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# BRANTLEY PROJECT

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## HEARING

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BEFORE THE

### SUBCOMMITTEE ON WATER AND POWER RESOURCES

OF THE

### COMMITTEE ON INTERIOR AND INSULAR AFFAIRS UNITED STATES SENATE

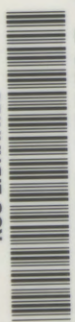
NINETY-SECOND CONGRESS

SECOND SESSION

ON

## S. 50

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A BILL TO AUTHORIZE THE SECRETARY OF THE INTERIOR  
TO CONSTRUCT, OPERATE, AND MAINTAIN THE BRANTLEY  
PROJECT, PECOS RIVER BASIN, NEW MEXICO, AND FOR  
OTHER PURPOSES

JANUARY 25, 1972



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## BRANTLEY PROJECT

TUESDAY, JANUARY 25, 1972

U.S. SENATE,  
SUBCOMMITTEE ON WATER AND POWER RESOURCES OF THE  
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,  
*Washington, D.C.*

The subcommittee met, pursuant to notice, at 10:45 a.m., in room 3110, New Senate Office Building, Senator Gordon Allott presiding.

Present: Senators Allott, Anderson, Hansen, Church, and Burdick.

Also present: Jerry T. Verkler, staff director; William J. Van Ness, chief counsel; Daniel A. Dreyfus, professional staff member; and Charles Cook, minority counsel.

Senator ALLOTT. The purpose of this hearing before the Water and Power Resources Subcommittee this morning is to take testimony on S. 50, a bill to authorize the Secretary of the Interior to construct, operate, and maintain the Brantley project, Pecos River Basin, N. Mex., and for other purposes.

The existing Carlsbad reclamation project consists of three dams. The Avalon Dam which was constructed in 1907, the Alamogordo Dam built in 1937, and the McMillian Reservoir which was part of the original Carlsbad project begun in 1888.

In 1964, a critical study of the project was undertaken by the Bureau of Reclamation. It was found that because of reservoir silting and inadequate spillways, a potential flood could cause McMillan and Avalon Dams to be overtopped, resulting in severe damage and possible loss of life in the city of Carlsbad and the Carlsbad Irrigation District.

The potential Brantley project would correct this situation. Replacement storage for the existing project, irrigation water supplies, recreation, and conservation of fish and wildlife resources also would be provided by the construction of this project.

The text of S. 50 and the reports of the Department of the Interior and the Office of Management and Budget will be included in the record at this point, as well as a statement by Senator Jackson, supporting the Brantley project.

(The documents referred to follow:)

[S. 50, 92d Cong., first sess.]

A BILL To authorize the Secretary of the Interior to construct, operate, and maintain the Brantley project, Pecos River Basin, New Mexico, and for other purposes

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

SECTION 1. The Secretary of the Interior is authorized to construct, operate, and maintain the Brantley project, Pecos River Basin, New Mexico, in accord-

ance with the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto) and the provisions of this Act and the plan set out in the report of the Secretary on this project, with such modification of, omissions from, or additions to the works, as the Secretary may find proper and necessary for the purposes of irrigation, flood control, fish and wildlife and recreation, and for the elimination of the hazards of failure of McMillan and Avalon Dams.

SEC. 2. The conservation and development of the fish and wildlife resources and the enhancement of recreation opportunities in connection with the Brantley project shall be in accordance with the provisions of the Federal Water Project Recreation Act (79 Stat. 213).

SEC. 3. Nothing in this Act shall be construed to alter, amend, repeal, modify, or be in conflict with the provisions of the Pecos River Compact, 1948, consented to by the Congress in the Act of June 9, 1949 (63 Stat. 159).

SEC. 4. The costs allocated to flood control and the safety of dams purposes of the project shall be nonreimbursable and nonreturnable. The repayment of costs allocated to recreation and fish and wildlife enhancement shall be in accordance with the provisions of the Federal Water Project Recreation Act (79 Stat. 213).

SEC. 5. The interest rate used for computing interest during construction and interest on the unpaid balance of the reimbursable costs of the Brantley project shall be determined by the Secretary of the Treasury, as of the beginning of the fiscal year in which construction on the project is commenced, on the basis of the computed average interest rate payable by the Treasury upon its outstanding marketable public obligations which are neither due nor callable for redemption for fifteen years from date of issue.

SEC. 6. There is hereby authorized to be appropriated for construction of the Brantley project the sum of \$34,785,000 (based upon January 1969 prices), plus or minus such amounts, if any, as may be justified by reason of changes in construction costs as indicated by engineering cost indices applicable to the types of construction involved and, in addition thereto, sums as may be required for operation and maintenance of the project.

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U.S. DEPARTMENT OF THE INTERIOR,  
*Washington, D.C., January 17, 1972.*

HON. HENRY M. JACKSON,  
*Chairman, Committee on Interior and Insular Affairs, U.S. Senate, Washington, D.C.*

Dear Mr. CHAIRMAN: This responds to your request for the views of this Department on S. 50, a bill "To authorize the Secretary of the Interior to construct, operate, and maintain the Branley project, Pecos River Basin, New Mexico, and for other purposes."

We recommend that consideration of the bill be deferred until our feasibility study on the Brantley project is completed and forwarded to the Congress.

#### THE BILL

S. 50 would authorize the Secretary of the Interior to construct, operate, and maintain the Brantley project, Pecos River Basin, New Mexico, in accordance with the Federal reclamation laws and the plan in the Secretary's project report, subject to such alternations in the proposed works as the Secretary deems proper and necessary for the purposes of irrigation, flood control, fish and wildlife, recreation, and safety of dams. The conservation and development of fish and wildlife resources and the enhancement of recreation opportunities, including repayment of reimbursable costs allocated thereto, would be carried out in accordance with the provisions of the Federal Water Recreation Act. Costs allocable to flood control and dam safety would be nonreimbursable. The bill also specifies that the applicable interest rate for the project would be based on that for 15-year Treasury obligations and that its provisions should not be construed to affect the Pecos River Compact, 1948. Appropriations of \$34,785,000 (January 1969 prices) would be authorized for construction of the project, subject to engineering cost indices changes. Appropriations of necessary sums would be authorized for operation and maintenance of the project.

## THE PROJECT

The Brantley project is a dam and reservoir development which would be located on the Pecos River in Eddy County about 20 miles upstream from Carlsbad, New Mexico. The project would provide replacement irrigation storage for the McMillan Reservoir which is losing its effectiveness because of sediment accumulation. The McMillan and Avalon Dams are existing structures which presently serve the Carlsbad Irrigation District lands. Brantley Reservoir would provide storage for flood control not presently available in McMillan and Avalon Reservoirs and would eliminate the threat of failure of McMillan and Avalon Dams because of their inadequate spillways. In addition, the project would provide for fish and wildlife enhancement and for outdoor recreation opportunities.

## DISCUSSION

The Secretary's feasibility report on the project is, as required by law, being prepared for transmittal to the Congress. When transmitted, we will be in a position to make a recommendation concerning enactment of S. 50 and to comment in detail on the project and the legislation authorizing it.

The Water Resources Council has recently published proposed "Principles and Standards for Planning Water and Related Land Resources" in the *Federal Register* (36 FR 24143; December 21, 1971). Those principles when finally promulgated will require the reevaluation of several projects, including the Brantley project, on which reports are nearing completion. The need for this will be determined by the nature of the project and the status of the report.

In addition, the Bureau of Reclamation has for several years been conducting an examination of its own dams, upstream dams of others, and dams of other Interior agencies to determine whether spillways, outlet works, and other features of the older dams are adequate to handle potential floods based on modern meteorological techniques and up-to-date hydrologic data. These studies indicate that there are a number of dams which do not meet modern design criteria, including the McMillan and Avalon Dams.

General legislation may be necessary to modify some dams, including those under the jurisdiction of the Department of the Interior, to meet present-day design standards. In considering possible general legislation, it has been necessary to have the views and recommendations of other major Federal interests concerned with federally owned or financed dams and we have asked for a meeting of representatives of the Corps of Engineers, TVA, Federal Power Commission, and the Department of Agriculture to develop a comprehensive approach to this matter. Until the Federal agencies have an opportunity to jointly review and recommend uniform criteria for evaluating the needs for this work and a possible pattern of cost sharing by beneficiaries, it is inappropriate to take a position on a single structure such as Brantley Dam.

The Office of Management and Budget has advised that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

JAMES R. SMITH,  
*Assistant Secretary of the Interior.*

---

EXECUTIVE OFFICE OF THE PRESIDENT,  
OFFICE OF MANAGEMENT AND BUDGET,  
*Washington, D.C., January 10, 1972.*

HON. HENRY M. JACKSON,  
*Chairman, Committee on Interior and Insular Affairs, U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: This is in response to your request of February 17, 1971 for the views of the Office of Management and Budget on S. 50, a bill "To authorize the Secretary of the Interior to construct, operate, and maintain the Brantley project, Pecos River Basin, New Mexico, and for other purposes."

For reasons set out in the Department of the Interior report, the Office of Management and Budget is unable to recommend enactment of S. 50.

Sincerely,

WILFRED H. ROMMEL,  
*Assistant Director for  
Legislative Reference.*

STATEMENT OF HON. HENRY M. JACKSON, A U.S. SENATOR FROM THE STATE OF WASHINGTON, AND CHAIRMAN, SENATE INTERIOR AND INSULAR AFFAIRS COMMITTEE

S. 50, which was introduced by the Senators from New Mexico, would authorize construction of the Brantley dam and Reservoir on the Pecos River in New Mexico.

This is a project which was studied by the Bureau of Reclamation and which met all of the tests of feasibility at the time the study was completed. The Commissioner's proposed report was endorsed by the Secretary and transmitted to the States and the other Federal agencies for comment on July 17, 1969. In 1969 the Secretary agreed that the project was "engineeringly feasible and economically justified" and further that it was "urgently needed and strongly supported by the water users, State officials and the Pecos River Compact Commission." Despite this sweeping endorsement, however, the project report has never been transmitted to the Congress for consideration. I notified the Secretary of this hearing on October 21—three months ago—and particularly urged that the project report be finalized and transmitted, but even this encouragement has not resulted in a report.

Unfortunately, this has become a common situation in the resource development programs. Too often projects are being arbitrarily delayed during the review process thus avoiding the need for the Executive to make difficult decisions and depriving the people who need the projects of an opportunity to present their case to their elected representatives.

The Brantley project, however, is an especially serious matter. One of the principal purposes of the development is to correct a dangerous flood hazard involving two existing Federal dams. The McMillan reservoir which is more than 70 years old is filling with silt. It no longer has adequate capacity to control the potential runoff from upstream. Both it and the Avalon dam have spillways which are inadequate to pass the maximum floods that might occur on the Pecos River. At any time, a flood could occur which would overtop and destroy both dams and result in a disaster for the Carlsbad area downstream.

Despite the clear and present threat to life and property which exists, the Department, in its legislative report, contends that no action should be taken on the Brantley project until some general policy is developed concerning all other existing dams which, because of age or better information, are believed to be unsafe.

I agree that the general policy issue must be faced. If other instances of significant risk to life and property are known, I am appalled that the Department has not reported the facts to the Congress along with recommendations for action. I urge them to do so now.

Meanwhile, the facts concerning the Brantley project are available. This Committee has always considered Reclamation projects individually on their merits. I cannot accept the illogical contention that the people of Carlsbad should be denied a decision by the Federal government concerning this recognized threat to their lives and welfare. The Administration has recommended that the Congress withhold action on the pending measure until the report is transmitted. But I am not persuaded that the report ever will be transmitted. I believe that the Administration's attitude toward the Brantley project has been irresponsible. It is incumbent upon the Committee and the Congress to proceed with action on S. 50, to face up to the difficult policy questions which may be involved in the "safety of dams" issue, and to provide protection to the people of the Carlsbad areas and direction to the Executive Branch.

Senator ALLOTT. There is a very important meeting of the Democratic Party going on in the Senate this morning, and Congressman Harold Runnels has been waiting and might be waiting for some time unless we carry this on. Congressman, in order to accommodate you, I have agreed to open this meeting and we would be happy to have you proceed with your statement.

STATEMENT OF HON. HAROLD RUNNELS, A U.S. REPRESENTATIVE  
IN CONGRESS FROM THE STATE OF NEW MEXICO

Mr. RUNNELS. Thank you, Mr. Chairman. I want to thank you for the privilege of letting me testify here today in support of Senate bill 50, legislation which would authorize the Secretary of Interior to construct, operate, and maintain the Brantley project in New Mexico.

I have sponsored a companion bill, H.R. 5042, which is now pending before a subcommittee of the House Interior and Insular Affairs Committee.

The Brantley project is important to people living in the Carlsbad and Artesia areas for several reasons.

In the first place, this project will provide significant recreational benefits to approximately 200,000 people who live within easy driving distance of this project. The economic benefits to the tourist industry in this part of our State will be tremendous. Upon completion of the Brantley project, the Artesia-Carlsbad area will offer the tourist who visits the Carlsbad Caverns National Park the opportunity to stay and enjoy the recreational facilities which will be provided in conjunction with this project's reservoir.

In the second place, and perhaps of more importance, this project will provide irrigation facilities for a good number of downstream farmers. The McMillan Dam, which lies within the proposed reservoir area, has silted up to a point where replacement storage has almost become mandatory.

Finally, and perhaps of greatest importance, the Brantley project will provide flood protection for Carlsbad, N. Mex. A recent feasibility report made on the Brantley project indicates that the existing McMillan Dam comes very close to violating the Safe Dam Act. It's reservoir is rapidly losing its capacity to hold enough water to provide satisfactory flood protection to downstream residents.

In conclusion, I hope this subcommittee will give every consideration to S. 50, so that it may be acted upon as soon as is reasonably possible. A good number of people in New Mexico will be grateful for your efforts.

Thank you.

Senator ALLOTT. Thank you, Congressman. I have no questions. Do you have any questions, Senator Hansen?

Senator HANSEN. I do not. I thank you for your testimony.

Mr. RUNNELS. Thank you, Senator. It is my pleasure to be here, and, of course, there are people from southeast New Mexico who will give you facts and figures.

Thank you.

Senator ALLOTT. Thank you.

I opened this hearing to facilitate the demands upon the time of the Congressman, but according to the witness list, the next witness would be Senator Montoya, and then Mr. Ellis Armstrong, the Commissioner of Reclamation.

I do not think that we should proceed in the absence of the New Mexico members and the other members of the majority, so we will just simply recess this meeting. I can't give you any time schedule, I am sorry, but we will just recess it until they are available.

(Recess.)

Senator CHURCH (presiding). The hearing will come back to order.

We apologize for the delay. There was a caucus that members of the committee, the Democratic side, had to attend this morning, which accounts for the delay in this hearing.

Our first witness is Senator Anderson. Do you have a statement you would like to make at this time?

Senator ANDERSON. Mr. Chairman, I will just hand you the statement for the record.

Senator CHURCH. Thank you very much.

Senator Anderson's statement will appear as part of the record at this point.

(The statement of Senator Anderson follows:)

STATEMENT OF HON. CLINTON P. ANDERSON, A U.S. SENATOR FROM THE  
STATE OF NEW MEXICO

The hearings this morning are on S. 50, a bill introduced by Senator Montoya and me to provide for the construction, operation, and maintenance of the Brantley project in the Pecos River Basin north of Carlsbad, New Mexico. This project, which has as its most important purpose the removal of a severe flood threat from the city of Carlsbad and the Pecos Valley below McMillan Dam, has been under consideration in one form or another for more than a decade. Since that time, the need for the project has repeatedly been developed and documented.

Since June of 1969, the Bureau of Reclamation has known that this project is feasible and economically justified from an engineering standpoint. Texas and New Mexico, the two states concerned with water flow in the Pecos River, have long since endorsed this proposal. Now it is 1972 and the time to make a decision.

Completion of the project would have numerous salutary effects:

The proposed dam would provide needed replacement storage for the existing Carlsbad Reclamation Project. At present, irrigation water for the project is stored behind McMillan Dam—which Brantley would replace—but there are several problems with McMillan. It is leaking; its capacity has been substantially diminished by sedimentation; and worst of all, there is grave danger that the dam may fail in the event of a flood. Indeed, a flood in 1966 resulted in two deaths and in more than \$1 million of property damage in Carlsbad. It has been estimated that a large flood, which could occur under existing conditions, would result in property damage in excess of \$30 million, accompanied by considerable loss of life. This danger must be averted, and construction of the Brantley Dam would be one way to avert it.

Additional benefits would accrue to the public through increased recreational facilities. The National Park Service has estimated that 383,000 persons annually would take advantage of the reservoirs behind Brantley Dam and of the facilities which could be constructed at the Alamogordo Reservoir, the upstream storage reservoir of the Carlsbad project. The project also would provide for conservation and improvement and development of fish and wildlife resources in the area. Moreover, completion of the project would allow work authorized by two previous laws to proceed.

Public Law 85-333 authorized the construction of Malaga Bend and the McMillan Delta Channelization Divisions of the McMillan Delta project. Public Law 88-598 authorized the elimination of salt cedar and other phreatophytes from the authorized floodway. Both these laws, however, provided that work could not commence until certain conditions relative to the dam and its storage capacity were improved. This project fulfills the conditions of the earlier laws.

Other witnesses will detail more fully the expected benefits, many of which also are discussed in a feasibility report for this project issued in 1969.

I was somewhat surprised to read in the Department's report of January 17, 1972, to the Committee that the feasibility report is still "being prepared for

transmittal to Congress." In 1969, the project seemed to be well on its way. A feasibility report *was* adopted and approved by Assistant Secretary James Smith on July 2, 1969. This report then was submitted to the interested states and Federal agencies. New Mexico approved the report in October 1969 and the State of Texas on December 30 of that same year.

I tried to get the report released to me early in the 91st Congress but I did not get it until late in 1970. In the meantime, I introduced S. 3877 to authorize the Brantley Dam project, but it was too late in the session to get any action. Therefore, I reintroduced the bill in the 92nd Congress, and this is the bill under discussion now.

By March 17, 1971, copies of an updated version of the proposed feasibility report and a draft environmental statement had been sent to the proper authorities in New Mexico. New Mexico approved and returned the documents on May 13, 1971, and I was advised by Commissioner Armstrong of the Bureau of Reclamation on June 16, 1971, that the report would be processed as quickly as possible. That was seven months ago. I find it difficult to believe that it would take seven months to complete the report to the Congress when the Department had a feasibility report available three years ago and has had three months' notice that a hearing was to be held on the authorization of the project. Moreover, I am advised that the final updating of this report was completed in August 1971. I believe that the Department should submit this updated report immediately.

Evidently the report is being held while the Department considers general legislation which might some day establish a program to correct all the deficiencies in the nation's dams uncovered by the Safety of Dams survey. But this is no excuse for delaying this project now. We know the dangers to Carlsbad and we know what we must do to correct them.

I have had some uneasy feelings about reports of a disagreement between the Pecos River Pumpers Association—whose members are users of water above McMillan Reservoir—and the members of the Carlsbad Irrigation District. I understand that the Pumpers irrigate about 3,900 acres with Pecos River water. They are fearful that construction of Brantley Dam will result in the establishment of operating criteria for release of water from the Alamogordo Reservoir which would dry up the Pumpers' water supply during the season when it is most needed.

Even though we may get the project authorized, it is doubtful that it could be funded until proper operating criteria is developed, which would protect the rights of all concerned. I certainly urge that the Bureau of Reclamation, the New Mexico State Engineer's Office, officials of the Carlsbad Irrigation District, and the Pumpers Association, begin working in this direction. I sincerely hope that the record developed during the hearing will be helpful in this regard and will enable us to complete action on this bill as soon as possible.

Senator CHURCH. The Chair now recognizes Senator Montoya.

#### STATEMENT OF HON. JOSEPH M. MONTOYA, A U.S. SENATOR FROM THE STATE OF NEW MEXICO

Senator MONTOYA. Thank you, Mr. Chairman.

I have a statement here I will try to summarize, and then submit the statement for the record.

Mr. Chairman, Senate bill 50, introduced by my colleague, Senator Anderson and myself, would authorize the Secretary of the Interior to construct, operate, and maintain the Brantley Dam project on the Pecos River Basin in New Mexico.

The proposed Brantley project, which is authorized by this legislation, is a multipurpose project designed to cure many of the ills of the existing facilities at the Carlsbad irrigation project.

At the present time, the existing facilities consist of the Alamogordo, Avalon, and McMillan Dams. In 1969, however, the safety of dams investigation conducted by the Bureau of Reclamation concluded that the spillways at these facilities were inadequate to pass a potential

disastrous flood, and that the dams would be overtopped resulting in their failure.

The main purpose for constructing the Brantley project, Mr. Chairman, is to give the people of Carlsbad and surrounding rural areas a high degree of flood protection not presently available. The people of Carlsbad now live in constant fear of another disastrous flood similar to the 1966 disaster which took two lives and caused property damages in excess of \$1 million. Flood control is a necessity to the people in Carlsbad, and the Brantley project satisfies this need.

The Carlsbad irrigation project serves a total of 25,000 acres of water-right land and serves, directly or indirectly, the Eddy County population of approximately 1,300 people. A shortage of water for irrigation is not unusual, Mr. Chairman. The Brantley Dam project would alleviate this deficiency by providing adequate irrigation water storage capacity for 100 years.

Aside from the flood control and irrigation storage purposes of the Brantley Dam, recreational facilities are also encompassed in the overall design of this project. The Bureau of Outdoor Recreation and the National Park Service have recommended the inclusion of recreational facilities at both the Brantley and Alamogordo Dam sites, the Alamogordo Dam already having been constructed.

Recreational activities would consist of boating, swimming, water skiing, camping, and fishing. It is estimated that the visitation to the two reservoirs will average around 400,000 persons annually.

We have several witnesses here, headed by Mr. Steve Reynolds, engineer for the New Mexico Water Commission, and he will present all aspects involved in this particular legislation, Mr. Chairman.

I merely want to submit my statement so as to conserve the time of the committee.

Senator CHURCH. Thank you very much, Senator. And the full statement, in which you go into the project in considerable detail, will appear in the record as though read.

Senator MONTOYA. Knowing of this committee's interest in conservation, it may please the members to know that the Bureau of Sports Fisheries and Wildlife concluded that it was satisfied that this project did provide for the conservation, improvement, and development of fish and wildlife resources.

I am sure that the members of this committee are wondering about the feasibility of repairing and upgrading the existing facilities at the Carlsbad irrigation project.

Mr. Chairman, the Bureau of Reclamation, in its safety of dams report cited earlier, considered this alternative and immediately concluded that even if the existing dams were modified, they would neither provide the terminal storage needed for irrigation nor would it eliminate the threat of flooding.

Further, Mr. Chairman, the cost of repairing these facilities was estimated in 1971 to be at approximately \$27.7 million. Given this high cost of repair, the Bureau of Reclamation rightly concluded that a new facility was the more acceptable alternative.

To be sure, Mr. Chairman, the new facility would have the added benefits of recreation, conservation, flood protection, and some increase in irrigation storage capacity.

Given the deficiencies which exist at the present facilities, and given the purposes for the construction of the Brantley project, I would like to turn briefly to a more specific physical description of the Brantley Dam project.

Brantley Dam and Reservoir would be constructed on the Pecos River, about 4 miles downstream from the McMillan Dam and 6 miles upstream from Avalon Dam. The reservoir would have a total storage capacity of 520,000 acre-feet. Of the initial storage capacity, 376,000 acre-feet would be used for terminal irrigation storage, 2,000 acre-feet for a minimum pool for recreation and fish and wildlife purpose, and 102,000 acre-feet for a sediment reserve.

A more detailed examination of these figures will be undertaken at a later time by our State engineer, Mr. S. E. Reynolds.

Mr. Chairman, I am sure that of foremost interest to this committee are the economic aspects of this project.

Briefly, the construction cost of this project can be set forth as follows:

The total overall cost of the project, including interest at  $5\frac{3}{8}$  percent during construction, is estimated at \$50.3 million. Of this total investment cost, approximately \$1.08 million is designed for irrigation cost; \$3.7 million for the recreation facilities, \$2.7 of this amount would be nonreimbursable. Approximately \$2.3 million is the estimated cost for fish and wildlife, and of this amount \$2.2 million would be nonreimbursable funds.

It is further estimated, Mr. Chairman, that the flood control features of the project would total about \$14 million, and, of course, all of this amount would be nonreimbursable.

Finally, the total amount for the safety of dams is estimated at \$29.1 million, all of which is nonreimbursable.

Mr. Chairman, the total cost of the Brantley Dam project is greatly insignificant to the cost of replacing the lives and property of residents of the Carlsbad and surrounding areas. The property value in urban Carlsbad alone is presently estimated at \$92.5 million, while the rural areas are estimated to have a value of \$1.5 million. And, of course, Mr. Chairman, no value can be placed on human lives.

I am hopeful that this committee will weigh these factors when deciding whether or not to give its approval to this proposal.

Mr. Chairman, it has been brought to my attention that the Department of the Interior has filed an adverse report to Senate bill 50, indicating their desire to have this project reevaluated to determine whether it conforms with the principles and standards proposed by the Water Resources Council. I submit that the suggestion for reevaluation is nothing but another in a long line of dilatory tactics of the Department of Interior.

In point of fact, Mr. Chairman, this project was submitted to the Secretary of the Interior in 1969, and approved by them on June 17, 1969.

Furthermore, this project was reevaluated and a supplemental report was submitted in August of 1971. Now, it seems rather incredible to me that the Department of Interior would even dare suggest an evaluation of the reevaluation.

In its report, the Department of Interior also expresses some reservations about including the cost of repairing the existing facilities in

the total budget of \$45 million and including them as nonreimbursable funds. It should be noted, Mr. Chairman, that the Federal Government set the precedent for assuming the responsibility for maintaining the safety of its own unsafe structures when in 1954 it, with the approval of Congress, appropriated \$1 million of nonreimbursable funds to repair the Alamogordo Dam on this same project.

Therefore, what this project calls for by way of nonreimbursable funds is not unique, but in point of fact it is the practice of the Department of the Interior to consider such funds as nonreimbursable.

Mr. Chairman, this project has too long been delayed. The people of Carlsbad, N. Mex., should not have to wait any longer to have their fears of flooding removed. The Brantley project is greatly needed, and in spite of the reservations expressed by the Department of Interior, the Brantley project is sound and unassailable.

I am hopeful that this committee will take immediate action so that construction of this project can begin.

Thank you, Mr. Chairman.

(The complete statement of Senator Montoya follows:)

STATEMENT OF HON. JOSEPH M. MONTOYA, A U.S. SENATOR FROM THE STATE OF  
NEW MEXICO

Mr. Chairman, I sincerely appreciate the opportunity to appear before this Subcommittee today for the purpose of giving my strongest endorsement to Senate Bill 50.

Senate Bill 50, introduced by my colleague, Senator Anderson and myself, would authorize the Secretary of the Interior to construct, operate and maintain the Brantley Dam Project on the Pecos River Basin in New Mexico.

The proposed Brantley project, which is authorized by this legislation, is a multi-purpose project designed to cure many of the ills of the existing facilities at the Carlsbad Irrigation Project.

At the present time, the existing facilities consist of the Alamogordo, Avalon and McMillan Dams. In 1969, however, the "Safety of Dams" investigation conducted by the Bureau of Reclamation concluded that the spillways at these facilities were inadequate to pass a potential disastrous flood, and that the dams would be overtopped resulting in their failure.

The main purpose for constructing the Brantley project, Mr. Chairman, is to give the people of Carlsbad and surrounding rural areas a high degree of flood protection not presently available. The people of Carlsbad now live in constant fear of another disastrous flood similar to the 1966 disaster which took two lives and caused property damages in excess of one million dollars. Flood control is a necessity to the people in Carlsbad, and the Brantley project satisfies this need.

The Carlsbad Irrigation Project serves a total of 25,000 acres of water right land and serves, directly or indirectly, the Eddy County population of approximately 5,300 people. A shortage of water for irrigation is not unusual, Mr. Chairman. The Brantley Dam Project would alleviate this deficiency by providing adequate irrigation water storage capacity for one hundred years.

Aside from the flood control and irrigation storage purposes of the Brantley Dam, recreational facilities are also encompassed in the overall design of this project. The Bureau of Outdoor Recreation and the National Park Service have recommended the inclusion of recreational facilities at both the Brantley and Alamogordo Dam sites. Recreational activities would consist of boating, swimming, water skiing, camping, and fishing. It is estimated that the visitation to the two reservoirs will average around 400,000 persons annually.

Knowing of this Committee's interest in conservation, it may please the members to know that the Bureau of Sports Fisheries and Wildlife concluded that it was satisfied that this project did provide for the conservation, improvement, and development of fish and wildlife resources.

I am sure that the members of this committee are wondering about the feasibility of repairing and upgrading the existing facilities at the Carlsbad Irrigation Project. Mr. Chairman, the Bureau of Reclamation, in its "Safety of Dams" report cited earlier, considered this alternative and immediately concluded that even if the existing dams were modified, they would provide neither

the terminal storage needed for irrigation nor would it eliminate the threat of flooding. Further, Mr. Chairman, the cost of repairing these facilities was estimated in 1971 to be at approximately 27.7 million dollars. Given this high cost of repair, the Bureau of Reclamation rightly concluded that a new facility was the more acceptable alternative. To be sure, Mr. Chairman, the new facility would have the added benefits of recreation, conservation, flood protection, and some increase in irrigation storage capacity.

Given the deficiencies which exist at the present facilities, and given the purposes for the construction of the Brantley project, I would like to turn briefly to a more specific physical description of the Brantley Dam Project.

Brantley Dam and Reservoir would be constructed on the Pecos River, about four miles downstream from the McMillan Dam and six miles upstream from Avalon Dam. The reservoir would have a total storage capacity of 520,000 acre feet. Of the initial storage capacity, 376,000 acre feet would be used for terminal irrigation storage, 2,000 acre feet for a minimum pool for recreation and fish and wildlife purposes, and 102,000 acre feet for a sediment reserve. A more detailed examination of these figures will be undertaken at a later time by our State Engineer, Mr. S. E. Reynolds.

Mr. Chairman, I am sure that of foremost interest to this committee are the economic aspects of this project. Briefly, the construction cost of this project can be set forth as follows: The total overall cost of the project, including interest at 5% percent during construction, is estimated at 50.3 million dollars. Of this total investment cost, approximately 1.08 million is designed for irrigation cost; 3.7 million for the recreation facilities, 2.7 of this amount would be non-reimbursable. Approximately 2.3 million is the estimated cost for fish and wildlife, and of this amount 2.2 million would be non-reimbursable funds. It is further estimated, Mr. Chairman, that the flood control features of the project would total about 14 million dollars, and of course all of this amount would be non-reimbursable. Finally, the total amount for the safety of dams is estimated at 29.1 million dollars, all of which is non-reimbursable.

Mr. Chairman, the total cost of the Brantley Dam project is greatly insignificant to the cost of replacing the lives and property of residents of the Carlsbad and surrounding areas. The property value in urban Carlsbad alone is presently estimated at 92.5 million dollars, while the rural areas are estimated to have a value of 1.5 million dollars. And of course, Mr. Chairman, no value can be placed on human lives. I am hopeful that this committee will weigh these factors when deciding whether or not to give its approval to this proposal.

Mr. Chairman, it has been brought to my attention that the Department of the Interior has filed an adverse report to Senate Bill 50, indicating their desire to have this project re-evaluated to determine whether it conforms with the principles and standards proposed by the Water Resources Council. I submit that the suggestion for re-evaluation is nothing but another in a long line of dilatory tactics of the Department of Interior. In point of fact, Mr. Chairman, this project was submitted to the Secretary of the Interior in 1969 and approved by them on June 17, 1969. Furthermore, this project was re-evaluated and a supplemental report was submitted in August of 1971. Now it seems rather incredible to me that the Department of Interior would even dare suggest an evaluation of the re-evaluation.

In its report, the Department of Interior also expresses some reservations about including the cost of repairing the existing facilities in the total budget of 45 million dollars and including them as non-reimbursable funds. It should be noted, Mr. Chairman, that the Federal Government set the precedent for assuming the responsibility for maintaining the safety of its own unsafe structures when in 1954 it, with the approval of Congress, appropriated one million dollars of non-reimbursable funds to repair the Alamogordo Dam on this same project. Therefore, what this project calls for by way of non-reimbursable funds is not unique, but in point of fact it is the practice of the Department of the Interior to consider such funds as non-reimbursable.

Mr. Chairman, this project has too long been delayed. The people of Carlsbad, New Mexico should not have to wait any longer to have their fears of flooding removed. The Brantley project is greatly needed, and in spite of the reservations expressed by the Department of Interior, the Brantley project is sound and unassailable.

I am hopeful that this committee will take immediate action so that construction on this project can begin.

Thank you, Mr. Chairman.

Senator CHURCH. Our next witness is Mr. Ellis Armstrong.

STATEMENT OF ELLIS L. ARMSTRONG, COMMISSIONER, BUREAU  
OF RECLAMATION, ACCOMPANIED BY D. V. MCCARTHY AND  
ROWLAND FIFE

Mr. ARMSTRONG. Mr. Chairman, I have with me Mr. Rowland Fife, area engineer for the area where this project is located, and Mr. D. V. McCarthy, chief of our planning division here in Washington.

I am happy to be here today to present our views on Senate bill 50, which is to authorize the construction of the proposed Brantley project in New Mexico.

We have a map here that shows the drainage area and the location of the Carlsbad project, Brantley Dam and Reservoir site, Fort Sumner project, and the flood control project on the upper reaches of the river that the Corps of Engineers plan to start soon.

The potential Brantley project—a dam and reservoir development—is on the Pecos River in Eddy County about 20 miles upstream from Carlsbad, N. Mex.

The development would provide replacement irrigation storage for the McMillan Reservoir, which is losing its effectiveness because of sediment accumulation. The McMillan and Avalon Dams are existing structures which presently serve the Carlsbad Irrigation District lands.

Brantley Reservoir would provide storage for flood control not presently available in these two reservoirs, and would eliminate the threat of failure, because of inadequate spillways, of McMillan and Avalon Dams.

In addition, the development would provide for fish and wildlife enhancement and for outdoor recreation opportunities. The estimated construction cost of the project is \$45,605,000, based on price levels as of July 1971.

The Carlsbad project was initiated in 1888 by private interests. The canal system and McMillan and Avalon Dams were completed in 1893. Floods in that year caused heavy damage to the system. Avalon Dam was washed out, but the main structure of McMillan Dam was saved by blasting out a large segment of embankment to allow passage of flood waters. The system was repaired, but Avalon Dam was destroyed by a flood in 1904. Efforts to repair the dam were unsuccessful.

So, then reclamation was asked to help as the resources of private interests were inadequate to accomplish necessary repairs. Many improvements, including the reconstruction of Avalon Dam were made in the following years, and thus became one of the earliest reclamation projects.

In the early 1930's, Reclamation investigated alternative sites for a dam and reservoir to replace the storage capacity of McMillan Reservoir that was depleted by sedimentation. Alamogordo Dam and Reservoir was constructed in 1937 for this purpose. As you can see on the map it is on the upper reaches of the river.

The Carlsbad project irrigation facilities presently consist of three dams and storage reservoirs used to regulate irrigation water and a distribution system to serve a total of 25,055 acres of water-right land, and they have an adjudicated water right for this amount of land.

The dams are Alamogordo, McMillan, and Avalon. The irrigated

area has ranged from 6,528 acres in 1907 to 25,278 in 1926. Since completion of the distribution system in 1926, the irrigated area has averaged about 20,000 acres per year.

The potential project features consist of Brantley Dam and associated recreation and fish and wildlife facilities. The reservoir would have a total capacity of 520,000 acre-feet for conservation, sediment retention, and flood control. In addition, it would have a surcharge capacity of 360,000 acre-feet.

Senator CHURCH. Is that what would contribute to flood control?

Mr. ARMSTRONG. Part of it. There also would be inviolate flood control storage capacity in the reservoir. The total capacity would be 880,000 acre-feet, at the time of the passing of the maximum probable flood through the reservoirs. The surcharge capacity is unregulated storage capacity developed by building the dam higher than the spillway which would dampen the peak of this major flood.

The project would provide minimum pools at Brantley, McMillan, and Alamogordo Reservoirs.

Two projects to improve water quality and eliminate water shortages in the Pecos River Basin have been authorized by the Congress during the past 15 years.

Public Law 85-333, approved February 10, 1958, authorized the construction of Malaga Bend and McMillan Delta Channelization Divisions of the McMillan Delta project. The law provided, however, that no work could be commenced on the McMillan Delta floodway unless provisions shall have been made to replace any Carlsbad Irrigation District terminal storage which might be lost by clearing of the floodway. As a result, the authorized channelization has not yet been constructed.

Public Law 88-594, approved September 12, 1964, authorized the Pecos River Basin water salvage project, which is a continuing program to reduce nonbeneficial consumptive use of water in the basin. That law provides that no work shall be commenced on clearing of the authorized floodway unless provision is made to replace the district's terminal storage.

As mentioned earlier, a major aspect of the Brantley project is elimination of the threat of failure of McMillan and Avalon Dams. For several years our Bureau has been undertaking a critical review of the capability of our dams to contain or to pass the probable flood which might occur on the watershed above the respective structure. Of the 200 dams which we have under our jurisdiction, several of them have been given intensive study to assure adequacy under possible flood threat.

During the examination of existing Reclamation dams, it was found that in some instances dams which had been constructed by others on the watershed upstream from Bureau dams pose a threat to Bureau dams in the event of failure of the upstream structure.

So, we contacted the Governors of each of the 17 Western States, advising them of the studies which the Bureau had in progress and solicited their respective cooperation in analyzing the ability of dams upstream from ours to pass or to contain any potential flood which might occur.

The safety evaluation study at McMillan and Avalon Dams was prepared as a part of the examination of existing dams program. The

most current meteorologic and hydrologic data were used to obtain a realistic evaluation of potential flood conditions on the Pecos River, and the tributaries above these dams. The study showed that potential floods could exceed existing spillway capacity at McMillan Dam and cause the dam to be overtopped, which could result in failure of the dam.

The studies also show that existing spillway capacity at Avalon Dam would protect the dam only from a flood originating below the potential Brantley Dam. As both of these dams are located upstream from the city of Carlsbad, their failure could result in serious flood damage to the city of Carlsbad and the Carlsbad Irrigation District with increased risk of loss of life in the area.

The Secretary's feasibility report on the project is, as required by law, being prepared for transmittal to Congress. Several changes, which were dictated by new law or changes in policy, required that the project be reanalyzed or that the report be delayed until an environmental impact statement could be prepared and processed. A draft statement was filed with the Council on Environmental Quality in April 1971 and the final statement is being prepared.

The Water Resources Council's proposed "Principles and Standards for Planning Water and Related Land Resources" have been imminent for about 2 years. Those principles and standards were published in the Federal Register on Tuesday, December 21, 1971.

Those principles undoubtedly will require or make desirable the reformulation of several projects, such as Brantley on which reports are nearing completion. The need for the reevaluation will be determined by the nature of the project and the status of the report. Since Brantley has as its primary purpose the improvement of environmental quality and regional development, we believe the project should be reevaluated to reflect these new principles.

Legislation will be necessary to make modifications to meet present-day design standards at a number of dams under the jurisdiction of the Department of the Interior.

General legislation to encompass dams, in addition to those of the Department of Interior, would be desirable. Therefore, we felt it desirable to have the views and recommendations of other major Federal interests concerned with federally owned or federally financed dams before formulating possible general legislation, and have asked for a meeting of representatives of the Corps of Engineers, Tennessee Valley Authority, Federal Power Commission, and the Department of Agriculture.

Until the Federal agencies have an opportunity to jointly review and recommend uniform criteria for evaluating the needs for this work and a possible pattern of cost sharing by beneficiaries, we do not believe we should take a firm position on a single structure such as Brantley Dam.

That, Mr. Chairman, is our statement.

Senator CHURCH. Mr. Commissioner, as I understand it, you are neither for nor against this bill, is that what you are saying?

Mr. ARMSTRONG. Yes. We don't feel we could take a firm position on the project until we formulate this general policy on safety of dams overall policy.

Senator CHURCH. How long will that take?

Mr. ARMSTRONG. We are hoping that in another few months we may be able to develop something that we can agree upon. It is a rather complex problem. There are about 1,200 dams across the country. Our Bureau has about 200, the Corps of Engineers has at least that many, and there are a large number of Soil Conservation Service and TVA dams. The problem arises in developing a general policy on financing the safety of dams program to revise the structures to meet the present day calculated maximum probable floods.

And one of the difficulties is getting an overall picture, which we are making progress on, and are beginning to get it in sharp focus.

Senator CHURCH. What do you need a general policy for anyway? Won't this question vary a great deal from case to case, and from dam to dam?

Mr. ARMSTRONG. It will vary rather widely from case to case. As I mentioned before the big problem is the treatment of the cost of the safety dam program. For instance, this project would cost about \$45 million, of which \$27 million would be assigned to the safety dams program. This is a rather large percentage and quite a bit larger than for most other projects of this nature. So the question arises, who pays for this portion—

Senator CHURCH. I take it you think that should be a question that is covered by general legislation?

Mr. ARMSTRONG. Yes, we think there should be some policy established by congressional action that will come up with a guiding policy that we can follow.

Senator CHURCH. On page 6 of your testimony, where you refer to the water resources council criteria and principles—does that have anything to do with safety of dams?

Mr. ARMSTRONG. Not directly, although some aspects of the regional economic development account and the environmental account are involved.

Senator CHURCH. When you say the water resource council's proposed report has been imminent for about 2 years, what does that mean? What would remote mean, if imminent means the last 2 years?

Mr. ARMSTRONG. The principles and standards have been under intensive review by a large number of people and now they have been published in the Federal Register. What I am trying to point out is that the possible change in the ground rules has been one of the factors that has delayed completion of pending reports on some of our projects.

Senator CHURCH. Mr. Commissioner, on page 4 of your statement, you refer to the Bureau's comprehensive study of the safety of existing dams.

Mr. ARMSTRONG. Yes.

Senator CHURCH. Between fiscal years 1966 and 1972, the Bureau received funds from Congress, total \$1,961,000 for this study. You state several dams are considered to be unsafe, yet no report has been transmitted to Congress. No policy recommendations have been made concerning this situation.

Mr. ARMSTRONG. This is true. We have 81 dams that have been scheduled for investigation out of a total of 230 storage dams that we now have on our project. Of these, we found that out of 43, that we have completed our studies so far, we found that 14 will require some revi-

sion in order for them to handle this so-called maximum probable flood.

This project has been underway since 1966, and we expect it to be completed in about 3 or 4 more years.

Senator CHURCH. I don't see any reason why Congress should wait 3 or 4 more years to get the results of the completed report. Can't you submit to us the interim results of the investigation to date?

Mr. ARMSTRONG. Yes, the program that would be required to enable reclamation dams to meet the present-day criteria would cost somewhere in the neighborhood of \$85 million.

Along with that, other agencies have been looking at their structures. The FPC has been requiring licensees to look at their structures and the U.S. Committee on Large Dams has been studying this problem and has issued some reports.

The ASCE has a committee working on this trying to arrive at what is a sensible approach to modification of these structures that were built before we had the modern-day sophistication in hydrology.

Senator CHURCH. Would you submit for the record a list of dams that you have investigated and a list of those that you have found to be unsafe.

Mr. ARMSTRONG. Unsafe in the sense that they won't pass maximum probable floods. I have a list here I will be glad to furnish for you.

(The material referred to follows:)

DAMS THAT HAVE BEEN INVESTIGATED TO DETERMINE MODIFICATION REQUIRED TO PASS THE DESIGN FLOOD

The dams listed below have been investigated. Design flood studies have been completed on 43 dams. We found 14 of these dams require major modifications to provide for safe passage of the design floods under present-day criteria. Structural examinations reveal one additional (American Falls) dam that requires replacement because it no longer meets Reclamation's safety standards.

DAMS STUDY COMPLETED

Dam and location	Modification requirement		
	Major	Minor	None
1. Conconully, Okanogan project, Washington.....	(*)		
2. Salmon Lake, Okanogan project, Washington.....	(*)	(*)	
3. McKay, Umatilla project, Oregon.....	(*)		
4. Cold Springs, Umatilla project, Oregon.....			(*)
5. Jackson Lake, Minidoka project, Wyoming.....		(*)	
6. Island Park, Minidoka project, Idaho.....		(*)	
7. Minidoka, Minidoka project, Idaho.....		(*)	(*)
8. Agency Valley, Vale project, Oregon.....			(*)
9. Unity, Burnt River project, Oregon.....			(*)
10. Cle Elum, Yakima project, Washington.....			(*)
11. Keechelus, Yakima project, Washington.....			(*)
12. Anderson Ranch, Boise project, Idaho.....			(*)
13. Cascade, Boise project, Idaho.....			(*)
14. Hyatt Prairie, Rogue River Basin project, Oregon.....			(*)
15. Boca, Truckee Storage project, Nevada.....	(*)		
16. Lohontan, Newlands project, Nevada.....	(*)		
17. Lake Tahoe, Newlands project, Nevada.....		(*)	
18. East Park, Orland project, California.....	(*)		
19. Stony Gorge, Orland project, California.....	(*)		
20. Gerber, Klamath project, Oregon.....		(*)	
21. Clear Lake, Klamath project, Oregon.....	(*)		
22. Bartlett, Salt River project, Arizona.....		(*)	
23. Horseshoe, Salt River project, Arizona.....			(*)
24. Hyrum, Hyrum project, Utah.....	(*)		
25. Deer Creek, Provo River project, Utah.....			(*)
26. Fruitgrowers, Fruitgrowers Dam project, Colorado.....			(*)
27. Taylor Park, Uncompahgre project, Colorado.....			(*)
28. Vallecito, Pine River project, Colorado.....		(*)	

## DAMS STUDY COMPLETED—Continued

Dam and location	Modification requirement		
	Major	Minor	None
29. Moon Lake, Moon Lake project, Utah .....			(*)
30. Echo, Weber River project, Utah .....			(*)
31. Caballo, Rio Grande project, Texas .....		(*)	
32. Altus, W. C. Austin project, Oklahoma .....	(*)		
33. McMillan, Carlsbad project, New Mexico .....	(*)		
34. Avalon, Carlsbad project, New Mexico .....	(*)		
35. Platoro, San Luis Valley project, Colorado .....			(*)
36. Bull Lake, Riverton project, Wyoming .....		(*)	
37. Pilot Butte, Riverton project, Wyoming .....			(*)
38. Belle Fourche, Belle Fourche project, South Dakota .....	(*)		
39. Fresno, Milk River project, Montana .....			(*)
40. Deerfield, Rapid Valley project, South Dakota .....	(*)		
41. Angostura, Pick-Sloan Missouri Basin program, South Dakota .....			(*)
42. Gibson, Sun River project, Montana .....	(*)		
43. Minatare, North Platte project, Wyoming .....			(*)
44. American Falls, Minidoka project, Idaho .....	(†)		

† Dam replacement recommended to meet safety standards.

Senator CHURCH. If you will submit that for the record. When do you expect to make a formal report of recommendations to Congress on this situation?

Mr. ARMSTRONG. I am not sure. We are hopeful, however, before the end of this year, that we can have that. But we have this meeting scheduled with the other agencies to try to see if we can get a uniform approach as far as the financing of the safe dam program is concerned.

Senator CHURCH. With respect to this dam, the Brantley Dam and Reservoir, which would be authorized by the bill on which we are now conducting this hearing. S. 50, the position of the administration is to take no action until these subsequent studies are completed and general legislation is submitted?

Mr. ARMSTRONG. That is the present position; yes.

Senator CHURCH. Mr. Commissioner, the Governor of Texas has presented seven conditions for his agreement to the Brantley proposal.

Mr. ARMSTRONG. Yes.

Senator CHURCH. Can you provide for the record a statement of the impact which these conditions would have on the proposal, as set forth in the Secretary's proposed report of 1967?

Mr. ARMSTRONG. Yes; we have taken a look at it and we don't think this has any effect on the proposal. We are looking at it in detail and will provide that information for the record.

(The information referred to follows:)

#### EVALUATION OF CONDITIONS PRESENTED BY THE GOVERNOR OF TEXAS AS REQUIREMENT FOR HIS AGREEMENT TO THE BRANTLEY PROJECT

The Governor of Texas advises that the State will not oppose the construction of the Brantley Project, provided that the following seven conditions are contained in the authorizing document or made a part of the authorizing legislation. He believes that such conditions are in the interest of preserving the intent and purposes of the Pecos River Compact:

1. The Brantley Dam and Reservoir will be operated solely by the United States Bureau of Reclamation in compliance with the terms and spirit of the Pecos River Compact, New Mexico and Texas, 1949;

2. Not more than 40,000 acre-feet of water, in excess of 2,000 acre-feet of combined inactive and dead storage, will be impounded in Brantley Reservoir for water-supply purposes at any time, and all inflows will be passed when the

water-supply storage level is reached, except waters which are declared "unappropriated flood waters";

3. No "unappropriated flood waters" will be stored in the sediment reserve or other storage space until such waters have been determined by the Pecos River Commission;

4. The State of New Mexico and its Carlsbad Irrigation District will maintain the Avalon Reservoir spillway and downstream channel conditions of the Pecos River so that flood waters temporarily stored in Brantley Reservoir may be continuously evacuated at maximum channel capacity in accordance with flood protection rules consistent with downstream tributary inflows until Brantley Reservoir is evacuated to 40,000 acre-feet of conservation storage;

5. The McMillan Dam will be operated to insure that no more than 4,500 acre-feet of water will be impounded as seasonal storage, October through January, for the benefit of propagation of water fowl and that during the period February through September, the outlet gates will be maintained fully open to assure complete evacuation of all storage, drainage of McMillan Delta, and passage of all inflows;

6. New Mexico and Texas agree to cooperate diligently to the end that the water salvage work that can be done in the McMillan Delta under the authorization of P.L. 88-594 is completed concurrent with the completion of the Brantley Dam and Reservoir; and,

7. The State of New Mexico gives its assurance that all groundwaters withdrawn from bank, shallow or deep storage by pumping or otherwise, which diminish the flow of the Pecos River, shall be accounted as a part of the New Mexico apportionment in accordance with the Pecos River Compact.

We are advised that these conditions have been considered by representatives of the States of New Mexico and Texas and that the States have reached agreement. We have studied the conditions and foresee no problems in complying with the mutually acceptable conditions as a prerequisite to development and operation of the project.

Our investigation of the potential Brantley Project was conducted within the intent and purpose of the Pecos River Compact and therefore the conditions set forth by Governor Smith are compatible with the Secretary's proposed feasibility report of June 12, 1969.

Senator CHURCH. Very well. Now, the Bureau's feasibility report on the project has been substantially completed and under review since 1967, is that correct?

*Committee note: The Regional Director's report is dated May 10, 1967.*

Mr. ARMSTRONG. We submitted it to the States for their review in 1969, Mr. Chairman.

Senator CHURCH. Well, even that has been 2 or 3 years. I suppose you have heard from the States?

Mr. ARMSTRONG. Yes. The difficulty comes, again, in getting an agreement I believe on the approach that we should make as far as financing the safety dams program. This is something that not only bothers this administration, but also concerned the prior administration.

There was legislation worked on in 1966-68, trying to get these diverse interests in agreement and one of the problems was the lack of adequate and clear information. We are closing in on that problem now, with this additional data that we are assembling.

There is concern about the size of the problem, you see, that we are getting into and just where the responsibility should lie, among the Federal Government, the States, and local entities.

Senator ANDERSON. Mr. Chairman, I have a sore throat. May I have Mr. Wood ask some questions for me?

Senator CHURCH. Certainly.

Mr. WOOD. Mr. Commissioner, I am Claude Wood. The Senator wanted to ask a question here.

On June 16, you advised Senator Anderson the report will be processed as quickly as possible. We were advised that the report was updated as late as August 19, 1971. Then the hearing was announced about 3 months ago.

Mr. ARMSTRONG. Yes, sir.

Mr. WOOD. Why is it now that, after the adoption and approval of the feasibility report that was sent to the States, the Department says it now has to make a new feasibility study?

Mr. ARMSTRONG. Not a new feasibility study, but a reevaluation tying into the new criteria, again because of the basic difficulty of arriving at an agreement as to the responsibility for financing the safety dams aspect of the project.

Mr. WOOD. Then the only reason for holding it up for the further study is because of this new criteria that has been proposed on financing?

Mr. ARMSTRONG. That is part of it. The other was additional information becoming available from the continuing studies on the safety of dams and how it might affect the general policy on financing.

Mr. WOOD. Didn't they, in making the feasibility report originally study the safety of these dams and declare that they were unsafe, if we waited for another flood like we had in 1966?

Mr. ARMSTRONG. Yes, sir. That particular flood was a storm that occurred downstream from the dam. Had it occurred upstream the dam would not have been overtopped. Of course, we recognize the threats. There are other communities located below dams which face a threat as great or greater threat than Carlsbad.

However, as I mentioned, our studies show that existing facilities would be overtopped by the maximum probable flood. We are concerned about it and we have been considering plans and procedures that might be installed in the interim to alert downstream residents of impending danger from failure of the dams.

One of the projects that is underway is the Corps of Engineers Los Esteros Dam and Reservoir which should get underway this coming year. They would help alleviate flood damages in the upper basin.

Mr. WOOD. In view of the work that has already been done and studies in this project, do you feel that the feasibility report can be updated so that we might act on it during this session of Congress?

Mr. ARMSTRONG. Well, with the economic analysis in the proposed report that you have updated to reflect current cost estimates and an interest rate of  $5\frac{3}{8}$  percent and taking into account the safety of dams as a nonreimbursable item, the ratio of benefits to cost is 1.07 to 1.0.

Senator CHURCH. Senator Hansen, do you have any questions?

Senator HANSEN. I gather the concern that is reflected by Senator Anderson's statement and those of the other members of the delegation here as well as implied by the presence of some members in the hearing room today, is a concern that these structures that are proposed to be replaced do present a very real hazard to life and property, and it makes good sense for the Government to step in and to take such steps as are necessary either to replace them or to repair them in order to obviate any danger.

Senator ANDERSON. That is correct. And I appreciate your being here to say that.

Senator HANSEN. I don't think I have anything else to say.

Mr. ARMSTRONG. I think we agree with that, sir.

Senator CHURCH. It is true, Mr. Commissioner, that an unsafe dam once built might pose a greater hazard to life and property than no dam at all.

Mr. ARMSTRONG. This is true. If it fails rather suddenly, you have the water—

Senator CHURCH. Yes.

Mr. ARMSTRONG. There is no such thing as something that is absolutely safe, as you can appreciate, it is a matter of degree. The present storage structures would pass a flood of a frequency of something greater than once in a hundred years. Of course, it may not occur for 100 years or it may occur tomorrow, we don't know. This is where the problem arises.

Senator CHURCH. If we wait for your department or the other departments we have mentioned to come to an agreement on a plan or design, it is obvious from what you have indicated that we may have to wait a long time.

I am wondering if there might not be some dams that you have ascertained to be unsafe where the hazard is so great that you wouldn't want to delay action in that particular case until all departments are agreed as to the general criteria.

Mr. ARMSTRONG. Senator, I think that is true, and I expect we will have some that are in that category. Whether or not this comes into that category, is a question.

Senator CHURCH. Is it, in your opinion, in that category?

Mr. ARMSTRONG. It will pass a flood larger than any that has occurred to date, that is, in our period of record. As I mentioned, we are going to work with the local people to develop some type of flood warning system for interim use before the project is accomplished.

Senator CHURCH. Any other questions? Thank you very much.

Our next witness is Mr. Steve Reynolds. New Mexico State engineer, accompanied by Mr. I. J. Coury, New Mexico Interstate Streams Commission.

Steve, you come very highly recommended to this committee. I am wondering, in the interest of conserving our time, if you could summarize your statement and then, of course, the entire statement will appear in the record.

**STATEMENT OF STEVE REYNOLDS, NEW MEXICO STATE ENGINEER,  
ACCOMPANIED BY I. J. COURY, CHAIRMAN, NEW MEXICO INTER-  
STATE STREAMS COMMISSION**

Mr. REYNOLDS. Thank you, Mr. Chairman.

My name is S. E. Reynolds. I am the New Mexico State engineer and Secretary of the New Mexico Interstate Streams Commission.

I am appreciative of this opportunity to present to this distinguished committee the views of the State of New Mexico on S. 50, a bill that would authorize the Brantley Dam and Reservoir project on the Pecos River in New Mexico.

Mr. I. J. Coury, who is chairman of the New Mexico Interstate Streams Commission, had planned to be here today to testify in the support of that legislation. Unfortunately, the death of a dear friend

made it impossible for him to be here, but I would like to submit a copy of his statement for the record of the hearing.

Senator CHURCH. Yes, it will appear following your testimony.

Mr. REYNOLDS. I will summarize to some extent and supplement my statement.

Works for the development of irrigation on the Carlsbad project were initiated in 1887 by private interests. The irrigation system, including McMillan and Avalon Dams, was completed in 1893. In that year, Avalon Dam was washed out by floods and it was necessary to blast out a large segment of the embankment of McMillan Dam to save that structure. The dams were repaired but Avalon Dam was again destroyed by floods in 1904 and the project was without irrigation water during 1905.

The Pecos Water Users Association was organized in 1905, and the association entered a contract with the reclamation service for rehabilitation of the project works early in 1906. Reconstruction of the dams was completed in November of 1907 and the Carlsbad project became one of the earliest reclamation projects under the Federal Reclamation Act of June 17, 1902.

On November 6, 1935, the President authorized the construction of Alamogordo Dam on the Pecos River about 250 river miles upstream from Carlsbad to augment the storage facilities of the project. The Carlsbad Irrigation District contracted to repay the \$2,600,000 cost of the Alamogordo Dam and Reservoir unit in 40 equal annual installments beginning in 1946.

Floods exceeding any of record which occurred shortly after the completion of Alamogordo Dam brought about a reexamination of the criteria used in the design of the spillway for the structure.

This reexamination led to the conclusion that the spillway capacity was seriously inadequate.

Public Law 83-465 was enacted in 1954 to authorize the enlargement of the spillway of Alamogordo Dam at a cost of a little more than \$1 million on a nonreimbursable basis to accommodate floods of major proportions.

The Federal investment in the Carlsbad project, including the \$1 million nonreimbursable investment to insure the safety of Alamogordo Dam, but excluding the cost of rehabilitation under a contract approved recently is about \$5.4 million.

The gross value of crops produced on project lands in the period 1907 through 1970 is about \$1.24 million or roughly 23 times the Federal investment.

The Carlsbad Irrigation District has recently approved a contract with the Bureau of Reclamation for repayment of \$4 million to be expended for the rehabilitation and betterment of the Carlsbad project.

The history of the Carlsbad irrigation project is pertinent to the bill being considered by the committee, but the Brantley project is not basically an irrigation project.

It would yield some benefits to irrigation, but it is primarily for flood protection. At the present time, terminal storage capacity available to the Carlsbad Irrigation District is about 34,000 acre-feet in McMillan Reservoir and 5,000 acre-feet in Avalon Reservoir, for a total of 39,000 acre-feet.

With the Brantley project, the district would have 40,000 acre-feet of storage capacity in Brantley Reservoir and 5,000 acre-feet in Avalon Reservoir, for a total of 45,000 acre-feet.

This amount is about equal to the 44,600 acre-feet of terminal storage capacity that the district had under the 1947 conditions as defined by the Pecos River compact.

Furthermore, construction of the Brantley project would allow the clearing of salt cedar from the McMillan Delta that was authorized by Public Law 88-594 and that clearing would salvage an estimated 12,860 acre-feet of water annually that would be available for irrigation in Texas and New Mexico.

Public Law 88-594 conditioned the clearing of the salt cedar in the McMillan Reservoir delta upon measures to replace any Carlsbad Irrigation District terminal storage that would be lost as a result of the clearing and consequent accelerated sedimentation.

The allocation of costs set out in the Bureau of Reclamation's feasibility report perhaps best demonstrates the principal purpose of the Brantley project. The total construction cost of \$45.6 million (excluding interest during construction) is allocated \$27.7 million to safety of dams; \$11.7 million to flood control; \$5.3 million to recreation and fish and wildlife; and \$0.9 million to irrigation. Less than 2 percent of the project cost is allocated to irrigation.

As a part of its safety of dams program undertaken subsequent to the Montana flood of June 1964, the Bureau of Reclamation made a detailed examination of several of the 220 dams under its jurisdiction.

Using the most current meteorologic and hydrologic data, the Bureau made a realistic evaluation of potential flood conditions on the Pecos River and tributaries above McMillan and Avalon Dams.

The study showed that the potential flood would exceed existing spillway capacities at both McMillan and Avalon Dams and cause the dams to be overtopped. This overtopping of an earth-fill dam by a flood can result in a catastrophic failure resulting in far greater loss of life and property damage than the same flood would cause under natural conditions.

The collapse of the South Fork Dam which resulted in the Johnstown flood of 1889 is perhaps the best known example of such failure. This catastrophic failure of a dam 70 feet high, impounding only about 11,000 acre-feet of water took 2,100 lives in the vicinity of Johnstown, Pa., about 15 river-miles downstream from the dam.

Even without failure of the existing dams, the city of Carlsbad and the rural area in the vicinity from the Brantley Dam site to Red Bluff Reservoir in Texas are subject to damaging floods on the Pecos River.

The flood of August 1966 reemphasized the need for flood control. The channel capacity at Carlsbad is about 50,000 cubic feet per second; according to the U.S. Geological Survey, the 1966 flood reached a peak of about 54,400 cubic feet per second at the Carlsbad gage.

The Corps of Engineers estimated the flood damages at, and in the vicinity of Carlsbad, to be a little over \$1 million (1966 prices). During the flood two lives were lost. The Corps of Engineers has estimated that the standard project flood would cause damages in the Carlsbad area amounting to \$27.5 million based on 1964 prices and that the average annual reduction in flood damages resulting from the construction of the Brantley project would be \$967,600 (1971 prices).

Construction of the Brantley project also would yield major recreation and fish and wildlife benefits. The recreation benefits are estimated at \$297,200 annually and fish and wildlife benefits are estimated at \$157,700 annually for a total of \$454,900.

These benefits would result from the creation of permanent pools in Brantley Reservoir and the existing Alamogordo Reservoir and a seasonal pool for migratory birds in the existing McMillan Reservoir. The water supply to create and maintain these pools would be supplied from irrigation water rights that would be acquired by the Bureau of Reclamation for the reason that the lands would be inundated by storage of water in Brantley Reservoir for flood control.

It is contemplated that the rights would be transferred in accordance with New Mexico law from the present irrigation purpose to recreation and fish and wildlife purposes.

Appropriate agencies of the State of New Mexico have made commitments to repay the local interests' share of construction costs allocated to recreation and fish and wildlife purposes and to pay the cost of operation, maintenance, and replacement related to those purposes and to assume responsibility for the necessary wildlife protection and management required by the development.

The Bureau of Reclamation has estimated that McMillan and Avalon Dams could be modified to provide for safe passage of the inflow design flood by increasing the capacity of the McMillan spillway from 60,000 c.f.s. to 227,000 c.f.s. and the Avalon spillway from 126,000 c.f.s. to 456,000 c.f.s. at a cost of \$27.7 million (exclusive of interest during construction).

However, this approach, in lieu of the construction of the Brantley project, would leave the city of Carlsbad and the adjacent rural areas in jeopardy of flood damage estimated to average about \$1 million annually and would not provide the replacement capacity needed to allow the clearing of the delta under the terms of Public Law 88-594 and to prolong the life of the district's terminal storage.

The Bureau of Reclamation report states:

As construction of Brantley Dam would also provide these additional needed benefits, it is concluded the only feasible method of rehabilitating McMillan and Avalon Dams is to replace the existing McMillan Dam at the Brantley site.

The State of New Mexico concurs in this conclusion.

The Bureau of Reclamation report states:

An essential concept of the Brantley Project is the irrevocable obligation of the United States for personal and property safety inherent in the construction of a new federal dam or the hazards which might develop at existing dams.

In consideration of this obligation, the report recommends that an amount of the Brantley project construction cost equal to the estimated cost of modifying McMillan and Avalon Dams for safety of dams reasons be nonreimbursable.

The June 12, 1969, report on the Brantley project from the Commissioner of Reclamation to the Secretary of the Interior states:

The "safety of dams" feature serves no other basic purpose than the protection of lives and property from a potentially disastrous flood situation. In view of the national policy as to nonreimbursability of the costs of major flood storage facilities and of the moral obligation of the United States as the constructor and owner of dams of uncertain structural integrity, it is proposed that the federal government recognize and accept the responsibility for the safety of McMillan and

Avalon Dams and that the costs of the "safety of dams" feature be nonreimbursable.

This report was adopted and approved by the Assistant Secretary of the Interior on July 2, 1969. I do not understand why the Department now finds it needs more time to submit a report to Congress.

The proposed principles and standards recently published in the Federal Register make it clear that it is not intended that projects for which feasibility reports are complete, or even nearly complete, should be reevaluated. Mr. Chairman, I make specific reference to paragraph I. E. appearing at page 24150, volume 36, No. 245 of the December 21, 1971 publication of the Federal Register.

Mr. Chairman, it would seem to be imprudent, particularly where unsafe structures and hazard to life and property are involved, to spend additional years reevaluating feasibility reports and reconsidering Federal policy with respect to unsafe Federal structures.

The Bureau of Reclamation feasibility report shows a benefit cost ratio of 1.07 on the basis of a 100-year period of analysis including both direct and indirect benefits. A letter dated January 12 from the Albuquerque office of the Bureau of Reclamation to me shows for a 50-year analysis—direct benefits only—a benefit cost ratio of 1.04. Mr. Chairman, with your permission I should like to submit for the record of the hearing a copy of that letter.

Senator CHURCH. Are those two benefit cost ratios upon the entire cost of the project including a nonreimbursable part?

Mr. REYNOLDS. Yes, Mr. Chairman.

Mr. Chairman, with your permission, I would like to submit for the committee files a copy of the Bureau of Reclamation's feasibility report on the Brantley project approved and adopted by the Assistant Secretary of the Interior on July 2, 1969, along with August 1971 supplemental data reevaluating the report.

Senator CHURCH. Very well.

Mr. REYNOLDS. The Bureau of Reclamation proposal that the cost of making McMillan and Avalon Dams safe be nonreimbursable is consistent with the policy followed in the 1954 act appropriating money for work to enlarge the spillway of Alamogordo Reservoir. The State of New Mexico concurs in the proposal made by the Commissioner of Reclamation and endorsed by the Assistant Secretary of the Interior.

(The data referred to follows:)

[From the "Federal Register," Dec. 21, 1971, v. 36, No. 245, P. II, p. 24150]

"WATER RESOURCES COUNCIL—PROPOSED PRINCIPLES AND STANDARDS FOR PLANNING WATER AND RELATED LAND RESOURCES"

E. SCHEDULE FOR APPLYING STANDARDS

After approval of the Principles by the President, the principles and standards will apply to all levels of planning studies except projects which have been authorized or have been submitted to the 92d Congress for authorization prior to the approval date. The principles and standards shall be applied to ongoing planning studies, provided that the responsible agency or entity may request an exception from the Water Resources Council for those studies nearing completion. Plans, programs, or projects which have been authorized by the Congress and on which actual construction or other similar activity has not commenced within 5 years after authoriaztion will be reviewed in accordance with these principles and standards.

U.S. DEPARTMENT OF THE INTERIOR,  
ALBUQUERQUE DEVELOPMENT OFFICE,  
Albuquerque, N. Mex., January 12, 1972.

S. E. REYNOLDS,  
State Engineer, State Capitol Building,  
Santa Fe, N. Mex.

DEAR STEVE: In response to your request during our recent telephone conversation I am enclosing a summary of benefits and costs analyses made for the Brantley Project with the following different assumptions, all based on 5% percent interest and July 1971 price levels.

1. August 1971 reevaluation. This evaluation was made for 100 years using both direct and indirect benefits and no indexing of recreation or fish and wildlife benefits.

2. The same as condition 1 except the analyses is for 50 years.

3. 100 and 50-year analyses using total benefits with the recreation and fish and wildlife benefits indexed the same as costs. This index is 1.4.

4. 100-year and 50-year analyses using direct benefits only, with other assumptions the same as analyses 1 and 2. Note that the only difference in total benefits is the \$8,000 per year of indirect benefits reduction for irrigation.

5. Same as 4 except fish and wildlife and recreation benefits indexed the same as costs.

The 50-year analyses reflects higher annual equivalent costs because of the shorter amortization period; higher safety of dams benefits which are based on equivalent costs; lower recreation benefits because of the staging aspects; and lower induced costs because the higher right-of-way acquisition costs account for a higher percentage of the total economic loss resulting from retiring productive irrigated land in the reservoir area.

Also enclosed, for your information, is a copy of the analyses made in our Regional Office concerning the impact in the Carlsbad area of breaching McMillan Dam as an alternative for construction of Brantley Dam.

Let me know if I can be of further help.

Sincerely,

R. W. FIFE, Area Planning Officer.

Enclosure.

BRANTLEY PROJECT—BENEFITS AND COST SUMMARY (5% PERCENT)

Item	Total benefits				Direct benefits only			
	August 1971 reevaluation (July 1971 costs)		Recreation and fish and wildlife benefits indexed same as construction (1.4)		Recreation and fish and wildlife benefits not indexed (July 1971 costs)		Recreation and fish and wildlife benefits indexed same as construction (1.4)	
	100-year period	50-year period	100-year period	50-year period	100-year period	50-year period	100-year period	50-year period
<b>BENEFITS</b>								
Irrigation.....	\$70,000	\$70,000	\$70,000	\$70,000	\$62,000	\$62,000	\$62,000	\$62,000
Flood control.....	967,600	967,600	967,600	967,600	967,600	967,600	967,600	967,600
Safety of dams.....	1,576,200	1,691,200	1,576,200	1,691,200	1,576,200	1,691,200	1,576,200	1,691,200
Recreation:								
Brantley.....	221,000	220,000	309,400	308,000	221,000	220,000	309,400	308,000
Alamogordo.....	76,200	76,200	106,700	106,700	76,200	76,200	106,700	106,700
Fish and wildlife:								
Brantley.....	84,300	84,300	118,000	118,000	84,300	84,300	118,000	118,000
Alamogordo.....	73,400	73,400	102,800	102,800	73,400	73,400	102,800	102,800
<b>Total.....</b>	<b>3,068,700</b>	<b>3,182,700</b>	<b>3,250,700</b>	<b>3,364,300</b>	<b>3,060,700</b>	<b>3,174,700</b>	<b>3,242,700</b>	<b>3,356,300</b>
<b>COSTS</b>								
Annual equivalent investment.....	2,701,700	2,890,700	2,701,700	2,890,700	2,701,700	2,890,700	2,701,700	2,890,700
Operation, maintenance, and replacement.....	96,200	96,200	96,200	96,200	96,200	96,200	96,200	96,200
Induced.....	80,000	70,300	80,000	70,300	80,000	70,300	80,000	70,300
<b>Total.....</b>	<b>2,877,900</b>	<b>3,057,200</b>	<b>2,877,900</b>	<b>3,057,200</b>	<b>2,877,900</b>	<b>3,057,200</b>	<b>2,877,900</b>	<b>3,057,200</b>
Benefit-cost ratio.....	1.07 (1.066)	1.04	1.13	1.10	1.06 (1.064)	1.04	1.13	1.10

Mr. REYNOLDS. It has occurred to me, Mr. Chairman, that it would be of interest to know, in consideration of S. 50, the magnitude of the problems discovered in the Bureau of Reclamation's safety of dams investigation the Bureau was not able to furnish such information, but each of the 17 western States collaborated in the investigation and we were able to obtain information from appropriate officials in those States.

Our inquiries reveal that unsafe dams were found in six States: Idaho, Montana, Oklahoma, Wyoming, Utah, and New Mexico.

The estimated cost of making these structures safe is about \$54 million. Most, but probably not all, of these costs have been indexed to 1971 prices. Most of this cost, \$28 million at 1971 prices, is the amount needed to provide adequate spillway capacity at McMillan and Avalon reservoirs in New Mexico.

Mr. Chairman, I suggest, considering the large number of dams that the Bureau has built and has under its jurisdiction, and the paucity of information at the time many were constructed, that the Bureau might be justifiably proud of the record we have found. I would like to submit for the record a copy of the summary of the results of our inquiries.

Senator CHURCH. Very well.

(The material referred to follows:)

MEMORANDUM, JANUARY 21, 1972

To S. E. Reynolds, State engineer.

From David P. Hale, interstate stream engineer.

Subject: Safety of dams program—Bureau of Reclamation.

On August 13, 1965 Floyd Dominy, Commissioner of Reclamation, wrote Governor Campbell requesting that the State collaborate with the Bureau of Reclamation in its "safety of dams" investigation. New Mexico concurred in the Bureau of Reclamation proposal and assisted them in their inventory for the state. (See Attachment 1.)

The inventory was evidently accomplished in the 17 western states but no report on Bureau findings has been made. Evidently, State water officials were advised in an informal way if there was a safety problem at a Reclamation dam in their state and studies were started to remedy the problem.

I have talked to water officials from the 17 western states to determine to their knowledge which Reclamation dams require work to make them safe under new Bureau standards and what the cost would be. The following is a summary of my survey.

Arizona: contact Ben Scott—No problem.

California: contact, Cliff Cortwright—No problem.

Colorado: contact, Clarence Kuiper—No problem.

Idaho: contact, Keith Higginson—American Falls Dam on the Snake River, Minidoka Project. Report available on required replacement of dam. Concrete in the dam deteriorating because of chemical reaction between the alkalis in the cement and the aggregate used in the dam construction. Cost \$10,560,600. (See Attachment 2.)

Kansas: contact, John Dewey—No problem.

Montana: contact, John Acord—(1) Tiber Dam on Marias River Lower Marias Unit Missouri River Basin had spillway settlement problem. The spillway has been rehabilitated. Emergency cost charged to Missouri Basin Fund and not allocated at this time. (2) Gibson Dam on Sun River, Sun River Project. Dam topped in 1964. Cost to improve spillway \$894,000. Proposals include redesign of project in three different ways these are designated 1) Lower Sun Butte \$46,340,000, 2) Castle Reef-breach Gibson and replace with Castle Reef \$63,840,000, 3) Lowry-rehabilitate Gibson cost \$5,660,000 and build Lowry Dam \$59,820,000 total cost.

Nebraska: contact, Dan Jones—No problem.

Nevada: contact, Roland Westergard—No problem.

New Mexico: contact, S. E. Reynolds—McMillan and Avalon Dams, Carlsbad Project, insufficient spillway capacity. Details and costs included in Bureau of Reclamation Brantley Project Report.

North Dakota: contact, Milo Hoisveen—No problem.

Oklahoma: contact, Forrest Nelson—Altus Dam on the North Fork of Red River. W. C. Austin project is slated for modification of spillways, reservoirs, and dike system as the Retrop project. Reason for rehabilitation according to project report is to (1) insure the safety of these structures during the occurrence of a design flood computed from present day data and analysis criteria and (2) extend the economic life of Altus Reservoir from the present life of 46 years to a total of 100 years by providing additional reservoir capacity for the accumulation of sediment. Cost of project without Fish and Wildlife enhancement \$9,214,000. Safety of dams portion is \$5,607,000. All project costs proposed as non-reimbursable.

Oregon: contact, Chris Wheeler—Warm Springs Dam on Middle Fork of the Malheur River, Vale Project has a concrete spalling problem in spillway. Bureau restricts storage.

Cold Springs Dam, an offstream dam, Umatilla Project needs to have a spillway constructed. Off channel dam with no spillway.

No cost estimate available on the two above projects. No safety problem at this time if restricted in operation.

South Dakota: contact, Joe Grimes—Belle Fourche Dam on Owl Creek, Belle Fourche Project, does not have flat enough upstream and downstream slopes according to current stability criteria. Bureau restricts storage for safety reasons.

Texas: contact, Lewis Seward—No problems.

Utah: contact, Dan Lawrence—No problems.

Washington: contact, Ed Garley—Conconully Dam on Salmon Creek—Okano-gan Project was found to have inadequate spillway capacity and about \$1,000,000 was spent under emergency funding to rehabilitate the structure. This improvement was accomplished as a first phase of rehabilitation of the project which is the subject of an ongoing feasibility study. Total estimated cost of project rehabilitation is \$17,000,000.

Wyoming: contact, Floyd Bishop—Buffalo Bill Dam on the Shoshone River, Shoshone Project has spillway problems. Cost to repair spillway \$1,940,000. Cost to enlarge project to take full advantage of site \$4,165,000.

Project data for the referenced Bureau of Reclamation projects is appended.

My inquiries disclosed that seven Bureau of Reclamation dams were apparently not adequate under possible flood threat. These structures as well as the cost to make them adequate is shown on the attached table.

Other dams which may require future work because of safety problems but which apparently are not as critical and can be used safely by limiting storage include the Belle Fourche Dam, Belle Fourche Project in South Dakota and Warm Springs Dam, Vale Project and Cold Springs Dam, Umatilla Project both in Oregon.

## U.S. BUREAU OF RECLAMATION STORAGE DAMS WITH INADEQUATE SPILLWAYS OR OTHER DEFICIENCIES

State	Project	Dam	River	Problem	Cost to remedy	Cost for proposed project development
Idaho.....	Minidoka.....	American Falls.	S Snake.....	Deterioration of concrete (dam).	\$15,179,000	<sup>1</sup> \$32,507,000
Montana.....	Sun River.....	Gibson.....	Sun.....	Inadequate spillway. Topped in 1964.....	894,000	<sup>2</sup> 46,430,000 <sup>3</sup> 63,840,000 <sup>4</sup> 59,800,000 <sup>5</sup> 45,605,000
New Mexico..	Carlsbad.....	McMillan and Avalon.	Pecos.....	Inadequate spillways.....	27,680,000	
Oklahoma....	W. C. Austin..	Altus.....	Red River <sup>6</sup>	Inadequate spillway.....	5,607,000	<sup>7</sup> 9,214,000
Wyoming.....	Shoshone.....	Buffalo Bill	Shoshone.....	Spillway needs repair.....	1,940,000	<sup>8</sup> 4,165,000
Utah <sup>10</sup> .....	Hyrum.....	Hyrum.....	Little Bear.....	Inadequate spillway.....	2,948,000	( <sup>9</sup> )
Total.....					54,248,000	137,831,700 to 155,341,700

<sup>1</sup> Includes enlarging storage capacity.

<sup>2</sup> Possible projects, Lower Sun Butte.

<sup>3</sup> Castle Reef.

<sup>4</sup> Lowry.

<sup>5</sup> Brantley project, replace McMillan with Brantley Dam, retain Avalon.

<sup>6</sup> North Fork.

<sup>7</sup> Retrop project.

<sup>8</sup> Enlarge project to take full advantage of site.

<sup>9</sup> No additional work planned.

<sup>10</sup> From additional information sources.

U.S. DEPARTMENT OF THE INTERIOR,  
BUREAU OF RECLAMATION,  
Washington, D.C., August 13, 1965.

HON. JACK M. CAMPBELL,  
Governor of New Mexico,  
Santa Fe, N. Mex.

DEAR GOVERNOR CAMPBELL: During the past year the Bureau of Reclamation has been in the process of reviewing conditions at more than 220 storage dams for which it has responsibility in the 17 Western States. The survey covers such matters as the status of operation and maintenance instructions and the adequacy of communication facilities. Of primary importance, however, is a reconsideration of the adequacy of spillways. The great storm on the west coast last winter, and the recent floods in the Platte and Arkansas River Basins have increased our concern and our appreciation of the trust that has been placed in us as public officials who are responsible for the safety of storage dams.

Several cases have been found thus far in the survey where dams constructed by Reclamation in the decades before World War II have spillways which do not meet present-day standards. Today our meteorologic and hydrologic records are much more reliable and the recognized methods for determining spillway capacities are greatly improved. In developing remedial plans, dams constructed by others above Reclamation dams must be evaluated. These structures, like the older Reclamation structures, were designed using the best information and technology available at that time. However, in the past 20 years recordbreaking storms have occurred in numerous places. In fact, runoff records were exceeded in several parts of the West within the past year. The June 1964 floods in Montana breached two earth dams with disastrous results and a concrete dam was overtopped but without damage.

The existence of a storage dam with an inadequate spillway or other deficiency poses a serious threat, not only to the area immediately below, but to any storage dam in the flood path. The possibility of such a compound disaster occurring is real and most disturbing.

To explore this situation, we suggest as a first step, that we collaborate in making an inventory of storage structures above existing and proposed Reclamation dams. When this has been completed, development of plans for a joint review of questionable structures could be considered. If you concur with this proposal, we will request Regional Director Leon W. Hill of Amarillo, Texas, to arrange for a meeting with such representatives as you may name.

Sincerely yours,

FLOYD E. DOMINY, *Commissioner.*

U.S. DEPARTMENT OF THE INTERIOR,  
BUREAU OF RECLAMATION,  
Amarillo, Tex., September 23, 1965.

Mr. STEVE E. REYNOLDS,  
State Engineer, State Capitol Building, Santa Fe, N. Mex.

DEAR STEVE: In accordance with Commissioner Dominy's August 13 letter to Governor Campbell and your September 1 reply regarding the proposed inventory of storage dams, I suggest an initial meeting be held in Santa Fe on October 4 or 5 to plan accomplishment of the inventory.

Please advise if either of these days is satisfactory with you, or suggest a convenient date. I plan to have representatives of this office and our Area Engineer in Albuquerque attend the meeting.

Sincerely yours,

LEON W. HILL, *Regional Director.*

SEPTEMBER 1, 1965.

Mr. FLOYD DOMINY,  
Commissioner, Bureau of Reclamation,  
Department of the Interior,  
Washington, D.C.

DEAR FLOYD: Governor Campbell has asked me to reply to your letter of August 13 and to advise you that he concurs in your proposal that we collaborate in making an inventory of storage structures above existing and proposed Reclamation dams. I will be pleased to work with Leon in carrying out your suggestions.

Sincerely yours,

S. E. REYNOLDS, *State Engineer.*

SEPTEMBER 27, 1965.

Mr. LEON W. HILL,  
Regional Director,  
Amarillo, Tex.

DEAR LEON: Reference is made to your letter of September 23, 1965 which suggests a meeting in Santa Fe to discuss the proposed inventory of storage dams.

Tuesday, October 5 at 9:30 a.m. in this office is a satisfactory time and place for the meeting.

Best regards.

Sincerely,

S. E. REYNOLDS, *State Engineer.*

Mr. REYNOLDS. Representatives of the State of New Mexico have consulted with representatives of the State of Texas on the project plan and the legislation that would authorize it.

In a spirit of good will and comity between the States of New Mexico and Texas, Gov. Preston Smith has advised Senator Jackson by letter dated January 4, 1972, that the State of Texas will not oppose the construction and operation of the Brantley project if the seven conditions set out in his letter are met.

In order that the record will be complete and clear, each of the seven conditions of Governor Smith's letter are quoted and commented on below.

1. The Brantley Dam and Reservoir will be operated solely by the United States Bureau of Reclamation in compliance with the terms and spirit of the Pecos River Compact, New Mexico and Texas, 1949;

The Bureau of Reclamation report states (page 83):

It is anticipated that the Carlsbad Irrigation District would operate Brantley Reservoir, maintain the temporary pool in Lake McMillan for wildlife enhancement, and provide service to the full project area.

Nonetheless, the State of New Mexico finds that it is not unreasonable for Texas to ask that the project be operated by a Federal agency to insure that Texas' interests in the water supply of the Pecos River

are adequately protected. Accordingly, New Mexico endorses the provisions of S. 50 which would authorize the Secretary of the Interior to construct, operate and maintain the Brantley project in accordance with the plan set out in the report of the Secretary on the project and the Pecos River compact.

2. Not more than 40,000 acre-feet of water, in excess of 2,000 acre-feet of combined inactive and dead storage, will be impounded in Brantley Reservoir for water-supply purposes at any time, and all inflows will be passed when the water-supply storage level is reached, except waters which are declared "unappropriated flood waters";

3. No "unappropriated flood waters" will be stored in the sediment reserve or other storage space until such waters have been determined by the Pecos River Commission;

The project report allocates the 520,000 acre-feet of storage capacity in Brantley Reservoir as follows:

Flood control, 376,000 acre-feet; sediment reserve, 102,000 acre-feet; irrigation, 40,000 acre-feet; and inactive or dead storage for a fish and wildlife pool, 2,000 acre-feet.

The project report contemplates that when the space allocated to the permanent pool and irrigation (42,000 acre-feet total) is filled, the inflow to the reservoir and water in excess of 42,000 acre-feet stored for flood control would be passed through the gates at Brantley Dam as rapidly as consistent with downstream tributary inflows; except that waters determined by the Pecos River Compact Commission to be "unappropriated flood waters" (as that term is defined in the Pecos River compact) may be stored in the sediment reserve capacity.

Conditions 2 and 3 as quoted above appear to be completely consistent with the operation contemplated by the Bureau of Reclamation's Brantley project report and are therefore, acceptable to New Mexico.

4. The State of New Mexico and its Carlsbad Irrigation District will maintain the Avalon Reservoir spillway and down stream channel conditions of the Pecos River so that flood waters temporarily stored in Brantley Reservoir may be continuously evacuated at Maximum channel capacity in accordance with flood protection rules consistent with downstream tributary inflows until Brantley Reservoir is evacuated to 40,000 acre-feet of conservation storage;

It is pertinent that New Mexico's interests require that channel conditions below Brantley Reservoir be maintained for the reason that there is substantial uncontrolled drainage below Brantley Reservoir, particularly Rocky Arroyo which discharges to the Pecos River between the Brantley Dam site and Avalon Reservoir, and Dark Canyon which discharges to the Pecos River just below Carlsbad.

It is our understanding that Texas wants the manual on Brantley project flood control regulations to be prepared by the Corps of Engineers pursuant to the proposal set out at page 80 of the Bureau of Reclamation's Brantley project report, to specify that flood storage will be released at the maximum channel capacity, consistent with downstream tributary flood inflows, until Brantley Reservoir is evacuated to 40,000 acre-feet of water supply storage.

This operation would be consistent with the Bureau report and we have no objection to such a condition being established in the manual to be prepared by the Corps of Engineers.

5. The McMillan Dam will be operated to insure that no more than 4,500 acre-feet of water will be impounded as seasonal storage, October through January, for the benefit of propagation of water fowl and that during the period

February through September, the outlet gates will be maintained fully open to assure complete evacuation of all storage, drainage of McMillan Delta, and passage of all inflows;

This condition is consistent with the operation proposed in the Bureau of Reclamation report on New Mexico concurs.

6. New Mexico and Texas agree to cooperate diligently to the end that the water salvage work that can be done in the McMillan Delta under the authorization of Public Law 88-594 is completed concurrent with the completion of the Brantley Dam and Reservoir;

The Bureau of Reclamation report estimates that 12,860 acre-feet of water could be salvaged by clearing salt cedar from the delta of McMillan Reservoir as authorized by Public Law 88-594. New Mexico agrees that this authorized work should be completed concurrent with the completion of the Brantley Dam and Reservoir project and will cooperate to that end.

7. The State of New Mexico gives its assurances that all groundwaters withdrawn from bank, shallow or deep storage by pumping or otherwise, which diminish the flow of the Pecos River, shall be accounted as a part of the New Mexico apportionment in accordance with the Pecos River Compact.

The term "Pecos River Basin" as it is used in the Pecos River compact means all of the area which contributes surface water to the stream or its tributaries, and all of the area which contributes groundwater accretions to the stream.

In other words, the basin includes all contributing drainage areas, both from surface and groundwater sources. Accordingly, as we understand condition No. 7, it is completely consistent with the Pecos River compact and with that understanding, New Mexico gives the assurance sought.

On behalf of the State of New Mexico, I wish to express our appreciation of the spirit of good will of Governor Smith's letter.

It is my view that each of the seven conditions set out in Governor Smith's letter is provided for in the Pecos River compact, the Bureau of Reclamation Brantley project report or the terms of the proposed legislation and, therefore, that no amendments to the bill are required to implement these conditions.

At the Interstate Stream Commission hearing on the Brantley project in Carlsbad, N. Mex., on October 13, 1969, the Pecos River Pumpers Association advised that the association is unalterably opposed to the construction of Brantley Dam unless its members receive concrete assurance that their rights can and will be protected.

The association represents about 20 people owning rights to divert the direct flows of the Pecos River in a reach about 40 miles in length extending from a little above Dexter to Artesia.

The upper end of this reach is about 160 river miles below Alamo-gordo Reservoir, the upstream storage for the Carlsbad Irrigation District, and the lower part of the reach is about 30 miles above Mc-Millan Dam.

Thus, we have the apparently anomalous situation of water right owners objecting to the construction of a reservoir below their points of diversion.

The base flow of the Pecos River in the reach relied upon by the Pecos pumpers is sometimes inadequate for all of their requirements and often contains a concentration of dissolved solids that makes it

marginally usable, particularly for planting in late March and early April. For these reasons the Pecos pumpers have relied heavily on releases from Alamogordo Reservoir.

As I understand their position, the Pecos River pumpers believe that releases from Alamogordo Reservoir to fill McMillan Reservoir have not been made in the winter months because of the need to reserve McMillan capacity for flood control and for storing for irrigation the inflows that arise below Alamogordo Reservoir.

The pumpers are concerned that, if Brantley Reservoir is constructed to a total capacity of 520,000 acre-feet, adequate flood control capacity would be available and releases from Alamogordo Reservoir would be made in the winter to fill the 40,000 acre-feet of storage capacity allocated to the Carlsbad Irrigation District in Brantley Reservoir.

Releases from Alamogordo Reservoir in the winter instead of during the irrigation season, as such releases have most frequently been made in the past, would deny the Pecos pumpers the opportunity to divert water from the releases for irrigation of their farms.

In fact, the record reflects that flood control has never been a criterion for the operation of McMillan Reservoir and, under the operation set forth in the Bureau of Reclamation report on the Brantley project, the district would be restricted at all times to the storage of a maximum of 40,000 acre-feet in Brantley Reservoir for irrigation, except, of course, at such infrequent times as the supply is so abundant that there are "unappropriated floodwaters" as defined by the Pecos River compact.

At the present time the terminal storage capacity available to the Carlsbad Irrigation District is about 34,000 acre-feet in McMillan Reservoir and 5,000 acre-feet in Avalon Reservoir, for a total of 39,000 acre-feet.

With the Brantley project, the district would have 40,000 acre-feet in Brantley and 5,000 acre-feet in Avalon Reservoir for a total of 45,000 acre-feet.

This small increase in the Carlsbad Irrigation District terminal storage capacity that would result from the construction of the Brantley project would give little, if any, incentive or opportunity to change the operation of Alamogordo Reservoir.

It would continue to be in the district's best interests to make releases from its upstream storage (Alamogordo Reservoir) only after the water in its terminal storage has been used up and there is a current or early demand for water for irrigation.

In their statement presented to the Interstate Stream Commission, the pumpers emphasized that in 1967 no releases of water from Alamogordo Reservoir were made until April 29, with the result that the pumpers were forced to use salty water for their preplant irrigation of cotton and little or no water was available for the irrigation of alfalfa hay on their farms.

The statement expressed the view that this late release was designed by the officials of the Carlsbad irrigation district to minimize the use of water by the Pecos River pumpers. In fact, the record reflects that in about 75 percent of the years of record releases were made from Alamogordo Reservoir in late March and early April for use on Carlsbad irrigation district lands.

The unusually late release in 1967 can most reasonably be attributed to the fact that there was an unusual flood in August of 1966, which filled the district's downstream storage capacity so that in the spring of 1967, there was no need for a release from Alamogordo Reservoir until the water in McMillan and Avalon Reservoirs had been used up.

It is axiomatic that to maximize the yield of a reservoir system the downstream reservoirs must be drained first, and the 1967 operations of the district reservoirs simply reflected good management in the interest of the district water users.

I submit that the attack of the Pecos River Pumpers Association on the Brantley project proposal is misdirected. It is clear that the construction and operation of the Brantley project downstream from the Pecos River pumpers could not affect the pumpers' rights and that those rights are fully protected by existing law and court decrees founded on the doctrine of prior appropriation.

The 1933 decree in *United States v. Hope Community Ditch, et al.* (No. 712 Equity) established the relative priorities of the Pecos River pumpers and the Carlsbad irrigation district. The earliest direct flow rights of the district carry a priority date of 1887. McMillan Reservoir has a priority date of 1893. The earliest priority date of the Pecos River pumpers is 1900.

Alamogordo Reservoir was decreed a February 1906 priority date. Only about 800 acres of the roughly 3,600 acres of Pecos River pumpers' rights have priority dates earlier than February 1906. Under the doctrine of prior appropriation, those senior appropriations do not, of course, have a right to water stored in Alamogordo Reservoir under its 1906 priority date at times when the remaining flow of the river, including the discharge from underground sources, was sufficient to meet the requirements of those senior rights.

The quantity and quality of water available to the Pecos River pumpers have deteriorated since 1937, the year that Alamogordo Reservoir was completed. But this deterioration has resulted principally from the effects of ground-water pumping established in the Roswell underground water basin after the priority dates of most of the Pecos River pumpers, and not from the operation of Alamogordo Reservoir.

Prior to the development of ground-water usage in the Roswell basin, which began about the turn of the century, the natural discharge from the aquifers to the river in the reach upon which the Pecos pumpers rely was about 285 cubic feet per second. The aggregate diversion right of the Pecos River pumpers is 141 cubic feet per second.

More than one-half of the pumpage from the Roswell underground water basin has been established since March 11, 1926. All but 46 acres of the 3,588 acres of Pecos River pumper's rights were established before that date.

Were it not for the effects of ground-water pumping established after March of 1926, the base flow of the Pecos River from ground-water discharge would be adequate, with respect to both quantity and quality, to satisfy virtually all of the rights of the Pecos River pumpers.

As a matter of fact, the records show that the operation of Alamogordo Reservoir has alleviated the effects of the diminishing quality and quantity of ground-water discharge on the water supply of the Pecos River pumpers.

The State engineer, following a 1958 ruling of the New Mexico Supreme Court, has allowed Pecos River pumpers whose water supply has been diminished as a result of junior ground-water appropriations to recover their supply by drilling wells.

Thus far, 1,553 acres, or about 43 percent of the Pecos River pumpers' rights, have been supplemented by ground water under the reasoning of that case. Cooperative action among the pumpers might make it possible to furnish supplemental ground water to the balance of the acreage.

In summary, it appears that the rights of the Pecos River pumpers are fully protected by existing law and that they cannot reasonably object to the historic operation of Alamogordo Reservoir or the construction and operation of the Brantley project in the manner proposed in the Bureau of Reclamation report.

The protection of life and property in and near the city of Carlsbad from floods and from the hazards of the failure of existing dams is so urgently needed that the opposition of the Pecos River pumpers should not be allowed to delay the authorization of the Brantley project.

In conclusion, I urge this distinguished committee's early and favorable action on S. 50 to authorize the Brantley project and I express appreciation on behalf of the State of New Mexico for this opportunity to present the views of the State on the bill.

Senator CHURCH. Thank you, Mr. Reynolds, for your excellent statement.

Senator Anderson.

Senator ANDERSON. This witness has been before this committee representing the people of New Mexico a great many times and has done a great deal of work and many studies. I have complete confidence in him.

Senator CHURCH. Thank you, Senator.

Mr. REYNOLDS. Senator, I appreciate your kind remarks. The fact that I have had a small part in the great work that you have done for the conservation and use of the natural resources in the United States is for me, a source of pride.

Senator CHURCH. I, of course, want to join in that. Senator Anderson has played as large a role as any Member of the Senate, perhaps the largest role, both in the conservation of our water resources in the West and to conserve the beauty of the West.

I take it, Mr. Reynolds, that—am I correct in the assumption—that it is just the Pecos River pumpers that oppose this project? Are there others in New Mexico that oppose this project?

Mr. REYNOLDS. None that I know of.

Senator CHURCH. And you are satisfied that the rights of the Pecos River pumpers would not be jeopardized in any way by the construction of this project, is that correct?

Mr. REYNOLDS. That is correct, Mr. Chairman. I perhaps did not answer your first question correctly.

There are others I understand who will appear in support of the Pecos River pumpers' position.

Senator CHURCH. I see. I think perhaps we ought to go on and hear that position.

(Mr. Reynolds' full statement and the statement of Mr. I. J. Coury referred to by Mr. Reynolds follows:)

STATEMENT OF STEVE REYNOLDS, NEW MEXICO STATE ENGINEER

Mr. Chairman, my name is S. E. Reynolds. I am the New Mexico State Engineer and Secretary of the New Mexico Interstate Stream Commission. I am appreciative of this opportunity to present to this distinguished Committee the views of the State of New Mexico on S. 50, a bill that would authorize the Brantley Dam and Reservoir Project on the Pecos River in New Mexico.

Works for the development of irrigation on the Carlsbad Project were initiated in 1887 by private interests. The irrigation system, including McMillan and Avalon Dams, was completed in 1893. In that year, Avalon Dam was washed out by floods and it was necessary to blast out a large segment of the embankment of McMillan Dam to save that structure. The dams were repaired but Avalon Dam was again destroyed by floods in 1904 and the project was without irrigation water during 1905.

The Pecos Water Users Association was organized in 1905 and the Association entered a contract with the Reclamation Service for rehabilitation of the project works early in 1906. Reconstruction of the dams was completed in November of 1907 and the Carlsbad Project became one of the earliest reclamation projects under the Federal Reclamation Act of June 17, 1902. Payments under the original contract began in 1910 and the last payment was made in 1946.

On November 6, 1935 the President authorized the construction of Alamogordo Dam on the Pecos River about 250 river miles upstream from Carlsbad to augment the storage facilities of the project. The Carlsbad Irrigation District contracted to repay the \$2,600,000 cost of the Alamogordo Dam and Reservoir unit in 40 equal annual installments beginning in 1946.

Floods exceeding any of record which occurred shortly after the completion of Alamogordo Dam brought about a reexamination of the criteria used in the design of the spillway for the structure. This reexamination led to the conclusion that the spillway capacity was seriously inadequate. Public Law 83-465 was enacted in 1954 to authorize the enlargement of the spillway of Alamogordo Dam at a cost of a little more than \$1.0 million on a nonreimbursable basis to accommodate floods of major proportions.

The federal investment in the Carlsbad Project, including the \$1.0 million nonreimbursable investment to insure the safety of Alamogordo Dam, is about \$5.4 million. The gross value of crops produced on project lands in the period 1907 through 1970 is about \$124 million or roughly 23 times the federal investment.

The Carlsbad Irrigation District has recently approved a contract with the Bureau of Reclamation for repayment of \$4.0 million to be expended for the rehabilitation and betterment of the Carlsbad Project.

The history of the Carlsbad Irrigation Project is pertinent to the bill being considered by the Committee, but the Brantley Project is not basically an irrigation project. It would yield some benefits to irrigation, but it is primarily for flood protection. At the present time, terminal storage capacity available to the Carlsbad Irrigation District is about 34,000 acre-feet in McMillan Reservoir and 5,000 acre-feet in Avalon Reservoir, for a total of 39,000 acre-feet. With the Brantley Project, the District would have 40,000 acre-feet of storage capacity in Brantley Reservoir and 5,000 acre-feet in Avalon Reservoir, for a total of 45,000 acre-feet. This amount is about equal to the 44,600 acre-feet of terminal storage capacity that the District had under the "1947 condition" as defined by the Pecos River Compact. Furthermore, construction of the Brantley Project would allow the clearing of salt cedar from the McMillan Delta that was authorized by Public Law 88-594 and that clearing would salvage an estimated 12,860 acre-feet of water annually that would be available for irrigation in Texas and New Mexico. Public Law 88-594 conditioned the clearing of the salt cedar in the McMillan Reservoir Delta upon measures to replace any Carlsbad Irrigation District terminal storage that would be lost as a result of the clearing and consequent accelerated sedimentation.

The allocation of costs set out in the Bureau of Reclamation's feasibility report perhaps best demonstrates the principal purpose of the Brantley Project. The total construction cost of \$45.6 million (excluding interest during construction) is allocated \$27.7 million to safety of dams; \$11.7 million to flood control; \$5.3 million to recreation and fish and wildlife; and \$0.9 million to irrigation.

As a part of its safety of dams program undertaken subsequent to the Montana flood of June 1964 the Bureau of Reclamation made a detailed examination of several of the 220 dams under its jurisdiction. Using the most current meteorologic and hydrologic data, the Bureau made a realistic evaluation of potential flood conditions on the Pecos River and tributaries above McMillan and Avalon Dams. The study showed that the potential flood would exceed existing spillway capacities at both McMillan and Avalon Dams and cause the dams to be overtopped. The overtopping of an earth fill dam by a flood can result in a catastrophic failure resulting in far greater loss of life and property damage than the same flood would cause under natural conditions. The collapse of the South Fork Dam which resulted in the Johnstown flood of 1889 is perhaps the best known example of such failure. This catastrophic failure of a dam 70 feet high, impounding only about 11,000 acre-feet of water took 2100 lives in the vicinity of Johnstown, Pennsylvania about 15 river miles downstream from the dam.

The City of Carlsbad and the rural area in the vicinity from the Brantley Dam site to Red Bluff Reservoir in Texas are subject to damaging floods on the Pecos River. The flood of August 1966 reemphasized the need for flood control. The channel capacity at Carlsbad is about 50,000 cubic feet per second; according to the U.S. Geological Survey, the 1966 flood reached a peak of about 54,400 cubic feet per second at the Carlsbad gage. The Corps of Engineers estimated the flood damages at and in the vicinity of Carlsbad to be a little over \$1.0 million (1966 prices). Two lives were lost during the flood. The Corps of Engineers has estimated that the standard project flood would cause damages in the Carlsbad area amounting to \$27.5 million based on 1964 prices and that the average annual reduction in flood damages resulting from the construction of the Brantley Project would be \$967,600 (1971 prices).

Construction of the Brantley Project also would yield major recreation and fish and wildlife benefits. The recreation benefits are estimated at \$297,200 annually and fish and wildlife benefits are estimated at \$157,700 annually for a total of \$454,900. These benefits would result from the creation of permanent pools in Brantley Reservoir and the existing Alamogordo Reservoir and a seasonal pool for migratory birds in the existing McMillan Reservoir. The water supply to create and maintain these pools would be supplied from irrigation water rights that would be acquired by the Bureau of Reclamation for the reason that the lands would be inundated by storage of water in Brantley Reservoir for flood control. It is contemplated that the rights would be transferred in accordance with New Mexico law from the present irrigation purpose to recreation and fish and wildlife purposes.

Appropriate agencies of the State of New Mexico have made commitments to repay the local interests' share of construction costs allocated to recreation and fish and wildlife purposes and to pay the cost of operation, maintenance and replacement related to those purposes and to assume responsibility for the necessary wildlife protection and management required by the development.

The Bureau of Reclamation has estimated that McMillan and Avalon Dams could be modified to provide for safe passage of the inflow design flood by increasing the capacity of the McMillan spillway from 60,000 cfs to 227,000 cfs and the Avalon spillway from 126,000 cfs to 456,500 cfs at a cost of \$27.7 million (exclusive of interest during construction). However, this approach, in lieu of the construction of the Brantley Project, would leave the City of Carlsbad and the adjacent rural areas in jeopardy of flood damage estimated to average about \$1 million annually and would not provide the replacement capacity needed to allow the clearing of the delta under the terms of PL 88-594 and to prolong the life of the District's terminal storage.

The Bureau of Reclamation Report states:

As construction of Brantley Dam would also provide these additional needed benefits, it is concluded the only feasible method of rehabilitating McMillan and Avalon Dams is to replace the existing McMillan Dam at the Brantley site. (Page 17)

The State of New Mexico concurs in this conclusion.

The Bureau of Reclamation Report also states:

An essential concept of the Brantley Project is the irrevocable obligation of the United States for personal and property safety inherent in the construction of a new Federal dam or the hazards which might develop at existing dams. (Page 17)

In consideration of this obligation, the report recommends that an amount of the Brantley Project construction cost equal to the estimated cost of modifying

McMillan and Avalon Dams for safety of dams reasons be nonreimbursable. (Page 120)

The June 12, 1969 report on the Brantley Project from the Commissioner of Reclamation to the Secretary of the Interior states:

The "safety of dams" feature serves no other basic purpose than the protection of lives and property from a potentially disastrous flood situation. In view of the national policy as to nonreimbursability of the costs of major flood storage facilities and of the moral obligation of the United States as the constructor and owner of dams of uncertain structural integrity, it is proposed that the Federal government recognize and accept the responsibility for the safety of McMillan and Avalon Dams and that the costs of the "safety of dams" feature be nonreimbursable.

This report was adopted and approved by the Assistant Secretary of the Interior on July 2, 1969.

The Bureau of Reclamation proposal that the cost of making McMillan and Avalon Dams safe be nonreimbursable is consistent with the policy followed in the 1954 act (PL 83-465) appropriating money for work to enlarge the spillway of Alamogordo Reservoir. The State of New Mexico concurs in the proposal made by the Commissioner of Reclamation and endorsed by the Assistant Secretary of the Interior.

Representatives of the State of New Mexico have consulted with representatives of the State of Texas on the project plan and the legislation that would authorize it. In a spirit of good will and comity between the States of New Mexico and Texas, Governor Preston Smith has advised Senator Jackson by letter dated January 4, 1972, that the State of Texas will not oppose the construction and operation of the Brantley Project if the seven conditions set out in his letter are met.

In order that the record will be complete and clear, each of the seven conditions of Governor Smith's letter are quoted and commented on below:

"1. The Brantley Dam and Reservoir will be operated solely by the United States Bureau of Reclamation in compliance with the terms and spirit of the Pecos River Compact, New Mexico and Texas, 1949;"

The Bureau of Reclamation Report states (Page 83):

"It is anticipated that the Carlsbad Irrigation District would operate Brantley Reservoir, maintain the temporary pool in Lake McMillan for wildlife enhancement, and provide service to the full project area."

Nonetheless, the State of New Mexico finds that it is not unreasonable for Texas to ask that the project be operated by a Federal agency to ensure that Texas' interest in the water supply of the Pecos River are adequately protected. Accordingly, New Mexico endorses the provisions of S. 50 which would authorize the Secretary of the Interior to construct, operate and maintain the Brantley Project in accordance with the plan set out in the report of the Secretary on the project and the Pecos River Compact.

"2. Not more than 40,000 acre-feet of water, in excess of 2,000 acre-feet of combined inactive and dead storage, will be impounded in Brantley Reservoir for water-supply purposes at any time, and all inflows will be passed when the water-supply storage level is reached, except waters which are declared 'unappropriated flood waters';"

"3. No 'unappropriated flood waters' will be stored in the sediment reserve or other storage space until such waters have been determined by the Pecos River Commission;"

The project report allocates the 520,000 acre-feet of storage capacity in Brantley Reservoir as follows: flood control, 376,000 acre-feet; sediment reserve, 102,000 acre-feet; irrigation, 40,000 acre-feet; and inactive or dead storage for a fish and wildlife pool, 2,000 acre-feet. The project report contemplates that when the space allocated to the permanent pool and irrigation (42,000 acre-feet total) is filled, the inflow to the reservoir and water in excess of 42,000 acre-feet stored for flood control would be passed through the gates at Brantley Dam as rapidly as consistent with downstream tributary inflows; except that waters determined by the Pecos River Compact Commission to be "unappropriated flood waters" (as that term is defined in the Pecos River Compact) may be stored in the sediment reserve capacity. Conditions 2 and 3 as quoted above appear to be completely consistent with the operation contemplated by the Bureau of Reclamation's Brantley Project Report and are, therefore, acceptable to New Mexico.

"4. The State of New Mexico and its Carlsbad Irrigation District will maintain the Avalon Reservoir spillway and downstream channel conditions

of the Pecos River so that flood waters temporarily stored in Brantley Reservoir may be continuously evacuated at maximum channel capacity in accordance with flood protection rules consistent with downstream tributary inflows until Brantley Reservoir is evacuated to 40,000 acre-feet of conservation storage."

It is pertinent that New Mexico's interests require than channel conditions below Brantley Reservoir be maintained for the reason that there is substantial uncontrolled drainage below Brantley Reservoir, particularly Rocky Arroyo which discharges to the Pecos River between the Brantley Dam site and Avalon Reservoir, and Dark Canyon which discharges to the Pecos River just below Carlsbad. It is our understanding that Texas wants the manual on Brantley flood control regulations to be prepared by the Corps of Engineers pursuant to the proposal set out at page 80 of the Bureau of Reclamation's Brantley Project Report, to specify that flood storage will be released at the maximum channel capacity, consistent with downstream tributary flood inflows, until Brantley Reservoir is evacuated to 40,000 acre-feet of water supply storage. This operation would be consistent with the Bureau report and we have no objection to such a condition being established in the manual to be prepared by the Corps of Engineers.

"5. The McMillan Dam will be operated to insure that no more than 4,500 acre-feet of water will be impounded as seasonal storage, October through January, for the benefit of propagation of water fowl and that during the period February through September, the outlet gates will be maintained fully open to assure complete evacuation of all storage, drainage of McMillan Delta, and passage of all inflows;"

This condition is consistent with the operation proposed in the Bureau of Reclamation report and New Mexico concurs.

"6. New Mexico and Texas agree to cooperate diligently to the end that the water salvage work that can be done in the McMillan Delta under the authorization of Public Law 88-594 is completed concurrent with the completion of the Brantley Dam and Reservoir;"

The Bureau of Reclamation Report estimates that 12,860 acre-feet of water could be salvaged by clearing salt cedar from the delta of McMillan Reservoir as authorized by Public Law 88-594. New Mexico agrees that this authorized work should be completed concurrent with the completion of the Brantley Dam and Reservoir Project and will cooperate to that end.

"7. The State of New Mexico gives its assurances that all groundwaters withdrawn from bank, shallow or deep storage by pumping or otherwise, which diminish the flow of the Pecos River, shall be accounted as a part of the New Mexico apportionment in accordance with the Pecos River Compact."

The term "Pecos River Basin" as it is used in the Pecos River Compact means all of the area which contributes surface water to the stream or its tributaries, and all of the area which contributes groundwater accretions to the stream. In other words, the basin includes all contributing drainage areas, both from surface and groundwater sources. Accordingly, as we understand condition No. 7, it is completely consistent with the Pecos River Compact and with that understanding, New Mexico gives the assurance sought.

On behalf of the State of New Mexico, I wish to express our appreciation of the spirit of good will of Governor Smith's letter.

It is my view that each of the seven conditions set out in Governor Smith's letter is provided for in the Pecos River Compact, the Bureau of Reclamation Brantley Project Report or the terms of the proposed legislation and, therefore, that no amendments to the bill are required to implement these conditions.

At the Interstate Stream Commission hearing on the Brantley Project in Carlsbad, New Mexico on October 13, 1969, the Pecos River Pumpers Association advised that the Association is unalterably opposed to the construction of Brantley Dam unless its members receive concrete assurance that their rights can and will be protected.

The Association represents about 20 people owning rights to divert the direct flows of the Pecos River in a reach about 40 miles in length extending from a little above Dexter to Artesia. The upper end of this reach is about 160 river miles below Alamogordo Reservoir, the upstream storage for the Carlsbad Irrigation District, and the lower part of the reach is about 30 miles above McMillan Dam. Thus, we have the apparently anomalous situation of water right owners objecting to the construction of a reservoir *below* their points of diversion.

The base flow of the Pecos River in the reach relied upon by the Pecos Pumpers is sometimes inadequate for all of their requirements and often contains a concentration of dissolved solids that makes it marginally usable, particularly for planting in late March and early April. For these reasons, the Pecos Pumpers have relied heavily on releases from Alamogordo Reservoir.

As I understand their position, the Pecos River Pumpers believe that releases from Alamogordo Reservoir to fill McMillan Reservoir have not been made in the winter months because of the need to reserve McMillan Reservoir capacity for flood control and for storing for irrigation the inflows that arise below Alamogordo Reservoir. The Pumpers are concerned that, if Brantley Reservoir is constructed to a total capacity of 520,000 acre-feet, adequate flood control capacity would be available and releases from Alamogordo Reservoir would be made in the winter to fill the 40,000 acre-feet of storage capacity allocated to the Carlsbad Irrigation District in Brantley Reservoir. Releases from Alamogordo Reservoir in the winter instead of during the irrigation season, as such releases have most frequently been made in the past, would deny the Pecos Pumpers the opportunity to divert water from the releases for irrigation of their farms.

In fact, the record reflects that flood control has never been a criterion for the operation of McMillan Reservoir and, under the operation set forth in the Bureau of Reclamation report on the Brantley Project, the District would be restricted at all times to the storage of a maximum of 40,000 acre-feet in Brantley Reservoir for irrigation, except, of course, at such infrequent times as the supply is so abundant that there are "unappropriated flood waters" as defined by the Pecos River Compact.

At the present time the terminal storage capacity available to the Carlsbad Irrigation District is about 34,000 acre-feet in McMillan Reservoir and 5,000 acre-feet in Avalon Reservoir, for a total of 39,000 acre-feet. With the Brantley Project, the District would have 40,000 acre-feet in Brantley Reservoir and 5,000 acre-feet in Avalon Reservoir for a total of 45,000 acre-feet. This small increase in the Carlsbad Irrigation District terminal storage capacity that would result from the construction of the Brantley Project would give little, if any, incentive or opportunity to change the operation of Alamogordo Reservoir. It would continue to be in the District's best interests to make releases from its upstream storage (Alamogordo Reservoir) only after the water in its terminal storage has been used up and there is a current or early demand for water for irrigation.

In their statement presented to the Interstate Stream Commission, the Pumpers emphasized that in 1967 no releases of water from Alamogordo Reservoir were made until April 29 with the result that the Pumpers were forced to use salty water for their pre-plant irrigation of cotton and little or no water was available for the irrigation of alfalfa hay on their farms. The statement expressed the view that this late release was designed by the officials of the Carlsbad Irrigation District to minimize the use of water by the Pecos River Pumpers. In fact, the record reflects that in about 75% of the years of record releases were made from Alamogordo Reservoir in late March and early April for use on Carlsbad Irrigation District lands. The unusually late release in 1967 can most reasonably be attributed to the fact that there was an unusual flood in August 1966 which filled the District's downstream storage capacity so that in the spring of 1967 there was no need for a release from Alamogordo Reservoir until the water in McMillan and Avalon Reservoirs had been used up. It is axiomatic that to maximize the yield of a reservoir system the downstream reservoirs must be drained first, and the 1967 operations of the District reservoirs simply reflected good management in the interest of the District water users.

I submit that the attack of the Pecos River Pumpers Association on the Brantley Project proposal is misdirected. It is clear that the construction and operation of the Brantley Project downstream from the Pecos River Pumpers could not affect the Pumpers' rights and that those rights are fully protected by existing law and court decrees founded on the doctrine of prior appropriation. The 1933 decree in *United States v. Hope Community Ditch, et al.* (No. 712 Equity) established the relative priorities of the Pecos River Pumpers and the Carlsbad Irrigation District. The earliest direct flow rights of the Carlsbad Irrigation District carry a priority date of 1887. McMillan Reservoir has a priority date of 1893. The earliest priority date of the Pecos River Pumpers is 1900.

Alamogordo Reservoir was decreed a February 1906 priority date. Only about 800 acres of the roughly 3600 acres of Pecos River Pumpers' rights have priority dates earlier than February 1906. Under the doctrine of prior appropriation,

those senior appropriators do not, of course, have a right to water stored in Alamogordo Reservoir under its 1906 priority date at times when the remaining flow of the river, including the discharge from underground sources, was sufficient to meet the requirements of those senior rights.

The quantity and quality of water available to the Pecos River Pumpers have deteriorated since 1937, the year that Alamogordo Reservoir was completed. But this deterioration has resulted principally from the effects of groundwater pumping established in the Roswell Underground Water Basin after the priority dates of most of the Pecos River Pumpers. Prior to the development of groundwater usage in the Roswell Basin, which began about the turn of the century, the natural discharge from the aquifers to the river in the reach upon which the Pecos Pumpers rely was about 285 cfs. The aggregate diversion right of the Pecos River Pumpers is 141 cfs.

More than one-half of the pumpage from the Roswell Underground Water Basin has been established since March 11, 1926. All but 46 acres of the 3588 acres of Pecos River Pumpers' rights were established before that date. Were it not for the effects of groundwater pumping established after March of 1926, the base flow of the Pecos River from groundwater discharge would be adequate with respect to both quantity and quality to satisfy virtually all of the rights of the Pecos River Pumpers. As a matter of fact, the records show that the operation of Alamogordo Reservoir has alleviated the effects of the diminishing quality and quantity of groundwater discharge on the water supply of the Pecos River Pumpers.

The State Engineer, following a 1958 ruling of the New Mexico Supreme Court (65 NM 59), has allowed Pecos River Pumpers whose water supply has been diminished as a result of junior groundwater appropriations to recover their supply by drilling wells. Thus far, 1553 acres, or about 43%, of the Pecos River Pumpers' rights have been supplemented by groundwater under the reasoning of that case.

In summary, it appears that the rights of the Pecos River Pumpers are fully protected by existing law and that they cannot reasonably object to the historic operation of Alamogordo Reservoir or the construction and operation of the Brantley Project in the manner proposed in the Bureau of Reclamation Report. The protection of life and property in and near the City of Carlsbad from floods and from the hazards of the failure of existing dams is so urgently needed that the opposition of the Pecos River Pumpers should not be allowed to delay the authorization of the Brantley Project.

In conclusion, I urge this distinguished Committee's early and favorable action on S. 50 to authorize the Brantley Project and I express appreciation on behalf of the State of New Mexico for this opportunity to present the views of the State on the bill.

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STATEMENT OF I. J. COURY, CHAIRMAN, NEW MEXICO INTERSTATE STREAM COMMISSION

I am I. J. Coury, Chairman of the New Mexico Interstate Stream Commission. I have been a member of the Commission since 1943. I appreciate greatly the opportunity to appear before the Subcommittee today in support of S. 50 which would authorize construction and operation of the Brantley Project on the Pecos River in New Mexico.

On October 13, 1969 the Interstate Stream Commission held a meeting in Carlsbad to hear the views of local interests on the United States Bureau of Reclamation's proposed Brantley Project to assist the Commission in formulating its recommendations on the project. About 100 people representing a good cross section of interests on the River attended the meeting and all who wished to express their views on the Brantley Project were heard.

After consideration of the statements and comments from the audience at the meeting, the Commission acted to support authorization and construction of the project. A copy of the October 14, 1969 telegram to Secretary Hickel from S. E. Reynolds, Secretary of the Commission, supporting the project is attached to my statement.

I urge the early authorization and construction of this critically needed multi-purpose project which in my view would solve the worst potential flood problem in the state.

Mr. Chairman, on behalf of the New Mexico Interstate Stream Commission I thank you for the opportunity to express to this distinguished Committee the Commission's support of S. 50.

STATE ENGINEER OFFICE,  
Pecos, Tex., October 14, 1969.

HON. WALTER J. HICKEL,  
Secretary of the Interior, Interior Building,  
Washington, D.C.

DEAR MR. SECRETARY: My letter July 7, 1969 Mr. Floyd E. Dominy, Commissioner of Reclamation, transmitted to the State of New Mexico your proposed report on the Brantley Project, Pecos River Basin, New Mexico and requested views and recommendations as provided by the Flood Control Act of 1944.

The State of New Mexico concurs in the Conclusions and Recommendations set forth in the report.

Favorable comments of the New Mexico Department of Game and Fish, the New Mexico Health and Social Services Department and the New Mexico Park and Recreation Commission on the Brantley Project are set forth respectively in the letters of September 3, 1969 from Mr. Ladd S. Gordon, September 22, 1969 from Mr. John R. Wright and October 1, 1969 from Mr. James L. Dillard, copies of which are being forwarded.

The State of New Mexico appreciates the opportunity to comment on your proposed report on the Brantley Project and will be pleased to cooperate with you in securing the early authorization of the project.

Sincerely,

S. E. REYNOLDS,  
Secretary, New Mexico Interstate Stream Commission.

Senator CHURCH. I would like to call as our next witness, Mr. John B. Walker, Pecos River Commission, New Mexico.

Mr. WALKER. Yes, Mr. Chairman, on behalf of the State of New Mexico.

Senator CHURCH. Very well.

#### STATEMENT OF JOHN B. WALKER, PECOS RIVER COMMISSION, NEW MEXICO

Mr. WALKER. Mr. Chairman, My name is John B. Walker, and I live in Carlsbad, N. Mex.

In order to conserve time, with the committee's permission, I would like to file my written statement in support of Senate bill 50, and would be more than happy to answer any questions that any members of the committee might have.

Senator CHURCH. That is very much appreciated, Mr. Walker.

Your full statement will appear following your testimony.

Can you tell me something about the Pecos River Commission?

Mr. WALKER. Mr. Chairman, the Pecos River Commission resulted after many years of negotiations between the representatives of the State of New Mexico and the State of Texas and a representative of the United States, who was duly appointed by the President, participated in these negotiations.

On December 3, 1948, the two States agreed upon the terms of the compact, signed, and it was thereafter ratified by the legislatures of each of the States.

Senator CHURCH. The commission, then, administers the compact between the two States?

I see on our witness list that we have also a representative of that commission from the State of Texas here, is that correct?

Mr. WALKER. Yes, Mr. Chairman.

(The complete statement of Mr. Walker follows:)

## STATEMENT OF JOHN B. WALKER, PECOS RIVER COMMISSION, NEW MEXICO

Mr. Chairman, my name is John B. Walker of Carlsbad, New Mexico. I am the Pecos River Compact Commissioner for the State of New Mexico and sincerely appreciate the opportunity to present to this Committee my views as Commissioner representing the State of New Mexico on S. 50 which would authorize the Brantley Dam and Reservoir Project. This dam would be located on the Pecos River approximately 10 miles North of the City of Carlsbad, New Mexico.

On December 3, 1948, after negotiations in which a representative of the United States duly appointed by the President participated with representatives of the States of New Mexico and Texas, the Pecos River Compact was signed and thereafter ratified by the Legislatures of each of the states. Thereafter Pub-Law 91 of the 81st Congress was passed granting the consent of Congress to the Pecos River Compact.

The major purposes of the Compact are set forth under Article 1 of the Compact as follows:

"The major purposes of the Compact are to provide for the equitable division and apportionment of the use of the waters of the Pecos River; to promote interstate comity; to remove causes of present and future controversies; to make secure and protect present development within the states; to facilitate the construction of works for, (a) the salvage of water, (b) the more efficient use of water, and (c) the protection of life and property from floods."

Certainly the proposed Brantley Project falls within the construction of works for the salvage of water and *most important the protection of life and property from floods.*

Based on the supplemental information and re-evaluation of the Brantley Project made by the Bureau of Reclamation in August of 1971, it appears that the allocation of cost clearly reflects that the principal purpose of the Brantley Project is *flood control*. This allocation shows 60% of the total construction cost of the Brantley Project to be allocated to "safety of dams" with 26.4% allocated to flood control and 11.6% allocated to recreation and fish and wildlife and only 2% of the total cost allocated to irrigation. When the problem of protection of lives and property is considered, I respectfully submit, the overwhelming justification for the Brantley Project is the protection of lives and property and the allocations set forth under "safety of dams" and flood control should be combined for a total percentage allocation of 86.4% of the total cost for the protection of lives and property.

As a result of the Bureau of Reclamation's program and study of "safety of dams," a realistic evaluation of potential flood conditions on the Pecos River and its tributaries, above existing McMillan Dam and Avalon Dam, showed that the potential flood will exceed existing spillway capacities at both of these dams and cause the dams to be overtopped. Mr. S. E. Reynolds, the New Mexico State Engineer has pointed out in his statement to this Committee and the Bureau of Reclamation's report on the Brantley Project states, that the overtopping of an earth filled dam by a flood can result in a catastrophic failure *resulting in far greater loss of life and property damage than the same flood would cause under natural conditions*, which results in the fact that far greater loss of life and property damage would result from the potential flood than the same flood would cause if McMillan and Avalon Dams were not in existence.

This additional threat to the loss of lives and property by reason of existing facilities of the Bureau of Reclamation is recognized in the report on the Brantley Project dated June 12, 1969, from the Commissioner of Reclamation to the Secretary of the Interior which was adopted and approved by the Assistant Secretary of the Interior on July 2, 1969, in that at page 3 of the report it is stated:

"The magnitude of the problem is now better known after sixty years accumulation of hydrologic records than it was to the designers of McMillan and Avalon Dams. Not only does a significant actual flood hazard exist, *but the potential failure of McMillan and/or Avalon Dams during flood stage would compound this danger into disastrous proportions for the City of Carlsbad, New Mexico.*" (Emphasis mine)

This report further states at page 3 thereof that,

"The 'safety of dams' feature serves no other basic purpose than the protection of lives and property from a potentially disastrous flood situation."

It is my understanding that certain agencies are concerned by the precedent which will be established by utilizing the "safety of dams" concept as falling within a non-reimbursable cost. First of all I would like to respectfully submit, that the United States has heretofore utilized this basic concept or reasoning in the Pecos River Basin some ten or eleven years prior to the Bureau of Reclamation's study on "safety of dams" program. In the early 1950's a re-examination of the criteria used in the design of the spillway at Alamogordo Dam led to the conclusion that the spillway capacity was seriously inadequate as proved by floods that occurred shortly after the dam was built. These same inadequacies exist at McMillan and Avalon Dams. In 1954 there was enacted Public Law 83-465 which authorized the enlargement of the spillway of Alamogordo Dam at a cost of a little more than 1.0 million dollars on a non-reimbursable basis to accommodate floods of major proportions. The specific language used in the Appropriations Act of July 1, 1954 was as follows:

"That sums made available for increasing spillway capacity at Alamogordo Dam, Carlsbad Project, New Mexico, for the purpose of removing the existing flood hazard, be non-reimbursable and non-returnable."

The above mentioned report dated June 12, 1969 from the Bureau of Reclamation to the Secretary of the Interior which was approved and adopted July 2, 1969 by the Assistant Secretary of the Interior stated in part at page 3 thereof the following:

"in view of national policy as to non-reimbursability of the cost of major flood control storage facilities and of the moral obligation of the United States as the constructor and owner of dams of uncertain structural integrity, it is proposed that the federal government recognize and accept the responsibility for the safety of McMillan and Avalon Dams and that the cost of the 'safety of dams' feature be non-reimbursable."

Since the national policy is that the cost of major flood control storage facilities are non-reimbursable, and recognizing the moral obligation of the United States as the constructor and owner of McMillan and Avalon Dams, which dams certainly fall within the definition as those of "uncertain structural integrity," I wholeheartedly concur and respectfully request that the federal government recognize and accept the responsibility for the safety of McMillan and Avalon Dams and that the cost of the "safety of dams" feature be non reimbursable on the same basis as the 26.4% of the total cost allocated to flood control, which results in a total of 86.4% of the cost of the Brantley Project being basically flood control for the protection of lives and property.

In closing and as support for proceeding with the Brantley Project, as opposed to modification of McMillan and Avalon Dams, I would like to point out the statement appearing in the Bureau of Reclamation's report on the Brantley Project at page 17 thereof, which I respectfully submit, is the only logical approach to the problem:

"An essential concept of the Brantley Project is the irrevocable obligation of the United States for personal and property safety inherent in the construction of a new federal dam or the hazards which might develop at existing dams. While the above modification of McMillan and Avalon Dams would insure the safety of these structures, it would not alleviate the potential flood threat to the City of Carlsbad. In view of the concern of the Bureau of Reclamation for persons living downstream, it does not appear logical for the Bureau to protect its own structures and ignore the flood threat to the citizens of Carlsbad. (Emphasis mine) Construction of Brantley Dam, replacing McMillan Dam, would provide the needed flood protection to Carlsbad and regulate flood flows to insure the safety of Avalon Dam."

The Pecos River Commission in the spirit of the purposes of the Pecos River Compact as to the salvage of water, wholeheartedly supported Public Law 88-594, 88th Congress, S.J. Res. 49 approved September 12, 1964, which authorized the Secretary of the Interior to carry out a continuing program to reduce the non-beneficial consumptive use of water in the Pecos River Basin, in New Mexico and Texas. This joint resolution as approved specifically provided, however:

"That no money shall be appropriated for and no work commenced on the clearing of the floodway as authorized by the act of February 20, 1958 (72 Stat. 17), unless provision shall have been made to replace any Carlsbad Irrigation District terminal storage which might be lost by the clearing of said floodway."

The initial eradication and suppression of salt cedar and other undesirable phreatophytes was commenced shortly after approval of Public Law 88-594 to the end that at this time a major portion of the salt cedars and other undesirable phreatophytes have been removed from the Pecos River Basin, *except* for those salt cedars presently within the McMillan Delta which is the area referred to in Public Law 88-594 as the "floodway."

The construction of the Brantley Project would meet the requirement of Public Law 88-594 by providing replacement terminal storage for Carlsbad Irrigation District which might be lost by the clearing of the floodway. It appears that the clearing of the floodway in the McMillan Delta stretch of the Pecos River would salvage an estimated 12,860 acre feet of water per annum which would then be available for irrigation in Texas and New Mexico. It would appear that the State of Texas supports this proposed Brantley Project for several reasons and certainly the State of Texas supports the Project to the end that the McMillan Delta can be cleared for the salvage of water as is most clearly reflected in the letter of Governor Preston Smith, Governor of the State of Texas, dated January 4, 1972, addressed to the Honorable Henry M. Jackson, Chairman, Senate Committee on Interior and Insular Affairs; Governor Smith stated in this letter that the State of Texas would not oppose the construction and operation of the Brantley Project provided that certain conditions were met; condition number six (6) thereof being:

"New Mexico and Texas agree to cooperate diligently to the end that the water salvage work and that can be done in the McMillan Delta under the authorization of P. L. 88-594 is completed concurrent with the completion of the Brantley Dam and Reservoir;"

In summary, I respectfully and sincerely urge that this Committee take early and favorable action on S. 50 to authorize the Brantley Project in order to protect the lives and property of persons living in and around the City of Carlsbad, New Mexico, and thereby as additional benefits protect and make safe the Bureau of Reclamation's Avalon Dam, and also permit the clearing of the salt cedars from the floodway in the McMillan Delta and thereby salvage water for use in irrigation for the States of New Mexico and Texas; provide recreation facilities, the enhancement of fish and wildlife habitat and the replacement of approximately 6,000 acre feet of irrigation storage which has been lost to sediment and prolong the life expectancy of Carlsbad Irrigation District's 45,000 acre feet of terminal storage.

I do sincerely desire to express my appreciation on behalf of the State of New Mexico as Pecos River Compact Commissioner for this opportunity to present my views as such Commissioner on S. 50.

Senator CHURCH. I wonder, Mr. McGowen, if you would like to come to the witness stand at this time?

Mr. McGOWEN. Yes, Mr. Chairman.

#### STATEMENT OF R. B. MCGOWEN, JR., PECOS RIVER COMMISSION, TEXAS

Mr. McGOWEN. Senator Church, I am representing the Texas commission, and could I, in the interest of time, request that my statement with the attached letter from the Governor be included in the record?

Senator CHURCH. Yes, they will appear following your testimony.

Mr. McGOWEN. Briefly, Texas realizes that our neighbors to the north have a problem, and we want them to solve that.

Our side on the Pecos, it is not generally in flood conditions. Generally there is not enough water and the Pecos River compact intends to apportion the waters of the river between the States.

The people feel that there are seven conditions that need to be provided for in order for the interest of Texas to be protected.

Mr. Reynolds said the Governor's letter referred to these conditions. We feel these conditions ought to be a part of the bill itself

for the reason that the compact and supporting schedule and studies is very thick and big, and we all agree now.

Basically that is the position of Texas.

Senator CHURCH. I have asked already for Commissioner Armstrong's comments on these conditions and on the feasibility of incorporating them to the legislation. Subject to that, the commission either from the Texas side or from the New Mexico side, had an objection to this project; is that correct?

Mr. WALKER. That is correct.

Senator CHURCH. Does the commission stand behind the project?

Mr. MCGOWEN. Very definitely.

Senator CHURCH. All right.

(The prepared statement of Mr. McGowen follows:)

STATEMENT OF MR. R. B. MCGOWEN, JR., PECOS RIVER COMMISSION, TEXAS

My name is R. B. McGowen, Jr., and I am the Pecos River Commissioner representing Texas. The Pecos River Commission administers the Pecos River Compact which apportions the water of the Pecos River between the States of Texas and New Mexico.

All Texans in the Pecos River Basin are naturally vitally interested in any upstream projects which will affect the flow of the River. Although the people of Texas are not arbitrarily opposed to the Brantley Dam Project they are concerned that the construction and operation of the project be in accordance with the Pecos River Compact.

After careful study and consideration by the appropriate agencies and organizations, certain provisions appear to be necessary with respect to the Brantley Dam Project. These provisions are embodied and the Texas position on the Brantley Dam Project is contained and set forth in the attached letter from the Honorable Preston Smith, Governor of Texas, to Senator Jackson dated January 4, 1972.

We respectfully request that the conditions of the letter from Governor Smith be made a part of the legislation and be contained in the final Congressional enactment.

If you have any questions or desire any additional information, Mr. James A. Luscombe with the Texas Water Rights Commission is present and can provide any technical background or matter that you might desire.

STATE OF TEXAS,  
January 4, 1972.

Hon. HENRY M. JACKSON,

*U.S. Senator, State of Washington, Chairman, Senate Committee on Interior and Insular Affairs, Old Senate Office Building, Washington, D.C.*

DEAR SENATOR JACKSON: I appreciate the opportunity to comment for the State of Texas on the Brantley Dam and Reservoir Project, Pecos River, New Mexico, inasmuch as a large portion of the Pecos River Basin and water use is downstream from the proposed project, and most of this area is in Texas. The Texas Water Rights Commission and the Pecos River Compact Commissioner for Texas inform me, and I concur in their findings, that the State of Texas will not oppose the construction and operation of the project, provided that the following seven (7) conditions are contained in the authorizing document or made a part of the authorizing legislation:

1. The Brantley Dam and Reservoir will be operated solely by the United States Bureau of Reclamation in compliance with the terms and spirit of the Pecos River Compact, New Mexico and Texas, 1949;

2. Not more than 40,000 acre-feet of water, in excess of 2,000 acre-feet of combined inactive and dead storage, will be impounded in Brantley Reservoir for water-supply purposes at any time, and all inflows will be passed when the water-supply storage level is reached, except waters which are declared "unappropriated flood waters";

3. No "unappropriated flood waters" will be stored in the sediment reserve or other storage space until such waters have been determined by the Pecos River Commission;

4. The State of New Mexico and its Carlsbad Irrigation District will maintain the Avalon Reservoir spillway and downstream channel conditions of the Pecos River so that flood waters temporarily stored in Brantley Reservoir may be continuously evacuated at maximum channel capacity in accordance with flood protection rules consistent with downstream tributary inflows until Brantley Reservoir is evacuated to 40,000 acre-feet of conservation storage;

5. The McMillan Dam will be operated to insure that no more than 4,500 acre-feet of water will be impounded as seasonal storage, October through January, for the benefit of propagation of water fowl and that during the period February through September, the outlet gates will be maintained fully open to assure complete evacuation of all storage, drainage of McMillan Delta, and passage of all inflows;

6. New Mexico and Texas agree to cooperate diligently to the end that the water salvage work that can be done in the McMillan Delta under the authorization of P.L. 88-594 is completed concurrent with the completion of the Brantley Dam and Reservoir; and,

7. The State of New Mexico gives its assurances that all ground-waters withdrawn from bank, shallow or deep storage by pumping or otherwise, which diminish the flow of the Pecos River, shall be accounted as a part of the New Mexico apportionment in accordance with the Pecos River Compact.

I feel that the preceding conditions are the minimum requirements in protecting the intent and purpose of the Pecos River Compact as ratified in 1949 and this concurrence in the Brantley Dam and Reservoir Project is given in a spirit of good will and comity between the States of New Mexico and Texas.

Sincerely,

PRESTON SMITH, *Governor.*

Senator CHURCH. Our next witness is Mayor Walter Gerrells, accompanied by a delegation from Eddy County.

**STATEMENT OF MAYOR WALTER GERRELLS, CITY OF CARLSBAD, N. MEX., ACCOMPANIED BY EDDY COUNTY CITIZENS DELEGATION**

MAYOR GERRELLS. For the record, my name is Walter Gerrells, a life-long resident of Carlsbad, and I am presently serving as its mayor.

I have with me today a number of gentlemen who are also long-time residents of our area and I would like to introduce them to you.

First, the chairman of our county commission, Mr. Joe Hood; the vice chairman of our county commission, Mr. Ralph Callaway; our first commissioner, Mr. Lamoin Moore; the director of Carlsbad Department of Development, Mr. Bob Boyd; the manager of the Carlsbad Chamber of Commerce, Mr. Louis Whitlock; a member of the board of the Carlsbad irrigation district, Mr. Jim Craft; and the attorney for the Carlsbad irrigation district, Mr. Jay Forbes, and we have with us the president of the Artesia Chamber of Commerce, Mr. Maynard Shearer.

Mr. Chairman, I will attempt to make my comments as brief as possible, in view of the time. However, there are a few facts I feel the committee should have about Carlsbad and about the area that is not reflected in the other reports.

Carlsbad, the county seat of Eddy County, is located in southeastern New Mexico as indicated on the display map. It is situated in a bend of the Pecos River with the river flowing through the northern and eastern portions of the city limits.

Carlsbad, with an elevation of 3,110 feet, is circled on the northeast and west by low hills with the river valley continuing on to the south into Texas. Foothills of the Guadalupe Mountains terminate in the Ocotillo Hills on the western edge of the city. The hills, the river, and the flood plain have had and will continue to have a major influence on the development of our community.

The town of Eddy, now known as Carlsbad, was organized as a municipal corporation in 1893, and in that year suffered its first flood. This was the year that the community was organized.

The economy of Carlsbad is based upon the mining and refining of potash to the east of the city, irrigated farming to the south, and the influx of tourists coming to see the famous Carlsbad Caverns National Park and the Guadalupe Mountains National Park.

The people of Carlsbad have long realized the value of water, especially in our arid southwest, and they have instituted and are continuing to develop a program of recreational facilities utilizing the Pecos River as a means of improving the livability of our community. In fact, Carlsbad is the only city in the State of New Mexico that has developed water-oriented recreational facilities within its corporate limits. Through the years, the people of Carlsbad have come to realize that the river flowing through the city is not only an asset for recreational and esthetic reasons, but that it is also a constant threat to the well-being of the people of the community unless adequate protection from flooding is provided.

New Mexico has four major streams; the Rio Grande running from up in Colorado down through the center of the State; the San Juan cutting down in through the northwestern corner of the State; the Canadian in the northeastern corner; and the Pecos running down the eastern side. Of all the major communities located on these rivers in New Mexico, Carlsbad is the only one that is not protected by a safe dam.

On the Rio Grande above Albuquerque, Cochiti Dam is well underway. In the lower section of the State, Las Cruces is well protected by Elephant Butte Dam and Caballo Dam; Farmington on the San Juan is protected by the Navaho Dam; and the Canadian has no communities of any size along its banks.

The Pecos has its beginning in the Pecos wilderness area just below Truchas Peak at an altitude of approximately 13,000 feet. As it makes its way down the State, it is fed by a number of springs, streams, and dry river beds draining this tremendous area to the west of the river itself and the eastern slope of the range of mountains that come down through the central part of New Mexico.

Out of a total of 77,866,240 acres in the State, 16,561,088 acres drain into the Pecos River. In other words, almost one-fourth of the total area of the State of New Mexico lies within the Pecos River watershed.

The result of this has been that since its very inception, the community of Carlsbad has been subjected to a series of floods. Records show that floods occurred in 1893, 1898, 1904, 1906, 1908, 1911, 1915, 1916, 1919, 1925, two in 1941, 1954, 1965, 1966, and 1968. None of these floods occurring between 1893 and 1966 approached the magnitude of the "potential flood" as determined or projected in the Bureau of Reclamation report on the Brantley project. And yet, gentlemen, during this series of floods, 24 lives have been lost in the Carlsbad area and there is no way to measure in dollars and cents the total amount of grief, suffering, and hardship that has been brought to the people of Carlsbad and southern Eddy County area as a result of this repeated flooding.

Perhaps the most effective way we can present to you the damage that has happened is some photographs that we have taken over the

years. Here is one that was made the first year in 1893, looking west of the foothills. Notice the man on horseback over on the side. (The photographs are printed along with Mayor Gerrells' full statement.)

The next photograph is the result of the flood of 1904. This time the irrigation water had been built and this flood washed out the flume. This flume is in the northwest city limits of Carlsbad.

In 1941, we suffered what is probably our most disastrous loss of life and property, even though, according to the records, we did not have the largest amount of water coming down the river.

The next picture shows the roadbed of the Santa Fe Railroad, with the rails and ties completely washed out.

The next picture shows farm instruments in 1941, after the water receded. This is a picture of debris that was left after the water receded in 1941, and more recently in 1966, the flood waters reached an area that had never been touched before, on the eastern banks of the Pecos, homes were flooded to a point higher than shown in these photographs.

Again, in 1966, this aerial photograph shows the water going over the dam. In the lower left-hand corner, you will notice the buildings, industrial buildings and the water got clear up in the buildings. In the upper portion of the photograph, part of the recreational area of the community. On the right-hand side is the powerplant, the main supply of electrical power and, still during the 1966 flood.

The next picture shows the irrigation flume that we saw earlier that did not wash out in 1966, but this picture shows the fact that it acts as a barrier with the possibility, that as it did in 1916, that water will divert around the flume into the residential area of our community.

This view shows one of the large farms in the area and the damage that was done from the 1966 flood.

Mr. Chairman, the threat of loss of life and property as a result of potential floods which could occur at any time on the Pecos above McMillan Dam, is increased tremendously by reasons of the fact that the city of Carlsbad is located approximately 14 miles southeast of McMillan and 6 miles south of Avalon.

It is apparent from studies shown in the Bureau of Reclamation Report on the Brantley project, that both of these structures fall within the definition of dams of uncertain structural integrity. A flood resulting in failures of these structures will cause a greater loss than would result from the same flood if these structures were not present.

The 1893 flood washed-out Avalon Dam, and in order to save McMillan, it became necessary to blast out large portions of the dam. Both dams were repaired, but again in 1904, the flood waters destroyed Avalon. Reconstruction by the Bureau of Reclamation was completed in 1907, and the Carlsbad project was one of the earliest reclamation projects to be formed under the Federal Reclamation Act of June 17, 1902.

Perhaps one of the worst aspects of this situation is the fact that the threat of continued disaster is going to be hanging over the heads of the people of Carlsbad with the city being located in the curve of the Pecos, as illustrated in this photograph, unless we get the badly needed flood protection up-river from our community.

The complete flood protection needed, can be provided only by a project such as Brantley Dam. Gentlemen, the delegation here today and all of our citizens back home in Carlsbad, N. Mex., join with me in urging you on this committee to give this project, the Brantley Dam proposal, a favorable report.

We thank you for the time and help that you have given the people that have come to Washington from Carlsbad. The delegation joins me in giving our thanks. Whatever objection other people might have for the Brantley project, certainly our need and our cause for flood control is greater.

Senator CHURCH. Thank you very much for the well organized and well prepared report.

Mayor GERRELLS. Thank you, Senator.

(Mayor Gerrells' full statement follows:)

*Presentation On . . .*

## **BRANTLEY DAM PROJECT**

*By Mayor Walter Gerrells*

**January 25, 1972**

MR. CHAIRMAN, MEMBERS OF THE COMMITTEE:

MY NAME IS WALTER GERRELLS, AND I AM PRESENTLY SERVING AS MAYOR OF THE CITY OF CARLSBAD, NEW MEXICO. I AM HERE TODAY TO SPEAK ON THE BEHALF OF THE 21,297 CITIZENS OF THAT COMMUNITY WHO DAILY LIVE UNDER THE THREAT OF LOSS OF PROPERTY AND LIFE FROM FLOODING ON THE PECOS RIVER IN NEW MEXICO, A THREAT THAT WE BELIEVE CAN ONLY BE MINIMIZED BY THE CONSTRUCTION OF THE PROPOSED BRANTLEY DAM. I HAVE WITH ME TODAY A NUMBER OF GENTLEMEN WHO ARE RESIDENTS OF THE AREA, AND WHO SHARE MY CONCERN OVER THE WELL-BEING OF OUR CITIZENS AND OFFER THEIR WHOLEHEARTED SUPPORT FOR THIS PROJECT. I WOULD LIKE TO INTRODUCE TO YOU:

THE CHAIRMAN OF OUR COUNTY COMMISSION, JOE HOOD;

THE VICE CHAIRMAN, RALPH CALLAWAY;

COMMISSIONER, LAMOIN MOORE;

THE DIRECTOR OF THE CARLSBAD DEPARTMENT OF DEVELOPMENT, BOB BOYD;

THE MANAGER OF THE CARLSBAD CHAMBER OF COMMERCE, LOUIS WHITLOCK;

MEMBER OF THE BOARD OF THE CARLSBAD IRRIGATION DISTRICT, JIM CRAFT;

THE ATTORNEY FOR THE CARLSBAD IRRIGATION DISTRICT, JAY FORBES;

AND THE PRESIDENT OF THE ARTESIA CHAMBER OF COMMERCE, MAYNARD SHEARER.

CARLSBAD, THE COUNTY SEAT OF EDDY COUNTY, IS LOCATED IN SOUTHEASTERN NEW MEXICO AS INDICATED ON THE DISPLAY MAP.

IT IS SITUATED IN A BEND OF THE PECOS RIVER WITH THE RIVER FLOWING THROUGH THE NORTHERN AND EASTERN PORTIONS OF THE CITY LIMITS. CARLSBAD, WITH AN ELEVATION OF 3,110 FEET, IS CIRCLED ON THE NORTHEAST AND WEST BY LOW HILLS WITH THE RIVER VALLEY CONTINUING ON TO THE SOUTH INTO TEXAS. FOOT-HILLS OF THE GUADALUPE MOUNTAINS TERMINATE IN THE OCOTILLO HILLS ON THE WESTERN EDGE OF THE CITY. THE HILLS, THE RIVER AND FLOOD PLAIN HAVE HAD AND WILL CONTINUE TO HAVE A MAJOR INFLUENCE ON THE DEVELOPMENT OF OUR COMMUNITY.

THE TOWN OF EDDY, NOW KNOWN AS CARLSBAD, WAS ORGANIZED AS A MUNICIPAL CORPORATION IN 1893, AND IN THAT YEAR SUFFERED ITS FIRST FLOOD. THE ECONOMY OF CARLSBAD IS BASED UPON THE MINING AND REFINING OF POTASH TO THE EAST OF THE CITY, IRRIGATED FARMING TO THE SOUTH, AND THE INFLUX OF TOURISTS COMING TO SEE THE WORLD FAMOUS CARLSBAD CAVERNS NATIONAL PARK AND THE GUADALUPE MOUNTAINS NATIONAL PARK. THE PEOPLE OF CARLSBAD HAVE LONG REALIZED THE VALUE OF WATER, ESPECIALLY IN OUR ARID SOUTHWEST, AND THEY HAVE INSTITUTED AND ARE CONTINUING TO DEVELOP A PROGRAM OF RECREATIONAL FACILITIES UTILIZING THE PECOS RIVER AS A MEANS OF IMPROVING THE LIVABILITY OF OUR COMMUNITY. IN FACT, CARLSBAD IS THE ONLY CITY IN THE STATE OF NEW MEXICO THAT HAS DEVELOPED WATER-ORIENTED RECREATIONAL FACILITIES WITHIN ITS CORPORATE LIMITS. THROUGH THE YEARS, THE PEOPLE OF CARLSBAD HAVE COME TO REALIZE THAT THE RIVER FLOWING THROUGH THE CITY IS NOT ONLY AN ASSET FOR RECREATIONAL AND AESTHETIC REASONS, BUT THAT IT IS ALSO A

CONSTANT THREAT TO THE WELL-BEING OF THE PEOPLE OF THE COMMUNITY UNLESS ADEQUATE PROTECTION FROM FLOODING IS PROVIDED.

NEW MEXICO HAS FOUR MAJOR STREAMS; THE RIO GRANDE RUNNING FROM UP IN COLORADO DOWN THROUGH THE CENTER OF THE STATE; THE SAN JUAN CUTTING DOWN IN THROUGH THE NORTHWESTERN CORNER OF THE STATE; THE CANADIAN IN THE NORTHEASTERN CORNER; AND THE PECOS RUNNING DOWN THE EASTERN SIDE. OF ALL THE MAJOR COMMUNITIES LOCATED ON THESE RIVERS IN NEW MEXICO, CARLSBAD IS THE ONLY ONE THAT IS NOT PROTECTED BY A SAFE DAM. ON THE RIO GRANDE ABOVE ALBUQUERQUE, COCHITI DAM IS WELL UNDER WAY. IN THE LOWER SECTION OF THE STATE, LAS CRUCES IS WELL PROTECTED BY ELEPHANT BUTTE DAM AND CABALLO DAM; FARMINGTON ON THE SAN JUAN IS PROTECTED BY THE NAVAHO DAM; AND THE CANADIAN HAS NO COMMUNITIES OF ANY SIZE ALONG ITS BANKS.

THE PECOS HAS ITS BEGINNING IN THE PECOS WILDERNESS AREA JUST BELOW TRUCHAS PEAK AT AN ALTITUDE OF APPROXIMATELY 13,000 FEET. WINDING ITS WAY DOWN IN A GENERALLY SOUTHERN DIRECTION, IT DROPS TO A LOW POINT IN THE CARLSBAD AREA OF ABOUT 3,100 FEET. AS IT MAKES ITS WAY DOWN THE STATE, IT IS FED BY A NUMBER OF SPRINGS, STREAMS, AND DRY RIVER BEDS DRAINING THE AREA TO THE WEST OF THE RIVER ITSELF AND THE EASTERN SLOPE OF THE RANGE OF MOUNTAINS THAT COME DOWN THROUGH THE CENTRAL PART OF NEW MEXICO. OUT OF A TOTAL OF 77,866,240 ACRES IN THE STATE, 16,561,088 ACRES DRAIN INTO THE PECOS RIVER. IN OTHER WORDS, ALMOST ONE-FOURTH OF THE TOTAL AREA

OF THE STATE OF NEW MEXICO LIES WITHIN THE PECOS RIVER WATERSHED.

THE RESULT OF THIS HAS BEEN THAT SINCE ITS VERY INCEPTION, THE COMMUNITY OF CARLSBAD HAS BEEN SUBJECTED TO A SERIES OF FLOODS. RECORDS SHOW THAT FLOODS OCCURRED IN 1893, 1898, 1904, 1906, 1908, 1911, 1915, 1916, 1919, 1925, TWO IN 1941, 1954, 1965, AND 1966. NONE OF THESE FLOODS OCCURRING BETWEEN 1893 AND 1966 APPROACHED THE MAGNITUDE OF THE "POTENTIAL FLOOD" AS DETERMINED OR PROJECTED IN THE BUREAU OF RECLAMATION REPORT ON THE BRANTLEY PROJECT. AND YET, GENTLEMEN, DURING THIS SERIES OF FLOODS, TWENTY-FOUR LIVES HAVE BEEN LOST IN THE CARLSBAD AREA AND THERE IS NO WAY TO MEASURE IN DOLLARS AND CENTS THE TOTAL AMOUNT OF GRIEF, SUFFERING AND HARDSHIP THAT HAS BEEN BROUGHT TO THE PEOPLE OF CARLSBAD AND SOUTHERN EDDY COUNTY AREA AS A RESULT OF THIS REPEATED FLOODING.

THE THREAT OF LOSS OF LIFE AND PROPERTY AS A RESULT OF POTENTIAL FLOODS WHICH COULD OCCUR AT ANY TIME ON THE PECOS ABOVE MCMILLAN DAM IS INCREASED TREMENDOUSLY BY REASONS OF THE FACT THAT THE CITY OF CARLSBAD IS LOCATED APPROXIMATELY FOURTEEN MILES SOUTHEAST OF MCMILLAN AND SIX MILES SOUTH OF AVALON. IT IS NOW APPARENT FROM STUDIES SHOWN IN THE BUREAU OF RECLAMATION REPORT ON THE BRANTLEY PROJECT THAT BOTH OF THESE STRUCTURES FALL WITHIN THE DEFINITION OF DAMS OF "UNCERTAIN STRUCTURAL INTEGRITY". A FLOOD RESULTING IN

FAILURES OF THESE STRUCTURES WILL CAUSE A GREATER LOSS THAN WOULD RESULT FROM THE SAME FLOOD IF THESE STRUCTURES WERE NOT PRESENT. THE 1893 FLOOD WASHED OUT AVALON DAM, AND IN ORDER TO SAVE MCMILLAN, IT BECAME NECESSARY TO BLAST OUT LARGE PORTIONS OF THE DAM. BOTH DAMS WERE REPAIRED, BUT AGAIN IN 1904, THE FLOOD WATERS DESTROYED AVALON. RECONSTRUCTION BY THE BUREAU OF RECLAMATION WAS COMPLETED IN 1907, AND THE CARLSBAD PROJECT WAS ONE OF THE EARLIEST RECLAMATION PROJECTS TO BE FORMED UNDER THE FEDERAL RECLAMATION ACT OF JUNE 17, 1902.

PERHAPS ONE OF THE WORST ASPECTS OF THIS SITUATION IS THE FACT THAT THE THREAT OF CONTINUED DISASTER IS GOING TO BE HANGING OVER THE HEADS OF THE PEOPLE OF CARLSBAD WITH THE CITY BEING LOCATED IN THE CURVE OF THE PECOS AS ILLUSTRATED IN THIS PHOTOGRAPH, UNLESS WE GET THE BADLY NEEDED FLOOD PROTECTION UP-RIVER FROM OUR COMMUNITY. THE COMPLETE FLOOD PROTECTION NEEDED CAN BE PROVIDED ONLY BY A PROJECT SUCH AS BRANTLEY DAM. GENTLEMEN, THE DELEGATION HERE TODAY AND ALL OF OUR CITIZENS BACK HOME IN CARLSBAD, NEW MEXICO JOIN WITH ME IN URGING YOU ON THIS COMMITTEE TO GIVE THIS PROJECT, THE BRANTLEY DAM PROPOSAL, A FAVORABLE REPORT.



1893 FLOOD The main street of Carlsbad (then Eddy)



1904 FLOOD Wash out around Irrigation Flume



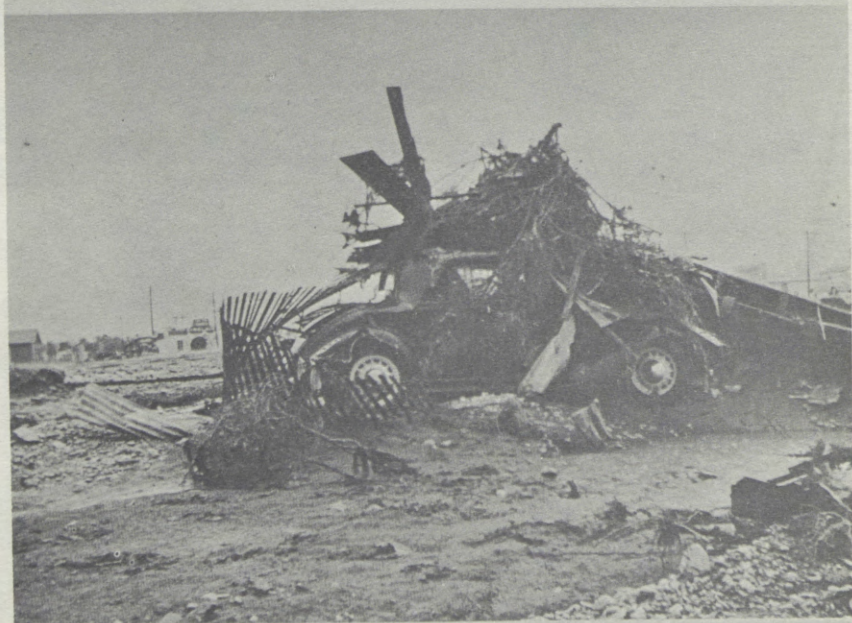
1941 FLOOD High water endangering bridge



1941 FLOOD Santa Fe main line from Potash Mines washed out



1941 FLOOD Farm equipment destroyed as a result of high waters



1941 FLOOD Debris left after water receded



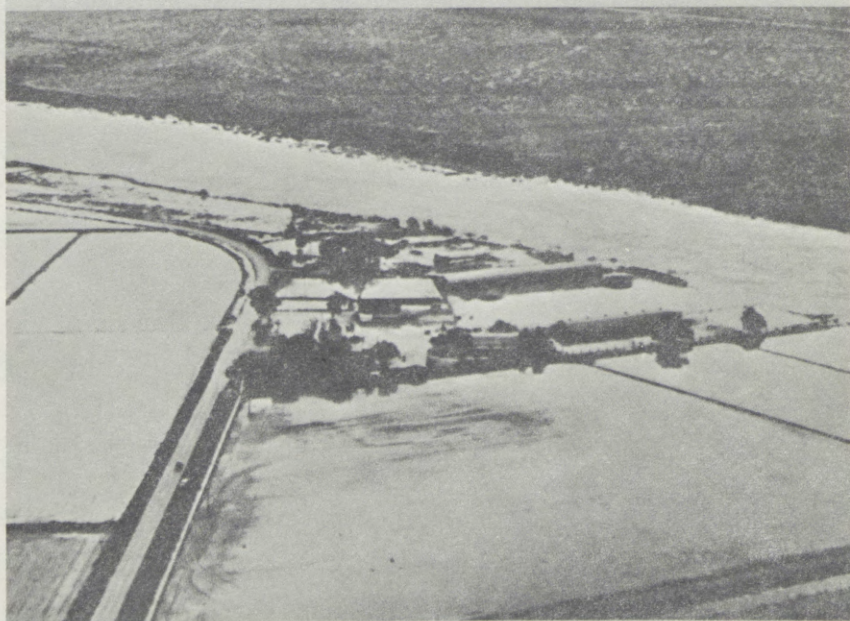
1966 FLOOD Homes on east side of river in Carlsbad



1966 FLOOD Water going over Tansill Dam endangering industrial buildings and flooding recreation area



1966 FLOOD Water backed up by Irrigation Flume in northwest portion of city



1966 FLOOD Farm land below Carlsbad

Senator CHURCH. Our next witness is Mr. Draper Brantley, president of the Carlsbad irrigation district, accompanied by Mr. John Erickson.

**STATEMENT OF DRAPER BRANTLEY, PRESIDENT OF THE CARLSBAD IRRIGATION DISTRICT, ACCOMPANIED BY JOHN ERICKSON, ENGINEER, CARLSBAD IRRIGATION DISTRICT**

Mr. BRANTLEY. Gentlemen, my name is Draper Brantley and I am a farmer on the Carlsbad irrigation district—a Bureau of Reclamation project located in the Pecos River Valley in southeastern New Mexico.

As president of the Carlsbad irrigation district's board of directors, I wish to convey to you the district's approval and support of the U.S. Department of the Interior, Bureau of Reclamation, region 5, "Plan of Development" for Brantley project, N. Mex.

The plan provides for utilizing the available water supply through multipurpose development to maximize the resulting benefits. The most important and urgent purpose is flood control for the city of Carlsbad, followed by fish and wildlife, recreation, and irrigation.

It may be of interest that the name of Brantley was given this project, honoring my father, the late George Brantley, for many years president of the board of directors of the Carlsbad irrigation district. Mr. Brantley came to Carlsbad in 1904 after the disastrous flood of that year, following which the Bureau of Reclamation rebuilt the irrigation project. He was a farmer, banker, member of the Carlsbad City Council, and mayor of Carlsbad, as well as president of the irrigation district.

The Carlsbad irrigation district recommends your favorable action to authorize S. 50.

I am grateful for this opportunity to testify today. I would like to submit a petition from a group of individual farm bureau members in the Carlsbad project.

Thank you, sir.

(The petition referred to follows:)

TO: All Members of the  
Interior and Insular Affairs Committee  
United States Senate  
Washington, D. C. 20510

Gentlemen:

As an individual member of the New Mexico Farm Bureau, I wholeheartedly support the Brantley Dam Project as proposed.

<u>Name</u>	<u>Address</u>
Walter Parker	1509 Jefferson Corralton
Julie Adams	RT 1 Box 181 Carlsbad N.M.
Thomas J. Harris	RT 1 Box 141F Carlsbad
Earl Williams	RT 1 Box 255 Carlsbad
Ed. W. Abuschid	R. 1 Box 154 Carlsbad
Ernest Williams	RT 1 Box 251 Carlsbad
Alfred S. Foster	RT 1, Box 170, Carlsbad
Robin Gorn	1909 Birdwell St.
S. M. Ferguson	Route 1 Box 161 Carlsbad N.M.
Ernest Grand	RT 1 Box 163 Carlsbad N.M.
Orval Nichols Jr.	RT 1 - Box Carlsbad, N.M.
Francis G. Turner	P.O. Box 700, Carlsbad, N.M.
Ernest Grand	Box 1, Box 163 Carlsbad, N.M.
Don Turner	Box 415 - Carlsbad, N.M.
W. H. ...	Box F " " "
Tom D. Lee Jr.	Box 242 Carlsbad N.M.
A. J. Hattercheid	Box 174 Carlsbad, N.M.
H. C. Sidwell Jr.	RT 1, Box 257 Carlsbad
Henry Walthercheid	RT 1 Box 257A Carlsbad N.M.
Ernest Grand	P.O. Box 898 Carlsbad N.M.
Ed. Williams	1303 Muscatel Ave Carlsbad N.M.
Don Mikowski	213 N. Alameda Carlsbad N.M.
James Roberts	Malaga, N.M.
Ray Brantley	Carlsbad N.M.
Johnny Reid	RT 1 Loving, N.M.
W. Brantley	RT 1 Box 47 Pecos Arthrop N.M.
W. Sanders	913 S. 1st Artesia N.M.
L. C. Payne	1902 Clayton P. Texas 71222
Lewis Weddige	Hope, N.M.
Earl Harrison	Artesia
Don Brantley	706 W. Riverside, Carlsbad N.M.

Senator CHURCH. Thank you, Mr. Brantley. You and your father before you have had a long, long interest in this matter, I can see. Mr. Erickson.

Mr. ERICKSON. Mr. Chairman, in the interest of time, I am just presenting my statement for inclusion in the record at this time and appreciate the opportunity to do so.

Senator CHURCH. Thank you very much, Mr. Erickson; your statement will appear as though read.

#### STATEMENT OF JOHN ERICKSON, ENGINEER, CARLSBAD IRRIGATION DISTRICT

Mr. ERICKSON. Mr. Chairman, my name is John R. Erickson. I am a consulting engineer from Santa Fe, N. Mex. Over the past 25 years, I have made or directed many studies in relation to the water supplies of the Pecos River Basin. In this period, I have been both New Mexico interstate stream engineer and New Mexico State engineer.

This statement has been prepared at the request of the Carlsbad irrigation district to provide technical data to this committee concerning the relation of the irrigation district to the Brantley project. I appreciate the opportunity to present this statement to this distinguished committee.

Since ratification of the Pecos River compact in 1949—Public Law 91—81st Congress—this committee has dealt many times with the problems of the Pecos River Basin. Some of you certainly are familiar with the fact that the basin is plagued alternately with drought and floods, sedimentation, salt cedar infestation, poor quality of water, diminishing supplies due to ground water pumping, and that not the least of the problems of the basin is the shortage of adequate and dependable reservoir sites.

The Brantley project is concerned primarily with the flood control aspects of the river's problems, with irrigation, recreation, and fish and wildlife being included either for the need to provide replacement of storage capacity which will be lost by construction of the project or because of the opportunity for providing incidental recreational benefits to the region.

The Carlsbad Irrigation District is concerned with the flood aspects to a substantial degree because it will provide one, a structure free from the danger of being washed out; two, storage capacity without reduction for 100 years; three, adequate sedimentation capacity; four, protection against possible loss of irrigation canals and flumes; five, protection against loss or impairment of low flying irrigation lands; and six, will permit the completion of water salvage projects already authorized.

In addition, should a major flood destroy a portion or all of the terminal storage capacity and major conveyance structures of the Carlsbad Irrigation District, the result could be the loss of crops on much of the project for several seasons.

The two existing dams, McMillan and Avalon, which create the terminal storage capacity for the Carlsbad irrigation district, are earth-fill and earth- and rock-fill structures, respectively, which would be extremely vulnerable to a flood of the magnitude of the standard project flood as developed by the Corps of Engineers. Also, McMillan Dam

is vulnerable to lesser magnitude floods which would exceed the existing spillway capacity.

McMillan Reservoir has a decreed capacity of 90,000 acre-feet, under the provisions of the Hope Community Decree—No. 712 Equity, U.S. District Court, 1933—which adjudicated all of the water rights of the Pecos River Basin above Carlsbad in 1933. This adjudication suit was brought by the United States of America on behalf of its Carlsbad project.

Records indicate that in 1894, the reservoir substantially had the adjudicated capacity of 90,000 acre-feet at a gage height of slightly more than 26 feet. Reservoir surveys were made in 1915, 1925, 1932, and 1940, which showed the capacity to be 48,600, 44,900, 43,400, and 38,600 acre-feet, respectively. It may be seen that about half of the total capacity was lost through sedimentation in the first 20 years of reservoir life. A delta of sediment was created above the reservoir which now extends some 12 to 14 miles upstream.

About 1915, salt cedars began to grow on the delta and increased rapidly into dense salt cedar forests. These trees effectively screened out the sediments, as may be seen by the diminished rate of reservoir sedimentation from 1915 to 1940. The benefits of reduced sedimentation have been accompanied by a water loss (by salt cedar transpiration) amounting to several tens of thousands of acre-feet per year. Reclaiming of that water loss is the objective of the water salvage project—Public Laws 85-333 and 88-594.

The Pecos River compact defined the capacity of McMillan Reservoir, under 1947 conditions, as the 38,600 acre-feet as surveyed in 1940. It also defined the capacity of the Avalon Reservoir as 6,200 acre-feet. The latter reservoir was adjudicated in the Hope Community Decree to a capacity of 7,000 acre-feet. Effective storage capacity in reservoirs recognized by the compact, which is lost for any reason, may be replaced under the provisions of the company. The 40,000 acre-feet capacity which will be constructed in the Brantley Reservoir, together with diminishing capacity in Avalon Reservoir, will result in a yield essentially equivalent to that of the combined 1947 condition capacities.

When Alamogordo Dam was constructed some 200 miles upriver from the Carlsbad Irrigation District, it was found to be the only desirable and adequately efficient site between McMillan and the town of Santa Rosa. The location of the dam in the vicinity of the Brantley project has been studied for many years. Because of the complex geology in that area, it was finally determined that the position of the dam, as now proposed, is probably the only place in the vicinity of terminal storage requirements where such a dam could be built.

At the present time, the water supply of the Carlsbad Irrigation District depends largely upon the flood waters stored in the reservoir system. Prior to the developments of the artesian aquifer in the region of Roswell and Artesia, natural springs discharged into the Pecos River creating a base flow in excess of 300 cubic feet per second. That base flow was a primary source of water for the Carlsbad irrigation district and attracted other water users along the Pecos River between 1900 and about 1925.

As the effects of pumping of the artesian water were felt on the river, those base flows began to diminish. They were partially replaced for

a time by returns from irrigation in the Roswell basin, but later that water was also captured by shallow groundwater pumping.

At the present time, base flow to the river in the winter season only is about 30 second feet or less than one-tenth of the original base supply. The present base flow is not available in the summer time and, except for the perennial flows that can be captured and stored in the winter time in the terminal storage reservoirs, the irrigation district is entirely dependent upon flood flows and, therefore, dependent upon reservoir capacity.

On the other hand, the Carlsbad Irrigation District is limited in the total capacity of its system by the terms of the Pecos River compact. This in turn necessarily limits its participation in any project to the amount of replacement storage which needs to be provided.

Although the problems of the Pecos River are many and varied, these are the principal facets concerning the occurrence of floods and their control as it relates to the Carlsbad Irrigation District.

In conclusion, on behalf of the Carlsbad Irrigation District, I urge this distinguished committee's early and favorable action on S. 50 to authorize the Brantley project and again express appreciation for the opportunity to present this statement on behalf of the Carlsbad irrigation district.

Senator CHURCH. Our next witness is Mr. A. W. Langenegger, president of the New Mexico Farm and Livestock Bureau.

Mr. Langenegger, are you acquainted with the last three witnesses?

Mr. LANGENEGGER. Yes, sir.

Senator CHURCH. Are you all opposed to the project?

Mr. LANGENEGGER. Yes.

Mr. Gomez is a farmer on the Pecos. I am a farmer on the Pecos, and Mr. Brown is our engineer engaged by us to help us with this problem. Mt. Eaton is with us, here as attorney.

Senator CHURCH. Since you are connected in that way, would you have any objection to your appearing in panel or together?

Mr. LANGENEGGER. No, sir.

Senator CHURCH. If you gentlemen would come forward.

Mr. LANGENEGGER. Mr. Chairman, I request that Mr. Fletcher, the chairman of the board of county commissioners also come forward.

Senator CHURCH. All right. Very well, if you gentlemen will come up, please, take chairs at the witness table.

#### **STATEMENT OF A. W. LANGENEGGER, PRESIDENT, NEW MEXICO FARM AND LIVESTOCK BUREAU**

Mr. LANGENEGGER. Mr. Chairman, members of the committee, for the record, I am A. W. Langenegger, a farmer and resident of Hagerman, N. Mex. I appreciate the opportunity to appear before you to present the views of a minority group of water users, diverting their water directly from the Pecos River.

Mr. Chairman, might I digress momentarily here. Our statement is probably a little lengthy, although we think it is all pertinent. If it is your pleasure, I will attempt to condense it to the best of my ability.

Senator CHURCH. Use your own judgment. We have heard from those in favor of the project. You are entitled to your say here, use your own judgment.

MR. LANGENEGGER. I appear here in behalf of the Pecos River Pump-er's Association. The association is an unincorporated group of 24 farmers who irrigate their lands by pumping water out of the Pecos River.

The average-size farm of all but one of us who have the right to appropriate the waters of the Pecos River is less than 150 acres. We irrigate in excess of 3,900 acres of land with Pecos River water.

Our water rights are legal; they, like those of the Government, have been adjudicated in Federal district court; they stretch back in time of inception from the 1920's to before the turn of the century.

Some of our rights are superior in point of time to most of the irrigation storage rights of our downstream neighbors who are represented by the Bureau of Reclamation and the Carlsbad Irrigation District; and the remainder of our rights are subsequent in time to those storage units. Our rights are superior in point of time to a very large percentage of ground-water users in the Roswell artesian basin.

Our downstream neighbors irrigate with Pecos River waters about 20,000 acres under their Bureau of Reclamation project; they claim the right to irrigate 25,000 acres. Our acreage is about one-sixth of theirs. We are smaller than they are.

What does this mean? It should mean nothing. We both produce the same crops under the same climatic conditions. Not more than 80 miles separate the farthest farms. The water requirements for our crops and soil conditions are the same.

To irrigate the 20,000 acres in the Carlsbad Irrigation District, the United States through the Bureau of Reclamation claims the right, and it has been adjudicated the right, to divert up to 1,000 cubic feet per second of the flow of the Pecos River.

This amounts to a maximum rate of diversion of one cubic foot of water for every 20 or 25 acres of land.

Untl not too many years ago, the Pecos River pumpers upstream were limited to a diversion rate of one cubic foot of water per second for every 70 acres irrigated. In other words, we could divert water at only one-third the rate which was permitted to the Carlsbad Irrigation District.

We felt that diverting water at such a low rate was not agriculturally sound, and so we took the matter to court. We proved to the court that our low rate of diversion was extremely wasteful of water. The court rules in our favor.

Who opposed and fought our effort to increase our diversion rate in order to save water? The Carlsbad Irrigation District as representative of the Bureau of Reclamation.

To irrigate the 20,000 acres in the Carlsbad Irrigation District, the United States, through the Bureau of Reclamation, claims the right, and it has been adjudicated the right, to store up to 397,000 acre-feet of water in the existing Avalon and McMillan Reservoirs and in any additional reservoirs which it desires to build upstream from Avalon.

In other words, each irrigated acre of land under the Carlsbad Irrigation District has the adjudicated right to about 20 acre-feet of backup storage rights. The 20,000 acres are presently relying upon three reservoirs, Avalon, McMillan, and Alamogordo.

While this subcommittee is now considering the possibility of the construction of Brantley to replace McMillan, the Bureau of Reclamation and the Carlsbad Irrigation District has just filed with the New Mexico State Engineer an application to transfer part of their storage rights from Alamogordo Reservoir to a fifth reservoir which is proposed to be built at Los Esteros further upstream.

Thus, we see the fair possibility of four reservoirs on the Pecos River to serve a single 20,000 acre Bureau of Reclamation project. The Pecos River pumpers, of course, have no storage capability and are without any backup storage rights.

To irrigate the 20,000 acres in the Carlsbad Irrigation District, the district diverts about 3.6 acre-feet of surface water per year for each acre of land. On the other hand, the Pecos River pumpers divert about 2.8 acre-feet of water for each acre of land, or 28.5 percent less water per acre than the Bureau of Reclamation project. This 2.8 acre feet of water per acre is slightly below what we actually need for effective irrigation and below what we are entitled to take.

The principal reason for our low diversion rate is the lack of river water of satisfactory amount and quality at the time when we need to irrigate.

To irrigate the 20,000 acres in the Carlsbad Irrigation District, most of the farms have a supplementary source of water. It has been estimated by the State engineer's office that over 400 wells pump underground water for the supplemental irrigation of these lands—an average of at least one well per 50 acres.

Water pumped from these wells is not metered, and is in addition to the 3.6 acre-foot of surface water used. The constant availability of a supplemental source of irrigation water is invaluable insurance to a farmer who primarily uses surface water for his irrigation. It is money in the bank.

Among the Pecos River pumpers, only two have the supplemental surface water for their surface water rights. Obtaining the rights to drill supplemental wells was a difficult and expensive experience, for it required two contested hearings before the State engineer, two contested trails in district court, and one contested hearing before the Supreme Court of New Mexico.

Who opposed and fought this effort to obtain a supplemental source of irrigation water, this effort to obtain the same insurance which most farmers under the Carlsbad Irrigation District enjoy? It was the Carlsbad Irrigation District.

I might add that there now appears to be very little chance that most of the Pecos River pumpers will be able to find usable water underneath their farms. Consequently, most of the pumpers may continue for some time to be without any supplemental source of water.

I would like to say that the acreage that does have supplemental water did not find it immediately underneath their land. There was pipeline construction to do the job.

We are here today to discuss the Brantley project. We are not engineers or economists interested in the feasibility of the project. We are not fishermen or water skiers who may prefer a new Brantley Lake instead of the existing Lake McMillan, nor are we environmentalists who may oppose any new Bureau of Reclamation or Corps of Engineer creation. We understand, of course, that recreation is a very fine

thing, and this will provide recreation, and there are presently four bodies of water in the area providing recreation.

We are not experts on flood control protection, although it is our feeling that the danger of Pecos River floods to Carlsbad is less today than it used to be, because of flood control and water management activities which have taken place upstream from Carlsbad.

We are here today because we are scared. We are on a river which is pretty well controlled by the Carlsbad Irrigation District on behalf of the Bureau of Reclamation. We are entrapped, in a sense, by a reservoir upstream from us and by terminal reservoirs downstream from us.

The availability of water to our river pumps is seriously low during the irrigation season. The flow of the Pecos River in our area has been drastically impaired by the upstream reservoir, Alamogordo, impounding the flow of the river and by the development of underground waters causing a decrease in the upward percolation of these waters into our stream system.

The decline in water quantity has caused a dramatic increase in water salinity.

The shortage of water and the poor quality of the available water have had one redeeming effect—we have made ourselves efficient farmers. We have leveled our lands. We have concreted our ditches. We have increased our diversion rates in order to reduce the quantity of water needed on our lands. Meters have been installed on our pumps to measure the quantity of water pumped.

It is interesting to note that the Carlsbad Irrigation District who have supplemental wells have the opportunity to pump as much water as they desire, for their wells are not metered.

We have adjusted to the diminishing water supply and the increasing salinity by becoming as efficient as possible. We have done this because we have to live. We now, primarily, rely upon and pump from the occasional releases of stored water from the upstream Alamogordo Reservoir. Some lawyers say we cannot use these waters; others say we can. Whoever is right is not important, for under existing conditions we have to take part of these waters to survive. It is a small part of the total surface waters.

Brantley is a potential threat to our survival. Brantley represents a 19-percent increase in irrigation storage capacity over that presently at McMillan. What does this mean to us?

With increased downstream terminal storage to satisfy irrigation requirements, it means that upstream releases from Alamogordo could be curtailed, or reduced, or periodically omitted. This scares us.

The Carlsbad irrigation district does not release water from Alamogordo Reservoir in order to maintain storage in McMillan Reservoir at its full capacity. The reason given by it is that it wants to have available storage capacity for potential flood flows which may enter the river below Alamogordo Reservoir. This is a valid reason.

The district's policy does two things.

One, it affords flood control protection to the city of Carlsbad, at least to some degree.

Two, it enables the district to catch and store waters which would otherwise pass downriver into Texas.

Because the district does not maintain the McMillan and Avalon terminal storage at full capacity, it must make releases of stored water from the upstream Alamogordo Reservoir during the irrigation season to meet the demands of its farmers. We are now relying, as I previously stated, upon these releases. Brantley Dam, however, changes this picture.

With Brantley Dam providing over 375,000 acre-feet of flood control storage, there will be no need for the Carlsbad Irrigation District to furnish flood control protection by keeping its terminal storage below capacity.

On the flood control aspect, the district can maintain full terminal capacity if it so desires. Since a much greater supply of irrigation water in terminal storage will be available to the district's farmers to meet their immediate needs, there will be less reason to release the upstream water stored at Alamogordo. The frequency of releases during the irrigation season will be diminished.

It is true that the district will want to keep some storage capacity available to catch flood flows originating downstream from its Alamogordo Reservoir. Most of our precipitation occurs in the summertime. This is the time when the opportunity to catch increased river flows is the greatest, and so this is the time when the Carlsbad Irrigation District will want to have some unused storage capacity.

During the rest of the year, particularly the winter and early spring, the chance of flood flows is at a minimum, and the district will be able to maintain its terminal storage at reasonably full capacity. At such capacity, the district would have enough water to satisfy the preplanting and early spring irrigation requirements of its farmers without having to release water from Alamogordo Reservoir. This would be disastrous to the Pecos Rivers pumpers who must have water in the early spring.

Gentlemen, the Bureau of Reclamation and the Carlsbad Irrigation District control a couple of hundred miles of the Pecos River for the benefit of 20,000 acres lying at the downstream end in New Mexico.

The Pecos River pumpers are a small pocket of farmers who have valid rights to the waters of the Pecos River. We take and use the waters far more efficiently and at less expense than any other river users. We do not interfere with the Carlsbad Irrigation District's operation of its irrigation project.

The Pecos is one river system. When one body has the effective management and control of that river system, then it should manage it in consideration of all other users of that river.

We have advised the Carlsbad Irrigation District of our problems. We have asked the district to agree not to release upstream stored waters during the nonirrigation season, basically from early fall to early spring, unless such release is necessary for flood control purposes. We have asked the district to agree to notify the Pecos River water-master when it proposed to release upstream waters.

We have asked the district to agree not to release from upstream stored waters more than 20,000-acre feet in any single release, unless a greater quantity is dictated for flood control reasons.

We have asked the district to agree not to immediately follow one release with another release.

These requests are insignificant with respect to the overall management of the Pecos River, but they are vital to our survival under existing river conditions.

I would like to digress just a little here to illustrate the very small degree of cooperation that we enjoy. Many times the Pecos River pumpers are needing water badly, and we merely have attempted to ask the district to release water—to tell us when they were going to release water. We have never requested the district to release waters for our benefit, we merely asked that they tell us when they were going to release waters so we would be in a position to use them when they did pass—we never got an answer.

At one point, I made a phone call to district offices, and I said, "Could you give me any idea when there might be water coming down the river?" There was no satisfactory answer. I received a reply that the district had not decided, they didn't know when the waters would be released.

I made the statement that one of the reasons I called was because I had heavy equipment working in the bed of the Pecos River; it was dry. In the event I suffered damages from a dam release without notification, I would sue somebody. Immediately I received an answer, the water will be at your pumps tomorrow afternoon.

This is the kind of cooperation we have had. We have made every effort to cooperate, we have been meeting with the district since 1967.

I have a letter of 1967 that I would like to introduce into the record, at which I chaired the meeting. We have met many times and it has been absolutely inflexible, and we have not gotten any satisfaction whatsoever.

The Carlsbad Irrigation District will not give us binding assurance that our requests will be honored if Brantley is constructed. We met yesterday evening in this room, and did not make any progress whatsoever. We had a meeting on the 17th of December, lasted all day, and we thought possibly we made progress. It was a very amicable meeting and we felt like that the district thought we were reasonable, but evidently we were mistaken, because the answer came back, "we cannot work with you."

The district's directors have orally stated that there will be no changes in their method of operation, and although we might rely upon their word for the present time, we need binding assurance for the future.

We are not opposed to the dam. I want to say that in all sincerity, and in every presentation we have said we are not opposed to the dam. We are for the dam if we can receive some assurance that we can live with them. We just want to live with the rest of them.

The city of Roswell and the towns of Dexter, Hagerman, and Lake Arthur support our position, as does the Board of County Commissioners of Chaves County. The Roswell Chamber of Development and Commerce urges the protection of our interest as a condition to approval of Brantley. These people are thoroughly aware of the situation. They understand the situation, they understand the flood hazards for all parties concerned, and I might add that the little town of Hagerman suffered 12 drowning deaths in 1964. We had one in 1969, just recently,

and we were grieved over this, too, so we all have a common problem.

I can add again that when you look at your map of the Brantley project, of course, I understand this is a Brantley project, but we are not even shown, we are given no consideration and we have about the same acreage as does the Fort Sumner project.

We are begging you, gentlemen, that you take a look at this, and that is all we ask. We need some protection.

The Pecos Valley Artesian Conservancy District opposes Brantley if its use will affect the Pecos River pumpers. This conservancy district has responsibility for the conservation of the enormous underground water basin in Chaves and Eddy Counties which is crossed by the Pecos River and which is hydrologically connected to the river.

We and those political bodies supporting our position have no objection to Brantley Dam if we can only receive the binding assurances which I have mentioned. These assurances could be obtained through agreement with the Carlsbad Irrigation District and the Bureau of Reclamation, or possibly as part of the legislation authorizing Brantley, or possibly as a condition to any appropriation in behalf of Brantley. We do want to work with our downstream neighbors.

We have not been able to. We have tried, but we are still available and we would make every effort to work with them if they are receptive in any way.

I wish to repeat that I certainly appreciate the opportunity of expressing our views and would be most happy to attempt to answer any questions the committee might have.

Attached is our statement before the Interstate Stream Commission at Carlsbad, N. Mex., on Monday, October 13, 1969. I would appreciate the opportunity of reading this statement to the committee, and request that it become a part of the hearing record.

Senator CHURCH. Thank you very much.

(The document referred to follows:)

STATEMENT OF A. W. "BILL" LANGENEGGER, VICE PRESIDENT, PECOS RIVER PUMPER'S ASSOCIATION, BEFORE THE INTERSTATE STREAM COMMISSION AT CARLSBAD, N. MEX.

Mr. Chairman, Members of the Committee, Ladies and Gentlemen: I am A. W. "Bill" Langenegger, a native of Hagerman, New Mexico. I certainly appreciate the opportunity to express my views and the views of the people I represent in regard to the matter being considered today. I am Vice President of Pecos River Pumper's Association and am appearing in their behalf.

We have approximately 3,900 acres of valid adjudicated water rights from the Pecos River. We pump directly from the stream into our ditch systems and thence on to our lands. We have no storage facilities and depend on the flow of the river for our water.

At the outset, I want to make it clear that we are not opposed to Brantley Dam *if* we are given due consideration and adequate protection is provided our users. If we do not receive this protection, we are unalterably opposed to the construction of the Dam and we will vigorously oppose it with all means possible.

If the Committee will bear with me I would like to provide some background information, in order that the situation will be thoroughly understood.

The water rights of the pumpers on the Pecos River are senior to most of the rights in the Pecos Valley, but junior in rights to most of the Carlsbad Irrigation District. The farmers pumping out of the Pecos River were the first to suffer from shortages of water and from the deterioration of the quality of the water.

These facts forced us out of necessity to be in the fore-front in adopting all conservation measures possible and we were among the first to level our land and concrete our ditches. Our efficiencies in the use of water are second to none.

Our use of water has been metered since 1953 and we are limited to 3 acre feet per acre, plus 10% allowed for carriage losses. We were the first to be metered. The Carlsbad Irrigation District is not metered as to the quantity of water they are allowed to use.

The Alamogordo Dam was constructed in 1937 without hearings or any opportunity for our people to express their views and to take proper steps to protect their rights. This Dam completely stopped the flow of the river except for the Fort Sumner project, and no consideration was given to our rights.

In 1955 or 1956 an attempt was made to restrict our rate of diversion to one cubic foot of water per second for each 70 acres or equivalent thereof. There was statutory justification for this and had been for many years. The practical effect of this was that we would have been allowed a diversion rate of 6.4 gallons for each acre of water right. To illustrate this, if a person owned a 10 acre water right, he could only pump at the rate of 64 gallons per minute to satisfy this right. This was wholly impractical and the Law was changed, in spite of strong opposition from the Carlsbad Irrigation District, providing that the amounts allowed be diverted at a rate consistent with good farming practices, which would result in the most effective use of available water.

The pumpers on the Pecos River can not obtain any information as to when release of water from the Alamogordo Dam will be made and when the gates at the Dam will be closed. Even the Pecos River Water Master is seldom informed as to when the gates will be opened or closed.

Repeated efforts have been made to obtain this information, but without any success. This situation causes inefficient use of water because there can be no effective planning.

Releases from the Alamogordo Dam, it seems, are made at the most inopportune times, and in amounts that are apparently designed to minimize our use of water to which we are entitled. For example, the first release in 1967 was on April 29 and arrived in our area on May 4th. Our people were forced to use salty water for their pre-plan irrigation of cotton land which should be made during the last half of March or first week in April, and some had no water at all. Very little first crop alfalfa hay was produced. We normally harvest our first crop of hay the first week of May, and no water was available until that time. This release of water lasted until May 29, a thirty day period. There was approximately 60,000 acre feet of water in this release. There were no further releases until August 8th. We had no water of any consequence for a period of 70 days during the hottest part of the growing season, when water requirements are highest.

I recite these facts to illustrate that there has not been the slightest amount of cooperation or consideration for the needs of our people.

McMillan and Avalon Reservoir have a *total* storage capacity of approximately 38,000 acre feet if completely full. It is elementary in the operation of the project that the terminal storage is never purposely completely filled. To do so would leave the City of Carlsbad without flood protection and preclude the possibility of impounding base flow or flood waters that might flow into the lake. For this reason, there has been no releases of water from Alamogordo Dam to McMillan during the winter months.

If Brantley Dam is constructed, and the same policies are followed, up to 40,000 acre feet of water could be released from Alamogordo to Brantley for irrigation purposes, plus approximately 5,000 acre feet to Avalon during the winter months. There would still be ample empty reservoir space to afford flood protection for the City of Carlsbad and to impound any available water to maintain the irrigation storage at the top level allowed.

This 45,000 acre feet would be net water available to the project in Brantley and Avalon Reservoirs. It would take substantially more water released from Alamogordo (or Los Esteros, if constructed), probably at least 15,000 feet, making a total release in excess of 60,000 acre feet, all of which would probably pass by during the winter months.

With 45,000 acre feet in terminal storage available for use on the project, flood flows normally expected during the irrigation season from all tributaries entering the river below Alamogordo Dam would normally supply the water needs of the Carlsbad project and no summer releases would be made.

The practical end result would be that the flow of the Pecos River above Alamogordo Dam, which has been stopped in its entirety by the Alamogordo Dam,

without any regard for our rights, would pass by us in the winter months and we would have no opportunity to put the water to beneficial use. It would also result in even more severe water shortages for our people and further deterioration of the quality of the water available.

Attempts have been made to supplement the waters of the Pecos River with ground water and the State Engineer has seen fit to grant permits for this purpose. As a practical matter, however, in most cases ground water is not present in either the Shallow or Artesian Basins at these locations in sufficient quantity or acceptable quality to permit our water right owners to solve their problems by supplementing their surface rights with water from the Roswell Artesian Basin. All attempts to supplement the surface waters are protested and strongly opposed by the Carlsbad Irrigation District. Members of the Carlsbad Irrigation District are allowed to supplement their project water with ground water.

With this lesser amount of water, and all of the reduction in quantity would be fresh water, most of our farms would soon be salted out, become unprofitable, and the farmers would be forced to abandon their lands.

The resulting effect on the economy of the areas affected would be disastrous. We feel that we must have protection, and that it could be provided by the following provisions:

1. That the State Engineer through his duly appointed representative, the Pecos River Water Master, should administer and control the available water. This would include his making the decision as to when the gates of Alamogordo Dam (or Los Esteros, if constructed) should be opened and closed, and the rate of flow to be released.

2. No water should be released before March 12 from Alamogordo (or Los Esteros, if constructed), except for flood protection.

3. No water should be released after August 20 from Alamogordo Lake (or from Los Esteros, if constructed), except for flood protection.

4. That no single release from Alamogordo Dam be in excess of 20,000 acre feet, except for flood protection.

5. If water is available, a release of water from the Alamogordo Dam during the spring of at least 15,000 acre feet shall start not later than April 12 (unless downstream storage is filled), then the release would be in some lesser amount.

6. That, unless necessary for flood protection, at least 25 days must lapse between the time of closing the gates from one release before the gates could be opened for another release.

7. If a canal or channelization project is ever constructed, a provision must be made to protect our rights.

Please note that the above provisions, with the exception of point 5, do not compel release of water at any particular time but are of a restrictive nature and spell out when the water cannot be released.

I believe that the present statutes provide for Provision #1, but neither the State Engineer nor his Agent has assumed this responsibility.

Provisions number 2 and 3 would not materially change the past operation of the Dam, but would insure that the available water would continue to be released during irrigation season.

Provisions #4, #5 and #6 would, at least to some extent, distribute available water during the irrigation season.

Provision number 7 is probably not relevant at this time but attempts to look into the future and provide protection if the channel and transportation losses are eliminated by channelization or by a lined canal.

Thank you for the opportunity of presenting our views and assuring all parties concerned that we want to cooperate and work with them for the betterment of our area and the entire State. We reiterate however, that his is a matter of economic life or death for the Pecos River farmers and we must receive concrete assurances that our rights can and will be protected.

I will be most happy to attempt to answer any questions that the Commission wants to ask. Thank you very much.

Senator CHURCH. Mr. Gomez.

Mr. GOMEZ. I would like to read mine.

Senator CHURCH. All right, Mr. Gomez.

STATEMENT OF GILBERT GOMEZ, A FARMOWNER ALONG THE  
PECOS RIVER NEAR HAGERMAN, N. MEX.

Mr. GOMEZ. Mr. Chairman and members of the committee, I am Gilbert Gomez. I farm along the Pecos River near Hagerman, N. Mex. My family and I live on the farm. The farm is my living and I own it. I grow cotton, alfalfa, and feed grains. I have cemented 3 miles of ditches to minimize leakage losses. I have leveled my land to conserve water.

Like all other farmers in the area, I have to irrigate my land. We do not have enough rainfall for the crops. I have a water right out of the Pecos River, and I rely entirely on the river for my water. My water right is the most junior right on the river, and this puts me in a bad position if someday another farmer with a senior right makes me stop pumping until he gets water for his farm. If you cannot take water when your crops need it, you may as well shut down entirely.

I have seen the Pecos River without any water. I have seen the river at low flow with very salty water. I have pumped this salty water, knowing that it was bad for my soil, but doing it because my crops had to have water.

Because water has not been available at times when I needed it, I asked the State engineer several years ago for a permit to drill a well so that I could get a supplemental source of water. The Carlsbad Irrigation District opposed my application. The State engineer approved my application after a contested hearing, but then the Carlsbad Irrigation District appealed the case to district court. The court heard the case and ruled in my favor. I drilled the well to 1,300 feet, it cost \$11,000 to drill, and it was a dry hole.

I still do not have any supplemental source of water like most farmers under the Carlsbad Irrigation District. I have to rely on the occasional releases of stored water from the Alamogordo Reservoir which is upstream from me. These releases are controlled by the Carlsbad Irrigation District.

Brantley Dam will increase the terminal storage capacity of the district, and this may mean fewer releases of stored water from Alamogordo. What scares me, however, is that even though the Carlsbad Irrigation District has told us that it will notify us when releases will be made, that it will not release Alamogordo water during the winter when we do not irrigate, that it will not immediately follow up on release with another release, and so forth, nevertheless the district will not give any binding assurance it will follow what it says.

It is my understanding that the Carlsbad Irrigation District is a quasi-public body. I should think such a body would be willing to make binding agreements, particularly since its board of directors does change in personnel. I do not know why it refuses to do so. I am not against Brantley for flood control, if flood protection is needed, I do ask and pray this committee, if it approves the Brantley Dam, to write into the legislation these provisions for our protection which Mr. Langenegger has mentioned in his testimony.

I thank the committee for this opportunity to appear before it.  
Senator CHURCH. Thank you, Mr. Gomez.

Are there any other statements?

Mr. LANGENEGGER. Mr. Chairman, we have some statements we will not take the time to read. We will submit those for the record.

Senator CHURCH. Very well.

Mr. LANGENEGGER. I do have a statement that was presented to the State streams commission in New Mexico. I will file it for the record, and I would like to make some points, if I may.

Senator CHURCH. All right.

Mr. LANGENEGGER. In meeting with the Carlsbad Irrigation District, we came up with some points that we thought were valid and reasonable to an operating criteria of the dam systems. As you understand, we are caught in the middle and all we are asking for is operating criteria and I would like to read to you these points, if I may?

Senator CHURCH. Very well.

Mr. LANGENEGGER. Because you may have some questions, I would hope that you are going to cross-examine, because being a farmer, I have done a poor job of presenting my views.

Senator CHURCH. You have done a very good job.

Mr. LANGENEGGER. Point No. 1, we asked that the State engineer and, of course, yesterday we offered to withdraw our opposition to Brantley if the State engineer would operate the dams. We have had confidence in Steve Reynolds; we thought we would get a fair shake. I understand under the status, he has the authority, if Steve will operate the thing we will withdraw opposition. It was not agreed to.

Now, then, we had some criteria in the event that they didn't operate the dams. One was that no water should be released before March 12. I want to emphasize these points were not sacred. We would have been glad to negotiate any points that I mentioned. They were a matter of principle though and you will see that except for one exception they did not ask that anybody be released, and later we agreed to take this point 5 out, which I will read: "No water released before March 12. No water released after August 20. No single release, except for 25,000 acre-feet. Point 5, of course, we definitely needed a spring run, we agreed to take point 5 out and all of these other negotiations are negotiable.

Point 6, there must be a lapse of time of 25 days between the releases.

And point 7 was not relevant at this time, but we were looking into the future, if there was a canal or channelization project, that they should provide for our rights.

Of course, none of these, except point 5—in other words, we are saying don't run the water by us during the winter months when we can't use it, and that is all we are asking and we have not been able to get any concessions of any nature whatsoever.

I will file the rest for the record, Mr. Chairman, We certainly appreciate the opportunity of being here and we would be happy to answer any questions you might have.

Senator CHURCH. Well, it is obvious that you have long experience of difficulty with the Carlsbad Irrigation District. This is just one of those water feuds, I suppose you might call it, that we are all familiar with in the West, because water is pretty precious.

One thing isn't clear to me. If you have an established legal water rights, it is not clear to me how under those circumstances the dam could be made in such a way as to deny you your water?

Mr. LANGENEGGER. Mr. Chairman, this is difficult for us to understand, especially in view of the fact that the Alamogordo Dam was built later than some of our rights and, of course, they killed the flow of the river. We have not been happy about this situation, but we were able to live and now we look like we are about to die and we are desperate.

Senator CHURCH. In answer to my question, if you have valid rights, then I don't see how any of these reservoirs could be operated legally in such a way as to deny you your rights.

Mr. LANGENEGGER. I don't know, of course, not being an attorney. I have been told that legally they couldn't. Of course—

Senator CHURCH. I can understand why you would like to work out an operating arrangement. I think you have been good farmers, you have had less water, you have been efficient, you have less assurance of backup water, in fact you have had no assurance of backup water.

It seems to me that you ought to be able to get together and work it out as good neighbors; that is what you should do. You really aren't opposing this project on its merits; you are trying to safeguard your own interest.

Mr. LANGENEGGER. That is correct, sir.

Senator CHURCH. Those who have come here and testified in favor of this project want to see the Congress approve it. The State engineer himself said that your rights are not jeopardized in any way, and they thus recognize your legal right to the water. I should think under those circumstances, especially when they themselves have testified they don't intend to operate reservoirs in any way that would be adverse to your rights, there should be a basis on which you can come to some agreement.

Mr. LANGENEGGER. Mr. Chairman, of course, in view of the past history is why we are scared. When the Bureau of Reclamation operated the project we didn't have any problem. In 1949, they turned the project over to the Carlsbad Irrigation District and this is where our problems started and we have had a problem since that time.

We would be most happy if the Bureau would operate the project, we would withdraw opposition if they take the irrigation storage out of the project, because this would preclude any manipulation, and I can assure you there are ways to manipulate. They can do this thing to us, and they tell us they are not going to, but they are not giving us binding assurance. We are scared, especially in view of the fact we have gotten well under the Bureau and haven't gotten along well since.

The Bureau owns the water rights, the Carlsbad Irrigation District does not, they are acting as an agent for the Bureau. There are a lot of ways this can be involved and we will support this, but we can't get any assurance and we are brushed off constantly. We are small, we are a minority group, we have no political help and we are not receiving any considerations.

Senator CHURCH. Let me just say this. There was a time when projects were readily authorized by Congress and readily funded. That time has long since passed. Projects now are usually controversial, the Congress is not nearly so disposed toward authorizing them, and once they are authorized it is much more difficult to secure money than it ever was before. Sometimes you wait in line for year and the Bureau

can't give any assurance as to when an administration would be willing to budget for a project that has been authorized for many years.

So you see, it is a hard uphill legislative and fiscal problem to secure the necessary authorization and funding for new projects of this kind. This is a Senate hearing, the beginning of a long legislative process. In view of the general climate and attitude that exists in Congress at this time, where there are problems of this sort, serious arguments between water users, for those that want to see the project approved it certainly would behoove them to get some agreement reached that eliminates controversy and eliminates the opposition.

I don't think that you are in a position where you should receive no consideration. I think everyone involved would be well advised to assume a reasonable attitude and try to work out here a modus vivendi, a workable living arrangement.

Mr. LANGENEGGER. Mr. Chairman, I want to make it crystal clear that I am grieved that we must come here and oppose this because as civic citizens in southeastern New Mexico, it is needed, I have to say, but I just don't want to be expendable. I don't want to die so others may live.

Senator CHURCH. I appreciate that, and you have certainly made your case. The record will include all of those additional statements that you offered.

(The material referred to follows:)

STATEMENT OF ARTHUR FRANKLIN BROWN, CONSULTANT FOR THE PECOS RIVER PUMPERS' ASSOCIATION, HAGERMAN, N. MEX.

My name is Arthur Franklin Brown. In appearing before this Senate Subcommittee hearing on the Brantley Reservoir Project on the Pecos River in New Mexico, I do so as a water consultant for the Pecos River Pumpers' Association of Hagerman, New Mexico. I am a territorial New Orleans having come to New Mexico in 1910. After receiving my degree in Civil Engineering from the University of New Mexico, I spent 17 years in Federal Civil Services of which 11 years were with the Bureau of Reclamation, the Corps of Engineers and the Bureau of Agricultural Engineering. Also 10 years with the State Engineer of New Mexico, and for the past 18 years have been in private practice in the field of water rights, water supplies and various aspects of water engineering and project planning.

I appreciate the opportunity to appear before this Subcommittee in behalf of what we commonly refer to as the River Pumpers. The River Pumpers are an organization of 24 farmers who irrigate land along the Pecos River near Dexter, Hagerman and Lake Arthur, New Mexico. The water rights of the River Pumpers were decreed in 1933 in the Federal Court for the District of New Mexico in Cause No. 712 Equity, United States of America versus Hope Community et al, commonly referred to as the Hope Decree. They irrigate approximately 4,000 acres of land with public water and 1,000 acres with private water, using the Pecos River as a carrier. The pumper farms are more than 90% owner operated.

Their operations are highly efficient. Since 1953 their pumping has been under supervision of a State Engineer appointed watermaster. Their diversions are metered and they are allowed the use of three acre feet per acre per annum delivered on the land. The State Engineer allows a carriage loss of 10% so their total right is 3.3 acre feet per acre per annum diverted from the river. Their actual diversions during the period of time they have been under the watermaster have averaged 2.8 acre feet per acre per annum. Due to highly efficient management, land preparation and good agricultural practices they have been able to produce excellent crops except for such times as water has not been available when needed or if the limited amount of water that was available contained an extremely high salt content.

Some of the programs they have completed to make efficient use of water are: (a) Use large heads of water, (b) level their fields, and (c) engineer the width of borders and length of runs to fit their heads of water and their soils so that

the water is delivered to the place of use—the root zones. They have lined their ditches to decrease carriage losses. They balance their crops between the kind of crops that require a large amount of water and those that can produce with lesser amounts of water. They frequently withhold watering from the second cutting of alfalfa and produce a crop of seed, minimizing the use of water during the growing season.

The pumpers are badly hurt when they cannot get river water for early planting. It's not only a matter of a crop being late or short. If cotton and some other crops cannot be planted and brought to a stand in the spring, the entire crop could be lost for that year. Cotton planted late will produce less and is inferior in quality causing a reduction in price. I might say that the timeliness of flows of usable water in the river is the principle purpose of my appearance before this Subcommittee.

The operation of Alamogordo Reservoir in connection with the proposed Brantley Reservoir can be manipulated in a manner to deprive the Pumpers of their rightful duty of water. Prior to the construction of Alamogordo Reservoir in 1937 the Pumpers enjoyed the natural flows of the Pecos River. With the construction and operation of Alamogordo Reservoir the flows have been modified to suit the wishes of the Bureau of Reclamation and the Carlsbad Irrigation District. In some years the releases are timely for the Pumpers and other years they are not. They have no voice in the storage and releases. No application for the construction of Alamogordo Dam was filed with the State Engineer.

In general, the first release of the year from Alamogordo Reservoir is in March, which is satisfactory, however, in 1967 the first release commenced on April 29 which is entirely too late. In 1970 the first release was made commencing May 21, and in 1971 the first release commenced on April 9—all too late. In justice to the Bureau of Reclamation it should be said that releases were more reasonable under the Bureau's operation, 1937-1949, than since 1949 under Carlsbad Irrigation District operation.

If there was no terminal storage for the Carlsbad Project downstream from the Pumpers there would be no problem of the timeliness of releases. Releases of water from Alamogordo Reservoir which would serve the Carlsbad Irrigation District would also automatically be timely for the Pumpers. However the terminal storage in McMillan and Avalon Reservoirs permits releases from Alamogordo Reservoir at times not useful to the pumpers or you might say water can be withheld and kept in storage during periods of time when the pumpers need water. In other words, there can be and has been a manipulation of storage and releases to the detriment of the Pumpers. The greater amount of terminal storage available to the Carlsbad Irrigation District gives them greater opportunity to manipulate the flow of waters past the river pumpers at inopportune times.

This situation is called to the attention of this Subcommittee because it is not set forth in the Brantley Reservoir Project report. The report states the approval of Texas was sought and obtained. Nothing is said about seeking approval of water users in the Pecos Middle Basin. The Brantley Reservoir proposal is for an irrigation storage allocation which is greater than the amount of storage now available to the Bureau of Reclamation for the Carlsbad Irrigation District and this increase enables greater manipulation of the storage and releases that can now be done and poses a threat of further injury to the water supply of the Pecos River Pumpers. The report also proposes winter releases from Brantley (about 11,000 acre feet) which might be replaced by winter releases from Alamogordo. This is almost a year's supply for 4,000 acres of pumper lands. Also, the report proposes a 7,000 acre foot recreation pool in Alamogordo—a new water loss upstream from the pumpers. The Alamogordo Reservoir already loses 14,000 acre feet per year—a full pumper supply.

In reading the Corps of Engineer's report on the Los Esteros Project entitled Pecos River and Tributaries, Texas and New Mexico, published House document No. 339 of the 84th Congress, Second Session, I notice that this problem is recognized by the Corps. The report states on page 51, "since water is in short supply and in view of the serious adverse effect that certain existing reservoirs have had, any proposals to manipulate stream flow for flood control or for other purposes are subject to the critical appraisal of all Pecos River interests." The River Pumpers situation is a case in point.

One of the statements in the Brantley Project report is that the plan presented would provide for the best use of the available waters of the Middle Pecos River Basin.

With a diversion of about 3.6 acre feet per irrigated acre, plus supplemental ground water which is not measured, for the Carlsbad Project and 2.8 for the

River Pumpers, it would seem that the best use of available water would first be to improve the timeliness of the flows available to the Pumpers and firm up their supply. With something over \$9,000,000 of Federal money poured into the Carlsbad Project and nothing into the River Pumpers development, it is my hope that this committee and the Congress and the people of the United States would not want to make a further investment in the inefficient Carlsbad Project unless some provision is made to provide for the needs of the Pumpers. I'm sure that when Congress authorizes investigations for such stream systems as the Pecos River that they want all rights considered and if possible some solution worked out to meet their needs if economically feasible. Certainly in the endeavor to improve some projects they would never want to disregard the rights of others.

One solution would be to remand the report to the Bureau of Reclamation with instructions to study the problems of the River Pumpers; verify their needs and find a way to firm their water supply. Another possible remedy would be to condition the authorization of the Brantley Project upon a means being provided to protect the pumpers water supply. Perhaps the Project could be authorized with the provision that no money be appropriated until a means is incorporated into it to protect the Pumper's water supply. I do not make any specific recommendation as to which remedy be utilized or whether the Brantley Project be dropped.

Analysis by the Dexter Soil Conservation District of water samples taken on March 30, 1971, showed 1,800 parts per million of salt in the Pecos River water at the Dexter bridge, 2,000 at the old Hagerman bridge, 2,700 at the Hagerman bridge east, 2,700 at Buffalo Valley and 6,000 at the Lake Arthur bridge. Western Soil Laboratory analysis of water samples taken on March 15, 1965 show total dissolved solids of 6,096 parts per million at the old Dexter bridge, 6,124 at the old Hagerman bridge, 6,295 at the new Hagerman bridge, 6,128 at Gilbert Gomez pump, 6,912 at the A. W. Langenegger pump and 8,240 at the Lake Arthur bridge. Roughly  $\frac{1}{2}$  of the solids are chlorides. The deterioration in the quality of water of the Pecos River through the reach where the pumpers are is also a detriment to the water supply for the Carlsbad Irrigation District. It is a problem which the District shares with the Pumpers, however the Pumpers are hurt worse by this salty water because it constitutes their total supply at times whereas Carlsbad's supply is a mixture of poor quality water and water from other sources, placed in storage and comingled. The Pumpers and the Carlsbad Irrigation District share the effect of the lesser discharge emerging from the underground water basin because of all the wells that are used for irrigation of some 140,000 acres.

The immediate need is for some good quality water to be mixed with this low quality water, at times, so that the pumpers won't have to go out of business. Mr. W. E. Utterback, President of the Pumpers Association, has been in the farming business in this area since 1903. He has now retired but his life work has gone into the improvement of farms and farm practices in this area, and now his two sons are continuing the activity in his stead. These people, and all other Pecos River pumpers, have been badly hurt by untimely Alamogordo releases in the past. I don't think anyone wants to see these hard working Americans forced over the brink. Essentially it's a matter of having water that's timely and there is no way by which anyone upstream or downstream would be adversely effected by the pumpers having timely water. The farmers under the Carlsbad Irrigation District are applying more than the 3 acre feet allowed by the State Engineer and timely flows for the Pumpers will not prevent them from doing so in the future. In addition to the Pumpers survival there is the matter of economics for the area in which they operate.

We very much need some peace in the Middle Pecos River Basin. I feel assured that the United States has engineers, technicians, lawyers, administrators and statesmen who can work out what is a "mountain" for the Pumpers but a "molehill" for the Bureau of Reclamation and Carlsbad Irrigation District, is necessary, using the good offices of the State Engineer of New Mexico—certainly with the full support and cooperation of the Pecos River Pumpers Association and other local interests.

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STATEMENT OF ERNIE WITUCKI, EXECUTIVE VICE PRESIDENT, ROSWELL CHAMBER OF DEVELOPMENT AND COMMERCE, ROSWELL, N. MEX.

The Roswell Chamber of Development and Commerce is charged with the community development of the City of Roswell and the surrounding area in Chaves County, New Mexico. Roswell is one of the four largest cities in New

Mexico and is the largest city in southeastern New Mexico. It is the county seat of one of the more populated and larger counties in New Mexico. The area surrounding Roswell is devoted to agriculture which is a basic economy upon which the people rely for their welfare. Any act which threatens the economic welfare of agriculture also threatens the welfare of our entire community.

The proposed Brantley Dam project will have a detrimental effect upon the welfare of a number of our farmers and their families who rely upon the uncertain availability of water in the Pecos River for their livelihood, *unless* adequate safeguards are provided in connection with the operation by the Carlsbad Irrigation District of its multireservoir storage complex which encircles the Pecos River pumpers upstream and downstream. The Carlsbad Irrigation District has refused, according to our information, to agree to adequate protection of the Pecos River pumpers if Brantley Dam is constructed. Unless Congress can provide for such protection as a condition to approval of the Brantley project, we must respectfully oppose the project as not being in our interest or in the interest of our community.

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STATEMENT OF ROSCO FLETCHER CHAIRMAN OF THE BOARD OF COUNTY COMMISSIONERS OF CHAVES COUNTY, N. MEX.

My name is Rosco Fletcher and I live in Dexter, New Mexico, I am Chairman of the Board of County Commissioners of Chaves County, New Mexico. I am also a farmer by occupation. The County Commission has authorized me to make this statement to this Senate subcommittee.

The Pecos River runs from North to South through a large part of the eastern plains of New Mexico. It passes through Chaves County, and on leaving Chaves County the river enters Eddy County to the South. The existing Avalon and McMillan Reservoirs which provide terminal storage for the Carlsbad Irrigation District and the proposed Brantley Dam are situated in Eddy County. The Carlsbad Irrigation District maintains another storage reservoir on the Pecos River. It is known as Alamogordo Reservoir, and it lies in De Baca County which adjoins Chaves County on the North. In other words the Carlsbad Irrigation District maintains irrigation storage facilities in the two counties which adjoin Chaves County on the North and on the South.

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STATEMENT OF THE PECOS VALLEY ARTESIAN CONSERVANCY DISTRICT, AS PRESENTED BY KENNETH EAKENS, ASSISTANT SECRETARY

The Pecos Valley Artesian Conservancy District was organized pursuant to the authority contained in Chapter 97 of the 1931 Session Laws of the State of New Mexico. The purpose of the Act was to provide for the organization of Artesian Conservancy Districts to conserve, where necessary, the waters in any artesian basin.

The waters of the Roswell-Artesian Basin, which the Pecos Valley Artesian Conservancy District was organized to conserve, are presently over-appropriated. The annual appropriations from the Basin are greatly in excess of the annual recharge thereto and any additional withdrawals from the Basin will be detrimental to the entire Basin and the lands lying within its boundaries.

The lands irrigated by the Pecos River pumpers from the Pecos River all lie within the declared boundaries of the Roswell-Artesian Basin, and within the established boundaries of the Pecos Valley Artesian Conservancy District.

The Pecos Valley Artesian Conservancy District does not object to the construction of the Brantley Dam per se, but does object to its construction if the proposed use thereof will affect and diminish the waters of the Pecos River available to the Pecos River pumpers for the irrigation of their lands.

In the event the construction and operation of Brantley Dam will diminish the waters available to the Pecos River pumpers, they will be compelled to apply for permits to drill wells in the Roswell-Artesian Basin to supplement their water supply. These supplemental wells will increase the present withdrawals from the Basin, and be detrimental thereto in addition to placing an unnecessary economic burden on the pumpers in the drilling and equipping of these wells.

I hereby certify that the above and foregoing is a true and correct extract from the Minutes of the regular meeting of the Board of Directors of the Pecos Valley Artesian Conservancy District held on January 18, 1972.

The population of Chaves County is not large by some standards, but it is one of the more populated counties in New Mexico. The economy is agriculturally oriented. Because our rainfall averages 10 to 11 inches a year, there is no dry land farming; our farming is based exclusively on irrigation. Most of the irrigation waters are obtained from underground water formations. However, our farmers who have the right to irrigate with waters from the Pecos River, with one or two exceptions, do not have any underground water rights, and consequently they depend upon the availability of water in the river when they need to irrigate their lands.

The river pumpers are deeply concerned over the proposed Brantley Dam, and their concern is our concern. They feel that the Bureau of Reclamation and the Carlsbad Irrigation District, owning reservoir storage facilities upstream and downstream from them, will be in a position, if Brantley is constructed, to control and manage the flow and delivery of water in the Pecos River to the detriment of the pumpers in Chaves County. Unless our river pumpers can have firm, binding assurance that the Bureau of Reclamation and the Carlsbad Irrigation District will not control the flow of the Pecos River to their detriment, we must oppose the Brantley Dam project as it is presently constituted.

The Board of County Commissioners of Chaves County does not object to Brantley Dam as a flood protection facility or as a facility providing fishing and recreational opportunities. Having personally seen the effects of floods on certain tributaries of the Pecos River and the Pecos River itself, the Board of County Commissioners of Chaves County endorses all economically feasible programs designed to protect life and property against the destructive power of floods. The Board does object, however, to approval of this project unless there is consideration of the rights and problems of the river pumpers. We have been advised that no such reported consideration has been given by the Bureau of Reclamation and that the Carlsbad Irrigation District has refused to reach an agreement with the pumpers. If this is so, we oppose the Brantley Dam project as being potentially detrimental to the interests of an important segment of our county's population and economy.

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STATEMENT OF CITY OF ROSWELL AS PRESENTED BY WILLIAM F. BRAINERD, MAYOR

The City of Roswell, New Mexico has a direct interest in the welfare of not only its inhabitants, but also the inhabitants of the Pecos Valley who contribute to the well-being of Roswell and other nearby communities. The City has an interest in the welfare of those men and their families in Chaves County who farm their lands with waters from the Pecos River. Those people have indicated to us their concern that the proposed Brantley Dam may be operated in conjunction with Alamogordo Reservoir in such manner as to affect adversely the availability of water to their farms.

We do not oppose Brantley Dam as a flood control project for the protection of our neighboring City of Carlsbad. We do, however, share the concern of our Pecos River pumpers. If the construction of Brantley Dam be approved, we ask only that it be approved upon the condition that safeguards for the protection of our pumpers be required of the Carlsbad Irrigation District and the Bureau of Reclamation. We feel confident that the good sense and fair play of Congress will provide these safeguards.

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RESOLUTION No. 1500—A RESOLUTION RELATING TO PROPOSED BRANTLEY DAM

Whereas the economy of the City of Roswell and that of Chaves County, New Mexico, as a whole bear direct correlation to input and output of underground waters available for irrigation and municipal use within the confines of the Roswell Artesian Basin and its related aquifer, and

Whereas it appreciates that the Pecos River Pumpers have expressed concern lest their pumping right be diminished by the ultimately release of waters from the Alamogordo Lake into the proposed Brantley Dam, and

Whereas the City of Roswell has no objection, per se, to the construction of the Brantley Dam, but is concerned that the rights of the Pecos River Pumpers be protected and that the agricultural base of our economy not be prejudiced: Now, therefore, be it

*Resolved by the governing body, the City Council of the City of Roswell, N. Mex.:*

1. That the City of Roswell adopt the statement propounded by the Board of Directors of the Pecos Valley Artesian Conservancy District, at its regular meeting on January 18, 1972.

2. That the City of Roswell does not enter its protest against the construction of Brantley Dam, per se, but would protest any diminution or decrease in the supply of water available to the Pecos River Pumpers and further that said pumpers should be protected against any decrease or untimely release of waters.

3. That duly engrossed copies of this resolution be forthwith forwarded to members of the New Mexico congressional delegation.

Adopted and approved on January 21, 1972.

WM. F. BRAINERD, *Mayor*.

Attest:

W. M. FOSTER.

\_\_\_\_\_  
TOWN OF HAGERMAN,  
*Hagerman, N. Mex., December 13, 1971.*

*To Whom It May Concern:*

We have studied the problems of the Pecos River Pumpers and agree with them that a solution must be found. If a compromise is not reached with the Carlsbad Board and the State Engineer in regard to Brantley Dam being built and to turn-outs from Alamogordo Dam and the proposed Los Esteros Dam, the Pumpers will be in a very bad situation.

If these people have no water in the irrigation season it just means; no water—no crops—no money. This would have far reaching consequences for a large area.

LEONARD GEORGE,

*Mayor.*

JOHN GARNER,

ROBERT B. WEST,

CHARLES H. SPRINGER,

BEN L. RICHARDSON,

*Aldermen.*

## TOWN OF DEXTER

Box 247

DEXTER, NEW MEXICO 88230

December 8, 1971

TO WHOM IT MAY CONCERN:

The City Council of Dexter, New Mexico, in the interest of preserving and maintaining the general economy of this community, must protest the proposed Brantley Dam at Carlsbad, New Mexico due to it's negative effect on the water quality of Pecos River water pumpers.

It is our considered opinion that the proposed dam would render many acres of quality land useless due to deterioration of water quality. We understand that there will be no scheduled water releases during the regular irrigation season, hence only high salt content water will be available. If this be true, the loss of families currently deriving their livelihood from these farms will be a severe blow to our economy.

Any help would be appreciated.

Respectfully submitted,

Sho P. Garrison  
MAYOR

CITY COUNCIL MEMBERS:

Willie A. Filley

Karl M. Krum

E. P. Messick

John D. ...

Lake Arthur, New Mex.  
December 15, 1971

Honorable Clinton P. Anderson  
Senate Office Building  
Washington, D. C.

Dear Sir:

In the event Brantley dam is built, we feel that it is imperative for the water from Almagorda dam be released at least five times through the growing farm season.

This is essential in order that the farmers along the Pecos river can maintain their livelihood. This also affects the economy of the Town of Lake Arthur.

Thank you for your attention in this matter.

Yours truly,

Lake Arthur, Board of Trustees

*J. K. Yankins*

*Nanda Whittier*

*Elice Allen*

*Albert Crump*

*Clifford Gray Nelson*

Prescribed and taken to be filed on date 15 Dec 1971

*Mabel C. Davis*  
County Clerk

Commission expires: 1/21/75

Senator CHURCH. Are there any additional questions that are to be asked before we close the hearing? Is there anyone else that would like to be heard at this time? If not, we will close the hearing.

I have some other materials that have been submitted here that will be incorporated in the hearing record.

(The materials follow:)

SOUTHEASTERN NEW MEXICO ECONOMIC DEVELOPMENT DISTRICT,  
*Roswell, N. Mex., January 20, 1972.*

Senator HENRY M. JACKSON,  
*Chairman, Interior and Insular Affairs Committee,*  
*Senate Office Building,*  
*Washington, D.C.*

DEAR SENATOR JACKSON: Development of the Brantley Dam and Reservoir to be located on the Pecos River in Eddy County, New Mexico will greatly effect irrigation, flood and sediment control, fish and wildlife, recreation and safety of dams throughout the southern part of our state. We also feel it would be of tremendous value to the economic growth of southern New Mexico when it is completed.

Based on the assurance that Brantley Dam will not alter the availability of water to those pumping from water sources upstream, the Board of Directors of the Southeastern New Mexico Economic Development District endorses the project and asks your favorable consideration of this matter.

Sincerely,

NICK J. PAPPAS,  
*Executive Director.*

CARLSBAD SOIL AND WATER CONSERVATION DISTRICT,  
*Carlsbad, N. Mex., January 20, 1972.*

Senator HENRY JACKSON,  
*Chairman, Senate Interior and Insular Affairs Committee,*  
*U.S. Senate,*  
*Washington, D.C.*

MY DEAR MR. JACKSON: We the Board of Supervisors of the Carlsbad Soil and Water Conservation District whole heartedly support the Brantley Dam Project.

Some of the priorities this Board has set in its long range plan are: flood control and sediment pollution abatement, improved quality and quantity of irrigation water, improvement of the agriculture economy of the District and development of local outdoor recreation potential. The Brantley Dam would be an excellent resource in carrying our long range plans to a most successful conclusion.

The key to flood water and sediment control in our district is the regulated control of the Pecos River. The Brantley Dam will accomplish this and in addition allow us to control the smaller side canyon floods thus providing the town of Carlsbad, New Mexico with a degree of safety against floods it has never known.

Again let us express our complete support of the Brantley Dam.

Sincerely yours,

L. M. FERGUSON, *Chairman.*

EDDY COUNTY,  
*Carlsbad, N. Mex., January 18, 1972.*

HON. HENRY M. JACKSON,  
*U.S. Senate,*  
*Senate Office Building,*  
*Washington, D.C.*

DEAR SENATOR JACKSON: The Eddy County Commission, by unanimous action, endorse and support wholeheartedly the proposed Brantley Dam project for Eddy County, New Mexico, on the Pecos River. We recognize the ever present threat of flood and the inherent loss of life and property that would be caused by any reoccurrence of high water along the Pecos River in southeastern New Mexico.

Your support of the Brantley Dam project is respectfully requested.

Sincerely,

EDDY COUNTY COMMISSION,  
JOE HOOD, *Chairman.*

(Whereupon, at 1:15 p.m., the hearing adjourned.)