

ground and perhaps even provide the heat for extracting the liquid kerogen is one possibility that ought to be explored. The prospects of mining and utilizing the aluminum-bearing dawsonite, which is associated with kerogen shale, should also be probed thoroughly.

The second phase—still dealing with point No. 3 of the five-point program—would be the firming up and would follow the research and development phase. This would involve the leasing of tracts of oil shale land of adequate size to support commercial size operations, still with greatest care taken to preserve the various elements of the public interest which I discussed earlier.

In fact, the studies relating to water supply, disposal of overburden, effects of mining operations upon wildlife, scenery, and wilderness, community problems of all sorts, and other matters should be analyzed well ahead of the beginning of commercial development. Also commercial development should be approached in such a way that no competent enterprise would be excluded from trying to obtain a lease and get into the business. There would be an advantage for those companies which already had undertaken research and development activities; they would have the experience on which the Government, to a considerable extent, would have to rely before actually leasing any of the public lands. In my statement in the Interim Report of the Oil Shale Advisory Board I went further than this and said that some advantage might be given to companies undertaking research and development in the ultimate leasing of commercial-size tracts so as to encourage competent firms to come forward and do the necessary and antecedent research and development. One way of achieving this would be to announce well ahead of time that the Government would expect to offer for lease bids a few commercial-size tracts as soon as the research and development phase indicated that this second step would be warranted, and that it would limit the first round of bids to companies that had actually undertaken significant research and development work. This is an attempt to address my remarks to what I think to be the vital point raised by Senator Allott and characterized by the Secretary as the ripening of research and development into commercial scale activity. I think this is at the very heart and center of the problem we face.

Well ahead of the second phase of commercial-size leasing the Government should make clear the conditions that would be attached to the leases. The Government should also be in good communication with those industrial firms, whether from the oil industry or some other industry, that are interested. In particular, the conservation requirements should be made explicit as early as possible. The royalties that would be collected by the Government on each barrel of oil produced obviously would be a matter of great importance, as would the level of taxation that would bear on the producers. Precedent exists on these points for both onshore and offshore oil leases on public lands, and in the matter of depletion allowances for tax purposes. It is not entirely clear, to me anyway, at what point in the mining-processing continuum the value of the product for depletion allowance purposes would be calculated nor what its level would be. This should be straightened out well ahead of time.

Regarding the other points in the Secretary's program, I have little to add. Obviously the sooner the clouded claims difficulties are