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RELEASE OF COLORADO RIVER WATER

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HEARING BEFORE THE SUBCOMMITTEE ON IRRIGATION AND RECLAMATION OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS UNITED STATES SENATE

EIGHTY-SEVENTH CONGRESS

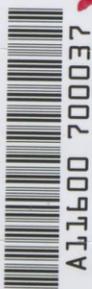
SECOND SESSION

ON

PROPOSED RELEASE, FOR SLICING PURPOSES, OF COLORADO
RIVER WATER IMPOUNDED IN LAKE MEAD

JUNE 7, 1962

Printed for the use of the
Committee on Interior and Insular Affairs



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RELEASE OF COLORADO RIVER WATER

THURSDAY, JUNE 7, 1962

U.S. SENATE,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D.C.

The subcommittee met, pursuant to call, at 10 a.m., in room 3112, Senate Office Building, Senator Clinton P. Anderson (chairman of the subcommittee) presiding.

Present: Senators Clinton P. Anderson, New Mexico; John A. Carroll, Colorado; Frank E. Moss, Utah; J. J. Hickey, Wyoming; and Gordon Allott, Colorado.

Also present: Jerry T. Verkler, chief clerk; Stewart French, chief counsel; and Roy M. Whitacre, professional staff member.

Senator ANDERSON. The subcommittee will come to order.

This is an open, exploratory hearing by the Subcommittee on Irrigation and Reclamation of the Interior Committee on the proposed release by the Secretary of the Interior of some 280,000 acre-feet of Colorado River water from Lake Mead, which is the reservoir formed by Hoover Dam.

The release of the 280,000 acre-feet would be in addition to and over and above the normal releases of water for irrigation, power, and municipal uses downstream from Hoover Dam and would be for the reported purpose of "flushing" or sluicing the river of silt.

It is my understanding that the 280,000 acre-feet reserve, so to speak, was accumulated through and by means of saving floodwaters by the Commissioner of Reclamation.

If these 280,000 acre-feet are in fact excess waters and can legitimately be used for flushing, such an occurrence is an isolated instance—a "one shot" affair—and with Glen Canyon and other authorized reservoirs to be filled, it is very unlikely that there will be any such reserve or excess water, if indeed these particular waters can be regarded as excess, for many, many years to come.

I am informed that the silt plugs from the river could well be removed by dredging, and that the Bureau of Reclamation requested \$550,000 for this purpose, but the request was denied. The \$550,000 dredging cost gives rise to serious question whether the 280,000 acre-feet of water to be used for the same purpose is not worth substantially more for other purposes.

At the estimated rate, the water would be worth less than \$2 an acre-foot for sluicing; I believe it is worth substantially more than \$2 an acre-foot for power generation, irrigation, and industrial and municipal uses.

At this hearing we also will want to make certain that the upper basin States will not, at some future date, be charged with or called

upon to make good a proportionate share of these 280,000 acre-feet. That is, we will want to make certain that the upper basin is not being let in for a future assessment, so to speak.

But first of all, we will want to know by what authority the Secretary of the Interior accumulated this water, presumably by encroachment upon flood control standards and criteria. Even more important, we want to know by what authority he is using it for flushing or sluicing, once it's accumulated, when it is so gravely needed for other purposes.

Our first witness will be the distinguished Secretary of the Interior, the Honorable Stewart Udall. The Secretary will be accompanied by Floyd Dominy, Commissioner of Reclamation, and Mr. Edward Weinberg, Associate Solicitor of the Department of the Interior.

Before calling the Interior witnesses, however, I will direct that a letter I have received from the Honorable Edwin L. Mechem, Governor of New Mexico, on the subject appear in the record at this point. (The letter is as follows:)

EXECUTIVE OFFICE, STATE OF NEW MEXICO,
Santa Fe, May 18, 1962.

Hon. CLINTON P. ANDERSON,
Chairman, Committee on Interior and Insular Affairs,
U.S. Senate, Washington, D.C.

DEAR SENATOR ANDERSON: I am informed that the Commissioner of Reclamation plans to release about 280,000 acre-feet of water from Lake Mead in the coming fall and winter for the stated purpose of removing sediment plugs from the channel of the Colorado River below Imperial Dam.

Unless unusual water supply conditions prevail, such releases will, under the filling criteria announced by the Secretary of the Interior, adversely affect the filling of Lake Powell and the accumulation of power revenue credits under Public Law 485. The importance that water now in storage in Lake Mead will have during the initial filling of Lake Powell makes it imperative that any troublesome silt plugs in the Colorado River be removed by dredging or some means other than the release of water.

I am not convinced that the Bureau of Reclamation has the authority to release water from Lake Mead for the purpose stated if such releases might adversely affect the development and use of water in the upper basin. The Commissioner's contemplation of this wasteful use of water demonstrates that such authority, if it exists, can be used, on one pretext or another, to operate the river inequitably.

I urge that your committee make an investigation to determine whether the Commissioner of Reclamation has the authority to make releases from Lake Mead to remove sediment from the channel. If your committee finds that such authority does exist, it would appear that amendatory legislation should be introduced to divest that authority.

I appreciate that it may be too late to have amendatory legislation enacted during this session but early introduction of such a bill might implement action in the next session.

Sincerely,

(Signed) Ed,
EDWIN L. MECHEM, *Governor.*

Senator ANDERSON. Mr. Secretary, Mr. Commissioner, and Mr. Solicitor, we are glad to have you with us.

STATEMENT OF HON. STEWART L. UDALL, SECRETARY OF THE INTERIOR; ACCOMPANIED BY FLOYD E. DOMINY, COMMISSIONER OF RECLAMATION, AND EDWARD WEINBERG, ASSOCIATE SOLICITOR, DEPARTMENT OF THE INTERIOR

Secretary UDALL. Mr. Chairman, I am very happy to appear on these important matters this morning. My statement on the Colorado River matter is rather brief.

The release of water from Lake Mead for river regulation has been practiced since Hoover Dam was placed in operation. Fortunately, in the early years there was sufficient water so that the river below Imperial Dam could be sluiced as often as twice a week when needed.

As additional demands for the water supply occurred, the frequency of the sluicing and the quantity of water devoted to transporting sediments to the Gulf of California became less and less.

In various sections of the river, in order to conserve water, mechanical dredging and various other types of channel rectification were resorted to. However, as recently as November, 1960, through February 1961, it was necessary to release approximately 190,000 acre-feet of stored water to remove a serious sediment plug in the limitrophe section of the river, which would have endangered a large part of the Yuma Valley if a sudden flood had occurred.

The importance of river regulation is recognized fully in the Boulder Canyon Project Act of December 21, 1928, which states in section 1:

That for the purpose of controlling the floods, improving navigation and regulating the flow of the Colorado River, providing for storage and for the delivery of the stored waters thereof for reclamation of public lands and other beneficial uses exclusively within the United States, * * *, the Secretary of the Interior, * * * is hereby authorized to construct, operate, and maintain a dam and incidental works in the mainstream of the Colorado River * * *.

and in section 6:

That the dam and reservoir provided for by section 1 hereof shall be used: First, for river regulation, improvement of navigation, and flood control; second for irrigation and domestic uses and satisfaction of present perfected rights * * *; and third, for power.

Special Master Simon H. Rifkind, at page 152 of his December 5, 1960, report on the Supreme Court suit of *Arizona v. California*, reviews the Secretary of the Interior's authority and responsibilities under the Boulder Canyon Project Act, as follows:

The Act itself clearly reserves to the United States broad powers over the water impounded in Lake Mead and delegates this power to the Secretary of the Interior, as agent of the United States.

He is specifically authorized to impound the water of the Colorado River in Lake Mead and to exercise custody over the water so impounded through his control, management and operation of the dam and reservoir.

And at page 305:

The Secretary of the Interior determines the total amount of water to be released from Lake Mead and from the several reservoirs on the mainstream of the Colorado River below Hoover Dam for consumptive use in Arizona, California, and Nevada.

That determination is solely within the Secretary's reasoned discretion and presumably is based on the amount of water in Lake Mead and the reservoirs below, the amount necessary to satisfy the U.S. treaty obligations to Mexico, necessities of "river regulation, improvement of navigation, and flood control," predictions as to future supply, and other relevant conditions in the river basin.

The only specific limitation on his discretion is that he must follow the priorities set forth in section 6 of the project act.

The current sediment problem below Imperial Dam is one that must be corrected soon. Even after the releases for river regulation this coming winter, it will be necessary to put a small dredge in this section of the river to maintain the channel if further large scale releases of stored water for river regulation are to be avoided.

This is the last opportunity for badly needed river regulation work before starting the filling of upper Colorado River storage reservoirs, and we are extremely fortunate that 1962 has been a good runoff year to date.

I asked the Bureau of Reclamation to get the figures ready on the runoff this morning.

The runoff into Lake Mead this calendar year through May 31 amounts to 7,937,000 acre-feet as compared to the 1923-58 average of 5,283,400 acre-feet, and last year's 2,745,800 acre-feet by June 1.

On June 1 this year the active storage in Lake Mead stood at 21,920,000 acre-feet, compared to 17,987,000 acre-feet on that same date a year ago.

I have with me today Commissioner Dominy, of the Bureau of Reclamation, who will be pleased to discuss with you in greater detail the method of handling sediment problems on the river, explain how we gained additional water in storage for this specific purpose, and review some of the future water conservation programs being planned for the lower Colorado River area.

Senator ANDERSON. When you stated the following priorities set forth in section 6, to which you refer on page 3 of your statement, that refers to the apportionment of the waters between the various States, the upper and lower basin, and between the United States and Mexico; does it not?

Secretary UDALL. That is correct.

Senator ANDERSON. Anything you do you have to do is within the limits set forth there. You cannot increase the flow to Arizona or increase the flow to California or increase the flow to Mexico; is that right?

Secretary UDALL. I think it is our view that our discretion is limited, with regard to the treaty, for example, as a river master and custodian of the river waters, to see that the treaty is observed.

Senator ANDERSON. And discretion does not include the right to exceed the amounts provided in the treaty?

Secretary UDALL. Not as far as treaty deliveries are concerned, this would be our view. Congress ratified the treaty and has the power in this matter. We are merely administering the treaty and trying to carry out its terms.

Senator ANDERSON. The quotation from Mr. Rifkind, which, of course, I guess is still his opinion until the Supreme Court does something about it, states:

He is specifically authorized to impound the water of the Colorado River in Lake Mead and exercise custody over the water.

Custody does not mean distribution, does it? That does not give him power to change the distribution set forth in the compact or in the Colorado River law?

A custodian of a bank fund has no right to use it for his own benefit or the benefit of a friend of his. He must use it in accordance with whatever the trust agreement is.

Secretary UDALL. It would be my view, and if the Commissioner or his counsel disagree with me they will say so, that we must always operate within the treaty and, subject to applicable Federal statutes, within the ground rules or within the agreements between the States with regard to the apportionment as between the various States.

Mr. DOMINY. This is true. River regulation and flood control, Mr. Chairman, in our judgment have the No. 1 priority in the Boulder Canyon Project Act.

Senator ANDERSON. Would you repeat that, please?

Mr. DOMINY. River regulation and flood control. As the Boulder Canyon Project Act reads:

The dam and reservoir provided for by section 1 hereof shall be used first for river regulation, improvement of navigation, and flood control; second, for irrigation and domestic uses, and satisfaction of present perfected rights.

So we do not think we are in conflict whatsoever when we call upon the waters of Lake Mead whenever in the discretion of the Secretary he finds it necessary to call upon them for river regulation purposes.

Senator ANDERSON. Are you releasing this water for river regulation purposes?

Mr. DOMINY. Yes, sir.

Senator ANDERSON. You are quite sure of that?

Mr. DOMINY. Yes, sir.

Senator ANDERSON. River regulation purposes?

Mr. DOMINY. Yes, sir. We have done it historically and we have the need for it again demonstrated to us.

Senator ANDERSON. Mr. Dominy, you remember the argument about the people who lived around Sioux City, Iowa, that they wanted the Missouri kept at a certain level so that they could have navigation.

The very first thing it says is for river regulation, improvement, and navigation. If I wanted to run a little packet steamer up and down the Colorado River to and from Mexico, and I wanted enough water in the river at all times for that purpose, you would put that use ahead of the rights of the States of California and Arizona to get water for irrigation, would you not, because it is mentioned ahead of it?

Mr. DOMINY. It could be so construed, I think; yes, sir.

Senator ANDERSON. You do not think there would be an outcry from the city of Los Angeles if you took their water to run a steamboat up and down the river?

Mr. DOMINY. I suspect there would.

Mr. WEINBERG. There might be a considerable outcry, but on the other hand when Arizona tested the constitutionality of the Boulder Canyon Project Act in the early 1930's, the Supreme Court sustained the law first because of the power of Congress to improve navigation on the Colorado River, and the Supreme Court said it was not controlled by the fact, as Arizona argued, that the Colorado River compact says that the river is no longer usable for navigation.

The Supreme Court said this was not controlling on the Congress. The Congress authorized this project, among other things, for navigation, and this is within its constitutional authority.

Senator ANDERSON. The Supreme Court thought the Congress had some power in this matter?

Mr. WEINBERG. Yes, sir.

Senator ANDERSON. That is a revolutionary doctrine, is it not? The Congress thought it had some power, too, when it passed the Boulder Canyon Project Act, the storage project and set out between the States the amount of water they were going to get.

Just because we have water on hand in Lake Mead this year, 5 million acre-feet more than last year, does not change the obligation of the compact; does it?

Mr. WEINBERG. No.

Senator ANDERSON. Mr. Dominy, do you have a statement to make about the reasons for this sluicing? Was there a request for \$500,000 for dredging?

Mr. DOMINY. We did make a request, Mr. Chairman, to purchase a dredge, and we believe firmly that we will need a dredge in this section of the river on a permanent basis, as Glen Canyon comes into being on the river, and the days of availability of water for flushing will be at end.

I think this statement which I have will indicate some of the problems.

Below Imperial Dam on the lower Colorado River, a current major problem is river regulation. River regulation, as referred to here, is the maintenance of a suitable channel that will transport the sediments introduced at Imperial Dam without causing channel deterioration.

This can be accomplished by the release to the channel of a certain percentage of the water flowing into Imperial Reservoir. Based on studies of sediment data collected at Imperial Dam and downstream some relationships have been established for the amount of water needed for river regulation.

HISTORIC METHOD OF HANDLING SEDIMENT PROBLEM

River channel surveys indicate that since the operation of the desilting basin began at Imperial Dam, there has been a slow siltation and aggradation of the river channel downstream and that since operation of Morelos Dam began in 1950 there has been a local up-building of the channel immediately below that dam.

With flows below Imperial Dam ranging from 3 million to 10 million acre-feet annually from 1950 through calendar year 1955, regular sluicing operations and systematic river regulation were possible.

In calendar year 1956, a short water year, the flow reaching the northern international boundary was approximately 1.780 million acre-feet and the sediment accumulation increased below Morelos Dam.

Senator ANDERSON. Where is Morelos Dam?

Mr. DOMINY. Morelos Dam is the diversion dam into the Mexican irrigation system.

Senator ANDERSON. Has there been 1.780 million acre-feet of water going down to that dam?

Mr. DOMINY. To that point.

Senator ANDERSON. What is the treaty obligation?

Mr. DOMINY. The treaty obligation is 1.5 million.

Senator ANDERSON. So we have given more than the treaty?

Mr. DOMINY. We have historically had more water in the river than the treaty required; yes, sir.

Senator ANDERSON. The total requirement from the river is some 16 million acre-feet. Has there been more than that in the river? That is, the upper and lower basin?

Mr. DOMINY. The annual flow of the Colorado River has exceeded 16 million acre-feet as recently as 1957.

Senator ANDERSON. But if we now face the fact that California may now need its full share, as may Nevada, New Mexico, Arizona, and Colorado, our remedy must be based on something usable out of the 1.5 million acre-feet instead of from water over that amount that formerly was excess; isn't that so?

Mr. DOMINY. I agree fully.

Senator ANDERSON. And, therefore, sluicing would be out.

Mr. DOMINY. I agree fully that under the full utilization of the river sluicing will not be a practical means or a desirable means of controlling this problem.

Senator ANDERSON. So why not go initially to dredging? Why wait until you have established so-called rights to water by prior use of it?

Mr. DOMINY. I think we should go to dredging as quickly as we physically can.

Senator ANDERSON. How strong was the representation for dredging?

Mr. DOMINY. We had requested a budget item to be in fiscal 1963.

Senator ANDERSON. Is it in the budget?

Mr. DOMINY. No, sir; it is not.

Senator ANDERSON. Where was it cut out?

Mr. DOMINY. It was eliminated during the budget review.

Senator ANDERSON. Where was it cut out? By what organization?

Mr. DOMINY. It was in the Department's preliminary estimate to the Bureau of the Budget.

Senator ANDERSON. Where was it cut out?

Mr. DOMINY. At the Bureau of the Budget level, in its review.

Senator ANDERSON. Did you protest to the Bureau of the Budget? Did you point to this Mexican water situation?

Mr. DOMINY. There was an appeal made on the items that were eliminated from the budget; yes, sir.

Senator ANDERSON. Strong on this point? This is a very vital point coming along pretty shortly.

Mr. DOMINY. Well, there was a reiteration that we felt that this was a necessary item and it ought to be in the budget.

Senator ANDERSON. And the Bureau of the Budget eliminated it?

Mr. DOMINY. That is right, sir. To continue with my statement.

However, in 1957 through 1959, flows again ranged from 3 to 6 million acre-feet annually at the northern boundary and systematic river regulation was used to move the tremendous quantities of sediment downstream.

CRITICAL SEDIMENT SITUATION IN FALL OF 1960

During 1960, the Colorado River flows at the northern international boundary were reduced to approximately 2.5 million acre-feet and a critical sediment situation developed on the lower part of the river to the extent that it reduced substantially the flood carrying capacity of the river and levee system.

Meetings were held in Washington between the Interior Department and State Department in October 1960, to consider how the situation should be handled. It was decided at that time to proceed with a dual program which would include: (1) the release of a limited quantity of river regulation water carefully controlled to transport the sediment load downstream to the Gulf of California, and (2) the Bureau of Reclamation and the U.S. Section of the International Boundary and Water Commission drafting a memorandum of understanding between the two agencies as a basis of a discussion of the problem with the Mexican Commissioner of the International Boundary and Water Commission. Such a memorandum was executed in August 1961.

In late November 1960, intensive sluicing and river regulation activities were initiated and continued through February 1961, during which period approximately 190,000 acre-feet of water were used successfully for river regulation.

PRESENT SEDIMENT PROBLEM

After considering the slight reduction in Lake Mead storage in December 1960, as compared with December 1959, the gradual increase in downstream deliveries in the United States, the amount of water that would be released under reduced energy schedules, and the forecast of an extremely poor April-July inflow to Lake Mead, the decision was reached in early 1961 to advise the U.S. Section of the International Boundary and Water Commission that Mexico should be limited to a treaty delivery of 1.5 million acre-feet for calendar year 1961.

With Mexico's schedule under the 1944 treaty limited to 1.5 million acre-feet again in 1962 and releases from storage limited to only those required to meet treaty obligations and irrigation requirements, the situation is steadily worsening to the point where it now will require not only the release of stored water for river regulation but the acquisition and operation of mechanical equipment to maintain an efficient channel.

1962 WATER SUPPLY SITUATION

The April 1, 1962, forecast of Lake Mead inflow for the 4-month period (April 1 to July 31, 1962) was as follows:

	<i>Acre-feet</i>
Maximum.....	12, 900, 000
Mean.....	10, 400, 000
Minimum.....	7, 900, 000

The storage content of Lake Mead on April 1, 1962, was 18 million acre-feet. The flood control regulations require that we do not exceed an active storage content of 25.9 million acre-feet between August 1 and October 1.

The flood control regulations require also that in making releases for flood control we assume the maximum probable runoff forecast.

On April 1, 1962, application of the flood control regulations would have required the release of an average of 20,000 cubic feet per second during April. This is equivalent to a monthly total of 1,190,000 acre-feet or about 280,000 acre-feet greater than the downstream requirements and actual Hoover release in April, 1962.

Senator ANDERSON. Would you explain what that means to a layman. What is the total storage capacity?

Mr. DOMINY. Just short of 29 million acre-feet.

Senator ANDERSON. So you were nowhere near filling Lake Mead up or anything of that nature?

Mr. DOMINY. No, sir. But the active capacity, plus the maximum predicted runoff potential, the flood control regulations set by the Army would have come into play, as I have pointed out, and we would have had to start evacuating space.

Senator ANDERSON. The flood control regulations set by whom?

Mr. DOMINY. By the Corps of Engineers of the Army.

Senator ANDERSON. Do they regulate the river?

Mr. DOMINY. For flood control purposes they give us the operation of Hoover and all other reservoirs where flood control is applicable.

Senator ANDERSON. In other words, if the Army decides that you should only put 20 million acre-feet into Hoover, you would have to cut to 20 million acre-feet?

Mr. DOMINY. They are not, of course, arbitrary or capricious and their authority goes only to the space allotted to flood control.

Senator ANDERSON. But they have the final authority?

Mr. DOMINY. They have the final authority on flood control operations; yes, sir.

Senator ANDERSON. On the amount of water in Lake Mead, the capacity?

Mr. DOMINY. They have the authority to direct the Secretary of the Interior to operate Lake Mead so as to accomplish certain flood control objectives.

Senator ANDERSON. But who has the authority? If they have the authority to direct, then they have the real authority to run Lake Mead; is that right?

Mr. DOMINY. For flood control purposes; yes.

Senator ANDERSON. The Flood Control Act of 1944 provides it shall be the duty of the Secretary of the Army to prescribe regulations for the use of storage allocated for flood control or navigation at all reservoirs constructed wholly or in part with Federal funds, providing the basis of such purpose and the operation of any such project shall be in accordance with such regulation.

So it is in accordance with that that they tell you how much to release each year.

The agreement in the compact says that the States of the upper basin shall release to the lower basin 75 million acre-feet over a 10-year period.

Some of that water is going to be stored in Glen Canyon.

If the Army Corps of Engineers decides it will move all of it out of Glen Canyon, can they do that and keep us from accumulating in the upper basin?

Mr. DOMINY. I am sure the corps cannot, because its authority is limited to control of flood control space.

Senator ANDERSON. Where does it stop?

Mr. DOMINY. The corps' authority is limited to the flood control function. They tell us how to operate the flood control space. They give us the criteria on which we shall base our operations of flood control space. In Glen Canyon there is a definite allocation of flood control, as there is at Hoover.

Senator ANDERSON. What is that?

Mr. DOMINY. I do not remember it offhand, but it is relatively minor in terms of the total capacity of the reservoir, as it is here at Hoover.

Senator ANDERSON. The total capacity is 29 million acre-feet and you say that the flood regulations require we do not exceed an active storage content of 25.9 million acre-feet.

So they have decided that only 26 million, approximately, of the 29 million, shall be ever utilized at Lake Mead, is that right?

Mr. DOMINY. The rest is for flood control storage space against the maximum possible flood.

Senator ANDERSON. At the time you had 18 million acre-feet in there, so you had 8 million acre-feet to go; did you not?

Mr. DOMINY. We had 18 with a maximum forecast of 12.9 million, and the requirements that the Army has given us—

Senator ANDERSON. 12.9 million? When has it ever run that much? Has it run that much right along?

Mr. DOMINY. No, sir; this was the maximum estimate on April 1, resulting from all of the snow of last winter. In other words maximum expected runoff for the April through July period of this year.

Senator MOSS. Is there an estimate later than April 1? It is my understanding that that has been decreased rather sharply.

Mr. DOMINY. I will be happy to get to that.

Senator ANDERSON. If the estimate changed, why can't you?

Mr. DOMINY. The point is that the regulations, as of April 1—

Senator ANDERSON. But we have gone by that date. When the estimates changed, why can't you?

Mr. DOMINY. During the month of April, had we operated fully consistent with the regulations as issued by the Army, we would have had to release water. We are explaining that that is the 280,000 acre-feet.

Senator ANDERSON. Did you have to release water in April for an August figure?

Mr. DOMINY. Yes. This is the way the regulations prescribe. May I finish my statement?

Senator ANDERSON. I am just trying to read what you have said. You said the flood control regulations require that you do not exceed an active storage content of 25.9 million acre-feet between August 1 and October. That does not say anything about April; does it?

Mr. DOMINY. That is right.

Senator ANDERSON. Where do you get the April?

Mr. DOMINY. But they also prescribe procedures as to how to get there at that time.

Senator ANDERSON. When are those procedures prescribed?

Mr. DOMINY. This is covered in the next sentence of my statement. On April 1, 1962, application of the flood-control regulation would have required the release of an average of 200-000 cubic feet per second during April.

Obviously, Senator, this is so that you will not be slugging water into the river and causing damage if you had to release suddenly larger quantities.

Senator ANDERSON. That would be good for sluicing; would it not?

Mr. WEINBERG. We might oversluice in that event, Senator.

Senator ANDERSON. Can you show us the requirement, or supply it for the record, that says you had to start in April to release water in order to get the level of Lake Mead down to the 26 million acre-feet maximum?

Mr. DOMINY. Yes, we will be happy to supply that.

Senator ANDERSON. Have you ever asked the Army Corps of Engineers why in a 30-million-acre-foot reservoir you can only store 26 million acre-feet?

Mr. DOMINY. The active storage of Lake Mead is 28,427,000 acre-feet. Of course, in a flood you would build up some above that.

Senator ANDERSON. That is what we are talking about, flood; are we not?

Mr. DOMINY. It would be going over the spillway at that point.

Senator ANDERSON. Would that hurt anything?

Mr. DOMINY. You would have no control and you could be causing flood damage downstream which is the very thing that the flood control regulations are designed to prevent. Unless you operate within the control capacities of the reservoir—if you are operating over the spillway and had a sudden rain, it would be uncontrolled.

Senator ANDERSON. Furnish us with the provision that requires you to start doing this in April.

Mr. DOMINY. Very well, sir.

(The following information and tables were subsequently submitted:)

The computation of the April 1962 minimum average Hoover Dam release in cubic feet per second was based on the prescribed flood control regulations for that dam and reservoir as published in the Federal Register of Thursday, February 18, 1954. A copy of these regulations is attached for your convenience, as well as a print of the "Tables of minimum average releases for flood control purposes," as mentioned in § 208.80 paragraph (c). The required April release was based on a computation involving an extrapolation and interpolation of table 4 of these tables.

CHAPTER II—CORPS OF ENGINEERS, DEPARTMENT OF THE ARMY

PART 208—FLOOD CONTROL REGULATIONS

HOOVER DAM AND RESERVOIR, COLORADO RIVER, NEVADA-ARIZONA

Pursuant to the provisions of section 7 of the act of Congress approved December 22, 1944 (58 Stat. 890; 33 U.S.C. 709), § 208.80 is hereby prescribed to govern the use and operation of Hoover Dam and Reservoir on Colorado River, Nevada-Arizona, for flood-control purposes.

§ 208.80 *Hoover Dam and Reservoir, Colorado River, Nevada-Arizona.* The Bureau of Reclamation shall operate Hoover Dam and Reservoir in the interest of flood control, as follows:

(a) In order to provide storage space for control of floods, releases from Hoover Reservoir shall be scheduled so that available space for flood-control storage will not be less than that indicated in the following table for the dates shown. Flood-control storage space, as defined in the regulations in this section, shall be the available storage space below elevation 1,229 feet.

Date:	<i>Available flood-control storage space (acre-feet)</i>
August 1	2, 500, 000
September 1	2, 500, 000
October 1	2, 500, 000
November 1	2, 675, 000
December 1	3, 963, 000
January 1	5, 350, 000

(b) Releases from the reservoir shall be restricted to quantities that will not cause a flow in excess of 40,000 cubic feet per second at Needles, California, insofar as possible.

(c) For the period January 1 to August 1, minimum releases from the reservoir to attain the August 1 flood-control space prescribed in paragraph (a) of this section shall be determined from tables 1 through 6 of the Tables of Minimum Average Releases for Flood Control Purposes currently in force for various conditions of available flood-control storage space and a maximum forecasted inflow. The Tables of Minimum Average Releases for Flood Control Purposes currently in force as of the promulgation of this section are those dated January 27, 1954, File No. 373/102. Pertinent information on inflow forecasts and on permissible changes in the releases indicated in tables 1 through 6 of the Tables of Minimum Average Releases for Flood Control Purposes currently in force is given in subparagraphs (1) and (2) of this paragraph.

(1) All inflow forecasts used in carrying out the provisions of the regulations in this section shall be prepared by the Bureau of Reclamation. The maximum forecast for any specified runoff period is defined as the estimated inflow volume (acre-feet) that, on the average, will not be exceeded 19 times out of 20.

(2) When minimum releases for the periods April 1 to August 1, May 1 to August 1, or June 1 to August 1 as given in tables 4, 5, or 6, are between 20,000 cubic feet per second and 40,000 cubic feet per second, it will be permissible to release less than the indicated amounts for a part of the period, provided the average releases for the entire period will equal the releases given in the table, without flows exceeding 40,000 cubic feet per second at Needles, California, gaging station.

(d) For the period August 1 to November 1, minimum releases from the reservoir shall be determined daily from table 7 of the Tables of Minimum Average Releases for Flood Control Purposes currently in force for various conditions of available flood-control storage space and of estimated inflow. The inflow shall be estimated on the basis of discharge reports from appropriate gaging stations on Colorado River and on Little Colorado River. Pertinent information on permissible changes in the releases as indicated in table 7 is given in subparagraphs (1) and (2) of this paragraph.

(1) Minimum releases from the reservoir as given in table 7 of the Tables of Minimum Average Releases for Flood Control Purposes currently in force, if 40,000 cubic feet per second or less, shall not be reduced, when once initiated, until the storage space prescribed in paragraph (a) of this section becomes available.

(2) Minimum releases from the reservoir as given in table 7 of the Tables of Minimum Average Releases for Flood Control Purposes currently in force, if greater than 40,000 cubic feet per second, shall not be reduced, when once initiated, until the reservoir water surface has receded to elevation 1221.4 (top of spillway gates in raised position), or, if the reservoir water surface does not reach elevation 1221.4, until the inflow and reservoir water surface are both receding. Releases may then be gradually reduced to 40,000 cubic feet per second and shall be maintained at not less than that rate until the storage space prescribed in paragraph (a) of this section becomes available.

(e) For the period November 1 to January 1, the minimum releases from the reservoir shall be those necessary to make available the storage space prescribed in paragraph (a) of this section.

(f) Nothing in this section shall be construed to require dangerously rapid changes in magnitudes of releases.

(g) The Bureau of Reclamation shall procure such current basic hydrologic data, and make such current calculations of permissible releases from the reservoir as are required to accomplish the flood-control objectives prescribed in this section.

(h) The Bureau of Reclamation shall keep the District Engineer, Corps of Engineers, Department of the Army, in charge of the locality, currently advised of reservoir release, reservoir storage, and such other operating data as the District

TABLE 1, MINIMUM AVERAGE JANUARY RELEASE FROM HOOVER DAM

Flood-control space in Lake Mead below elevation 1229 on January 1 Million acre-feet	Maximum January-July Forecast in million acre-feet								
	34	32	30	28	26	24	22	20	18
	Release in thousands of cubic feet per second								
17	40	40	13						
16	40	40	30						
15	40	40	40	13					
14	40	40	40	30					
13	40	40	40	40	13				
12	40	40	40	40	30				
11	40	40	40	40	40	13			
10	40	40	40	40	40	30			
9	40	40	40	40	40	40	13		
8	40	40	40	40	40	40	30		
7	40	40	40	40	40	40	40	13	
6	53	40	40	40	40	40	40	30	
5	69	40	40	40	40	40	40	40	13

TABLE 2, MINIMUM AVERAGE FEBRUARY RELEASE FROM HOOVER DAM **

Flood-control space in Lake Mead below elevation 1229 on February 1 Million acre-feet	Maximum February-July Forecast in million acre-feet								
	34	32	30	28	26	24	22	20	18
	Release in thousands of cubic feet per second								
17	40	40	40	19					
16	40	40	40	37					
15	40	40	40	40	19				
14	40	40	40	40	37				
13	40	40	40	40	40	19			
12	40	40	40	40	40	37			
11	40 ⁴⁸	40	40	40	40	40	19		
10	40 ⁵³	40	40	40	40	40	37		
9	40 ⁷⁶	40 ⁶⁵	40	40	40	40	40	19	
8	40 ⁷⁹	40 ⁶³	40	40	40	40	40	37	
7	40 ⁸¹	40 ⁷⁸	40 ⁶⁵	40	40	40	40	40	19
6	40 ⁸⁴	40 ⁷⁹	40 ⁶³	40	40	40	40	40	37

TABLE 3, MINIMUM AVERAGE MARCH RELEASE FROM HOOVER DAM

Flood-control space in Lake Mead below elevation 1229 on March 1 Million acre-feet	Maximum March-July Forecast in million acre-feet										
	34	32	30	28	26	24	22	20	18	16	14
	Release in thousands of cubic feet per second										
17	40	40	40	40	25						
16	40	40	40	40	40						
15	50	40	40	40	40	25					
14	67	40	40	40	40	40					
13	77	50	40	40	40	40	25				
12	80	67	40	40	40	40	40				
11	83	77	50	40	40	40	40	25			
10	87	80	67	40	40	40	40	40			
9	90	83	77	50	40	40	40	40	25		
8	93	87	80	67	40	40	40	40	40		
7	97	90	83	77	50	40	40	40	40	25	
6	100	93	87	80	67	40	40	40	40	40	

TABLE 4, MINIMUM AVERAGE APRIL RELEASE FROM HOOVER DAM

Flood-control space in Lake Mead below elevation 1229 on April 1 Million acre-feet	Maximum April-July Forecast in million acre-feet											
	34	32	30	28	26	24	22	20	18	16	14	
	Release in thousands of cubic feet per second											
17	80	71	63	55	46	38	30	22	13			
16	84	75	67	59	51	42	34	26	18			
15	88	80	71	63	55	46	38	30	22	13		
14	92	84	75	67	59	51	42	34	26	18		
13	96	88	80	71	63	55	46	38	30	22	13	
12	100	92	84	75	67	59	51	42	34	26	18	
11	104	96	88	80	71	63	55	46	38	30	22	
10	108	100	92	84	75	67	59	51	42	34	26	
9	111	104	96	88	80	71	63	55	46	38	30	
8	111	108	100	92	84	75	67	59	51	42	34	
7	111	111	104	96	88	80	71	63	55	46	38	

TABLE 5, MINIMUM AVERAGE MAY RELEASE FROM HOOVER DAM

Flood-control space in Lake Mead below elevation 1229 on May 1 Million acre-feet	Maximum May-July Forecast in million acre-feet										
	30	28	26	24	22	20	18	16	14	12	10
	Release in thousands of cubic feet per second										
17	84	73	62	51	40	29	18				
16	89	78	67	56	45	34	23	12			
15	95	84	73	62	51	40	29	18			
14	100	89	78	67	56	45	34	23	12		
13	106	95	84	73	62	51	40	29	18		
12	111	100	89	78	67	56	45	34	23	12	
11	111	106	95	84	73	62	51	40	29	18	
10	111	111	100	89	78	67	56	45	34	23	12
9	111	111	106	95	84	73	62	51	40	29	18
8	111	111	111	100	89	78	67	56	45	34	23
7	111	111	111	106	95	84	73	62	51	40	29

TABLE 6, MINIMUM AVERAGE JUNE RELEASE FROM HOOVER DAM

Flood-control space in Lake Mead below elevation 1229 on June 1 Million acre-feet	Maximum June-July Forecast in million acre-feet										
	24	22	20	18	16	14	12	10	8	6	4
	Release in thousands of cubic feet per second										
17	77	61	44	28	11						
16	86	69	53	36	19						
15	94	77	61	44	28	11					
14	102	86	69	53	36	19					
13	110	94	77	61	44	28	11				
12	111	102	86	69	53	36	19				
11	111	110	94	77	61	44	28	11			
10	111	111	102	86	69	53	36	19			
9	111	111	110	94	77	61	44	28	11		
8	111	111	111	102	86	69	53	36	19		
7	111	111	111	110	94	77	61	44	28	11	
6	111	111	111	111	102	86	69	53	36	19	
5	111	111	111	111	110	94	77	61	44	28	11

TABLE 7, MINIMUM RELEASES BETWEEN AUGUST 1 AND NOVEMBER 1 FROM HOOVER DAM

Reported flow at Lees Ferry plus Little Colorado Thousand cfs	Flood-control space in Lake Mead below elevation 1229 in millions of acre-feet										
	0.5	1.0	1.22 ^a	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
	Release in thousands of cubic feet per second										
160	89	72	65	55	39	22					
180	94	78	70	61	44	27					
200	100	83	76	66	49	33	16				
220	105	88	81	72	55	38	21				
240	111	94	87	77	60	44	27				
260	117	100	92	83	66	49	33	16			
280	122	106	98	89	72	55	38	21			
300	128	111	104	94	78	61	44	27			
320	134	117	110	100	83	66	50	32	16		
340	140	123	115	106	89	72	56	38	22		
360	145	128	121	112	95	78	61	44	28		
380	151	134	127	117	101	84	67	49	33	16	
400	157	140	133	123	106	89	73	55	39	22	
420	163	146	138	129	112	95	78	60	45	28	
440	168	151	144	134	118	101	84	66	50	34	17
460	174	157	149	140	123	106	90	72	56	39	23
480	180	163	155	146	129	112	96	77	62	45	28
500	185	168	161	151	135	118	101	83	68	51	34
520	191	174	167	157	140	124	107	88	73	56	40
540	194	177	170	160	143	127	110	91	76	59	42
560	199	182	175	165	148	132	115	96	81	64	48

NOTE

^a When the flood-control space in Lake Mead below elevation 1229 equals 1.22 million acre-feet, the elevation of the water surface will be at the top of spillway gates in raised position.

** Table 2 corrected 24 August 1955.

HOOVER DAM AND RESERVOIR
COLORADO RIVER, NEVADA-ARIZONA

TABLES OF MINIMUM AVERAGE RELEASES
FOR FLOOD CONTROL PURPOSES

PREPARED PURSUANT TO FLOOD CONTROL REGULATIONS
FOR HOOVER DAM AND RESERVOIR (33 CFR 208.60)

APPROVED: *H.A. DeShimer*
COMMISSIONER OF RECLAMATION

APPROVED: *[Signature]*
MAJOR GENERAL, CHIEF OF ENGINEERS

EFFECTIVE DATE: JAN. 27, 1954 FILE NO. 373/102

Engineer may request, and also of those basic operating criteria that affect the schedule of operation.

(i) The flood-control regulations of this section are subject to temporary modification by the District Engineer, Corps of Engineers, if found necessary in time of emergency. Requests for and action on such modifications may be made by any available means of communication, and the action taken by the District Engineer shall be confirmed in writing under date of same day to the office of the Regional Director of the Bureau of Reclamation in charge of the operations. Releases made in accordance with the regulations in this section shall not be required at rates or in a manner that would be inconsistent with the requirements for protecting the dam and reservoir or downstream dams and the levee systems in the Needles, Parker, Blythe, and Yuma area from major damage. In the event of danger of major damage to or failure of such dams or levee systems the releases required by the regulations of this section may be temporarily adjusted by the Bureau of Reclamation pending action of the District Engineer, Corps of Engineers, on request for approval of such adjustment.

(j) Revisions of the Tables of Minimum Average Releases for Flood Control Purposes may be developed from time to time as necessary by the Corps of Engineers and the Bureau of Reclamation. Each such revision shall be effective upon the date specified in the approval thereof by the Chief of Engineers and the Commissioner of Reclamation and from that date until replaced shall be the Tables of Minimum Average Releases for Flood Control Purposes currently in force for purposes of this section. Copies of the Tables of Minimum Average Releases for Flood Control currently in force shall be kept on file in and may be obtained from the offices of the Chief of Engineers, Department of the Army, and the Commissioner of Reclamation, Washington, D.C., and also from the offices of the District Engineer, Corps of Engineers, and the Regional Director, Bureau of Reclamation, in charge of the locality.

[Regs., January 27, 1954-ENGWE] (58 Stat. 890; 33 U.S.C. 709)

[SEAL]

WM. E. BERGIN,
Major General, U.S. Army,
The Adjutant General.

[F. R. Doc. 54-1148; Filed, Feb. 17, 1954; 8:53 a.m.]

Mr. DOMINY. As a means of conserving water, we decided not to start flood control releases in April 1962. As a result of this decision we salvaged approximately 280,000 acre-feet of water that otherwise would have been released downstream at a time when it could not be properly managed for river regulation.

Senator ANDERSON. Then you did not regard this requirement as very binding, did you?

Mr. DOMINY. I felt that this was a calculated risk, that under the circumstances we should take.

Senator ANDERSON. You had some authority in the matter?

Mr. DOMINY. The administrative head always has some authority if he is willing to assume responsibility, which we were willing to do. We felt quite safe with the Navajo Dam, ready to start filling very soon, and Flaming Gorge in prospect to start filling reasonably soon, and Glen Canyon—incidentally, we had already written to the Army requesting them to give us revised flood control criteria, based on the imminence of these other structures on the Colorado River system.

But as of April 1, we had not received from the Army any modification. We did assume the responsibility for deviating from the prescribed flood control regulations, knowing that we had river-control problems, and hesitating to dump water on a scarce river at a time when it could not be used to advantage.

A large portion of that water probably would have been, in April, diverted by Mexico at Morelos Dam and, therefore, would have served no river regulation purposes below that point.

The May 1 forecast of the April through July runoff at Lake Mead carried a mean of 10.1 million acre-feet. That is a slight reduction in the mean.

Four million acre-feet of that has already arrived in Lake Mead. Current daily inflows are averaging from 35,000 to 40,000 cubic feet per second and active storage is approximately 22 million acre-feet.

While the Corps of Engineers has granted us relief on the August-October flood control space requirement, we may well exceed maximum permissible storage on January 1, 1963, under current flood control regulations unless additional relief is granted by the corps in view of upstream storage developments.

Senator ANDERSON. Mr. Dominy, you base this on flood control, but the press release issued by the Department on July 1 said:

Interior approves release of Colorado River water to assist Mexico.

The Secretary of Interior, Stewart L. Udall, announced approval of a release by the Government of Mexico for a request for additional Colorado River—

Mr. DOMINY. That refers to a different set of circumstances, and different water we were talking about entirely at that point, sir.

What is the date of the press release?

Senator ANDERSON. July 1, 1961.

At that time, I took occasion to write a short letter to the Secretary of Interior, in which I pointed out that this announcement said that for the past several years you have been delivering 1.7 million acre-feet of water annually from the Colorado River to Mexico, and you would keep on increasing this.

I pointed out that the treaty stated that Mexico shall acquire no rights for the use of water of the Colorado River system for any purpose whatsoever in excess of 1.5 million acre-feet, except when we determined surplus waters were available.

Senator Hayden was quite active in the debate in the Senate on ratifying the Mexican Water Treaty, and he remembers with great clarity the effort made to get some provision for certain extra floodwaters to be given to Mexico. He would be an expert witness in this matter because he remembers agreements were reached so that no future claim of any kind for any water could ever be made, no matter what the situation was as to salinity or anything else.

While we are in it, you might at some time explain this 40,000 acre-feet in contradiction, apparently, of the treaty.

But go on with this other.

If you do not mind, I think I will put at the end of your testimony this letter. Then you will know what we are talking about.

Mr. DOMINY. Mr. Chairman, may I suggest my recollection is that there was some correspondence with the committee with respect to this 40,000 acre-feet, and that we gave a substantial report. Perhaps you would want to put that into the record along with the letter.

Senator ANDERSON. Yes. We will be very glad to have it placed into the record, also.

Mr. DOMINY. We wrote one on August 11 and one on August 28, 1961. Perhaps it should accompany your letter into the record.

Senator ANDERSON. But your replies did not change the essential facts. Mr. Carr's conclusion is that the decision was made because of the extreme hardship which would result to our Mexican neighbors in the event no water was made available.

The treaty says you do not increase it for any purpose, even hardship,

Mr. DOMINY. We are in full agreement that under the treaty there would have been no requirement whatsoever. We very carefully in granting this urgent appeal, to make the record that it was over and above the treaty requirement and not any obligation on the part of the United States.

Senator ANDERSON. Mr. Secretary, this is not intended to be critical of what was finally done, but to lay some sort of a groundwork so that this just does not happen automatically every time somebody gets short of water.

If they can say, "We have a precedent for it, you sent it to us in 1961. You are going to sluice the river and send us more in 1962," this will be a continuing parade.

However, all of this material will go into the record as suggested. (The correspondence to which reference is made is set forth in the appendix.)

Mr. DOMINY. In view of the critical sediment problem below Imperial Dam, especially as it endangers the irrigated areas in the United States, and under the authority of the Boulder Canyon Project Act, the Secretary of the Interior has acted on my recommendation and has determined that approximately the quantity of water that we salvaged in April should be used for river regulation during the period October 1962 through February 1963.

Obviously, 1962 is going to be a good water year. This may be the last opportunity to carry out the carefully controlled river regulation operations on the lower Colorado River before filling the upper Colorado River storage project reservoirs and must be done if the Secretary is to carry out his responsibilities on the Colorado River under the various acts of Congress.

Recognizing the increased demands for, and the potential national benefits to be derived from more efficient utilization of the water resources of the Colorado River, we are well along on plans for a number of water conservation activities downstream from Davis Dam.

Due to lack of adequate regulating facilities on the lower Colorado River below Parker Dam, 250,000 to 300,000 acre-feet of water annually arrives at the international boundary in excess of Mexican treaty requirements.

Reconnaissance studies indicate that a 12,000 acre-foot regulatory reservoir at Senator Wash about 2 miles above Imperial Dam on the California side of the river is feasible.

Pumps totaling about 500 cubic feet per second capacity would lift the excess water about 60 feet into the regulating reservoir. Schedules for delivery of water to Mexico and for domestic irrigation needs could be better regulated and waste substantially reduced by capturing potential excess water in this proposed reservoir and releasing it as required.

Senator ANDERSON. Can I ask if you have made a budget request for this amount of money to construct this dam or to make studies?

Mr. DOMINY. We have had money to make studies. This has been discussed with the Senate Appropriations Committee, and I feel quite confident that Senator Hayden is interested in putting the money into the budget to continue this work.

Senator ANDERSON. I am, too. I have talked to him and I have never found anybody more anxious and willing to try to get something done in this situation than Senator Hayden.

Mr. DOMINY. It is estimated that an annual water salvage would range from 200,000 to 240,000 acre-feet through use of the reservoir.

A reconnaissance study is being made of the possibility of salvaging water by the eradication of phreatophytes, that is something similar to that which we did on the Rio Grande, with which you are familiar, on the bottom lands along the lower Colorado River between Davis Dam and the international boundary.

There are thousands of acres of land along the river covered with dense vegetation that is consuming large amounts of water. It is possible a substantial part of this water can be salvaged for beneficial use. This investigation is scheduled to be completed in fiscal year 1963.

A feasibility grade study on the possibility of regulatory pumping from the ground water in the Yuma area indicates a potential recovery of approximately 245,000 acre-feet annually when operated in conjunction with the proposed Senator Wash regulatory reservoir.

Senator ANDERSON. Can't we find a better name for that?

Mr. DOMINY. Well, of course, we do not try to rename the geographic names in the West. This happens to be the local connotation.

In the interest of conserving water and halting the movement of sediment in the river, complete channelization of the lower Colorado River has been considered so as to provide a rectified and stabilized channel from Davis Dam to the southern international boundary.

A reconnaissance study completed in March 1962, shows that rectifying the channel where alinement is poor and the channel is wide will; (1) improve conveyance characteristics thereby permitting more exact delivery of scheduled water; (2) reduce water losses from alternately wet and dry side channels, ponds, and swamps; (3) improve drainage of adjacent farm lands by lowering the water table; and (4) protect adjacent lands from further damage by stream meander and overflow at high discharge.

Senator ANDERSON. Mr. Dominy, the State of New Mexico used to be heavily indebted to the State of Texas for Rio Grande water. That situation has improved some in the last few years.

Do you think any part of this improvement is the result of better channelization of the river by the elimination of phreatophytes and things of that nature?

Mr. DOMINY. I am confident that it has improved a great deal by reason of this program.

Senator ANDERSON. I think so, too. We know what the fight is going to be in the Colorado River, a constant and never-ending fight for every drop of the water of that very important stream.

Any of these programs that gets underway at an early date is going to be to the eventual benefit of every one of the States involved and to the country, generally.

Mr. DOMINY. Our studies and records of streamflow indicate that on the Rio Grande we are salvaging as much as 70,000 to 75,000 acre-feet a year that would have been wasted.

The first benefits of it were not felt until 10 years ago and we have already, we think, put over a half million acre-feet into Elephant Butte that would not have been there if it had not been for this work.

Senator ANDERSON. I agree completely. That is why I think in this particular situation, where we know we will have trouble, it should be done.

Mr. DOMINY. This is one of the first things that Secretary Udall had me to undertake, to step up our progress on the studies, to try to get into a position to not just talk about it but be prepared to start corrective measures in the lower basin to salvage water in that critically short river.

Senator ANDERSON. There are several things, then, that maybe this committee and others ought to concern themselves about. One would be the question of dredging. We certainly ought to have a dredge available so you can go to work on it.

The second would be the 12,000-acre-foot regulatory reservoir at "Congressman" Wash.

The third might be this question of trying to channelize the river and eliminate the phreatophytes which are using a great deal of water.

Those three things, I think, Mr. Secretary, would greatly improve the situation in the river.

We are not going to have peace and harmony on the river just as soon as the Supreme Court hands down its decision. After the decision is when the fighting is really going to start.

Secretary UDALL. Senator, I have gotten a little education here this morning, too. If I may make an observation or two, it seems to me that we are on the river going into a period of profound change.

There has only been one major structure on the river at Hoover. We have lived in a situation in the Colorado River Basin of water surplus, one might say, over the past years. As far as we could even contemplate, although it is ridiculous under present circumstances, the navigation on the river, the flood control problem, we are going to move quickly now with the closing of these two big dams this fall.

Navajo Dam will be closed this year. We will move into a period when our control of the river is going to be much greater, the possibility of floods is going to be much less, water is going to be much dearer.

We are going to have to manage much more precisely than heretofore. It seems to me that the best way to avoid what we have had to do in carrying out this river regulation control responsibility, which is an added responsibility over and above our treaty responsibility and other responsibilities, is to get a channel, just as you suggested, and to do the work on the river so that we can manage it more precisely and that we do not have to, in effect, waste water.

I do not think we can afford to waste water in the future. I think this hearing this morning is very useful in that it puts all of this in very sharp focus. It certainly has for me.

Senator ANDERSON. It is also, in a way, a question of economics. Water that is used for sluicing is worth a couple of dollars an acre-foot. Water used for industrial purposes, irrigation, domestic use, is worth a vast amount more than that, and we ought to use it to the best possible advantage.

I will be glad to help in any way I can, and I know that others will be glad to, to try to bring about the accomplishment of some of these things that you folks have talked about.

I think this question raised is a very important one.

I know that the early work on channeling the Rio Grande, while it was presented as an effort to improve our relationships with Mexico and also for many other things, had some bearing to the public relief programs that we had in those days because it would create some employment along that river in an area that needed employment.

As it turned out, it probably was the most valuable work that could have been done. It is extremely important.

Secretary UDALL. The boondoggle was a boon.

Senator ANDERSON. Very definitely.

Senator MOSS. I wanted to ask two or three questions.

This area of the river where you intend to flush out the silt, is that in the United States or is it in Mexico?

Secretary UDALL. The United States.

Mr. DOMINY. Well, it is in the United States primarily, although part of the silt problem below Morelos is in Mexico. The silt deposition is bad between Imperial and Laguna, and between Laguna and Morelos.

The flushing operation has to release waters in quantities great enough to take the sediment clear to the gulf. Part of it is in Mexico, but the flushing is for our benefit, primarily.

Senator MOSS. You have no responsibility for channeling the river below the boundary line, do you?

Mr. DOMINY. Except if we do not flush it clear out to the gulf, it just builds right back on us in any event.

Senator ANDERSON. Once water is going down the river, it goes down the rest of the way, including the part below it. But you do it primarily for our sake.

Mr. DOMINY. That is right. I also want to point out that in the manner in which we are operating, we are putting silt back into the river. So it is silt that we are deliberately returning to the river, in part, at least, rather than putting it into our canal systems in the United States.

Senator MOSS. Assuming you had the dredge there now and you could dredge the channel in the United States, would you propose to go over and dredge the channels in Mexico?

Mr. DOMINY. No, at this point, they are going to have to do a similar dredging job, in part, on their own, too.

Senator MOSS. But at this point they are just going to rely on the United States to flush out their channel through Mexico?

Mr. DOMINY. It is a complicated river operation problem. We take the silt out of the Colorado River water at the desilting works at Imperial and put it right back into the river.

Then under normal operations, with just the normal releases to Mexico, with diversion at Morelos, all of this sediment is not moved out of the river. It moves gradually down and becomes a plug in that whole reach of the river.

As I said, historically we have had enough water so that we flushed it out periodically and kept the river free. We know that this cannot continue since there are uses for the Colorado River waters in the upper and lower basins.

We have had many discussions with Mexico and Mexico has had a tremendous silt problem of their own, in their own canal system.

As a matter of fact, they have dredged silt out of their canal systems and piled it up so high that they can hardly find equipment that will lift it up high enough to store it. We understand that they are actually now buying up storage areas on which to put this silt.

So it is a continuing problem that both governments are going to have to be wrestling with in that lower stretch of the river.

Senator MOSS. It would be better to spread it out and farm it.

One thing I am concerned about is here we are going to flush out the river, or it is proposed the river be flushed out once again for Mexico. Is this not somewhat akin to what Mexico is saying on getting the saline water, that we ought to send them more water because they got some poor quality water and there is sort of a precedent for them getting extra water?

Won't they say on this, "You have been flushing the channel out for us for all these years, and, therefore, you have an obligation to continue to flush it"?

Mr. DOMINY. The flushing predominantly is for the interest of the United States and protection of the U.S. lands and U.S. projects and financial feasibility of the projects.

In recent years' flushings, we have always made the releases in the October-February time of year when Mexico would be diverting the minimum quantities of water so that we could guard against them diverting it at Morelos so that the net effect would be to flush the silt clear to the Gulf of California.

Senator Moss. Have there been discussions with Mexico about their acquisition of dredging equipment, looking forward to the time when you might have dredges upriver and they have dredges down below the boundary?

Mr. DOMINY. There have been discussions of this sort through the International Boundary Commission.

Senator Moss. Have they indicated they are prepared to invest in dredges to be able to regulate their channel?

Mr. DOMINY. I cannot say that there has been any precise agreement on that point, Senator.

Senator Moss. Could we have the record very definite on the point that this release of water has nothing to do with the so-called salinity problem, it has no relationship to the quality of water argument with Mexico, but is purely for channel regulation?

Mr. DOMINY. This I will be very pleased to make, with or without being put under oath, that the decision was made knowing that we needed to get that river in good shape before we closed Glen Canyon, and recognizing that even if we had money to buy a dredge, there would be an elapsed time of getting it purchased, assembled, and in operation in that stretch of the river.

When the opportunity came to capture water that otherwise would have been wasted, I felt that this was a very prudent thing to do, and we did it. The Secretary endorsed this and the water was stored to take care of the problem that we knew we had.

I want to hasten to add that at the same time during this same period, during April, there was a great hue and cry from Mexico concerning the quality of water in the river. There had been full-page advertisements in the nation's capital newspapers, and marches on our consulate and Embassy. Our own State Department was properly quite concerned about our relations with a friendly neighbor to the south.

It became quite obvious that if an announcement could be made that there would be operation of the river in such a fashion next winter that there would be the promise of an improved situation, that this would all redound to the credit of the United States, particularly at a time when our own President was planning a trip to the Mexican Republic in July.

So there was emphasis made in announcing the availability of this water for river regulation purposes as to its correlative value in improving the salinity situation during this next winter's critical period.

Senator ANDERSON. But the answer to Senator Moss is that this water is solely for flushing and not for dilution.

Mr. DOMINY. Exactly. The other is only a corollary, an ancillary, matter incident to our river regulation functions.

Senator ANDERSON. It just happens to exist because you cannot stop the water once you use it for flushing.

Mr. DOMINY. That is right.

Senator MOSS. I wanted to ask another question.

Senator CARROLL. Will the Senator yield before he goes further?

Senator MOSS. Certainly.

Senator CARROLL. This flushing operation you have described certainly will not injure our relations with Mexico; would it?

Mr. DOMINY. Certainly not.

Senator CARROLL. They would be helpful?

Mr. DOMINY. Certainly. I would like to point out that the only thing the panel of experts were coming up with was a construction program which could not possibly, even though instituted immediately, could not possibly have given any relief by the winter of 1962-63.

So the availability of this water for river regulation purposes and the ancillary dilution that would result from the extra water being in the river, made it very helpful in our relations with Mexico to make this announcement.

Senator CARROLL. Is it safe to say, or is it correct to say, that with respect to this dredging operation, if you do remove the silt you also improve, do you not, the quality of the water?

Mr. DOMINY. Well, that does not necessarily follow because the quality of the water problem results from the return flow drainage in the winter months into the river at a time when the greater portion of the water in the river is of the return flow character.

You see, Mexico is only required, under the treaty, during the winter months, to accept a 900-cubic-foot-per-second flow of water and there is about that much return flow.

Senator CARROLL. I am sorry I could not be with you this morning. I was where they are giving the Dooley Medal to Mrs. Dooley. But I am very much interested in this matter of Colorado River water.

Our Government has been negotiating with the Mexican Government on this very operation you are talking about?

Mr. DOMINY. Yes. This has been quite a serious problem between the two Governments and the State Department, the International Boundary Commission, and the Mexican Government. They agreed to have a panel of experts from the United States and Mexico review the problem.

Without any determination in advance as to what would be possible, and with full recognition that the United States intended to preserve the rights of the United States under the treaty, nevertheless we want to do anything we can within practical limits, as a good neighbor, to help alleviate the problem of the water.

The experts from Mexico and from the United States have met, they have drafted a report, and I understand that the U.S. panel will report very shortly as to some long-range proposals that they think might improve the situation.

Senator CARROLL. I thank the Senator.

Senator HICKEY. I wonder if the Senator will yield for a question.

Senator MOSS. I will be glad to yield to the Senator.

Senator HICKEY. Are you aware, Mr. Commissioner, that each of the upper basin States, all of which are affected by efforts to alleviate the salinity condition in Mexico, has made its position preeminently clear, as the chairman indicated in his initial statement? Each State has taken the position that the Colorado River compact and the Mexican Water Treaty do not place any obligation upon either the United States or the individual States to in anyway provide Mexico with a particular quality of water?

Mr. DOMINY. Yes; I understand that to be the position of the upper basin States as well as the lower basin States.

Senator ANDERSON. Is it not the position of the Commissioner of Reclamation?

Mr. DOMINY. I also understand it to be the position of the Commissioner of Reclamation and the Department of Interior. And so far as I know, the Department of State concurs.

Secretary UDALL. This is a very delicate problem. Of course, when you have a neighboring people that have traditionally been friendly, and have traditionally had relationships with this country that we want to preserve, you do not simply stand on legal positions.

This is the reason the study is being made. This is the reason we may come up with a solution that we think will be good for the States and will be good for the Government and be good for our relations with Mexico.

This is what we are studying, looking at at the present time. If we stand rigidly on some legal position, it would not give us much room to work creatively in terms of working along toward a solution to the problem.

Senator ANDERSON. I do want to say that Senator Hayden has given me a memorandum, based on his knowledge of what took place in the Senate.

An absolute guarantee was made that in no way would the signing of a Mexican treaty involve any additional water of any kind or description.

As you undoubtedly recall, there was a move on some years ago to try to buy back from Mexico this million and a half acre-feet. It is regrettable we did not buy it back. But unfortunately, we had some Americans who had acquired land in Mexico and were greatly interested in its development. We have done well by them. We have probably done better by them than by the citizens of Mexico. But in any event, the statement was made over and over again, and language written in just as clearly as it could be, that never at any time would the question of the character of the water enter into it.

Mexico knows that and has agreed to that. They have agreed to make no claim whatever in this regard. That is what I am trying to say, that the answer to Senator Moss is that this is for flushing only, not in any way connected with the problem of dilution.

Secretary UDALL. Simply by timing our flushing operations, we happily can help out on an existing problem.

Senator MOSS. I wanted to ask a question or two along the line the chairman brought up, about the storage in Lake Mead, the indication that there might be some surplus water stored there now, and

that this is the water that would be let down, used in the flushing later this year.

This ties into the problem that will arise when Glen Canyon and the other dams start to fill. The question has been raised about reimbursement for power revenues that would be diminished while the dams upstream were filling. If this water is surplus in Lake Mead now, in effect, is it not at least partly the property of the upper basin States?

Why could it not be held to a time when the filling is going on up above and then this surplus water could be released through the turbines in Hoover Dam and thus alleviate the obligation on the upper basin States to reimburse the power down below?

Mr. DOMINY. Let me just say briefly that the Commissioner of Reclamation, with the full support of Secretary Udall, intends to operate the balance of the time between now and when Glen Canyon is filled and in operation, to the maximum extent possible to fill that new structure as rapidly as possible.

We did impinge upon the flood control regulations in April and by so doing we did accumulate, and this has been documented here today, the 280,000 acre-feet that otherwise would have been wasted.

I think this was prudent, particularly since we knew that we would have to release water for river regulation purposes in any event, as we did a year ago when we had only a 60-percent capacity in Lake Mead.

We still released 190,000 acre-feet of water, even in a short time, for river regulation purposes. So knowing that we would have to release water for flushing again this winter, I think we were very prudent in deviating somewhat from the precise regulations because we are not going to be risking life and limb, in our judgment.

If we get extra heavy rains and snows then we will release and waste water, if we have to, to preserve the effectiveness of the flood control regulations.

So I want to make it abundantly clear that the 280,000 acre-feet is there, it does not really belong to anyone, it would have been wasted, and this is the water that we are going to use for flushing purposes, rather than taking stored water.

This fortuitous situation presented itself and we took advantage of it.

Senator Moss. My point is perhaps it does belong to someone, and the upper basin States have an interest in this water. Of course, we have been going through a series of bad water years, and we finally have a good one. We have been thinking that that was something of a blessing, to get a good water year just prior to the time when we must start filling the big dams upstream, because it was hoped that Lake Mead would be brimming full and that we would not be under the pressure to reimburse the lower basin States for their loss of power revenues during the time of the filling of the Glen Canyon Dam.

That is the thing I am concerned about, whether this flushing operation, again, is a very great waste of the value of the water being used for that purpose, and, secondly, whether it is imperative to do it right now, whether it might not be held over again until the filling has started up above and then, as it is passed down the stream, of course, it goes through the turbines, too.

Mr. DOMINY. As I pointed out in my statement, Senator Moss, we expect to fill Lake Mead. We expect to be in an excellent position.

Senator ANDERSON. But along may come the Army Corps of Engineers and say, "Dump all of this water. We do not like it there."

Have you not some authority to resist? You did resist once. You refused to drink when you got right up there. Can you not refuse to drink again?

Mr. DOMINY. Certainly we would not expect the corps to promulgate a regulation that would be considered arbitrary or capricious and beyond any reasonable and proper use of Hoover capacity for flood control.

Senator ANDERSON. You said if you turned the water loose it would be wasted. Did it have to be wasted, even though the Army corps would like to take it out of there? There is some right to control this water by treaties and so forth. Has the Army Engineer Corps the divine right of kings?

Mr. DOMINY. No, sir. We pointed out here, Senator, that the right the Army has, by law, is to give the Secretary of Interior regulations as to how to operate the flood control space that is allocated in a federally constructed structure.

Senator ANDERSON. But does that involve the right to tell you to dump water?

Mr. DOMINY. Yes, sir; but only to the extent that there is a flood control allocation and assigned space.

Senator ANDERSON. I wonder if the Congress knew this language put in the Milliken-O'Mahoney amendment of 1944 would be used 18 years later to require you to dump water you did not want to dump and did not have to dump.

What is going to happen from here on out? That is the great question.

Secretary UDALL. Senator, I think I can assure you, particularly through this very crucial new period we are beginning in this particular basin, because we may have a surplus of waters in the Missouri, Columbia, and other rivers, that this is a much different situation, and I think that we are going to husband every acre-foot of water that we can.

If this involves us arguing with somebody or being a little bit unreasonable—if an argument ensues, the water will stay there while the argument goes on—we will pursue that course, because I think this is a situation, perhaps, that was not even contemplated under the Flood Control Act.

Senator ANDERSON. I am sorry, Mr. Secretary, but I think a lot of it was contemplated. I do not think this was the expectation of this language at all.

Secretary UDALL. That is what I am saying.

Senator ANDERSON. This was so that the Army Corps of Engineers, knowing the ability of a dam to withhold certain strains, could, in order to keep from having floods, say that you better cut it down a little bit. We have one in Jemez Canyon of the Rio Grande. Powerboats came up and used it, and the people would like to have had the reservoir full, but the Army said to drain it in order to prevent floods in the Rio Grande.

I think that is absolutely right and proper. The reservoir was built for a specific purpose and should not be operated for the pleasure of somebody, just because it is handy, convenient, and agreeable.

But to say, when we are as short of water as we are, that the Army can come in and say, "You reduce the amount of water in Lake Mead down to 24 million or 20 million or 18 million acre-feet because we anticipate that there might be a possibility that sometime water will flow into it to bring it up to 23 million acre-feet," does not seem to make any sense.

Mr. DOMINY. Senator, let me comment.

To the extent that there is flood allocation at Hoover, and there is, the Army is doing exactly there what they are doing at Jemez.

They are protecting the flood control allocation by insisting on the space being evacuated under certain criteria to meet prospective needs.

Senator ANDERSON. What they would be doing at Jemez is this: We would allow the Jemez Dam to remain full and then the people below El Paso and across into Mexico would say, "We are getting a lot of bad water down here, too much salinity," so the Army would order Jemez emptied to help out the situation in Mexico.

Senator Hayden pointed out in his memorandum—we better put the whole memorandum in. Here is a plan that was alive and active when this was going on.

Senator Hayden said:

I am convinced Mexico is seeking to establish a precedent which will guarantee for her the delivery of Colorado water low in salt content for all time to come. Our Government should avoid such a precedent, since it is perfectly clear that regardless of the action taken by either Government to solve the current problem, the waters of the Colorado will increase in salinity as the development of authorized and contemplated projects dependent on Colorado water emerge.

The treaty language, the legislative history before the Senate Foreign Relations Committee, and floor debates are specific on this point. This increase in salinity was foreseen and provided for in the treaty. The treaty does not guarantee any quality of water and obligates Mexico to take return flow water regardless of salinity.

Here is a man who was in the Senate during committee consideration and the debate on the treaty and who had the treaty successfully blocked—he and Senator Ashurst—and it was never going to pass. In order to get it passed, Senator Hayden points out in his memorandum, Mr. Frank Clayton who was legal counsel for the U.S. Section of the International Boundary and Water Commission and one of the negotiators, made the following reply in answer to a question during the committee hearing:

Now to get back to the words "from any and all sources" and "whatever their origin," those words were inserted by the American representatives in this treaty to insure that the United States would get credit for all kinds of water, whether it was green water or clear water or any other kind of water, whether drainage or fresh, that actually found its way to Mexico, that might come into the mainstream, in the boundary portion, from Arizona, for instance, but still the United States would be entitled to credit for it.

Then Senator Hayden says:

In addition to this witness there were numerous others, all of them clearly stated there was no guarantee of quality of water to Mexico. It was only upon this understanding that the United States ratified the treaty. Without this understanding the treaty would not have been ratified.

I know that the Arizona Senators had the Senate tied up to where the Mexican treaty could never have emerged if they had not been guaranteed that whatever the return flow was from the Gila, it would be taken at face value as fulfilling the requirements of the treaty.

I am still insisting, with the Senator from Utah, that if we release the water now said to be available, we do so only on a sluicing basis. I am just as concerned as he is with what is going to happen.

Has there been any statement to the effect that part of this 280,000 acre-feet will not be charged or be chargeable to the upper basin States at some later date?

Since this is water you were going to let go anyhow, we do not owe you anything for it if you use it up?

Mr. DOMINY. No, sir.

Senator ANDERSON. We will never get a bill for it at a later time?

Mr. DOMINY. No, sir.

Senator MOSS. The trouble is we will not get any credit for it, either.

Senator ALLOTT. They do not do any debit accounting.

Senator ANDERSON. I am not concerned about the debiting, because it would be down the river. But I would hate to have them come back at a later date and say, "You are not entitled to take quite as much water from this dam or that dam built on the Colorado River because you owe us half of 280 million acre-feet that you had to use in 1962."

Secretary UDALL. Let me point out one other matter that seems to me to make this situation that we presently have almost unique. That is this: Normally where you have a series of structures for flood control capacity on a river, everything is calculated and should be run on a prudent basis. Here we have a wet water year. We ought to try to capture all the water we can so that the more we can fill Lake Mead the better position everyone is in for the future.

But yet we are sitting here. Let us assume—and we all know the runoff characteristics of this basin—there were unusually heavy summer or fall rains. We are sitting there with three large dams that we are prepared to close the gates on. We could shift these times around undoubtedly a little bit if we had to, if unforeseen conditions occurred.

Therefore, I think this gives us some leeway, again operating very prudently, as I have indicated earlier, to husband the maximum amount of water we can in Hoover Dam under these peculiar circumstances that exist at the present moment.

Senator CARROLL. Does this establish any precedent? It seems to me implicit in this memorandum of Senator Hayden he was concerned about precedent.

Secretary UDALL. We do not consider it any precedent at all. We are just doing our normal river regulation sluicing operation and we are simply timing so that it helps out. That is all.

Senator MOSS. The earlier testimony was that historically they have been regulating the channel by sluicing operations and then we discussed as to whether they could get over to this mechanical dredge business so we would not have to waste the water sending it down for sluicing when it is so valuable for other purposes.

The testimony was that, of course, the request had been made earlier for a dredge and the Budget Bureau had taken it out of the budget request.

So they do not have enough dredging equipment to do it. They still want to go ahead and sluice the river. But this is a critical point for us because of these other projects that are just now coming to their completion. We have been very concerned about it.

Mr. Chairman, may I submit for the record a telegram I have from Jay Bingham, the executive director of the Utah Water and Power Board on this subject?

Senator ANDERSON. Yes, and I will put into the record at this point the memorandum of Senator Hayden, dated May 22, so we have this information, and also a copy of remarks he made on this subject on April 26, 1962.

These things get lost and we ought to have them in a matter of record.

(The memorandums and telegram referred to follow:)

U.S. SENATE,
COMMITTEE ON APPROPRIATIONS,
May 22, 1962.

Memorandum from Senator Carl Hayden.

Subject: Problem relating to quality of water delivered to Mexico from the Colorado River under the treaty of 1944.

INTRODUCTION

I must begin by stating that water is the most valuable resource of all the seven States of the Colorado River Basin. The area comprising these States is increasing in population more rapidly than any other area in the United States and could make beneficial use of more water than is obtainable from the river and its tributaries. This being true, these seven States may be expected to resist by every possible means any proposal to alleviate the problem with Mexico if the result were to increase the quantity of water delivered to Mexico or were to be not in conformity with the 1944 treaty with Mexico as it was understood by the Senate when the treaty was ratified in 1945. Being mindful of our longstanding international friendship with Mexico, I would support any sound plan which met this test and was based upon full knowledge of all of the facts. As I will point out later in more detail, the present situation is, in large part, the result of improper irrigation practices and lack of proper drainage in Mexico, dating back for more than 20 years.

THE PROBLEM

In the fall of 1961, the Mexican Ambassador protested to the Department of State that the waters being delivered to Mexico under the 1944 treaty were not "usable" because of increased salinity allegedly caused by drainage water from irrigation projects in the United States. With the increased development of the water resources of the Colorado River, particularly irrigation developments, drainage return flows to the river have increased in recent years. While the quality of the water being delivered to Mexico during the winter of 1961-62 was generally not as desirable as upstream storage, it was equal to or better than the supply available from many irrigated areas that are successfully irrigated adjacent to Mexico in Arizona, California, New Mexico, and Texas. The increased salinity was foreseen and provided for when the treaty was negotiated.

THREAT OF MEXICO TO TAKE PROBLEM TO INTERNATIONAL COURT OF JUSTICE

It has been stated that Mexico has threatened to take this matter to the International Court of Justice unless it is resolved promptly. In view of the background of the treaty negotiations and legislative history of the treaty in the U.S. Senate, all of which transpired before the treaty was considered by the Mexican Senate, Mexico certainly could not be confident of a favorable decision. If such an action were initiated by Mexico it would preclude the United States from further consideration of any remedial action in this country. By the time such litigation was concluded, the current salinity problem may have been alleviated by the normal operation of the drainage system already constructed and in operation in the United States. Therefore, Mexico's threat should not lead the United States to make a precipitous decision without having knowledge of all of the facts and the answers to important questions that have been raised.

OFFICIAL ACTION TAKEN THUS FAR BY THE UNITED STATES

On March 14, 1962, the Presidents of the United States and Mexico announced that the United States and Mexican Commissioners of the International Boundary and Water Commission would each appoint a panel of qualified consultants from each country for the purpose of studying the problems and recommending solutions without regard to the legal position of each country. These panels have been convened. It is anticipated that they will shortly report on their conclusions and may recommend a solution.

AREAS INVOLVED IN THE UNITED STATES AND MEXICO

United States

The Colorado River originates in Wyoming and extends some 1,400 miles, draining areas of seven States—Wyoming, Colorado, Utah, New Mexico, Nevada, Arizona, and California. The drainage area covers approximately one-twelfth of the United States and crosses the international boundary into Mexico near Yuma, Ariz. For most of these States, the Colorado River is either the major or only significant water resource. Because of this factor, the division of the water resources of the Colorado River has been the subject of a domestic controversy for more than 30 years. There is now pending for decision before the Supreme Court of the United States litigation commenced 10 years ago among four of the seven States and to which the United States is a party. The probable ramifications of this decision in considering any proposal with Mexico are great. They will be discussed separately in this memorandum.

Mexico

In Mexico, the area irrigated with the waters of the Colorado River which are diverted at Morelos Dam, consist at the present time of approximately 400,000 acres in the Mexicali Valley, which geographically is an extension at the south of the Imperial Valley in California.

Until 1960, there were large amounts of surplus water coming down the Colorado River into Mexico which she could use pursuant to the treaty. As a result, the irrigated acreage in the Mexicali Valley was greatly expanded and exceeded 500,000 acres. At the same time, water was being sparsely applied to the cropped land. As a result, the salinity in the soils of the Mexicali Valley has been building up steadily for more than 20 years. There has never been an adequate drainage system installed in the Mexicali Valley which would permit the leaching of the salinity from the soil as is required in good irrigated farming practices. These latter facts already have been confirmed by the American panel currently working on the problem. Thus, the increase in salinity of irrigation water last fall is only one contributing factor to the problem.

BACKGROUND TO TREATY

Prior to the construction of Hoover Dam on the Colorado River, irrigated agriculture along the lower Colorado River, and particularly in Mexico, was entirely at the mercy of seasonal fluctuations in the river. Huge spring floods followed by severe water shortages in the late summer and early fall months were the rule rather than the exception. These factors greatly limited the number of acres which could be developed in Mexico. Geographically she possessed no sites upon which to construct storage dams. The United States, at a cost of over \$225 million, first constructed in the United States Hoover Dam and then Davis Dam to control the floods and regulate downstream flows. Mexico did not pay any of the cost of these structures even though she is a prime beneficiary of their benefits.

Upon the completion of Hoover Dam in 1935, thereby assuring for the first time regulated downstream water releases, it became essential that the water rights of Mexico and the United States be determined and the quantity of water available for further development in each country be fixed.

Treaty negotiations were opened with Mexico in 1941. During those negotiations two significant factors developed. Mexico at that time sought some guarantee as to the quality of water which would be obtainable in the years to come. At issue were two types of water and names were developed for them during the negotiations. Mexico referred to water which would be released from storage as "white water" and to drainage water and other return flows as "green water." The other significant factor was that there would be irrigation projects constructed in Arizona which would produce a large quantity of return flows to the river just

above the international boundary line and at a point where they could not be again diverted or stored in the United States. It was obvious that these return flows would reach the river and pass into Mexico without control. The consideration of these two factors were dominant in fixing the amount and in avoiding any commitment as to the quality of water which Mexico would receive under the treaty.

At that time, it was estimated that with full development in the United States, the return flows would approximate 1 million acre-feet per year. Predicated upon this assumption, the negotiators for the United States agreed that they would recommend that Mexico be given 1½ million acre-feet per year, if Mexico would agree to accept for credit upon the treaty all of the return flows and would abandon its request for guarantee as to quality.

This solution was agreed to by the negotiators of both countries and the treaty was so drafted as to implement the agreement. In article 10 of the treaty, referring to the water to be received by Mexico, the language provided in part that Mexico's share would be from waters of the Colorado River, "from any and all sources." Article 11 provided that delivery of Mexico's water would be made from waters of the Colorado River "whatever their origin."

In transmitting the treaty to President Roosevelt and recommending its execution, Cordell Hull, the then Secretary of State, in referring to the quantities of water to be delivered to Mexico stated "These quantities, which may be made up of any waters of the Colorado River from any and all sources, whether direct river flows, return flows, or seepage, will be delivered by the United States in the boundary portion of the Colorado River * * *."

In 1945, the U.S. Senate Foreign Relations Committee held extensive hearings in which I participated personally. Two States were opposing ratification of the treaty. The United States and the other five States were strong proponents of ratification. The question of the quality of the water which Mexico would receive was discussed extensively. A witness for the State Department, Mr. Frank Clayton, was at that time the legal counsel for the U.S. Section of the International Boundary and Water Commission, and one of the treaty negotiators for the United States. In answer to a question, Mr. Clayton stated as follows:

"Now, to get back to the words 'from any and all sources' and 'whatever their origin,' those words were inserted by the American representatives in this Treaty to insure that the United States would get credit for all kinds of water, whether it was green water or clear water or any other kind of water, whether drainage or fresh, that actually found its way to Mexico, that might come into the main stream, in the boundary portion, from Arizona, for instance, but still the United States would be entitled to credit for it."

In addition to this witness, there were numerous others, all of whom stated clearly that there was no guarantee of quality of water to Mexico. It was only upon this understanding that the Senate ratified the treaty. Without this understanding the treaty would not have been ratified.

It is essential to emphasize that there are still many major projects, many of which have been authorized by Congress and others which will be presented to Congress, to be constructed in the Colorado River Basin States. These projects will all contribute additional return flows to the river system and will tend to create a further deterioration in the water quality. The development of these projects in the United States was foreseen and anticipated by the various provisions of the Mexican treaty referred to above.

The full utilization of the Colorado River, just as is the case on all other rivers in arid areas, is predicated upon the use and reuse of water from the headwaters of the river to the point of its final discharge in the sea. Water is diverted, applied to the land, and the excess water over and above that required by the crops, returns to the stream. The water returning to the stream brings with it salinity from the soil through which it passed plus the residual from the original water remaining after evaporation and transpiration on the cropped area. This is a continuing process as the river flows downstream.

It has been suggested by Mexico that the current problem is created by one project in one State. The return flows and the resulting salinity about which Mexico has currently protested, reach the river just above the international boundary line. It is further aggravated by the fact that Mexico voluntarily chooses to follow a cropping pattern which requires most of her water to be delivered during 7 months of the year. Hence, there is little opportunity during the other 5 months of the year for the dilution of these return flows. Return flows from other projects located upstream have an opportunity to mix with the

regular flow of the stream and in that way be diluted. Therefore, even though Mexico is currently objecting to only one project, the principle involved affects all existing projects in the river basin and would extend to projects not yet constructed.

U.S. POSITION ON TREATY

It is perfectly clear that the treaty with Mexico not only does not guarantee any quality of water to Mexico but obligates her to take water from whatever source as a part of her treaty allotment. However, as a matter of international comity, I suggested when the problem first received public attention in December 1961, and because of our traditional friendly relations with Mexico, that our Government explore possible approaches to the problem which would lead to an improvement on both sides of the border. I emphasized that any such exploration must not modify or alter the treaty.

ACTIONS TO IMPROVE INTERNATIONAL RELATIONS

Financial aid for Mexico

I am willing to sponsor in the Congress any reasonable plan for aid to Mexico to enable it to construct without delay the drains it needs, line its canals and laterals, and carry on a program of general rehabilitation. Through the World Bank, or as a part of the Alliance for Progress program, or any other available means, I am ready to help our sister nation to the south to develop its full agricultural potential on a sound basis.

I am advised that Mexico has reduced its irrigated land from about 500,000 acres to 410,000 acres for this year. This is a step in the right direction, for it is quite obvious that in the years ahead when Mexico must look forward to no more than its treaty allotment of 1,500,000 acre-feet plus about a half million acre-feet from wells in Mexico, she cannot irrigate even 410,000 acres. There must be a further reduction in acreage in order to have enough water to properly irrigate crops and keep pushing the salt on down. All of our domestic projects, such as the Imperial and Coachella in California, and the Yuma and Gila, Ariz., have found that it takes extra water just to keep the salts moving down in the soil and out of the project through drains.

Temporary relief for winter of 1962-63

As indicated above, the problem has been most critical during the winter months when Mexico has failed to schedule sufficient stored water to dilute the return flows. However, for the period October 1962 through February 1963, the Bureau of Reclamation in its operation of the Colorado River has scheduled approximately 275,000 acre-feet of additional water in the Colorado River for badly needed channel regulation and rectification purposes. Incidental to this basic purpose, this added water will provide sufficient dilution so that the water reaching Mexico will be of relatively good quality during the coming winter months. This will provide time for careful and accurate engineering studies and evaluation of the various proposals that have been made by the U.S. Panel for additional works in the United States relating to this problem. Therefore, alleviation of the problem is assured until October 1963.

ANTICIPATED REPORT OF U.S. PANEL

I understand that the joint panel will file shortly a report which will recommend, at least in principle, additional works in the United States. In meetings with the Department of State the proposal has been referred to as "alternate 5." Among other things, it proposes the wasting or discharging below Mexico's diversion point certain return flow waters which would not be charged to Mexico. This plan has been conceived within a very short time. At this time I am not prepared to form an opinion as to whether it is in the national interest or could be accommodated within the decree which may be rendered this term by the U.S. Supreme Court. Any action taken by the United States upon this most basic problem may set a precedent which will affect the use of water on the entire river.

On April 26, 1962, I advised the State Department that the principle embodied in the proposed "alternate 5" needed more engineering and legal consideration. To properly evaluate the proposal it is essential that adequate engineering studies be made. Until these studies and their evaluation have been completed, I strongly urge that at this time no agreement be entered into with Mexico or any news release be made in behalf of the United States agreeing to principles contained

in alternate 5. It would be most dangerous if the United States committed itself at this time to these principles without having all the facts upon which to base a decision. At this time we cannot determine if the principles of alternate 5 would be acceptable to or be implemented by the Congress.

LEGAL RAMIFICATIONS PRESENTED BY PROPOSED ALTERNATE 5

Without describing in detail the physical facilities which would be constructed under alternate 5, it contemplates removing each year at the expense of the United States from the underground, 220,000 acre-feet of water over and above the amount which would percolate into the underground from regular irrigation cropping. This 220,000 acre-feet of water would be conveyed in a channel separate from the Colorado River, allowed to bypass Morelos Dam, and not be charged to Mexico pursuant to the treaty. This procedure would raise legal questions in the international and domestic field.

Internationally, there would be involved precedentwise, a departure from the clear meaning of the treaty as ratified by the U.S. Senate. At least 220,000 acre-feet of water per year would pass the international boundary into Mexico and would not be a credit to the obligation of the United States under the treaty. There would have to be clear and uncontrovertible understandings and reservations with Mexico before any announcement or agreement as to the principles involved in alternate 5 or any other like proposal.

Domestically, most serious legal problems are involved. There is expected an early decision by the U.S. Supreme Court in a case of 10 years duration involving the Colorado River water entitlement of four of the seven States. The United States is a party to that litigation. A proposed decree was recommended to the Supreme Court by a special master. If his recommendation is accepted, a serious question is raised. Under his proposal each State is given the "consumptive use" of a proportionate share of the water available. He then defines the measure of consumptive use as follows (p. 345 of special master's report).

"I. For purposes of this decree:

"(A) 'Consumptive use' means diversions from the stream less such return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican Treaty obligations;". [Emphasis supplied.

In implementing a proposal such as alternate 5 the question then becomes: May the United States, not as a matter of treaty obligation but upon international comity, remove water from an area of a State, discharge it down the river but not charge it to Mexico's treaty share, without thereby reducing that State's share of water for "consumptive use" as defined by the decree which has been recommended to the Supreme Court?

Answers to these and other problems must be obtained and proper protection given to these States' precious water supply before any statement is made or agreement given by the United States. These problems are beyond the scope of the assignment given the American panel of consultants and must be resolved by qualified representatives of the affected irrigation project, the proper authorities of the seven basin States and the United States. They must be resolved before any report of the technical panel is accepted by the United States as the technical principles of alternate 5 are inseparable from the legal problems outlined herein.

CONCLUSION

I am willing to sponsor in the Congress a request for sufficient funds for the Bureau of Reclamation to perform an appropriate engineering investigation to obtain the necessary factual data, to evaluate the suggested alternate 5 and other proposals, and to recommend for the consideration of the Congress such construction as would be compatible with the treaty provisions and of assistance to Mexico. During this same period I would expect Mexico to begin concurrently the construction of a much needed drainage system and acreage reduction in the Mexicali Valley. The time provided by the temporary relief given during the winter of 1962-63, should be adequate to develop and implement a sound plan and construction program, and resolve the most important legal problems concerning the water rights of the seven States.

REMARKS BY SENATOR CARL HAYDEN, APRIL 26, 1962, CONCERNING COMPLAINTS BY MEXICO ON QUALITY OF COLORADO RIVER WATER, AT CONFERENCE IN THE DEPARTMENT OF STATE

I have read with great interest the memorandum from the U.S. Panel to the Committee of Fourteen, on the subject of the Colorado River international salt problem. I have also been informed regarding the meetings held by the Study Panel in Yuma on April 11, 12, and 13.

As I have said before, I am fully in favor of any proposal to resolve this problem, with the understanding that it must not prejudice the position of the United States. The Colorado River is the last waterhole for more than 12 million people in the 7 States that lie within its basin. The economy of these States is dependent upon the Colorado River to a very large degree.

My impression is that the recommended proposal by the Panel, called alternative 5, is cloaked in very general terms, and that it needs a great deal more consideration. I would not be willing to attempt to justify this proposal to the Congress as being in the national interest. I think that much more time is needed to evaluate the situation, and that the considered judgment of all the Federal agencies should be reflected in its resolution. I particularly would want to have the views of the Bureau of Reclamation, because any physical works that we might agree to construct must be closely fitted into the reclamation facilities already built.

I am deeply concerned, and disturbed, by the apparent assumption in the plan, alternative 5, that the United States is responsible for quality of water delivered to Mexico under the treaty.

Having participated personally in the ratification of the treaty by the Senate, I remember very clearly the basis upon which it was ratified. It was plainly announced by the State Department, in the strongest terms, that the treaty did not carry any guarantee of quality of water to Mexico. I doubt very much that it could have been ratified if the U.S. position had been otherwise. Secretary Cordell Hull, in his letter to President Roosevelt dated February 9, 1944, in referring to quantities of water to be delivered to Mexico, stated: "These quantities, which may be made up of any waters of the Colorado River from any and all sources, whether direct river flows, or seepage, will be delivered by the United States in the boundary portion of the Colorado River, except that until 1980 Mexico may receive 500,000 acre-feet annually, and after that year 375,000 acre-feet annually through the All-American Canal as a part of the guaranteed quantity."

I am willing to present to the Congress for action any reasonable plan for aid to Mexico to enable it to construct the drains it needs, line its canals and laterals, and carry on a program of general rehabilitation. Through the World Bank, or as a part of the Alliance for Progress program, or any other available means, I am ready to help our sister nation to the south to develop its full agricultural potential on a sound basis. I understand that Mexico's gross national product is lagging far behind its population expansion, and I am sincerely interested in aiding it to better its economic position.

I am advised that Mexico has reduced its irrigated land from about 500,000 to 410,000 acres for this year. This is a step in the right direction, for it is quite obvious that in the years ahead when Mexico must look forward to no more 1,500,000 acre-feet of Colorado River water delivered at its boundary, plus about a half million acre-feet from wells in Mexico, that it cannot irrigate even 410,000 acres. Probably it must reduce to about 300,000 acres in order to have enough water to properly irrigate its crops and keep pushing the salt on down. All of our domestic projects, Imperial, Coachella, the Yuma, and the Gila, have found that it takes a little extra water just to keep the salts moving down.

Now, as to the timing of any program of construction to help Mexico, alternative 5 could not possibly be completed earlier than 3 years after money is available. I know from experience with 60 years of Reclamation Bureau work that it would take at least 1 year just to prepare a suitable engineering plan. I doubt very much that money could be appropriated before the current session of Congress recesses. I would need much more support than the Panel's 5-page memorandum.

I note, also, on a footnote on sheet 2 of table 1, that the Panel contemplates that the Wellton-Nowhawk District would not increase its irrigated acreage beyond the 52,000 acres presently irrigated until the basin is "refreshed." I would have to consult with the reclamation people and the district before I could accept this proposal. I would have to know what effect this artificial halting of normal

development would have on the repayment of the costs of the project. The period for "refreshing" the ground-water basin is referred to in the report as 6 to 8 years. I understand that at a meeting here yesterday afternoon a period of 10 to 12 years was mentioned. I doubt that it is possible to be sure how long it might take.

As I have said, I am most interested in some constructive approach to a solution. Commissioner Dominy tells me that by carefully controlling the water releases from Lake Mead to the bare requirements, he has accumulated about 280,000 acre-feet that he plans to use for river regulation this fall, particularly in the section between Imperial and Laguna Dams, and just downstream from Morelos Dam. These releases can best be made in the winter months, just as about 190,000 acre-feet were released for this same purpose in November and December of 1960, and in January and February of 1961. This would be of special value to Mexico, as it would reduce the salinity of the return flows below Imperial Dam, and would assure good-quality water at least until the fall of 1963. By that time the Reclamation Bureau will have had time to look into the situation, and prepare a report that could then be evaluated.

I want to emphasize that I would not be in favor of appropriating any large sum of money to be spent in the United States for remedial work until there is actual physical evidence that Mexico is expending a like amount or more in Mexico. Neither would I want any of our expenditures to be viewed as a requirement on the part of the United States to assure any given quality of water.

Within the principles I have outlined here, I am ready to lend my full support to aiding our Mexican friends. I am convinced that we need more time to develop a better plan.

SALT LAKE CITY, UTAH, June 5, 1962.

Senator FRANK E. MOSS,
Senate Office Building, Washington, D.C.:

I share your concern over the proposed release of 285,000 acre-feet of water from Lake Mead for "flushing out" the bed of the Colorado River. Such a release is objectionable since it would establish a precedent which would have the effect of increasing the allotment of water provided by treaty for the Government of Mexico. At this critical time in the filling sequence of Lake Powell, any release of water for "flushing" that would have the effect of depleting Lake Mead below the flood control reserve would adversely effect upper basin interest. While we are in sympathy with the Secretary of the Interior's desire to channelize the lower river, we feel that mechanical means are adaptable for this purpose and the use of water for "flushing" cannot be condoned.

JAY R. BINGHAM,
Executive Director, Utah Water and Power Board.

Senator HICKEY. Was I correct in understanding from the Commissioner that this would probably, by virtue of the physical operation and the erection of this, be the last time that it would be possible to effect such a sluicing operation?

Mr. DOMINY. Well, it would be the last time that we would foresee the availability of water that would not be needed for another purpose, and would not just accidentally be there by reason of flood control regulation.

Senator HICKEY. Therefore, the physical factors make it very clear that this could not create a precedent?

Mr. DOMINY. Certainly not, and we have been very assiduous in advising the Boundary Commission and the Mexican Government that this was going to be done, the same as we did in the fall of 1960 when we released water, pointing out to them that this would result in improvement in the river channel during the next critical year.

As a result of our flushing action, there would be the ancillary benefit of dilution. But it has also been very carefully conveyed to Mexico that this was by reason of the fact that we did have to flush and we did have this water we were holding there for that purpose, so

that they could not start this summer saying, "Let it down now. We want to irrigate cotton with it."

Senator ANDERSON. Mr. Secretary, I have a bill that I had planned to introduce, I hope in conjunction with other members of the committee, to amend the Boulder Canyon Project Act to provide:

Provided, however, That the authority for such river regulation shall not include the release of waters impounded by said dam and reservoir for the purpose of flushing silt and minerals from the river.

In view of the testimony, maybe I better withhold that amendment for awhile.

Would you be good enough to furnish us with the necessary information for an amendment to the Interior Department appropriation bill, if and when it gets to the Senate floor, which might cover this \$500,000 for a dredge?

If need be, we might consider this 12,000 acre-foot reservoir item. The only way to get to this problem is to move on it.

Secretary UDALL. There is no question about it, Senator. We would be very happy to do this. I think either we will have to waste water or we are not going to do a proper job of management of the river channel.

(The correspondence containing the proposed amendment is as follows:)

U.S. SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D.C., June 25, 1962.

HON. CARL HAYDEN,
Chairman, Committee on Appropriations,
U.S. Senate, Washington, D.C.

DEAR CARL: I know of your great interest in and efforts to solve problems growing out of our development of the potentialities of the Colorado River. And as you know I share your concern and have tried to make my contributions, also.

One of the current problems is the proposed sluicing or "flushing" of the Colorado below Hoover Dam by the release of some 280,000 acre-feet of water from Lake Mead. The Interior Committee held a hearing with Interior Department officials on this proposal on June 7, 1962. At this hearing it developed that the 280,000 acre-feet had been impounded from floodwaters that otherwise would have been wasted, and that clearance of the channel of the Colorado was essential before the filling of Glen Canyon, Flaming Gorge, and other reservoirs authorized by our Colorado River Storage Act made further demand upon the river.

I pointed out that there were other current needs for the water, the value of which far exceeded its use for flushing, and suggested that clearance of the channel might be accomplished through dredging. The departmental officers agreed with me, but stated that a request for \$550,000 for acquisition and operation of an additional dredge had been rejected by the Bureau of the Budget.

So important is this matter that I requested a written statement from the Department setting forth its recommendation. I now have received such a recommendation and request from the Assistant Secretary for Water and Power Development, and take pleasure in enclosing a copy.

Would you be good enough to take this request under consideration for inclusion of the item in the appropriations for the Bureau of Reclamation in the public works bill? I am sending a copy of this letter and Secretary Holum's letter to my colleague from New Mexico in the House, the Honorable Joseph M. Montoya, with the suggestion he might wish to present the suggestion to Chairman Cannon also.

Sincerely yours,

CLINTON P. ANDERSON, *Chairman.*

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., June 19, 1962.

HON. CLINTON P. ANDERSON,
*Chairman, Subcommittee on Irrigation and Reclamation, Committee on Interior
and Insular Affairs, U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: During hearings on June 7, 1962, before the Subcommittee on Irrigation and Reclamation of the Committee on Interior and Insular Affairs, U.S. Senate, you requested that information be furnished for an amendment which would be offered from the Senate floor to the fiscal year 1963 public works appropriation bill as it is now constituted to provide funds for the acquisition and operation of another dredge on the Colorado River.

We believe the following would accomplish the indicated objectives: Under the appropriation heading "Operation and Maintenance" of title II, Department of the Interior, Bureau of Reclamation, change the figure \$38,250,000 to \$38,800,000; and at the end of the sentence change the period to a colon and insert "Provided further, that \$550,000 shall be available for acquisition and operation of an additional dredge on the Colorado River."

During hearings before the subcommittees of the Committees on Appropriations, House of Representatives, and U.S. Senate, Bureau of Reclamation witnesses were questioned on the need for an additional dredge on the Colorado River. Should final House or Senate committee action on the public works appropriation bill for fiscal year 1963 provide for this item, the above amendment would not be necessary.

Sincerely yours,

KENNETH HOLUM,
Assistant Secretary of the Interior.

Senator ALLOTT. Was the amount submitted in the budget \$500,000 for the dredging? What was the estimate on that?

Mr. DOMINY. It was \$555,000, not only for the purchase of the dredge but for a half-year operation of the dredge. I think the dredge itself, Senator, we estimated would cost about \$405,000.

Senator ALLOTT. Over what period of time do you propose to release this 280,000 acre-feet?

Mr. DOMINY. We would normally do that in the period of October 15 through February, at the time it could best be done, under controlled conditions.

Senator ALLOTT. That would be 4½ months, and which would be a release of how many second-feet?

Mr. DOMINY. Roughly 1,000 second-feet.

Senator ALLOTT. I have just been handed a memorandum of 7,000 second-feet in October, 5,000 in November, 4,000 in December, 5,000 in January, 5,000 in February. I do not know what that means.

Mr. DOMINY. Those are the approximate normal releases to meet the master schedule.

Senator ALLOTT. Then it says the 280,000 acre-feet would add about 1,000 cubic second-feet to the above proposed schedules. So you would add 1,000 to each of these figures I just read.

Mr. DOMINY. Yes, sir.

Senator ALLOTT. The thing I am concerned about is the question the Senator from Utah brought up, because in my own particular point of view, this water is an asset of the river.

To the extent that it is dissipated and is not recoverable in energy it does not reflect an asset of the river. So I am concerned about that question. I realize, however, that if you have a serious silting problem you only have two ways of doing it, really: One is to dispose of it by dredging or by flushing.

Wasting it is the phrase we use out in our country.

This brings us to the question which Senator Hayden so capably covered in his own memorandum, which we cannot avoid. That is the question of whether or not we get ourselves in any situation of creating a precedent on this thing.

I believe the treaty is clear, and the arguments on the floor and the statements made by Cordell Hull, the Secretary of State at that time, are all clear. But just what can we do? and what have you done? and what has the Secretary done? and the Department of State, to clarify this thing as far as possible so that in no sense are we setting up a condition which they might expect us to repeat?

I am sure that we are all agreed upon the objective of this.

Secretary UDALL. Senator, I do not think anything could be more useful on that score than this hearing this morning. I think we have made a record here today. Certainly in our announcements and all of the statements that we have made, we have tried to stress that point each time.

I think the chairman of this committee and the members who participated here today helped make a record on this, and that this is about the best way we can put everyone on notice as to where we are going and why we are going.

Senator ALLOTT. I know this will be part of it, but I would like to go further and ask you if this specific question has been brought up, within your knowledge, with the representatives of the Mexican Government so that they are put on clear notice as to what your intentions are, your purposes are, your reasons are, for releasing this water so that the act of releasing it does not carry implications which are certainly not ours or yours.

Secretary UDALL. We have stressed this at every point to the International Boundary Commission. Bear in mind, the official contact with the Mexican Government is through the Commission.

We do not have such contact. We have stressed this point to them, and I believe they have done a good job of making clear what the position of this Government is on this particular issue.

Senator ALLOTT. Carrying this one step further with respect to Senator Hayden's memorandum, he points out in this memorandum two things: First of all, that the amount of land irrigated there is probably 20 percent, roughly, over what should be irrigated there, 500,000 acres as against what he believes should only be 400,000 acres or perhaps less.

Then he points out that they have done nothing, as we have done and have to do all over the Western States, to provide adequate draining operations and leeching operations themselves.

He even goes so far as to state in his memorandum on page 6:

I am willing to sponsor in the Congress any reasonable plan for aid to Mexico to enable it to construct without delay the drains it needs, line its canals and laterals and carry on a program of general rehabilitation.

While I do not think this is the basic question right here at this moment with respect to the 280,000 acre-foot release, it is a problem that we should have to face and that we should take into consideration in any further action on this because if they have just been pouring this water on their land without adequately protecting it they are not doing the same thing that everyone of us, you in your State of Arizona, in Utah, New Mexico, Colorado, Wyoming, that all of us have to do all the time.

Secretary UDALL. Senator, we have stressed this point also very strongly, and the committee of experts of both countries studied this in a scientific manner. I think you will be interested in what the report says on this point.

Senator ANDERSON. Are there further questions?

Senator CARROLL. I would like to put one more question.

In this plan that you propose this morning, does it have anything to do with alternate 5?

Mr. DOMINY. No, sir; alternate 5 is a reference to the proposed long-term construction program. The panel of experts have considered various possibilities of alleviating this problem.

Senator CARROLL. So that for the record, this is not part of alternate 5 which you are discussing this morning?

Mr. DOMINY. No, sir; it has nothing to do with it.

Senator CARROLL. Senator Hayden expresses great concern, and he advocates much greater study and detail, engineering study, before you get into alternate 5, because this is where he is afraid there will be a precedent.

This action we have discussed this morning, is no precedent, as I understand it. You would be clearing out the channel anyway, but you want to do it more efficiently.

Mr. DOMINY. That is correct. And the State Department, following meetings with the Secretary, sent an official communication to the International Boundary Commission, explaining that this water would be released for river regulation purposes, that it was not to be diverted by Mexico because this was not the purpose for which it was being released, and they were put on notice that this was for flushing the river, to remove the silt impediment.

Senator CARROLL. I think the Chairman has made even Senator Hayden's memorandum a part of the record. I would like to read a few lines. [Reads:]

Without describing in detail the physical facilities which would be constructed under alternate 5, it contemplates removing each year, at the expense of the United States, from the underground, 220,000 acre-feet of water over and above the amount which would percolate into the underground from regular irrigation cropping.

Where would they get that 220,000 acre-feet?

Mr. DOMINY. By overpumping. You pump more water out of the ground than is being replenished by the normal operations.

Senator CARROLL. Would that take place within the United States?

Mr. DOMINY. The pumping would take place in the United States, and it would be put into a conveyance channel and moved out of the area. I do not think the committee wants to go into the details of these things today because the panel of experts has not filed a report as yet.

Senator CARROLL. That is the next thing. There is no relation, therefore, to what you testify to here this morning with alternate 5.

Mr. DOMINY. None whatever. The flushing problem is separate and distinct from the long-range considerations.

Senator ANDERSON. I will put into the record at this point a letter from the Department of State, dealing with the question of land use and so forth in the Mexicali area.

(The letter referred to is set forth in the appendix as a part of the record on the proposed release of water.)

Senator BIBLE. Mr. Chairman, may I present for the record a letter to me from Gov. Grant Sawyer, of Nevada, containing a copy of a letter from him to the President pertaining to the salinity problem of the Colorado River.

The CHAIRMAN. They will be placed in the record at this point. (The letters are as follows:)

THE STATE OF NEVADA,
EXECUTIVE CHAMBER,
Carson City, Nev., May 17, 1962.

Hon. ALAN BIBLE,
Senate Office Building, Washington, D.C.

DEAR ALAN: Please find enclosed my letter to President Kennedy concerning the recent Colorado River salinity problem and my objections to the report which suggests remedies to the problem.

I submit that my objections support a stand which is compatible with the best interests of the State of Nevada and other Colorado River Basin States.

Respectfully yours,

GRANT SAWYER, *Governor.*

THE STATE OF NEVADA,
EXECUTIVE CHAMBER,
Carson City, Nev., May 17, 1962.

The PRESIDENT,
The White House,
Washington, D.C.

MY DEAR MR. PRESIDENT: This is with reference to the recent Colorado River salinity problem, its suggested remedies and the possible effect upon the 1944 Mexican Water Treaty.

As you recall the International Boundary and Water Commission was instructed to recommend "within the shortest possible period of time" remedial measures which should be taken "without prejudice to the legal rights of either country."

Pursuant to this authority a panel of experts from each country recently drafted a joint report of United States and Mexican Expert Panels on Colorado River Salinity Problem. I will preface my comments on this report by stating that I fully recognize the international ramifications of this problem. I sincerely hope that a program will be worked out which, through the concurrent action of the United States and Mexican Governments, will lead to such remedial measures as will be conducive to the continued good relations of the two countries, without prejudice to the existing rights and obligations of either country.

The recommended remedial measures as outlined by the joint report are objectionable and no solution should be initiated in the name of expediency for the following reasons:

1. The report is based on an inadequate study hurriedly conducted by a small group of technicians and consultants. The complexity of the problem warrants a more thorough and comprehensive investigation. Additional time is necessary in order to finalize any remedial measures and for preparing and studying feasibility reports. This additional time has been gained by the temporary alleviation of the problem at hand which has occurred as an incident to the releasing of additional waters for channel control during the winter months of 1962-63.
2. Without a thorough and adequately prepared feasibility report on the recommended remedial measures it is beyond the realm of practicality to envision Congress appropriating an estimated \$23 million for these remedial measures which are to be placed into operation in the United States.
3. The wording in the report tends to strain the construction of the 1944 Mexican Water Treaty by implying that quality of water is to be considered in delivery of water to Mexico. The Senate hearings on the treaty show that water "from any and all sources," including return flows reaching the limtrophe section of the river from United States projects, would be included in and accounted for as part of the treaty delivery obligation; and that quality of water delivered to Mexico would not be a consideration; and also that such was fully understood and agreed to by Mexico. If the recommended remedial measures were put into operation, dangerous precedents would be established which would prejudice the legal rights of the Colorado River Basin States under the treaty.

4. The report reveals that Mexico fails to give assurance that she will put into operation those remedial measures recommended by the United States and Mexican Panels. The salinity problem is common to both countries and the solution to the problem should be through reciprocal efforts.

I respectfully request that the remedial measures suggested in the joint report not be adopted and made operative until a more comprehensive investigation is conducted.

Respectfully yours,

GRANT SAWYER, *Governor.*

Senator ANDERSON. Unless there are further statements or insertions for the record, that will conclude the hearing.

(Whereupon, at 11:55 a.m., the hearing in the above-entitled matter was concluded.)

APPENDIX

The correspondence and enclosures regarding release of water to Mexico over and above the treaty requirements, to which reference was made in colloquy between Senator Anderson and Commissioner Domy, is set forth below in accordance with the chairman's directive.

U.S. SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
August 8, 1961.

HON. STEWART L. UDALL,
Secretary of the Interior,
Department of the Interior, Washington, D.C.

DEAR MR. SECRETARY: Your announcement of July 31 stating that for the past several years 1,700,000 acre-feet of water annually from the Colorado River have been delivered to Mexico has aroused considerable interest among Senators from the Colorado Basin States. This amount is of course some 200,000 acre-feet a year in excess of our obligations under the Mexican Water Treaty, unless, as I read the treaty, there has been a finding that "there exists a surplus of waters of the Colorado River in excess of the amount necessary to supply uses in the United States * * *."

The announcement also stated that deliveries of the 1,700,000 acre-feet had been terminated and that release schedules would be at the 1,500,000 acre-feet fixed by the treaty. However, as an emergency measure, an extra 40,000 acre-feet would be delivered during the 40 days from August 1.

The information that Mexico had been receiving 200,000 acre-feet a year of Colorado River water over and above our treaty obligations, and that at present 40,000 acre-feet are being delivered, came as a surprise in view of the problems connected with the filling of upstream reservoirs. Understandably the Senators from the area are greatly interested in the facts and circumstances surrounding the release of the additional Colorado River waters to Mexico, and the authorization therefor. Accordingly, I would appreciate it if you would supply me with information on the following matters in connection with your release of waters over and above our treaty obligations.

As I read article 10(a) of the Mexican Water Treaty (Treaty Series 994; 59 Stat. 1219), Mexico is allotted a guaranteed annual quantity of 1,500,000 acre-feet of Colorado River water.

Section (b) of the article further provides that Mexico shall have—
"any other quantities arriving at the Mexican points of diversion, with the understanding that in any year in which, as determined by the U.S. Section, there exists a surplus of waters of the Colorado River in excess of the amount necessary to supply uses in the United States and the guaranteed quantity of 1,500,000 acre-feet (1,850,234,000 cubic meters) annually to Mexico, the United States undertakes to deliver to Mexico, in the manner set out in article 15 of this treaty, additional waters of the Colorado River system to provide a total quantity not to exceed 1,700,000 acre-feet (2,096,931,000 cubic meters) a year. Mexico shall acquire no right beyond that provided by this subparagraph by the use of the waters of the Colorado River system, for any purpose whatsoever, in excess of 1,500,000 acre-feet (1,850,234,000 cubic meters) annually."

The "U.S. Section" to which reference is made is of course the group comprising the members appointed by the United States of the International Boundary and Water Commission, United States and Mexico, established by article 2 of the treaty. Article 15 is the article that sets up the schedule of deliveries.

Under the terms of the treaty quoted above it appears that a determination by the U.S. Section that "there exists a surplus of waters of the Colorado River" is a condition precedent to any delivery of any water in excess of the 1,500,000 acre-feet guaranteed by article 10(a).

Therefore, would you be good enough to inform me whether there were in fact findings by the Section that there has been a surplus of water in the Colorado River. If so, please supply me with copies of such findings and as much as is practicable of the data on which they were based.

Also, I am curious as to the source of the authority of the Secretary of the Interior to release such water. The treaty itself is silent on the question of who issues the order for release. The act of September 13, 1950, which provides for the fulfillment by the United States of certain sections of the treaty, appears to vest operational authority in the Secretary of State, acting through the U.S. Commissioner of the Commission.

Likewise, the quite extensive hearings by the Senate Foreign Relations Committee in early 1945 on ratification of the proposed treaty and the committee's report (Executive Rept. No. 2, 79th Cong.) do not, as far as I have been able to ascertain, throw any light on the matter.

I do not at this time question the humanitarian or political desirability from the point of view of our international relations of releasing the additional 40,000 acre-feet to Mexico. But I would appreciate being informed of the facts and circumstances of the deliveries of the 200,000 acre-feet a year over a period of several years, particularly as to whether there were findings that there was a surplus of water in the Colorado, and the source of authority for your action.

Sincerely yours,

CLINTON P. ANDERSON, *Chairman.*

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., August 11, 1961.

HON. CLINTON P. ANDERSON,
Chairman, Committee on Interior and Insular Affairs,
U.S. Senate, Washington, D.C.

DEAR SENATOR ANDERSON: This is in reply to your letter of August 8, 1961, concerning the delivery of water to Mexico under the treaty of February 3, 1944, between the United States and Mexico.

Enclosed is a copy of a memorandum of understanding dated February 14, 1945, between the Department of State and the Department of the Interior setting forth the specific jurisdiction and functions to be exercised by the agencies of the Department of State and the Department of the Interior with respect to the operation and maintenance of works as may be necessary to the fulfillment of treaty provisions. The document is self-explanatory, but we have underlined pertinent parts that we believe would be most useful to you.

In line with that memorandum, the Regional Director, Bureau of Reclamation, Boulder City, Nev., who has immediate responsibility for the operation and maintenance of Boulder Dam and various other facilities downstream within the United States used partly for the performance of the treaty provisions, annually reviews storage conditions, runoff forecasts, and expected Colorado River water deliveries within the United States. On the basis of that information he notifies the Commissioner, U.S. Section, International Boundary and Water Commission, El Paso, Tex., as to the amount of water he believes available for delivery to Mexico under the terms of the treaty. Enclosed are copies of such letters dated November 1, 1957, December 2, 1958, February 10, 1960, and March 10, 1961, to Commissioner Hewitt. Also, there are enclosed copies of letters dated November 6, 1957, December 5, 1958, February 15, 1960, and April 20, 1961, to Engineer David Herrera Jordan, Commissioner for Mexico, International Boundary and Water Commission, which constitute the annual determinations for the years 1958, 1959, 1960, and 1961 by the U.S. section, International Boundary and Water Commission as to availability of water for scheduled deliveries to Mexico under the terms of the treaty.

The relationship between power generation at Hoover, downstream demands in the United States, runoff forecasts, and the elevations at Lake Mead in the past several years would have made it most difficult to find that the additional 200,000 acre-feet of water were not available to Mexico. This was especially true since during that period filling operations at Glen Canyon were still many years in the future. However, with the poor runoff forecast for 1961, which followed a poor runoff in 1960, and considering the scheduled closure at Glen Canyon in the fall of 1962, or spring of 1963, so as to catch 1963 runoff, it became apparent that within prudent operations the finding of surplus water could not be made for calendar year 1961.

Following the notice to Mexico that deliveries would be limited to 1,500,000 acre-feet in 1961, this Department received a number of requests from Mexico, through the Department of State, requesting us to permit the scheduling of an additional 200,000 acre-feet of water for calendar year 1961. On the basis of runoff forecasts we refused to agree to any such commitment.

On July 25, 1961, we received a request from Mexico through the Department of State, advising that a critical water situation existed in the Mexicali Valley that would adversely affect the Baja California economy unless a small additional amount of Colorado River water could be made available to save summer crops.

In our normal method of delivering water to Mexico under day-to-day schedules there are periodic overdeliveries caused by user agencies in the United States diverting less than scheduled amounts, unpredicted runoff from storms, unpredictable return flow, and similar operational river management occurrences.

In our letter of July 27, 1961, to the Department of State, we advised that Mexico could be permitted to schedule an additional 40,000 acre-feet, starting August 1 at the rate of approximately 1,000 acre-feet per day over and above the existing schedule, but that in attempting to deliver this additional water there might be shortages on some days (compared to normal overdeliveries), and that as soon as the additional 40,000 acre-feet had been delivered we would reduce deliveries back to the normal schedule under the guaranteed 1,500,000 acre-feet.

Of the 40,000 acre-feet additional water that we have permitted Mexico to schedule and depend upon, some 15,000 to 18,000 acre-feet probably would have arrived at Morelos Dam as overdeliveries under the original schedules. Our granting Mexico permission to schedule this additional 40,000 acre-feet will require releases of only 22,000 to 25,000 acre-feet of additional water from upstream storage. Considering that on July 1, 1961, we had 18,810,000 acre-feet in storage in Lake Mead and 1,618,000 acre-feet in Lake Mohave behind Davis Dam, the release of this small quantity to relieve a critical situation appeared to be fully justified, particularly on the basis of international relations with our Mexican neighbors to the south.

You will note that we have not furnished you the criteria on which the regional office of the Bureau of Reclamation has based its finding in past years that there is a surplus of water available to Mexico. We wish to assure you that we are diligently assembling the bases of these decisions and will supply you as soon as possible with the criteria used in determining when surplus water is available.

We also wish to call your attention to the fact that the decision to schedule an additional 40,000 acre-feet this year which in effect will require releases of about 22,000 to 25,000 acre-feet of additional water from upstream storage was not based on any determination that surplus water is available. Rather the decision was made because of the extreme hardship which would result to our Mexican neighbors in the event no water was made available. This is further covered in the enclosed correspondence dated July 27 from Secretary Udall to Secretary Rusk. Also enclosed is Commissioner Dominy's memorandum of July 26 to Assistant Secretary Holum on the subject of the delivery of water to Mexico.

Sincerely yours,

JAMES K. CARR,
Under Secretary of the Interior.

[For release to PM's, July 31, 1961]

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
INFORMATION SERVICE.

INTERIOR APPROVES RELEASE OF COLORADO RIVER WATER TO ASSIST MEXICO

Secretary of the Interior Stewart L. Udall today announced approval of a request by the Government of Mexico for release of an extra 40,000 acre-feet of Colorado River water over the next 40 days to prevent the loss of irrigated summer crops in the Mexicali area of Baja California (lower California), Mexico.

"We appreciate the extremely critical situation faced by our neighbors in the Mexicali Valley," Secretary Udall advised the Department of State.

"The additional releases of approximately 1,000 acre-feet daily above planned deliveries will be scheduled over a 40-day period beginning August 1," said Secretary Udall.

The former schedule of releases from the last control point on the Colorado River at Imperial Dam above Yuma, Ariz., called for a sufficient quantity of water to provide deliveries to Mexico of 174,941 acre-feet during August and 105,391

acre-feet during September. Under the revised schedule, 205,941 acre-feet will be delivered in August, and 114,391 acre-feet during September.

The Government of Mexico is being advised by the State Department that as soon as the additional 40,000 acre-feet are delivered, the United States will be obliged to reduce deliveries to the present schedule, and that the granting of additional water during the present emergency period does not constitute a precedent for the future in view of water supply conditions throughout southwestern United States.

Approximately 350,000 acres of irrigable land are included in the Mexicali Valley just south of the California border between the Colorado River and Mexicali in Baja California, Mexico. Most of the water for this area is diverted by Mexico's Morelos Dam, west of Yuma, and delivered by canal to agricultural lands which provide a livelihood for many individuals on the farms and communities in the area. Rainfall in the Mexicali area averages only about 3 inches per year.

For several years, it has been possible to schedule annual deliveries of 1,700,000 acre-feet of water to Mexico under the terms of article 10 of the Mexican treaty. On April 20, however, the U.S. Commissioner on the International Boundary and Water Commission advised the Mexican Commissioner that the determination had reluctantly been made, in the light of existing conditions and the necessity of maintaining storage for future years, that the United States would not be able to make scheduled deliveries to Mexico during 1961 greater than the 1,500,000 acre-feet provided for in the treaty.

U.S. SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
August 18, 1961.

HON. STEWART L. UDALL,
Secretary of the Interior,
Department of the Interior, Washington, D.C.

DEAR MR. SECRETARY: Thank you for Secretary Carr's letter of August 11 in partial response to my inquiry concerning the release to Mexico of some 200,000 acre-feet of Colorado River water annually for the past several years. The Secretary's press release of July 31 indicates such action was taken by order of the then Secretary of the Interior.

It is noted that there is being assembled the criteria on which the determinations were based that there was in fact a surplus of water in the Colorado River during those years "in excess of the amount necessary to supply uses in the United States." This data should be particularly interesting inasmuch as I am informed that the power facilities at Hoover Dam have been operating at substantially below capacity because of an insufficient head of water.

I also look forward to receiving a clear-cut statement, or citations, of the acts of Congress or other authority under which the Secretary of the Interior makes final determination and issues the order releasing what he deems to be surplus waters of the Colorado, as set forth in the press release. The basis, statutory or otherwise, of such authority does not appear to be spelled out in the memorandum of understanding, a copy of which was transmitted with Secretary Carr's letter.

Permit me to observe that Secretary Carr states:

"The relationship between power generation at Hoover, downstream demands in the United States, runoff forecasts, and the elevations at Lake Mead in the past several years would have made it most difficult to find that the additional 200,000 acre-feet of water were not available to Mexico."

From this statement it might appear that there would be deemed to be a surplus of water available for Mexico unless someone could prove otherwise. However, article 10 of the treaty quite specifically provides for an affirmative determination by the U.S. section that—

"There exists a surplus of waters of the Colorado River in excess of the amount necessary to supply uses in the United States and the guaranteed quantity of 1,500,000 acre-feet * * *"

I would appreciate your comments on this apparent difference in approach as to whether there is a surplus available for Mexico.

Sincerely yours,

CLINTON P. ANDERSON, *Chairman.*

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., August 28, 1961.

Hon. CLINTON P. ANDERSON,
Chairman, Committee on Interior and Insular Affairs,
U.S. Senate, Washington, D.C.

DEAR SENATOR ANDERSON: This will supplement our letter of August 11, 1961, reply to your letter of August 18, and discuss further the criteria on which the Bureau of Reclamation based its advice as to whether there was a surplus of water available to Mexico in 1958, 1959, and 1960 under terms of the treaty of February 3, 1944.

Our press release of July 31, 1961, was not intended to imply that the release of additional water to Mexico in recent years had been at the orders of the Secretary of the Interior. To the contrary, such determinations under article 10 of the treaty have always been made by the U.S. Section as indicated in the letters to Engineer David Herrera Jordan, copies of which were furnished to you with our letter of August 11. The complex integration of multipurpose operations on the Colorado River above the international boundary are under the immediate supervision of the regional director, Bureau of Reclamation, Boulder City, Nev. Therefore, from a practical standpoint the U.S. Section International Boundary and Water Commission looks to the Bureau of Reclamation for its views as to whether " * * * there exists a surplus of waters of the Colorado River in excess of the amount necessary to supply users in the United States and the guaranteed quantity of 1,500,000 acre-feet annually to Mexico * * * ." To our knowledge the water supply and runoff situation have always been sufficiently clear cut at the time the Bureau made its views known to the International Boundary and Water Commission so that the U.S. Section could make its formal determination on the availability of surplus water.

Enclosed is a tabulation showing inflows to Lake Mead, contents of Lake Mead, downstream deliveries, and maximum permissible flood control contents of Lake Mead, all for significant periods and dates as related to the Bureau of Reclamation's advices to the U.S. Section IBWC as to the amount of Colorado River water which would be available for delivery to Mexico in calendar years 1958, 1959, 1960, and 1961.

In the year-by-year discussions that follow, the integration meetings referred to are those required by article 20(b) of the contract dated May 29, 1941, between the United States and severally the city of Los Angeles and Southern California Edison Co., Ltd., for the operation of Hoover powerplant. Briefly the timing and operational factors involved in each annual determination were as follows:

CALENDAR YEAR 1958

It was estimated during October 1957 that flood-control releases would be required late in the spring of 1958 if the April-July inflow were greater than about 89 percent of average. As a result, the decision was made at the Hoover integration meeting held on October 31, 1957, to increase releases from Hoover Dam so as to deliver 100 percent of defined firm energy during the contract year ending May 31, 1958. In order to meet that firm energy delivery schedule, it would be necessary to release water from Hoover Dam in excess of downstream requirements and such excess water would flow to Mexico. Since the excess water would flow to Mexico in any event, the U.S. Section IBWC was informed by letter dated November 1, 1957, that Mexico could schedule 1,700,000 acre-feet during calendar year 1958.

On December 31, 1957, Lake Mead was at a comparatively high level. During the winter and spring months of 1958 inflow forecasts continued to indicate prospects for above average inflows during the snowmelt season. Consequently during January, March, and April energy generation schedules at Hoover Dam were increased with the view of meeting the August 1 flood-control level. As it is desirable to pass all water through the powerplants at Hoover, Davis, and Parker Dams, and as the limiting hydraulic capacity is at the Parker powerplant, water releases were scheduled at Hoover Dam throughout the winter and spring season such as not to exceed that limitation. The above operation resulted in delivering some secondary energy during the operating year ending May 31, 1958, over and above defined firm energy.

As a result of the greater than average April-July inflow (9,926,000 acre-feet, about 118 percent of average), and notwithstanding the increased energy delivery schedule, the content of Lake Mead at the end of July 1958 was at 24,458,000

acre-feet. This content closely approaches the maximum flood-control level for this date.

At the integration meeting held on June 12, 1958, the decision was made to adopt a schedule of operations based on the delivery of 100 percent of defined firm energy for the operating year ending May 31, 1959, subject to a reexamination of inflow conditions during August. Inflow conditions during the remainder of calendar year 1958 did not change materially and operations at Hoover Dam continued during remainder of the calendar year without alteration from delivery of firm energy.

CALENDAR YEAR 1959

As it had been determined that Hoover Dam would continue on a schedule of 100 percent of firm energy for the remainder of the operating year, International Boundary and Water Commission was notified by letter dated December 2, 1958, that Mexico could schedule delivery of 1,700,000 acre-feet for calendar year 1959. At the end of December 1958, the content of Lake Mead was 21,981,000 acre-feet. This is a relatively high level for the end of December.

At the June 12, 1959, integration meeting a schedule for delivery of 3.516 billion kilowatt-hours to the allottees was adopted for the 1959-60 operating year. Although this schedule would provide only about 85 percent of defined firm energy, its adoption would require releases in excess of downstream irrigation requirements. This decision was based on the forecast of considerably below average inflow during the April-July period. At another integration meeting held on September 22, 1959, the 3.516 billion kilowatt-hour delivery schedule at Hoover Dam was reaffirmed on the basis that conditions had not been as poor in the June-August period as the estimate used to determine the 85 percent of firm energy schedule but were not enough improved to justify increasing the schedule.

CALENDAR YEAR 1960

By letter dated November 19, 1959, the U.S. Section IBWC was informed that because of the extremely dry conditions in the Colorado River watershed during the past year, and the uncertainty of future runoff, it was not then possible to make a final determination that deliveries to Mexico during 1960 could be increased over 1,500,000 acre-feet. By letter dated February 10, 1960, International Boundary Water Commission was informed that conditions on the watershed had improved to the extent that water would be available such that Mexico could schedule delivery of 1,700,000 acre-feet during 1960 calendar year. This determination was based on mean forecasts of approximately average inflows for the April to July period and the probability that Hoover Dam releases for power generation would exceed irrigation requirements.

At the June 15, 1960, integration meeting, the decision was made to generate 100 percent of defined firm energy at least during the summer period. This decision was prompted by the relatively high level of Lake Mead for that season of the year, despite the below-average inflow forecast for the snowmelt season. The decision also was prompted by the fact that releases necessary to produce firm energy during the summer months were equal only to normal downstream requirements during that period. This declaration was made with the reservation that another meeting would be held in Los Angeles in September. At the September 14, 1960, integration meeting the decision was made to reduce Hoover Dam releases of water to those which would produce 3.750 billion kilowatt-hours (approximately 91 percent of the defined firm energy), or to meet downstream requirements whichever was greater. This decision was made in view of the relatively low inflow during the preceding months and the relatively low precipitation on the watershed. Mexico's water orders were at a minimum during the remainder of the calendar year, and the reduced releases had no effect on the schedule of deliveries to Mexico.

Energy production at Hoover Dam exceeded forecasted energy production in 1958, and was equal to firm energy in 1959. Production of less than firm energy in late 1960 and early 1961 resulted from restricting water releases to downstream requirements in the United States and not because of insufficient head of water. The rated output of the generators at Hoover Dam is based on a 420-foot head. The minimum forebay elevation by which this head can be attained is 1,068 feet compared to a minimum elevation in 1960 of 1,162.7 feet.

CALENDAR YEAR 1961

After considering the slight reduction in Lake Mead storage on December 31, 1960, as compared to December 31, 1959, the gradual increase in annual downstream deliveries in the United States, the amount of water that would be released under reduced energy schedules, and the extremely poor April-July inflow forecast, the decision was reached in early 1961 to advise the U.S. section IBWC that Mexico should be limited to 1,500,000 acre-feet for calendar year 1961.

For additional information we are enclosing copies of the minutes of the integration meetings from October 31, 1957, through September 14, 1960. You will note that a summary of "Colorado River streamflow and Lake Mead operation data" is attached to and is a part of the minutes of each integration meeting.

You understand, of course, that after all of the complex hydrologic studies have been made each year, and even with the latest runoff forecasts available, the decisions made also involve an element of judgment by individuals based on long operational experience on the Colorado River. We appreciate the opportunity to furnish you this additional background information and will be pleased to discuss this subject with you at your convenience if we can be of additional assistance.

Sincerely yours,

STEWART L. UDALL,
Secretary of the Interior.

[For release Feb. 11, 1962]

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY.

JOINT ACTION BEING CONSIDERED TO ALLEVIATE SALINITY PROBLEMS ON LOWER COLORADO RIVER

Joint and complementary action on both sides of the international boundary could greatly assist in alleviating salinity problems associated with the delivery of Colorado River water to Mexico under the Mexican Water Treaty of 1944, according to Secretary of the Interior Stewart L. Udall.

"Only by joint and complementary action by Mexico and the United States can the limited water resources of the Colorado River be fully utilized and a permanent irrigated agriculture economy be sustained along the lower Colorado River in both countries," he said.

Under the treaty, Mexico is allocated a guaranteed annual quantity of 1,500,000 acre-feet of the waters of the Colorado River from any and all sources. It was estimated in 1944 that, under ultimate conditions of development in the United States, more than half of this water would consist of return and drainage flow and other waste waters.

Each year Mexico submits a schedule to the United States indicating the amounts of such water it desires by months. Within Mexico's guaranteed annual quantity it may schedule deliveries during the winter months that include sufficient stored water to dilute the more saline return flows. This was not done in the 1961 scheduling, possibly because the degree of salinity was not anticipated by Mexico.

However, in January 1962, Mexico increased its normal schedule for the first 25 days so that the wheat and alfalfa in the Mexicali Valley could all be irrigated with the better quality water that resulted from the increased flows. While Mexico has not yet scheduled increased flows for February, it has been mutually agreed that Mexico may modify its February schedule on shorter notice than the 30 days and by more than the 20 percent which are mentioned in the treaty, if Mexico considers this necessary for irrigation of crops in the Mexicali Valley this winter. Both Governments reserved for the time being their legal positions under the treaty.

To resolve the domestic water supply problem for the city of Mexicali, the Imperial Irrigation District in California has offered to transport water through the All-American Canal if proper arrangements could be worked out, but this offer has not been accepted. Mexico is using nearby wells for the city's water supply.

Pointing out that the entire matter is now before the International Boundary and Water Commission for thorough study and recommendations, Secretary Udall said the Bureau of Reclamation has suggested several programs the United States might undertake for the long-range alleviation of the salinity problem and for increased conservation of the Colorado River water supply. He added that any such program should be complemented by a long-range program in Mexico

for the Mexican water users if the two countries are to achieve the maximum benefit from use of Colorado River water.

Potential programs for the United States include—

- (1) Further river channelization and rectification, and a phreatophyte control program to save water now lost to moisture-wasting weeds;
- (2) Improvement of stream regulation below Imperial Dam;
- (3) Increasing the capacity in drainage works in Arizona to permit maximum operation in summer months when the greatest amount of storage water is available for dilution and reduced pumping in the winter when river flows are normally lower;
- (4) Determining the feasibility and practicality of a special conveyance channel to transport drainage water to a point below Mexico's main diversion at Morelos Dam;
- (5) Possible establishment of a saline water conversion plant in the Yuma area.

Through the International Boundary and Water Commission every possibility of removing the problem will be explored, Secretary Udall said. In its studies the International Commission is also expected to consider complementary programs that might be undertaken in Mexico. The Colorado River has a natural high salt content, particularly at times of low flow.

Water users in the United States have recognized this and have adopted irrigation and drainage practices necessary to insure satisfactory use of the water. They have classified their lands to select land resources best suited for sustained irrigation, and have constructed specially designed drainage systems. In addition, they have selected crops and adopted irrigation procedures to match the land and water resources.

It is to be expected that Mexico will want to undertake similar measures. Mexico also may wish to evaluate its many existing and potential wells to determine the extent to which they can be integrated into the overall irrigation system, as well as schedule its treaty water so as to permit the best possible seasonal utilization according to the possibilities and Mexico's needs.

It should be clarified, Secretary Udall explained, that U.S. soil and water experts are of the opinion that the most saline water that has been delivered to Mexico to date is usable on a short-term basis, for irrigation of crops such as wheat, alfalfa, and cotton under the proper irrigation and drainage practices. In fact, waters much higher in salts are being used full time for irrigation on a number of projects in Arizona, California, New Mexico, and Texas.

Also, a group of Mexican water users along the east side of the Colorado River, just south of the valley division of the Yuma project in Arizona, purchase over 100,000 acre-feet of the drainage water annually from the Yuma County Water Users' Association. This drainage water is only slightly less saline than the flows of the Colorado River delivered to Mexico this winter.

Secretary Udall said that the return flow of which Mexico complained this winter was a natural and normal consequence of the irrigation process. In 1944 when the treaty was negotiated it was understood by both countries that at times during future winter months Mexico's entire scheduled quantities might consist of return flows and that a large part of that return flow would be drainage water. An important consideration in the U.S. ratification of the treaty and agreeing to a guaranteed annual delivery of 1,500,000 acre-feet of water to Mexico was the understanding that Mexico was willing to accept such drainage water as a part of that amount.

Nevertheless, Secretary Udall said, the Federal Government recognizes that the situation can and should be improved by complementary actions on both sides of the border. He expressed hope that the International Boundary and Water Commission could come up soon with agreed recommendations which would permit action to be taken for improvement in the quality of water being delivered to the Mexican farmers. He cautioned, however, that the programs being considered by the Department of the Interior in the United States, if found to be practicable, were for long-range solutions and would not yield significant results for at least 2 to 3 years because of the major construction involved.

DEPARTMENT OF STATE,
Washington, D.C., February 5, 1962.

HON. CLINTON P. ANDERSON,
U.S. Senate.

DEAR SENATOR ANDERSON: I have your letter of January 26, 1962, inquiring concerning agricultural development in the Mexicali Valley in Mexico. We have considerable information of this nature accumulated over many years, but agree

with you that it would be desirable to bring it all together and up to date at this time in connection with the salinity problem presently under study. As soon as we receive reports from the several available sources of information, I will write again. We appreciate the urgency and will attempt to expedite a reply.

Sincerely yours,

FREDERICK G. DUTTON, *Assistant Secretary.*

DEPARTMENT OF STATE,
Washington, March 14, 1962.

Hon. CLINTON P. ANDERSON,
U.S. Senate.

DEAR SENATOR ANDERSON: I promised in my letter of February 5, 1962, in response to your inquiry of January 26, to write as soon as the Department had been able to obtain current information about land holdings and agricultural operations in the Mexicali Valley. We have now received the following information from our consulate in Mexicali.

Ownership of agricultural land is divided among small farmers (ejidatarios) who have received their land from the Government of Mexico under Mexico's agrarian law, and the larger landowners (colonos) who have purchased or inherited their farms. Each ejidatario owns a maximum of 50 acres, and the colonos are restricted by law to a maximum of 250 acres. Some 6,637 ejidatarios own 266,500 acres, and 3,827 colonos own 265,750 acres.

Irrigated acreage has gradually diminished since 1957. In that year 515,434 acres were irrigated. In 1961, only 459,836 acres were cultivated with irrigation.

The Colorado River Irrigation District, a dependency of the Mexican Federal Ministry of Hydraulic Resources, controls the allocation of irrigation waters. Provided sufficient water is available, each farm unit is allotted enough water for 50 acres. Thus, except for a group of 840 colonos who obtained permission to drill 100 deep wells, the ejidatario is able to make use of all his land, but the colono is able to irrigate only one-fifth of his land. The irrigation district continues to control operation of the wells. In 1961 the district permitted irrigation of only 28,250 acres by wells.

You inquired particularly concerning the uses to which Mexico puts its irrigation water in the Mexicali Valley. The three principal crops of the area are cotton, wheat, and alfalfa. The acreages planted to these crops and their value since 1955 are:

COTTON

Year	Acreage	Value (U.S. dollars)
1955	441,226	51,343,639
1956	396,317	46,165,218
1957	459,552	50,023,406
1958	453,752	56,006,540
1959	352,676	42,852,820
1960	345,881	53,906,777
1961	325,631	58,668,010

WHEAT

1955	10,875	523,895
1956	23,759	1,144,569
1957	46,478	1,959,145
1958	35,852	2,425,904
1959	65,576	4,358,478
1960	105,298	8,999,848
1961	111,624	10,546,729

ALFALFA

1955	17,603	2,120,102
1956	16,813	2,090,188
1957	8,058	1,001,779
1958	7,826	972,902
1959	8,401	969,000
1960	10,420	1,281,968
1961	15,661	1,922,759

Cotton, we are informed, is the heaviest user of water. It is planted in March and is irrigated until September. The heavier soils require 6 or 7 applications of water, the lighter soils 12 to 14 irrigations. Wheat is planted during the period November to January, usually no later than January 15 and generally on different lands than those used for cotton. The wheat is irrigated four or five times, the first application being the heaviest. Alfalfa requires water at least once a month for about 10½ months each year, with no irrigation over a period of about 1½ months during October and November. The consulate has not learned of any large landholdings, either through ownership or leasing, by any firms or individuals, Mexican or foreign. Regardless of who may cultivate a particular farm, the irrigation permits are issued in the name of the owner of the land.

The Mexican Government purchases all the wheat. The cotton and alfalfa are sold on the open market. Ginning companies finance a large percentage of the cotton crop.

The Anderson-Clayton affiliate *Compañía Industrial Jabonera del Pacífico, S.A. de C.V.*, and individual members of the *Asociación Algodonera Del Valle de Mexicali, A.C.* (Cotton Association of the Mexicali Valley) lend money to the cotton farmers to prepare their land, and to buy seeds, fertilizer, insecticides, farm machinery, etc. They take a mortgage on the crops and machinery but not on the land. In the mortgage a cotton gin is stipulated to which the farmer must take his cotton for ginning. The Association members last year financed the greater part of the cotton crop, and Jabonera financed most of the rest. Included among the members of the association are operators of cotton gins, cottonseed oil plants, and compresses, insecticide manufacturers, firms engaged in buying and selling of cotton, and local banks. The Jabonera engages in no farming, except for an experimental station of 155 acres, which is operated for the benefit of all farmers in the Mexicali Valley. The Jabonera's principal operations are the financing and ginning of cotton, the buying and selling of cotton, the manufacture of vegetable shortening, cottonseed oil and cottonseed meal, and the marketing of those products. Next to the *Banco Nacional de Crédito Ejidal, S.A. de C.V.* (a Government-controlled bank), the Jabonera was the largest financier of the wheat crop last year.

I hope this information meets your need. If you have any further question, however, please do not hesitate to ask.

Sincerely yours,

FREDERICK G. DUTTON,
Assistant Secretary.

U.S. SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
March 20, 1962.

HON. FREDERICK G. DUTTON,
*Assistant Secretary, Department of State,
Washington, D.C.*

DEAR MR. DUTTON: Thank you very much for your highly informative letter in response to my inquiry on the pattern of landholding and of irrigation uses in the Mexicali Valley. My inquiry had been based in part on the high-pressure propaganda campaign, including full-page advertisements in a Washington newspaper, condemning the United States for the quantity and quality of water delivered to Mexico from the Colorado River and asserting we were not fulfilling our treaty obligations.

Somehow, it seems surprising that landholders of the kind described in your letter would sponsor a full page advertisement of the type published here, and, I am informed, elsewhere as well. The advertisement had what has come to be known as the Madison Avenue touch, and must have cost several thousands of dollars.

As chairman of the committee that has initial legislative responsibility for the development of the water and related land resources of the Colorado River, I would like to express the hope that our representatives in the working out of a solution with Mexico keep in mind the fact that a number of areas in the United States receive and use irrigation water of a higher mineral content than that complained of in the Mexicali Valley. To some extent it is a matter of what crops are grown at a particular season of the year.

Also, it must be kept in mind that there is now pending before the Supreme Court of the United States the case of *Arizona v. California* in which the issue is the rights in and apportionment of the waters of the Colorado River among the

States of the lower basin. No action by our representatives should in any way result in possible derogation of the rights of any of the States in the share of the United States in Colorado River water.

Again, I want to tell you I appreciate your informative letter, and at the same time renew my request that as chairman of the committee that has great responsibilities with respect to the Colorado River, I be kept informed of developments.

Sincerely yours,

CLINTON P. ANDERSON, *Chairman.*

DEPARTMENT OF STATE,
Washington, D.C., March 22, 1962.

HON. CLINTON P. ANDERSON,
U.S. Senate.

DEAR SENATOR ANDERSON: I am writing to inform you of the latest developments in the controversy arising from Mexican charges of excess salinity in deliveries of Colorado River water to the Mexicali Valley in the winter of 1961-62.

The United States has consistently taken the position that under the 1944 treaty we made no guarantees of quality to Mexico, and they must expect increases in the salinity of the water to accompany increasing development of the upper and lower basins.

Because of the sudden increase in salt contents last winter, Mexican public opinion became concerned by charges that the water was unusable. This has affected our continuing good relations with Mexico.

The Department of State has had conversations with Mexico as well as with interested Members of Congress and our own Department of the Interior. As a result of these conversations the two Presidents have issued the enclosed joint press release.

We intend to utilize the finest land and soil scientists from both the United States and Mexico to study practices on both sides of the border and assure the best use of all the water of the Colorado. When their findings are available, they will be discussed with senior officials of the Departments of State and Interior as well as appropriate Members of Congress to determine the proper course of action to be taken by the United States.

We will continue to keep you informed on any later developments and do not hesitate to call on me should you wish further information.

Respectfully,

FREDERICK G. DUTTON, *Assistant Secretary.*

DEPARTMENT OF STATE,
Washington, March 28, 1962.

HON. CLINTON P. ANDERSON,
U.S. Senate.

DEAR SENATOR ANDERSON: Thank you for your letter of March 20 regarding the information which this Department had provided you on ownership of land in the Mexicali Valley.

The Department's information, and the list of signers of the paid advertisements to which you refer, indicate that these advertisements were paid for only in part by the land owners in the Mexicali Valley. Among the other sponsors were the Cotton Ginners Association of Mexicali, the Contractors & Builders Association, the Mexicali Chamber of Commerce, the Mexicali Chamber of Industry, the Mexicali Bankers Association, and the Baja California Employers Union. These business interests have joined with the farmers on this issue because they fear the loss of their enterprises if there is injury to the agricultural economy of the Mexicali Valley on which their businesses are based.

We have very much in mind the points you mentioned in your letter and we have, of course, made these same points to the Mexican Ambassador and Foreign Minister, as well as other Mexican Cabinet officials. The Department will continue to keep you informed of important developments on the salinity problem.

Sincerely yours,

FREDERICK G. DUTTON,
Assistant Secretary.

[Immediate release, Mar. 16, 1962]

THE WHITE HOUSE,
OFFICE OF THE WHITE HOUSE PRESS SECRETARY.

1944 WATER TREATY WITH MEXICO

The Presidents of the United States and Mexico are agreed that it is urgent to find a mutually satisfactory solution to the salinity problem.

To this end, the Presidents of both countries, through their respective Foreign Offices, have given instructions to their representatives in the International Boundary and Water Commission to recommend within 45 days the measures which should be taken.

In order to carry out these instructions in the most effective way the Commissioners are to avail themselves of qualified water and soil scientists.

The objective of the two Governments is, without prejudice to the legal rights of either country, to agree upon and actually put into operation remedial measures within the shortest possible period of time.

ARIZONA INTERSTATE STREAM COMMISSION,
Phoenix, Ariz., April 2, 1962.

Hon. CLINTON P. ANDERSON,
*Chairman, Committee on Interior and Insular Affairs,
U.S. Senate, Washington, D.C.*

MY DEAR CHAIRMAN ANDERSON: I have the honor to enclose a certified copy of a resolution unanimously adopted by the Arizona Interstate Stream Commission at its last regular meeting.

Sincerely yours,

RAY KILLIAN, *Executive Secretary.*

RESOLUTION ADOPTED BY THE ARIZONA INTERSTATE STREAM COMMISSION
MARCH 16, 1962

Whereas the Arizona Interstate Stream Commission has been advised that complaints have been made by individuals and organizations in the Mexicali Valley of Mexico and by the Mexican Government that water of the Colorado River delivered to Mexico under the terms of the treaty entered into between the United States of America and the United Mexican States (Treaty Series 994) is unduly saline; and

Whereas Secretary of State Hull, in his report of February 9, 1944, transmitted to the U.S. Senate by President Roosevelt on February 15, 1944, when the treaty was submitted for ratification, said that such treaty would be serviced "from any and all sources, whether direct river flows, return flow or seepage"; and

Whereas the economy of substantial communities and areas of national importance is founded upon and the continued existence of such communities and areas depends upon their use in perpetuity of the waters of the Colorado River assigned to them; and

Whereas proposals have been made for the creation of a factfinding group, composed of qualified persons selected from each of the countries involved, with a view to recommending the adoption of such measures as are permissible in the light of existing obligations and rights; and

Whereas it is hoped that a program may be worked out which, through the concurrent action of their respective governments, will lead to such improvement as will be conducive to the continued good relations of the two countries, without prejudice to the existing rights and obligations of either of them.

Now, therefore, be it and it is hereby resolved:

(1) The Arizona Interstate Stream Commission urges upon the President of the United States, the Secretary of State, and the Secretary of the Interior, that solutions to such salinity problems as have arisen in the Mexicali Valley, Mexico, be sought strictly within the limits of the existing treaty.

(2) In the light of existing uses in the United States of America, upon which substantial economies of national importance are founded and in the light of prospective uses required to preserve existing economies in the Colorado River Basin States, the Arizona Interstate Stream Commission recommends that the President of the United States, the Secretary of State, and the Secretary of the Interior, adhere firmly to the position that there shall be no increase in the quanti-

ties of water of the Colorado River delivered to Mexico, whether by renegotiation and amendment of such treaty or by strained construction of its terms.

(3) The executive secretary of this commission is hereby authorized and directed to transmit certified copies of this resolution to the President of the United States, the Secretary of State, the Secretary of the Interior, the President of the U.S. Senate, the Speaker of the House of Representatives, the members of the Arizona congressional delegation, and other officials in the executive and legislative branches of the Federal Government concerned with the subject matter of this resolution.

I, Ray Killian, do hereby certify that the above and foregoing is a true copy of a resolution unanimously adopted by the Arizona Interstate Stream Commission on the 16th day of March, 1962.

[SEAL]

RAY KILLIAN, *Executive Secretary.*

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The following table shows the amount of the various taxes collected during the year ending June 30, 1901, and the amount of the same taxes collected during the corresponding year of 1900.

Year	Excise	Stamp	License	Other	Total
1901	1,234,567	876,543	543,210	210,987	2,865,307
1900	1,123,456	765,432	432,109	109,876	2,430,873

The above table shows that the total amount of taxes collected during the year ending June 30, 1901, was \$2,865,307, or \$434,434 more than the total amount collected during the corresponding year of 1900.

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