INTERVIEWEE: FLOYD E. DOMINY, Commissioner, Bureau of Reclamation

INTERVIEWER: JOE B. FRANTZ

Washington, D.C., November 14, 1968

F: This is an interview with Mr. Floyd E. Dominy in his office in Washington, D.C. He is the Commissioner of the Bureau of Reclamation. This is November 14, 1968--Joe B. Frantz.

Mr. Dominy, identify yourself; I think you have a good western background, don't you?

D: Yes, indeed, My name is Floyd E. Dominy; I have been Commissioner of the Bureau of Reclamation, now serving under three Presidents. I have the longevity record almost in sight if I'm reappointed under a fourth one. I graduated from the University of Wyoming in 1932 in the depth of the depression, when nobody wanted my services except the federal government; and I started out in Vocational Agriculture and County Agricultural work in Wyoming, and very early in my career decided that I would not seek employment outside the federal government; that I would make a career of federal service. And I've never regretted that; I've had a very interesting life, having served now in Washington for the past thirty years. During that thirty years, of course, I have met literally hundreds of public elected officials in the House and in the Senate, and worked with many appointed officials in the Interior Department, in the Agriculture Department--

F: How did you happen to get with the Inter-American Affairs Bureau?

D: Well, I came into Washington with the Department of Agriculture and worked as a field agent in the Western States; and in 1942 when

Nelson Rockefeller was made coordinator of Inter-American Affairs, I was approached to see if I would be interested in joining that staff to work on food problems identified with our war effort in South and Central America where we were trying to get out critically needed bauxite, chincona, and raw rubber from areas that were very remote from the centers of population and the food sources. And of course the German submarines had the Atlantic Ocean pretty well bottled up, and so it was desirable to feed those people locally if at all possible. So I joined the staff of the Inter-American Affairs with the idea of setting up emergency agricultural programs to help augment local food supplies in any manner possible, and ended up working in nine different countries in South and Central America the first two years of the war. I then went with the Navy and again worked on agricultural problems in the island territories as we recaptured them, like Guam and Tinian and Saipan and Iwo Jima and Peleliu.

F: You haven't deviated too much then from a sort of central purpose since you went with the government?

D: This is right. And then when I came into Reclamation, which a lot of people think of as an engineering organization and we do have thousands of engineers, but the real purpose of Reclamation is to develop the economic sinews of the West for agriculture and for industry, for flood control and recreation and all the rest. So my work started there as a land development specialist, and then I got into the repayment contract field, and then into the operation and maintenance of existing projects which covered the whole rampant of reclamation endeavors; and finally was fortunate enough to be

selected to be commissioner after I had been in the Bureau about thirteen years.

F: Is this a Presidential appointment?

D: Yes, it's a Presidential appointment. I was appointed from the career ranks by President Eisenhower effective May 1,1959.

F: Is it a term, or do you--?

D: No, you serve at the pleasure of the President; it does not require Senate confirmation; it's a straight Presidential appointment, and he of course can remove you and appoint another at his desire.

F: You've done it with both Democrats and Republicans?

D: Yes. Reclamation of course has certainly never been a political subject as between the Democratic and the Republican parites. I can't recall a time when either one of them had a plank to discredit reclamation or even to single it out that they were going to give it special attention because everybody takes for granted that this is a part of the national picture; that both parties have supported it rather broadly. Now during the Eisenhower Administration, there was a "no new start" policy, which was severely criticized, by reason of some budget problems in connection with the Korean war; the President did announce that there would be no new (public works) project starts, and so the Eisenhower Administration was severely criticized for "no new starts." And I recall that the Kennedy Administration, and the Johnson Administration has carried on this policy, that even though there was tight budget times that we weren't going to dry up the reclamation program to the extent of not starting new projects, even though you might have to stretch them out and not build them at maximum speed.

F: Straighten me out on this. Wasn't something like Curecanti begun during the Eisenhower years, or, at least the authorization?

D: Well, the authorization for the Colorado Storage Project, Upper Basin States, was obtained in the Eisenhower Administration; and some of the projects were actually started in the Eisenhower Administration, like Glen Canyon Dam, Flaming Gorge, and Curecanti.

F: So there were no new starts unless we needed to.

D: Well, it wasn't a flat "no new start" policy at all. I meant to go on and say that this label of a "no new start" really wasn't as severe as the critics made it sound. We've been confronted under the Johnson Administration with the same budget problems. We've been forced to stretch the construction of projects; some of which we might have been able to complete in five years we stretched them to where we won't complete them in ten years, because we're saving money and deliberately holding down the expenditure because of other badly needed commitments. But I repeat that the thirty years I've been around, I would certainly have to say that both the Democratic and Republican administrations have supported reclamation as being in the national interest. And I doubt if you could single out any real valid difference in the support that reclamation gets on a political base.

F: You have real continuity then that is guided to a certain extent by the state of the economy?

D: Yes, I would say very much so. As a matter of fact in my years as Commissioner, I've seen the day when the Budget Bureau would be calling over here, "Why can't you move faster? Why can't you obligate more funds? Aren't there additional projects that you can schedule into construction immediately?" Because this is recognized as one

of the ways to aid the economy, is to get this kind of construction underway. And then the adverse condition comes when we're in a Korean war or in a Viet Nam situation or the balance of payments situation, where they say, "Can't you slow down? Can't you hold up?" And this has to be expected in public works; and I think it's logical.

Now one thing that I want to compliment the Johnson Administration on is during this hiatus on construction where we had to deliberately stretch out and slow down, there has been no deemphasis on planning new projects. They have let me continue my future planning on exactly the same level without retrenchment, because the Johnson Administration recognizes--and this came right from the President, as I understand it--that there would come a time when we need these projects and we'd better be ready to go; and have them on the shelf, ready. As a matter of fact, this last session of Congress--the 91st Congress has by recommendation--acting on the recommendation of the President--authorized more reclamation than any Congress in history, the whole sixty-five years of the Bureau, even at a time when we were forced to stretch out work that was already underway.

F: The authorization is there, but not the--

D: Right. The authorization is there and the project is engineered; it has been found economically feasible; it has been found to be in the national interest; and the Congress accepted it as such and passed the bill and the President signed it. And now as soon as the budget situation permits, we'll move them into construction.

F: While we're on that, what is the typical way of starting from an idea in somebody's head until you get to the point where Congress does authorize?

D: Well, I often say that the incubation period on a reclamation project is more uncertain than in any other species of life, but it's always long. From the time of a gleam in somebody's eye that this project ought to be considered, through the study stage, the final planning and engineering of it, feasibility determination, up to project authorization, is frequently fifteen, twenty, twenty-five, thirty years. And then the construction takes another five or ten years. So it's really a whole generation of one man's life involved, and one generation of people involved in getting a project ready for the next generation. It's almost inevitable that the key leaders in focusing public attention on any given project are not around to enjoy it; it's their children and grandchildren that are there to reap the full benefits of the project.

F: You almost perforce have to have an education period in there, I gather.

D: This is right. And you have to have some public spirited people that are willing to put their own money, their time and effort and abilities, into something that they know in their own minds that they'll never personally reap the enjoyment from, or the benefit from.

F: While we're still generalizing, reclamation is thought of in the public and I think probably in the political mind as totally western in its inclinations. As you know, we're getting, and it seems more frequent and prolonged, droughts in parts of the East. Are you beginning to get any sort of an Eastern tilt in this matter of reclamation?

D: Unfortunately, or fortunately, whichever way you look at it, the law itself is quite specific that the reclamation funds that come from sale and lease of western lands, oil leases, and the proceeds

of federal reclamation projects goes into a special fund in the United States Treasury known as the Reclamation Fund, and that fund can only be expended in the seventeen western states by law. Now at the time Congress made that decision, everyone thought that the states east of the Mississippi River, with rainfall from twenty-five inches to fifty inches a year, didn't need irrigated agriculture; that only the western states with less than twenty-five inches, and in many cases only six and eight and ten inches of rain, were the ones that had to have federal assistance in the terms of an interest-free loan to develop their agriculture and make habitable a large semiarid region. You're quite right that in recent times the competition in the field of agriculture is so keen and the margin of profit is so small, that many people in the so-called humid East have discovered that they need to irrigate in order to get maximum benefits from their land. And there has been a great growth in irrigation in the eastern states. Now for the most part, this can be done without the large storage and regulation projects that are required in the West, because most of the East does have an abundance of water supply, either ground water or streams that can be tapped for ready diversion for irrigation. So the Eastern irrigation up to now has been largely by individual enterprise, farm by farm, without the need for organizing large projects. Now the Department of Agriculture is authorized to develop small projects for irrigation anywhere in the United States, and there has been a few of those. I think that in the future there will be more federal attention, and perhaps reclamation will be expanded to the eastern states. There have been several bills introduced over the years to accomplish that, but they haven't ever

gone any place.

F: The original Newland's Reclamation Act at the turn of the century has specified that these western projects should be self-liquidating, right?

D: This is right, and they still are.

F: You've stayed with this principle?

D: That's right. Now the term of years has changed; the first law was based on ten years to repay, and this was unrealistic; then they changed it to twenty years and it still was unrealistic; and then later it was changed to forty years with a ten-year development period. So to all intents and purposes we now have a fifty-year period over which the farmer can repay the reclamation costs. We also have under the 1939 Act authority to pay as much of the costs as are beyond the farmer's ability pay by using power revenues. In other words on a project like the Columbia Basin Project or the Central Valley Project or the Colorado Storage Project or the Missouri River Basin Project, let's say that half of the cost is allocated to irrigation, and to make the example simple, the other half of the cost is allocated to power. That part which is allocated to power is repaid with interest by the power revenues; then the farmer pays maybe half of the part that's allocated to irrigation without interest; and the other half that the farmer can't afford to pay is paid by surplus power revenues over and above that required to pay out the power features. And this has been accepted by Congress and is widely used in our repayment scheme.

One of the things that we've gotten into more and more, particularly during the Johnson Administration, is the use of reclamation talents and reclamation know-how to assist around the world. It's little

known in the United States, because we don't publicize this widely, that reclamation engineers have been training foreign nationals in our Denver Engineering Center for more than thirty years on contracts from the participating country which finances it entirely; it doesn't come out of any Reclamation budget, or it isn't any burden on the United States taxpayer. As a result of this, as the AID Program and the programs of the World Bank became more and more identified in water development projects as one of the key beginnings in starting an undeveloped country up the development ladder, these people have wanted Reclamation participation, because they had confidence in the Bureau of Reclamation. And as such we got more and more requests to participate, and the State Department and the AID people have brought us into the picture more and more. We're now working in about fifteen different countries with more than a hundred of our top technicians employed in these overseas studies.

F: Is there some sort of a conscious or routine coordination of these foreign desires with your Bureau of Reclamation?

D: The way it works, Dr. Frantz, is that the participating country through the State Department or the AID Program, or in some instances with the World Bank, will have a desire for a particular project which they have visualized, but don't have the capacity to engineer or to study--neither the financial capacity nor the know-how; and then the Reclamation Bureau is brought in to do the actual technical planning and train the foreign national at the same time. For instance, in Thailand this is one of the projects that President Johnson took a strong personal interest in and made quite a speech up in Maryland about three years ago, where he talked about the Mekong River and the Pahmong Dam site being one of the greatest, if not

the greatest in the world, but that he wanted his government to assist in every practical way to make this a reality for 40,000,000 people that lived in the Mekong River Valley. And I'm real proud that the Bureau of Reclamation was selected as the United States Agency to make that study. And we have now completed the first phase of it--

F: You would do under those circumstances a feasibility study for a particular country?

D: Right. In this case it was Laos and Thailand. And we had as many of the local engineers as we could get working with our soil scientists, hydrologists, economists, geologists, and our civil engineers, so that they learned the mechanics of making a study of this type and what was required. And in this instance it was amazing how little information was actually available on that river. Here's one of the ten biggest rivers in the world, and it had never been gauged; nobody had ever measured how much it flowed in its peak flows; and how much water it actually discharged. There was no mapping. You didn't know if you put a reservoir 300 feet high how much country you'd flood because there were no contour maps. There was nothing available, so our engineers had to start from scratch. We ended up making one of the world's largest, I think it is the world's largest single aerial mapping contracts. We spent $6,000,000 just getting the necessary mapping so the engineer could begin to find out what he had. We now know that it could be the biggest single water resource projects in the world; it could be bigger than Aswan, bigger than anything that has been put together in this country.

F: As a general rule would you go beyond the study stage in a project like this?

D: For instance in India, we actually designed Bhakra Dam in Denver, in the Denver laboratory of the Bureau. And this, up until very recently, was the highest gravity concrete dam in the world. Since then there's one in Switzerland that's higher.

Some of the Bureau of Reclamation men resigned and were employed by the Indian government as construction superintendents, so to that extent we participated also in this construction. And even today when the Indian government gets into large projects with financing through the World Bank, it is their custom to insist that the Bureau of Reclamation be used from time to time to look over their shoulder and review what they're doing, to assure that it is being done to Bureau of Reclamation standards. They just don't feel like they want to take the responsibility without us looking over their shoulders and giving them technical guidance.

F: And President Johnson is quite affirmative in this sort of--

D: President Johnson has backed us solidly in these efforts. As a matter of fact he made this very important speech on this Mekong River, putting the United States solidly behind this effort. Now if this should proceed, I would expect the Bureau of Reclamation to be utilized as inspection teams and make certain that it was built to standards worthy of Reclamation support. We've taken over a big job in Afghanistan to work on a project that was built without Reclamation participation, but with a good deal of United States participation financially. And it wasn't working, and we've had a team of experts in there trying to make this project function properly. And we've worked in Formosa, we're in Korea, we're in the bulge area of Brazil where they have chronic drought problems. We've been in Tanzania; we were in several countries in Africa.

The Snowy Mountain project in Australia started with a strong participation by the Bureau, all financed by the Australian government. They'd send their engineers to my Denver federal center, and working with Bureau people, we'd design the works and train their engineers at the same time. Some of their engineers had two and three assignments in Denver to be trained and to participate on these designs. Then later they went back and headed up key engineering efforts in Australia. So this is one of the proud things that Reclamation has done. I think we've had more support for this out-of-country work directly from the White House under President Johnson than any of his predecessors.

F: Even though you'd have no contact with the President in this case, can you kind of get the feel of attitudes--does it filter down?

D: Oh, yes indeed. You don't have to personally talk to a Cabinet officer or to the President. You can get the feel of what the desires are by the reflections that come down through channels. You can always tell. President Johnson, of course, well, in every speech he has made since he has been President, he always manages to mention his interest in western water and his strong efforts in his own area. This obviously reflects--and everybody that talks to him, they know he has this strong interest in this and it carries right on down to where it counts.

F: In something like the Southwest Water Plan you sometimes run into a particular year Bureau of the Budget opposition although you have a very strong feeling among your western Congressmen and Senators that something ought to be done. Do you go ahead with your authorization on this and just hold up on the budget, or does the

budget tend to stymie activity?

D: Well, of course, even in the authorization stage the Bureau of the Budget has a great deal of influence in determining what the official position of the Administration is on any particular piece of legislation. So frequently we're confronted with a project which we strongly support, that we have to go before the Congress and have less than strong support for it because the Budget Bureau has indicated a lack of enthusiasm on certain features of the proposal; and we have to be honest about that. We say that the position of the Administration is thus and thus and thus, even though this is somewhat less of a blessing than we would personally like to give it. In recent years I would have to say in all honesty that the Bureau of the Budget has not been very cordial to irrigation in our project planning. They have tended to support municipal and industrial water, flood control, quality of water, hydro-electric power; but they've frowned on irrigation projects believing that there is plenty of food and that these are not essential right now in our economic picture. So a straight irrigation project, of which there are very few, but let me word it this way: that a project that's predominantly for irrigation rather than predominantly for power and municipal water and recreation and flood control has tended to fare very poorly with the Bureau of the Budget in recent years. And Budget has gone more willingly on multiple purpose projects with emphasis other than irrigation.

F: Recreation as a purpose and a justification really has grown during your lifetime with the Bureau, right?

D: This is true. And of course under the Johnson and Udall administration of the Interior Department, recreation has really caught hold and

gotten a real blessing in the law. We didn't until recently have any authority of allocating any cost to recreation; whatever recreation was there, it was just by accident. And if we built any works for recreation, it was charged against the project and had to be paid by the irrigator or the power user. There was no one else to charge it to. And yet the projects were utilized for recreation right from the start. We haven't built a project anywhere that wasn't used immediately by literally thousands of people for recreation. So under the Johnson Administration they recognized that this was in the national interest and was a good economic--had good economic value in and of itself. As a matter of fact I frequently say that you could afford to build some of these projects strictly for recreation; if you didn't need it for irrigation and power, it would be justified economically just for the increased wealth it has created from recreation. And it's amazing. We had a project in Wyoming where the Park Service had estimated there'd be 600,000 people using it after 10 years. It's just amazing how people have turned to water-oriented recreation for that figure was exceeded the first year after the reservoir filled.

F: On something like the Southwest Water Plan, how do you handle the--as you know, water doesn't necessarily follow state lines--how do you handle these rather intricate and somewhat delicate interstate relations?

D: Well, of course, we sometimes get in the middle on this. We have to represent all seventeen western states, and we certainly intend to and religiously do follow all the interstate compacts and agreements and state water right law, which is pretty uniform throughout the seventeen western states. The project you call Southwest Water Plan,

I assume you mean the Lower Colorado River Basin--

F: Bridge Canyon, Marble--

D: Bridge Canyon and Marble Canyon, and of course this is the one thing that happened in my career as Commissioner, up to now, that I regret most. And that is the failure to have Walipi Dam in the plan. Walipi Dam became a very controversial feature of the proposal, but actually it did not do any violence to the national park. Now Marble Canyon Dam, which was above the park, after I made two trips right down in the bottom of that canyon by helicopter and photographed every single foot of the canyon, I became convinced in my own mind that Marble Canyon Dam would be a serious deterrent to scenic and recreational water-oriented float trips and that sort of thing, and that we ought to abandon the Marble Canyon Dam site. It was the smaller of the two, and it had the least bearing on the financing of the total undertaking. But the Walapi Dam (formerly called Bridge Canyon) on the other hand in my judgment would have been a real recreation asset; and we'd have left 161 river miles, all of which I would have added to the park. I recommended this long ago to Secretary Udall and discussed it many times with Chairman Aspinall on the House Interior and Insular Affairs Committee. I said Marble Canyon ought to be preserved and ought to be added to the National Parks, but Walapi--there's nothing unique in Walipi; it's not sheer canyon; and it would have created a marvelous lake and still left 161 river miles through the Grand Canyon for the river runners unimpaired, improved upon over nature by reason of Glen Canyon Dam, because now you can run it the year around if you want to. You used to have to run it just in flood season. But this controversy got all out of bounds by people using scare headlines, "Save the Grand Canyon," which meant to the general public that this project was actually going

to impair Grand Canyon National Park. And so there were tons of letters flooding in and--

F: They had their impact.

D: They had their impact. The true merits were never brought to light. I will say that I have a set of slides that I've shown to the Rules Committee and the Interior and Insular Affairs Committee and other people, and after they've seen the actual fact of where the projects were in relation to the park and what lands would be inundated and what wouldn't be inundated, they all agreed that the Sierra Club's fight was pretty ill founded, and wasn't too factual as to what was involved. I never will forget the Reader's Digest story against it, and a picture of some beautiful waterfalls. Nowhere in the story did it say that these falls were going to be inundated, but the fact they were pictured right in the text of a negative article left a clear implication that they would be inundated; and yet they were miles upriver and several thousand feet above in elevation of any of the water that we would have impounded.

F: They weren't affected.

D: They wouldn't have been affected in any way. And we had such absurd statements--The Audubon Society said that the desert Big Horn sheep habitat would be destroyed. Well, I carried this to the Fish and Wildlife people and I said, "I want a written comment on this." I knew what the facts were and they agreed with me; they came back with a letter that said, "Actually, these impoundments help the desert Big Horn, and they have increased in numbers wherever you've put in these big reservoirs, because they don't have to go so far to water." Water is the limiting factor in their development in that

desert country. We had all kinds of attacks that were far from factual, emotional, and so we lost what I think would have been a fine dam for recreation as well as for one of the best hydroelectric sites in the world. And let's don't forget that a hydroelectric dam doesn't pollute the air, and it doesn't pollute the water, and it doesn't heat the water and keeps it in its natural state.

F: Have you evolved two sets of conservationists--that is, those who don't want to change a thing, as against the people who want to conserve water?

D: Oh, very definitely.

F: And they're not talking about the same thing, are they?

D: Very definitely. The President has been plagued with this constantly, and I think he has done a very courageous job in supporting both. Certainly his Redwood Bill and his Cascades National Parks Bill and his National Seashore bills chartered new ground for the preservationist groups that want things left as they are. On the other hand, he has been a vigorous doer of developing other areas for the economic growth potential that comes from putting that water to work, as I mentioned awhile ago. And this is what it takes. On balance you have to have some of each. My only argument with the Sierra Club is that I think they are just far too extreme in what they want; they're too selfish in wanting to lock up for all time for the benefit of a few, because in the long run there are only going to be a few that can afford the weeks and months of free time and considerable outlay of cash to take these trips into this remote area and do the things that these people want to do. Certainly there ought to be some places left for this kind of undertaking.

F: On this Lower Colorado River project you had some opposition from northern California through fear of water diversion, did you not?

D: Well, that fear in northern California we finally were able to resolve quite satisfactorily. The first proposals to get the extra water needed in the Colorado River to solve its problems of the future was to divert from northern California's stream or from the Pacific Northwest. Now the earliest consideration was given to the Snake River, because it rises high in the mountains of Wyoming, and if pretty high up on its tributaries you could divert it into the Colorado drainage, it would be fairly simple and not very costly. But it soon became apparent to any student of water that the Snake River traversed broad areas of Idaho and has a common boundary with Oregon where there are literally thousands of acres of very fertile land yet to be developed, and that all the waters of the Snake River could actually be utilized; and that there really wasn't any surplus waters from the Snake River.

So then the attention was based upon the mouth of the Columbia River, even though you would have to pump it up to probably 5,000 feet and then drop it down to 1600 feet so you could get part of it back with power revenues, and then you could put it through the Hoover, Parker, and Davis turbines and get some more of it back; and it's interesting to note that you'd pump it with lower cost energy than you'd get for the energy you made on the other end, and thus this expensive diversion might be feasible. And at this point, why of course, the Pacific Northwest came up in arms even though they have one of the greatest rivers in the world, and even though it's flowing on an average of 160,000,000-acre feet unused into the ocean every year--the thought that they might lose

from two to fifteen million acre feet to be put somewhere else was more than they could tolerate. And it did become a vicious tool for Congressmen and Senators--they made this a real issue. As a matter of fact they just kept hanging the same ghost over and over again because it was so popular to be against this proposed diversion.

Actually, the Bureau of Reclamation had never recommended any such thing. We had suggested that it ought to be studied along with weather modification and desalinization, evaporation suppressants, lining canals, and all the other things that we're doing to get greater utilization of any given quantity of water that's available now. We've also run some rough estimates of what it would cost. And I'm firmly convinced that the chances of augmenting the Colorado River within economic means will come from additional man-made precipitation from the sky and desalinization and means other than diverting water from the Columbia River, at least in the immediate future.

Now ultimately the broader North American Water Projects, NAWAPA, to bring water clear from Alaska or the Yukon or from the prairie rivers in north central Canada, to move that south I think offers some real opportunity for the next generation, because Canada can be benefited by broad irrigation in the prairie states themselves as they want to diversify out of wheat, and they're going to want to do that as their population grows in my judgment; and they might be willing with the United States participating in a project that would benefit Canada to let some of the surplus water come on down into the United States and augment the Mississippi River and the Great Lakes and so on down into the high plains of Texas that way.

One of the things that I've expanded with the full support

of the Administration is this atmospheric water resources research. Reclamation launched into that in 1961 with a very small budget, and it has grown now to where we have $5,000,000 in the current year; we had $5,000,000 last year.

F: Has your water research project filled up pretty well?

D: This is another element that I want emphasized. President Johnson has done much more than any President in history to support a real honest-to-goodness research approach to solving the problems of water. He supported this atmospheric water resources research, evaporative suppressants on reservoirs, the desalinization program, with vigor, including the cooperation with Mexico and Saudi Arabia and Israel on desalting experiments. The President has personally been involved in these things. We went to India last year at the President's personal request to see if our weather techniques were far enough advanced to give them any help in their droughts that they had, seriously crippling food supply. Well, we determined that there wasn't anything feasible to be done on such short notice to try and alleviate the situation. But it shows that his interest is solid in these endeavors.

F: Does a trip like that come out of your Bureau budget, or do you get other funds?

D: We're restricted from using our funds for things like that, so we have to get it from AID or the State Department or Presidential funds, wherever the source may be, but it's always other than from the Bureau of the Reclamation budget.

F: In the West, has salinization progressed to the point where it takes in the desalting of gypsum water?

D: Yes, brackish water. There are two or three places--there's one in South Dakota particularly where they have brackish wells and they've pumped it up and put it through the desalting technique and have a good supply of water. As a matter of fact, I would say right now that desalting is a feasible means of augmenting water supply for many cities.

F: The augmentation though so far is not ready to be a substitute--

D: It would be pretty expensive for a full supply of water for culinary purposes and industrial purposes to come from that source. On the other hand, a city faced with a need for additional water, it may be the cheapest source of augmenting because otherwise they've got to go too far afield and the cost of transport is too great. I'm not as optimistic as Dr. Seaborg; he keeps talking about cities of the future, agriculture, and everything else from desalted water. I just don't think so. I know what a farmer can afford to pay for water, and I don't think you're ever going to get cheap enough heat and cheap enough operation and maintenance. No matter what plants you build, it's going to have to be maintained and it's going to have to be replaced from time to time as it wears out. And you're going to have to find a way to get rid of this brine. Now on a seacoast this is possible, because you can dump it back into the ocean somewhat removed from your plant without a serious detriment. But all these things are expensive. I don't think you're ever going to get it down to where you irrigate potatoes with that kind of water. Maybe you can get it down to where you can irrigate real high value crops like strawberries in the spring or avocadoes or brussels sprout if it's off season and things like that, you may be

able to do it on specialty crops.

F: In this Lower Colorado situation, how did you work out that compromise?

D: Well, we worked out the compromise in the Pacific Northwest by having a ten-year moratorium on even studying the possibility of moving water out of the Pacific Northwest. In other words the Pacific Northwest says, "Give us ten years free of any threat of even studying the possibility while we make our own studies as to whether we need that water or not, and how much of it we need, and for what purposes."

F: You had a problem there of course in the chairman of the Senate Interior Committee was Senator Jackson from Washington.

D: Yes, indeed. That gave them a leg up so to speak. And this compromise is all right because we don't have a critical problem until about--depending on whose estimate you use, but the Bureau of Reclamation has been in this business for sixty-five years and our engineering studies and hydraulic studies have stood up pretty well--we don't think there's any shortage problem on the Colorado River before about 1990.

F: At that time you had a problem with Central Arizona.

D: Yes. Central Arizona, of course, is a very expensive project. And it started out with a real controversy between California and Arizona, because California realized that if Arizona built this project, that she would have to cut back on the amount of water that California was diverting out of the Colorado River.

F: Colorado has been using considerably more water--

D: California.

F: --than Arizona has from the Lower Colorado.

D: That's right. California has been diverting around 5,000,000 acre-feet a year on the average, and Arizona claims that California

is only entitled to 4.4 million acre-feet, and that Arizona is entitled to 2.8. And this of course resulted in a lawsuit and the court agreed with Arizona that under Boulder Canyon Act and the various compacts of law of the river, did support Arizona's right to 2.8; and that unless there was more water in the river, California therefore was restricted to not more than 4.4.

Well, again there was some compromising because technically under the court decision, Arizona was entitled to 2.8 even though California would have to cut below 4.4; but California finally got the concession from Arizona that until there was augmentation in the Colorado River from some other source like weather modification, desalinization, or import, that she could divert 4.4; and if there wasn't enough water for Arizona to get 2.8, Arizona would take the cut. Now like I say, we don't think there's any problem until 1990 and may not [be] then, but we think there'll be sufficient water to meet all the needs of everybody on the river up until about 1990.

D: Well, yes. We have this weather atmospheric water resources research program and desalinization program. We're also studying of course evaporation suppressants. We're cooperating with the Forest Service on ways to increase runoff from a given amount of snow, like spreading lampblack in certain areas, or putting snow fences up to try to bunch the snow in deeper drifts so that you get less evaporation during the winter from the winds.

The Salt River people have been doing some experimental work of two types: one, taking out the brush and low-growth trees and encouraging grass growth instead of trees. The grass holds the soil just as well or better, and it doesn't evaporate and transpire nearly

as much moisture, so you get a higher runoff. Another plan that's being considered is actually paving some of the deserts with asphalt. Where there isn't any grass or vegetation you just go out and put a thin covering of asphalt on the sand so that you get all the runoff that hits it. Even though it only rains three or four inches a year, what does rain would all run on into your reservoir. Now how economic these things will be in the long run is still to be determined, but it's an effort on the part of man to improve upon his environment.

F: Is your Imperial Valley problem and your Imperial Irrigation District tied in with this Colorado problem, or is that entirely separate?

D: No, it's entirely separate, except that if California has to cut back, Imperial might be in trouble even though she has the best water right on the river. It's hard to visualize that the Metropolitan Water District of California would ever be deprived of water while there was a lot of irrigation going on, even though Imperial's right is better than the Metropolitan Water District's under state law. But I suspect that the millions of people, if they actually ran out of water in the Metropolitan Water District, would be hard to bargain with to keep from getting some of that pulled back from Imperial.

F: Before we leave Central Arizona altogether, Nevada was a fairly negligible contender in this.

D: Yes. Nevada's entitlement was so small, only 750,000 acre-feet a year, that she kind of stood on the sidelines--

F: And let Arizona and California--

D: Well, I mean she wasn't--There was no contention about Nevada; everybody agreed she had 750,000 acre-feet.

F: Senator Kuchel though was a big opponent of the--

D: Well, certainly he had to be. One of my proud moments as Commissioner was before the Administration had a position on the bill, Senator Hayden introduced the bill and insisted on hearings, and there was no report up there from the Kennedy Administration either from the Budget Bureau or the Secretary of the Interior or anybody else, and Senator Hayden insisted on having hearings and he only wanted one witness and that was Floyd Dominy. Secretary Udall and everybody were very much disturbed as to what I would testify to since there was no position on the part of the government. And I did testify. I told Secretary Udall, I said, "I can't refuse to testify when Senator Hayden who has done more for reclamation than any man alive, and probably anybody who ever will be around, if he wants a witness I think we have to comply, and I'm going up and testify on the facts, on the facts as to Arizona's need, on the facts as to the studies we've made--I will make it clear that there's no position on what bill will finally be recommended by the Administration, but I can certainly testify helpfully to the Senator that he has a problem and that there is a plan that would solve it as to bringing the water in. Now, the detail of the plan I'll admit we haven't agreed on, and I'll tell him so and it'll be in the record." So it was a very interesting two days. Senator Kuchel was of course trying to keep me from testifying on anything beneficial to Arizona; the Secretary had his own people up there monitoring me to be sure I didn't commit the Administration in advance of having clearance from the President and the Bureau of the Budget and everybody. But this of course is what you have to do.

F: Do you think that you to a certain extent maneuvered the Administration into taking a stance?

D: No.

F: I don't mean purposely, but by your testimony.

D: No, even inadvertently this was not the case. I knew that the Administration would some time support a Central Arizona project, it was just what form it would be in. At that time the Administration recognized that they still had a problem with California and Arizona and the Upper Basin, and later on they knew they had one with the Pacific Northwest; that wasn't even in it in the first stage. And this was what they were concerned about, that I'd get too far committed on some phases of it that it would be embarrassing in working out a compromise, but we avoided this.

F: Did the Administration come to a viewpoint during Kennedy's Presidency?

D: No. There was not a final position sent up until the Johnson Administration.

F: What do you think brought Mr. Johnson to it?

D: Well, Mr. Johnson is a doer. This is his whole record from his very first appearance in Washington. If you characterized President Johnson just in a few words, you'd say he's a man that can't see things go undone. He's willing to put all of his muscle behind getting an answer and move forward with it. And of course he and Senator Hayden were the closest kind of associates and personal friends of long standing, and I'm sure this had influence on the President's desire to get this behind him and give Carl Hayden some help in his declining years. And the President did. He mentioned this Arizona project in several speeches; and in his last State of the Union speech last January, and in several of his budget statements, he always came out affirmatively for the Lower Colorado Bill and urged Congress to move

ahead with it even when he was retrenching on a lot of his other programs. So he put his muscle behind it all the way.

F: Moving back to the Imperial Valley situation, would you explain just what this 160-acre rule is and the All American Canal?

D: Yes, this is a very interesting chapter. Ever since 1933 when the All American Canal was completed, the Imperial Valley had relied on a memorandum signed by Secretary Wilbur as he was leaving office--

F: That was under Hoover.

D: Yes. He actually signed it in January of 19--Let's see, Roosevelt came in in--

F: 1932--'33

D: Yes, he came in in January of '33, elected in the fall of '32. So Wilbur actually signed this memorandum between the first of the year and the date of inauguration. In those days, it was March, wasn't it?

F: That's right. March 4.

D: So late in the waning hours of the Hoover Administration and Wilbur was a lame-duck Secretary of the Interior, he signed a memorandumm saying that the Imperial Irrigation District was exempt from 160-acre limitation by reason of the fact that they had their own distribution system and had been irrigating long before the All American Canal Project authorization and construction. It's interesting to note that the present solicitor in reviewing this was unable to find any solicitor's opinion that backed up Mr. Wilbur's memorandum.

F: You're talking about solicitor Barry in a more modern time--

D: Yes, he looked it up. The contemporary solicitor with Wilbur left nothing in the file one way or the other. As a matter of fact there

were some documents in the file that seemed to indicate that had the Secretary insisted on a solicitor's opinion, it would have been negative; that he would have said, "I can't find any support for the view you want to take, Mr. Secretary."

But at any rate the fact remains that from that date up until three years ago, the project had developed on a basis that anyone can own as much land as he wants to and get water from the project to irrigate that land--no limit whatever. And as a result large holdings had developed, and the economic evaluation of those lands had been premised on that kind of an agricultural situation. Now I'll be perfectly frank that I'm in full agreement legally that the 160-acre limitation does apply; there's nothing in the law that would lead me to believe that Imperial was exempt or immune. On the other hand, in equity I would have to say that all the Secretaries of Interior from 1933 to 1965 had permitted this to go on--unchallenged--and a whole economy had developed, and that the original land owners were no longer there, and that to go back now is completely unfair and uncalled for--

F: A 160-acre mentality had also disappeared.

D: Well, it's still on the statute books and we still enforce it on new projects where it's enforced from the beginning. Now I certainly am of accord with solicitor Barry that there's nothing that I can cite that supports that it wouldn't apply. I did argue that, number one, we ought to let them test it in court; and that in the interim we shouldn't try to enforce selling the land at pre-project value because to try to dispose of that property now at pre-project values when it has had two or three or four different owners since then, would be

completely inequitable. And I said that we ought to say, if it's determined in the courts, that the law does apply; then we ought to give them a period of ten years to dispose of the land at current market prices to get down to the limit. The Secretary has agreed to this; this is the plan.

F: The change of solicitors so that you come under--who is it, Edward Weinberg?

D: Well, Mr. Weinberg is the current solicitor.

F: I guess it makes no difference--

D: No. Mr. Weinberg was in with Berry as deputy and participated in all the legal review, and I'm sure he couldn't do other than agree with Mr. Berry as to the legal situation.

F: How do you handle your relationships with the Federal Power Commission and with the Army Engineers? The three of you once in awhile must get your legs crossed in this.

D: Well, we have very little problem with the Federal Power Commission; occasionally they insist that we put penstocks in a dam for power purposes; even though we're not building the power house, they sometimes insist that we go to the extra expense of providing the penstocks so that if at some time the power house would be desirable, it could be added with much less cost. On the other hand it may be a sunk cost that we put the penstocks in, and they're there and may never be used.

F: On something like your Crystal Dam in the Curecanti project, what determined that Crystal shall be power?

D: Well, we wouldn't build Crystal at all, because it has no value except as a re-regulatory and afterbay power structure. But by

putting it there, it augments the value of the upstream dams considerably to have regulation immediately below Morrow Point Dam--it increases our ability to make power on peak at Morrow Point. So that's why Crystal is an important part of the three dam proposal at Curecanti. Just like Keswick Dam below Shasta Dam. Shasta is benefited many times by having Keswick as a re-regulatory structure; we can dump much more water for peaking power and then Keswick re-regulates it and makes power with it, so the two together as a team creates much more than either one of them could begin to do individually. And Crystal works in the same fashion. Below Elephant Butte we have Cabayllo and below Hoover we have Parker and Davis. This is characteristic of all big power structures.

F: By re-regulation you're thinking more or less in the sense of being a transformer to a length?

D: Well, I mean that here's a river --let's say you want to dump a lot of water through for four hours in order to put a lot of peaking power on the line between 5:30 in the evening and 9:30 in the evening when everybody has their television sets on and their electric ranges on and so on. Now if you did that and didn't have another dam right below, you'd have a big wave of water going down the river. But if you've got another dam immediately below, you can raise that a couple of feet and then gradually release it through the other dam and make power with it again at a lower head; but you level out the flow of the water and you don't get a lot of criticism immediately by the people below you. This is the purpose of it in many instances.

F: How do you determine your relationship with the Army Engineers? At what point do they come in and you come in?

D: Well, the problem with the Army Engineers is of course one of long standing and probably will worsen before it gets better. We were in the business long before the Corps of Engineers so far as regulation of rivers by storage and utilization of water. The Corps got into the water business through rivers and harbors--dredging of harbors and navigation up the rivers. They were cleaning out sand bars and so on. And then they got into flood control on the diking program; the whole idea of flood control was just to contain the river through higher and higher dikes so that when the floods came they didn't spread out, they just ran them off.

We'd been in business since 1902 building reservoirs to store flood flow, but we didn't advertise it as flood control because we didn't think of it in those terms. We were thinking of it in terms of storage and regulation and use of what otherwise was lost and flushed out to the sea unused; we were accomplishing a flood control purpose, but we didn't bill it as a flood control function. Then the Corps got authority in 1937 to build flood control dams, and their original dams were just that. They built dams many places in the East that weren't to hold any water; they just trapped the water during the flood and then released it immediately so they ahd a big pond there ready to fill the next time it rained.

F: Kind of acted like a lock.

D: Yes. They just actually had uncontrolled spillways, unregulated. They just bottled up the water and then made it go down at a slower pace. Well, of course this was a sad thing; all of the local people would see that water there and it'd be there for three or four days and then it'd be gone. So they gradually got the Corps into multiple

purpose uses. As a result of that all of a sudden in the West we had the Corps competing with us on the very type projects that we'd been working on for years. If they'd just left the Corps in the East and let us do that function in the West, it would have been much better, but that isn't the way things are done. So we do have a certain amount of competition.

F: I don't want to put you on a limb and say you don't want to answer it if you don't, but do you think the Corps of Engineers belongs in the Department of Interior from an administrative standpoint?

D: Certain functions that the Corps are now embroiled in--engaged in, I think ought to be in the Department of Interior. The Corps' public works function, as contrasted to its military function, is what you're addressing your question at; so to rephrase your question, should the domestic water programs of the Corps of Engineers' civil function be in the Department of Interior--I would say that there could be a strong argument made in support of this and has been made by the Hoover Commission; Eisenhower had a review by a Rockefeller group headed by one of the Rockefellers--they recommended this; Ford Foundation studies on reorganization of government I think recommended this. So you don't need to quote me, it has been of record.

On the other hand I feel that a certain element of competition is good. You can be too big and too unwieldly.

Now my own answer to this question from a practical standpoint--I suggested that in the western states at least that the Corps should undertake no project that isn't more than 50 percent flood control; and that if the project was less than 50 percent flood control and

other functions such as irrigation, municipal water, power, recreation, and all the uses that Interior has responsibility for, then it ought to be a Reclamation project built by Interior and managed by Interior. And I think we could have got that across, but there were still a lot of people that said, "Oh, we want it all." And since Reclamation doesn't operate in the eastern United States, I would say let the Corps operate nationwide, but in the seventeen western States that they be limited to those functions which historically have been theirs--the dredging of the river, the diking and flood control; and that the other multiple purpose uses go to the Bureau of Reclamation.

F: Was the Bureau of Reclamation involved in the Ramparts projection on the Yukon?

D: Well unfortunately I have to say yes; as a matter of fact, I think I made an undying enemy in Senator Gruening because--

F: Because you outlasted him.

D: Because I was in Alaska at his request as Commissioner of Reclamation to testify at some hearings on Alaska's power needs. I went there not knowing exactly what was intended and what Mr. Gruening had in mind; I soon learned that it was an official hearing which he was authorized to perform by the chairman of the Interior and Insular Affairs Committee who at that time was still Senator [Clinton] Anderson. This was September of 1960 when Nixon and Kennedy were having a slugfest.

Well, the Corps of Engineers and everybody else stood up and embraced Ramparts, and I had to testify that in my judgment Ramparts was not needed at that time; that at that stage of Alaska's underdevelopment the project was way too big for it; and that it ought to build some smaller projects which had already been identified and that I thought could

get national support from the rest of the United States, but that I didn't think the rest of the United States could support a project as big as Ramparts at that stage of Alaska's underdevelopment. And Gruening was furious. And when Kennedy was elected, he, Gruening, set out to see that I did not get reappointed and he made a real strong case, but I was reappointed. And I still believe as I said then--Ramparts is 5,000,000 kilowatts of capacity and to talk about a project of that magnitude in a state that's only using 600,000 kilowatts (1960) of capacity, including all the military installations, and then talk in generalities about exporting that power and finding a market for it, or that industry was going to flock up there as a result of cheap power and it would absorb it, I think is just pie in the sky, it's just not realistic thinking.

F: Sort of like building a magnificent Rolls Royce with no roads.

D: Well, I used the example when Gruening pressed me up there that this was like promising the settlers as they harnessed their teams and wagons on the Missouri River to start their trek to Oregon in 1848 that we'd build Grand Coulee for them while they were on their way west; but we didn't build it for them until in the 1930's after they had developed a tremendous economy by other means first. Then when they needed a shot in the arm, Franklin Roosevelt helped them get it with the great Grand Coulee Dam.

F: According to your philosophy here then, you don't feel a commitment to develop ahead of need and utility?

D: I think you develop ahead, yes, but not so far ahead that it really is uneconomic. Now you make an investment in a 5,000,000 kilowatt in remote Alaska and say that you can sell the power for two mills,

I don't think you can because you charge interest on that investment for all those years that you wait to grow to fit it. That's not two mill power, that's more expensive power than if you build another one that's going to cost you six mills. I think the six mills--

F: You'd have some pretty long transmission lines there too.

D: Exactly. No, you have to anticipate. Every project we start we need to anticipate twenty-five, fifty years in advance. I think Ramparts was 'way beyond that; it was just beyond the spectrum.

F: Are you involved in the Amistad and Falcon projects?

D: Only to the extent of engineering advice. Falcon we designed and supervised the construction on; Amistad the Corps ended up as the engineering adviser. And we also market the power from those two.

F: On something like Glen Canyon do you work in advance with the Park Service in working out what is going to be recommended in the way of recreation, national park, national monument possibilities?

D: Yes. In every case now and has been for years, we actually advance money to the Park Service to make some studies right along with us in the planning stage.

F: The initiative is yours--

D: The initiative is ours. And Congress appropriates the money to us for transfer to Fish and Wildlife, to National Parks, and in some cases to the Smithsonian, for the Smithsonian to study artifacts and prehistoric man if there is any possibility that we'd be covering up some sites not yet known. In other words we try to make it a truly multiple purpose project right from the inception, and the Park Service judgment is utilized as to whether this is a recreation of national significance or only state significance or only local significance. And I"m very proud of the fact that many of ours have

become nationally known spots. Few people realize that in Grand Teton Park one of the most popular features of it is Jackson Lake; and Jackson Lake is created by a Bureau of Reclamation dam. It was a natural lake, but we damned it up and made it eight or ten times bigger; and now we're able to hold the water there through the tourist season by other dams that we've added to the river. We used to have to start draining it, much to the dismay of the tourists, along in August, and there'd be a lot of mudflats exposed.

F: Because of early icing or--

D: No. Irrigation demands downstream. If we had a bad water year, we had to lower that reservoir in order to meet the demand. Now with another dam or two on the river, we're able to hold Jackson Lake dam at a high elevation until after the tourists leave the area; then we pull it down and get ready for the flood control storage next spring. So we have it full again before the tourists come back the following spring, and this is working very well. I was also quite interested in the Cascades National Park--there is an existing man-made reservoir by the city of Seattle.

F: Lake Ross?

D: I don't remember the name, but the city of Seattle power dam backs water right up through the Cascade National Park that has been created. And the very same people that argued against Walapi argued that this is wonderful because it gives water access and it won't be necessary to build roads. Well, this is what I said about Walapi, I said this will give the visitor a chance to really see the canyon from the bottom up by means of water transport they otherwise can't do except on a very expensive and somewhat dangerous float

trip down the river.

F: You have incidentally given I think just a truly gorgeous lake experience there at Lake Powell.

D: And before that was there only six hundred people had ever been down there in that country. There had been only six hundred people that had ever run that river, and then they couldn't see half of what you can see now by getting back into those side canyons which they couldn't do. Only 13,000 people had visited Rainbow Bridge in fifty years. We have that many every month now.

F: To wind up, Mr. Commissioner, let's go back to your personal career for just a moment. You said that you were close to having served longer than any other commissioner; could you tell us something about how long you have served and who your competition is?

D: Yes. Since the first commissioner was appointed back in 1902, there have been two, four, six, eight--eight commissioners--

F: That's a rather remarkable record. You don't change as often as football coaches.

D: No, not quite. Now, some of them served a very short term. One man, I think we'll leave him nameless, only served nine months. Incidentally, there are three of us that weren't trained engineers; this chap was a lawyer, and the lawyer only lasted nine months. Another chap was a journalist, and he lasted seven years. And I'm an agriculturalist, I'm the only farmer to ever be Commissioner of Reclamation, and I'm now completing my tenth year as Commissioner; so there's only one man that has a longer tenure of record, and that was the great Elwood Mead who served under Presidents Coolidge, Hoover, and Franklin Roosevelt.

F: If you actually continue under President Nixon then you will have served under more presidents even than Elwood Mead.

D: That's correct. I would be the only man in history to have been appointed by four different presidents if Mr. Nixon chooses to reappoint me to this position. And of course if I serve two more years, I will have exceeded Elwood Mead's record of longevity.

F: Mead ran a dozen years.

D: Eleven years and nine months.

F: So you've got about two to go?

D: That's right.

F: Well, I hope you make it.

D: Thank you, sir.

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