The Department's Bureau of Mines, Geological Survey, and Bureau of Land Management have for many years studied developments in the oil shale technology. It is their conclusion that a great deal has yet to be learned about the technology and economics of mining and processing oil shale and the recovery of shale oil and other mineral products from the rock. As of this time, neither oil nor other minerals are recovered from oil shale in this country in any commercial operation, although there are substantial private research efforts being made to achieve that result. So far as I know the most optimistic estimate made thus far is that of a single private venture, and they are represented here in the room, to be in production of shale oil in Colorado in 1970. We are aware of other minerals in the shale which may be valuable resources in the future. These include the sodium and aluminum minerals present in dawsonite, and the sodium minerals present in nahcolite.

It is likely, as we all know, that the largest, by far the largest deposits of aluminum minerals in the Nation, in a Nation that is short of aluminum, is present in these oil shale deposits.

The technology for economic recovery of these minerals from oil shale is less developed than that for the recovery of shale oil from the Green River shales.

Faced with the absence of practical experience in the production of oil and other minerals from the oil shale, we considered that it was premature to open the lands for general leasing—important information gaps, we believed, had to be filled first. The lack of information on the cost of converting oil shale to marketable minerals left us without a firm base for establishing royalties which would provide the incentive to induce venture capital, while insuring a fair market return to the Government. The absence of reliable cost information also afforded no basis to determine what the proper maximum acreage for leases should be. And we have yet to ascertain the environmental hazards and the costs of minimizing them. Additionally, if the lands were made open to general leasing before a technology is developed which can be made widely available, there is a danger that the resource might be monopolized by the few who made early breakthroughs.

This was the point I think mainly underlined by Senator Hart in the Monopoly Subcommittee in commending us for our patent policy.

Accordingly, we proposed regulations which had as their objective the utilization of the oil shale provisions of the Mineral Leasing Act to develop a meaningful body of experience on which a permanent leasing policy could ultimately be based, looking toward a competitive bidding system of leasing, which, of course, is the established and prudent long-term system that has been used in this country.

A total of 30,000 acres was considered to be sufficient for this research and development effort, but if less is needed, less would be used, and if more is needed, more would be used. We made no final judgments on this issue at this time. In no event would we propose to lease under our proposed regulations any more oil shale acreage than would be reasonably necessary for the research and development program proposed.