

a liquid to a vapor and back to a liquid, even though with the membrane they had at the University of Florida, they measured the amount of water obtained in microliters per day per square foot of membrane. I like to say that the membrane sweat a little one afternoon. Perhaps at a Senate hearing I should say it perspired. It was not, until 1961, that Sidney Loeb at UCLA developed a membrane that had a flow rate of 5 gallons per square foot of membrane per day. At that point, reverse osmosis became a potential process. From the 5 gallon Loeb membrane, we have proceeded to 10 gallons, 15 gallons, 20 gallons; now we are working on a development we call the 97/97 membrane because it has a flow rate of 97 gallons of water per square foot of membrane per day with 97 percent salt reduction. Dr. W. Sherman Gilliam, our Assistant Director for Research reported to me just this week of the research work he is sponsoring at Oak Ridge National Laboratory, where they have achieved a flow rate of 145 gallons per square foot of membrane per day. When they operated this membrane on 600 parts per million water, they had a flow rate of 195 gallons per square foot of membrane per day. For these reasons, we have to go back to the States and tell them there are new developments in our technology.

Senator ALLOTT. I think somebody ought to see that this information does get out to them.

Thank you very much.

Senator ANDERSON. Any additional questions?

Senator JORDAN. Just one, Mr. Chairman.

Mr. O'Meara called our attention to a fact of which this committee is well aware, that the Colorado River is inadequate to meet the future demands and it will require augmentation because of the fact that we have nationalized the requirements to meet the Mexican Treaty and took it off our backs or that of the Colorado River people.

But I think you are a little too optimistic when you say that augmentation by desalting may well provide opportunities to improve the quality and quantities of Colorado River Basin water supply when you project that by 1982, perhaps we will be able to desalt water for \$100 an acre-foot. Where would you do this \$100 an acre-foot water, where would you introduce it into the system on an economical basis, and how much quantity are you talking about, either for improving quality of Colorado River water or enhancing its quantity?

Mr. O'MEARA. Senator, the figure is based on improving the quality of the river water by reverse osmosis processes in very large plants. Of course, when we engage in a project as big as improving the quality of the major river of the Southwest, we have to be talking of very large plants. And with the large plants and the new membranes, we have every confidence that we can achieve a cost of \$100 an acre-foot.

Senator JORDAN. I am not an expert on the Colorado River, but I do remember that the compact, the Colorado River Compact called, I believe, for the delivery to the lower basin by the upper basin of some 75 million acre-feet of water every 10 years. Now, \$100 an acre-foot, that is \$7.5 billion. So you are talking about a value here that I think, when you talk about \$100 an acre-foot, I do not know where you would use it unless it could be to substitute along those coastal areas the domestic and industrial water that is now piped in from the water-