

the art and develop knowledge that would serve as the basis for developing wise conservation standards and practices, but would provide a basis for determining the fair market value of oil shale leases and for developing fair and practical leasing regulations before any ground is leased.

(2) The Federal government should open for private leasing upon application or on government's own initiative a few commercial-size tracts on competitive bidding, with firm performance requirements that would make it impossible for a company to hold the land indefinitely without developing it. Lease terms would provide for a Research stage for those companies not yet ready for full scale development, with performance measured in dollar outlay. By offering a small selection of nominated lands in increments (much as is done now in the case of the off-shore lands in the Gulf of Mexico), land values and conservation hazards would become known as the industry grows. This approach aims to rely principally⁴ on private initiative as a means for proceeding with needed research and the development of an oil shale industry.

(3) In addition to these alternatives, there is another that combines elements of both the others. Small tracts could be offered now for R & D; if the results show that commercial production is viable in the light of both economic and conservation requirements, commercial leases would follow. Such a course would foster both private initiative and research and would not prematurely release or commit any substantial part of the Federal holdings.

There are other possible courses of action, mainly combinations of those outlined above. For example, Federally sponsored research could be undertaken simultaneously with R & D leasing if the response to the R & D lease invitation were either limited in number or narrow in scope.⁴ But the alternatives described constitute the fundamental mechanisms of stimulating development considered by the Board.

Each of these three alternative means of stimulating development is consistent with the basic policy objectives set forth earlier. Each calls for an orderly approach to the release of Federal holdings and none envisions the release of more than a small fraction of Federal land until much more is known about production costs, conservation, and related problems. Individual Board members have not found agreement as to the merits of each course. Individual views are presented in the last section of the report.

V. CONSERVATION

In proceeding with the orderly development of an oil shale industry, consideration must be given to other values, including natural beauty, that may be reduced or destroyed by development. At the same time, consideration must also be given to the opportunities presented by development for creating pleasant and attractive communities and for improving the beauty and productivity of the countryside by reclamation programs on mined-out land. The importance of such considerations is rendered acute by the wide variety of conservation and related problems that may attend to the growth of an oil shale industry. Among these problems are water and air pollution; wind and water erosion; damage to vegetation, wildlife, and landscape; and waste of oil shale and other mineral resources, the recovery of which would be rendered costly by incomplete mining procedures. Some of these problems lie wholly within the area of responsibility of the individual operator, but others may be beyond his control and require State or Federal attention.

Conservation measures made necessary by development should to the extent feasible be regarded as a part of the cost of production to be met by the developing firm. This responsibility should be recognized as such in the lease terms. Here again, the Department should seek lease provisions that will encourage the operator to meet high standards in all aspects of the conservation and pollution field. A schedule of charges levied on firms and scaled to the amount of nonpermissible damage they cause to the natural environment and to persons and property should be considered as one means of dealing with certain aspects

⁴ For Mr. Perkins' dissent on this subject see his statement in the final section of the report.