Captain MOORE. Not fully, sir.

Senator ALLOTT. Are you acquainted with the one in the Rangely area—the Dragontail project?

Captain MOORE. I have read something about it but I am not acquainted with all of them, Senator. I would rather not talk about them.

Senator ALLOTT. The only one that has been discussed here has been the Gasbuggy project, which is in a formation that is so tight that you could literally use this stone to sharpen your knife on, and the only point I want to make—and I am glad you point this out—is that we have not even scratched the surface in developing this, and that it is going to be a matter of years before we are able to do it.

You have also brought out at one point, I don't know whether I can lay my hands on it, about the control, conventional control, of producing oil by *in situ* retorting.

Does this not suggest the possibility that in formulating a lease policy in this area, the lease policy may have to be governed more, or the lease policy would have to consider—let's put it that way—the formation itself rather than the conventional land descriptions upon which we have formulated oil and gas leases?

Captain MOORE. If you mean, Senator, that burning the oil shale can't be controlled, from what I have read of technology, I don't think there is any question but what it can be controlled. From what I have read on this subject, what I was referring to is that it is not yet known that the burning in a—we'll say a capsule or in a chimney—can be controlled to make it efficient in that one unit.

I have not heard anybody express any great——

Senator ALLOTT. Let me put this question in another context for you. It is true that you can control the size and the length of a chimney by nuclear explosion, and this is the concept that is now being considered. But isn't it just as true that in considering such a concept, you may be also talking about leaving a great percentage of the oil available in the ground because the chimney will be roughly a circular pattern? So this brings me back to my question. We might have to consider the formulation of a leasing policy based upon formations and structures, rather than the conventional legal descriptions with which we have granted oil and gas leases.

Captain MOORE. I think that is true, Senator.

Senator ALLOTT. I am sure you will join with me in saying, that it would be unthinkable that we hurry hastily into any method of development which would leave large amounts of this valuable resource in the ground.

Captain MOORE. Certainly, sir.

Senator ALLOTT. I have heard it said, and I may have the wrong figure—perhaps you can correct me—that in general, over the United States, of the liquid petroleum formations we have tapped, we have had to leave about 25 percent, on an average, in the ground.

Is this approximately right or do you know?

Captain MOORE. I will ask one of my staff members.

I think it is low but I will ask.

Mr. Bowler says that, after secondary recovery, we leave about 25 percent in the ground.

Senator ALLOTT. So if we are talking about 600 billion barrels as the Secretary did earlier, it would be unthinkable that we would leave 150 billion barrels of that in the earth unrecoverable, untappable, unusable, if by thought and planning we could extract it in such a