fourth mile from identified essential habitat of state and federal sensitive species. Crucial wildlife winter ranges during the period from December 1 to May 15, and in elk calving areas, during the period from May 1 to June 30.

300 feet from occupied buildings, developed recreational areas, undeveloped recreational areas receiving concentrated public use and sites eligible for or designated as National Register sites.

Seasonal road closures, roads for special uses, specified roads during heavy traffic periods and on areas having restrictive off road vehicle designations.

On slopes over 30 percent, or 20 percent on extremely erodible or slumping soils.

June 30 1981
Date

Pauline Anderson
Lessee's Signature

M50 3100-47c (April 1981)

IV. A COMPARISON OF LEASING POLICIES IN OTHER STATES (Nybo 1982)

The circumstances facing the Montana Department of Fish, Wildlife & Parks are not entirely unique. Other states also face the sometimes difficult task of managing wildlife habitat, parks, fishing and hunting access sites, and so forth in a manner which satisfies the primary objectives for which the land was acquired, while making appropriate allowance for other useful purposes to which these lands might be beneficially used.

An important foundation in the development of an oil and gas leasing policy is an examination of the policies used by counterpart agencies in other states. This chapter presents a summary of a survey made of the leasing policies of other western states. The approach used was to develop a standard format for reporting the pertinent information. That form was then sent for completion. In addition to the information which follows, the state fish and wildlife agencies were requested to submit other pertinent information, such as standard lease agreements, studies, and so forth. This material is now on file with the department.

Figure 1 is a summary of the findings of the survey. The royalty rate is typically 12.5%, with several at 16.67%, one at 18.75% and the highest at 40%. Annual rental is typically \$1.00 per acre. One state doubles the rental rate in years 2 and 3 if the tract has not been drilled the preceding year. This is similar to delay rentals frequently seen in the industry. States surveyed were evenly split between lease durations of 5 and 10 years, with two states having 3 year terms. Most state fish and game agencies treat all categories of land they manage the same, regardless of its path of acquisition. Revenue disposition is typically credited to the appropriate federal aid fund or state program fund. Most states have less than 1,000 acres under lease at this time.

The exception to most other states surveyed on several points was Louisiana. The Louisiana Department of Wildlife and Fisheries has several hundred thousand acres under lease, and takes in over \$3 million in royalties in a typical month.

In addition to the states included in Figure 1, North Dakota reported owning essentially no minerals. They have not faced any development, have not formulated leasing policies, and hence were not included in Figure 1.

A number of responding states included sample lease forms and protective stipulations with their replies. The full reply is contained in the file mentioned above.

FIGURE 1: LEASING POLICY COMPARISON

	Colorado	Idaho	Louisiana	New Mexico	Oregon	Pennsylvania	Washington	Wyoming
Royalty Rate								
Oil %	16.67	12.5	16.67-40	18.75	12.5	12.5	12.5	16.67
Gas %	16.67	12.5	16.67-40	18.75	12.5	12.5	12.5	16.67
Annual Rental (\$/Acre)	1,2,4 (Note 1)	1	50-3,000	1	1	35,1 (Note 2)	1.25	1
Lease Duration (Years)	3	10	3	5	10	10	5	5
Limitations on Surface Activity	Yes	Yes	Yes	N.A.	Yes	Yes	Yes	Yes
Different Provisions for Different Classes of Land?	No	Yes	Yes	No	No	No	No	No
Lease Acquisition Method	Oral Auction	Oral Auction	Sealed Bid	Sealed Bid	Oral Auction	Negotiation	Oral Auction	Simultaneous Filing
Disposition of Revenues	(Note 3)	(Note 4)	(See App B)	(Note 5)	N.A.	(Note 6)	(Note 7)	(Note 8)
Acres Currently Under Lease	867	11,080	200,000 +	823	N.A.	468	None	5,000

Note 1. Rent doubles each year if not drilled in preceding year.

Note 2. First year's rent is \$35; rent is \$1 in each succeeding year.

Note 3. Credit to Federal Aid Project or to game cash fund, as appropriate.

Note 4. 75% to PR/DJ; 25% to Game and Fish fund.

Note 5. Game protection fund.

Note 6. To appropriate Federal Aid income fund or Fish or Boat fund.

Note 7. PR/DJ: to program; LWC: recreation enhancement; Game fund lands: agency has full authority for use.

Note 8. Filing fee: land board; rental and royalty: GF Dept.; on FA projects, 75% to FA fund, 25% to GF Gen Fund.

