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Report to the Chairman, Subcommittee on
Mining and Natural Resources, Committee
on Interior and Insular Affairs, House of
Representatives

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FEDERAL LAND MANAGEMENT

The Mining Law of 1872 Needs Revision





United States
General Accounting Office
Washington, D.C. 20548

**Resources, Community, and
Economic Development Division**

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March 10, 1989

The Honorable Nick J. Rahall, II
Chairman, Subcommittee on Mining
and Natural Resources
Committee on Interior and Insular
Affairs
House of Representatives

Dear Mr. Chairman:

This report responds to your request that we review various aspects of the Mining Law of 1872. Specifically, this report looks at the mining law's patent provision and its requirement that unpatented claim holders perform annually a minimal amount of work to develop their claims (often referred to as "diligence"). It also addresses needed amendments to bring these provisions of the law more in line with existing national natural resource policies. In addition, the report provides statistical data on the extent of patenting.

As agreed, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will send copies to interested parties and make copies available to others on request.

This review was performed under the direction of James Duffus III, Director, Natural Resources Management Issues. Major contributors are listed in appendix V.

Sincerely yours,

J. Dexter Peach
Assistant Comptroller General

Executive Summary

Purpose

Over the last 117 years, the federal government has sold about 3.2 million acres of public land, or an area about the size of Connecticut, under the patent provision of the Mining Law of 1872. Public and congressional interest in the patent provision was rekindled when the federal government in 1986 sold under patent 17,000 acres of land for \$42,500. Weeks later, the patent holders sold these lands to major oil companies for \$37 million.

The Chairman of the Subcommittee on Mining and Natural Resources, House Committee on Interior and Insular Affairs, asked GAO to review the mining law's requirement that claim holders perform a minimal amount of development-related work annually as well as the act's patent provision to determine whether they

- promote the diligent development of mineral resources and
- conform with current national natural resource policies.

Background

The Mining Law of 1872 was enacted to promote exploration and development of domestic mineral resources as well as the settlement of the western United States. It permits U.S. citizens and businesses to (1) freely prospect for hardrock minerals, such as gold, silver, lead, iron, and copper, on most federal lands, and (2) if a valuable deposit is discovered, file a claim giving them the right to use the land for mining activities and sell the minerals extracted without having to pay the federal government any holding fees or royalties.

In order to preserve their rights to claims, claim holders must annually perform at least \$100 worth of drilling, excavating, or other development-related work (often referred to as the act's "diligence" requirement). Claimants desiring to acquire all rights and interests associated with economically-minable claims can obtain fee simple title to both the land and the minerals by patenting them for \$2.50 or \$5.00 an acre, depending on the type of claim. This is about what western grazing and farm lands were worth in 1872.

When enacted, the law applied to all types of minerals on all federal lands. Over the last 7 decades, legislation has removed from the mining law both "fuel" minerals, such as coal, gas, and oil, and most "common variety" minerals, such as sand, gravel, stone, and cinders. Other legislation has closed or withdrawn from mining over 135 million of the approximately 727 million acres of federal lands for uses such as wilderness areas and national parks. Various proposals have been made to

amend the act's hardrock minerals patent and annual work provisions, but none of them have been enacted.

Results in Brief

Neither the act's patent provision nor its annual work requirement ensure that a mineral claim will be developed. Rather, escalating land prices, primarily near expanding communities, resort areas, and tourist attractions, have made the act's patent provision an attractive means of acquiring title to valuable land for nonmining purposes. This, coupled with the nominal cost of gaining title to the land, has resulted in some patent holders reaping huge profits at the government's expense. Much of the work done or certified to have been done by claim holders to meet the mining law's annual work requirement has not brought the claims any closer to development, and the requirement is difficult for federal land-managing agencies to enforce.

While the exploration and development of domestic hardrock mineral resources is still important, the patent provision of the Mining Law of 1872 clearly runs counter to other national natural resource policies and legislation. The Federal Land Policy and Management Act of 1976 (FLPMA) provides that, in general, public lands should remain under federal ownership and be managed for the benefit of all users (multiple use) as well as for future generations (sustained yield). However, mining claim holders can gain title to federal lands by patenting their claims, thereby precluding future public use of these lands. In addition, once in private ownership, patented lands can impede the effective management of adjoining federal lands as well as federal control over incompatible development of the lands patented. Moreover, patenting the land and minerals is not essential for mineral exploration and development. Other provisions of the mining law give claim holders the right to use the land for mining-related activities and to sell the minerals extracted without the federal government relinquishing title to the land.

Principal Findings

The Mining Law's Annual Work Requirement Should Be Replaced

The mining law's annual work requirement no longer promotes mineral development, is difficult to enforce and, on occasion, results in needless damage to the land. GAO reviewed 100 annual work affidavits filed in 1987 and found, as did a federal minerals examiner, that much of the

work, such as maintaining boundary markers and fences, removing litter, posting signs, and checking the property for vandalism, did not bring the claims any closer to development. Moreover, these activities are difficult to verify since often little or no physical evidence exists that work was performed. Occasionally, however, claim holders who have no immediate intent of mining their claims, but who want to retain rights to their claims, will needlessly scar the land to make it appear that they have complied with the annual work requirement.

Replacing the annual work requirement with an annual holding fee would (1) eliminate the need for claim holders to certify that they have met the annual work requirement, (2) eliminate a requirement that federal agencies believe would be difficult to enforce, (3) likely result in more inactive claims being invalidated and made available to others because claim holders not intent on developing their claims might be reluctant to pay the annual fee, and (4) eliminate the reason that might prompt claim holders to needlessly damage the land to make it appear that they have complied with the requirement.

Federal Government Is Selling Valuable Land at Nominal Prices

GAO reviewed 20 patents issued since 1970 for which the government received less than \$4,500 but which in 1988 were estimated to be worth between \$13.8 million and \$47.9 million. Included in these patents was an inactive 160-acre claim near the Keystone, Colorado, ski resort that was patented in 1983 for \$400 (\$2.50 an acre); 44 acres were offered for sale in 1988 for about \$484,000 (about \$11,000 an acre).

As of October 1987, the latest data available at the time of GAO's review, 265 patent applications were pending for more than 80,000 acres of public land. GAO visited 12 of these sites and found that, if all the land applied for is patented, the government will receive about \$16,000 for land appraised in 1988 at between \$14.4 million and \$47.1 million. For example, if two applications totaling about 60 acres near the Breckenridge, Colorado, ski area are patented, the government will receive \$201 for land with an estimated fair market value of about \$12 million. The 1,280-acre application near Laughlin, Nevada, is valued at between \$1.3 million and \$32 million; yet, the federal government will receive \$3,200 if all the land applied for is patented.

The 1872 Law's Patent Provision Runs Counter to Other National Natural Resource Policies

The landmark Federal Land Policy and Management Act of 1976 provides that remaining public lands should continue under federal stewardship unless disposal is in the national interest. In such instances, FLPMA calls for the government to receive fair market value unless otherwise provided by statute. Nevertheless, since 1978, the first year that BLM began keeping detailed data on patent applications, about 157,000 acres of public lands have passed into private ownership for the nominal patenting fee provided for in the mining law.

FLPMA also established the national policy that public lands be managed under the principles of multiple use and sustained yield. Once patented, however, the responsible federal agency loses control over management of the land and may have difficulty managing adjoining federal lands. For example, the patent holder of a site we visited near Aspen, Colorado, had constructed a locked fence that blocked access to considerable federal land and many other mining claims.

Finally, FLPMA provides that the federal government should obtain a fair return for the resources it controls. However, the mining law provides for the government to grant a patent covering both the land and minerals—a process that transfers both to private ownership, thereby removing any opportunity for the federal government to collect revenues for the minerals extracted. Although the federal government has never collected revenues from the sale of hardrock minerals as it does for fuel and common variety minerals, GAO questions whether the government should be precluded forever from doing so.

Recommendations to the Congress

GAO recommends that the Congress amend the Mining Law of 1872 to eliminate the patenting of both hardrock minerals and the land required to mine them. This change would permit the land to remain under federal ownership and provide the government the opportunity in the future to collect revenues for the hardrock minerals extracted. GAO also recommends that the mining law be amended to require claim holders to pay the federal government an annual holding fee in place of the existing annual work requirement.

Should the Congress decide not to eliminate the patenting provision, GAO recommends amending the mining law to either (1) permit claim holders to patent only the minerals, thereby retaining the land in federal ownership or (2) require that the federal government obtain fair market value for the lands patented. Under either option, we believe the claim holder still should be required to pay an annual holding fee.

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Abbreviations

BLM	Bureau of Land Management
CBO	Congressional Budget Office
FLPMA	The Federal Land Policy and Management Act of 1976
GAO	General Accounting Office

Introduction

The Mining Law of 1872 (30 U.S.C. 22 *et seq.*) was enacted to promote the exploration and development of domestic mineral resources as well as the settlement of the western United States. When enacted, the law applied to all types of minerals on all federal lands. Any U.S. citizen could stake a claim to a mineral deposit and, if it could be mined economically, patent the claim, thereby acquiring fee simple title to both the mineral resources and the land covered by the claim.¹ In the intervening 117 years, over 6 million claims have been filed, of which over 65,000 have been patented and converted to private ownership.

The Mining Law of 1872 Is Now Limited Primarily to Hardrock Minerals on Certain Public Lands

Legislation enacted over the last 7 decades has chipped away at the mining law. Fuel minerals, such as coal, gas, and oil, and most common variety minerals, such as sand, gravel, stone, and cinders, have been removed from the mining law, leaving primarily the hardrock minerals, such as gold, silver, lead, iron, and copper.

Although the federal government manages about 727 million acres, not all federal lands are still open to mineral exploration and development. More than 135 million acres have been closed or withdrawn from mining. About 89 million acres have been withdrawn under the 1964 Wilderness Act, (16 U.S.C. 1133, *et seq.*) while another almost 24 million acres are being studied under the Federal Land Policy and Management Act of 1976 (FLPMA)(43 U.S.C. 1701, *et seq.*) for potential designation as wilderness areas. Both acts provide that except for existing rights, mining is prohibited once an area is included in the wilderness system. Similarly, the Mining In the Parks Act of 1976 (16 U.S.C. 1901, *et seq.*) led to prohibiting prospecting, locating and mining new claims within national parks.

The Mining Law Includes an Annual Work Requirement

The Mining Law of 1872, as amended, permits U.S. citizens and businesses to freely prospect for hardrock minerals on federal lands not closed or withdrawn from mining without acquiring a permit or license and without paying any fees. If valuable mineral deposits are discovered, prospectors can file a claim, which covers about 20 acres, giving them the right to use the land for mining-related activities and the right

¹ Fee simple title means acquiring all rights and interests associated with a property.

to sell the minerals extracted without any monetary reimbursement to the federal government.²

The mining law allows claim holders to preserve the rights to their claims by performing annually the equivalent of at least \$100 worth of drilling, excavating, or other development-related work. A claimant has to file annually with the Department of the Interior's Bureau of Land Management (BLM) and with the county in which the claim is located either an affidavit certifying that the required development work has been performed or a "notice of intention to hold" the claim. Notices of intention to hold are filed primarily when BLM has authorized a suspension or deferment of assessment work.

Failure to fulfill the annual work requirement is considered evidence that a claim is abandoned and provides grounds for BLM to invalidate the claim. BLM records show that since 1983, the filing requirement has helped clear more than 125,000 abandoned claims annually from BLM's inventory of unpatented claims.

The Mining Law's Patent Provision Allows Public Lands to Be Conveyed to Private Ownership

A claimant desiring to obtain fee simple title to the land and the mineral rights can, after proving that an economically minable discovery exists and that at least \$500 has been spent to develop the claim, patent the claim for \$2.50 or \$5.00 an acre,³ depending on the type of claim.⁴ After the patent has been granted, the claim becomes private property. Accordingly, the claim holder is no longer required to perform at least \$100 worth of development-related work annually. It also removes any opportunity the federal government has to collect revenues on the minerals extracted, because the government no longer has title to either the minerals or the land.

²A valid mining claim provides the claim holder an exclusive possessory interest in the claim, a form of property that can be sold, transferred, or inherited without infringing the paramount title of the United States. The claim holder has the full legal right to explore, develop, mine, and sell minerals from federal lands.

³The patent fees of \$2.50 and \$5.00 per acre closely approximated the fair market value of western grazing and farm land in 1872.

⁴Three types of claims can be patented. A lode claim is established for minerals in a well defined zone or belt of mineral-bearing rock confined between nonmineralized rock and can be patented for \$5.00 an acre. A placer claim is established for minerals found in masses of gravel, sand, or similar material resulting from the crumbling and erosion of solid rock and can be patented for \$2.50 an acre. A mill site claim can be established in association with a lode or placer claim or independently as a custom mill to process minerals. Mill sites associated with lode claims are patented for \$5.00 per acre, those associated with placer claims at \$2.50 per acre, and custom mill sites are patented at \$5.00 per acre.

Representatives from 12 large mining companies told us that obtaining a secure title to the minerals and the land was their primary incentive for patenting. They said that patenting provides protection against other prospectors or the government challenging the validity of their claims. Seven representatives told us that not having to submit affidavits to comply with the annual development work requirement was a consideration. Two mining company representatives said that the ability to patent claims may be important to some companies because banks might be reluctant to lend money for their mining operations without having title to the land as collateral.

Interior's Bureau of Land Management Is Primarily Responsible for Implementing the Mining Law

The principal federal land managing agencies are Interior's BLM, the Department of Agriculture's Forest Service, and Interior's National Park Service. These agencies manage about 334 million, 191 million, and 80 million acres, respectively, or over 83 percent of the approximately 727 million acres of federally owned land.

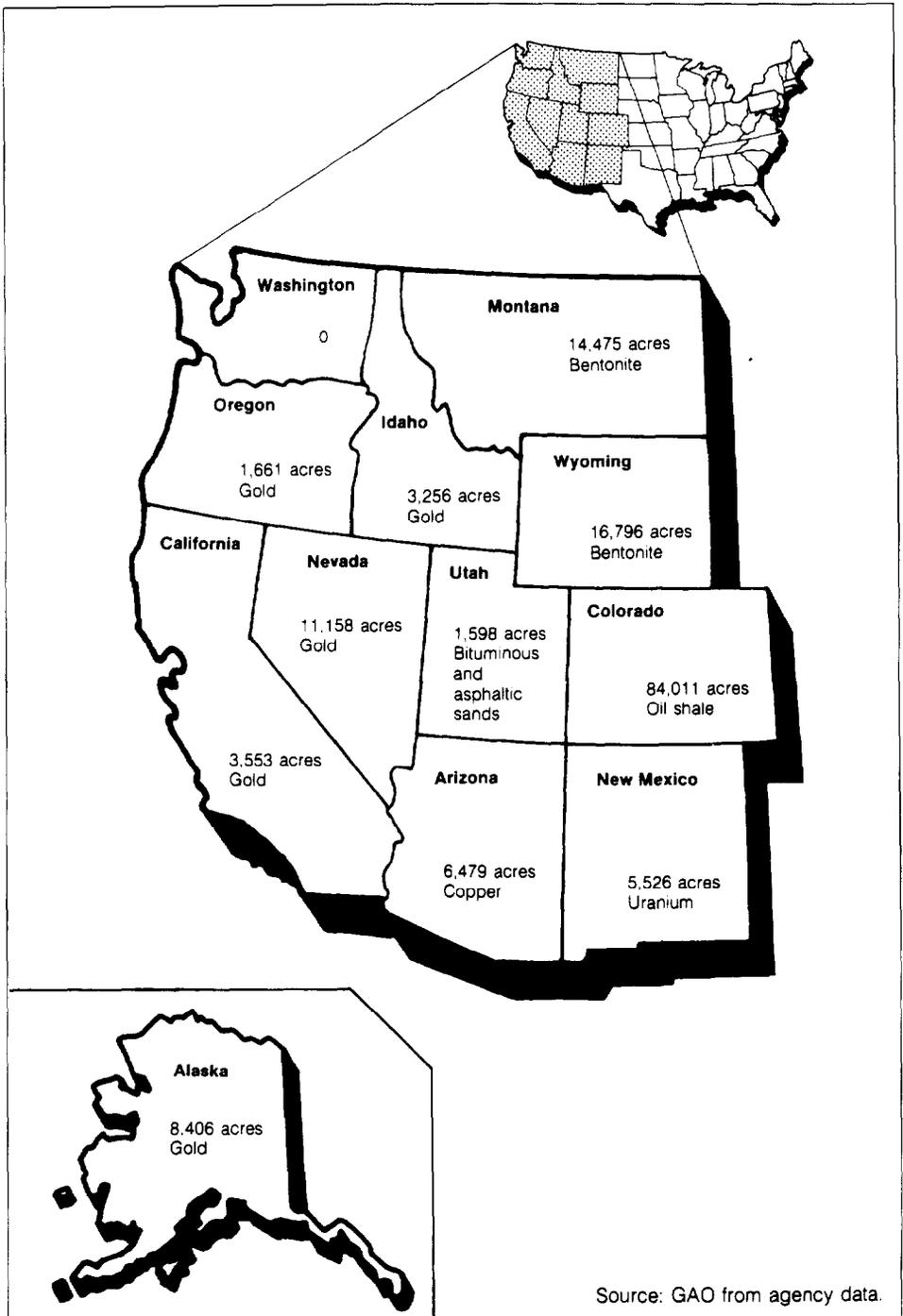
BLM is responsible for managing the mineral resources on all federal public lands, including determining whether a patent should be issued, regardless of which federal agency manages the land. BLM mineral examiners determine whether a patent should be issued for claims located on BLM and Park Service lands. On national forest lands, Forest Service mineral examiners perform their own mineral evaluations and make recommendations to BLM on whether a patent should be issued.

Patented Lands Are Located Primarily in the West

Patented land is heavily concentrated in 10 western states and Alaska. Figure 1.1 shows, for these states, the number of acres patented from January 1, 1978 (the year BLM began recording the data), through September 30, 1987 (the most recent report available at the time of our review) and the most frequently patented mineral. About 66,000 acres have been patented for hardrock minerals (including clays), and 84,000 acres have been patented for oil shale claims. In 1986 alone, 82,000 acres were patented for oil shale.⁵

⁵Although the Mineral Leasing Act of 1920 removed oil shale from the claim/patent process, claims filed before the act could be patented. After a long administrative and legal contest, 82,000 acres on which claims had been made prior to 1920 were patented in 1986.

Figure 1.1: Acres Patented and Most Frequently Patented Mineral for 10 Western States and Alaska, January 1, 1978, Through September 30, 1987



Between January 1, 1978, and September 30, 1987, BLM issued 611 patents to 206 claimants. About 76 percent of the almost 157,000 acres were patented by businesses. Placer claims were the predominant type of claim patented, accounting for 86 percent of the acres. Ninety-two percent of the lands patented were BLM lands and 7 percent were Forest Service lands. (Details on these data are presented in app. I.)

Previous GAO Reports

GAO reports issued in 1974 and 1979 highlighted problems with the Mining Law of 1872. Our 1974 report concluded that the mining law did not (1) provide a method for determining the number and location of existing claims, (2) ensure mineral development, (3) provide the federal government with a fair market return for the minerals mined on federal land, and (4) protect federal land.⁶

FLPMA addressed many of the concerns in our 1974 report. Specifically, it required that both claims and annual work affidavits be filed with BLM, thus providing BLM with the number and location of existing claims. It also established the policy that the federal government should receive fair market value for the resources it controls, and stated that mining should not unnecessarily degrade the land.

The 1976 act, however, did not go far enough. Our 1979 report stated that the mining law's patent provision did not provide a fair market return to the government and that patents conveying title to the land are not consistent with FLPMA's national policy that public lands should be managed for the benefit of all users, not just mining claim holders.⁷

Objectives, Scope, and Methodology

The Chairman of the Subcommittee on Mining and Natural Resources, House Committee on Interior and Insular Affairs, believes that the Congress should re-examine various issues relating to hardrock mining on public lands. To assist the Congress in this effort, he asked us to review the 1872 Mining Law's annual work requirement and patent provision to determine whether they (1) promote the diligent development of mineral resources and (2) conform with current national natural resource policies. He also requested information relating to the act's patent provision, including the number of patents issued and the amount of land and types of minerals patented by both individuals and businesses.

⁶Modernization of 1872 Mining Law Needed to Encourage Domestic Mineral Production, Protect the Environment, and Improve Public Land Management (B-118678, July 25, 1974).

⁷Mining Law Reform and Balanced Resource Management (EMD-78-93, Feb. 27, 1979).

To determine whether the act's annual work requirement promotes mineral development, we reviewed 100 affidavits filed with BLM in 1987—50 each from BLM's Arizona and California state offices. At each office, we selected every 50th affidavit filed until we had selected 50 affidavits. We also solicited the services of a BLM minerals examiner to review the selected affidavits and provide his professional opinion on whether the work claimed satisfied the mining law's requirement. We also asked his opinion on whether the work claimed could be readily verified by BLM and Forest Service field staff. We did not attempt to systematically verify that the work claimed on the affidavits had actually been done because of the large resource commitment such an effort would require. Although these results cannot be statistically projected to all BLM state offices, officials in the other offices that we visited indicated that they had similar experiences with the annual work requirement.

To determine whether the federal land-managing agencies are experiencing any difficulties with administering the annual work requirement, we asked the BLM minerals examiner who reviewed the 100 annual work affidavits and other BLM and Forest Service officials how difficult it would be to verify that the work claimed actually had been done.

To determine whether patented claims are being developed, we first asked BLM's western state offices to identify all patents issued in fiscal year 1983. We chose this year to provide the patent holders sufficient time to begin mining operations before our review. We identified 7 patents issued in 1983 and 13 other nearby sites patented after 1970, which could be visited in conjunction with the 7 sites we identified. The 20 patents included 9 in Nevada, 5 in Arizona, and 3 each in California and Colorado. We then visited these 20 sites to determine the extent of mining operations.

To determine whether the federal government was obtaining a fair return for public lands being disposed of, we obtained the estimated fair market value at the time of our visits for the 20 patented sites included in our review from BLM, Forest Service, and/or knowledgeable local real estate brokers. Generally, they gave us a range of values for the land rather than a single point estimate, and their estimated values were often based on the most recent sale of nearby comparable land. Because these estimates may not be indicative of the value of the land at the time the claims were patented, we also selected 12 sites where patent applications were pending. We first asked BLM to identify all patents pending as of January 1, 1988. On the basis of this information and discussions

with BLM and Forest Service officials, we selected 12 sites near the patented sites we planned to visit in Nevada, Arizona, and Colorado, and obtained their estimated fair market value at the time of our visits in the same manner as for the 20 patents selected. We then determined what the federal government received for the 20 patented sites and what it will receive if all the land applied for in the 12 applications is patented. (For additional information on the sites visited, see app. II.)

To determine whether the mining law's patent provision and annual work requirement are consistent with existing national natural resource policies, we reviewed applicable mining laws; BLM, Forest Service, and National Park Service regulations; and other applicable reports. We also interviewed and obtained information from

- officials at BLM and Forest Service headquarters in Washington, D.C., and at BLM and Forest Service offices in Arizona, California, Colorado, and Nevada, which are states with significant hardrock mining activity (see app. III);
- representatives from four major mining interest groups (see app. IV), three authorities on mining law, and a representative from the Sierra Club; and
- representatives from 12 large mining companies—the 5 clay mining companies with the most acreage patented since 1978, the 5 most profitable nonferrous (not made of or containing iron) metal mining companies in the United States on the basis of 1987 figures, and two other hardrock mining companies. (See app. IV.)

To obtain statistical data on patents, we developed an automated patent database from BLM's patent application status reports. Our database included reports covering the period from January 1, 1978 (the year BLM began recording the data), through September 30, 1987 (the most recent report available at the time of our review). Our database included the 12 states with the most mining activity administered by 11 BLM state offices—Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon (includes Washington), Utah, and Wyoming. Since BLM is responsible for issuing all patents regardless of which federal agency manages the land, our database is all-inclusive. We gave a copy of this database to BLM to facilitate its management of the patent provision.

Our work was conducted between December 1987 and September 1988 in accordance with generally accepted government audit standards. We discussed the results of our review with BLM and Forest Service officials

and have incorporated their comments where appropriate. However, as the Chairman's office requested, we did not obtain official agency comments on a draft of this report.

The Mining Law's Annual Work Requirement Should Be Replaced

The Mining Law of 1872 generally requires claim holders who have not patented their claims to perform annually at least \$100 worth of development-related work. The purpose of this requirement is to encourage mineral development. We have found that the annual work requirement does not stimulate mineral development, would be difficult for federal land-managing agencies to enforce if they were required to, and, on occasion, results in needless damage to the land. Replacing the annual work requirement with an annual holding fee seems to be a reasonable solution, although the possible impact that such a fee could have on the number of claim holders applying for patents must be considered.

The Annual Work Requirement Does Not Promote Development

One hundred seventeen years ago, \$100 represented a sizeable annual investment (the equivalent to about 25 days of labor). Today, \$100 represents a nominal yearly expense (about an average day's work). To develop a claim today, the Office of Technology Assessment estimates that an average annual expenditure of several thousand dollars per acre is needed.

In 1974 we reported that 237 of the 240 claims we reviewed showed no evidence that mineral extraction had ever taken place, and on 146 of the claims, no evidence of development work existed. More recently, mining company officials we spoke with acknowledged that, notwithstanding the annual work requirement, their firms were actively mining relatively few of their hundreds of claims.

An official from one firm holding many patented and unpatented claims told us that his company was mining less than 20 percent of its unpatented claims, and an official of another firm said his company was mining less than 10 percent of its unpatented claims. Instead of mining, the companies are holding these claims in anticipation that future mineral price increases will make them profitable to mine. All that they must do to preserve their claims is to annually file affidavits with BLM and the respective counties certifying that the required development work was done.

We reviewed 100 annual work affidavits filed by individuals and businesses with BLM's California and Arizona state offices in 1987 and concluded, as did the BLM minerals examiner assisting us, that much of the work did little to bring the claims any closer to development. Activities reported as meeting the mining law's annual work requirement included maintaining boundary markers and fences, removing litter, posting signs, and checking property for vandalism and safety hazards.

Federal Agencies Find the Annual Work Requirement Difficult to Enforce

Forest Service and BLM officials have told us that attempting to verify the \$100 annual work requirement for all or even a sample of claims would not be an efficient use of their limited resources. Approximately 1.2 million unpatented mining claims and over 600,000 affidavits (affidavits often cover multiple claims) are filed each year. While the mining community generally recognizes that many claim holders certify that they have met the annual requirement without ever performing the work, it would be difficult to differentiate between work certified but not done and work done that cannot be verified. For example, activities such as conducting geological, geochemical, and geophysical surveys often leave little or no physical evidence that work was performed or conditions improved in a given year.

Failure to fulfill the annual work requirement is grounds for BLM to invalidate a claim. However, it takes time and money to invalidate a claim, a process that may require BLM to perform a mineral examination to determine whether the mineral can be mined economically, and to defend its determination in court. Even if BLM is successful in invalidating a claim, the claim holder can immediately refile another claim on the same location, thus regaining the right to extract and sell minerals.

Because they are not required to, and because of the problems associated with verification, neither BLM nor the Forest Service requires verification of the annual work requirement. Instead, agency officials said they generally attempt to verify reported assessment work on those claims for which claim holders have made known their intent to either conduct operations that will disturb the land¹ or patent a claim. The agencies may also, on occasion, attempt to verify whether the required work was done when clear title to the land is needed for a proposed land exchange, or for some purpose other than hardrock mining.

The Annual Work Requirement Can Result in Needless Land Disturbance

The limited amount of work necessary to satisfy the nominal \$100 annual work requirement does not encourage mineral development, nor would it result in extensive damage to the land. In some instances, however, claim holders have needlessly scarred the land with bulldozers to make it appear that they have complied with the annual work requirement even though this did nothing to further development of the minerals.

¹Claim holders must file with BLM notices of intent when they plan to conduct operations that disturb 5 acres of land or less and must file plans of operation when they intend to disturb more than 5 acres. Forest Service regulations require mine operators to file a plan of operations for any mining that could result in "significant surface disturbance."

We observed sites where work carried out to comply with the requirement left deep marks on the land and may result in future erosion. For example, in Laughlin, Nevada, we found numerous bulldozer scrapes, which the claim holder told us were made only to meet the work requirement rather than to bring the claim any closer to mineral development (see fig. 2.1).

Figure 2.1: Environmental Damage Done by a Bulldozer to Fulfill Annual Work Requirement in Nevada



Alternatives to the Annual Work Requirement Must Consider Their Impact on the Number of Claims Patented

Several alternatives have been proposed to the annual work requirement. One alternative would give claim holders the option of meeting the annual work requirement or paying the federal government a like amount of money. Another alternative would simply replace the annual work requirement with an annual holding fee.

The American Mining Congress, from 1971 through 1977, and the Public Resource Foundation, currently, favor the first alternative. This alternative has been adopted by most Canadian Provinces as well as the state of Arizona, which have similar annual work requirements. According to an Arizona official, some claim holders send their money to the state each year rather than perform the state-required exploration work.

The Congressional Budget Office (CBO) favors the second alternative. In its 1988 report,² CBO stated that replacing the annual work requirement with an annual holding fee could (1) at least partly compensate the federal government for the value of the extracted minerals and the cost of reclaiming abandoned mine sites, (2) produce new revenues for the federal government,³ and (3) help clear the number of abandoned and inactive claims from BLM's records for those claim holders who do not pay the annual holding fee.

In considering alternatives to the annual work requirement, the relationship of the annual work requirement to the patent provision of the Mining Law of 1872 must be considered. When claims are patented, the claim holder is relieved of the requirement to perform at least \$100 of development-related work annually. Replacing the existing annual work requirement with an annual holding fee, could result in claim holders attempting to patent their claims to avoid paying the annual holding fee.

Conclusion

On the basis of our work, we favor replacing the annual work requirement with an annual holding fee. Requiring every claim holder to pay an annual fee would (1) make it unnecessary for claim holders to certify that they have met the annual work requirement, (2) eliminate a requirement that federal agencies believe would be difficult to enforce, (3) depending on the amount of the fee, likely result in clearing more invalid, inactive, or abandoned claims from the records and making those claims available to others because claim holders not intent on developing their claims may be reluctant to pay the annual fee, and (4) reduce damage to federal land by claim holders who are trying to make it appear that they have complied with the annual work requirement.

Recommendation to the Congress

We recommend that the Congress amend the Mining Law of 1872 to require claim holders to pay the federal government an annual holding fee in place of the existing annual work requirement. In considering such an amendment, the Congress should bear in mind the relationship of the annual work requirement to the patent provision of the Mining Law of 1872.

²Reducing the Deficit: Spending and Revenue Options, a report to the Senate and House Committees on the Budget-Part II, CBO (Mar. 1988).

³CBO estimates that an annual holding fee of \$1,000 per claim would produce about \$75 million a year in new revenue for the federal government.

The Mining Law's Patent Provision Is Not Consistent With Current National Natural Resource Policies

Over the last 25 years, several federal laws have established policies that call for the federal government to maintain ownership of public lands, manage these lands to maximize multiple uses, and obtain fair market value or adequate compensation for the resources it controls. The patent provision in the mining law is not consistent with these policies in that it allows patented mining claims to pass into private ownership, which removes these lands from multiple-use management, impedes effective multiple-use management of adjacent public lands, and does not permit the government to receive a fair return on the land or minerals.

Public Lands Generally Are to Remain Under Federal Stewardship

The federal government owns about 727 million acres, comprising about a third of the nation's land area. In the course of the nation's expansion and development, public lands have been sold or deeded to states and their counties and municipalities, educational institutions, private citizens, and industry. In 1976 FLPMA established new federal policy that provides for retaining public lands under the stewardship of the federal government unless disposal is in the national interest. For example, it may be in the nation's interest to dispose of open pit mines or land holdings isolated from other public lands. In such instances, FLPMA calls for the government to receive fair market value for the land unless otherwise provided for by statute.

Through the patent provision of the Mining Law of 1872, the government has sold about 3.2 million acres of land (an area about the size of Connecticut). However, a number of laws have provisions to accommodate mining while also requiring that the federal government retain title to the land, subject to valid existing rights. For example, the Alaska National Interest Lands Conservation Act of 1980 (16 U.S.C. 410hh et seq.) and the Military Lands Withdrawal Act of 1986 (Public Law 99-606) permit, subject to valid existing rights, title to be issued for locatable minerals but not to the land. These laws apply to land within the Alaska National Park System and on six parcels of public land set aside for military use, respectively. Use, but not ownership, may be granted for as much land as may be necessary to mine a claim.

Other legislation has left hardrock minerals as the only minerals still subject to the mining law's land patenting provisions. The Mineral Leasing Act of 1920 (30 U.S.C. 181 et seq.) provides that lands may be leased to extract fuel minerals, including oil shale, but the land remains in federal ownership. Over a quarter of a century later, the Materials Act of 1947 (30 U.S.C. 601 et seq.) and the Common Varieties Act of 1955 (30

U.S.C. 611), together with implementing regulations (43 C.F.R. 3711.1(b)), removed most common variety minerals from the mining law's patent provision, requiring that the mined land remain in public ownership.¹

Running counter to the policy set forth in these acts—to keep remaining public lands under federal stewardship—is the patent provision of the Mining Law of 1872, which gives claim holders title to both the land and the hardrock minerals if BLM determines that the minerals can be mined economically. From January 1, 1978, to September 30, 1987, about 157,000 acres have left federal ownership through patenting, and 66,000 acres of this total were for hardrock mineral claims.

Public Lands Generally Are to Be Managed Under the Principles of Multiple Use and Sustained Yield

FLPMA established the national policy that most public lands be managed under the principles of multiple use and sustained yield. The multiple-use principle requires federal agencies to manage their lands for the benefit of all uses, including not only mining but also those uses associated with outdoor recreation, timber, livestock grazing, and fish and wildlife conservation. The sustained-yield principle requires federal agencies to ensure that their lands' condition be maintained so that future generations will be able to enjoy a vibrant land resource. However, patenting the surface estate is not consistent with this policy because it takes the land out of federal ownership, thereby precluding its use for other purposes.

Once this land is patented, the responsible federal agency loses control over management of the land. This can limit the agency's ability to effectively manage adjoining public land and, if incompatible development occurs on the patented land, the agency may be forced to reacquire the land and mineral rights, which can be both difficult and costly.²

Since private owners have the legal right to gain access to their property, patent holders can construct roads through surrounding public land. Conversely, however, a federal agency cannot infringe upon the patent holder's property rights. For example, the patent holder of one site we visited near Aspen, Colorado, had a locked gate blocking the only

¹Claims that were located and profitably operated before July 23, 1955, are exempt from the 1955 act. Further, under the 1955 act, claim holders may acquire title to the land covered by claims to certain common variety minerals having distinct and special properties. For example, certain materials, such as unusual types of granite, are commercially valuable for special building uses.

²Federal Land Management: Nonfederal Land and Mineral Rights Could Impact Future Wilderness Areas (GAO/RCED-87-131, June 30, 1987).

access road to considerable Forest Service land and many other mining claims, thus precluding recreational users and miners from crossing his lands to adjoining Forest Service lands. Similarly, Park Service officials in Alaska told us that a patent holder recently denied Park Service staff permission to cross his land to conduct work related to an environmental impact statement on nearby unpatented claims. In other cases in which illegal activities such as poaching are suspected, Park Service officials informed us that they do not always investigate because they may lack just cause to trespass on private land.

Valuable Federal Lands Are Being Sold at Nominal Amounts

When the Congress enacted the Federal Land Policy and Management Act in 1976, it established the policy that the government receive fair market value for the use of public lands and their resources unless otherwise provided for by statute. The Mining Law of 1872 provides such an exception. The mining law provision that allows land to pass out of federal ownership for \$2.50 or \$5.00 per acre—which approximated the fair market value for western grazing and farm land in 1872—has not been updated to reflect the increased land values.

While the purposes of the Mining Law of 1872 were to promote domestic mineral exploration and development and spur the settlement of the then sparsely populated West, the subsequent population growth experienced by many western states has made the latter purpose no longer an issue. Since the mining law's enactment, patented land throughout the West has been used for many different, nonmineral purposes, including housing projects, mountain cabins, and resort sites. For example, in 1974 we reported that 80 percent of the 93 patent sites we visited showed no evidence that minerals had ever been extracted.³ An official of BLM's Colorado State office estimates that up to 80 percent of the patent applications he receives are motivated primarily by uses other than mining.

Our review of 20 patents issued since 1970 showed that the federal government received less than \$4,500 for lands valued in 1988 at between \$13.8 million and \$47.9 million. Our review of 12 patent applications showed that, if all the land applied for is patented, the government will receive about \$16,000 for land appraised in 1988 at between \$14.4 million and \$47.1 million. The following sections covering the lands for the 20 patents and 12 patent applications we reviewed illustrates the vast

³B-118678, July 25, 1974.

difference between the acquisition cost and the current value of these lands.

Widening Gap Between Federal Return and Land Values

In the past we have found numerous instances near expanding communities, resort areas, and tourist attractions where land has been patented for far less than its fair market value. For example, we reported in 1974 that for 41 mineral patents in four major mining states, the government received about \$12,000 for land with a fair market value of more than \$1 million.⁴ Public and congressional interest in the patent provision was rekindled in 1986 when patent holders sold 17,000 acres of oil shale land to major oil companies for \$37 million. Just weeks earlier they had patented the land and paid the government \$42,500.

Our current work showed that the gap is growing between the nominal amount paid the government by certain claim holders to patent their claims and the fair market value of the land being converted into private ownership. Government appraisers and local real estate brokers estimated that the value of the land covered by the 20 patents we visited ranged from about \$200 to \$200,000 an acre—well above the \$2.50 or \$5.00 an acre that the government received.

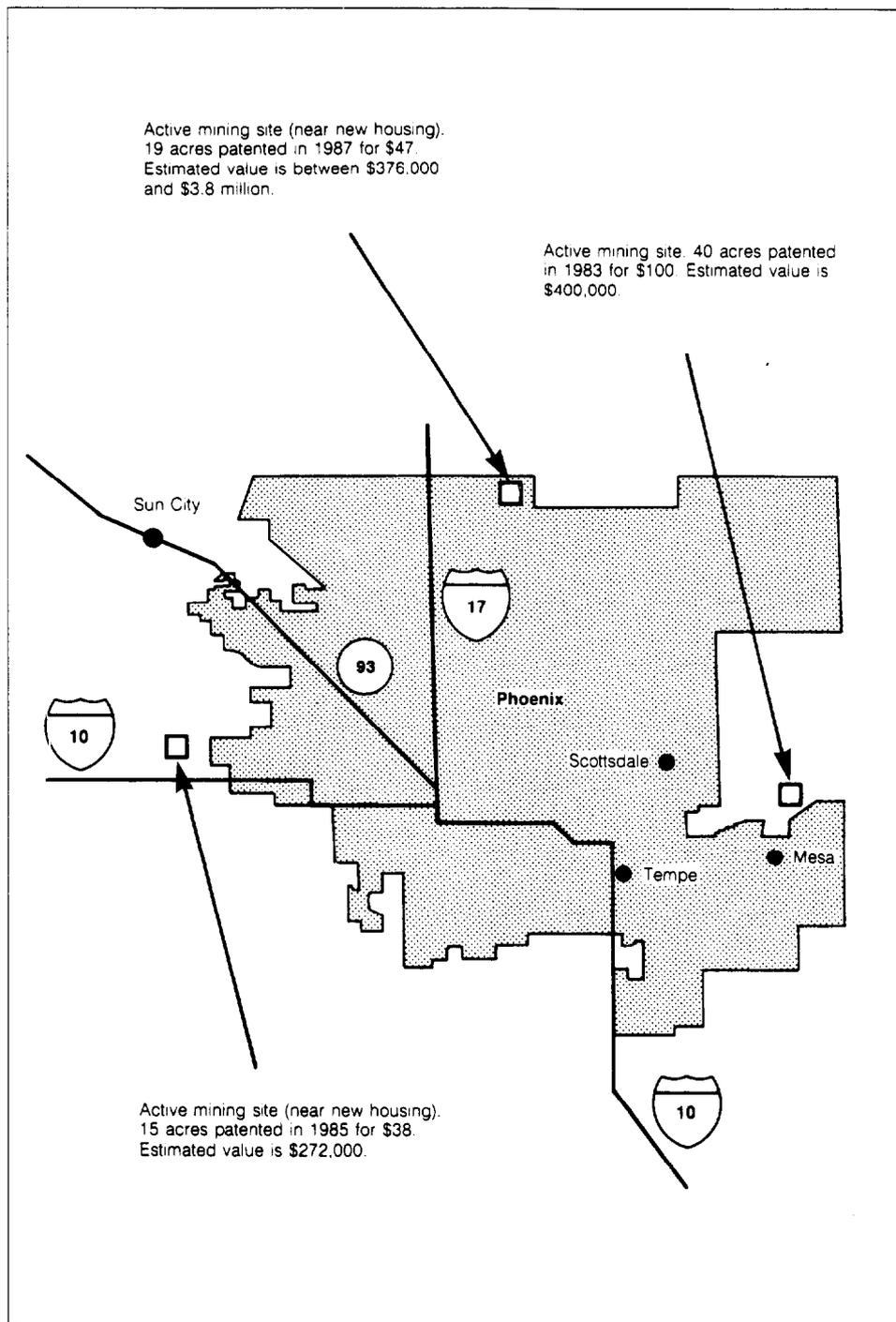
Some of the recently patented sites that we visited were being mined actively, whereas at others there was no sign that mining had occurred or the sites were not being actively mined at the time of our visit. Among the mining sites we visited that were actively being mined were three near Phoenix, Arizona, and two in Las Vegas, Nevada.

All three of the sites near Phoenix are close to the present city limits (see fig. 3.1). One Phoenix site is an active 15-acre sand and gravel mining operation that was patented in September 1985 for \$38. Another is an active 19-acre granite operation that was patented in October 1987 for \$47. A BLM appraiser estimated that the fair market values of these lands, exclusive of the minerals, are \$272,000 and as much as \$3.8 million, respectively. The houses being built adjacent to these patent sites sell for about \$100,000 each. The third Phoenix site is an active 40-acre sand and gravel operation near Mesa, Arizona, that was patented in 1983 for \$100. A BLM appraiser estimated that the site, located within a short drive of several residential communities, has a current fair market value of about \$400,000.

⁴B-118678, July 25, 1974.

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Figure 3.1: Patented Mining Sites Visited
in the Greater Phoenix, Arizona, Area

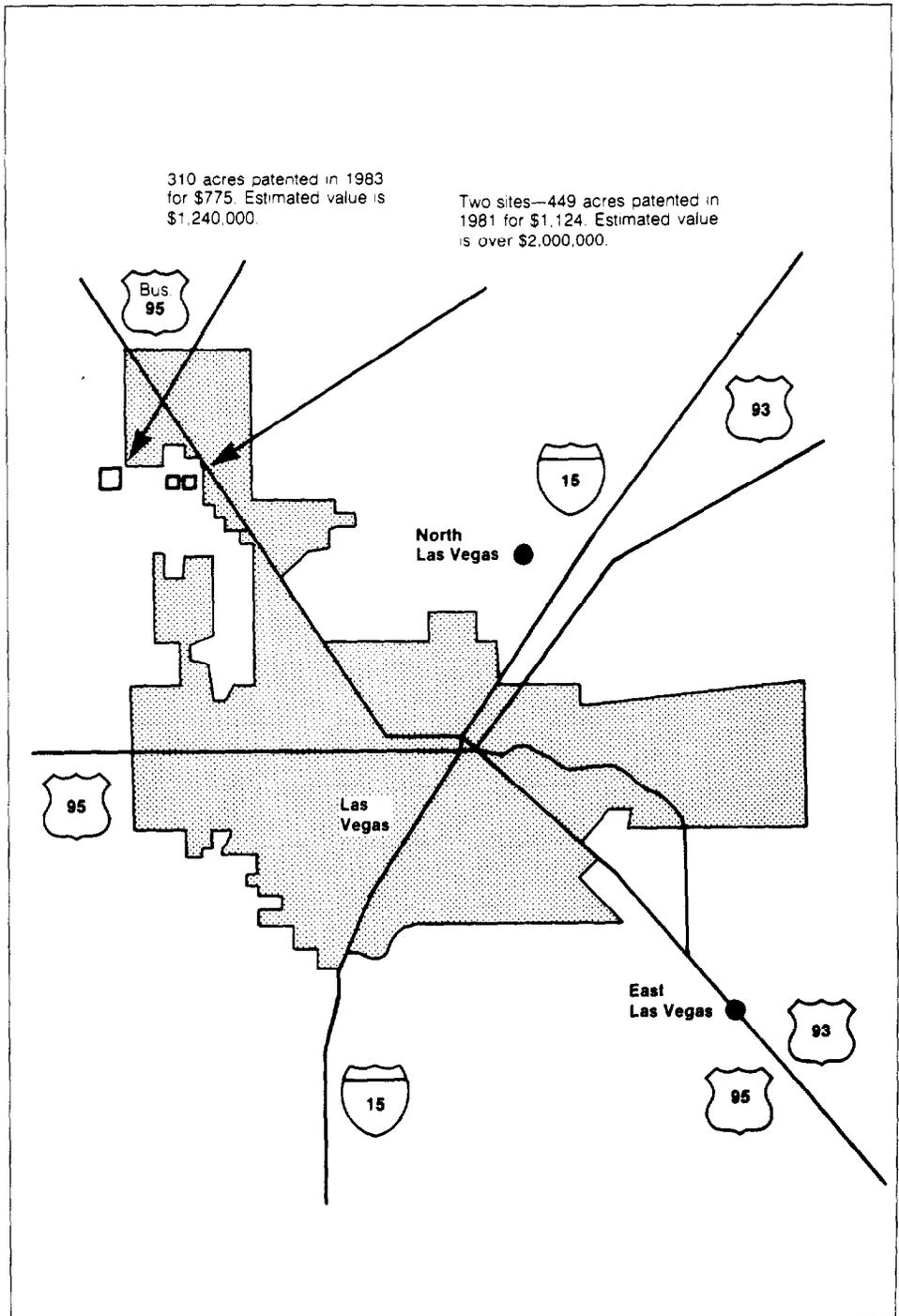


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We visited two patented sites in Nevada that are currently being mined for sand and gravel (see fig. 3.2). The sites, comprised of adjacent claims and owned by the same company, cover 449 acres and were patented in 1981 for \$1,124. They are within a few miles of residential housing near the Las Vegas city limits. A BLM appraiser estimated the combined fair market value of these lands to be over \$2 million. We also visited a third patented site located on the outskirts of Las Vegas. The property is surrounded by a wilderness study area, has a view of Mt. Charleston, and is close to a resort hotel and a Forest Service ski resort. The site was not being mined at the time of our visit. The 310-acre site was patented in 1983 for \$775, but a BLM appraiser estimated its 1988 market value to be about \$1.2 million.

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Figure 3.2: Patented Mining Sites Visited
in the Greater Las Vegas, Nevada, Area

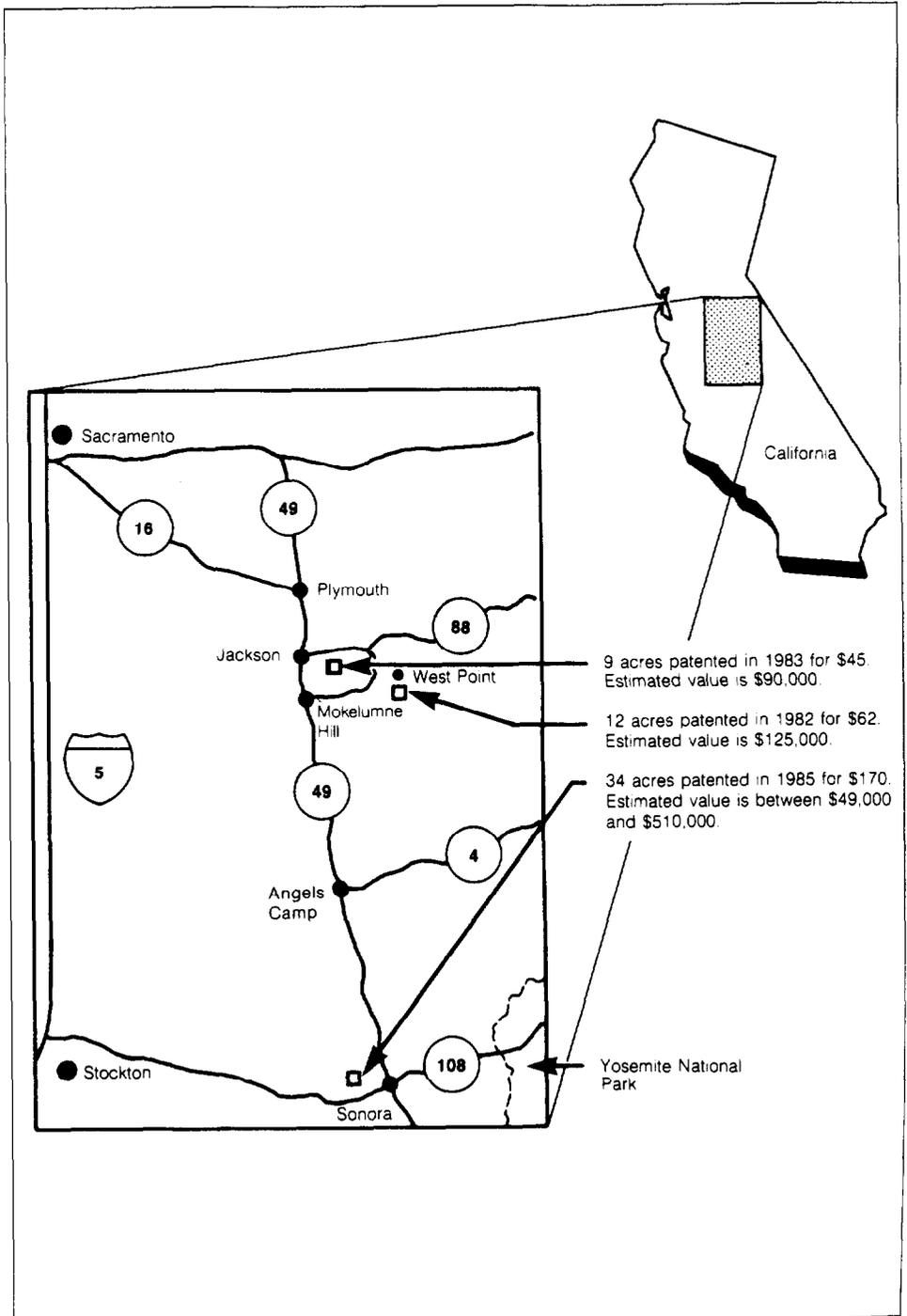


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We visited three patented gold mines in the area of California where the 1849 gold rush occurred (see fig. 3.3). This area, known as the Mother Lode country, has become a popular tourist and retirement area. One active mine, patented in 1983, is a 9-acre parcel near the popular tourist town of Jackson. We also visited two inactive gold mines in the Mother Lode area: a 12-acre parcel near the retirement community of West Point that was patented in 1982 and a 34-acre parcel near Sonora that was patented in 1985. The government received \$45 for the 9-acre parcel near Jackson, \$62 for the 12-acre parcel near West Point, which was for sale at the time of our visit, and \$170 for the 34-acre parcel near Sonora. Local real estate brokers estimated that these lands have fair market values of \$90,000, \$125,000, and as much as \$510,000, respectively.

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Figure 3.3: Patented Mining Sites Visited
in the Mother Lode Gold Country of
California



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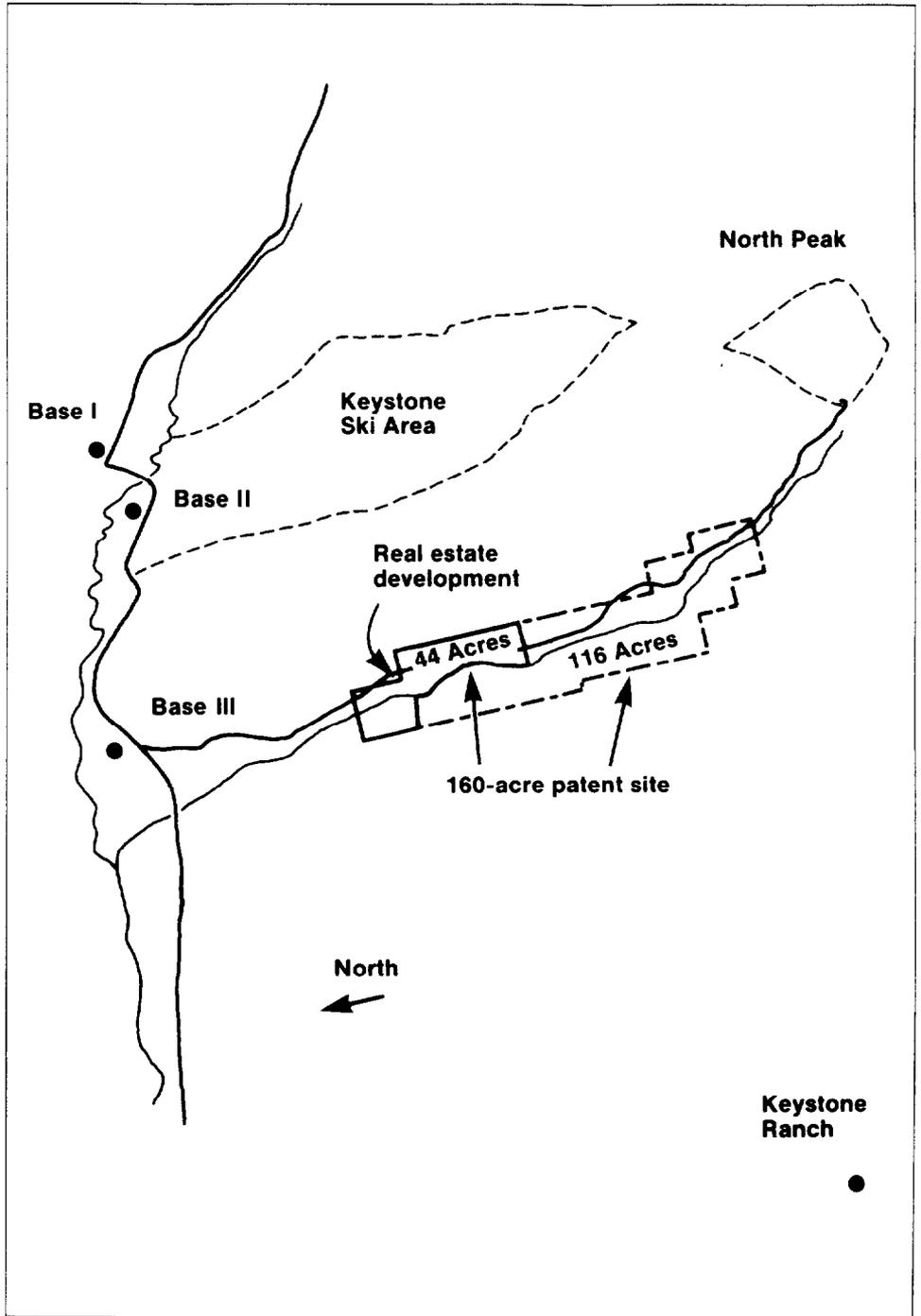
A site we visited in Keystone, Colorado, was a 160-acre parcel patented in 1983 for \$400 (see figs. 3.4 and 3.5). Forest Service officials told us that no gold has been mined. Forty-four acres of this parcel, located close to the Keystone resort ski runs, were for sale as part of a real estate development. The asking price at the time of our visit was about \$11,000 per acre, or \$484,000. If all 160 acres were valued at this price, the patented property would be worth about \$1.8 million.

Figure 3.4: Patent Site for Sale Near Keystone, Colorado, Ski Resort



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Figure 3.5: Area Map of Keystone, Colorado, Patent Site



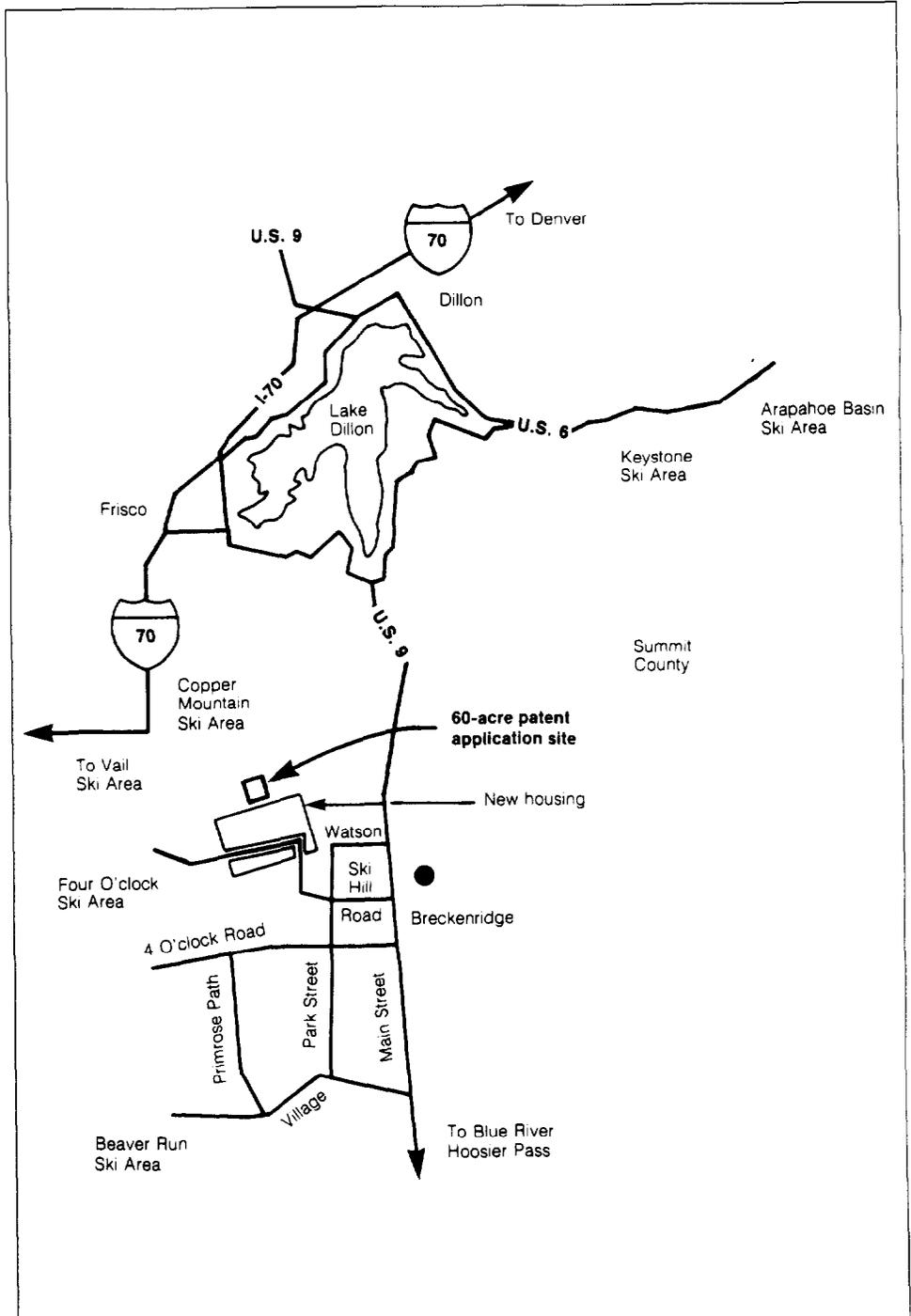
**Patent Applications in
Process Now Include
Valuable Lands**

As of October 1, 1987, applications for 265 patents were pending for more than 80,000 acres of public land in the western states and Alaska. BLM, Forest Service, and/or knowledgeable local real estate brokers estimated that the land values of the 12 patent application sites we visited, covering about 5,300 acres, ranged from \$280 to \$200,000 per acre. If all the land in these 12 sites is patented, the government will receive about \$16,000 for land appraised in 1988 at between \$14.4 million and \$47.1 million.

Among these 12 patent applications were two totaling about 60 acres that were filed in July 1985 on adjacent claims in a scenic section of the Arapaho National Forest near the Breckenridge, Colorado, ski area (see figs. 3.6 and 3.7). No recent mineral activity was evident at the time of our visit. A Forest Service official estimated that the land is worth about \$200,000 per acre. A nearby new housing development was selling less than full-acre lots without a scenic view for about \$100,000 each. If all the land applied for is patented, the government will receive \$201 for land with a fair market value of about \$12 million. Figure 3.6 shows the patent applications' location in relation to the adjacent housing project and nearby ski resorts.

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Figure 3.6: Area Map of Breckenridge, Colorado, Patent Application Site



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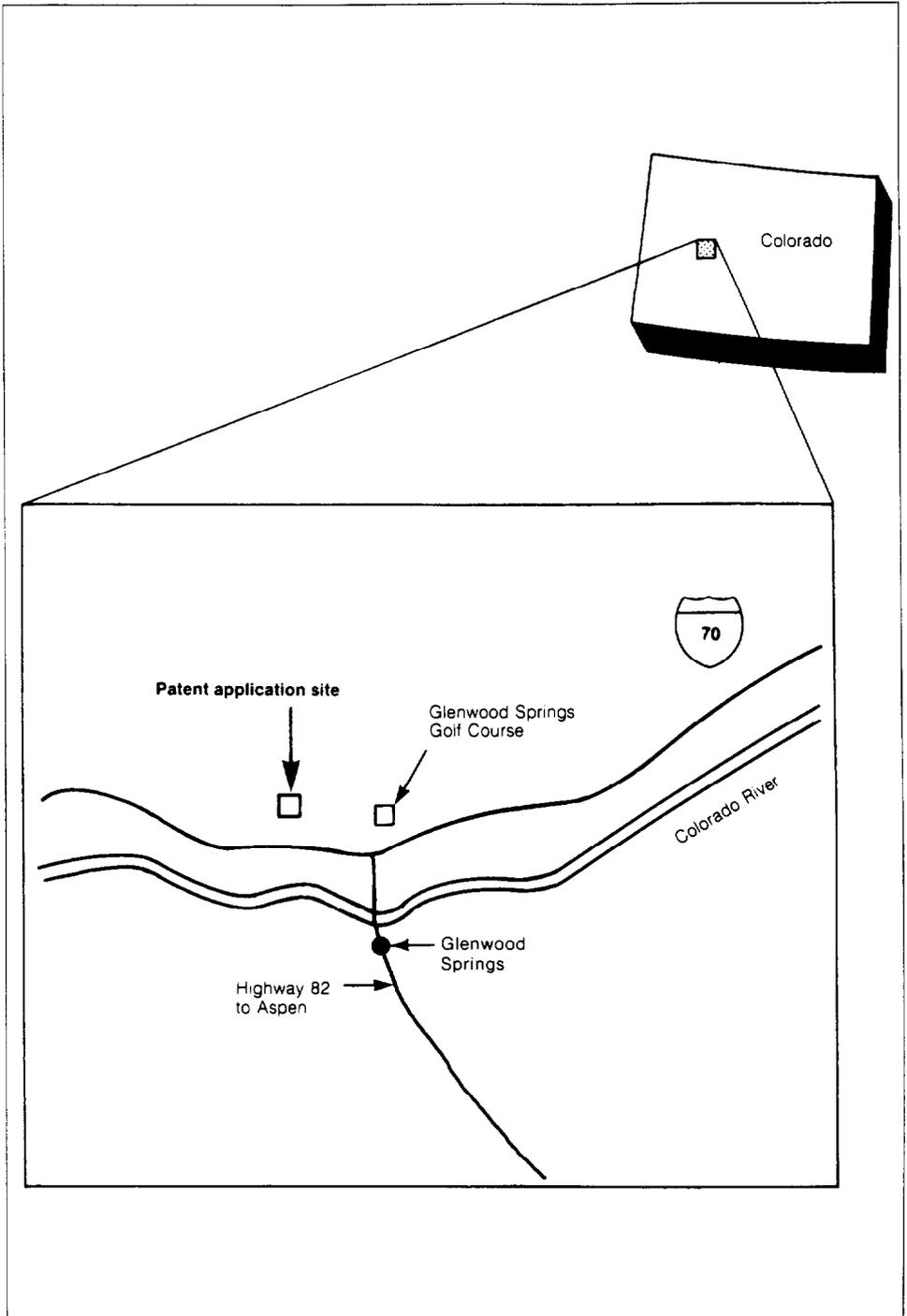
Figure 3.7: Breckenridge, Colorado,
Patent Application Site With Old Miner's
Cabin



In January 1987 a patent application was filed for 20 acres in Glenwood Springs, Colorado, near the town's golf course (see fig. 3.8). A local realtor appraised the land in the immediate area at as much as \$80,000 per acre. If all 20 acres are patented, the government will receive \$50 for land worth as much as \$1.6 million.

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Figure 3.8: Patent Application Site in the
Greater Glenwood Springs, Colorado,
Area

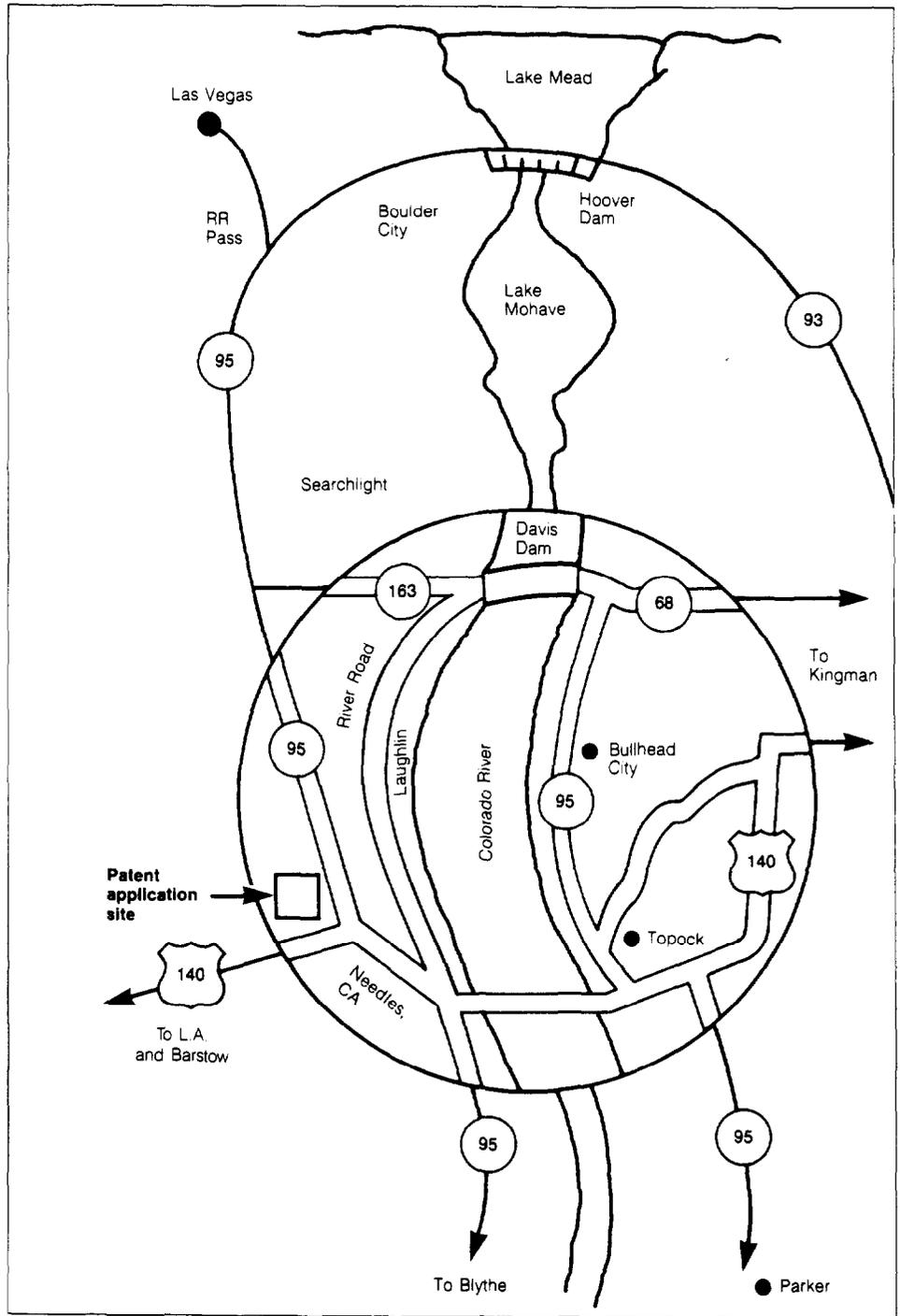


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In May 1987 a patent application was filed for 1,280 acres adjacent the National Park Service's Lake Mead National Recreation Area and within about 3 miles of nine gambling casinos in Laughlin, Nevada (see fig. 3.9). If all the acreage is patented, the federal government will receive \$3,200. Laughlin is Nevada's third largest gaming center and is the country's fastest growing gaming area with 17 new casinos already planned. Little open land is available in this area. A BLM appraiser estimated that the land covered by the patent application was worth about \$1.3 million. However, a local realtor estimated the value at between \$25.6 million and \$32 million. This patent application site is also conveniently located for water sport activities on the Colorado River as well as Lake Mead and Lake Mohave.

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Figure 3.9: Patent Application Site in
Laughlin, Nevada



Past Proposals to Amend the Patent Provision of the Mining Law of 1872

Even before FLPMA was enacted, concerned groups proposed limiting the patenting of hardrock minerals to the ore deposits themselves. For example, in 1970 the Public Land Law Review Commission Report to the President and the Congress on needed changes to the mining law recommended that claimants obtain a patent to the mineral deposits only. According to an American Mining Congress official, the Mining Congress incorporated this Commission recommendation in bills presented to, but not enacted by, the Congress between 1971 and 1977.

In 1977 a report sponsored by the Council on Environmental Quality entitled Hard Rock Mining on the Public Land advocated retention of public ownership. The Secretary of the Interior cited this report as support for submitting to the Congress a proposed bill entitled The Mineral Development Act of 1979. The bill was drafted by the American Mining Congress and, if passed, would have replaced the Mining Law of 1872. This report stated, "The current claim-patent system is indeed a last vestige of a former national policy. It is no longer the policy of the United States to dispose of the public domain for the development of agriculture, railroads, or the timber industry as it once was."

More recently, at congressional oversight hearings in June 1987,⁵ the National Wildlife Foundation, a national environmental group, and the Public Resource Foundation, an independent private foundation engaged in research and public education relating to natural resources, supported retaining public ownership of the land. The Public Resource Foundation advocated a limited patent to the minerals for only as long as reasonable to extract them. It also supported paying a rental fee to the federal government for use of the land needed for mining. In addition, it maintained that selling title to the land is "irreconcilable" with modern federal land management policy.

⁵Oversight hearing before the Subcommittee on Mining and Natural Resources, House Committee on Interior and Insular Affairs, on the Mining Law of 1872 (June 23, 1987).

Consideration Should Be Given to Eliminating the Patenting of Both the Minerals and the Land

Since 1970 most prior proposals to amend the Mining Law of 1872 have recommended eliminating the patenting of land covering mineral deposits but retaining the patenting of hardrock minerals.⁶ Patenting the minerals would still permit claim holders to acquire title to the ore deposits, thus precluding the federal government from obtaining any revenue for the minerals extracted. Although FLPMA generally requires that the federal government obtain a fair return for the resources it controls, this is done for fuel and common variety minerals but not for hardrock minerals. The Mineral Leasing Act of 1920 created a leasing system for fuel minerals whereby the government retains a continuing ownership interest in any future production through a royalty provision. The Materials Act of 1947 and the Common Varieties Act of 1955 require that the government receive "adequate compensation" for the common variety minerals mined on federal lands.

Conversely, the Mining Law of 1872 still permits claim holders to sell the minerals extracted without any revenue accruing to the federal government. We believe, therefore, that any deliberation on further amending the mining law should consider the budgetary implications of patenting hardrock minerals—a policy that eliminates any opportunity for the federal government to obtain a fair return for the minerals extracted.

Conclusions

While the exploration and development of domestic hardrock mineral resources is still important, the patent provision of the Mining Law of 1872 clearly runs counter to other national natural resource policies and legislation relating to federal stewardship and multiple-use management of public lands. Patenting is not essential for mineral exploration and development. Other provisions of the act give claim holders the right to use the land for mining-related activities and to sell the minerals extracted without the federal government having to relinquish title to the land.

Patenting does not ensure that a mineral claim will be developed, and some patent holders have never developed their claims. Rather, escalating land prices in certain areas have made the act's patent provision an attractive means of acquiring title to land for purposes other than mining. In addition, although the federal government has never collected

⁶The 1977 report sponsored by the Council on Environmental Quality was an exception, advocating that the minerals not be patented, but rather that the federal government obtain a fair market return for minerals extracted.

royalties from the sale of hardrock minerals as it does for fuel and common variety minerals, we question whether the government should be precluded from doing so in the future. When public lands pass into private ownership through patenting, the federal government loses forever the opportunity to obtain such revenues.

The federal government stands to lose between \$14.4 million and \$47.1 million if the 12 pending applications included in our review are patented, and tens of millions of dollars more if the patent provision of the Mining Law of 1872 is not amended. We believe eliminating the patent provision would best serve the government's interest; however, if it is not eliminated, we believe that patenting should be restricted to the minerals only, or, at a minimum, the federal government should receive fair market value for the public land being sold into private ownership under this law. Selling land valued at up to \$200,000 an acre for a nominal \$2.50 or \$5.00 an acre is not fulfilling the federal government's fiduciary responsibility.

Recommendation to the Congress

We recommend that the Congress amend the Mining Law of 1872 to eliminate the patenting of both hardrock minerals and the land required to mine them. This change would not only permit the land to remain under federal ownership, it would also provide the government the opportunity in the future to collect revenues for the hardrock minerals extracted.

Should the Congress decide not to eliminate the patenting provision, we recommend amending the mining law to either (1) permit claim holders to patent only the minerals, thereby retaining the land in federal ownership, or (2) require that the federal government obtain fair market value for the lands patented. Under either option, we believe the claim holder still should be required to pay an annual holding fee.

Patent and Patent Application Data, January 1, 1978, Through September 30, 1987

Table I.1: Land Patented, by Type of Applicant

Applicant	Acres	Percent
Business	119,643	76.25
Individual	37,276	23.75
Total	156,919	100.00

Table I.2: Land Patented, by Type of Mining Claim

Type of claim	Acres	Percent
Placer	134,448	85.68
Lode	15,971	10.18
Mill site	6,500	4.14
Total	156,919	100.00

Table I.3: Land Patented, by Managing Agency

Agency	Acres	Percent
BLM	143,591	91.50
BLM/Forest Service	863	0.55
Forest Service	11,670	7.44
Other ^a	795	0.51
Total	156,919	100.00

^aAgencies, such as the Departments of Defense and Energy, that manage small amounts of land with mining claims.

Table I.4: Disposition of Applications, by Calendar Year (1978-87)

Year	Filed	Patented	Rejected	Closed
1978	46	34	15	16
1979	53	39	5	9
1980	50	31	10	11
1981	73	42	23	19
1982	90	59	15	28
1983	101	150	27	13
1984	73	69	18	10
1985	107	55	27	6
1986	52	74	11	7
1987 ^b	56	58	7	16
Total	701	611	158	135

^b1987 covers January through September 30.

Patent and Patent Application Sites GAO Visited

Table II.1: Patent Sites Visited

Name	Nearest town/city	Date patented	Acres	Type of claim	Mineral	Status	Estimated value	
							Low	High
Phelps Dodge Corp.	Prescott, AZ	11/82	7.0	Lode	Copper	Inactive	\$3,150	\$3,150
Johnson & Johnson	Mesa, AZ	FY 1983	40.0	Placer	Sand & gravel	Active	400,000	400,000
Melluzzo & Nichols	Phoenix, AZ	10/87	18.8	Placer	Granite	Active	376,000	3,832,493
Phoenix Sand & Rock	Phoenix, AZ	9/85	15.0	Placer	Sand & gravel	Active	272,445	272,445
Melluzzo	Phoenix, AZ	11/70	61.3	Placer	Building stone	Inactive	6,130,000	6,130,000
M. Batesel	Carson City, NV	7/74	140.0	Placer	Cinder	Inactive	56,000	70,000
H. Bunkowski	Carson City, NV	4/78	80.0	Placer	Gypsite	Inactive	125,000	135,000
H. Bunkowski	Carson City, NV	4/78	20.0	Placer	Gypsite	Inactive	400,000	500,000
H. Bunkowski	Carson City, NV	4/78	20.0	Placer	Gypsite	Inactive	40,000	40,000
Gornowich Sand & Gravel	Boulder City, NV	10/81	120.0	Placer	Sand	Inactive	38,400	38,400
Yeager	Searchlight, NV	1/83	25.7	Lode & mill	Gold	Inactive	5,132	7,698
Paul Brawer	Las Vegas, NV	9/83	310.0	Placer	Gypsum	Inactive	1,240,000	1,240,000
Stocks Mill & Supply Co.	Las Vegas, NV	12/81	200.0	Placer	Sand & gravel	Active	1,000,000	1,000,000
Stocks Mill & Supply Co.	Las Vegas, NV	12/81	249.4	Placer	Sand & gravel	Active	1,196,971	1,196,971
Pitkin Iron Corp.	Aspen, CO	3/83	15.0	Mill	None	Inactive	225,000	525,000
Webster	Leadville, CO	3/86	140.0	Placer	Sand & gravel	Active	420,000	1,400,000
Hinton-Keystone Co.	Keystone, CO	12/83	160.0	Placer	Gold	Inactive	1,600,000	30,400,000
Paul Graham	Tuttletown, CA	8/85	34.0	Lode	Gold	Inactive	49,300	510,000
Paul & Judith Ramm	Jackson, CA	FY 1983	9.0	Lode	Gold	Active	90,000	90,000
J & D Marquis	West Point, CA	11/82	12.3	Lode	Gold	Inactive	125,005	125,005
Total			1,677.0				\$13,792,403	\$47,916,162

**Appendix II
Patent and Patent Application Sites
GAO Visited**

Table II.2: Patent Application Sites Visited

Name	Nearest town/city	Acres	Type of claim	Mineral	Status	Estimated value	
						Low	High
Onanon Inc.	Bullhead, AZ	59.0	Lode	Gold, silver	Active	\$47,200	\$88,500
Asarco Inc.	Tucson, AZ	760.0	Mill	None	Inactive	760,000	1,140,000
Tognoni (MSC)	Flagstaff, AZ	314.0	Placer	Pumice	Active	866,954	910,914
Superior Companies	Camp Verde, AZ	331.0	Placer & mill	Gypsum	Inactive	496,500	662,000
Haase & Whitson	Black Canyon, AZ	20.0	Placer	Gold	Inactive	60,000	60,000
Anamax Mining Company	Green Valley, AZ	333.0	Lode	Copper	Inactive	499,500	499,500
Great Star Cement Corp.	Las Vegas, NV	1,920.0	Placer	Limestone	Inactive	537,600	537,600
Edgar, et al.	Laughlin, NV	1,280.0	Placer	Precious metals	Inactive	1,280,000	32,000,000
Commercial Minerals, Inc.	Buena Vista, CO	160.0	Placer	Limestone	Inactive	800,000	1,600,000
Humbert Gamba	Glenwood Springs, CO	20.0	Placer	Gold	Inactive	1,000,000	1,600,000
Cyrus Colburn	Breckenridge, CO	40.4	Placer & lode	Gold	Inactive	4,040,000	4,040,000
Cache Properties	Breckenridge, CO	19.9	Placer	Gold	Inactive	3,980,000	3,980,000
Total		5,257				\$14,367,754	\$47,118,514

BLM and Forest Service Offices Contacted

BLM Offices

State office	District and resource area offices
Arizona State Office, Phoenix, AZ	Phoenix District Office, Phoenix, AZ Kingman Resource Area Office, Kingman, AZ Lower Gila Resource Area Office, Phoenix, AZ Phoenix Resource Area Office, Phoenix, AZ
California State Office, Sacramento, CA	Folsom Resource Area Office, Folsom, CA
Colorado State Office, Lakewood, CO	Glenwood Springs Resource Area Office, Glenwood Springs, CO
Nevada State Office, Reno, NV	Carson City District Office, Carson City, NV Las Vegas District Office, Las Vegas, NV Stateline Resource Area Office, Las Vegas, NV

Forest Service Offices

Region	National forests and ranger districts
Southwestern Region 3 Albuquerque, NM	Coconino National Forest Beaver Creek District, Rimrock, AZ Prescott National Forest Bradshaw Ranger District, Prescott, AZ
Rocky Mountain Region 2 Lakewood, CO	White River National Forest Dillon Ranger District, Silverthorne, CO San Isabel National Forest Leadville Ranger District, Leadville, CO
Pacific Southwest Region 5 San Francisco, CA	None

Mining Companies and Mining Interest Groups Contacted

Mining Companies

Clay mining companies (selection based on most acres patented, Jan. 1978 - Oct. 1987)

American Colloid Company
Dresser Industries, Inc.
Foster, Merton et al.
Industrial Mineral Ventures
Kaycee Bentonite Co.

Large nonferrous metals mining companies (based on profits)

Newmont Mining Corporation
Battle Mountain Gold
Homestake Mining Company
American Smelting and Refining Company (Asarco)
Phelps Dodge

Other companies contacted

U.S. Gypsum
Tenneco

Mining Interest Groups

American Mining Congress
Minerals Exploration Coalition
Public Resource Foundation
Mining Club of the Southwest - Southwestern Minerals Exploration Association

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