BY THE COMPTROLLER GENERAL

Report To The Committee On Interior And Insular Affairs House Of Representatives OF THE UNITED STATES

The Impact Of Geothermal Development On Stockraising Homestead Landowners

Surface use and compensation conflicts have developed at the Geysers in California between owners of surface lands acquired under the Stockraising Homestead Act of 1916 and geothermal lessees with the right to develop the mineral interests reserved to the Federal Government.

Such land comprises only a small portion of the total acreage at the Geysers and is not likely to significantly affect overall geothermal development in that area. Resolution of conflicts could set a precedent and affect future geothermal development as well as other mineral development elsewhere.

Several recommendations are made to the Secretary of the Interior concerning the problems identified.

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

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The Honorable Morris K. Udall, Chairman
Committee on Interior and Insular Affairs

The Honorable James D. Santini, Chairman
Subcommittee on Mines and Mining
Committee on Interior and Insular Affairs

The Honorable Don H. Clausen
The Honorable Don Young
House of Representatives

As requested in your letter of December 11, 1979, and in subsequent discussions with your office, this report addresses the conflict between surface owners of land acquired under the Stockraising Homestead Act of 1916 and Federal geothermal lessees concerning compensation for damages. It provides information on and analysis of the impact of geothermal lease operations. The report also contains several recommendations to the Secretary of the Interior concerning problems identified.

In response to your request, this report primarily discusses the

--conditions at the Geysers in California concerning geothermal development on stockraising lands that could be considered in regard to compensation,

--existence or potential for similar conflicts on this land outside the Geysers,

--protection and compensation provided surface owners in existing legislation and the need for amendments, and

--alternative methods for paying compensation.

Copies of this report are being sent to the Director, Office of Management and Budget, and the Secretary of the Interior. Also, copies will be sent to other interested parties upon request.

Milton J. Socolar

Acting Comptroller General
of the United States

COMPTROLLER GENERAL'S REPORT
TO THE COMMITTEE ON INTERIOR
AND INSULAR AFFAIRS
HOUSE OF REPRESENTATIVES

THE IMPACT OF GEOTHERMAL DEVELOPMENT ON STOCKRAISING HOMESTEAD LANDOWNERS

D I G E S T

A controversy exists at the Geysers Known Geothermal Resource Area (Geysers) in California--and possibly elsewhere--over compensation for geothermal development activities on lands acquired by private individuals under the Stockraising Homestead Act of 1916, but where the mineral interests are owned by the Federal Government. Under the Stockraising Act, over 30 million acres of such land--mostly in the West--thought to have limited use otherwise have been conveyed to individuals for stockraising purposes.

In 1970 when the Geothermal Steam Act was enacted, permitting the Government to issue leases for the exploration and development of geothermal resources, it was not known whether geothermal steam should be classified as water or a mineral. In 1977, however, the United States Supreme Court denied review which let stand the lower court ruling that geothermal resources were indeed a mineral and thus were subject to leasing on stockraising lands. Such leasing has begun and, as a result, some surface estate landowners--particularly those in the Geysers area of California--lost rents and royalties anticipated for resources they thought were theirs, or otherwise felt threatened by development taking place around them.

OVERALL OBSERVATIONS

Stockraising homestead land at the Geysers is more than 1.5 times the stockraising land acreage in "known geothermal resource areas" in Wyoming, New Mexico, Montana, and Colorado combined. Yet even this represents only about 8 percent of the total acreage at the Geysers. Therefore, while the greatest potential for conflicts would seem to be at the Geysers, such conflicts should have no dramatic impact

on overall geothermal development in that area. Depending on the outcome at the Geysers, conflicts over geothermal as well as other minerals on stockraising lands could become a problem elsewhere.

The Federal Government does not have the responsibility--either legally or otherwise--to negotiate what, if any, compensation is appropriate for owners of stockraising lands simply because geothermal development takes place on their lands. But the Government--through the Department of the Interior--should establish procedures to ensure that landowners are properly notified about geothermal leasing plans and related activities on their lands before they actually take place. Also, Interior should take what steps it can to encourage lessees and landowners to enter into an agreement to protect the landowners against damages or losses to crops and tangible improvements.

IMPACT OF GEOTHERMAL DEVELOPMENT AT THE GEYSERS

Whether or not Federal leasing takes place on their lands, owners of stockraising lands at the Geysers could be adversely affected by geothermal development activity taking place on the surrounding private, State, and Federal lands. Obviously the impacts could be greater if their land is leased. So far, only about 10 percent of the more than 30,000 stockraising acres in the Geysers area have been leased, but more is expected. (See p. 4.)

Most of the individual ownership parcels, which average about 266 acres, are considered recreational in nature--mainly used for hunting--with some for grazing and for residences. (Some are in no apparent use.) Yet even these uses may be eliminated, reduced, or impaired by geothermal activity, with a resulting loss in land value. For example, exploration activity may require

up to 26 acres of land on each parcel and, if a powerplant is later sited, up to 51 acres on each parcel may be required. Additional impacts include undesirable noise and smell and loss of privacy. (See p. 6.)

While protection bonds--including one for a minimum amount of $5,000--have been obtained, compensation agreements have been worked out between surface owners and lessees for only five of the nine leases issued so far. However, these were negotiated prior to the court decision that geothermal resources belong to the United States, although they apparently remained in effect when the developer became the Federal lessee. GAO did not find any agreements worked out since that decision and--under present groundrules--believes that being able to begin lease operations by merely filing a protection bond is a disincentive for the lessee to negotiate such an agreement. (See p. 12.)

As might be expected, the landowners are concerned that their interests are adequately protected--and perhaps are even profitable--as a result of geothermal development on or around their lands. Because many of them lost anticipated compensation as a result of the 1977 Court of Appeals decision, it is doubtful they will be totally satisfied with any compensation that is not comparable to the annual rentals and royalties they were to receive before the decision. These rents and royalties now go to the Federal Government while the landowners, under existing legislation, are entitled to compensation only for damages to their crops and tangible improvements.

CONFLICTS NOT DISCLOSED OUTSIDE THE GEYSERS BUT THE POTENTIAL EXISTS

Conflicts similar to those occurring at the Geysers were not disclosed involving stockraising land in designated "known geothermal resource areas" in Wyoming, New Mexico, Colorado, Montana, or even California, outside the Geysers. This may be because very little geothermal leasing has so far taken place on these lands. Of the States reviewed--outside California--geothermal leases have been issued only in New Mexico. However, by virtue of stockraising land being located within known geothermal resource areas in all of these States except Wyoming, the potential for similar conflicts does exist. (See p. 20.)

Moreover, for these five States, there are over 10 times more acres of stockraising land within "known geological structures" (i.e., for oil and gas) as there are within known geothermal areas. Much of this land has been leased for oil and gas for years, but GAO did not find any evidence of compensation and/or bond protection conflicts concerning such leases. (See p. 21.)

If legislation were enacted providing landowners compensation beyond that provided by existing legislation, this may prompt other stockraising landowners with oil and gas leases to request similar compensation. Such an action also could set a precedent for other minerals.

EXISTING LEGISLATION PROVIDES STOCKRAISING LANDOWNERS SOME PROTECTION

The Stockraising Act states that landowners are to be compensated for damages to "crops and tangible improvements." The Act, however, does not define the scope of "damages" or "tangible improvements." Interior's Bureau of Land Management has revised its earlier interpretation that tangible improvements must be related exclusively to stockraising improvements. Its present interpretation is that other surface improvements are included but that this still does not pertain to all surface improvements. However, it is not clear if "tangible improvements" can be interpreted this broadly. (See p. 13.)

The Stockraising Act does not provide compensation for a decrease in the value of land nor interference with the landowners use and enjoyment of the land. The Bureau has interpreted "damages" to include only direct damages. Indirect damage may also be covered. (See p. 14.)

In addition, geothermal leases issued to date appear to grant lessees the right to use as much of the surface as may be necessary for the production, utilization, and processing of geothermal resources. This language is reflective of the Geothermal Steam Act but may not be in accordance with the Stockraising Homestead Act. The latter act permits the lessee to use the surface to the extent required for purposes incidental to mining and removing the mineral but does not address utilization. (See p. 26.)

In July 1980, the Bureau stated that the surface owners' consent is required to use geothermal resources on stockraising land. However, because lessees and the utility at the Geysers believe they have the right to site powerplants and the issued leases do not clearly deny them such right, this issue may have to be resolved in the courts.

ALTERNATIVE COMPENSATION METHODS

The Federal Government could take various alternative approaches to ensure that surface estate owners are sufficiently compensated for the impacts of geothermal development on stockraising lands. These are presented in chapter 5. Although some of these might require legislation, GAO does not advocate the enactment of new legislation and, in fact, believes the Government ought not to be involved in negotiating what, if any, compensation is appropriate for the landowners. (See p. 28.)

RECOMMENDATIONS TO THE SECRETARY OF THE INTERIOR

The Secretary of the Interior should:

--Require that BLM develop specific procedures for notifying surface owners of lease sales and the issuance of leases involving their land for geothermal as well as other mineral development.

--Take what steps he can to encourage lessees/developers and surface owners to enter into agreements concerning payment for damages to crops and other tangible improvements.

--Consider BLM's interpretation of the term "tangible improvement" as set out in BLM's memorandum of December 21, 1979.

--Consider the extent to which compensation for indirect damages to tangible improvements should be allowed and whether the Stockraising Homestead Act should provide compensation for a decrease in the value of the land and interference with its use and enjoyment.

AGENCY COMMENTS

GAO obtained comments from the Department of the Interior. (See app. IV.) The Department, for the most part, agrees with our recommendations but did raise certain other issues. Their comments and GAO's evaluation are presented in chapter 6.

Contents

ABBREVIATIONS

BLM	Bureau of Land Management
GAO	General Accounting Office
KGRA	Known Geothermal Resource Area
KGS	Known Geological Structure
SLC	State Lands Commission
USGS	United States Geological Survey

CHAPTER 1

INTRODUCTION

This report discusses the adequacy of compensation to surface owners of land acquired under the Stockraising Homestead Act of 1916 for the negative impacts that may result from Federal geothermal lease operations. The report centers on the conflict that developed at the Geysers Known Geothermal Resource Area (Geysers) in California, but also examines the situation for several other States--Wyoming, New Mexico, Montana, and Colorado--where the potential for similar conflicts may exist.

The Stockraising Homestead Act proposed to restore the grazing and meat-producing capacity of semi-arid lands of the West while at the same time preserving to the United States Government the underlying mineral deposits. To this end, the act provided homesteaders with a portion of the public domain sufficient to enable them to support their families by raising livestock and reserved unrelated subsurface minerals to the Federal Government for separate disposition.

Because the Bureau of Land Management (BLM) does not compile data on the number of patents issued under this act, and the information is not easily developed, the actual number of homesteads existing today and acreage involved is unknown. BLM's latest "Public Land Statistics" indicates that the number of original stockraising homestead actions taken under the act totals 165,712 and accounts for 70,362,925 acres. But, these figures do not necessarily represent the number of patents issued and, based on some preliminary work in Colorado, we also found that the actual homestead acreage for this State to be about one-half the amount shown in the BLM publication. Also, the same BLM publication indicates that the total acreage involving land with minerals reserved to the United States is 63,437,586. According to BLM officials, most of this is stockraising land. Consistent with this, a September 1970 report by the House Committee on Interior and Insular Affairs stated that the bulk of more than 35 million acres of surface land that passed from Federal ownership but reserved the minerals to the United States was patented under the Stockraising Homestead Act.

Beginning in the mid-1960s, surface owners at the Geysers had lease agreements with geothermal developers which provided them an annual rent ranging from $1 to a hundred dollars per acre for their land and royalties of 10 to 12.5 percent on production. In 1970, with enactment of the Geothermal Steam Act, the issue was raised as to whether geothermal resources should be considered a mineral within the provisions of the stockraising act. Legal action resulted in a court decision in October 1973 that geothermal resources did not apply under the mineral reservation. The United States appealed and obtained a reversal in

January 1977. This reversal was appealed to the Supreme Court which, in November 1977, denied review--which let stand the lower court decision that the geothermal resources are reserved within the mineral reservation and thus belong to the United States Government.

Because of the court decision, some surface owners lost the anticipated rent and royalty compensation from geothermal resources underlying their land. Many of these landowners believe these resources belong to them and were taken away unjustly. The present conflict developed in late 1978/early 1979 when the Federal Government issued the first geothermal leases involving stockraising land at the Geysers. At this time, owners became aware of the large cash bids, along with the rents and royalties, developers were paying the Federal Government to develop the geothermal resources. Owners realized what they had lost and began their efforts to obtain compensation beyond mere payment for damages to crops and tangible improvements, as provided for by the Stockraising Homestead Act.

The Federal mineral leasing program is conducted by the Department of the Interior, through BLM and the U.S. Geological Survey (USGS). BLM is responsible for selecting lands for lease and holding lease sales. USGS classifies the lands according to its appraisal of their mineral value before lease issuance and supervises development of the resources. These offices do not get involved in the negotiation of any compensation agreements that may be made between the surface owner and Federal lessee.

OBJECTIVES, SCOPE, AND METHODOLOGY

On December 11, 1979, the Chairmen of the House Interior and Insular Affairs Committee and the Mines and Mining Subcommittee, along with the ranking minority members, asked that we study the possibility of a conflict between Federal geothermal lessees and owners of surface land conveyed under the Stockraising Homestead Act of 1916 concerning the adequacy of compensation to owners. (See app. I.)

In response to the request, this report addresses the

--conditions at the Geysers concerning geothermal development on stockraising land that could be considered in regard to compensation (see ch. 2);

--existence or potential for similar conflicts on lands beyond the Geysers (see ch. 3);

--protection and compensation provided surface owners, including bonding, in existing legislation and the need for amendments (see ch. 2, 4);

--alternative methods for paying compensation (see ch. 5).

To obtain factual data on the situation at the Geysers and comments on alternative methods for paying compensation, we interviewed BLM headquarters officials in Washington, D.C. and field officials at Sacramento and the Ukiah District Office in California and Reno, Nevada, along with USGS officials in Menlo Park, California. We also interviewed landowners, geothermal developer representatives, State and County officials, and public utility officials involved in geothermal development at the Geysers. We reviewed and analyzed regulations on geothermal leasing and correspondence relating to the conflict at the Geysers. Landowners at the Geysers not contacted personally were sent a questionnaire. The questionnaire was sent to 156 owners--86 stockraising landowners responded--who were identified by a California stockraising landowners group. The purpose was to get a "picture" of the land by obtaining information concerning land use, revenues produced, the effects of geothermal development, and owner's comments regarding compensation. We visited the Geysers Known Geothermal Resource Area and stockraising land leased for geothermal development to get a first-hand view of existing conditions.

To determine if a similar situation exists and/or if the potential exists for such a situation outside the Geysers, we selected the top five States in terms of owners and acreage out of the 19 individual States identified by BLM. These five States--Wyoming, New Mexico, Montana, Colorado, and California--contain over 75 percent of the original stockraising homesteads. This approach was taken because the gain in coverage by reviewing all 19 States would not be justified by the cost incurred. We interviewed BLM officials in these States and a few owners in Colorado and New Mexico who have active oil and gas or geothermal lease operations on their land. Because information has not been compiled by BLM and a significant effort would have been required to produce limited beneficial data showing the extent to which stockraising land overlays all potential mineral resources, our approach was to focus on land which overlays the areas designated by USGS as "known geothermal resource areas" (KGRAs), i.e., those lands considered to have the greatest potential for development. We also identified the acreage where these lands overlay USGS-designated "known geological structures" (KGSs) for oil and gas resources to determine if mineral leasing, besides geothermal, is taking place and where conflicts could exist or occur. We excluded "known recoverable coal resource areas" from our overlay effort because recent legislation--the Surface Mining Control and Reclamation Act of 1977--requires surface owner consent before surface coal lease operations can take place on similar lands.

We reviewed and analyzed the legislative history of the Stockraising Homestead Act of 1916 and the Geothermal Steam Act of 1970 to identify the protection and compensation provided owners. We also did a comparative analysis of the protection and compensation provisions in existing legislation between geothermal and other mineral leasing, which included oil and gas and coal leasing. In addition, we reviewed and analyzed other existing legislation which reserved minerals to the United States.

CHAPTER 2

GEOTHERMAL DEVELOPMENT ON STOCKRAISING LAND AT THE GEYSERS

Owners of stockraising land located in the Geysers area will most likely be affected by geothermal resource development, even if their land is not being developed. Owners of developed land will be impacted to a greater degree and this will vary from owner to owner depending on land use and the extent to which geothermal resources are developed. If geothermal resources are developed, an owner could be denied the surface use of considerable acreage, depending on the number of acres owned. These factors could be considered in any effort to expand compensation.

This chapter addresses the potential impacts of geothermal leasing on surface land use, the amount of land required for lease operations, the adequacy of the bond to protect the owner against damages to surface land uses, and the sufficiency of notification to owners when their land is to be leased for geothermal development.

BACKGROUND ON GEOTHERMAL DEVELOPMENT AT THE GEYSERS

Geothermal resources in commercial quantities were discovered at the Geysers in 1955. Currently there are 14 electrical powerplants in operation at the Geysers. These plants have a total generating capacity of 798 megawatts, which make the Geysers the world's largest geothermal development area. The first major powerplant to be on Federal land is under construction. There are no powerplants on stockraising land.

The land that comprises the Geysers includes Federal, Mineral Reserve (i.e., mineral rights reserved to the United States but surface owned by private parties), State, and private land. According to BLM officials, nearly all the mineral reserve land is stockraising homestead land. These stockraising lands are interspersed throughout the USGS-designated Geysers KGRA. Of the total 380,000 acres in the Geysers, however, less than 10 percent is stockraising land, as shown below:

Geysers Land Acreage

Type of Land	Acres	Percent
Federal	54,640	14
Stockraising	31,770	8
Mineral Reserve-Other than Stockraising	2,455	1
State	25,000	7
Private	265,942	70
Total	379,807	100

Status of leases involving stockraising land

Although leases were issued on Federal and State lands beginning in 1974 and 1976, respectively, the first Federal geothermal leases involving stockraising land at the Geysers were offered in November 1978, allowing development of key tracts in the center of the field. These leases--nine in number--were effective in February 1979 and included 3,191 acres of land. The cash bonus bids received totaled $16,014,462. In addition to the bonus bids, the Federal Government is to receive an annual rental of $2 per acre with an escalating rental beginning the sixth year of an additional dollar per acre or fraction thereof; a royalty of 12.5 percent on the amount or value of any geothermal resource produced, 5 percent of the value of any production by-product, and 5 percent of the value of commercially demineralized water. Federal regulations require royalties of not less than 10 percent and not more than 15 percent of the amount or value of steam or any other form of energy derived from production under the lease.

Additional information on the nine leases is shown below:

Leases Issued on Stockraising Land at the Geysers

Lease Number	Acreage (note a)	Status of Development (note b)	High Bid
5632	471	Preliminary exploration	$ 2.76 million
5633	276	No activity at this time	1.11 million
5634	353	Developmental drilling	1.31 million
5635	280	No activity at this time	1.36 million
5636	80	Exploration drilling	0.60 million
5637	469	Exploration drilling	3.55 million
5638	40	No activity at this time	0.14 million
5639	1,161	Exploration drilling	4.95 million
5640	61	No activity at this time	0.23 million
Total	3,191		$16.01 million

a/Rounded to nearest whole acre.

b/See appendix III for an explanation of the phases of development.

The nine leases were awarded to three different lessees or geothermal developers and involve eight surface owners. These owners are either individuals, a corporation, or a partnership.

The next lease offer on stockraising land, involving 4,828 acres, was scheduled for 1980 but has been deferred until 1981. With this second lease offer, 8,019 acres, or 25 percent of the total 31,770 acres of stockraising land at the Geysers, may be under geothermal lease--and more leasing is anticipated in future years. In addition, much of the Federal and private and some of the State land has already been leased for geothermal development.

POTENTIAL IMPACT OF GEOTHERMAL LEASE OPERATIONS ON LANDOWNERS

Since the stockraising owners use the surface land for a variety of purposes, the impact of geothermal lease operations

on each of them will differ. The land already leased, soon to be leased, and that may be leased in the future is currently being used primarily for recreational purposes--mainly hunting--with some used for livestock grazing, and a much smaller portion used for residences. However, a significant number of acres have no apparent use.

Before any lease offers are announced, BLM is responsible for preparing an Environmental Assessment Report on the land to be leased. The report prepared for the first nine leases indicated that the land involved had already been adversely impacted by geothermal operations on adjacent land, and that Federal geothermal lease operations would further reduce the value of the land.

According to this report, the most valuable current land use is probably the residential-recreational use by one owner whose 471-acre parcel has been leased. The residence lies about 200 yards from property which already has been privately leased for geothermal development and within 500 yards of federally-leased land. The report says the residential value has already been affected by this development and that leasing this stock-raising land for geothermal development would further diminish its value. On the remaining leased stockraising acreage, the report stated that hunting and livestock grazing are minor land uses but that Federal geothermal leasing would eliminate or reduce such use, with a resulting further loss in the value of this land.

The kinds of geothermal lease activities that will impact on land uses include road construction, movement of drilling equipment, clearing and preparation of drill sites, noise and smell (hydrogen sulfide) of drilling, and disposal ponds. If geothermal resources are located and developed, an electrical powerplant may be constructed with water cooling towers, above-ground piping, and transmission lines and towers. Another impact may include steam plumes produced by wells and generating plants. For developed fields at the Geysers, geothermal resources are generally assumed to last at least 30 years.

Although the siting of a powerplant would create one of the most visible impacts and require considerable surface land, each surface owner would not necessarily have a plant constructed on his property. The September 1978 Environmental Assessment Report indicates that the 3,191 acres leased could potentially support as many as three 110 megawatt powerplants. This means that of the eight owners involved in the first leases issued, at least five would probably not have a plant on their property, but they still might may be subjected to the visible effects of it.

For the upcoming geothermal lease offer similar impacts would result. The acreage to be leased is very similar in land use to the first acreage leased. According to a March 1980 Environmental Assessment Report, "geothermal development always has major negative impacts on natural landscapes." The assessment further

states that increased roads, industrial structures, additional noise and traffic, and less wildlife would all adversely affect recreational qualities. The assessment goes on to say that 10 homes are occupied year long within 1 mile of the area to be leased and that an additional 24 second homes and hunting cabins are either within the study area or within one mile. It is likely that geothermal development will affect residential property values in and around the area to be leased. Once again, it should be kept in mind that development of the surrounding lands will take place regardless of whether the stockraising land is leased, and will affect residential property values.

PROFILE OF STOCKRAISING LAND AT THE GEYSERS

Although the environmental assessments cited above were applicable to the stockraising land that has been leased or is to be leased, the remaining stockraising land at the Geysers (over 23,000 acres) that may be leased in the future is very similar. To obtain a profile of this land, a questionnaire was sent to landowners requesting information on current land use, their awareness of the mineral reservation to the United States, when and how land was obtained, the purchase price, income obtained from land use, and the extent of owner reliance on the income produced.

The questionnaire was sent to 156 owners identified by a stockraising homestead landowners group--from which 105 responses were received. Of the 105 responses, 19 individuals stated that they owned no stockraising land and thus did not respond to the remaining questions. Of the 31,770 acres of stockraising land at the Geysers, the 86 owners who completed our questionnaire own 22,895 acres, or over two-thirds of this land. A compilation of the information received is presented below.

--Acreage owned ranged from 1 to 1,143 acres. About 46 percent owned over 100 acres.

--Fifty-six, or over one-half of the owners, indicated they were <u>not</u> aware of the mineral reservation until after the land was acquired.

--Sixty-six owners purchased the land between 1922 and 1980 at a cost of $1 to $7,000 an acre. Twenty indicated their land was inherited.

--Land use was as follows:

	Acres	Percent
Grazing	4,662	20.4
Crops	439	1.9
Residence (note a)	80	.4
Other residences (note b)	166	.7
Recreation	13,008	56.8
Other	1,293	5.6
Subtotal	19,648	85.8
No apparent use	3,247	14.2
Total	22,895	100.0

a/Eleven landowners reside on their stockraising homestead land.

b/Mountain cabins.

--Sixty-eight owners indicated they do not rely on the surface land use for their living. Seventeen of these stated a gross income between $1,000 and $29,000 was received in 1979.

--Sixty-one owners, or 58 percent, stated that they had agreements with geothermal developers that provided rents and royalties before the court decision that geothermal resources belong to the United States.

--Thirty-two owners indicated they own land in addition to their stockraising land for which they receive rents and royalties.

In addition, the owners' views were obtained on the impact of geothermal lease operations on resale value and income. Although most owners did not indicate any response concerning the impact on income, 55 owners, or over one-half of those responding, indicated that a substantial negative impact on resale value would result.

EXTENT OF SURFACE LAND USED BY GEOTHERMAL LEASE OPERATIONS

The extent of surface land required for lease operations varies with the geothermal development phases. Since geothermal activity is just beginning on stockraising land at the Geysers, actual data on the amount of land surface required is not available. However, based on the approximate amount of surface disturbance expected during one of the early development phases, along with the actual surface disturbance applicable to an existing geothermal electrical powerplant, it appears that up to 26 and 51 acres of land may be affected in the exploration and field development/production phases, respectively.

Depending on the phase of geothermal development, surface land use or disruption by lessees may involve road construction, drill site preparation, well drilling, waste disposal, powerplant construction, pipelines, and transmission lines. During each phase of geothermal development--preliminary exploration, exploration drilling, field development, production of steam and electricity, and close-out of operations--the amount of land required by the lessee varies. Appendix III provides more details on the activities involved in each of these phases.

Estimated surface use during exploration

Estimates of surface disruption vary from a low of one percent in the preliminary exploration phase to a high of 15 percent over the entire course of the lease. An official of one of the major geothermal developers at the Geysers said that the environmental impact statements (EIS) on the first nine leases estimated that the needed surface occupancy would range from 8 to 15 percent of the total area. The developer used the higher figure in his proposed plan of operations.

An environmental assessment by BLM of the upcoming lease offer involving the Geyser Peak Mineral Reserve, indicates that about one percent of the surface of a 2,560-acre lease area is expected to be disturbed (i.e., used) during the exploration drilling phase of geothermal development, as shown below:

Surface Disturbances--Exploration Drilling 1/

Unit	Number of Acres Disturbed Per Unit	Number of Units	Acres Disturbed	Percentages of Surface Use (note a)
Well sites	3.0	6	18	.7
Access road	1.5	5	8 (note b)	.3
Total	4.5		26	1.0

a/2,560 acre lease.

b/Rounded to nearest whole figures.

If the same number of well sites and access roads are undertaken on one of the smaller stockraising land parcels leased in 1979, the percentage of surface disturbance would be greater, e.g., for a 470-acre parcel, the percentage of surface disturbance would be about 5 percent. Because the size of stockraising land parcels varies considerably, the percentage of land disturbance during exploration drilling could also vary considerably.

Actual surface use during production

Although geothermal activity on stockraising land is in the early exploration phases, geothermal operation, on other land at the Geysers is in the latter phases. An existing geothermal operation, which includes a 110-megawatt powerplant, uses less than seven percent of a 739-acre lease area. If the data for this operation, as provided in the following table, were applied to the above cited 470-acre lease, the percentage of land required during production would increase, to about 11 percent. As stated above, the percent of surface disturbance could vary if the plant and related facilities are sited on a smaller land parcel. However, there is also the possibility the plant may not be sited on stockraising land but on adjoining private land.

1/Adapted from the "Final Environmental Analysis Record for Proposed Geothermal Leasing in the Randsburg--Spangler Hills--South Searles Lake Areas, California," Prepared by Bureau of Land Management, Riverside District Office, July 1976.

Surface Disturbance for an Electric Powerplant Site (note a)

Land Use	Acres	Percentage of Leasehold (note b)
Well pads	18.8	2.5
Power plant	6.0	0.8
Roads	11.6	1.6
Pipelines	2.5	0.3
Transmission lines	3.9	0.5
Replacement wells	7.9	1.1
Total	50.7	6.8

a/The amount of surface disturbance will be approximately the same regardless of the total lease area. This information supplied by a California utility, applies to a dry-steam resource only.

b/739 acre leasehold.

Based on the above data, it is evident that surface owners could be denied access to a substantial portion of their land surface. Since the extent to which geothermal resources will be developed on the stockraising leased land is unknown at this time, it is uncertain whether owners will be subjected to only the smaller denied surface access associated with the early geothermal development phases or the larger acreage required for developed fields.

ADEQUACY OF MINIMUM SINGLE PROTECTION BOND IS UNCERTAIN

In order to enter stockraising land and begin any mineral development activity, including geothermal, lessees must, under the Stockraising Act, obtain the consent of the landowner, negotiate a compensation agreement with the landowner, or file a protection bond. The landowner can only obtain damages to crops and tangible improvements that result from mineral development. Surface owners are questioning (1) the adequacy of the minimum single-protection bond requirement of $5,000 to cover their

interests and (2) the sufficiency of lessee efforts to first try to negotiate a compensation agreement.

Because of the limited geothermal development, the kind of land uses, and the uncertainty as to what specific damages are covered, it is difficult to determine whether coverage under the minimum single-protection bond is adequate. While it may be adequate to cover only damages to tangible improvements related to stockraising activities on this land, it may not be adequate to cover damages to all other tangible improvements.

While protection bonds--including one for a minimum amount of $5,000--have been obtained, we noted that compensation agreements have been worked out for only five of the nine leases issued. In at least one of the cases where an agreement could not be reached, we found that the developer made several attempts to negotiate what appeared to be a reasonable settlement.

While some compensation agreements were worked out for the land leased, we found these occurred before the court decision that ownership of geothermal resources belong to the Federal Government and none have been worked out since that decision. Under present groundrules, we believe that being able to begin lease operations by filing a protection bond is a disincentive for a lessee to persevere in negotiating an agreement.

Disagreement on the adequacy of bonding to compensate for damages

Lessees are required by regulation to obtain one of three different types of protection bond. These include a single protection bond of not less than $5,000, a statewide bond of not less than $50,000, or a nationwide bond of not less than $150,000.

BLM officials and surface owners disagree on the adequacy of bond protection--particularly of the single-protection bond minimum amount of $5,000 to cover potential damages resulting from geothermal lease operations. Differences of opinion between surface owners and BLM officials over what specific damages are to be included under the protection bond are at the center of this dispute. BLM is of the opinion that the bond is to cover direct damages to the owner's tangible improvements and that the bond is sufficient to cover those improvements made on the leased land. Owners believe the bond should include more than just improvements and, on this basis, that the bond coverage is insufficient to compensate them for the losses they may sustain.

Scope of tangible improvements

In a December 21, 1979, memorandum, BLM has interpreted "tangible improvements" for the purposes of bond protection as not being limited "to only those improvements related to

stockraising activities." 1/ This interpretation countermanded a regional office interpretation that only stockraising and related agricultural improvements should be covered.

Although the present interpretation may be reasonable on policy grounds it is not clear that the Stockraising Homestead Act covers non-stockraising related improvements. We understand that there is no Department of the Interior Solicitor's opinion dealing with this issue which supports the memorandum. The Act does not defiine what tangible improvements are covered by the bond. Also, the legislative history does not indicate what Congress intended. However, at the time of passage, the act was intended to encourage homesteading of rangeland in order to stimulate stockraising in the West. The mineral interests were reserved to the United States. It was thought that stockraising and mineral development were compatible uses of the same land.

The Supreme Court's interpretation of "improvement" in an earlier homestead act and Congressional action in 1949 to cover damage to use of the land, but only for grazing purposes, suggest that BLM's interpretation may be too broad. In 1928, the Supreme Court interpreted "improvement" as used in an earlier agricultural homestead act 2/ to cover only agricultural improvements 3/. The Court reasoned that the title of the act coupled with the reference in the act to "Crops" showed that "agricultural" improvements were the kind intended. Furthermore, in 1949 Congress provided that persons using strip or open pit mining methods on stockraising homestead lands would be liable for damage caused to the value of the land, but only for grazing.

Scope of damages

Surface owners believe that a bond and/or some form of compensation should be required in an amount to cover not only damages to improvements but also other impacts that result from geothermal lease operations. These include loss of privacy, changes to the surface land, noise and smell from geothermal activities, loss of spring water, and denied access to the use of their land--all of which may affect the value or enjoyment of their land. Moreover, surface owners contacted stated that a single-protection bond of $5,000 is inadequate to provide coverage for these types of damages that may result from geothermal lease operations. Sixty owners, or nearly 70 percent of those who responded to our questionnaire, stated that such a bond would definitely not be adequate. These

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1/This memo also indicates that the scope of coverage should not necessarily encompass the value of all surface improvements.

2/Agricultural Entry Act (P.L. 63-128).

3/Kinney-Coastal Oil Company v. Kieffer, 277 U.S. 488 (1928).

owners indicated that bond coverage ranging from $25,000 to $1,000,000 would be necessary to protect their interests.

What impacts surface owners believe should be compensable affect the value or the surface owner's enjoyment of the land. Changes in the surface of the land and loss of spring water are considered damage to the land itself. Loss of privacy, denied access to the use of the land, and noise and smell (unless this results in actual structural damages to an improvement) disturb the surface owner's use and enjoyment of the land.

The Stockraising Homestead Act does not provide compensation for loss in land value or in enjoyment of the land. 1/ In contrast, the Congress in a 1949 amendment to the Stockraising Homestead Act did provide damages, with respect to stockraising lands, for loss of land value for grazing purposes when strip or open pit mining methods are used.

BLM's 1979 memorandum states that the bond should cover direct damage. Generally, direct damage is that damage following immediately from an action, without any intervening factors on which the harm or loss depends. The Stockraising Homstead Act refers only to "damages," the term is not qualified. The legislative history does not disclose an intent to limit the term to direct damage.

Damage recovery is often broader than just direct damage. Generally, compensation may be had for actual damage. This may include not only damage following immediately from an action (direct damage), but also forseeable indirect damage. Indirect damage would be damage which occurs when the action and an intervening act operate together to cause a loss or harm. For example, assume that geothermal activity resulted in a subsidence of the land surface such that a tree, near a residence, was weakened. The damage resulting to the residence when the winds of a thunderstorm topple the tree into the residence would be indirect damage. Compensation may not always be had for indirect damage. This depends on whether the intervening act or its results were either foreseeable or were the normal consequence of the original action.

We believe Interior should consider the extent to which compensation should be allowed for indirect damage.

1/In a 1955 court case, Holbrook v. Continental Oil Company, 278 p. 2d 798, surface owners alleged that the oil and gas lessee had deprived them of full use and enjoyment of their land. The Wyoming Supreme Court said that surface owners could not sue for damage to the land. However, both the 1914 agricultural homestead act and the Stockraising Homestead Act were involved, and the court's statement made no distinction.

Owners right to appeal bond coverage

Surface owners may request an appraisal from the Department of the Interior's Board of Land Appeals, if the bond amount is believed to be inadequate. If the owner is dissatisfied with the appraisal, the issue can be taken to civil court.

We found one example where a surface owner appealed the bond amount. BLM made an appraisal based on the agricultural improvements that were made to the land and determined that the potential damages were less than the bond amount. As a result, the owner's request to increase the bond amount was declined.

Although this appraisal supported the adequacy of the bond coverage, the appraisal applied only to agricultural improvements and not to other tangible improvements that may have existed. BLM has since stated these are also to be included. Perhaps as geothermal development increases and instances of damages occur, other surface owners will avail themselves of this right to appeal.

Lessee efforts to negotiate compensation agreements

Surface owners have stated that lessees are offering inadequate compensation for damages. A proposal made to an owner of one of the nine stockraising land parcels, offered for lease in November 1978, exemplifies the kind of offer they feel is inadequate.

The surface owner asked for an overriding royalty of 2.5 percent. The lessee offered compensation of $30,000, or 40-45 percent of the value of the entire stockraising land owned. This was to cover damages that might result from three well pad sites and access roads. The owner declined this offer. At a later date, the lessee offered the owner two options including (1) to purchase the property for $150,000 (according to the lessee, an independent appraisal valued this property at $82,500), or (2) a 1-percent overriding royalty terminating when the total compensation reached $300,000. This offer also was declined. After an injunction was obtained, the lessee entered the land to conduct lease operations. The lessee filed a $150,000 nationwide bond, and a compensation agreement has not been negotiated.

This surface owner was not available for personal interview but did respond to our questionnaire. The owner's views on what is fair compensation and other information on the stockraising land use are provided below:

--549 acres were inherited in 1946 and the land is not in use, so no income was earned from the land in 1979;

--An agreement had been made with a geothermal developer before the court decision that the United States owned the geothermal resources, but this agreement is no longer in effect (owner did not disclose the terms of the agreement);

--A fair price would be 2.5- to 5-percent royalty plus an annual rental of $10 per acre for the entire 549 acres;

--Bond coverage of $5,000 is definitely not adequate and minimum coverage of $500,000 should be provided.

Another lessee offered only a small token payment as compensation for potential damages. The lessee stated that the owner's demands were unreasonable by requesting a 5- to 15-percent royalty. As a result, only a minimal offer was made because it was felt that an agreement could not be negotiated. The lessee filed a $50,000 statewide bond to begin lease operations.

USGS requires the lessee to put forth an effort to reach an agreement

According to a USGS official, lessees are not able to begin geothermal lease operations until an attempt has been made to reach an agreement with the surface owner. The USGS, Menlo Park, requires evidence from the owner and lessee--usually in the form of a memo from each party--stating that contact has been made, and indicating whether an agreement was reached. There is no legal or other written requirement to do this but it is a procedure adopted by USGS at Menlo Park, California.

For the parcels of stockraising land leased at the Geysers, agreements have been reached with the surface owners on five of the nine leases, as discussed in the next section. Lease agreements between lessees and owners are not obtained by BLM or USGS.

Some agreements have been negotiated

Agreements have been worked out for five of the nine leases issued at the Geysers. Although these leases were negotiated before the 1977 court decision that geothermal resources belong to the United States, they remain in effect because the developer--now the lessee--was the high bidder on the Federal lease offers, and the earlier agreements with the landowners contained provisions providing rentals and/or royalties regardless of the outcome of the geothermal ownership question.

Two of the five landowners that have agreements with the lessee were contacted. These landowners have carry-over agreements that provide them compensation for geothermal lease operations.

One of the landowners, who is part-owner in a 600-acre parcel stated that the agreement was made in 1965 and provided for a 2.5 percent overriding royalty regardless of geothermal ownership. The landowner further stated that she pays steam right taxes which amounted to $14,000 last year. If the landowner had retained the geothermal ownership rights, a 12.5 percent royalty was to have been provided by the developer. She expressed not being really satisfied with this agreement and would prefer a 5 percent royalty. But, she felt that the negotiations were handled very well by the lessee. She was aware of the recent BLM decision on requiring an owner's consent to site a powerplant (discussed on page 35) and believes it will be helpful in obtaining additional compensation should production and geothermal utilization take place on her land.

Another landowner, who stated she owns 16 acres of stockraising land, has an agreement that was made in 1975 providing for an annual rental of about $400 which she has been getting for the past several years. Since no geothermal activity is underway, she expressed satisfaction with the current compensation but would expect more--possibly a royalty--if and when development occurs. A specific percentage was not expressed. She felt that the lessee's dealings with her were handled well. She was not aware of the recent BLM decision that the landowner's consent is required to site a powerplant and did not indicate what compensation may be requested in the event such siting is proposed.

OWNERS NOT SUFFICIENTLY NOTIFIED OF GEOTHERMAL LEASING

For the nine leases issued on stockraising land at the Geysers, surface owners were not notified of the lease sale or that geothermal leases were issued involving their land. However, the BLM Ukiah district office and USGS Menlo Park office in California are aware of the need to notify surface owners and are making changes to correct this situation.

At the time of the geothermal lease offer in November 1978, written procedures or regulations did not exist requiring BLM to notify surface owners that their land was to be leased. Consequently, according to an official of the BLM California State Office, owners were not notified. Also, the official stated that these landowners are not notified of oil and gas leasing involving their land. The regulations do require that a notice of lease sale be published in a newspaper of general circulation in the affected area and our review indicated that this was done in the case of the nine leases issued.

We were told that the BLM Ukiah district office, within whose area of responsibility the Geysers is located, will make the notification of stockraising landowners part of its office policy. An official from this office said that in the future owners will be notified of pending lease offers by being sent

--copies of the environmental assessment reports--done before leases are issued--for their comments;

--personal letters of notification; and

--news publications announcing lease sales.

Federal officials working to inform owners of leasing procedures

At the time of our review, an Environmental Specialist at USGS Menlo Park, California, was developing procedures for this office to notify surface owners when the United States plans to lease their land. Working in conjunction with a stockraising landowners association at the Geysers, USGS has compiled a mailing list of affected surface owners and will keep them informed throughout each phase of future lease sales. In April 1980, the Environmental Specialist attended a meeting of the above landowners association where she presented an outline of the steps involved in the leasing process, a chart of applications and representative processing times for geothermal activities, a flow diagram showing required applications, and the regulatory process for development on Federal geothermal leases.

CHAPTER 3

COMPENSATION CONFLICTS WERE NOT DISCLOSED OUTSIDE THE GEYSERS, BUT THE POTENTIAL EXISTS

Because a substantial amount of stockraising homestead land is located within either KGRAs or KGSs outside the Geysers, the potential for conflicts similar to those at the Geysers exists for geothermal and possibly other mineral leasing such as oil and gas. Most of this stockraising land outside the Geysers is located in New Mexico, which has about one-half as much such acreage as the Geysers. As for stockraising land within KGSs, there is over 10 times as much such land within KGSs as there is such land within KGRAs, and a very high percentage of this has been leased for oil and gas development. The opposite is true for geothermal in that outside the Geysers, only stockraising lands in New Mexico have been leased. However, we found no evidence of any conflicts involving either of these minerals in New Mexico or anywhere else outside the Geysers.

POTENTIAL CONFLICT AREAS

Stockraising land comprises a small portion of the total land area in the United States--yet this still involves a great deal of land. Best available information (see p. 1) indicates that perhaps 30 million acres, or less than 2 percent of the total land area of the United States is stockraising land. In an effort to identify potential conflict areas, KGRA and KGS locations designated by USGS were matched with stockraising homestead land geographical locations. If the land was located within a KGRA or KGS, it was considered a potential conflict area. Of the 19 States identified by BLM as containing stockraising land, we selected the top five States--Wyoming, New Mexico, Montana, Colorado, and California--in terms of owners and acreage. These States represent nearly 75 percent of the total stockraising lands and contain over 50 percent of the total KGRA acreage and 30 percent of the KGS acreage.

Geothermal resources on stockraising land

There is stockraising land within KGRAs in four of the five States identified--New Mexico, Colorado, Montana, and California--although this land comprises a small portion of the designated area. According to BLM, Wyoming has the greatest number of stockraising landowners and acreage but, because there are no designated KGRAs in the State, it is not considered to be a potential conflict area within the scope of our review. This is not to say that geothermal resources may not exist on this stockraising land.

Stockraising land comprises 5 percent or less of the KGRA land acreage in all four States except Colorado, where 15 percent of the stockraising land is within KGRAs. Although Colorado contains a higher percentage of stockraising land within KGRAs located in Colorado, California has over 10 times more stockraising land acreage. Thus, as illustrated below, the main area of potential conflict is in California.

Stockraising Homestead Land Within Known Geothermal Resource Areas (KGRAs)

Known Geothermal Resource Area	Stockraising Land Within KGRAs	Percentage of Stockraising Land Within KGRAs (note b)
----------acres----------		
Wyoming --------	--------	--------
New Mexico 299,440	14,510	5
Colorado 20,480	3,160	15
Montana 56,480	1,720	3
California 1,474,417	39,236 (note a)	3
Total 1,850,817	58,626	3

a/According to BLM, 31,770 acres or about 80 percent are located in the Geysers.

b/Rounded to nearest whole percent.

Oil and gas resources on stockraising land

Although there is potential for conflicts on stockraising land within KGRAs, conceivably there could be an even greater potential for conflicts where this land is located on KGSs. This is because of the larger number of stockraising lands on KGSs and also the number of oil and gas leases issued on them.

Yet, we did not find any indication of a problem with oil and gas leases.

There is better than 10 times more stockraising land acreage on KGSs than there is on KGRAs. The States of Wyoming and New Mexico contain significantly more of this land than the other three States. Although Wyoming has the greater percentage of stockraising land within KGSs, the State of New Mexico has over twice the designated KGS acreage and slightly more stockraising acreage in KGSs.

Stockraising Homestead Land Within Known Geological Structures for Oil and Gas

	Known Geological Structures (KGS)	Stockraising Land Within KGS	Percentage of Stockraising Land Within KGS (note a)
	(Acres)		
Wyoming	1,452,910	276,317	19
New Mexico	3,301,680	341,530	10
Colorado	490,260	34,930	7
Montana	778,680	19,380	2
California	509,773	10,923	2
Total	6,533,303	683,080	10

a/Rounded to nearest whole percent.

Two States have oil and gas leases on stockraising lands that are also within KGRAs. The State of New Mexico has some leases on such land, but in Colorado all stockraising lands within KGRAs also have oil and gas leases.

For four of the States--other than California--the oil and gas leasing on stockraising land within KGSs has been far greater than that for geothermal leasing within KGRAs. In fact, 74 percent or more of such stockraising lands have oil and gas leases.

California has limited stockraising land within KGSs and its emphasis is on geothermal development.

CONFLICTS SIMILAR TO THE GEYSERS NOT DISCLOSED IN OTHER AREAS

So far, the conflict involving compensation to surface owners of stockraising land for geothermal lease operations appears to be confined to the Geysers area in California. This may be because the leasing of geothermal resources involving stockraising homestead land outside the Geysers has been very limited. Similar conflicts involving oil and gas leasing on stockraising land in the five States were not identified. There may be different reasons for this--including resource utilization at another location, much shorter resource life-span, use of less surface land, and the lack of a dispute concerning ownership rights. According to BLM and USGS officials, agreements are negotiated between the lessee and landowner concerning compensation for any damages and normally do not include a royalty.

According to a USGS official, who has spent 40 years in the oil and gas area, the oil companies do not normally give royalty compensation to surface owners for oil and gas lease operations. However, in a few isolated instances, oil companies have paid surface owners a 1- to 3-percent royalty to expedite production.

Of the five States included in our review, only California and New Mexico have geothermal leases on stockraising land within KGRAs. The State of California has nine leases and New Mexico has six. In California, the nine leases are at the Geysers and represent 8 percent of the total stockraising land within KGRAs, as discussed in chapter 2.

In New Mexico, the six leases issued on stockraising lands include 8,560 acres, or 59 percent of the stockraising land within KGRAs. Little activity has begun on the part of the lessees and conflicts were not disclosed.

For one of the leases, we noted that a problem had developed when the landowner would not permit the lessee to begin geothermal lease operations because he was not aware that the mineral interests belonged to the United States and that his land had been leased. (The owner does not reside on the land, but uses it for grazing.) A USGS official contacted the landowner and informed him about the mineral rights being reserved and the leasing of land for development. According to the official, this situation caused some embarassment and a minor delay in initiating drilling operations. We contacted the owner and found that he was in the process of trying to negotiate an agreement with the lessee. At the time of our contact, the owner did not identify having any problems with the lessee.

CHAPTER 4

EXISTING LEGISLATION PROVIDES STOCKRAISING LANDOWNERS SOME PROTECTION FOR THEIR LAND USE

The title to stockraising lands is encumbered by the Federal Government's mineral reservation. The interest of the landowner is subject to the right of the Government or its lessee to enter and occupy the surface of the land in order to mine and remove the minerals. While the mineral estate is dominant, the landowner is afforded some protection. The purpose for which the lessee occupies the surface must be reasonably incident to the mining and removal of the mineral. Furthermore, the lessee may use only so much of the surface as is required to accomplish this purpose. The lessee should conduct his operations with due care for the landowner's use of the land. Regardless of whether negligence can be shown, the lessee will be liable for damages to the crops or tangible improvements of the landowner that results from the lessee's exercise of his rights. Of course, the lessee may voluntarily agree to provide the landowner with greater than the minimum protection afforded by law. Also, the law is silent as to the method by which compensation may be paid.

RIGHTS ASSOCIATED WITH MINERAL AND NONMINERAL ESTATE

Prior to 1909, public lands were disposed of as either entirely mineral or entirely nonmineral in character. This came to be considered inefficient, however, because some public land was useful for both agriculture and the production of subsurface minerals. Where lands were valuable for both uses, these uses could be served by a separation of estates--the nonmineral estate could be disposed of separately from the mineral estate. Beginning in 1909, the Congress passed a series of acts allowing for such disposition of public lands. One of these acts was the Stockraising Homestead Act, passed in 1916.

Under authority of the act, the Secretary of the Interior opened selected federally-owned lands to homestead entry. Following entry and compliance with the requirements of the act, the individual became entitled to a patent transferring title to the land. In transferring title, the United States retained ownership of all minerals located on the land by including in the patent a mineral reservation clause. This mineral reservation recently--January 1977--has been interpreted through a court decision to include geothermal steam.

Basically, the patentee or landowner received title to all rights in the land which were not reserved. Because of the mineral reservation clause, rights to the minerals and other associated rights remained with the United States. The present landowner who traces his title back to the original patent can take no more than the original patentee had. Since the mineral reservation was not peculiar to the original patentee, the present landowner's title is also subject to the mineral rights reserved by the United States.

The rights of the United States are found in section 9 of the act. This section was incorporated into the stockraising homestead patents. Along with ownership of the minerals in the lands patented, the United States reserved the rights to prospect for, mine and remove the minerals, including the right to occupy as much of the surface as necessary for purposes reasonably incidental to these rights. Furthermore, the United States stipulated that ther minerals deposits would be subject to disposal in accordance with the laws in effect at the time of disposal. No role was specified for the patentee in the disposal process. Thus, unless subsequent laws governing the disposal of the minerals were to include the patentee and succeeding owners of the patented land, the landowner would have no voice in this process. The Geothermal Steam Act established the procedure for leasing federally-owned geothermal steam, including the geothermal steam located on lands patented under the Stockraising Homestead Act, but did not include owners of stockraising homestead lands in the process.

Like the original patentee, the United States, as owner of the mineral rights, cannot transfer or lease anything greater than it has. The patent establishes a particular relationship between the United States (the original landowner who conveys title through the patent) and the patentee or landowner. The United States cannot subsequently alter that relationship and expand its rights to the land beyond those expressly reserved without the agreement of the patentee or successors to the patentee. However, in leasing its rights to a third party, the United States could condition the lease, limiting the exercise of those rights. There is no evidence in either the Geothermal Steam Act or the geothermal lease form prepared pursuant to that act that the United States intended to limit a lessee's rights beyond limitations imposed by the Stockraising Homestead Act.

To protect the enjoyment of the land by the patentee and subsequent landowners and to assure simultaneous multiple use of the patented land, the Congress stipulated that any person who qualifies to exercise the rights to prospect for, mine, and remove a mineral and the associated rights of entry and occupations of the surface would be liable to the landowner for all damages to crops and tangible improvements on the land. Furthermore, any person who uses strip or open pit mining methods in exercising his rights to the minerals would be liable to the landowner for those damages to the value of the land for grazing purposes.

While the landowner can demand certain damages from the person who enters his land to prospect for, mine, and remove minerals, and that person is liable to the landowner for those damages, the landowner cannot block such person's right of entry to prospect or his rights of reentry and occupation of the surface to mine and remove the mineral. Without surface rights of access to reach the mineral, mineral ownership would be rendered worthless. Thus, the act and the patents issued pursuant to the act have been interpreted to give the mineral estate dominance; the interests of the patentee and his successors became subject to the rights of the owner or the owner's lessee of the reserved mineral deposits.

PROTECTION AFFORDED STOCKRAISING LANDOWNERS BY THE ACT

Lessee use of the surface

To reach the mineral, the person qualified to exercise the mineral rights can legally interfere with the landowner's use of his land by occupying the surface. However, the right to occupy the surface is not unlimited; it is limited by a standard of reasonableness as to purpose and extent;

--The purpose for which the surface is occupied must be reasonably incident to mining and removal of the mineral;

--Only so much of the surface as is required to satisfy that purpose may be used.

The act does not define a standard of reasonableness. Although the courts have touched on the issue of lessees' use of surface land in two cases (see app. II), it is difficult to define a standard of reasonableness for stockraising lands. The Bureau has taken a position based on a solicitor's opinion that the construction and operation of an electrical powerplant by a geothermal lessee on stockraising homestead land is not a valid exercise of the lessee's right to occupy the surface. The reasonableness of particular uses of the surface can be made by agreement between the lessee and landowner. If an agreement cannot be reached on this issue, then a determination may have to be made by the courts on a case-by-case basis.

Damages resulting from permissible mining operation

While the lessee has practically an uninhibited right to enter and occupy the surface, he must pay the landowner for damages to crops and tangible improvements which result from the exercise of his right. This is not meant to restrict the lessee's operations but to provide the landowner some protection for his use of the land. The lessee and landowner can agree on the amount of damages.

Or, the landowner can bring an action under the bond as provided for in the act when he feels damages have occurred and ask the court to fix the amount of damages.

Tangible improvements

The Stockraising Homestead Act does not define the term "tangible improvements." Also, the legislative history does not indicate what Congress intended. At the time of its passage, the statute was intended to encourage homesteading of rangeland in order to stimulate stockraising in the West.

The Supreme Court interpretation of a similar homestead act, and a 1949 amendment to the act suggest that "tangible improvements" is limited to stockraising-related improvements. In 1928, the Supreme Court interpreted "improvement" as used in an earlier agricultural homestead act to cover only agricultural improvements. In 1949, Congress extended a lessee's liability to loss in land value, but only for grazing purposes.

Land

Generally, the landowner's right to recover compensation for damages does not extend to the land itself. Land is not included in either category, "crops" or "tangible improvements." However, in one instance a landowner may be compensated for damages caused to the value of the land for grazing purposes. As stated earlier, the Congress enlarged the liability for damages caused to stockraising homesteads and allowed recovery when a lessee prospects for, mines, or removes minerals by strip or open pit mining methods.

CHAPTER 5

ALTERNATIVE METHODS FOR COMPENSATING LANDOWNERS

The Federal Government could take various alternative approaches to ensure that surface estate owners are sufficiently compensated for the impacts of geothermal development on stock-raising lands. These are presented in this chapter in response to the request that such alternatives be studied and included for consideration by the House Interior and Insular Affairs Committee. There are varying opinions both for and against the different methods proposed. Although some of these alternatives might require legislation, we do not advocate any new legislation and, in fact, believe the Government ought not to be involved in negotiating what, if any, compensation is appropriate for the landowners.

The compensation methods identified and considered include (1) paying an interim rental, followed by royalties based on the selling price of the steam; (2) providing landowners with the option of matching the high bid on the lease and, thus, the right of first refusal; (3) having the Federal Government either purchase the surface rights or sell the mineral rights at fair market value; and (4) allowing landowners and lessees to work out compensation for the siting of any electric powerplants.

Although most of the stockraising landowners would prefer an interim rental/royalty compensation, they would settle for any method that would enable them to obtain what they believe is a fair and equitable compensation. However, the owners expressed considerable opposition to the proposal that the Federal Government offer to purchase stockraising land chosen for geothermal development.

RENTAL AND ROYALTY COMPENSATION

Most surface owners of stockraising land at the Geysers seem to feel they should be compensated for geothermal lease operations on their land by receiving an annual rent per acre and a royalty based on gross profits. Various royalty percentages have been cited by owners as to what is considered to be fair compensation. They expect the royalty to be paid by the lessee or jointly with the Federal Government. Although existing legislation does not deny owners the right to negotiate compensation in the form of rents and royalties, Federal officials and geothermal developers are generally opposed to the percentage of the royalty being requested by the owners and to any legislation establishing royalties as a means of compensation because of the possible effect on other mineral lease development.

Royalties being requested by owners

Many surface owners at the Geysers had agreements with geothermal developers providing them rents and royalties before the court decision that geothermal resources did not belong to the landowner causing them to lose compensation. These owners are trying to recapture this lost compensation from the Federal Government and/or lessees. As stated earlier, landowner agreements provided them annual rentals ranging from $1 to a hundred dollars per acre and royalties of 10-to 12.5-percent. To compensate them for the impacts which Federal geothermal lease operations may have on their land use, surface owners at the Geysers believe they are entitled to royalty payments. The royalties--which owners believe should be received--range from a "small" or "reasonable" percentage (i.e., no specific percentage identified) to a 15 percent royalty paid jointly and equally by the lessee and the Federal Government.

A stockraising landowners group at the Geysers is requesting, among other things, that compensation be paid in the form of a percentage of the bonus bid at the time of lease sale, and a royalty of not less than 5 percent of the steam sold thereafter.

Other stockraising landowners in the Geysers area who responded to our questionnaire indicated their desire for a variety of interim rent and royalty payments, including

--a small royalty,

--a reasonable royalty,

--an interim $50 to $100 per acre annual rent with a 5 percent royalty,

--an interim annual rent per acre with a 2- to 2.5-percent royalty,

--annual rent of $50 per acre with a 10 percent royalty,

--annual rent per acre for all acreage owned and a 2.5- to 5-percent royalty,

--interim rent of $50 to $100 per acre and a 7.5 percent royalty paid by the Federal Government, and

--one-half of the bonus bid plus a 2.5 percent royalty.

Of the 86 owners who responded to our questionnaire, 32 owners indicated that royalties are the kind of compensation landowners should receive for geothermal development on their land. The remaining 54 owners did not specifically state that royalties are the type of compensation they should receive. Since the questionnaires were sent to owners identified by the landowners group, many responses reflect similarities to the position put forth by the group. However, the individual responses indicate that some owners believe less than a 5 percent royalty would be fair compensation, while others believe that a greater royalty percentage should be paid. These differences may occur because of the varied land uses by individual owners or are an effort by some to get back the total amount of compensation that was taken away by the court decision, rather than just a fair compensation for the impacts of geothermal development.

Some geothermal developers indicate a willingness to pay a small overriding royalty

Although some landowners have indicated that something less than a 5 percent royalty would be acceptable compensation, many owners seem to favor a 5 percent or larger royalty. On the other hand, some geothermal developers have indicated a willingness to negotiate a 1- to 2.5-percent royalty with an interim annual rent until production begins.

A geothermal developer who is involved in one of the nine stockraising leases issued has indicated a willingness to negotiate a 1- to 2-percent overriding royalty compensation agreement but said he will go to court before paying a 5 percent royalty. The lessee also indicated a willingness to pay an annual rental on the actual stockraising acreage used but not on the owner's entire acreage. As indicated above, some owners believe that the annual rent per acre should be based on the total number of acres owned and not just the smaller number of acres actually used during the geothermal development phases.

Another geothermal developer who had lease agreements with stockraising landowners before the court decision that geothermal belongs to the United States believes that surface owners should be compensated out of the revenue received by the Federal Government. According to this developer, the owner should receive one-half of all the compensation the Federal Government receives. Although this developer does not currently have a Federal geothermal lease at the Geysers, the developer indicated a willingness to compensate owners with an overriding royalty of 2-to 2.5-percent if he is successful in obtaining a Federal geothermal lease on stockraising land.

Other geothermal developer representatives mentioned that situations exist where one private party owns the mineral rights and another the surface land that the surface owner has negotiated an overriding royalty of 1-to 2-percent from the geothermal developer.

Opposition to royalty compensation

While there are some geothermal developers who may be willing to pay a small royalty, there are Federal officials and other geothermal developers who oppose the idea of royalty compensation to owners and the effect it may have on geothermal development. The feeling also exists that if legislation is enacted granting royalties to owners for geothermal lease operations, it may set a precedent for other Federal mineral lease operations.

In the opinion of officials from both the BLM and USGS, the surface owners should not receive compensation in the form of royalties. They stated that both the original and subsequent owners purchased the land at a price which reflected the value of the land without the mineral rights. The original owners purchased the land at a price of not more than $1.25 per acre. Moreover, when the land was purchased, the surface owners should have been aware that the mineral rights belonged to the Government and one day might be developed even though the status of steam was somewhat unclear.

If lessees are responsible for paying an overriding royalty of 5 percent--which results in an overall 17.5-percent payment in royalties, including the 12.5 percent payable to the Federal Government--then it may become uneconomical for development. One geothermal developer representative stated that a 5-percent overriding royalty is economically too strenuous to bear. Another geothermal developer representative stated that his company will go to court before paying a 5-percent overriding royalty to the surface owner.

Officials from BLM, USGS, and several geothermal developers agree that if new legislation is passed granting the landowners a percentage of the bonus bid and not less than a 5-percent royalty--as being proposed by the landowners group at the Geysers--this may set a precedent for other stockraising landowners where leases have been issued for oil, gas, and other minerals. These officials are opposed to royalties in general.

Estimated cost of a 5-percent royalty

The dollar amount associated with the surface owner's request to receive a royalty of not less than 5 percent of the value for the steam sold is difficult to estimate. The factors that determine this would be the number of wells ultimately drilled and the price of steam-generated electricity over the next 30 to 50 years. Undoubtedly, this could run into millions of dollars.

A USGS official who had many years of experience working with the oil and gas industry stated that an average steam well is equivalent to a 300-barrel-a-day oil well. Assuming a 5-percent royalty, $25 per barrel and 30 days per month, the

surface owner would receive a cash equivalent of $11,250 per month for each well. Based on these projections, the surface owner would receive, over a period of 10 years, $1,350,000 for each well located on the property. In accordance with the September 1978 Environmental Assessment Report, approximately 16 wells will be necessary to support a 110-megawatt power plant. Thus, an owner could receive millions of dollars if one of these plants were located and powered by the geothermal wells on his land.

OPTION TO MATCH HIGH LEASE BID

If stockraising homestead landowners were given the option to match the high competitive lease bid--similar to that provided owners who acquired California State land with the minerals reserved to the State--owners would be able to make arrangements with any geothermal developer to obtain the best compensation possible. Although not the method of compensation most favored, numerous owners indicated a preference for this alternative.

Status of matching high bid in California

California State law provides that the State Lands Commission (SLC) may designate State lands for geothermal leasing and issue leases for the exploration and development of this resource. Leases are issued to the highest responsible qualified bidder. With regard to lands in which the State holds the geothermal rights but is not the surface owner, the surface owner has the right to match the high lease bid.

The State of California owns 25,000 acres of mineral reserve land at the Geysers. At the time of our review, the Commission had issued leases on six parcels totaling 1,514 acres. The surface owners matched the high bid in five of six leased land parcels totaling 1,474 acres. The one instance where the surface owner did not match the high bid involved a 40-acre parcel. At the time of our review, two other parcels totaling 240 acres had been put up for lease; however, the lease had not yet been issued pending qualification approval of the high bidder.

Possible adverse option effect

In making this option available to stockraising landowners, the competitive system of issuing a lease to the high bidder could be seriously disrupted. This apparently is the situation in California and could also become applicable to Federal geothermal leasing if this option is adopted by the Federal Government.

According to an official from the SLC, the provision where the surface owner has the option to match the high bid is unfair. He stated that in past lease sales where the surface owners matched the high bid, they assigned their rights to developers who had previously entered into lease agreements with

them. In each case where the surface owner matched the high bid, the original high bidder did not recieve the lease. Consequently, in his opinion, both the geothermal developers and SLC are wasting their time and money participating in the competitive bids. As a result, the State is merely acting as a lease broker for the surface owners. This official stated that it would be a mistake for the Federal Government to add this provision to its geothermal lease program.

Since numerous stockraising landowners had agreements with geothermal developers prior to the court decision that this resource belonged to the United States, and some of these agreements would remain in effect if the developer recovered the high bid, the chances are relatively high that the owners would elect to remain with these developers. The result would probably be that the original high bidder would not receive the lease.

If owners chose to stay with the former developers, the effect could be substantial. As indicated by our questionnaire to surface owners, 61 owners or 58 percent indicated they had agreements with geothermal developers before it was determined this resource belonged to the United States. In addition, 33 owners, or about 50 percent of those who indicated their feeling on this matter, support an option to match the high bid. Of the 33 owners, 29 strongly support such an option.

FEDERAL GOVERNMENT SELLS MINERAL INTERESTS OR BUYS SURFACE LAND

The Secretary of the Interior is authorized, under certain conditions, to sell the mineral rights owned by the United States where the surface is in non-Federal ownership, such as stockraising homestead land. If the land qualifies, the surface owner may purchase the mineral interest; however, it is unlikely that stockraising land at the Geysers or other designated resource areas would qualify.

A possible alternative compensation method would be for the Federal Government to buy the surface land. However, based on the responses from stockraising landowners contacted at the Geysers, this does not appear to be a feasible compensation method.

It's doubtful whether mineral interests on stockraising land in designated resource areas qualify for sale

The Federal Land Policy and Management Act of 1976 authorizes the Secretary of the Interior to sell the mineral interests reserved to the United States underlying surface land which has been conveyed to private ownership. Therefore, owners of stockraising homestead land are permitted to buy mineral interests from the United States. However, the act sets forth two provisions,

one of which must be met, before such a transaction can take place. Section 209 of this Act states that

> "(b)(1) The Secretary, after consultation with the appropriate department or agency head, may convey mineral interests owned by the United States where the surface is or will be in non-Federal ownership, regardless of which Federal entity may have administered the surface, if he finds (1) that there are no known mineral values in the land, or (2) that the reservation of the mineral rights in the United States is interferring with or precluding appropriate non-mineral development of the land and that such development is a more beneficial use of the land than mineral development.
>
> (2) Conveyance of mineral interests pursuant to this section shall be made only to the existing or proposed record owner of the surface, upon payment of administrative costs and the fair market value of the interests being conveyed."

Stockraising land located at the Geysers or other designated resource areas most likely will not apply under section 209 because it is very doubtful the land has no known mineral values. In addition, obtaining a determination that the non-mineral value of this stockraising land is a more beneficial land use than the geothermal resource which probably exists under this land is also doubtful.

Many landowners oppose the federal government buying their land

Although some owners support an option of the Federal Government buying their land at the fair market value when it is chosen for geothermal development, a greater number of the owners are strongly opposed to than strongly support such a proposal. Stockraising landowners at the Geysers were asked to determine the degree, to which they favor or oppose this proposal--i.e., strongly support, generally support, neither support nor oppose, generally oppose, strongly oppose.

In response to our questionnaire, 29 landowners, or 43 percent of the 67 who indicated a response, strongly oppose the Federal Government buying their land. On the other hand, 15 landowners or 22 percent strongly support the option. This means that nearly twice as many owners strongly oppose as strongly support it. Overall more owners oppose than support this option.

In addition to the opposition by surface owners, another recognizable problem would be in determining the fair market value. However, since other alternative compensation methods

are viewed more favorably, this additional problem is not being addressed.

COMPENSATION FOR POWERPLANT SITE

Although the Stockraising Homestead Act permits the lessee to use as much of the surface as necessary for lease operations incidental to prospecting for, mining, and removing reserved minerals, a disagreement exists on whether the Federal Government and/or lessees have the reserved right to utilize this land surface for the production of steam-generated electricity. Because the steam must be used nearby the geothermal wells, lessees may have to site electrical powerplants on stockraising homestead land, thereby denying the owner access to a considerable amount of land acreage. Owners claim the right to use geothermal resources on this land was not reserved to the Federal Government and, therefore, the lessee must obtain the consent of the owner to site a powerplant. A recent Department of Interior interpretation of the act supports the owners' position but lessees and the utility involved do not agree.

Geothermal lease operations differ from oil and gas

Oil and gas are usually removed from the resource field and used elsewhere, but geothermal resources have to be used near the well sites. Because too much heat and pressure is lost if steam is transported by pipeline more than a mile, electrical powerplants must be built within the geothermal field. Above ground pipelines, transmission lines, and towers are also related to the use of geothermal resources. By contrast, oil and gas lease operations usually have underground pipelines. As a result, if a plant is sited on an owner's land, he or she is denied access to more surface land with geothermal lease operations than for other lease operations such as oil and gas.

Interior's decision on utilization of geothermal resources supports landowners' position

A recent decision within the Department of the Interior stated that neither the United States nor a lessee has the reserved right under the Stockraising Homestead Act to utilize geothermal resources on stockraising land without obtaining the consent of the landowner. This decision could put the stockraising landowner in a better position to negotiate for compensation with the lessee.

In July 1980, Interior's Associate Solicitor determined that "since the United States did not reserve the right to utilize the surface of land patented for purposes other than to prospect for, mine, and remove reserved resources, it lacks the authority to grant a lessee greater rights."

Based on the preceding decision, BLM issued an instructional memorandum in July 1980 to all its State Directors stating the "utilization, whether electrical or nonelectrical, is beyond the scope of the Federal geothermal lease and requires the landowner's consent." The memo goes on to say that the following special stipulation should be attached to all geothermal leases involving Stockraising Homestead Act lands.

> "The lessee in accepting this lease acknowledges that all, or portions of, the surface of the leased lands are privately owned. The lessee further acknowledges that utilization of geothermal resources on privately owned lands is not authorized under this lease. If the lessee desires to construct utilization facilities on such lands, consent must be obtained from the surface owner(s). The lessee is hereby informed that the United States will not participate as a third party in such negotiations, and any agreement reached between the lessee and the surface owner (s) will not be binding on the United States. Failure to obtain an agreement with the surface owner (s) will not affect in any way the terms or requirements of this lease."

With the above decision, it appears as though the lessee will be required to negotiate a compensation agreement with the surface owner. This decision should enable surface owners to obtain compensation more in line with what they believe is appropriate. Lessees and the utility, however, do not agree with this decision, but have taken no action at this point to challenge it.

Lessees and the utility differ with powerplant siting decision

The lessees and the utility have indicated disagreement with the BLM position that lessees have no reserved right to site an electrical powerplant on stockraising land without obtaining the owner's consent.

All of the lessees contacted believe powerplants may be sited on stockraising land based on the Stockraising Homestead Act, the Geothermal Steam Act of 1970, or through condemnation proceedings granted the utility in California which purchases the steam.

The standard geothermal leases which are applicable to all Federal lands, state that the lessees have the right to construct or erect electrical power generating plants and to use as much of the surface as may be necessary for the production, utilization, and processing of geothermal resources.

This lease provision seems to follow the Geothermal Steam Act of 1970, not the Stockraising Act. However, the leases state that

the lessees' right to construct powerplants is subject to compliance with applicable laws and regulations. BLM argues that because of this qualifier lessees whose leases involve stockraising land have no right to utilization.

This problem arises because of an apparent conflict between the Geothermal Steam Act and the Stockraising Homestead Act. The Steam Act entitles lessees to use the surface as necessary for utilization of the geothermal resources. The Stockraising Act entitles lessees to use the surface only for purposes reasonably incidental to mining and removing the mineral, and does not explicitly address utilization of the mineral. The question that needs to be answered is: Do lessees have a right to utilize the surface of the land? This issue will ultimately be settled in courts. A legislative solution to the conflict may not be feasible. Any law which would grant present or future lessees a right of utilization on the surface would, if such a right is held to reside with the property owners, probably be a taking of private property by the Federal government for which compensation would have to be paid. In order to avoid this problem in future leases, BLM plans to attach a stipulation to the lease that stockraising act lessees have no right to construct powerplants without obtaining the landowner's consent. 1/

Another course of action that may be taken is the use of eminent domain granted the utility in California. According to a utility company official, the lessees are responsible for obtaining the land to site the powerplants and, if unable to do so, the utility can acquire the land needed under its authority of eminent domain. The official further stated that the utility has not yet used this method at the Geysers and would use emiment domain only as a last resort.

Even though lessees and the utility indicated the owner's consent is not required to site a powerplant, we noted that one lessee has negotiated a compensation agreement reserving land to site a powerplant. This agreement was negotiated prior to the BLM decision that the owner's consent is required. Because the powerplant is in the planning stage, the exact amount of acres to be used has not been determined; however, 10 to 20 acres of land is estimated to be needed. According to the landowner, he will receive $1,000 per acre with a guaranteed minimum of $10,000 if the developer uses less than 10 acres of the land. This is to be a one-time payment.

1/However, if a court eventually decides that this surface right resides with the Government, lessees might challenge such a stipulation. It could be argued that the stipulation forces a lessee to pay for the surface owner's consent, when he has no legal right to block construction of a powerplant.

Lessees must pay rental to site plant on Federal land

When geothermal leases are issued on Federal land, the lessee is required to compensate the Federal Government for the land needed to site a powerplant. To construct and operate a powerplant on Federal land, the lessee must obtain a license from BLM and pay an annual rental fee in addition to the rental and royalty compensation provided for in the geothermal lease.

Department of the Interior regulations require an annual rental based on the fair market value but not less than $100 per acre with a reassessment of the amount beginning with the tenth year and at 10-year intervals. Reassessment may not be made more often, except in extraordinary circumstances. The license is granted for a primary period of 30-years with a preferential right to a renewal.

Only one license has been issued to site a powerplant on Federal land at the Geysers. According to a BLM official, the annual rental is based on the fair market value of the land but because the land was valued at less than the minimum required by regulation, the annual rental for the 80 acres involved is $100 per acre.

CHAPTER 6

CONCLUSIONS, RECOMMENDATIONS, AGENCY COMMENTS AND OUR EVALUATION

Stockraising homestead land at the Geysers KGRA in California is more than 1.5 times the stockraising land acreage in KGRAs in Wyoming, New Mexico, Montana, and Colorado combined, yet this represents only 8 percent of the total acreage at the Geysers. Therefore, while the greatest potential for conflicts over geothermal resources involving stockraising land would seem to be at the Geysers, such conflicts probably should have no dramatic impact on overall geothermal development. It is possible--depending on the outcome of the situation at the Geysers--that conflicts over geothermal as well as other minerals on stockraising lands could become a problem elsewhere in the future.

We do not believe the Government has the responsibility--either legally or otherwise--to negotiate what, if any, compensation is appropriate for landowners simply because geothermal development takes place on their lands. But, we believe the Interior's Bureau of Land Management should establish regulatory procedures to ensure that landowners are properly notified about geothermal leasing plans and related activities on their lands before they actually take place. Also, Interior/BLM should take what steps it can to encourage lessees and landowners to negotiate agreements to protect the landowners against damages to crops and tangible improvements. In addition, Interior/BLM should consider the extent to which the bond should cover indirect damages that may occur to tangible improvements. BLM's recent decision to require lessees to gain surface owner consent prior to constructing powerplants on this land may, unless successfully challenged in court, provide landowners with some leverage in negotiating compensation agreements at least in the production phase of geothermal development.

GEOTHERMAL DEVELOPMENT ON STOCKRAISING LAND AT THE GEYSERS

Because of being located at the Geysers, the owners of stockraising homestead lands are being adversely impacted by geothermal development on the surrounding private, State and Federal land, but obviously are or will be impacted to a greater degree if their land is leased for exploration and possible development. The degree of impact will vary from owner to owner, with the greatest impact being on those owners who reside on the land that has been or will be leased.

Since current land uses may be eliminated, reduced, or impaired by geothermal activity, with a resulting loss in land value, we believe Interior/BLM should consider whether the Stockraising Homestead Act should provide compensation for a decrease in land value and interference with its enjoyment and use.

While protection bonds--including one for a minimum amount of $5,000--have been obtained, compensation agreements have been worked out between surface owners and lessees for only five of the nine leases issued so far in the Geysers. However, these agreements were negotiated prior to the court decision that geothermal resources belong to the U.S. and remained in effect when the developer became the Federal lessee. We did not find any agreements worked out since that decision and--under present groundrules--we believe that being able to begin lease operation by merely filing a protection bond is a disincentive for the lessee to persevere in negotiating such an agreement. Therefore, BLM should consider how to encourage lessees and landowners to enter into agreements concerning the payment of damages for crops and tangible improvements.

Based on the limited geothermal development that has taken place on stockraising lands in the Geysers so far, the differences in land use, and the uncertainty over what specific damages are actually covered, it is difficult to determine the adequacy of a minimum $5,000 single-protection bond. It may be adequate to cover damages to tangible improvements related to stockraising activities but not sufficient to cover damages to all other tangible improvements. We believe the Government in determining what level of bond protection is appropriate should review the present interpretation of tangible improvements and consider the extent to which indirect damages should be allowed.

In the past, BLM and USGS did not have a requirement to notify landowners of lease sales and the issuance of leases involving their land. The BLM and USGS offices in California that have responsibility for the Geysers have recognized the need to notify landowners and are in the process of developing notification procedures. We believe this is appropriate and that similar procedures should be developed in other States that contain stockraising land.

CONFLICTS WERE NOT DISCLOSED OUTSIDE THE GEYSERS BUT THE POTENTIAL DOES EXIST

Conflicts similar to those occurring at the Geysers were not disclosed in our review of stockraising homestead land on KGRAs in Wyoming, New Mexico, Colorado, Montana and California, excluding the Geysers. This may be due to the fact that very little geothermal leasing has so far taken place on these lands. Of the States reviewed--outside the Geysers in California--geothermal leases have been issued only in New Mexico. However, by virtue of stockraising land being located within KGRAs in all of these States except Wyoming, the potential for similar conflicts does exist.

Moreover, for the five States included in our review--acreage-wise--there are over 10 times more stockraising lands within Known Geological Structures (i.e., KGSs for oil and gas) as there are within KGRAs. Much of this land has been leased for oil and gas for years, but we did not find any evidence of compensation and/or bond protection conflicts concerning such leases.

If legislation were enacted providing stockraising landowners compensation beyond that provided for by existing legislation, it might prompt other stockraising landowners with oil and gas leases to request similar compensation. Such action also could set a precedent for other minerals.

EXISTING LEGISLATION PROVIDES STOCKRAISING LANDOWNERS SOME PROTECTION FOR LAND USES

The Stockraising Homestead Act of 1916 specifically states that the surface owner is to be compensated for damages to crops and tangible improvements. BLM has revised its earlier interpretation that tangible improvements must be related exclusively to stockraising improvements. Its present interpretation states that other tangible improvements are included but that this still does not pertain to all surface improvements. This interpretation may be too broad in light of the Supreme Court's interpretation of a similar homestead act and the 1949 statute concerning land value. We understand that there is no Interior Solicitor's opinion on this issue. We believe Interior should review this interpretation.

The geothermal leases issued on stockraising lands appear to grant lessees the right to construct or erect electric power generating plants, pipelines, and transmission lines and to use as much of the surface as may be necessary for the production, utilization and processing of geothermal resources. This language is reflective of the Geothermal Steam Act which goes beyond the Stockraising Homestead Act. The latter act permits the lessee to use the surface only to the extent required for purposes incidental to mining and removing the minerals but not utilization.

In July 1980, BLM ruled that the owners' consent is required to use geothermal resources on stockraising land. However, because lessees and the utility at the Geysers believe they have the right to site powerplants and the issued leases do not clearly deny them such right, this issue may have to be resolved in the courts. A legislative solution would not be practical if the courts hold that the right now resides with the property owners, since it would probably involve a Federal taking of surface owner rights.

ALTERNATIVE COMPENSATION METHODS

The Federal Government could take various alternative approaches to ensure that surface estate owners are sufficiently compensated for the impacts of geothermal development on stockraising lands. These are presented in chapter 5 in response to the request that such alternatives be studied and included for consideration by the House Interior Committee. Although some of these alternatives might require legislation, we do not advocate

any new legislation and, in fact, believe the Government ought not to be involved in negotiating what, if any, compensation is appropriate for the landowners.

RECOMMENDATIONS TO THE SECRETARY OF THE INTERIOR

The Secretary of the Interior should:

--Require that BLM develop specific procedures for notifying surface owners of lease sales and the issuance of leases involving their land for geothermal as well as other mineral development;

--Take what steps he can to encourage lessees/developers and surface owners to enter into agreements concerning payment for damages to crops and other tangible improvements.

--Consider BLM's interpretation of the term "tangible improvements" as set out in BLM's memorandum of December 21, 1979.

--Consider the extent to which compensation for indirect damages to tangible improvements should be allowed and whether the Stockraising Homestead Act should provide compensation for a decrease in the value of the land and interference with its use and enjoyment.

AGENCY COMMENTS AND OUR EVALUATION

We obtained comments on our draft report from the Department of the Interior which are included in appendix IV. Interior, for the most part, agrees with our recommendations and strongly endorses the conclusion that the Government should not get involved in determining what, if any, compensation is appropriate for the landowner. Interior offered several other comments which we considered and changes were made in this final report where deemed appropriate. Their more substantive comments are further addressed below.

Interior stated that our recommendations to notify landowners of lease sales involving their lands and to encourage lessees to attempt to work out agreements with landowners would constitute a fair and adequate system.

Interior felt that our draft report was confusing where we suggested that the geothermal lessee had the option of negotiating an agreement or obtaining a bond. Interior pointed out that regulations require a bond be posted before entering leased lands regardless of any such agreement. We agree that bonds were posted

in all cases and have revised the final report. However, we believe it is important to point out that the Stockraising Homestead Act does permit the lessee to post a bond in lieu of a compensation agreement. The regulations, cited above, are based on the Geothermal Steam Act--not the Stockraising Act--and go a step further by requiring a bond prior to entry. These regulations make no mention of a compensation agreement.

Interior contended that the draft report implied a substantial misconception by stating that certain tangible improvements are not covered by protection bonds and enclosed a letter dated December 21, 1979, to BLM's California State Director to support its position. In reviewing Interior's comment, we again examined the meaning of the term "tangible improvements". We believe that the 1928 Supreme Court case and the 1949 amendment concerning damages from open pit mining suggest that the term may be limited to agricultural improvements. In addition, although this letter states the bond is to be sufficient to protect the surface owner from all direct damages, it also states that not all surface improvements should necessarily be included. From this letter, it is still not clear what improvements are covered.

Finally, Interior noted a conflict between the Stockraising Homestead Act and the Geothermal Steam Act over the lessee's right to utilize geothermal resources on stockraising lands. (See page 50, paragraph 2, and page 51, point number 6.) Interior's comments state, "We agree that corrective legislation seems to be in order." We are not clear as to what this statement means, since we did not identify a need for corrective legislation. Legislation would not be feasible if the courts hold that the property right resides with the surface owners, because legislation granting lessees a surface right of utilization would probably be a Federal taking of property.

APPENDIX I

December 11, 1979

The Honorable Elmer B. Staats
The Comptroller General
General Accounting Office
441 G Street, N.W.
Washington, D. C. 20548

Dear Mr. Staats:

During the course of the hearings by the Subcommittee on Mines and Mining of the Interior and Insular Affairs Committee, a matter of some controversy was raised by Congressman Don H. Clausen relating to the relationship between owners of surface estates in the West by virtue of the Stock-Raising Homestead Act of 1916 and the lessees of the Federal Government with rights to exploration and development of the mineral estate owned by the Federal Government. As you know, the Stock-Raising Homestead Act of 1916 conveyed to certain individuals patent to Federal lands for the purpose of agricultural and stockraising purposes. The conveyance, however, took place while the mineral estate was retained by the United States Government. In 1970, the Congress passed and the President signed into law, the Geothermal Steam Act permitting the United States Government to lease geothermal steam resources to private individuals for the purposes of exploring for and developing that resource. At the time of the passage of the Act it was unknown whether geothermal steam resources could be classified as water or as a mineral. Last year the United States Supreme Court, in denying certiorari, upheld a ruling which declared that geothermal steam resources were indeed a mineral and thus were subject to leasing by the United States Government on lands in which the United States Government owned the mineral estate.

As is evident, these factors raised the possibility of a conflict between the owner of the surface estate under the Stock-Raising Homestead Act and the lessee of the mineral-geothermal estate. While the lessee has the right to entry upon the land and the use of so much of the land as is necessary for the development of the resource, nevertheless, the surface owner has a statutory right of compensation for damages to his property. While the intent of the Stock-Raising Homestead Act with regard to compensation appears clear, it may well be that that provision has been too narrowly interpreted or is, in fact, inadequate as written.

APPENDIX I

As is clear from this discussion, there are indeed potential conflicts and, at the present time, an absence of factual material concerning that conflict. In order to be able to properly address this question, it is important that Congress have before it all the information and analysis available on this subject.

Therefore, we hereby request that the General Accounting Office prepare a study to be completed on or before January 1, 1981, investigating statutory answers as well as the need for new statutory response. It is the intent of this Committee that the study include, but not be limited to the question of: the right of compensation for a residential building, the right of compensation for denied access, the right of compensation for opportunity costs, the right of compensation for nuisance and noise, the right of compensation for power production plant siting, alternative methods for paying compensation, as well as the adequacy of bonding provisions currently required of lessees. We also request that the study pay particular attention to these issues as they relate to the situation in the Geyser-Calistoga Known Geothermal Resource Area in California to determine whether any special circumstances or equities exist respecting surface owners in that area.

Sincerely,

Morris K. Udall
Chairman
Committee on Interior and
Insular Affairs

Don H. Clausen
Ranking Minority Member
Committee on Interior
and Insular Affairs

James D. Santini
Chairman, Subcommittee on
Mines and Mining

Don Young
Ranking Minority Member
Subcommittee on Mines
and Mining

COURT CASES ON LESSEES' USE OF SURFACE LAND

In two cases involving leased land where the mineral interests were reserved to the United States under the Stockraising Homestead Act, the courts have touched on the issue of the lessees use of surface land. These cases include: Holbrook v. Continental Oil Company, 278 P. 2d 798 (1955); Bourdieu v. Seaboard Oil Corporation, 100 P. 2d 528 (1940), 110 P. 2d 973 (1941), 146 P. 2d 256 (1944). In the Holbrook case, the Agricultural Entry Act 1/ and the Stockraising Homestead Act were involved. Continental drilled 15 oil wells on the tract. Because the wells produced a mixture of oil and water, a tank battery was constructed to separate the water from the oil. Continental's operation of the wells and the tank battery required employees to be present for a full 24-hour day. To accommodate this, the oil company built three dwellings to house employees. A State trial court determined these dwellings to be reasonably incident to the mining and removal of oil from the lands. On appeal, the Supreme Court of Wyoming, reasoning that issues concerning use of the surface were questions of fact to be determined at trial, declined to interfere with the lower court determination.

As in the Holbrook case, the causes of action in the Bourdieu cases were brought under both the Agricultural Entry Act and the Stockraising Homestead Act. The homestead owner built a home, corrals, fences, sheep runs, and other structures in connection with his farm and sheep ranch. Seaboard Oil Corporation, having acquired the mineral rights, entered the land and drilled 16 wells. In connection with its oil production operations, Seaboard built an elaborate system of support facilities including roads, fuel gas lines, wet gas lines, gas life lines, water lines, oil lines, compressor plants, cooling towers, water tanks, oil storage tanks, and shipping pumps. These facilities were connected to wells located on other lands under different ownership in addition to the wells located on the patented lands. Seaboard argued that this was necessary for efficient and economical operation of a producing oil field whose boundaries did not coincide with the surface boundaries. A California District Court of Appeals held that the oil lessee could not burden the surface with facilities used in the production of oil from other properties, regardless of the configuration of the underlying oil field. The Court did not address the issue of whether these particular uses were reasonable uses of the surface. The Court

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1/Another act that reserved mineral interests to the United States.

APPENDIX II

was confronted only with the issue of whether it is reasonable to use the surface of the leasehold in connection with operations on other lands.

The U.S. Court of Appeals for the Tenth Circuit was faced with a similar situation in 1973. In Mountain Fuel Supply Company v. Smith, 471 F. 2d 594 (10th Cir., 1973), the mineral lessee was using a road on land patented under the Agricultural Entry Act to haul oil from producing wells on adjoining lands. The Court held that lessees are restricted in their use of the surface by the geographic extent of their particular lease, and to the extent the lease may have been modified. The lessee could not burden the patentee's surface for development on the lands of others or to haul over the surface the production from the lands of others.

APPENDIX III

PHASES OF GEOTHERMAL DEVELOPMENT

PRELIMINARY EXPLORATION

Preliminary exploration involves nonintensive use of land, such as geologic and land mapping, geochemical and geophysical surveys, water analysis and temperature studies, and possibly, shallow (300 to 500 feet) temperature gradient holes. The discrete operations are:

1. Off-road foot traffic.
2. Existing road or trail use.
3. Off-road light vehicle use.
4. Possible trail improvements for temperature gradient holes.

Since the temperature gradient holes usually require no more than a few days to drill, they are normally limited to existing roads and trails. It is expected that only small amounts of trail improvement would be necessary to move in the truck-mounted drilling equipment.

EXPLORATION DRILLING

Exploration drilling is the drilling of the first wells to prove the existence and limits of the geothermal resource. The discrete operations are:

1. Road construction.
2. Drill site construction.
3. Truck and other vehicle travel.
4. Drilling.
5. Well testing.
6. Waste disposal.
7. Well venting or bleeding.

A series of deep test wells are necessary to evaluate the extent of the resource. The drill locations are selected on

APPENDIX III

the basis of findings during the initial exploration. This phase requires the use of a large drilling rig and associated large trucks.

FIELD DEVELOPMENT

Field development is the continued drilling in order to provide enough reserves to supply a power generation facility. It is assumed that, in adjacent areas, approximately 16 wells are necessary to support one 110-megawatt powerplant. Based on the estimate that from 800 to 1,000 surface acres are required to support one such plant, if full development occurs, it is possible that seven 110-megawatt generation facilities could be supported from a lease area of about 5,200 acres. The discrete operations are the same as exploration drilling, but much more intensive. There are additional discrete operations, as follows:

1. Power plant construction.

2. Pipeline construction.

3. Electric transmission line construction.

PRODUCTION OF STEAM AND ELECTRICITY

Production of steam and electricity involves full operation and maintenance of all facilities. A minimum amount of drilling is necessary to provide replacement wells. The discrete operations are the same as in exploration drilling plus maintenance of facilities.

TOTAL CLOSEOUT OF OPERATIONS

Closeout takes place after geothermal resources can no longer be economically extracted from the reservoir. The discrete operations are:

1. Abandonment of wells.

2. Removal of surface equipment.

3. Surface reclamation and restoration.

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JAN 8 1980 1/

Mr. J. Dexter Peach
Director, General Accounting
Office
Washington, D.C. 20548

Dear Mr. Peach:

Thank you for the opportunity to comment on the draft report, "Geothermal Development on Stockraising Homestead Land: More Needs to be Done to Protect Landowners." In general, we found it to be a very thorough, unbiased investigation of the subject. We strongly agree with the conclusion expressed in the report that the Government should not get involved in determining what, if any, compensation is appropriate for the landowners. It is a point well taken that official governmental action regarding landowner compensation for geothermal resource development could well lead to demands for similar compensation in the development of other minerals. The recommendations that BLM be required to advise landowners of lease sales involving their lands, and that after lease sales lessees be required to attempt to work out appropriate arrangements with such landowners, constitute, in our opinion, a fair and adequate system.

The report points out that a conflict exists between the Stockraising Homestead Act and the Geothermal Steam Act concerning the amount of land a geothermal lessee is entitled to use and suggests that the matter will probably have to be resolved in the courts. We agree that corrective legislation seems to be in order.

Our specific comments on the report follow. Please note that while comments 1, 4, 8, 14, 15 and 18 are editorial in nature, the remainder are substantive. We hope these latter comments will receive careful consideration in preparation of the final report.

1. Page I, first sentence - Throughout the report, the phrase "the Geysers" should appear as "The Geysers."

2. Page II, last sentence - It is significant that the Bureau's decision was based on a Solicitor's opinion which, although discussed later in the report, is not referenced here.

3. Page III, third paragraph - This paragraph is confusing. It suggests that a Federal geothermal lessee has the option of negotiating an agreement with a surface owner or obtaining a bond from the Government. A bond must be posted for every Federal geothermal lease prior to entry on the leased lands (43 CFR 3206.1-1(c)) regardless of any such agreement.

1/Year should be 1981.

4. Page IV, second paragraph - Geothermal leases have been issued in Colorado, Montana, and Wyoming also.

5. Page V, second paragraph - This paragraph contains a substantial misconception. It implies that certain tangible property improvements are not covered by bond protection. The Bureau has specificially stated that the bond is intended to protect the surface owner from all direct damage that may reasonably be likely to result to all tangible property on the lease. A memorandum dated December 21, 1979, to the Bureau's California State Director is enclosed for clarification.

6. Page VI, fourth and fifth paragraphs - These paragraphs present a very serious controversy involving whether or not a Federal lessee has the right to utilize geothermal resources on Stockraising Homestead Act lands. The Department's position is clearly that the lessee has no right to utilize the resource under the terms of the Federal lease, but must obtain those rights from the surface owner. The Solicitor's opinion supporting this position is enclosed for your review. We would also point out that the utilization right claimed by lessees and the utilities at The Geysers is made subject to applicable laws, including the Stockraising Homestead Act, by section 1(b) of the standard geothermal lease form (copy enclosed).

7. Page VI, second recommendation - see comment #3.

8. Page 1-3, last paragraph, line 6 - The word "resource" should be substituted for "lands" for the sake of clarity.

9. Page 2-15, first paragraph - see comment #3.

10. Page 2-15, second paragraph - see comment #5.

11. Page 2-16, paragraphs two and three - see comment #3.

12. Page 2-20, first two lines - see comment #3.

13. Page 2-21, first two lines and third paragraph - see comment #3.

14. Page 2-24, second paragraph, fourth line - Replace "a stockraising landowners associated" with "the Stockraising Landowners Association."

15. Page 3-1, line six - add the word "such" between "much" and "acreage."

16. Page 4-4, second paragraph - see comment #6.

17. Page 4-7, first paragraph - see comment #5.

18. Page 5-17, lines five and ten - Replace "utility" with "utilities."

19. Page 5-17, fourth paragraph - see comment #6.

20. Page 6-2, first paragraph - see comment #3.

21. Page 6-4, second paragraph - see comment #4.

22. Page 6-5, second paragraph - see comment #5.

23. Page 6-7, second paragraph - see comment #3.

Again, thank you for the opportunity to comment on this draft report.

Sincerely,

Larry E. Meierotto

Assistant Secretary,
Policy, Budget and Administration

3 Enclosures [1]
Encl. 1 - Geothermal Lease Form
Encl. 2 - Solicitor's Opinion
Encl. 3 - Memorandum Dec. 21, 1979, on Geothermal Development of Reserved Mineral Interests and Surface Owner's Right

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1/These documents are not included in this report.

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