

that by 1975 or soon thereafter, we should be ready for large-scale applications. We should know how to do this, how to control it, and how to get the results desired. We think it is promising.

Mr. FOLEY. Do you estimate that by the mid-1970's you think you will have some basis for actual pilot programs?

Secretary UDALL. Yes, something on the order of 7, 8, 10 years, in that range. We should be at a point then where we could be ready, if the Congress desires, to go into large-scale effort.

Mr. FOLEY. If you are correct in this estimate, it would be well within the time limits which you have fixed for some action with respect to augmentation of the Colorado?

Secretary UDALL. Yes, as I indicated yesterday.

Mr. FOLEY. I believe on page 23 of your statement, you indicate the expected unit cost of producing about 1,900,000 acre-feet additional water in the Colorado by weather modification as about \$1.50 an acre-foot.

Secretary UDALL. This is far and away the cheapest method if we can make it work.

Mr. FOLEY. Spectacularly so, is it not?

Secretary UDALL. Spectacularly so, yes, indeed.

Mr. FOLEY. In fact, that would be far beneath the annual costs of even partial diversionary systems; is that not correct?

Secretary UDALL. Yes.

Mr. ASPINALL. Would the gentleman from Washington yield to me?

Mr. FOLEY. Yes.

Mr. ASPINALL. Do I understand that, at the present time, the Department is going out on a limb to the extent that they think their studies might yield a million and a half acre-feet of water by weather modification? Are you willing to go that far?

Secretary UDALL. Mr. Secretary, I pressed Dr. Kahan and the Bureau of Reclamation people very closely on this and they are conservative. They are deliberately conservative. What they say is that on a given watershed they feel they can increase water yield by 10 to 20 percent. These are the limits they give you, somewhere between 10 and 20 percent.

If application is to be made on most of the watershed, then the increased yield is figured on that basis. If it is made only on part of the watershed, the yield is reduced accordingly. They predict 10- to 20-percent increase over the area of application. That is the best I have been able to get out of them.

Mr. ASPINALL. I think they are right, but when you are thinking of that in terms of a basin with limits as large as the Colorado River Basin, you have to think in terms of taking from one part of that basin in order to deposit in another part of the basin. You may be having a diversion and I want to be sure what your present thinking is.

Secretary UDALL. Mr. Chairman, I think we all ought to understand that weather modification which would take water from one region and give it to another will not work. This is not what we are talking about. We are talking about operations on a particular watershed and really not so much rainmaking as snowmaking—in effect, having a heavy winter every year and actually increasing the runoff without decreasing the moisture that others receive. Otherwise we would have a problem we just can't solve.