

We can and do have mining operations that are assets, not only financially, but in a scenic and esthetic sense, and I refer to the Bingham Pit as one of the outstanding tourist and other attractions that I know of. Oil shale can and should be developed in the same way.

I have emphasized mining as the basic approach to oil shale utilization. *In situ* or in place treatment of oil shale, both with and without the application of nuclear explosions, is held out as the means to avoid the necessity for mining.

As I discussed with you at the earlier hearings, we do not have a practical *in situ* retorting method, nor is there certainty that one can be developed. In some ways the technological problems are as tough as those encountered in space exploration, and with oil shale there are economic bounds within which one must stay. We should continue researching the concepts for *in situ* retorting because certain of our deposits do not seem amenable to mining by present methods. By the same token, large reserves are not recoverable by an *in situ* retorting method approach, by any *in situ* method approach now being considered. This is especially true of nuclear *in situ* methods.

My point is that we must necessarily proceed with the oil shale development using a mining approach. Strict discipline and control must be exercised to assure that long-term pollution and despoilment problems are not created. Even if practical *in situ* methods are developed, mining is going to be a part of the industry, but this should not be cause for alarm. Thank you very much, Mr. Chairman.

Senator Moss. Thank you, Mr. Cameron, for a very fine statement. Attached to it are the comments that have already been submitted to the Secretary, and those will also be included in the record. Your summary of the recommendations which you make is very helpful, and they sound very reasonable to me.

Again, as so many of our witnesses have come forward to say, what we need is a reasonable, practical approach that will get this show on the road, as it were.

We seem to have spent so much time to guard against feared abuses that it has the effect of just holding everything in abeyance rather than getting it moving in this field.

Mr. CAMERON. Very well stated, sir.

Senator Moss. Senator Allott.

Senator ALLOTT. Well, it is exactly this last remark of the Senator from Utah that I wanted to address myself to.

First of all, I must say Mr. Cameron is well-known to this committee and to the country as an outstanding engineer, probably the outstanding engineer in this area for his work not only in this country, but in Brazil, which he has been kind enough to keep me informed about off and on for 7 years—

Mr. CAMERON. Twelve years.

Senator ALLOTT. Twelve years—time flies—I have appreciated it very much. While you did not read your statement concerning your own qualifications I know they are impressive, and one of them is your firm has now completed the engineering for a 2,500-ton per day semicommercial oil shale retort in Brazil which, if proved successful, as we hope, might even help the taxpayers of this country by helping the deficit flow of moneys from Brazil of some \$350 million a year to other countries. We would be glad to see that.